On inter-organizational trust engineering in networked collaborations: modeling and management of rational trust
Msanjila, S.S.

Citation for published version (APA):

General rights
It is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), other than for strictly personal, individual use, unless the work is under an open content license (like Creative Commons).

Disclaimer/Complaints regulations
If you believe that digital publication of certain material infringes any of your rights or (privacy) interests, please let the Library know, stating your reasons. In case of a legitimate complaint, the Library will make the material inaccessible and/or remove it from the website. Please Ask the Library: http://uba.uva.nl/en/contact, or a letter to: Library of the University of Amsterdam, Secretariat, Singel 425, 1012 WP Amsterdam, The Netherlands. You will be contacted as soon as possible.
# Contents

1. **Introduction and research problem analysis** ......................................... 1  
   1.1 Introduction .......................................................................................... 1  
   1.2 Collaborative networked organizations and breeding environments .......... 3  
      1.2.1 Virtual organizations Breeding Environment - VBE ............................ 5  
      1.2.2 Addressed challenges and gained advantages for organizations joining VBEs ........................................................................ 6  
      1.2.3 Readiness for joining VBEs ......................................................... 8  
      1.2.4 VBE management and the need for trust ..................................... 9  
   1.3 Background on definition of trust and its emerging base concepts ......... 14  
      1.3.1 Diversities among definitions of trust ........................................... 14  
      1.3.2 Base concepts of trust ................................................................. 17  
   1.4 Research motivation and problem area description .............................. 17  
   1.5 Research questions, objectives, and scope of the thesis ....................... 20  
   1.6 Research methodology ......................................................................... 23  
   1.7 The ECOLEAD project and related scientific publications ................... 24  
      1.7.1 The ECOLEAD project ................................................................. 24  
      1.7.2 Scientific publications related to the dissertation ........................... 29  
   1.8 Thesis structure ................................................................................. 30  
   1.9 Chapter discussion and conclusion ...................................................... 31  

2. **Aspects and characterization of trust** ................................................... 33  
   2.1 Introduction .......................................................................................... 33  
   2.2 Traditional practices on trust ............................................................... 34  
      2.2.1 Inter-personal versus inter-organizational trust ............................... 34  
      2.2.2 Trust among individuals ............................................................. 35  
      2.2.3 Trust in different disciplines ....................................................... 36  
   2.3 Trust among organizations in VBEs ....................................................... 38  
      2.3.1 Importance of creating trust between organizations in VBEs .......... 38  
      2.3.2 Antecedents of trust between organizations in VBEs ..................... 38  
      2.3.3 Main related challenges in trust studies for VBEs .......................... 40  
      2.3.4 Boundary characteristics of rational and subjective trust ............. 40  
      2.3.5 Main concepts related to inter-organizational trust ...................... 42  
      2.3.6 Different aspects of trust in organizations - applied to the proposed approach .......................................................... 47  
   2.4 Characterization of trust related data for organizations in VBEs ............ 50
2.4.1 Classification of data for creation of trust among organizations .......... 50
2.4.2 Types of validity evidence for trust related data................................. 51
2.5 Characterization of trust relationships among organizations in VBEs....... 52
2.6 Chapter discussion and conclusion...................................................... 53

3. Identification of trust elements for organizations................................... 55
3.1 Introduction.......................................................................................... 55
3.2 HICI: An approach for identifying trust elements for organizations......... 56
   3.2.1 First Stage: Hierarchical Analysis.................................................. 57
   3.2.2 Second Stage: Impact Analysis....................................................... 59
   3.2.3 Third Stage: Causal Influence Analysis......................................... 62
3.3 Trust elements related to organizations in VBEs................................. 64
   3.3.1 Trust elements for creation of trust between organizations............. 65
   3.3.2 Trust elements for creation of trust from members towards the VBE administration................................................. 73
   3.3.3 Trust elements for creation of trust from external stakeholders towards the VBE......................................................... 75
3.4 Chapter discussion and conclusion...................................................... 77

4. Conceptual modeling of trust elements................................................ 79
4.1 Introduction.......................................................................................... 79
4.2 Related trust models in research and development............................... 79
4.3 Modeling of trust relationships between organizations - The proposed approach................................................................. 88
   4.3.1 Main trust parameters for modeling trust relationships between organizations......................................................... 89
   4.3.2 Object-based conceptual modeling formalism................................. 90
   4.3.3 Record-based conceptual modeling formalism............................... 91
   4.3.4 Ontology-based conceptual modeling formalism............................. 94
4.4 Chapter discussion and conclusion...................................................... 95

5. Mechanisms for assessing trust level of an organization....................... 97
5.1 Introduction.......................................................................................... 97
5.2 Traditional approaches addressing assessment of trust in organizations..... 97
5.3 Concepts related to assessment of trust............................................... 100
5.4 Measuring and assessing organization’s trust level............................ 100
   5.4.1 Need for trust measurement in VBEs ............................................. 100
   5.4.2 Proposed trust assessment mechanisms........................................ 103
   5.4.3 Developing mechanisms for assessing trust level of organizations...... 104
   5.4.4 Corrective measures for assessing trust level.................................. 107
   5.4.5 Setting up and customization of organizations trust assessment system for VBEs ......................................................... 107
5.5 Analysis of causal influences among trust criteria.............................. 115
   5.5.1 Social perspective ....................................................................... 116
A.  List of author’s publications ................................................................. 173

B.  TrustMan validation with standard indicators and against related systems
    B.1 Applied standard indicators ................................................................. 177
    B.2 Related trust management systems ..................................................... 181
    B.3 Evaluation of TrustMan system with standard indicators ...................... 182

C.  Empirical evaluation – questionnaire ..................................................... 183
    C.1 VBE networks involved in evaluation .................................................. 183
    C.2 Description of the questionnaire .......................................................... 184

Bibliography .............................................................................................. 185

Summary ....................................................................................................... 191

Samenvatting ............................................................................................... 193

Acknowledgements ....................................................................................... 195