

## LUCIO BIGGIERO

### Curriculum Vitae

#### **Affiliation:**

Università dell'Aquila (University of L'Aquila)

Dipartimento di Ingegneria Industriale e dell'Informazione e di Economia (DIIE) (Department of Industrial Engineering, Information and Economics)

Via Giuseppe Mezzanotte, 67100 L'Aquila (AQ) Italy

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#### **Positions:**

Full professor of *Organization Theory and Design* at the University of L'Aquila.

Member of the Doctoral course in *Markets and Institutions for Development and Innovation* at the University "La Sapienza" (Rome).

#### **Courses:**

*Business Organization* (Department of Industrial Engineering, Information and Economics)

*Analysis and Design of Inter-Organizational Networks* (Department of Industrial Engineering, Information and Economics)

*Business Analytics for Business Networks* (Department of Engineering, Mathematics and Computer Science)

#### **Other training experiences:**

##### **Doctoral courses**

In the Doctoral course of the Department of Industrial Engineering, Information and Economics of the University of L'Aquila (Italy), he has been responsible of a seminars cycle on epistemology and methodology of research.

He has been teaching *Organization Theory and Design*, *Organizational Behaviour*, *Epistemology and Methodology of Social Research* in the following Doctoral courses:

Economia e Organizzazione delle Imprese (*Economics and Management of Firms*), by Università degli Studi di Roma "Tor Vergata"

Organizzazione, Tecnologia e Sviluppo delle Risorse Umane (*Organization, Technology and Development of Human Resources*), by Università degli Studi del Molise

Psicologia Cognitiva, Psicofisiologia e Personalità (*Cognitive Psychology, Psychophysiology and Personality*), by Università degli Studi di Roma "La Sapienza".

##### **Master courses**

Concetti e metodi per i sistemi complessi: salute e sostenibilità (Concepts and methods for complex systems: health and sustainability), given in the Master on Antropologia della salute nei sistemi complessi (Health anthropology in complex systems), La Torre <https://www.la-torre.it/> (Turin, Italy, 2020-2021).

For many years, he has been teaching *Organization Theory and Design, Local Production Systems, Knowledge Management* in the following **Masters**:

Master in Business Administration, by LUISS University (Rome)

Master in Experts of International Trade and Management, by ICE (Italian Institute for Foreign Trade)

Master in Human Resource Management, by University of “La Sapienza” (Rome).

During the last few years, he gave the following post-graduate courses:

- A 40h course on *Inter-firm networks and industrial clusters* in the **Master** on Management and internationalization of inter-firm networks, held in the University of Chieti-Pescara (Italy);
- A 30h course on *Basic methods in Social Network Analysis* for PhD and post-doc, held at the Zeppelin University (Germany);
- A 16h course on *Building and managing inter-organizational networks for a sustainable socio-eco economy* in the **Master on Systemic Design of Sustainability**.

### **Memberships:**

Member of the **Editorial Board** of the Springer series on Relational Economics and Organizational Governance <https://www.springer.com/series/16570>

Member of the **Board of Directors** and of the **Scientific Board** of CIRPS (Interuniversity Research Centre on Sustainable Development) ([www.cirps.it](http://www.cirps.it)). CIRPS is an Inter-University Centre through research, training, services and direct intervention on the territory aims to disseminate the principles internationally recognized as necessary to ensure sustainable development.

**Director of the MEFOR Thematic Section of CIRPS** ([www.cirps.it](http://www.cirps.it)), which aims to apply to socio-economic and environmental topics the following advanced methodologies: outranking methods of multicriteria decision making; social network analysis; dynamic network analysis (NK models); agent-based simulation models.

**Guest Editor of the Special Issue "Sustainable Economic Systems (SES)" for the journal Sustainability, 2021**

### **Past memberships**

... of the **Scientific Board** of ECONA (InterUniversity Research Center on Cognitive Computation in Artificial and Natural Systems) <https://web.uniroma1.it/econa/>, which collects 12 Italian universities in various research areas, among which: Psychology of cognitive processes, Neural Networks, Non-linear Dynamics.

... of the **Experts' Group of MIUR** ([www.miur.it](http://www.miur.it)) (Ministry of Education University & Research).

... of the following scientific associations:

AIDEA (Italian Association of Management Studies)

AIEMS (Italian Association of Epistemology and Systems Methodology)

AiIG (Italian Association of Engineering Management and Economics)

AIRS (Italian Association for Systems Research)

AOM (Academy of Management)

BAM (British Academy of Management)

CIRPS (Interuniversity Research Centre on Sustainable Development)

EGOS (European Group of Organization Studies)

ESSA (European Social Simulation Association)  
 EURAM (European Academy of Management)  
 ETSG (European Trade Study Group)  
 IASS (Italian Association for Sustainability Science)  
 ICORE (International Conference on Reputation)  
 INSNA (International Network for Social Network Analysis)  
 ISA (International Sociological Association)  
 RC51 (Research Committee on Socio-cybernetics)  
 SDS (Systems Dynamics Society)  
 WINIR (World Interdisciplinary Network for Institutional Research)

**Past Fields of Empirical Studies on the following sectors:**

biomedicals, packaging machines, energy saving, oil.

**Recent Fields of Empirical Studies on the following sectors:**

Aerospace, telecommunication.

**Main fields of scientific interest:**

Theory of Organization Design and Change

Coordination Theory

Innovation Diffusion in Inter-firm networks and in Industrial Clusters

Knowledge Creation and Transfer in R&D Collaboration Networks

(Inter-)Organizational Networks, especially Ownership Networks, Boards and Departments Interlock, Local Production Systems

Organizational Impact of Socio-cognitive Factors

Epistemology and Methodology of Organization Science

Formal Network Methodologies: Social Network Analysis, Boolean networks (NK-FL models), Agent-based Simulation Models

**Spoken Languages:**

English (fluently)

German (intermediate)

Russian (beginner)

**Previous and current involvement in EU projects**

TACIS Project “Training and Developing Management and Economic Knowledge in Russia”, as teacher.

TSER Project (FP4) “The Self-organization of the European Information Society”, as coordinator of the Task 5.2

PHARE Project “Participation in EU Networks: Preparation of Czech SMEs for EU Accession”, as consultant of the project coordinator.

IST-CPA5 Project (FP5) “Organizational Consequences of Email Introduction, Adoption and Diffusion”, as coordinator of the whole project.

RTD-IHP Project (FP5) “Industrial Districts’ Re-location Processes: Identifying Policies in the Perspective of EU Enlargement”, as coordinator of the Luiss partnership.

**Participation to the following Italian Research Projects:**

PRIN 2001-2003 on “Virtual Enterprise”, as coordinator of the research unit of the University of l’Aquila.

FIRB 2005-2008 on “Artificial societies for competition and collaboration: knowledge networks, corporate reputation and firm clusters. Building a user-enabling simulator”, as coordinator of the research unit of the University of l’Aquila.

PRIN 2006-2007 on “Territorial benchmarking: specific tools for the analysis of the performances and the competitiveness of local production systems”, as coordinator of the research unit of the University of l’Aquila.

**Reviewer for the following journals:**

Current Sociology  
 Entrepreneurship & Regional Development  
 Entrepreneurship Theory & Practice  
 European Management Review  
 Human Systems Management  
 International Journal of Innovation and Sustainable Development  
 Journal of Artificial Societies and Social Simulation  
 Journal of Business and Industrial Marketing  
 Journal of Business Research  
 Journal of Management and Governance  
 Journal of Management Studies  
 Journal of Small Business Management  
 Management Research Review  
 Nonlinear Dynamics, Psychology, and Life Sciences  
 Organization Studies  
 Research Policy  
 Resources, Conservation & Recycling  
 Technological Forecasting and Social Change  
 Technology Analysis & Strategic Management

**Author Impact Analysis** (according to Google Scholar as reported by Harzing’s *Publish or Perish methodology*, [www.harzing.com](http://www.harzing.com)) **h-index: 18; g-index: 41.**

**Orcid code:** [orcid.org/0000-0002-4328-1143](http://orcid.org/0000-0002-4328-1143)

**Realizzazione dei seguenti software proprietari:**

- NEBBA (Network-Based Business Analytics)
- ASEN (Analyzing Socio-Economic Networks)
- STREQ (Structural Equivalence)
- IFCOP (Inter-firm Contagion Program)
- AMEG (Analytical Methods for discovering Groups of Connected Clients)

**Invited speaker Conferences**

- Conference on “Economics – The Relational View” 27-29 November 2019, Zeppelin University (GER) - Speech title: “Relational Epistemology and Methodology”.

- Conference on “Cooperating in Value-Creating Networks - A Relational View”, Paris, ESSEC University, 8–9 September 2022.

### Publications in English:

1. Biggiero, L. & Magnuszewski, R. 2023. *Inter-Firm Networks: Coordination Through Board and Department Interlocks*. NY: Springer.
2. Biggiero, L. 2022. Why we could need a Relational Economics ... and why standard economics and its (orthodox) derivations do not help. In L. Biggiero et al. (eds.) *The Relational View of Economics* (pg. 43-74). [https://doi.org/10.1007/978-3-030-86526-9\\_4](https://doi.org/10.1007/978-3-030-86526-9_4).
3. Biggiero, L. et al. 2022. Manifesto for a Relational Economics. In L. Biggiero et al. (eds.) *The Relational View of Economics* (pg. 9-13). [https://doi.org/10.1007/978-3-030-86526-9\\_2](https://doi.org/10.1007/978-3-030-86526-9_2).
4. Biggiero, L. & Urbani, R. 2021. Testing the convergence hypothesis: a longitudinal and cross-sectional analysis of the world trade web through social network and statistical analyses. *Journal of Economic Interaction and Coordination*. <https://doi.org/10.1007/s11403-021-00341-6>.
5. Biggiero, L. & Magnuszewski, R. 2021a. The general ownership structure of the European aerospace industry: a statistical and network analysis. *Advances in Complex Systems*. 24(5). DOI: 10.1142/S0219525921500120.
6. Biggiero, L. & Magnuszewski, R. 2021b. The weight and role played by listed companies: A discrepancy between statistical and structural indicators. In K. M. Hogan, & A. Kostyuk (Eds.), *Corporate governance: Fundamental and challenging issues in scholarly research* (pp. 55–60). <https://doi.org/10.22495/cgfcisrp8>.
7. 2019. A note on variety and hierarchy of economic and social systems. The system-network dualism and the consequences of routinization and robotization. In Minati G. Abram M, Pessa E (eds) *Systemics of incompleteness and quasi-systems* (207-220). Proceedings of the Seventh National Conference of the Italian Systems Society. NY: Springer
8. 2018. Providing sound theoretical roots to sustainability science: systems science and (second-order) cybernetics. *Sustainability Science*. 13(5): 1323–1335. <https://doi.org/10.1007/s11625-018-0573-2>.
9. 2017. Looking at the skeleton of university research performance. A pilot study on an Italian university. *Procedia Computer Science*. 106: 66 – 73.
10. 2016a. Preface to Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (i-ix). Hershey, PA (US): IGI Global.
11. 2016b. Conclusions: Methodological pluralism and epistemology between and beyond relational methods. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 397-411). Hershey, PA (US): IGI Global.
12. 2016c. Network analysis for economics and management studies. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 1-60). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch001.
13. 2016d. NK simulation modeling. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 62-100). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch002.
14. 2016e. (co-authored with P. Angelini) A comparison between international trade and R&D collaboration networks in the European aerospace sector. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 141-171). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch005.
15. 2016f. (co-authored with M. Basevi) An international trade comparison between two supposedly different sectors: An investigation on inter-sectoral diversity and sectoral trade

- stability. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 172-205). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch006.
16. 2016g. (co-authored with M. Basevi) Knowledge creation, growth and transfer within industrial networks of practices: the role of absorptive capacity and direct centrality. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 313-347). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch012.
  17. 2016h. (co-authored with A. Mastrogiorgio) A methodology to measure the hierarchical degree of formal organizations. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 206-231). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch007.
  18. 2016i. (co-authored with E. Sevi) On the relationships between connection modes and workgroup performance: the moderating role of group size and task complexity. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 348-372). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch013.
  19. 2016j. (co-authored with M. Valente) The role of knowledge heterogeneity in industrial clusters knowledge dynamics: an application of the Boolean network simulation modeling. In Biggiero L. et al. (Eds.) *Relational methodologies and epistemology in economics and management sciences* (pp. 257-282). Hershey, PA (US): IGI Global. DOI: 10.4018/978-1-4666-9770-6.ch009.
  20. 2015. (co-authored with P. Angelini) Hunting scale-free properties in R&D collaboration networks: self-organization, power-law and policy issues in the European aerospace research area. *Technological Forecasting and Social Change*. 94: 21-43.
  21. 2012a. (co-authored with M. Basevi) On the dynamics of knowledge transfer in industrial clusters: an application of the Boolean network modeling, in Minati G., Pessa E. & Abram M. (Eds.) *Methods, models, simulations and approaches towards a general theory of change*. World Scientific (pp. 429-442). DOI: 10.1142/9789814383332\_0030.
  22. 2012b. Practice vs. possession: epistemological implications on the nature of organizational knowledge and cognition. In M. Mora, O. Gelman, A. Steenkamp and M.S. Raisinghani (Eds.) *Research methodologies, innovations and philosophies in software systems engineering and information systems*. Hershey, PA (US): IGI Global (pp. 82-105). DOI: 10.4018/978-1-4666-0179-6.ch005. ISBN: 978-1-4666-0179-6.
  23. 2011a. Knowledge redundancy, environmental shocks, and agents' opportunism. In Józefczyk J. and Orski D. (Eds.) *Knowledge-based intelligent system advancements: systemic and cybernetic approaches*. *Advances in Artificial Intelligence Technologies* (AAIT). Hershey (Penn, USA): IGI Global Publishers (pp. 252-281). DOI: 10.4018/978-1-61692-811-7.ch013. ISBN: 978-1-61692-811-7.
  24. 2011b. (co-authored with Biava, P.M., Basevi, M., Borgonovo, A., Borgonovo, E. and Burigana F.) Cancer cell reprogramming, stem cell differentiation stage factors: an agent-based model to optimize cancer treatment. *Current Pharmaceutical Biotechnology*. 12(2). 243-253.
  25. 2010a. (co-authored with A. Sammarra) Does geographical proximity enhance knowledge exchange? The case of the aerospace industrial cluster of centre Italy. *International Journal of Technology Transfer & Commercialization*. 9(4): 283-305.
  26. 2010b. Exploration modes and its impact on industry profitability. The differentiated effects of internal and external ways to access market knowledge, in Faggini M. and Vinci P. (Eds.) *Decision theory and choice: a complexity approach*. Berlin: Springer (pp. 83-116).

27. 2010c. (co-authored with A. Sammarra, C. Muzzi and R. Dandi) The effect of e-mail use and adoption on organizational participation: the case of a public administration. *Human Systems Management*. 29(1): 27-39.
28. 2009a. (co-authored with E. Sevi) Opportunism by cheating and its effects on industry profitability. The CIOPS model. *Computational & Mathematical Organization Theory*. 15: 191-236.
29. 2009b. (co-authored with E. Sevi) The COD model: simulating workgroup performance, in Minati G., Pessa E. & Abram M. (Eds.) *Processes of emergence of systems and systems properties. Towards a general theory of emergence* (pp. 113-134). Singapore: World Scientific.
30. 2009c. Organizations as cognitive systems: is knowledge an emergent property of information networks? In Minati G., Pessa E. & Abram M. (Eds.) *Processes of emergence of systems and systems properties. Towards a general theory of emergence* (pp. 697-712). Singapore: World Scientific.
31. 2008a. (co-authored with A. Sammarra) Heterogeneity and specificity of inter-firm knowledge flows in innovation networks. *Journal of Management Studies*. 45(4): 800-829.
32. 2008b. (co-authored with E. Sevi) The effects of various forms of inter-organizational trust on competitiveness, in Thoben, K.D., Pawar, K.S. & Goncalves R. (Eds.) *14th International conference on Concurrent Enterprising: A new wave of Innovation in Collaborative Networks*. University of Nottingham (pp. 171-178).
33. 2008c. (co-authored with E. Sevi) Effects of task interdependence and bounded rationality on workgroup performance. In Trapp R. (Ed.) *Cybernetics and Systems 2008*. Austrian Society for Cybernetic Studies, Vienna. ISBN: 978-3-85206-175-7.
34. 2007. (co-authored with D. Laise) On choosing governance structures: theoretical and methodological issues. *Human Systems Management*. 26: 69-84.
35. 2006a. System identity and autonomy of an international research team: a case study in self-observation. In Minati G., Pessa E. & Abram M. (Eds.) *Systemics of Emergence: Research and Development* (pp. 551-568). NY: Springer.
36. 2006b. Industrial and knowledge relocation strategies under the challenges of globalization and digitization: the move of small and medium enterprises among territorial systems. *Entrepreneurship & Regional Development*. 18(6): 1-29.
37. 2006c. Editor of the Special Issue on Industrial Districts' Relocation Processes: Evolutionary and Policy Issues. *Entrepreneurship & Regional Development*. 18(6).
38. 2005. (co-authored with G. Iazzolino & D. Laise) On multicriteria business performance measurement. *The Journal of Financial Decision Making*. 1 (2): 37-56.
39. 2004. (co-authored with A. Sammarra, C. Muzzi & R. Dandi) Organizational consequences of e-mail adoption and diffusion: theoretical issues and empirical results. In P. Cunningham & M. Cunningham (Eds.) *eAdoption and the Knowledge Economy: Issues, Applications, Case Studies*. (pp. 134-140) Amsterdam: IOS Press.
40. 2003a. (co-authored with D. Laise) Choosing and comparing organizational structures: a multicriteria methodology. *Human Systems Management*. 30(1): 13-23.
41. 2003b. (co-authored with D. Laise) Outranking methods. choosing and evaluating technology policy: a multicriteria approach. *Science & Public Policy*. 30(1): 13-23.
42. 2003c. (co-authored with A. Sammarra) Social identity and identification processes. enriching theoretical tools to study industrial districts. In F. Belussi, G. Gottardi e E. Rullani (Eds.) *The Technological Evolution of Industrial Districts*. (pp. 205-232) Amsterdam: Kluwer.
43. 2003d. (co-authored with A. Sammarra) The Biomedical Valley: Structural, relational, and social psychological aspects. In F. Belussi, G. Gottardi e E. Rullani (Eds.) *The Technological Evolution of Industrial Districts*. (pp. 367-388) Amsterdam: Kluwer.

44. 2002. The location of multinationals in industrial districts: knowledge transfer in biomedical. *Journal of Technology Transfer*. 27: 111-122.
45. 2001a. Are firms autopoietic systems? In G. van der Zouwen & F. Geyer (Eds.) *Sociocybernetics: complexity, autopoiesis, and observation of social systems*. pp. 125-140. Westport (CT): Greenwood.
46. 2001b. Sources of complexity in human systems. *Nonlinear Dynamics, Psychology, and Life Sciences*. 5(1): 3-19.
47. 2001c. (co-authored with A. Sammarra) Identity and identification in industrial districts. *Journal of Management and Governance*. 5(1): 61-82.
48. 2001d. Self-organizing processes in building entrepreneurial networks: a theoretical and empirical investigation. *Human Systems Management*. 20: 209-222.
49. 2000a. Small business networks. In M. Zeleny (Ed.) *The IEBM Handbook of information technology in business* (pp. 249-257). London: Thomson.
50. 2000b. Complexity and organization. In M. Zeleny (Ed.) *The IEBM Handbook of information technology in business* (pp. 291-300). London: Thomson.
51. 2000c. (co-authored with H.J.L. Voets) Globalization and self-organization: the consequences of decentralization for industrial organization. *International Review of Sociology*. 1: 73-82.
52. 1999a. Markets, hierarchies, networks, districts: a cybernetic approach. *Human Systems Management*, 18: 71-86.
53. 1999b. (co-authored with Alessia Sammarra) The evolution of Italian industry: a global outline. *Economia, Società, Istituzioni*. 2: 237-273.
54. 1999c. The need for participation in the post-fordist age. In S. Schrujier (Eds.) *Multi-organizational partnerships and cooperative strategy* (pp. 75-80). Dutch UP.
55. 1999d. Co-editor of the Special Issue "Industrial Districts in Italy" of *Human Systems Management*.
56. 1998a. Italian industrial districts: a triple helix pattern of problem solving. *Industry & Higher Education*, Special Issue, August. 227-234.
57. 1998b. Complexity and self-organization: consequences for capitalistic industrial organization, in G. Minati (Eds.) *First Italian Conference on Systemics*. Milano: Apogeo. 185-198.
58. 1997. Managerial action and observation: a view of relational complexity. *Systemica*. 12: 23-37; reprinted in *LUISS International Journal*, 2000.