SOLEtech

July 2002 • SOLE – The International Society of Logistics • Volume 5.7

Graduate Certificate Program in *Systems and Supportability Engineering*

The Stevens Institute of Technology, Hoboken, NJ, in collaboration with SOLE, is offering a four-course (12 credit hours) "Graduate Certificate Program in Systems and Supportability Engineering." The program is a stepping stone towards a Masters Degree in *Systems Engineering* from Stevens Institute of Technology, and includes the following courses:

Required Courses:

1. SYS-625, *System Operational Effectiveness and Life-Cycle Analysis (Fundamentals of Systems Engineering)*
2. SYS-645, *Design for System Reliability, Maintainability, and Supportability*

Supporting Courses
(two of the following three courses must be taken):

1. SYS-640, *System Supportability and Logistics*
2. SYS-650, *System Architecture and Design*
3. SYS-660, *Decision and Risk Analysis for Complex Systems*

It should be noted that the next offerings of the above courses include:

1. SYS-660, *Decision and Risk Analysis for Complex Systems*, Washington DC Metro Area, July 15-19.
2. SYS-625, *System Operational Effectiveness and Life-Cycle Analysis (Fundamentals of Systems Engineering)*, Stevens Institute of Technology, Hoboken, NJ, August 12-16.
3. SYS-645, *Design for System Reliability, Maintainability, and Supportability*, Stevens Institute of Technology, Hoboken, NJ, September 9-13.

In This Issue:

For additional information, please contact Dr. Dinesh Verma, Associate Dean and Professor of Systems Engineering, Stevens Institute of Technology, Hoboken, NJ (tel: 201-216-8645/201-216-8334; e-mail: **dverma@stevens-tech.edu**) and/or visit web site **www.stevens-tech.edu/sdoe**.

Professional Sustainment Program Series

by Tim Cathcart and Joel Manary

The Reliability Analysis Center (RAC), a DoD designated Information Analysis Center, has recently developed a new program, leading to a *Professional Sustainment Certificate*, specifically designed for the unique problems currently facing the "sustainment" community. The program provides the essential technical skills, methods, and tools to implement many new strategies and principles required in cost effectively sustaining an enterprise and the products created by the enterprise. The program includes courses that comprehensively integrate sustainability analysis and operational effectiveness methodologies with new research findings from a number of fields of study, such as supply chain management, integrated lean enterprises, and *e*-logistics. To obtain the *Professional Sustainment Certificate* requires the completion of three of the following courses:

1. *Sustainment Principles and Strategies Course Overview* (July 29-31) — this three-day course provides an executive overview of systems sustainment and integrates systems engineering principles (e.g., supportability analysis and operational effectiveness methodologies) with proven commercial business practices and strategies used today in industry. New sustainment approaches for commercial off-the-shelf intensive systems are presented and evaluated through group case study discussions. New logistics technologies, tools, and application software systems are also explored. Several case studies are used to illustrate critical principles and practices for system sustainment analysis, design, and implementation.

2. *Sustainment Analysis and Life-Cycle Management: Principles and Applications* (August 26-28) — this course presents system engineering and sustainability analysis methodologies and strategies required to design, produce, operate, and maintain cost-effective systems. Initial focus is on need identification and problem definition. Systems engineering synthesis, functional analysis, and evaluation activities during the complete life cycle from the conceptual and

The System Design and Operational Effectiveness (SDOE) Program at
Stevens Institute of Technology, in Collaboration with
SOLE –The International Society of Logistics, offers a Four Course (12 Credit)...

GRADUATE CERTIFICATE PROGRAM IN SYSTEMS & SUPPORTABILITY ENGINEERING

This Graduate Certificate Program is a stepping stone towards a Master's Degree in Systems Engineering from Stevens Institute of Technology.

Courses offered in week-long modules at various locations in the US, Europe & Asia.

To enroll and obtain a course schedule, log onto the SDOE website at
www.stevens-tech.edu/sdoe

Required Courses in the 4-Course Graduate Certificate:

SYS-625:
System Operational Effectiveness and Life Cycle Analysis

SYS-645:
Design for System Reliability, Maintainability, and Supportability

Two of the Following Three:

SYS-640:
System Supportability and Logistics

SYS-650:
System Architecture and Design

SYS-660:
Decision and Risk Analysis

SYS-625 System Operational Effectiveness and Life Cycle Analysis (Fundaments of Systems Engineering)

MODULE DESCRIPTION: This course discusses fundamentals of systems engineering. Initial focus is on need identification and problems definition. Thereafter, synthesis, analysis, and evaluation activities during conceptual and preliminary system design phases are discussed and articulated through examples and case studies. Emphasis is placed on enhancing the effectiveness and efficiency of deployed systems while concurrently reducing their operation and support costs.

SYS-650 System Architecture and Design

MODULE DESCRIPTION: This course discusses the fundamentals of system architecting and the architecting process, along with practical heuristics. Furthermore, the course has a strong "how-to" orientation, and numerous case studies are used to convey and discuss good architectural concepts as well as lessons learned. Adaptation of the architectural process to ensure effective application of COTS will also be discussed.

SYS-645 Design for System Reliability, Maintainability, and Supportability

MODULE DESCRIPTION: This course provides the participant with the tools and techniques that can be used early in the design phase to effectively influence a design from the perspective of system reliability, maintainability, and supportability. Students will be introduced to various requirements definition and analysis tools and techniques. Further, the students will learn to exploit this phase of the system design and development process to impart enhanced reliability, maintainability, and supportability to the design configuration being developed. Examples and case studies will be used to facilitate understanding of these principles and concepts.

SYS-640 System Supportability and Logistics

MODULE DESCRIPTION: The supportability of a system can be defined as the ability of the system to be supported in a cost effective and timely manner, with a minimum of logistics support resources. The required logistics resources might include test and support equipment, trained maintenance personnel, spare and repair parts, technical documentation, and special facilities. For large complex systems, supportability considerations may be significant and often have a major impact upon life-cycle cost. It is therefore particularly important that these considerations be included early during the requirements definition and architecture formulation phases. Accordingly, the module participants will be introduced to system supportability engineering methods, tools, and metrics, while also focusing on the development and optimization of specific elements of logistic support.

SYS-660 Decision and Risk Analysis for Complex Systems

MODULE DESCRIPTION: This course is a study of analytic techniques for rational decision making that addresses uncertainty, conflicting objectives, and risk attitudes. This course covers modeling uncertainty; rational decision making principles; representing decision problems with value trees, decision trees and influence diagrams; solving value hierarchies; defining and calculating the value of information; incorporating risk attitudes into the analysis; and conducting sensitivity analyses.

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preliminary design phases to deployment and sustainment are covered. The course emphasis on sustainability attributes such as maintainability, accessibility, standardization, modularization, testability, mobility, interchangeability, serviceability, manufacturability, and affordability, is presented as part of the systems engineering process. This course provides the participant with the tools and techniques that can be used through the life cycle from the perspective of system sustainment.

3. *Supply Chain Design and Logistics Operations Management: Integrating the Sustainment Network* (September 30-October 2) — this course presents the theory and practice of the core functions of the enterprise that impact the supply chain management and operational logistic support of fielded systems. It provides a basic understanding of strategy, organizational structure, and behavior for "integrated sustainment enterprise networks" based on their design and operations. Recent research results from several fields of study such as supply chain management, integrated lean enterprises, and *e*-logistics are presented. New logistic technologies, tools, and application software systems are also explored. This course provides the participant with the tools and techniques needed to design, implement, and operate an effective sustainment enterprise supply chain and support services.

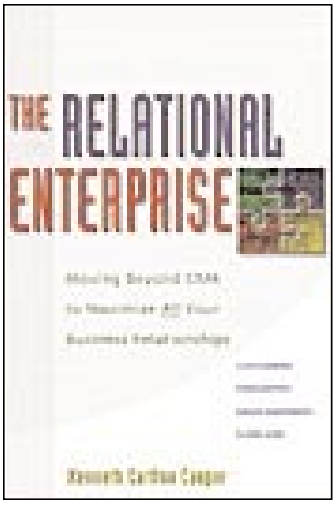
4. *Lean Enterprise Principles and Transformation Leadership* (October 28-30) — this course provides a comprehensive overview of lean principles and practices, and a framework for defining a lean enterprise. "Lean" means adding value by eliminating waste, being responsive to change, focusing on quality, and enhancing the effectiveness of the enterprise. Lean enterprise implementation and assessment is presented using a "Lean Enterprise Model" developed by the Massachusetts Institute of Technology (MIT). Many of the principles and strategies presented in the course are based upon extensive research conducted as a result of MIT's International Vehicle Program and Lean Aerospace Initiative. This course covers the lean philosophy in depth along with the key supporting tools and practices for successful lean enterprise transformation. Included are analyses of lean transformation-unique issues that are applicable to both sustainment organizations and extended networks.

These courses are initially being offered in Burlington, Massachusetts, on the dates indicated. While being sponsored by RAC, the local SOLE Chapter will serve as the host. Future course offerings will be forthcoming. For additional information, please contact Joel Manary, Reliability Analysis Center (RAC), 201 Mill Street, Rome, NY 13440-6916 (tel: 315-337-0900; e-mail: **manaryj@cox.net**); or Timothy P. Cathcart (tel: 401-832-3517; e-mail: **CathcartTP@Npt.NUWC.Navy.Mil**). Also, please visit web site **http://rac.iitri.org**.

Conference on Systems Integration (CSI)

A "Call for Papers" has been initiated for the first annual *Conference on Systems Integration (CSI)*, to be held on the campus of Stevens Institute of Technology, Hoboken, NJ, March 12-14, 2003. This Conference will be conducted in cooperation with the University of Southern California, INCOSE's Systems Engineering Technical Committee, and NDIA's Systems Engineering Technical Committee. Abstracts are due no later than September 1st, and may be sent to **celson@stevens-tech.edu**. For additional information, contact Dr. Dinesh Verma (tel: 201-216-8334/201-216-8645; e-mail: **dverma@stevens-tech.edu**) and/or visit web site **http://www.stevens-tech.edu/csi**. Also, refer to Item 11 under the "Calendar of Events."

Book Reviews



The Relational Enterprise: Moving Beyond CRM to Maximize ALL Your Business Relationships

Kenneth C. Cooper, American Management Association (AMACOM), 1601 Broadway, New York, NY 10019, 2002 (ISBN 0-8144-0669-6)

The organization is no longer defined as what's within the bounds of its offices and factories. An organization is now defined by its breadth and depth of its *relationships.* If the advent of Customer Relationship Management (CRM) represented a giant step forward from traditional customer service, the move to "Relational Management" is truly a quantum leap. The relational organization of the near future will be radically different not only in its philosophies and approaches, but also in structure, operation, and workforce.

This book is an insightful and prescient examination of Relational Management which, unlike traditional CRM, applies a "360-degree view" not just to customers, but also to every other component in a company's universe — employees and consultants, partners and investors, suppliers and vendors. By turns expanding and discarding the basic tenets of CRM, *The*

Book Reviews *(Concluded)*

Relational Enterprise shows how integrating people, processes, structure, and technology turns every contact into a customer and sales rep in one. The result: *exponential increases* in sales opportunities throughout customer and supplier chains.

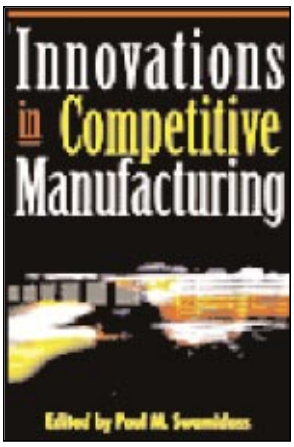
This book is dived into four parts and 19 chapters contained within. A breakdown is noted as follows:

1. **Part One: Relational Enterprise Building Blocks**: (1) *The Expanding Definition of "Organization;"* (2) *The Expanding Definition of "Employee;"* (3) *The Expanding Definition of "Customer;"* and (4) *The Relational Structure.*

2. **Part Two: Relational Enterprise Service Process**: (5) *The Relational Business Cycle;* (6) *Maximizing Interaction Satisfaction;* (7) *A Second Generation Definition of 360-Degree View;* (8) *Expanding the Definition of CRM;* (9) *The Expanding Range of Collaborative RM;* (10) *Transitioning to a Customer Interaction Center;* and (11) *Effective Relational Processes.*

3. **Part Three: Relational Enterprise Systems**: (12) *New Relational Data Types;* (13) *Understanding Relational Systems;* and (14) *RM Analytics.*

4. **Part Four: Relational Enterprise Leadership**: (15) *Benefits of Relational Systems;* (16) *Evaluating Relational Systems;* (17) *Evaluating Relational System Vendors;* (18) *Managing RM Changes;* and (19) *Creating the Relational Enterprise.*



Innovations in Competitive Manufacturing

Paul M. Swamidass (Ed), American Management Association (AMACOM), 1601 Broadway, New York, NY, 2002 (ISBN 0-7923-7896-2)

The gloves have officially been removed in the global battle for manufacturing competitive advantage. Even as companies strive to discover, adopt, and perfect innovations in every phase of operations and manufacturing, their R&D departments must work against the clock to make discoveries that will render those innovations obsolete. Because if they don't, their competitors will.

This book examines the latest technological and strategic advances in manufacturing, through the prism of today's most respected research leaders. Contributions from 42 authors are included, and the book material is broken down into 13 sections and 34 chapters as follows:

I. Introduction: (1) *Innovations in Competitive Manufacturing: From JIT to E-Business.*

II. Competitive Posture: (2) *Manufacturing Strategy;* (3) *Core Manufacturing Competencies.*

III. Competitive Customer Service: (4) Customer Service, Satisfaction, and Success.

IV. Developing Competitive Processes: (5) *Business Process Reengineering and Manufacturing;* (6) *The Evolution of Enterprise Resource Planning.*

V. Competing on Quality: (7) *Total Quality Management;* (8) *The Implementation of Deming's Approach.*

VI. The Rise of Work Teams: (9) *Teams: Design and Implementation.*

VII. Competing on Flexibility and Automation: (10) *Flexible Automation;* (11) *Manufacturing Flexibility;* (12) *Manufacturing Technology Use in the U.S. and Benefits;* (13) *Agile Manufacturing;* (14) *Virtual Manufacturing.*

VIII. Lean Manufacturing: (15) *Just-In-Time Manufacturing;* (16) *Lean Manufacturing Implementation;* (17) *Total Productive Maintenance;* (18) *Transition to Cell Manufacturing: The Case of Duriron Company, Inc.;* (19) *Predictive Maintenance: The Case of Della Steam Plant.*

IX. Product Design and Development Redefined: (20) *Product Design for Global Markets;* (21) *Concurrent Engineering;* (22) *Product Development and Concurrent Engineering;* (23) *Mass Customization;* (24) *Mass Customization and Manufacturing;* (25) *Integrated Product Development: The Case of Westinghouse Electronic Systems.*

X. The Revolution in the Supply Chain: (26) *Supplier Partnerships as Strategy;* (27) *Supply Chain Management Competing Through Integration;* (28) *Developing a Supply Partner: The Case of Black and Decker and TEMIC Telefunken.*

XI. Competing Globally: (29) *International Manufacturing.*

XII. Opportunities in Tackling Environmental Problems: (30) *Environmental Issues and Competitive Manufacturing.*

XIII. The Revolution in Costing and Performance Measurement: (31) *Activity-Based Costing;* (32) *Target Costing;* (33) *Balanced Scorecards;* (34) *Performance Excellence: TheMalcolm Baldridge National Quality Award Criteria.*

Editor Needed

I have decided to take a "sabbatical" from serving as the Editor of the "***SOLEtech***" and the August issue will be my final output in this area for awhile. As you may know, I commenced with the newsletter in March 1998 and at a time when there was no regular publication being distributed to the Society membership. Through my four-plus years as Editor, I have attempted to include different topics, letters to the editor, some training material (October 2001-May 2002), book reviews, calendar of events, etc. While I have enjoyed taking a lead in this area, I have received very little in terms of material contributions and "feedback" relative to what has been included. Since any newsletter should promote "communications" and this should be a two-way process (with feedback of one type or another), I feel that in some way I have failed in my objective! On the other hand, I definitely feel that such a newsletter, with the objectives of the "***SOLEtech***," is needed, particularly as there is so much going on in the field of logistics these days. Further, it would be highly beneficial (and timely in this case) for the Society to initiate a change in the leadership role pertaining to the "***SOLEtech***."

Given this, a new "***SOLEtech***" Editor is needed. For anyone who may be interested, this would be a good opportunity for improving newsletter content, getting others involved, and presenting your thoughts/ideas relative to logistics and its applications. If interested, or in the event of questions, please contact either Rene Smith (**smithrene@cox.net**) or Anthony (Tony) Trovato (**aetrovato@raytheon.com**).

Thanks,
Ben S. Blanchard

Calendar of Events

1. *12th Annual International Symposium On Systems Engineering*, sponsored by the International Council On Systems Engineering (INCOSE), Riviera Hotel and Casino, Las Vegas, NV, July 28-August 1. The theme is "Engineering 21st Century Systems: Problem Solving Through Structured Thinking." The program will include six technical tracks, 138 technical paper presentations plus poster sessions, 11 full-day and six half-day tutorials, an Academic Forum, numerous exhibits, and several technical tours. For additional information, contact PCMI (tel: 858-565-9921; e-mail: **incosepcmisandiego.com**). Also, visit web site **http://www.incose.org/** for up-to-date information.

2. *2002 International Military And Aerospace/Avionics COTS Conference, Exhibition, And Seminar*, Mission Valley Marriott Hotel, San Diego, CA, August 7-9. For further information, contact Edward B. Hakim (tel: 732-449-4729; fax: 775-855-0847; e-mail: **ebhakim@bellatlantic.net**.

3. *37th Annual International Logistics Conference and Exhibition (SOLE-2002)*, sponsored by the International Society of Logistics (SOLE), Pointe South Mountain Resort, 777 South Mountain Parkway, Phoenix, AZ 85044, August 10-15. The theme is "21st Century Logistics: The Global Bridge." The Keynote Speaker will be Allen W. Beckett, Principal Assistant Deputy Under Secretary of Defense for Logistics and Materiel Readiness. SOLE Board/Chapter meetings and workshops/tutorials will be scheduled prior to the start of the technical program, August 10-12. Workshop topics will include *ILS Modeling and Simulation, Lean Engineering, Value Engineering,* and *SOLE and You.* For additional information, please visit the SOLE web site **http://www.sole.org** and/or call SOLE Headquarters at 301-459-8446.

4. *15th International Congress and Exhibitions On Condition Monitoring and Diagnostic Engineering Management (COMADEM)*, University of Birmingham, United Kingdom, September 2-4. For additional information, contact Professor B.K.N. Rao (**rajbknrao@btinternet.com**) and/or visit web site **http://www.comadem.com**.

5. *Council of Logistics Management Annual Conference*, sponsored by CLM, Moscone Center, San Francisco, CA, September 29-October 2. The theme is "The Rules Are Changing ...." The Keynote Speaker for the opening session will be Michael L. Eskey, Chairman and CEO, United Parcel Service. For additional information, contact CLM Headquarters at **clmadmin@clm1.org** and/or visit web site **http://www.clmadmin@clm1.org/conf2002/index.asp**.

6. *18th International Logistics Congress and Exhibition (ILC-2002)*, sponsored by SOLEurope and hosted by the Munich Chapter, Gasteig Arts Center, Munich, Germany, October 6-9. The Conference theme is "Outsourcing Life-Cycle Support: Sharing The Opportunities, Sharing The Risks." For additional information, visit web site **www.sole-muc.de** and/or visit the SOLE web site **www.sole.org**.

7. *10th Annual SMRP Conference*, sponsored by the Society of Maintenance and Reliability Professionals (SMRP), Nashville, TN, October 27-30. For further information, contact **genna@smrp.org** and/or visit web site **www.smrp.org**.

8. *28th International Symposium for Testing and Failure Analysis (ISTFA-2002)*, Phoenix, AZ, November 3-7. For further information, contact Donald. D. Dylis at **DDylis@IITRI.org** and/or contact **ISTFA@asminternational.org**.

9. *15th International Conference-Software and Systems Engineering and Their Applications (ICSSEA-2002)*, Paris, France, December 3-5. The theme is "Development And Globalization." For additional information, contact Jean Claude Rault (**rault@cname.fr**) and/or visit web site **www.cname.fr/CMSL**.

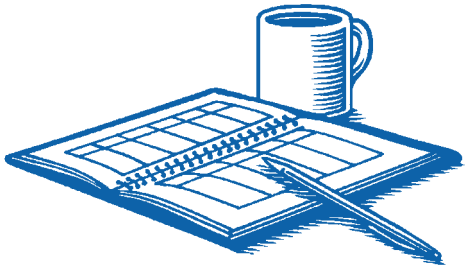
Calendar of Events *(Concluded)*

10. *The International Symposium On Product Quality and Integrity (RAMS-2003)*, sponsored by 10 technical societies (to include SOLE), Tampa Waterside Marriott Hotel, Tampa, FL, January 27-30, 2003. The theme is "Transforming Technologies For Reliability And Maintainability Engineering." For further information, visit web site **www.rams.org** and/or SOLE web site **www.sole.org**.

11. *Conference On Systems Integration (CSI)*, Charles V. Schaefer School of Engineering, Stevens Institute of Technology, Hoboken, NJ, March 12-14, 2003. This Conference is sponsored by the Stevens Institute of Technology in cooperation with the University of Southern California, INCOSE's Systems Engineering Center of Excellence (SECOE), and NDIA's Systems Engineering Technical Committee. The theme is the "Design, Analysis, And Modeling, Management, Use And Operations, And Support Of Complex Systems In Information Technology, Telecommunications, And Network Centric Aerospace And Defense Domains." For additional information, contact Dr. Dinesh Verma (tel: 201-216-8334/201-216-8645; e-mail: **dverma@stevens-tech.edu**) and/or visit web site **http://www.stevens-tech.edu/csi**.

12. *15th Software Technology Conference*, sponsored by the Software Technology Center, Salt Palace Convention Center, Salt Lake City, UT, April 28-May 1, 2003. The theme is "Strategies And Technologies: Enabling Capability-Based Transformation." For further information, visit the web site **www.mesa.org.au**.

13. *International Conference of Maintenance Societies (ICOMS-2003)*, sponsored by the Maintenance Engineering Society of Australia (MESA) and co-hosted by SOLE-Australia, Sheraton Hotel, Perth, Western Australia, May 20-23, 2003. The theme is "Maintenance: It Makes Good Business $ense." For further information, contact Sally Nugent, ICOMS, P.O. Box 634, Brentford Square, Victoria 3131, Australia (e-mail: **icoms@corrprev.org.au**) and/or visit web site **www.mesa.org.au**.



SOLE, SOLEurope and Munich Chapter

present the

18th International Logistics Congress and Exhibition

October 6–9, 2002
Gasteig Arts Center, Munich, Germany

www.sole-muc.de • www.soleurope.org • www.sole.org • www.ILC2002.org

Conference Secretariat
INTERPLAN

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OUTSOURCING LIFE CYCLE SUPPORT

Sharing the Risks, Sharing the Opportunities

TOPICS INCLUDE

Evolution of Support Policies and Strategies

- The Challenge of Changes to Support Policies for "Global Players"
- Long Term Warranty and Contractual Obligations
- Legal and Economic Aspects
- Economic Risks, Analysis and Risk Management
- Scientific and Engineering Methods
- Design to Life Cycle Cost and Support Opportunities
- Geographical Distribution of Facilities and Stores
- Distributed Stock Management
- Optimised Transportation
- Personnel and Training
- Management Organisation
- Supply Chain Management

Enabling Technologies

- Software Support of Business Processes
- Network Organisation
- Electronic Market-places, Portals
- Application of Standards (e.g. AECMA)
- Future Trends

CONFERENCE PROGRAMME

The main conference is organised in three parallel tracks:

A) ***Support Policies, Standards and Practices Evolving***; papers include "Life Cycle Integration – The Revised NATO CALS Policy," "The Influence of Logistics Engineering on Commercial SMC," or "Turn-key Maintenance Approach – Long Term Warranty or Outsourcing"

B) ***Support Organisations, Projects and Research,*** covering experience gained from current projects; papers include "Business Plan for a Reverse Logistics Start Up," "The Layout Reorganisation in Minifactories," or "Outsourcing in the Postal Industry"

C) ***Enabling Technologies, Methods, Tools and Research***; papers include "Tracking and Tracing with Transponder Technology," "Implementation of Software Subcontracting Management Methods and Standards," "Developing a Supply Chain Strategy Architecture," or "Software Meets ILS (Test Technologies)"

Authors are coming from Government, Government Establishments, Major Industries and Universities including:

MoD Italy (DGAT), Defense Research Establishment Norway, ISDEFE Madrid, Boeing USA, EADS Germany, Kanagawa University Japan, University of Economics Varna Bulgaria, Escola Federal de Engenharia Brazil; and represent 19 countries (e.g. Brazil, Japan, South Africa, Turkey, USA, Europe)

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