Contents

1 Introduction ........................................................................................................... 1
   Louis Redding

Part I Developing a Strategy for Through-life Engineering Services

2 The Development of a UK National Strategy for Through-Life Engineering Services: Rationale and Process ........... 17
   Andy Shaw and Paul Tasker

3 The Development of a UK National Strategy for Through-Life Engineering Services: Workshop Outputs Analysis and Final Strategy Creation ........................................ 25
   Andy Shaw and Paul Tasker

Part II Through-life Engineering Services and Design

4 Warranty Driven Design—An Automotive Case Study .............. 37
   Louis Redding

5 Designing for Service in a Complex Product Service System-Civil Aerospace Gas Turbine Case Study .................. 57
   Andrew Harrison

6 The Knowledge Management Perspective ................................. 83
   Charles Dibsdale

Part III The Role of Data, Diagnostics and Prognostics in Through-Life Engineering Services

7 Predictive Big Data Analytics and Cyber Physical Systems for TES Systems ......................................................... 97
   Jay Lee, Chao Jin and Zongchang Liu
8 Development and Operation of Functional Products: Improving Knowledge on Availability Through Use of Monitoring and Service-Related Data ........................................ 113
John Lindström, Elisabeth Källström and Petter Kyösti

9 Remodelling of Structured Product Data for Through-Life Engineering Services ........................................ 133
Sebastian Adolphy, Hendrik Grosser and Rainer Stark

10 Holistic Approach for Condition Monitoring in Industrial Product-Service Systems ........................................ 151
Eckart Uhlmann, Christian Gabriel, Abdelhakim Laghmouchi, Claudio Geisert and Niels Raue

11 An Erlang-Coxian-Based Method for Modeling Accelerated Life Testing Data ........................................ 165
Haitao Liao, Ye Zhang and Huairui Guo

Part IV Component Degradation and Design in Accelerated Life Testing Data

12 Thermographic NDT for Through-Life Inspection of High Value Components ........................................ 189
Sri Addepalli, Yifan Zhao and Lawrence Tinsley

13 Engineering Support Systems for Industrial Machines and Plants ........................................ 199
Youichi Nonaka, Takahiro Nakano, Kenji Ohya, Atsuko Enomoto, Gábor Erdős, Gergely Horváth and József Váncza

Part V System Degradation and Design

14 Infrastructure/Train Borne Measurements in Support of UK Railway System Performance—Gaining Insight Through Systematic Analysis and Modelling ........................................ 223
Amir Toossi, Lloyd Barson, Bradley Hyland, Wilson Fung and Nigel Best

15 Warranty Impacts from No Fault Found (NFF) and an Impact Avoidance Benchmarking Tool ........................................ 245
Piotr Sydor, Rohit Kavade and Christopher J. Hockley

16 Insights into the Maintenance Test Effectiveness ........................................ 261
John Thompson and Laura Lacey
Part VI Cost, Obsolescence, Risk and TES Contract Design

17 Best Practices in the Cost Engineering of Through-Life Engineering Services in Life Cycle Costing (LCC) and Design To Cost (DTC) ........................................... 275
Paul Baguley

18 Cost Model for Assessing Losses to Avionics Suppliers During Warranty Period .................................. 291
Ahmed Raza and Vladimir Ulansky

19 Product-Service Systems Under Availability-Based Contracts: Maintenance Optimization and Concurrent System and Contract Design .................................................. 309
Amir Kashani Pour, Navid Goudarzi, Xin Lei and Peter Sandborn

Part VII Autonomous Maintenance and Product Support

20 Application of Open Source Hardware to the Development of Autonomous Maintenance Support Systems ................. 333
Michael Knowles, David Baglee and Pankaj Sharma

21 Design for Zero-Maintenance ........................................... 349
M. Farnsworth, R. McWilliam, S. Khan, C. Bell and A. Tiwari

22 Graph-Based Model for Context-Aware Maintenance Assistance with Augmented Reality and 3D Visualization ............................ 367
Michael Abramovici, Mario Wolf and Matthias Neges

23 Remotely Piloted Aerial Systems Support Considerations .......... 387
Jonathan Pelham

24 Preventive Maintenance Scheduling Optimization: A Review of Applications for Power Plants ............................ 397
Neha Prajapat, Ashutosh Tiwari, Xiao-Peng Gan, Nadir Z. Ince and Windo Hutabarat

25 Beyond RAMS Design: Towards an Integral Asset and Process Approach .................................................. 417
A. Martinetti, A.J.J. Braaksma and L.A.M. van Dongen

26 On the Initial Spare Parts Assortment for Capital Assets: A Structured Approach Aiding Initial Spare Parts Assortment Decision-Making (SAISAD) ............................. 429
A. Martinetti, A.J.J. Braaksma, J. Ziggers and L.A.M. van Dongen
27 The Design of Cost and Availability in Complex Engineering Systems ................................................. 443
Duarte Rodrigues, John Erkoyuncu and Andrew Starr

28 Defence Support Services for the Royal Navy: The Context of Spares Contracts .............................. 459
Davood Sabaei, Alessandro Busachi, John Erkoyuncu,
Paul Colegrove and Rajkumar Roy
Advances in Through-life Engineering Services
Redding, L.; Roy, R.; Shaw, A. (Eds.)
2017, XIV, 470 p. 153 illus., 106 illus. in color.,
Hardcover
ISBN: 978-3-319-49937-6