1.	Record Nr.	UNINA9910459844303321
	Titolo	Engineering systems acquisition and support / / edited by John P. T. Mo, Cees Bil and Arvind Sinha
	Pubbl/distr/stampa	Cambridge, England : , : Woodhead Publishing, , 2015 ©2015
	ISBN	0-85709-215-4 0-85709-212-X
	Edizione	[1st edition]
	Descrizione fisica	1 online resource (241 p.)
	Collana	Woodhead Publishing Series in Mechanical Engineering
	Disciplina	620
	Soggetti	Engineering systems - Purchasing Systems engineering Electronic books.
	Lingua di pubblicazione	Inglese
	Formato	Materiale a stampa
	Livello bibliografico	Monografia
	Note generali	Description based upon print version of record.
	Nota di bibliografia	Includes bibliographical references at the end of each chapters and index.
	Nota di contenuto	Cover; Title page; Copyright Page; Contents; List of tables and figures; Biography; Preface; Chapter 1 - Introduction; 1.1 - A new business environment for complex engineering systems; 1.2 - Examples of complex engineering systems; 1.2.1 - Metro Trains Melbourne (MTM); 1.2.2 - Offshore wind farm; 1.2.3 - Railway rolling stock and network; 1.3 - Value for money; 1.4 - Requirements of logistics for support; 1.5 - Lean support services; 1.6 - Concept of integration; 1.7 - Preparedness; References; Chapter 2 - The life cycles of complex engineering systems 2.1 - Complex engineering product life cycle2.2 - Types of knowledge; 2.3 - Tools and methods requirements; 2.3.1 - Market phase; 2.3.2 - Functional design phase; 2.3.3 - Detail design phase; 2.3.4 - Process-planning phase; 2.3.5 - Manufacturing phase; 2.3.6 - Operation-support, -reuse and -renewal phases; 2.4 - Whole-of-life engineering; References; Chapter 3 - Systems acquisition principles; 3.1 - Systems-engineering approach; 3.2 - User requirements; 3.2.1 - Information gathering; 3.2.2 - User-needs identification; 3.2.3 - The use-case model; 3.2.4 - Envisioning and evaluation

3.3 - Requirements analysis3.4 - System specification; 3.5 - Tender management; 3.5.1 - Principles of acquisition tenders; 3.5.2 - Tender evaluation; 3.5.3 - Evaluation steps; 3.5.4 - Evaluation criteria; 3.5.5 - Evaluation methodologies; 3.5.6 - Whole-of-life costing; 3.5.7 - Value for money assessment (VFM) and source selection; References; Chapter 4 - Systems design; 4.1 - Systems design process; 4.1.1 - Protection of designs; 4.2 - Systems modelling: functional, data, process; 4.2.1 - Functional modelling; 4.2.2 - Functional decomposition; 4.2.3 - Data modelling; 4.2.4 - Process modelling
4.3 - Design for sustainability4.3.1 - Built-in capabilities; 4.3.2 - Detailed design activities; 4.4 - Tool design; 4.5 - Design verification; 4.6 - Design freeze; 4.7 - Maintenance requirement determination; 4.8 - Reliability-Centred maintenance (RCM); 4.8.1 - Selecting items for analysis; 4.8.2 - Failure modes and effects analysis (FMEA); 4.8.3 - Determining failure-mode significance; 4.8.4 - Functional item analysis; 4.8.5 - Determining failure consequences; 4.8.6 - Task evaluation; 4.9 - Certification; References; Chapter 5 - Management of engineering-design changes
5.1 - In-service phase5.2 - In-service engineering support; 5.3 - In-service system safety; 5.3.1 - Categories of risks; 5.3.2 - Initial hazard-risk assessment; 5.3.3 - Hazard-risk mitigation; 5.3.4 - Hazard-risk acceptance; 5.4 - COTS-item obsolescence management; 5.4.1 - Obsolescence progression; 5.4.2 - Supportability of COTS products; 5.4.3 - Obsolescence strategy; References; Chapter 6 - Systems prototyping and testing; 6.1 - Prototyping; 6.2 - Experimental design; 6.3 - Physical testing; 6.4 - Virtual testing; References; Chapter 7 - Operations support and logistics
7.1 - Process modelling

Sommario/riassunto

Engineering systems such as an aircraft or frigate are highly complex and specifically designed to meet the customer's requirements. This important book provides the information necessary to acquire and support complex engineering systems expected to last for a long time. Chapters in the first half of the book examine the life cycles of these systems, their design, testing and certification, and the principles behind their acquisition. The second half of the book reviews topics including operations support and logistics, systems maintenance, reliability and upgrades, and performance and risk a