# Table of Contents

Fifth International Conference on Commercial-off-the-Shelf (COTS)-Based Software Systems

- **Foreword** ........................................................................................................................................... viii
- **Message from the Program Co-Chairs** ............................................................................................. ix
- **Planning Committee** ....................................................................................................................... x
- **Program Committee** ....................................................................................................................... xi

## Workshop 1

Towards a Common Framework for OTS-Based Development Methods  
*Donald Firesmith and Marco Torchiano*

## Workshop 2

Discovery and Composition of Services in Dynamic Mobile Environments ..................................................... 5  
*Leigh Davis and Jamie Payton*

## Workshop 3

Secure COTS Composition  
*Donald Marks*

## Best Paper

Maintaining COTS-Based Systems: Start with the Design ..................................................................................... 11  
*Mark Vigder and Anatol W. Kark*

## Keynote Address 1

Free As in Enterprise  
*Paul Everitt*

## Session 1: Embedded COTS

Embedded Systems Development: Quest for Productivity and Reliability ........................................................... 23  
*Abdelgadir E. Ibrahim, Liping Zhao, and John Kinghorn*

Identifying Technical Risks in Third-Party Software for Embedded Products.......................................................... 33  
*Tim Trew and Gerben Soepenberg*

Usage of Dynamic Decision Models as an Agile Approach to COTS Taxonomies Construction .......................... 43  
*Sergey Erofeev and Piergiorgio Di Giacomo*
Session 2: Component Technologies

A Security Mechanism for Component-Based Systems .......................................................... 53
  Mark Grechanik, Dewayne E. Perry, and Don Batory

A Process for Context-Based Technology Evaluation: Examples for the Evaluation of
Web Services Technology ............................................................................................... 63
  Grace A. Lewis and Lutz Wrage

Solving Performance Issues in COTS-Based Systems ...................................................... 70
  Erik Putrycz and Marius Slavescu

Session 3: Component Selection

Semantic Component Selection – SemaCS ................................................................. 83
  Maxym Sjachyn and Ljerka Beus-Dukic

Trends on COTS Component Identification ................................................................ 90
  Alejandra Cechich, Annya Réquilé-Romanczuk, Javier Aguirre, and Juan M. Luzuriaga

Software Component Specification: A Study in Perspective of Component Selection and Reuse 100
  CJ Michael Geisterfer and Sudipto Ghosh

MoReCOTS: A Specialized Search Engine for COTS Components on the Web .... 109
  Nacim Yanes, Sihem Ben Sassi, and Lamia Labeled Jilani

Session 4: Risks and Lessons Learned

Actions to Enhance the Use of Commercial Information Technology (IT) in Department
of Defense (DoD) Systems ...................................................................................... 119
  Franklin Kramer, Stuart Starr, and Larry Wentz

The COTS Software Obsolescence Threat ................................................................... 127
  Leigh Merola

Session 5: Analysis

A Lightweight Process for Change Identification and Regression Test Selection in Using
COTS Components ............................................................................................... 137
  Jiang Zheng, Brian Robinson, Laurie Williams, and Karen Smiley

COCOTS Risk Analyzer ............................................................................................ 144
  Ye Yang, Barry Boehm, and Dan Wu

Keynote Address 2

Architecture and Design Intent in Component & COTS Based Systems ..................... 155
  Dewayne E. Perry and Paul S. Grisham
Session 6: Elicitation and Integration

Towards a COTS-Based Development Environment ................................................................. 167
   Sihem Ben Sassi, Lamia Labed Jilani, and Henda Hajjami Ben Ghezala

A Service-Sharing Methodology for Integrating COTS-Based Software Systems .................. 177
   Dean Jin and James R. Cordy

Requirements Elicitation through Model-Driven Evaluation of Software Components ............ 187
   Lawrence Chung, Weimin Ma, and Kendra Cooper

Session 7: Experience Reports

COTS-Like Generic Medical Image Repository ........................................................................... 199
   N. Chandrashekar, S.M. Gautam, K.R. Shivakumar, K.S. Srinivas, and J. Vijayananda

Commercial Off-the-Shelf Product Management Lessons Learned – Satellite Ground Control
System (SGCS) Upgrade ............................................................................................................. 206
   William Anderson and James McAuley

Supporting Organizational Induction and Goals Alignment for COTS Components
Selection by Means of i* ............................................................................................................ 214
   Juan Pablo Carvallo Vega

Author Index ................................................................................................................................. 223