

# Acronyms

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The following is a list of acronyms and abbreviations which are used within the SEBoK.

## SEBoK Acronyms. (Table Developed for BKCASE)

Acronym	Definition
<b>A</b>	
AADL	Architecture Analysis and Design Language
AAS	Advanced Automation System
ABD	Architecture Block Diagram
ACM	Association for Computing Machinery
ACS	Automated Case Support
ADM	Architecture Development Method
AECL	Atomic Energy of Canada
AF	Architecture Framework
AF CSE	Air Force Center for Systems Engineering (USA)
AFI	Air Force Instruction (USA)
AFIT	Air Force Institute of Technology (USA)
AFRI	Air Force Research Lab (USA)
AHP	Analytical Hierarchy Process
AIA	Aerospace Industries Association
AIAA	American Institute of Aeronautics and Astronautics (USA)
	(1) Analysis and Integration Team
AIT	
	(2) Assembling, Integrating, and Testing
ALT	Accelerated Life Testing
ANSI	American National Standards Institute
AP-233	Application Protocol for Systems Engineering Data Exchange
API	Application Program Interface
APPEL	Academy Program/Project & Engineering Leadership
ASAIECP	Aerospace Systems Architecting and Engineering Certificate Program
ASHE	American Society of Hospital Engineering
ASME	American Society of Mechanical Engineers

ASQ	American Society for Quality
ASTM	American Society for Testing & Materials
AT&L	Acquisition, Technology, and Logistics (US DoD)
ATAM	Architecture Trademark Analysis Method
ATC	Air Traffic Control
<b>B</b>	
B2B	Business to Business
B2C	Business to Consumer
B2G	Business to Government
BCRM	Business Capability Road Map
BDD	Block Definition Diagram
BIM	Building Information Modeling
BIT	Built-in Test
BKCASE	Body of Knowledge and Curriculum to Advance Systems Engineering
BOK	Body of Knowledge (1) Business Process Modeling
BPM	<hr/> (2) Business Process Management
BPMN	Business Process Modeling Notation
BSI	British Standards Institution
BSS	Business Support System
<b>C</b>	
C&A	Certification and Accreditation
C2	Command and Control
C4ISR	Command, Control, Communications, Intelligence, Information, Surveillance, and Reconnaissance
CAA	Certification and Accreditation (1) Complex Adaptive System
CAS	<hr/> (2) Collision Avoidance System
CASE	Complex Adaptive Systems Engineering
CBK	Common Body of Knowledge
CCB	Change Control Board
CCR	Configuration Change Requirement
CDF	Cumulative Distribution Function
CDR	Critical Design Review
CDRL	Contractor Data Requirements List
CE	Compromising Emission
CI	Continuous Improvement
CIMOSA	Computer Integrated Manufacturing Open System Architecture
CIO	Chief Information Officer
CISSP	Certified Information Systems Security Professional
CM	Configuration Management

CMM	Capability Maturity Model
CMMI	Capability Maturity Model Integration
CO	Contract Officer
COCOMO	Constructive Cost Model
CONOPS	Concept of Operations
CorBoK	Core Body of Knowledge (see also GRCSE)
COSYSMO	Constructive Systems Engineering Cost Model
COTS	Commercial-off-the-Shelf
CPC	Corrosion Prevention and Control
CPI	Continuous Process Improvement
CRM	Customer Relationship Management
CSF	Critical Success Factor
CSI	Continuous Service Improvement
CST	Critical Systems Thinking
<b>D</b>	
D/C IM	Design/Construction Interface Manual
DAU	Defense Acquisition University (USA)
DCR	Design Certification Review
DE	Digital Engineering
DFD	Data Flow Diagram
DFDD	DGIWG Feature Data Dictionary
DFX	Design for “X”
DGWIG	Defence Geospatial Information Working Group
DHS	Department of Homeland Security (USA)
DIA	Denver International Airport
DIS	Distributed Interactive Simulation
DLA	Defense Logistics Agency
DMADV	Define, Measure, Analyze, Design, Verify
DMAIC	Define, Measure, Analyze, Improve, Control
DMSMS	Diminishing Manufacturing Sources and Material Shortages
DNA	Deoxyribonucleic Acid
DoD	Department of Defense (DoD)
DoDAF	Department of Defense Architecture Framework (USA)
DoDD	Department of Defense Directive (USA)
DoDI	Department of Defense Instruction (USA)
DoJ	Department of Justice (USA)
DoT	Department of Transportation (USA)
DSM	Design Structure Matrix
DTC	Design to Cost
DTM	Digital Terrain Model
<b>E</b>	
E&M	Electrical and Machinery

EA	Enterprise Architecture
EC	European Commission
ECP	Engineering Change Proposal
ECHA	European Chemicals Agency
ECP	Engineering Change Proposal
ECR	Engineering Change Request
EDP	Evaluation and Discussion Point
EE&A	Enterprise Evaluation and Assessment
EESH	Energy, Environmental, Safety and Health Management
eFFBD	Enhanced Functional Flow Block Diagram
EIS	Environmental Impact Statement
EISA	Energy Independence and Security Act of 2007 (USA)
EM	Enterprise Modeling
EMC	Electromagnetic Capability
EMI	Electromagnetic Interference
EMP	Electromagnetic Pulse
EPA	Environmental Protection Agency (USA)
ERB	Engineering Review Board
ERP	Enterprise Resource Planning
ES	Engineered System
ESE	Enterprise Systems Engineering
e-TOM	Enhanced-Telecomm Operations Map
<b>F</b>	
F3I	Form, Fit, Function, and Interface
FAA	Federal Aviation Administration (USA)
FAST	Function Analysis System Technique
FBI	Federal Bureau of Investigation (USA)
FCC	Federal Communications Commission (USA)
FDA	Food and Drug Administration (USA)
FDIR	Failure Detection, Identification, and Recovery
FEAF	Federal Enterprise Architecture Framework (USA)
FEPP	Foreign Excess Personal Property
FFBD	Functional Flow Block Diagram
FMEA	Failure Modes and Effects Analysis
FMECA	Failure Modes, Effects, and Criticality Analysis
FONSI	Finding of No Significant Impact
FoS	Federation of Systems
FPMR	Federal Property Management Regulation
FRACA	Failure Reporting and Corrective Actions
FRACAS	Failure Reporting and Corrective Action System
FRP	Full-Rate Production
FUML	Foundational Subset for Executable UML Models

## **G**

G2B	Government to Business
G2C	Government to Consumer
G2G	Government to Government
GAO	Government Accountability Office (USA)
GDP	Gross Domestic Product
GERAM	Generalize Enterprise Reference Architecture and Methodology
GIGO	Garbage In Garbage Out
GGE	Geospatial/Geodetic Engineering
GIS	Geographic Information System
GMDSS	Global Maritime Distress and Safety System
GNSS	Global Navigation Satellite System
GOTS	Government-off-the-Shelf
GPS	Global Positioning System
GQM	Goal-Question-Metric
GRCSE	Graduate Reference Curriculum for Systems Engineering
GST	General System Theory

## **H**

HAZMAT	Hazardous Materials
HCI	Human-Computer Interaction
HEMP	High-altitude Electromagnetic Pulse
HFE	Human Factors Engineering
HLA	High-Level Architecture
HMI	Human-Machine Interface
HNA	Host Nation Approval
HNC	Host Nation Coordination
HRO	High Reliability Organization
HSI	Human Systems Integration
HST	Hubble Space Telescope
HWCI	Hardware Configuration Item
HWIL	Hardware in the Loop

## **I**

IBD	Internal Block Diagram
IBM	International Business Machines
ICM	Incremental Commitment Model
ICSM	Incremental Commitment Spiral Model
ICT	Information and Communications Technology
IDEF0	Integration Definition for Functional Modeling
IE	Industrial Engineering
IEC	International Electrotechnical Commission
IEEE	Institute of Electrical and Electronics Engineers
IETF	Internet Engineering Task Force

IFSR	International Federation for Systems Research
IHO	International Hydrographic Organization
IID	Incremental and Iterative Development
ILS	Integrated Logistics Support
IM	Information Management
IMS	Integrated Master Schedule
INCOSE	International Council on Systems Engineering
IOC	Initial Operating Capability (1) Internet Protocol
IP	<hr/> (2) Intellectual Property
IPDP	Integrated Product Development Process
IPDT	Integrated Product Development Team
IPR	In-Progress Review
IPS	Integrated Product Support
IPT	Integrated Product Team
IPV6	Internet Protocol Version 6
IRAC	Interdepartment Radio Advisory Committee
IRL	Integration Readiness Level
ISDT	Integrated Service Development Team
ISO	International Organization for Standardization
ISOC	Internet Society
ISP	Internet Service Provider (1)International System Safety Society
ISSS	<hr/> (2)International Society for the Systems Sciences
	<hr/> (3)Initial Sector Suit System
IT	Information Technology
ITIL	Information Technology Infrastructure Library
ITS	Intelligent Transportation System
ITS-ETO	Intelligent Transport System-Emergency Transportation Operation
ITSM	Information Technology Services Management
ITU	International Telecommunications Union
<b>K</b>	
KA	Knowledge Area
KPI	Key Performance Indicator
KPP	Key Performance Parameter
KSAA	Knowledge, Skills, Abilities, and Attitudes
<b>L</b>	
LBS	Location Based Service
LCC	Life Cycle Cost

LCM	Life Cycle Management
LEfSE	Lean Enablers for Systems Engineering
LORA	Level of Repair Analysis
LRU	Line Replaceable Unit
	(1) Lean Systems Engineering
LSE	
	(2) Lead Systems Engineer
LSE WG	Lean Systems Engineering Working Group (INCOSE)
<b>M</b>	
MA	Mission Analysis
MARTE	Modeling and Analysis for Real-Time and Embedded Systems
MBE	Model-Based Engineering
MBRA	Model-Based Risk Analysis
MBSE	Model-Based Systems Engineering
MCDA	Multi-Criteria Decision Analysis
MDA®	Model-Driven Architecture
ME	Mission Engineering
MIT	Massachusetts Institute of Technology
MOD	Ministry of Defence
MODAF	Ministry of Defence Architecture Framework (UK)
MOE	Measure of Effectiveness
MOP	Measure of Performance
MOS	Mean Opinion Score
MOSES	Model Oriented Systems Engineering
	(1)Methods, Processes, and Tools
MPT	
	(2)Methodologies, Processes, and Technologies
MRAR	Mishap Risk Assessment Report
MRL	Manufacturing Readiness Level
MRM	Manufacturing Resource Management
MS	Meta-System
MSA	Measurement System Analysis
MSL	Mean Sea Level
MSRB	Management Safety Review Board
MSTI	Miniature Seeker Technology Integration
MTBF	Mean Time Between Failures
MTTR	Mean Time to Repair
<b>N</b>	
NAHB	National Association of Home Builders
NAO	National Audit Office (UK)
NASA	National Aeronautics and Space Administration (USA)

NATO	North Atlantic Treaty Organization
NDI	Non-Developmental Item
NDIA	National Defense Industrial Association (NDIA)
NEPA	National Environmental Policy Act
NERC	North American Electric Reliability Corporation
NETMA	NATO Eurofighter and Tornado Management Agency
NIST	National Institute of Standards and Technology (USA)
NLP	Neuro-Linguistic Programming
NOAA	National Oceanographic and Atmospheric Agency
NPD	New Product Development
NPDP	New Product Development Process
NSA	National Security Agency
NSD	New service Development
NSOI	Narrower System-of-Interest
NSPE	National Society of Professional Engineers
NTISSI	National Security Telecommunications Information Systems Security Issuance
NTIA	National Telecommunications and Information Administration (USA)
<b>O</b>	
O&S	Operations and Support
OAM&P	Operations, Administration, Management, and provisioning
OCR	Operations Commitment Review
OECD	Organization for Economic Co-Operative Development
OEM	Original Equipment Manufacturer
	(1)Office of Government Commerce (UK)
OGC	
	(2) Open Geospatial Consortium
OITL	Operator in the Loop
OMC	Operation/Maintenance/Closeout
OMG	Object Management Group
OODA	Observe, Orient, Decide, and Act
OPD	Object Process Diagram
OPL	Object Process Language
OPM	Object Process Methodology
OR	Operations Research
ORMS	Operations Research and Management Science
OSAT	On-site Acceptance Test
OSD	Office of the Secretary of Defense (USA)
OSHA	Occupational Safety and Health Administration (USA)



OSM	Office of Spectrum Management
OSS	Operations Support Systems
OT&E	Operational Test and Evaluation
OTP	Operations Technical Plan
OWL	Web Ontology Language
<b>P</b>	
P&L	Profit and Loss
P3I	Pre-Planned Production Improvement
PaaS	Platform as a System
PAPL	Program/Project Approved Parts List
PBD	Physical Block Diagram
PBSE	Pattern-Based Systems Engineering
P-CMM	People Capability Maturity Mode
PD	Product Development
PDCA	Plan, Do, Check, Act
PDF	Portable Document Format
PDR	Preliminary Design Review
PERA	Purdue Enterprise Reference Architecture
PESTEL	Political, Economic, Social, Technological, Environmental, and Legal
PEVQ	Perceptual Evaluation of Video Quality
PfM	Portfolio Management
PFR	Problem Failure Report
PHS&T	Packaging, Handling, Storage, and Transportation
	(1) Project Management
PM	
	(2) Project Manager
PMBOK™	Project Management Body of Knowledge
PM/FI	Performance Monitoring/Fault Location
PMI	Project Management Institute
	(1) Project Management Professionals
PMP	
	(2) Project Management Plan
PMO	Project Management Office
PMP	Parts, Materials, and Processes
PMPCB	PMP Control Board
PNT	Positioning, Navigation and Timing
POET	Political, Operational, Economic, and Technical
POM	Proof of Manufacture
PQMI	Process Quality Management and Improvement
PQT	Production Qualification Testing
PRR	Production Readiness Review
PSE	Product Systems Engineering
PSM	Practical Software and Systems Measurement

PSQM	Perceptual Speech Quality Measure (1)Product-Service System
PSS	(2)Problem Solution System
PT	Product Team
PUB	Public Utilities Board (Singapore)
<b>Q</b>	
QAS	Quality Assurance System
QFD	Quality Function Deployment
QoE	Quality of Experience
QoS	Quality of Service
QVT	Query View Transformations
<b>R</b>	
R&D	Research and Development
R&M	Reliability and Maintainability
RAA	Responsibility, Authority, and Accountability
RACI	Responsible, Accountable, Consulted, Informed
RAM	Reliability, Availability, and Maintainability
RAMS	Reliability, Availability, Maintainability, and Safety
RAMSS	Reliability, Availability, Maintainability, Safety, and Security
RARA	Roles, Authorities, Responsibilities, and Accountabilities
RB	Radio-communication Bureau
RBD	Reliability Block Diagram
RCM	Reliability Centered Maintenance
RCRA	Resource Conservation and Recovery Act (USA)
RDF	Resource Description Framework
REA	Responsible Engineering Authority
REACH	Registration, Evaluation, Authorization, and Restriction of Chemicals
REP	Risk Element Plan
ReqIF	Requirements Interchange Format
RF	Radio Frequency
RFP	Request For Proposal
RHP	Risk Handling Plan
RMP	Risk Management Plan
RMT	Reliability, Maintenance, and Testability
RNT	Resilient Navigation and Timing
RoHS	Restriction on Hazardous Substances (USA)
ROI	Return on Investment
ROSE	Risk-Oriented Systems Engineering
RR	Radio Regulations
RRB	Radio Regulations Board
RSG	Radio-communication Study Groups

RUP	Rational Unified Process
<b>S</b>	
SaaS	Software as a Service
SADT	Structured Analysis Design Technique
SAE	Society of Automotive Engineers
SAE	Society of Automotive Engineers
SART	System Analysis & Real Time
SBA	Service-Based Application
SBD	Set-Based Design
SBS	System Breakdown Structure
SCM	Software Configuration Management
ScSE	Service-Centric Systems Engineering
SD	Systems Dynamics
SDO	Standards Development Organization
SDLC	Service Development Life Cycle
SDP	Service Design Process
SE	Systems Engineering
SEAC	Systems Engineering Assessment and Control
SEBoK	Systems Engineering Body of Knowledge
SeCSE	Service Centric Systems Engineering
SEI	Software Engineering Institute
SEIT	Systems Engineering and Integration Team
SEM	Systems Engineering Management
SEMP	Systems Engineering Management Plan
SEP	Systems Engineering Plan
SFR	System Functional Review
SGIP	Smart Grid Interoperability Panel
SIS	Software-Intensive System
SKLTS	Standard Korean Light Transit System
SLA	Service Level Agreement
SLDC	Services Development Life Cycle
SLE	Service Life Extension
SLEP	Service Life Extension Program
SLM	Service Level Management
SLOC	Source Lines of Code
SLR	Service Level Requirement
SMC	Systems, Man, and Cybernetics
SOA	Service Oriented Architecture
SOAD	Service Oriented Analysis and Design/Decision Modeling
SoI	System-of-Interest
SOMA	Service Oriented Modeling and Architectures
SOLE	Society of Logistics Engineers
SOMA	Service Oriented Modeling and Architecture

SOO	Statement of Objectives
SOP	Service Operations Plan
SoS	System of Systems
SoSE	System of Systems Engineering
SOSM	Systems of Systems Methodology
SOW	Statement of Work
SPAC	Spectrum Planning and Policy Advisory Committee
SPC	Statistical Process Control
SPM	Service Performance Measure
SRA	Strategic Rail Authority (UK)
SRD	Service Requirements Document
SRL	System Readiness Level
SRR	System Requirements Review
SSDP	Service Systems Development Process
	(1) Service Systems Engineering
SSE	<hr/> (2) Security Systems Engineering
SSEMP	System Security Engineering Management Plan
SSM	Soft Systems Methodology
SSME	Service System Management and Engineering
	(1) Source Selection Plan
SSP	<hr/> (2) System Security Plan
SSPP	System Safety Program Plan
SSS	Service Support Systems
STAMP	System-Theoretic Accident Model and Processes
STEEPLED	Social, Technical, Economic, Environmental, Political, Legal, Ethical and Demographic
STI	Science, Technology, and Industry Forum
STP	Strategic Technical Planning
SVR	System Verification Review
SWCI	Software Configuration Item
SwE	Software Engineering
SWEBOK	Software Engineering Body of Knowledge
SWG	Safety Working Group
SWIL	Software in the Loop
SWOT	Strengths, Weaknesses, Opportunities, and Threats Analysis
SwSE	Software Systems Engineering
SysML	Systems Modeling Language
<b>T</b>	
TCSE	Telecommunication Systems Engineering
TM	Technical Management
TOC	Total Ownership Cost

TOGAF	The Open Group Architecture Framework
TOVE	Toronto Virtual Enterprise (Canada)
TPM	Technical Performance Measure
TPS	Toyota Production System
TQM	Total Quality Management
TRL	Technology Readiness Level
TRR	Technical Readiness Review
TSE	Traditional Systems Engineering
TSI	Total Systems Intervention
TSP	Technology and Standards Planning

## **U**

UC	Use Case
UK	United Kingdom
UL	Underwriters Laboratory
UML	Unified Modeling Language
UN	United Nations
UPDM	Unified Profile for DoDAF and MODAF
US	United States
USAF	United States Air Force
USB	Universal Serial Bus

## **V**

V&V	Verification and Validation
VCF	Virtual Case File
VERAM	Virtual Enterprise Reference Architecture and Methodology
VHDL	VHSIC Hardware Description Language
VHSIC	Very-High-Speed Integration Circuit
VIN	Vehicle Identification Number

## **W**

WBS	Work Breakdown Structure
WCML	West Coast Main Line (UK)
WCRM	West Coast Route Modernisation (UK)
WIP	Work in Progress
WGS84	World Geodetic System 1984
WMO	World Meteorological Organization
WRC	World Radio-communication Conference
WS	Web Services 2.0
WSOI	Wider System-of-Interest
WS-PBEL	Web Services Business Process Execution Language
WWII	World War II
WWW	World Wide Web

## **X**

XMI	XML Metadata Interchange
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