



Universiteit  
Leiden  
The Netherlands

## **Real-time foresight : preparedness for dynamic innovation networks**

Weber, C.R.M.

### **Citation**

Weber, C. R. M. (2016, December 20). *Real-time foresight : preparedness for dynamic innovation networks*. *SIKS Dissertation Series*. Retrieved from <https://hdl.handle.net/1887/45051>

Version: Not Applicable (or Unknown)

License: [Licence agreement concerning inclusion of doctoral thesis in the Institutional Repository of the University of Leiden](#)

Downloaded from: <https://hdl.handle.net/1887/45051>

**Note:** To cite this publication please use the final published version (if applicable).

Cover Page



Universiteit Leiden



The handle <http://hdl.handle.net/1887/45051> holds various files of this Leiden University dissertation.

**Author:** Weber, C.R.M.

**Title:** Real-time foresight : preparedness for dynamic innovation networks

**Issue Date:** 2016-12-20

## References

- Abdessalem, T., Cautis, B., & Souhli, A. 2010. Trust management in social networks, Paris: ISICIL.
- Abelson, A. 2003. NGO networks - Strength in numbers? In U. A. f. i. development (Ed.), Washington: USAID.
- Acar, A., & Muraki, Y. 2011. Twitter for crisis communication: lessons learned from Japans' Tsunami disaster. *International Journal of Web Based Communities*, 7(3): 392-402.
- Ahola, T., Kujala, J., Laaksonen, T., & Aaltonen, K. 2013. Constructing the market position of a project-based firm. *International Journal of Project Management*, 31(3): 355-365.
- Ahuja, G. 2000. Collaboration networks, structural holes, and innovation: A longitudinal study. *Administrative Science Quarterly*, 45(3): 425-455.
- Ai, F., Comfort, L., Dong, Y., & Znati, T. 2015. A dynamic decision support system based on geographical information and mobile social networks: A model for Tsunami risk mitigation in Padang, Indonesia. *Safety Science*: 1-13.
- Akrich, M., Callon, M., & Latour, B. 2002. The key to success in innovation part I: the art of interressement. *International Journal of Innovation Management*, 6: 187-206.
- Albrow, M. 1996. *The global age*. Cambridge: Polity Press.
- Albrow, M. 2014. *Global age essays on social and cultural change*. Frankfurt: Vittorio Klostermann.
- Altheide, D. L., & Johnson, J. M. 1994. Criteria for assessing interpretive validity in qualitative research. In N. K. Denzin, & Y. S. Lincoln (Eds.), *Handbook of Qualitative Research*: 485-499. Thousand Oaks: Sage.
- Alvesson, M., & Spicer, A. 2010. *Metaphors we lead by: Understanding leadership in the real world*. London: Routledge.
- Andersen, P. D., Borup, M., Borch, K., Kaivo-oja, J., Eerola, A., Finnfiörnsson, T., Øverland, E., Eriksson, E., Malmer, T., &

- Mölleryd, B. 2007. Foresight in Nordic innovation systems: Nordic Innovation Centre.
- Andonova, L. B. 2010. Public-private partnerships for the earth: politics and patterns of hybrid authority in the multilateral system. *Global Environmental Politics*, 10(2): 25-53.
- Ansoff, H. I. 1991. Critique of Henry Mintzberg's 'The design school: reconsidering the basic premises of strategic management'. *Strategic Management Journal*, 12(6): 449-461.
- Arendt, H. 2013. *The human condition*. Chicago: University of Chicago Press.
- Arendt, H., & Jaspers, K. 1955. *Elemente und Ursprünge totaler Herrschaft*. Frankfurt a.M.: Europäische Verlagsanstalt
- Astley, G., & Van de Ven, A. 1983. Central Perspectives and Debates in Organization Theory. *Administrative Science Quarterly*, 28(2): 245-273.
- Austrin, T., & Farnsworth, J. 2005. Hybrid genres: Fieldwork, detection and the method of Bruno Latour. *Qualitative Research*, 5(147): 18.
- Avgerou, C., Ciborra, C., & Land, F. 2004. *The social study of ICT: Innovation, actors and contexts*. Oxford: Oxford University Press.
- Ayres, R. U. 2000. On forecasting discontinuities. *Technological Forecasting and Social Change*, 65(1): 81-97.
- Backhaus, K., & Büschken, J. 1997. What do we know about business-to-business interactions? A synopsis of empirical research on buyer-seller interactions. In H. G. Gemünden, T. Ritter, & A. Walter (Eds.), *Relationships and networks in international markets*: 13-36. Oxford: Pergamon Press.
- Bakker, E., & Veldhuis, T. M. 2013. A fear management approach to counter-terrorism. In R. Gunaratna, J. Jerard, & S. M. Nasir (Eds.), *Countering extremism - building social resilience through community engagement*, Vol. 1: 91-105. London: Imperial College Press.
- Bakker, R. M. 2010. Taking stock of temporary organizational forms: A systematic review and research agenda. *International Journal of Management Reviews*, 12(4): 466-486.

- Balcik, B., Beamon, B., Krejci, C., Miramatsu, K., & Ramirez, M. 2010. Coordination in humanitarian relief chains: Practises, challenges and opportunities. *International Journal of Production Economics*, 126(1): 22-34.
- Baldwin, C., & von Hippel, E. 2011. Modeling a paradigm shift: From producer innovation to user and open collaborative innovation. *Organization Science*, 22(6): 1399-1417.
- Bankoff, G., Frerks, G., & Hilhorst, D. 2004. *Mapping vulnerability: disasters, development, and people*: Earthscan.
- Barabasi, A. L. 2003. *Linked: How everything is connected to everything else and what it means for business, science, and everyday life*. New York: Plume
- Barnard, H., & Chaminade, C. 2011a. Global Innovation Networks: towards a taxonomy. In r. a. c. i. t. l. e. CIRCLE - Center for innovation (Ed.), *Submitted to Research Policy*. Lund: Lund University.
- Barnard, H., & Chaminade, C. 2011b. *Global Innovation Networks: what are they and where can we find them*. Paper presented at the INGENEUS Copenhagen.
- Barney, J. B. 2001. Resource-based theories of competitive advantage: A ten-year retrospective on the resource-based view. *Journal of Management*, 27(6): 643-650.
- Barreto, I. 2010. Dynamic capabilities: A review of past research and an agenda for the future. *Journal of Management*, 36(1): 256-280.
- Battilana, J., & Casciaro, T. 2013. The Network Secrets of Great Change Agents. *Harvard Business Review*, 91/7/8: 62-68.
- Battistella, C., & De Toni, A. 2011. A methodology of technological foresight: A proposal and field study. *Technological Forecasting and Social Change*, 78(6): 1029-1048.
- Beamon, B., Balcik, B., Krejci, C., Miramatsu, K., & Ramirez, M. 2008. Performance measurement in humanitarian relief chains. *International Journal of Public Sector Management*, 21(1): 4-25.
- Becker, P. 2003. Corporate foresight in Europe: a first overview. Luxemburg: European Commission Community Research Working Paper.

- Bennett, J., Duffield, M., Juma, M., Borton, J., Burge, A., & Benson, C. 1995. *Meeting needs: NGO coordination in practice*: Earthscan Publications Ltd.
- Berg, B. L., & Lune, H. 2004. *Qualitative research methods for the social sciences*. Boston: Pearson
- Besiou, M., Stapleton, O., & van Wassenhove, L. 2011. System dynamics for humanitarian operations. *Journal of Humanitarian Logistics and Supply Chain Management*, 1(1): 78-103.
- Bijker, W. 1997. *Of bicycles, bakelites and bulbs: Toward a theory of Sociotechnical Change*. Cambridge: MIT Press.
- Blatter, J., & Haverland, M. 2012. *Designing case studies: explanatory approaches in small-N Research*. Basingstoke: Palgrave Macmillan.
- Block, J., Thurik, R., & Zhou, H. 2013. What turns knowledge into innovative products? The role of entrepreneurship and knowledge spillovers. *Journal of Evolutionary Economics*, 23(4): 693-718.
- Blomqvist, K., & Levy, J. 2006. Collaboration capability—a focal concept in knowledge creation and collaborative innovation in networks. *International Journal of Management Concepts and Philosophy*, 2(1): 31-48.
- Boin, A. 2009. The new world of crises and crisis management: Implications for policymaking and research. *Review of Policy Research*, 26(4): 367-377.
- Boin, R. A., & MacConnell, A. 2007. Preparing for Critical Infrastructure Breakdowns: The limits of crises management and the need for resilience. *Journal of contingencies and crises management*, 15(1): 50-59.
- Boston, J. 2014. Governing for the future while meeting the challenges of today. In J. Boston, J. Wanna, V. Lipski, & J. Pritchard (Eds.), *Future-Proofing the State*: 3-27. Canberra: Australian National University Press.
- Bourgeois III, L. J., & Eisenhardt, K. M. 1988. Strategic decision processes in high velocity environments: Four cases in the microcomputer industry. *Management science*: 816-835.
- Box, G., Jenkins, G., Reinsel, G., & Ljung, G. 2015. *Time series analysis: forecasting and control*. Hoboken: John Wiley & Sons.

- Branzei, R., Dimitrov, D., Pickl, S., & Tijs, S. 2004. How to cope with division problems under interval uncertainty of claims? *International Journal of Uncertainty, Fuzziness and Knowledge-Based Systems*, 12(02): 191-200.
- Brass, D., Galaskiewicz, J., Greve, H., & Tsai, W. 2004. Taking stock of Networks and Organizations: A Multilevel Perspective. *The Academy of Management Journal*, 47(6): 795-817.
- Briers, M., & Chua, W. F. 2001. The role of actor-networks and boundary objects in management accounting change: a field study of an implementation of activity-based costing. *Accounting organizations and society*, 26(3): 237-269.
- Brown, S. L., & Eisenhardt, K. M. 1997. The art of continuous change: linking complexity theory and time-paced evolution in relentlessly shifting organizations. *Administrative science quarterly*: 1-34.
- Bryant, A., & Charmaz, K. 2007. *Grounded theory*. Los Angeles: Sage Publications.
- Bryson, J. M., Crosby, B., & Stone, M. 2015. Designing and Implementing Cross-Sector Collaborations: Needed and Challenging. *Public Administration Review*, 75(5): 647-663.
- Buchanan-Smith, M., & Maxwell, S. 1994. Linking relief and development: an introduction and overview. *ids bulletin*, 25(4): 2-16.
- Burnes, B. 2004. Kurt Lewin and complexity theories: back to the future? *Journal of Change Management*, 4(4): 309-325.
- Burt, R. S. 2004. Structural holes and good ideas1. *American Journal of sociology*, 110(2): 349-399.
- Butter, M., Brandes, F., Keenan, M., & Popper, R. 2008. Comparing foresight “style” in six world regions. *foresight*, 10(6): 16-38.
- Butterfield, L. D., Borgen, W. A., Amundson, N. E., & Maglio, A.-S. T. 2005. Fifty years of the critical incident technique: 1954-2004 and beyond. *Qualitative Research*, 5(4): 475-497.
- Cachia, R., Compañó, R., & Da Costa, O. 2007. Grasping the potential of online social networks for foresight. *Technological Forecasting and Social Change*, 74(8): 1179-1203.

- Cagnin, C., Havas, A., & Saritas, O. 2013. Future-oriented technology analysis: Its potential to address disruptive transformations. *Technological Forecasting and Social Change*, 80(3): 379-385.
- Caliendo, M., Fossen, F., & Kritikos, A. 2012. Trust, positive reciprocity, and negative reciprocity: Do these traits impact entrepreneurial dynamics? *Journal of Economic Psychology*, 33(2): 394-409.
- Callegati, E., Grandi, S., & Napier, G. 2005. Business incubation and venture capital: an international survey on synergies and challenges. *Joint IPI/IKED Working Paper*.
- Callon, M. 1986. Some elements of a sociology of translation: domestication of the scallops and the fishermen of St Briec Bay. *Power, action and belief: A new sociology of knowledge*, 32: 196-233.
- Callon, M., & Latour, B. 1981. Unscrewing the big Leviathan: how actors macro-structure reality and how sociologists help them to do so, *Advances in social theory and methodology: Toward an integration of micro-and macro-sociologies*: 277-303.
- Callon, M., Law, J., & Rip, A. 1986. *Mapping the dynamics of science and technology* (1 ed.). Houndmills: The Macmillan Press LTD.
- Campbell, J., Quincy, C., Ossermann, J., & Pedersen, O. 2013. Coding in-depth semistructured interviews: problems of unitization and intercoder reliability and agreement. *Sociological methods & research*, 21: 294-320.
- Carabias, V., Moser, C., Wilhelmer, D., Kubeczko, K., & Nelson, R. 2014. The importance of participatory foresight on the way towards smart cities. *Futures (under review)*.
- Carey, J., Morgan, M., & Oxtoby, M. 1996. Intercoder agreement in analysis of responses to open-ended interview questions: Examples from tuberculosis research. *Cultural Anthropology Methods*, 8(3): 1-5.
- Cassell, C., & Symon, G. 2004. *Essential guide to qualitative methods in organizational research*. Thousand Oaks: Sage.
- Cassell, C., Symon, G., Buehring, A., & Johnson, P. 2006. The role and status of qualitative methods in management research: an empirical account. *Management Decision*, 44(2): 290-303.
- Castells, M. 2000. *The rise of the network society*. Hoboken: Wiley-Blackwell.



- Chang, Y., Wilkinson, S., Potangaroa, R., & Seville, E. 2011. Donor-driven resource procurement for post-disaster reconstruction: constraints and actions. *Habitat International*, 35(2): 199-205.
- Chen, Y. C., & Vang, J. 2008. MNCs, global innovation networks and developing countries: insights from Motorola in China. *International Journal of Business and Management*, 1(1): 11.
- Chesbrough, H. W. 2003. *Open innovation: The new imperative for creating and profiting from technology*. Boston: Harvard Business Press.
- Coates, J. F. 1985. Foresight in federal government policymaking. *Futures Research Quarterly*, Summer: 29-53.
- Coates, J. F., Durance, P., & Godet, M. 2010. Strategic Foresight Issue: Introduction. *Technological Forecasting and Social Change*, 77(9): 1423-1425.
- Coelho, P. R., McClure, J. E., & Spry, J. A. 2003. The social responsibility of corporate management: A classical critique. *American Journal of Business*, 18(1): 15-24.
- Comfort, L. K. 2007. Crises management in hindsight: cognition, communication, coordination, control. *Public Administration Review*, Special Issue: 189-197.
- Comfort, L. K., Colella, B., Voortman, M., Connelly, S., Drury, J., Klein, G., & Wukich, C. 2013. *Real-time decision making in urgent events: modeling options for action*. Paper presented at the 10th International ISCRAM Conference, Baden-Baden.
- Comfort, L. K., Ko, K., & Zagorecki, A. 2004. Coordination in rapidly evolving disaster response systems. *American Behavioral Scientist*, 48(3): 295-313.
- Concord. 2010. An approach to impact-oriented programming, implementation monitoring and evaluation. In C. E. d. O. d. u. a. d. développement (Ed.), *Evaluation, Capitalisation and assessment of impact to promote quality of action and political dialogue between development actors*: 1-17. Paris: CONCORD discussion paper.
- Cook, C., Inayatullah, S., Burgman, M., Sutherland, W., & Wintle, B. 2014. Strategic foresight: how planning for the unpredictable can improve environmental decision-making. *Trends in ecology & evolution*, 29(9): 531-541.

- Cooley, A., & Ron, J. 2002. The NGO scramble: organizational insecurity and the political economy of transnational action. *International Security*, 27(1): 5-39.
- Cope, J., & Watts, G. 2000. Learning by doing – an exploration of experience, critical incidents and reflection in entrepreneurial learning. *International Journal of Entrepreneurial Behaviour & Research*, 6(3): 104-124.
- Crabtree, B., & Miller, W. L. 1999. *Doing qualitative research*. Thousand Oaks: Sage.
- Creswell, J. W. 2013. *Research design: Qualitative, quantitative, and mixed methods approaches* (4th edition ed.). Los Angeles: Sage.
- Cuhls, K. 2003. From forecasting to foresight processes — new participative foresight activities in Germany. *Journal of Forecasting*, 22(2-3): 93 -111.
- Cunha, M. P., Clegg, S. R., & Kamoche, K. 2012. Improvisation as “real time foresight”. *Futures*, 44(3): 265-272.
- Currian, P., Silva, C., & Van de Walle, B. 2007. Open source software for disaster management. *Communications of the ACM*, 50(3): 61-65.
- Daheim, C., & Uerz, G. 2008. Corporate foresight in Europe: from trend based logics to open foresight. *Technology Analysis & Strategic Management*, 20(3): 321-336.
- Dant, T. 2005. The Driver-Car. In M. Featherstone, N. Thrift, & J. Urry (Eds.), *Automobilities*: 1-32. London: Sage.
- Davis, G. F., McAdam, D., Scott, W. R., & Zald, M. N. 2005. *Social movements and organization theory*. Cambridge: Cambridge University Press.
- Day, J., Junglas, I., & Silva, L. 2009. Information flow impediments in disaster relief supply chains. *Journal of the Association for Information Systems*, 10(8): 637-660.
- Deken, F., & Lauche, K. 2014. Coordinating through the development of a shared object: an approach to study interorganizational innovation. *International Journal of Innovation and Technology Management*, 11(01): 144-0002.
- Dicken, P. 2003. *Global shift: Reshaping the global economic map in the 21st century*. London: Sage.

- Donini, A. 2012. *The Golden Fleece: manipulation and independence in humanitarian action*. London: Kumarian Press
- Dorasamy, M., Raman, M., & Kaliannan, M. 2013. Knowledge management systems in support of disasters management: A two decade review. *Technological Forecasting and Social Change*, 80(9): 1834-1853.
- Drabek, T., & McEntire, D. 2003. Emergent phenomena and the sociology of disasters: lessons, trends and opportunities from the research literature. *Disaster Prevention and Management*, 12(2): 97-112.
- Duffield, M. 1994. Complex emergencies and the crisis of developmentalism. *ids bulletin*, 25(4): 37-45.
- Duffield, M. 2002. Social reconstruction and the radicalization of development: aid as a relation of global liberal governance. *Development and change*, 33(5): 1049-1071.
- Dunn, E. C. 2012. The chaos of humanitarian aid: adhococracy in the Republic of Georgia. *Humanity: An International Journal of Human Rights, Humanitarianism, and Development*, 3(1): 1-23.
- Dyer, J. H., & Chu, W. 2003. The role of trustworthiness in reducing transaction costs and improving performance: Empirical evidence from the United States, Japan and Korea. *Organization Science*, 14(1): 57-68.
- Edmondson, A., & McManus, S. 2007. Methodological fit in management field research. *Academy of Management Review*, 32(4): 1246-1264.
- Eisenhardt, K., & Graebner, M. E. 2007. Theory building from cases: opportunities and challenges. *Academy of Management Journal*, 50: 25-32.
- Eisenhardt, K., & Martin, J. 2000. Dynamic capabilities - What are they. *Strategic Management Journal*, 21: 1105-1122.
- Eisenhardt, K. M. 1989. Building theories from case study research. *Academy of Management Review*, 14: 532-550.
- Eisenhardt, K. M. 1991. Better stories and better constructs: The case for rigor and comparative logic. *Academy of Management Review*, 16(3): 620-627.

- Eisenhardt, K. M., & Zbaracki, M. J. 1992. Strategic decision making. *Strategic Management Journal*, 13: 17-17.
- Ekbia, H. R., & Kling, R. 2005. Network organizations: Symmetric cooperation or multivalent negotiation? *The Information Society*, 21(3): 155-168.
- Ernst, D. 2002. Global production networks and the changing geography of innovation systems. Implications for developing countries. *Economics of innovation and new technology*, 11(6): 497-523.
- Fatemi, H., van Sinderen, M., Wieringa, R., & Razo-Zapata, I. S. 2012. Endurability and Profitability analysis of Collaborative Networks.
- Fazarmand, A. 2007. Learning from Katrina Crises: A global and international perspective with implications for future crises management. *Public Administration Review*, 67(s1): 149-159.
- Ferrera, M., & Sacchi, S. 2005. *The Open Method of Co-ordination and national institutional capabilities. The Italian experience*. Brussels: Peter Lange.
- Flanagan, J. C. 1954. The critical incident technique. *Psychological bulletin*, 51(4): 327-366.
- Flanagin, A. J., Stohl, C., & Bimber, B. 2006. Modeling the Structure of Collective Action. *Communication Monographs*, 73(1): 29-54.
- Forrester, J. W. 1992. Policies, decisions and information sources for modeling. *European Journal of Operational Research*, 59(1): 42-63.
- Francisco, R. A. 2010. *Collective Action Theory and Empiric Evidence*. New York: Springer.
- Friese, S. 2014. *Qualitative data analysis with ATLAS.ti*: London:Sage.
- Gard, J. 2015. *Corporate venture management in SMEs: evidence from the German IT consulting industry (PhD thesis)*. Leiden University, Leiden.
- Gay, B., & Dousset, B. 2005. Innovation and network structural dynamics: Study of the alliance network of a major sector of the biotechnology industry. *Research policy*, 34(10): 1457-1475.
- George, A. L., & Bennett, A. 2005. *Case studies and theory development in the social sciences*. Cambridge Massachussets: MIT Press.

- Georghiou, L., Harper, J. C., Keenan, M., Miles, I., & Popper, R. 2008. *The handbook of technology foresight: concepts and practice*. Cheltenham: Edward Elgar Publishing.
- Ghoshal, S., & Moran, P. 1996. Bad for practice: A critique of the transaction cost theory. *Academy of Management Review*, 21(1): 13-47.
- Gibbert, M., Ruigrok, W., & Wicki, B. 2008. What passes as a rigorous case study? *Strategic Management Journal*, 29(13): 1465-1474.
- Giddens, A. 1984. *The constitution of society: Outline of the theory of structuration*. Berkeley: University of California Press.
- Giddens, A. 2013. *The consequences of modernity*. Hoboken: John Wiley & Sons.
- Giones, F., & Miralles, F. 2015. Do Actions matter more than resources? A signalling theory perspective on the technology entrepreneurship process. *Technology Innovation Management Review*(March 2015): 39-45.
- Gloor, P. A. 2005. *Swarm creativity: Competitive advantage through collaborative innovation networks*: Oxford University Press.
- Godet, M. 1986. Introduction to la prospective: seven key ideas and one scenario method. *Futures*, 18(2): 134-157.
- Goldstein, B. E. (Ed.). 2012. *Collaborative Resilience* (1st ed.). Cambridge: MIT Press.
- Gonzalez, J., Bø, G., & Johansen, J. 2013. *A System Dynamics Model of the 2005 Hatlestad Slide Emergency Management*. Paper presented at the 10th International Conference on Information Systems for Crisis Response and Management.
- Gordon, T. J., Glenn, J. C., & Jakil, A. 2005. Frontiers of futures research: what's next? *Technological Forecasting and Social Change*, 72(9): 1064-1069.
- Gorelick, S. 2012. The dynamics of critical incidents in the age of new media. In R. Schwesler (Ed.), *Handbook of critical incident analysis*: 316-337. New York: M.E. Sharpe.
- Graf, H. 2006. *Networks in the innovation process: local and regional interactions*. Cheltenham: Edward Elgar Pub.
- Graham, S. 2010. *Disrupted cities: When infrastructure fails*: Routledge.

- Granovetter, M. 1983. The strength of weak ties: A network theory revisited. *Sociological theory*, 1(1): 201-233.
- Granovetter, M. S. 1973. The strength of weak ties. *American journal of sociology*: 1360-1380.
- Green, W. 2000. What is a disaster, *Virginia Critical Incident Stress Management Conference*. Virginia: University of Richmond.
- Greenberg, M. 2013. *Applied Linear Programming: For the Socioeconomic and Environmental Sciences*. New York: Academic Press.
- Gregory, R. W., & Muntermann, J. 2014. Research note - heuristic theorizing: proactively generating design theories. *Information Systems Research*, 25(3): 639-653.
- Haddon, L., Mante-Meijer, E., & Loos, E. 2012. *The social dynamics of information and communication technology*: Ashgate Publishing, Ltd.
- Hahn, H., Meyer-Nieberg, S., & Pickl, S. 2009. Electric load forecasting methods: Tools for decision making. *European Journal of Operational Research*, 199(3): 902-907.
- Hakansson, H., & Snehota, I. 2006. No business is an island: The network concept of business strategy. *Scandinavian Journal of Management*, 22: 256-270.
- Hall, P. 2006. Systematic process analysis: when and how to use it. *European Management Review*, 3(124-31).
- Hambrick, D. 2004. The disintegration of strategic management: It's time to consolidate our gains. *Strategic Organization*, 2(1): 91-98.
- Hambrick, D. 2007. The field of management's devotion to theory: Too much of a good thing? *Academy of Management Journal*, 50(6): 1346-1352.
- Hamdouch, A. 2010. Conceptualising Innovation Networks and Clusters. In B. Laperche, P. Sommers, & D. Uzunidis (Eds.), *Innovation Networks and Clusters- The knowledge backbone* Brussels: Peter Lang.
- Hamel, G., & Prahalad, C. 2013. *Competing for the Future*. Coimbatore: Harvard Business Press.
- Hardin, R. 1971. Collective action as an agreeable n-prisoners' dilemma. *Behavioral Science*, 16(5): 472-481.

- Harmeling, S. 2011. Contingency as an entrepreneurial resource: How private obsession fulfills public need. *Journal of Business Venturing*, 26(3): 293-305.
- Harmer, A. 2005. Diversity in donorship: the changing landscape of official humanitarian aid. In H. P. Group (Ed.), Vol. Sept 2005. London: ODI.
- Heger, T., & Boman, M. 2014. Networked foresight — the case of EIT ICT Labs. *Technological Forecasting and Social Change*, 101(Dec. 2015): 147-164.
- Hemphälä, J., & Magnusson, M. 2012. Networks for innovation—but what networks and what innovation? *Creativity and innovation management*, 21(1): 3-16.
- Hermann, M. G., Lecy, J. D., Mitchell, G. E., Pagé, C., Raggo, P., Schmitz, H. P., & Viñuela, L. 2012. Transnational NGOs: A cross-sectoral analysis of leadership perspectives. *Available at SSRN 2191082*.
- Herranz, J. 2008. The multisectoral trilemma of network management. *Journal of Public Administration Research and Theory*, 18(1): 1-31.
- Hill, C., Jones, G., & Schilling, M. 2014. *Strategic management theory: an integrated approach* (11th ed.). Stanford: Cengage Learning.
- Hitt, M. A., Ahlstrom, D., Dacin, M. T., Levitas, E., & Svobodina, L. 2004. The institutional effects on strategic alliance partner selection in transition economies: China vs. Russia. *Organization Science*, 15(2): 173-185.
- Hodgson, G. 2007. Meanings of methodological individualism. *Journal of Economic Methodology*, 14(2): 211-226.
- Hopf, T. 2010. The logic of habit in International Relations. *European Journal of International Relations*.
- Hörisch, J., Freeman, R. E., & Schaltegger, S. 2014. Applying Stakeholder Theory in Sustainability Management Links, Similarities, Dissimilarities, and a Conceptual Framework. *Organization & Environment*, 27(4): 328-346.
- Howcroft, D. A., Mitev, N., & Wilson, M. 2005. What we may learn from the social shaping of technology approach. In L. Willcocks, & J. Mingers (Eds.), *Social Theory and Philosophy of Information Systems* 329-371. London: John Wiley.

- Hox, J. J., & Boeije, H. R. 2005. Data collection, primary versus secondary, *Encyclopedia of social measurement*, Vol. 1: 593-599.
- Huisman, M., & van Duijn, M. A. 2011. A reader's guide to SNA software. *The SAGE handbook of social network analysis*: 578-600.
- Huxham, C., & Vangen, S. 2005. *Managing to collaborate*. London: Routledge.
- James, K. 2011. The organizational science of disaster and terrorism prevention and response: Theory building toward the future of the field. *Journal of Organizational Behavior*, 32: 1013-1032.
- Janssen, M. A., Goldstone, R. L., Menczer, F., & Ostrom, E. 2008. Effect of rule choice in dynamic interactive spatial commons. *International Journal of the Commons*, 2(2): 288-312.
- Jarzabkowski, P. 2004. Strategy as practice: recursiveness, adaptation, and practices-in-use. *Organization studies*, 25(4): 529-560.
- Jenkins, P., Gremillion, M., & Nowell, B. 2010. Achieving Successful Long-Term Recovery and Safety from a Catastrophe: The Federal Role. In N. C. S. University (Ed.): 1-36. New Orleans: CHART (Center for Hazards, Assessment, Response and Technology).
- Jiang, B. 2016. A Complex-Network Perspective on Alexander's Wholeness. *arXiv preprint arXiv:1602.08939*.
- Johanson, J., & Mattsson, L.-G. 2015. Internationalisation in industrial systems—a network approach, *Knowledge, Networks and Power*: 111-132. Berlin: Springer.
- Johnson, G., Scholes, K., & Whittington, R. 2008. *Exploring corporate strategy: Text and cases*. New Jersey: Pearson Education.
- Jones, C., & Lichtenstein, B. B. 2008. Temporary inter-organizational projects: how temporal and social embeddedness enhance coordination and manage uncertainty. *The Oxford handbook of inter-organizational relations*: 231-255.
- Jordan, E., & Javernick-Will, A. 2013. Indicators of community recovery: content analysis and Delphi approach. *Natural Hazards Review*, 14(1): 21-28.



- Jun, S. 2012. Central technology forecasting using social network analysis, *Computer Applications for Software Engineering, Disaster Recovery, and Business Continuity*: 1-8. Heidelberg: Springer.
- Junk, J. 2011. Method parallelization and method triangulation : method combinations in the analysis of humanitarian interventions. *German Policy Studies*, 7(3): 83-116.
- Kaplan, S. 2009. Identity in Fragile States: Social cohesion and state building. *Development*, 52(4): 466-472.
- Kapucu, N. 2005. Interorganizational coordination in dynamic context: Networks in emergency response management. *Connections*, 26(2): 33-48.
- Kapucu, N. 2015. A social network analysis approach to strengthening nonprofit collaboration. *The Journal of Applied Management and Entrepreneurship*, 20(1): 87-98.
- Kapucu, N., Arslan, T., & Collins, M. L. 2010. Examining Intergovernmental and Interorganizational Response to Catastrophic Disasters Toward a Network-Centered Approach. *Administration & Society*, 42(2): 222-247.
- Karan, P., & Subbiah, S. (Eds.). 2011. *The Indian Ocean Tsunami-the global response to a natural disaster*. Kentucky: University Press of Kentucky.
- Kasimin, H., & Ibrahim, H. (Eds.). 2010. *Managing multi-organizational interaction issues: A case study of information technology transfer in Public Sector of Malaysia*. Hershy: IGI Global.
- Katzmair, H. 2010. Netzwerke als Innovationsmotor: Wie Innovationen durch Netzwerke entstehen. In V. V. Schumpelick, Bernhard/Konrad Adenauer-Stiftung eV (Ed.), *Innovationen in Medizin und Gesundheitswesen*, Vol. 24.
- Katznelson, I., & Weingast, B. 2005. Intersections between historical and rational choice institutionalism. *Preferences and situations*: 1-26.
- Katzy, B., Turgut, E., Holzmann, T., & Sailer, K. 2013. Innovation intermediaries: a process view on open innovation coordination. *Technology Analysis & Strategic Management*, 25(3): 295-309.

- Katzy, B. R., Bondar, K., & Mason, R. M. 2012. *Knowledge-based theory of the firm, challenges by social media*. Paper presented at the System Science (HICSS), 2012 45th Hawaii International Conference on.
- Keck, M. E., & Sikkink, K. 2014. *Activists beyond borders: Advocacy networks in international politics*: Cornell University Press.
- Keenan, M., & Miles, I. 2002. *Practical guide to regional foresight in the United Kingdom*: Office for Official Publications of the European Communities.
- Kilby, P. 2008. The strength of networks: The Local NGO response to the Tsunami in India. *Disasters*, 32(1): 120-130.
- Kilduff, M., Crossland, C., & Tsai, W. 2008. Pathways of opportunity in dynamic organizational networks, *Complexity leadership, Part I: Conceptual foundations*, Vol. 1: 83-99. Charlotte, NC: Information Age Publishing.
- Kiser, L., & Ostrom, E. 2000. The three worlds of action: A metatheoretical synthesis of institutional approaches. *Polycentric Games and Institutions*, 1: 56-88.
- Klein, S., & Poulymenakou, A. 2006. *Managing Dynamic Networks: Organizational perspectives of technology enabled inter-firm collaboration*. Wien: Springer.
- Koller, H., Langmann, C., & Untiedt, H. 2006. Das Management von Innovationsnetzwerken in verschiedenen Phasen. In F. Wojda, & A. Barth (Eds.), *Innovative Kooperationsnetzwerke*, Vol. 16: 28-80. Wiesbaden: Gabler.
- Könnölä, T., Brummer, V., & Salo, A. 2007. Diversity in foresight: Insights from the fostering of innovation ideas. *Technological Forecasting and Social Change*, 74(5): 608-626.
- Könnölä, T., Scapolo, F., Desruelle, P., & Mu, R. 2011. Foresight tackling societal challenges: Impacts and implications on policy-making. *Futures*, 43(3): 252-264.
- Koppenjan, J. F. M., & Klijn, E.-H. 2004. *Managing uncertainties in networks: a network approach to problem solving and decision making*: Psychology Press.
- Korsgaard, S. 2011. Opportunity formation in social entrepreneurship. *Journal of Enterprising communities: People and places in global communities*, 5(4): 265-285.

- Koschatzky, K. 2005. Foresight as a governance concept at the interface between global challenges and regional innovation potentials. *European Planning Studies*, 13(4): 619-639.
- Kumaran, M., & Torris, T. 2011. The role of NGOs in Tsunami Relief and Reconstruction in Cuddalore District, South India. In P. Karan, & S. Subbiah (Eds.), *The Indian Ocean Tsunami*: 183-211. Kentucky: Kentucky University Press.
- Kuosa, T. 2016. *The evolution of strategic foresight: navigating public policy making*. London: Routledge.
- Kuwahara, T. 1999. Technology forecasting activities in Japan. *Technological Forecasting and Social Change*, 60(1): 5-14.
- Laforet, S. 2011. A framework of organisational innovation and outcomes in SMEs. *International Journal of Entrepreneurial Behavior & Research*, 17(4): 380-408.
- Lalonde, C. 2011. Managing crises through organisational development: a conceptual framework. *Disasters*, 35(2): 443-464.
- Lambell, R., Ramia, G., Nyland, C., & Michelotti, M. 2008. NGOs and international business research: Progress, prospects and problems. *International Journal of Management Reviews*, 10(1): 75-92.
- Landeta, J. 2006. Current validity of the Delphi method in social sciences. *Technological Forecasting and Social Change*, 73(5): 467-482.
- Landry, M. D., O'Connell, C., Tardif, G., & Burns, A. 2010. Post-earthquake Haiti: the critical role for rehabilitation services following a humanitarian crisis. *Disability & Rehabilitation*, 32(19): 1616-1618.
- Langley, A. 1999. Strategies for theorizing from process data. *Academy of Management Review*, 24(4): 691-710.
- Langley, A., Smallman, C., Tsoukas, H., & Van de Ven, A. H. 2013. Process studies of change in organization and management: Unveiling temporality, activity, and flow. *Academy of Management Journal*, 56(1): 1-13.
- Latour, B. 1991. Technology is society made durable. In J. Law (Ed.), *A sociology of monsters. Essays on power, technology and domination*: 103-131. London: Routledge.

- Latour, B. 1999. On recalling ANT. *Actor network theory and after*: 15-25.
- Latour, B. 2005. *Reassembling the social*. New York: Oxford University Press.
- Latour, B. 2012. *We have never been modern*: Harvard University Press.
- Law, J. 1992. Notes on the Theory of the Actor-Network: Ordering, Strategy and Heterogeneity. *Systems Practice*, 5: 379-393.
- Law, J., & Callon, M. 1992. The Life and Death of an Aircraft: A network Analysis of technical change. In W. Bijker, & J. Law (Eds.), *Shaping technology, building society: Studies in sociotechnological change*. Cambridge Massachusetts: MIT Press.
- Lin, H.-C., Luarn, P., Maa, R.-H., & Chen, C.-W. 2012. Adaptive foresight modular design and dynamic adjustment mechanism: Framework and Taiwan case study. *Technological Forecasting and Social Change*, 79(9): 1583-1591.
- Lindblom, C. E. 1979. Still muddling, not yet through. *Public Administration Review*, 39(6): 517-526.
- Lindenberg, M., & Bryant, C. 2001. *Going global: Transforming relief and development NGOs*: Kumarian Press Bloomfield, CT.
- Linstone, H. A. 2002. Corporate planning, forecasting, and the long wave. *Futures*, 34(3): 317-336.
- Linstone, H. A. 2011. Three eras of technology foresight. *Technovation*, 31(2): 69-76.
- Linstone, H. A., & Turoff, M. 2011. Delphi: a brief look backward and forward. *Technological Forecasting and Social Change*, 78(9): 1712-1719.
- Lublin, N. 2011. *Zilch - How businesses and not-for-profits can get more bang with less buck*. New York: Penguin Putnam Inc.
- Machiavelli, N., Codevilla, A., Allen, W. B., Arkes, H., & Lord, C. 1997. *The prince*. New Haven & London: Yale University Press.
- MacQueen, K. M., McLellan, E., Kay, K., & Milstein, B. 1998. Codebook development for team-based qualitative analysis. *Cultural Anthropology Methods*, 10(2): 31-36.

- Majchrzak, A., Jarvenpaa, S., & Hollingshead, A. 2007. Coordinating expertise among emergent groups responding to disasters. *Organization Science*, 18(1): 147-161.
- Manzini, E. 2014. Making things happen: social innovation and design. *Design Issues*, 30(1): 57-66.
- Markmann, C., von der Gracht, H., Keller, J., & Kroehl, R. 2012. *Collaborative foresight as a means to face future risks—an innovative platform conception*. Paper presented at the Proceedings of the 9th international ISCRAM conference.
- Martin, B. R., & Johnston, R. 1999. Technology foresight for wiring up the national innovation system: experiences in Britain, Australia, and New Zealand. *Technological Forecasting and Social Change*, 60(1): 37-54.
- Martinet, A.-C. 2010. Strategic planning, strategic management, strategic foresight: The seminal work of H. Igor Ansoff. *Technological Forecasting and Social Change*, 77(9): 1485-1487.
- Martino, J. P. 1993. *Technological forecasting for decision making* (3rd ed.). New York: McGraw-Hill, Inc.
- Maurer, C., & Valkenburg, R. 2014. Approaches To Networked Innovation. *International Journal of Innovation and Technology Management*, 11(01): 1440004.
- McGilvray, D., & Gamburd, M. 2010. *Tsunami Recovery in Sri Lanka* (1 ed.). New York: Routledge.
- McGuire, M. 2006. Collaborative public management: Assessing what we know and how we know it. *Public Administration Review*, 66(s1): 33-43.
- Meesters, K., & Van de Walle, B. 2014. Serious Gaming for User Centered Innovation and Adoption of Disaster Response Information Systems. *International Journal of Information Systems for Crisis Response and Management (IJISCRAM)*, 6(2): 1-15.
- Meier, K. J., & O'Toole, L. J. 2005. Managerial Networking Issues of Measurement and Research Design. *Administration & Society*, 37(5): 523-541.
- Mendonça, D., Jefferson, T., & Harrald, J. 2007. Collaborative adhocracies and mix-and-match technologies in emergency management. *Communications of the ACM*, 50(3): 44-49.

- Middleton, S. E., Middleton, L., & Modafferi, S. 2014. Real-time crisis mapping of natural disasters using social media. *Intelligent Systems, IEEE*, 29(2): 9-17.
- Miles, I. 2008. From Futures to foresight. In L. Georghiou, J. C. Harper, M. Keenan, I. Miles, & R. Popper (Eds.), *The handbook of technology foresight*: 24-43. Cheltenham: Edward Elgar.
- Miles, I. 2010. The development of technology foresight: A review. *Technological Forecasting and Social Change*, 77(9): 1448-1456.
- Miles, I., Harper, J. C., Georghiou, L., Keenan, M., & Popper, R. 2008. The Many Faces of Foresight, *The handbook of technology foresight: Concepts and practice*: 3-23. Cheltenham: Edward Elgar.
- Miles, M., & Huberman, A. (Eds.). 2002. *The qualitative researcher's companion* (2nd edition ed.). Thousand Oaks: Sage.
- Miller, D., & Rivera, J. D. 2016. *Community disaster recovery and resiliency: Exploring global opportunities and challenges*. Boca Raton: CRC Press.
- Mintzberg, H. 1973. *The nature of managerial work*. New York: Harper and Row.
- Mintzberg, H. 1987. *The strategy concept I: five p's for strategy*: U. of California.
- Mintzberg, H. 1990. The design school: reconsidering the basic premises of strategic management. *Strategic Management Journal*, 11(3): 171-195.
- Mir, R., & Watson, A. 2000. Strategic management and the philosophy of science: The case for a constructivist methodology. *Strategic Management Journal*, 21(9): 941-953.
- Mitlin, D., Hickey, S., & Bebbington, A. 2007. Reclaiming development? NGOs and the challenge of alternatives. *World development*, 35(10): 1699-1720.
- Mossalanead, A. 2008. U.S. Crises management in Geopolitical Regions. *Geopolitics Quarterly*, 3(4): 80-98.
- Mueller-Prothmann, T., & Finke, I. 2004. SELaKT-Social Network Analysis as a Method for Expert Localisation and Sustainable Knowledge Transfer. *J. UCS*, 10(6): 691-701.

- Muhr, T. 1991. ATLAS/ti—A prototype for the support of text interpretation. *Qualitative sociology*, 14(4): 349-371.
- Nadarajah, Y. M., Martin. 2011. Building local responses to disaster - Lessons from the 2004 Tsunami in Sri Lanka and India. *India Quarterly*, 67(4): 307-324.
- Nag, R., Hambrick, D., & Chen, M. 2007. What is strategic management, really? Inductive derivation of a consensus definition of the field. *Strategic Management Journal*, 28(9): 935-955.
- Nelson, R. 2010. Extending foresight: The case for and nature of Foresight 2.0. *Futures*, 42(4): 282-294.
- Newbert, S. L. 2008. Value, rareness, competitive advantage, and performance: a conceptual-level empirical investigation of the resource-based view of the firm. *Strategic Management Journal*, 29(7): 745-768.
- Nissen, M. E. 2011. Designing inter-organisational collectivities for dynamic fit: stability, manoeuvrability and application in disaster relief endeavours. *International Journal of Organisational Design and Engineering*, 1(4): 276-291.
- Norman, I. J., Redfern, S. J., Tomalin, D. A., & Oliver, S. 1992. Developing Flanagan's critical incident technique to elicit indicators of high and low quality nursing care from patients and their nurses. *Journal of advanced nursing*, 17(5): 590-600.
- Nugroho, Y., & Saritas, O. 2009. Incorporating network perspectives in foresight: a methodological proposal. *foresight*, 11(6): 21-41.
- O'Brien, W. 2010. *Temporary Network Development Capability in High Velocity Environments: A dynamic capability study on relief organizations*. University of Texas at Arlington, Texas.
- Okhuysen, G. A., & Bechky, B. A. 2009. 10 coordination in organizations: an integrative perspective. *The Academy of Management Annals*, 3(1): 463-502.
- Olshansky, R., Hopkins, L., & Johnson, L. 2012. Disaster and recovery: Processes compressed in time. *Natural Hazards Review*, 13(3): 173-178.
- Onwuegbuzie, A. J., & Leech, N. L. 2005. On becoming a pragmatic researcher: The importance of combining quantitative and qualitative research methodologies. *International Journal of Social Research Methodology*, 8(5): 375-387.

- Ordóñez, L. D., Schweitzer, M. E., Galinsky, A. D., & Bazerman, M. H. 2009. Goals gone wild: The systematic side effects of overprescribing goal setting. *The Academy of Management Perspectives*, 23(1): 6-16.
- Orlikowski, W. J. 2005. Material works: Exploring the situated entanglement of technological performativity and human agency. *Scandinavian Journal of Information Systems*, 17(1): 6.
- Orlikowski, W. J. 2009. The sociomateriality of organisational life: considering technology in management research. *Cambridge Journal of Economics*: bep058.
- Ostrom, E. 1990. *Governing the commons: The evolution of institutions for collective action*: Cambridge university press.
- Ostrom, E. 1996. Crossing the great divide: coproduction, synergy, and development. *World development*, 24(6): 1073-1087.
- Ostrom, E. 2000. Collective action and the evolution of social norms. *The Journal of Economic Perspectives*, 14(3): 137-158.
- Ostrom, E. 2010. Polycentric systems for coping with collective action and global environmental change. *Global Environmental Change*, 20(4): 550-557.
- Ostrom, E., Poteete, A., & Janssen, M. 2010. *Working Together*. New Jersey: Princeton University Press.
- Ostrom, E., Walker, J., & Gardner, R. 1992. Covenants with and without a sword: Self-governance is possible. *The American Political Science Review*: 404-417.
- Ozgen, E., & Baron, R. A. 2007. Social sources of information in opportunity recognition: Effects of mentors, industry networks, and professional forums. *Journal of Business Venturing*, 22(2): 174-192.
- Palen, L., & Liu, S. B. 2007. *Citizen communications in crisis: anticipating a future of ICT-supported public participation*. Paper presented at the Proceedings of the SIGCHI conference on Human factors in computing systems.
- Park, Y. 2015. The network of patterns: creating a design guide using Christopher Alexander's pattern language. *Environment and Planning B: Planning and Design*, 42(4): 593-614.



- Parmar, B. L., Freeman, R. E., Harrison, J. S., Wicks, A. C., Purnell, L., & De Colle, S. 2010. Stakeholder theory: The state of the art. *The Academy of Management Annals*, 4(1): 403-445.
- Parmigniani, A., & Rivera-Santos, M. 2011. Clearing a path through the forest: A Meta-Review of Interorganizational Relationships. *Journal of Management*, 37(No.4): 1108-1136.
- Partanen, J., & Möller, K. 2012. How to build a strategic network: A practitioner-oriented process model for the ICT sector. *Industrial Marketing Management*, 41(3): 481-494.
- Patzelt, H., & Shepherd, D. A. 2008. The decision to persist with underperforming alliances: The role of trust and control. *Journal of Management Studies*, 45(7): 1217-1243.
- Pearson, C. M., & Clair, J. A. 1998. Reframing crisis management. *Academy of Management Review*: 59-76.
- Pellegrin, J. 2007. Regional innovation strategies in the EU or a regionalized EU innovation strategy? Conceptual and empirical underpinnings of the EU approach. *Innovation*, 20(3): 203-221.
- Perng, S., Buscher, M., Halvorsrud, R., Wood, L., Stiso, M., Ramirez, L., & Al-Akkad, A. 2012. *Peripheral response: Microblogging during the 22/7/2011 Norway attacks*. Paper presented at the 9th ISCRAM conference, Vancouver.
- Perrow, C. 2007. *The next catastrophe. Reducing our vulnerabilities to natural, industrial and terrorist disasters*. New York: Princeton University Press.
- Peters, I. 2014. Too abstract to be feasible? - applying the GTM in social movement research, Vol. GIGA Research Programme: Legitimacy and Efficiency of Political Systems: 28: GIGA.
- Peterson, H. 2009. Transformational supply chains and the 'wicked problem' of sustainability: aligning knowledge, innovation, entrepreneurship, and leadership. *Journal on Chain and Network Science*, 9(2): 71-82.
- Pettigrew, A. M. 1997. What is a processual analysis? *Scandinavian Journal of Management*, 13(4): 337-348.
- Peucker, B. 2008. Untersuchung von Risikokontroversen mittels netzwerkanalytischer Methoden, *Netzwerkanalyse und Netzwerktheorie*: 557-565: Springer.

- Peuker, B. 2011. Akteur-Netzwerk-Theorie und politische Ökologie, *Handbuch Umweltsoziologie*: 154-172: Springer.
- Phillips, B. 2014. *Qualitative Disaster Research*. New York: Oxford University Press.
- Pittaway, L., Robertson, M., Munir, K., Denyer, D., & Neely, A. 2004. Networking and innovation: a systematic review of the evidence. *International Journal of Management Reviews*, 5(3-4): 137-168.
- Polanyi, K. 1944. *The Great Transformation – The political and economic origins of our time*. Boston: Beacon Press.
- Pollack, J., Costello, K., & Sankaran, S. 2013. Applying Actor–Network Theory as a sensemaking framework for complex organisational change programs. *International Journal of Project Management*, 31(8): 1118-1128.
- Poole, M. S., Dooley, K., Holmes, M., & Van de Ven, A. H. (Eds.). 2000. *Organization Change and innovation processes: Theory and Methods for research*. Oxford: Oxford University Press.
- Popper, R. 2008. Foresight Methodology, *The handbook of technology foresight: Concepts and practice*: 44-88. Cheltenham: Edward Elgar.
- Popper, R., Keenan, M., Miles, I., Butter, M., & Sainz, G. 2007. Global foresight outlook. *European Foresight Monitoring Network report to the EC*.
- Porter, M. E. 2000. Location, competition, and economic development: Local clusters in a global economy. *Economic development quarterly*, 14(1): 15-34.
- Powell, W., & DiMaggio, P. 2012. *The new institutionalism in organizational analysis*. Chicago: University of Chicago Press.
- Powell, W. W. 1991. Neither market nor hierarchy: Network forms of organization. *Markets, hierarchies and networks. The coordination of social life*: 265–276.
- Powell, W. W., Koput, K. W., & Smith-Doerr, L. 1996. Interorganizational collaboration and the locus of innovation: Networks of learning in biotechnology. *Administrative science quarterly*, 41(1).

- Powell, W. W., White, D. R., Koput, K. W., & Owen-Smith, K. 2005. Network Dynamics and Field Evolution: The Growth of Interorganizational Collaboration in the Life Sciences. *American Journal of Sociology*, 110(4): 1132-1205.
- Prahalad, C. K., & Krishnan, M. S. 2008. *The New Age of Innovation*. New York: McGraw-Hill.
- Prasad, A., & Prasad, P. 2002. The coming of age of interpretive organizational research. *Organizational Research Methods*, 5: 4-11.
- Priem, R. L., & Butler, J. E. 2001. Is the resource-based “view” a useful perspective for strategic management research? *Academy of Management Review*, 26(1): 22-40.
- Provan, K. G., & Kenis, P. 2008. Modes of network governance: Structure, management, and effectiveness. *Journal of Public Administration Research and Theory*, 18(2): 229.
- Quarantelli, E. L. 1982. General and particular observations on sheltering and housing in American disasters. *Disasters*, 6(4): 277-281.
- Quarantelli, E. L. 1988. Disaster crisis management: A summary of research findings. *Journal of Management Studies*, 25(4): 373-385.
- Quarantelli, E. L. 2006. Catastrophes are different from disasters: Some implications for crisis planning and managing drawn from Katrina, *Understanding Katrina: Perspectives from the social sciences*.
- Raju, E., & Becker, P. 2013. Multi-organisational coordination for disaster recovery: The story of post-tsunami Tamil Nadu, India. *International Journal of disaster risk reduction*, 4: 82-91.
- Ramkissoon-Babwah, N., & Mc David, J. 2014. Selecting the right clients for a business incubator- lessons learnt from the national integrated business incubator system (IBIS) programme in Trinidad and Tobago. *Journal of small business and entrepreneurship development*, 2(3-4): 13-26.
- Rangan, S., Samii, R., & Wassenhove, L. V. 2006. Constructive partnerships: When alliances between private firms and public actors can enable creative strategies. *The Academy of Management Review Archive*, 31(3): 738-751.

- Rauch, A., Wiklund, J., Lumpkin, G. T., & Frese, M. 2009. Entrepreneurial orientation and business performance: An assessment of past research and suggestions for the future. *Entrepreneurship Theory and Practice*, 33(3): 761-787.
- Read, S., Sarasvathy, S., Dew, N., Wiltbank, R., & Ohlsson, A.-V. 2010. *Effectual entrepreneurship*. London: Taylor & Francis.
- Richter, J. 2004. Public-private Partnerships for Health: A trend with no alternatives? *Development*, 47(2): 43-48.
- Rief, A. 2008. *Entwicklungsorientierte Steuerung strategischer Unternehmensnetzwerke* (1 ed.). Wiesbaden: Gabler Edition Wissenschaft.
- Ries, E. 2011. *The lean startup: How today's entrepreneurs use continuous innovation to create radically successful businesses*: Random House LLC.
- Ritala, P., Heimann, B., & Hurmelinna-Laukkanen, P. 2016. The need for speed - unfamiliar problems, capability rigidity, and ad hoc processes in organizations. *Industrial and corporate change*(August 2016): 1-21.
- Robinson, D. K., Rip, A., & Mangematin, V. 2007. Technological agglomeration and the emergence of clusters and networks in nanotechnology. *Research policy*, 36(6): 871-879.
- Rodriguez, H., Trainor, J., & Quarantelli, E. L. 2006. Rising to the challenges of a catastrophe: The emergent and prosocial behavior following Hurricane Katrina. *The annals of the American academy of political and social science*, 604(1): 82-101.
- Rogers, E. M. 2010. *Diffusion of innovations*: Simon and Schuster.
- Rohrbeck, R. 2012. Exploring value creation from corporate-foresight activities. *Futures*, 44(5): 440-452.
- Rohrbeck, R., & Gemünden, H. G. 2011. Corporate foresight: its three roles in enhancing the innovation capacity of a firm. *Technological Forecasting and Social Change*, 78(2): 231-243.
- Romanelli, E., & Khessina, O. M. 2005. Regional industrial identity: Cluster configurations and economic development. *Organization Science*, 16(4): 344-358.

- Rousseau, D. M., Sitkin, S. B., Burt, R. S., & Camerer, C. 1998. Not so different after all: A cross-discipline view of trust. *Academy of Management Review*, 23(3): 393-404.
- Sachs, J. D. 2012. From millennium development goals to sustainable development goals. *The Lancet*, 379(9832): 2206-2211.
- Saffo, P. 2007. Six rules for effective forecasting. *Harvard business review*, 85(7/8): 122.
- Sailer, K., Wannags, S., & Weber, C. R. M. 2016. Arbeitswelt 2030 - Co-Inkubation in Unternehmen, gefördert von adecco Stiftung ed. SCE (Strascheg Center for Entrepreneurship), Hochschule München.
- Saldaña, J. 2015. *The coding manual for qualitative researchers*. Los Angeles: Sage.
- Salge, T. O., & Vera, A. 2012. Benefitting from public sector innovation: the moderating role of customer and learning orientation. *Public Administration Review*, 72(4): 550-560.
- Sandler, T. 2004. *Global collective action*: Cambridge University Press.
- Sarasvathy, S. D. 2001. Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency. *Academy of Management Review*, 26(2): 243-263.
- Sarasvathy, S. D., & Venkataraman, S. 2011. Entrepreneurship as method: open questions for an entrepreneurial future. *Entrepreneurship Theory and Practice*, 35(1): 113-135.
- Sazali, A. W., Haslinda, A., Jegak, U., & Raduan, C. R. 2009. Evolution and development of technology transfer models and the influence of knowledge-based view and organizational learning on technology transfer. *Research Journal of International Studies*, 12: 79-91.
- Scacchi, W. 2005. Socio-technical interaction networks in free/open source software development processes, *Software Process Modeling*: 1-27: Springer.
- Scandura, T. A., & Williams, E. A. 2000. Research methodology in management: Current practices, trends, and implications for future research. *Academy of Management Journal*, 43(6): 1248-1264.

- Scarry, E. 1985. *The body in pain: The making and unmaking of the world*: Oxford University Press.
- Scarry, E. 2012. *Thinking in an Emergency* (Amnesty International Global Ethics Series ed.). New York: W.W.Norton & Company.
- Schaltegger, S., & Wagner, M. 2011. Sustainable entrepreneurship and sustainability innovation: categories and interactions. *Business Strategy and the Environment*, 20(4): 222-237.
- Scharpf, F. W. 2000. Economic changes, vulnerabilities, and institutional capabilities, *Welfare and Work in the Open Economy, Vol. I: From Vulnerability to Competitiveness*: 21-124: Oxford University Press.
- Schatzki, T. R., Knorr-Cetina, K. D., & Von Savigny, E. 2001. *The practice turn in contemporary theory*. London: Routledge.
- Schoenharl, T., Madey, G., Szabó, G., & Barabási, A. L. 2006. WIPER: A multi-agent system for emergency response. In B. Van de Walle, & M. Turoff (Eds.), *ISCRAM Conference*. Newark: Citeseer.
- Schreurs, M. 2011. Improving governance structures for natural disaster response. In P. Karan, & S. Subbiah (Eds.), *The Indian Ocean Tsunami*: 261-280. Kentucky: Kentucky University Press.
- Schulz, S. F. 2009. *Disaster relief logistics: benefits of and impediments to cooperation between humanitarian organizations*: Haupt Verlag AG.
- Schumpeter, J. H. 1934. *The theory of economic development. An inquiry into profits, capital, credit, interest and the business cycle*. New York: Oxford Press University.
- Schuppert, G. F. 2008. Governance—auf der Suche nach Konturen eines „anerkannt uneindeutigen Begriffs“. In G. F. Schuppert (Ed.), *Governance in einer sich wandelnden Welt*: 13-40. Heidelberg: Springer.
- Seale, C. 1999. Quality in qualitative research. *Qualitative Inquiry*, 5(4): 465-478.
- Sellnow, T. L., Seeger, M. W., & Ulmer, R. R. 2002. Chaos theory, informational needs, and natural disasters. *Journal of Applied Communication Research*, 30(4): 269-292.

- Selsky, J. W., & Parker, B. 2005. Cross-sector partnerships to address social issues: Challenges to theory and practice. *Journal of management*, 31(6): 849-873.
- Sen, A. K. 1977. Rational fools: A critique of the behavioral foundations of economic theory. *Philosophy & Public Affairs*: 317-344.
- Sennett, R. 2012. *Together: The rituals, pleasures and politics of cooperation*. London: Penguin Books.
- Sheperd, D., & Williams, T. 2014. Local Venturing as Compassion Organizing in the Aftermath of a Natural Disaster: The role of Localness and Community in Reducing Suffering. *Journal of Management Studies*, 51(6): 952-994.
- Shet, A., Arumugam, K., Rodrigues, R., Rajagopalan, N., Shubha, K., Raj, T., D'souza, G., & De Costa, A. 2010. Designing a mobile phone-based intervention to promote adherence to antiretroviral therapy in South India. *AIDS and Behavior*, 14(3): 716-720.
- Shleifer, A. 2012. Psychologists at the Gate: A Review of Daniel Kahneman's "Thinking, Fast and Slow". *Journal of economic literature*: 1080-1091.
- Singh, P. V., Tan, Y., & Mookerjee, V. 2008. Network effects: The influence of structural social capital on open source project success. *Management Information Systems Quarterly, Forthcoming*.
- Slotte-Kock, S., & Coviello, N. 2010. Entrepreneurship research on network processes: a review and ways forward. *Entrepreneurship Theory and Practice*, 34(1): 31-57.
- Sperling, L., Remington, T., Haugen, J., & Nagoda, S. 2004. *Addressing seed security in disaster response: Linking relief with development*: CIAT.
- Sprinkart, K.-P., Gottwald, F., & Sailer, K. 2014. *Fair Business: Wie Social Entrepreneurs die Zukunft gestalten*. Regensburg: Walhalla Fachverlag.
- Stacey, R. D. 2007. *Strategic management and organisational dynamics: the challenge of complexity to ways of thinking about organisations*: Prentice Hall.
- Stallings, R. A. 2003. *Methods of disaster research*: Xlibris Corporation.

- Stanforth, C. 2006. Using Actor-Network Theory to analyze E-Government implementation in developing Countries. *Information Technologies and International Development*, 3(Number 3): 35-60.
- Steen, M., Buijs, J., & Williams, D. 2014. The role of scenarios and demonstrators in promoting shared understanding in innovation projects. *International Journal of Innovation and Technology Management*, 11(01): 1440001.
- Stegbauer, C. (Ed.). 2010. *Netzwerkanalyse und Netzwerktheorie* (2nd edition ed.). Wiesbaden: Springer.
- Stephenson Jr., M. 2005. Making humanitarian relief networks more effective: operational coordination, trust and sense making. *Disasters*, 29(4): 337-350.
- Strauss, A., & Corbin, J. 1998. *Basics of Qualitative Research: Technics and Procedures for Developing Grounded Theory*. Newbury Park: Sage.
- Sutera, P. 2007. *Die Kinder des Tsunami*. Glashütten: C&P Verlag.
- Swan, J., & Scarbrough, H. 2005. The politics of networked innovation. *Human relations*, 58(7): 913-943.
- Swartz, D. 2012. *Culture and power: The sociology of Pierre Bourdieu*. University of Chicago Press.
- Sword-Daniels, V., Twigg, J., & Loughlin, S. 2015. Time for change? Applying an inductive timeline tool for a retrospective study of disaster recovery in Monserrat, West Indies. *International Journal of disaster risk reduction*, 12: 125-133.
- Sydow, J. 2009. Path dependencies in project-based organizing: evidence from television production in Germany. *Journal of Media Business Studies*, 6(2): 123-139.
- Sydow, J., Schreyögg, G., & Koch, J. 2009. Organizational path dependence: Opening the black box. *Academy of Management Review*, 34(4): 689-709.
- Sydow, J., Windeler, A., & Möllering, G. 2002. Path-creating networks in the field of Next Generation Lithography: Outline of a research project. *Technology Studies Working Papers TUTS-WP-2-2004*.



- Tatham, P. H., Kovács, G., & Larson, P. 2010. What skills and attributes are needed by humanitarian logisticians—a perspective drawn from international disaster relief agencies. *Operations in Emerging Economies, paper*: 015-0179.
- Tatnall, A. 2011. *Actor-network theory and technology innovation: advancements and new concepts*. Hershey: IGI Global.
- Teece, D. J., Pisano, G., & Shuen, A. 1997. Dynamic capabilities and strategic management. *Strategic Management Journal*, 18: 509-533.
- Telford, J., & Cosgrave, J. 2006. Joint Evaluation of the International Response to the Indian Ocean Tsunami, *Synthesis Report Tsunami Evaluation Coalition*: 1-194. London: Sida.
- Thomson, A. M., & Perry, J. L. 2006. Collaboration processes: Inside the black box. *Public Administration Review*, 66(s1): 20-32.
- Tomasini, R. M., & Van Wassenhove, L. N. 2009. From preparedness to partnerships: case study research on humanitarian logistics. *International Transactions in Operational Research*, 16(5): 549-559.
- Trezzini, B. 1998. Konzepte und Methoden der sozialwissenschaftlichen Netzwerkanalyse: Eine aktuelle Übersicht. *Zeitschrift für Soziologie*, 27(5): 378-394.
- Trompette, P., & Vinck, D. 2009. Revisiting the notion of Boundary Object. *Revue d'anthropologie des connaissances*, 3(1): 3-25.
- Tuomi, I. 2012. Foresight in an unpredictable world. *Technology Analysis & Strategic Management*, 24(8): 735-751.
- Turner, B. A. 1976. The organizational and interorganizational development of disasters. *Administrative science quarterly*: 378-397.
- Turner, J. H., Maryanski, A., & Fuchs, S. 1991. *The structure of sociological theory* (5th ed.). Belmont: Wadsworth.
- Turoff, M., Hiltz, S. R., Bañuls, V. A., & Van Den Eede, G. 2013. Multiple perspectives on planning for emergencies: an introduction to the special issue on planning and foresight for emergency preparedness and management. *Technological Forecasting and Social Change*, 80(9): 1647-1656.

- Turoff, M., Plotnick, L., Banuls, V., Hiltz, S., & Ramirez, M. 2015. Collaborative Evolution of Dynamic Scenario Model for the Interaction of Critical Infrastructures. In L. Palen, M. Buescher, & T. Comes (Eds.), *ISCRAM 2015*. Kristiansand.
- Twigg, J. 2006. Technology, post-disaster housing reconstruction and livelihood security. *Disaster studies working paper*(15).
- Twigg, J., & Steiner, D. 2001. Missed Opportunities: NGOs and the United Nations International Decade for Natural Disaster Reduction. *Australian Journal of Emergency Management*, 16(3): 5-14.
- Twigg, J., & Steiner, D. 2002. Mainstreaming disaster mitigation: challenges to organisational learning in NGOs. *Development in Practice*, 12(3): 473-479.
- UNISDR. 2006. NGOs & disaster risk reduction: a preliminary review of initiatives and progress made, Background paper for a consultative meeting In UNISDR (Ed.), *Global Network of NGOs for Community resilience to disasters* Geneva.
- UNISDR. 2009. Terminology on disaster risk reduction
- Van de Ven, A., & Hargrave, T. J. 2006. A collective action model of institutional innovation. *Academy of Management Review*, 31(4): 864-888.
- Van de Ven, A. H. 2007. *Engaged scholarship: A guide for organizational and social research*. Oxford: Oxford University Press, USA.
- Van de Ven, A. H., Polley, D. E., Garud, R., & Venkataraman, S. 1999. *The innovation journey*: Oxford University Press New York.
- Van den Herik, H. J., & de Laat, C. 2016. The future of ethical decisions made by computers. In L. Janssen (Ed.), *The art of ethics in the information society*. Amsterdam: Amsterdam University Press (AUP).
- van der Duin, P., Kleinsmann, M., & Valkenburg, R. 2014. Exploring A Design-Driven Approach As Way To Enable Networked Innovation: Synthesis And Future Research. *International Journal of Innovation and Technology Management*, 11(01): 1440007.
- Van der Helm, R. 2007. Ten insolvable dilemmas of participation and why foresight has to deal with them. *Foresight*, 9(3): 3-17.

- Van der Maaten, L., Postma, E., & Van den Herik, H. J. 2009. Dimensionality reduction: a comparative. *J Mach Learn Res*, 10: 66-71.
- van Mierlo, B., Leeuwis, C., Smits, R., & Woolthuis, R. 2010. Learning towards system innovation: Evaluating a systemic instrument. *Technological Forecasting and Social Change*, 77(2): 318-334.
- Van Notten, P. W., Slegers, A., & van Asselt, M. B. 2005. The future shocks: on discontinuity and scenario development. *Technological Forecasting and Social Change*, 72(2): 175-194.
- Van Wassenhove, L. N. 2006. Humanitarian aid logistics: supply chain management in high gear†. *Journal of the Operational Research Society*, 57(5): 475-489.
- Vangen, S., Hayes, J. P., & Cornforth, C. 2015. Governing cross-sector, inter-organizational collaborations. *Public Management Review*, 17(9): 1237-1260.
- Varda, D., Forgette, R., Banks, D., & Contractor, N. 2009. Social network methodology in the study of disasters: issues and insights prompted by post-Katrina research. *Population Research and Policy Review*, 28(1): 11-29.
- Vossen, N. 2010. *Business-NGO Alliances in Germany - The relationship between key alliance success factors and perceived alliance effectiveness*. Universiteit Maastricht, Maastricht.
- Wachtendorf, T. 2004. *Improvising 9/11: Organizational improvisation following the world trade center disaster*. University of Delaware, Delaware.
- Wade, M., & Hulland, J. 2004. Review: The resource-based view and information systems research: Review, extension, and suggestions for future research. *MIS quarterly*, 28(1): 107-142.
- Wajcman, J. 2013. *Managing like a man: Women and men in corporate management*. Hoboken: John Wiley & Sons.
- Wamsler, C., & Brink, E. 2014. Moving beyond short-term coping and adaptation. *Environment and Urbanization*: 516061.
- Wasserman, S., & Faust, K. 1994. *Social network analysis: Methods and applications*. Cambridge: Cambridge University Press.

- Watson, T. J. 1994. *In search of management: Culture, chaos and control in managerial work*: Routledge London.
- Watts, D. J., & Strogatz, S. H. 1998. Collective dynamics of 'small-world' networks. *Nature*, 393(6684): 440-442.
- Weber, C. R. M., Sailer, K., Holzmann, T., & Katzy, B. R. 2014. Co-evolution of goals and partnerships in collaborative innovation processes, *ISPIM XXV*. Dublin.
- Weber, C. R. M., Sailer, K., & Katzy, B. R. 2015. Real-time foresight - Preparedness for dynamic networks. *Technological Forecasting and Social Change*.
- Weber, M. 1992. *Wissenschaft als Beruf: 1917-1919; Politik als Beruf: 1919*: Mohr Siebeck.
- Weick, K. E. 1993. The collapse of sensemaking in organizations: The Mann Gulch disaster. *Administrative science quarterly*: 628-652.
- Weick, K. E. 1996. Drop your tools: An allegory for organizational studies. *Administrative science quarterly*: 301-313.
- Weick, K. E., & Sutcliffe, K. 2007. *Managing the unexpected: Resilient performance in an age of uncertainty* (2nd ed.). San Francisco: Jossey-Bass.
- Weigand, K., Flanagan, T., Dye, K., & Jones, P. 2014. Collaborative foresight: Complementing long-horizon strategic planning. *Technological Forecasting and Social Change*, 85: 134-152.
- Welsh, D. H., & Krueger, N. 2012. The evolution of social entrepreneurship: what have we learned? *Journal of Technology Management in China*, 7(3): 270-290.
- Werly, R. 2005. *Tsunami. La Verite Humanitaire*. Le Sarment: Diffusion Hachette.
- Wilhelmer, D., & Nagel, R. 2013. *Foresight-Managementhandbuch - Das Gestalten von Open Innovation*. Heidelberg: Carl Auer.
- Willetts, P. 2002. What is a non-governmental organization? *Output from the Research Project on Civil Society Networks in Global Governance*, 30: 2002.
- Williamson, O. E. 1979. Transaction-cost economics: the governance of contractual relations. *Journal of law and economics*: 233-261.

- Williamson, O. E. 2000. The new institutional economics: taking stock, looking ahead. *Journal of economic literature*: 595-613.
- Wukich, C., & Steinberg, A. 2013. Nonprofit and Public Sector Participation in Self-Organizing Information Networks: Twitter Hashtag and Trending Topic Use During Disasters. *Risk, Hazards & Crisis in Public Policy*, 4(2): 83-109.
- Yin, R. K. 2003. *Case study research: Design and methods* (3 ed.). Thousand Oaks: Sage.
- Yin, R. K. 2009. *Case study research: Design and Methods*: Sage publications, INC.
- Zahra, S. A. 2007. Contextualizing theory building in entrepreneurship research. *Journal of Business Venturing*, 22(3): 443-452.



## Appendices

The list of Appendices consists of six parts, viz. Appendix A to F.

Three Appendices are further subdivided.

Below we list the Appendices together with their subdivision (if applicable).

Appendix A1:	CIT questionnaire
Appendix A2:	Complementing central questions
Appendix B:	List of data sources
Appendix C1:	List of complete CIs in CI code-families
Appendix C2:	CI-chart 2 Keniparam
Appendix C3:	CI-chart 3 Kanni
Appendix D:	Codebook
Appendix E:	List of code families of the codes actor (ACT) and critical incident (CI)
Appendix F1:	Cross-tabulation of CIs and LNGOs/DINs in Ayam
Appendix F2:	Cross-tabulation of CIs and LNGOs/DINs in Keniparam
Appendix F3:	Cross-tabulation of CIs and LNGOs/DINs in Kanni

## **Appendix A1: CIT questionnaire**

### **Interview outline for narrative interviews**

1. Recording permission
2. Remembering Fukushima 2011 – which memories come up related to disaster management in Japan/in Germany/in India
3. Remembering Tsunami 2004 and disaster management of the NGO
4. Reading aloud the introduction
5. Pen and paper offer to scribble and visualize thoughts

### **Introduction**

When disasters hit communities, a large number of people and organisations become active in disaster management. Your organisation became active after Tsunami 2004 hit Tamil Nadu. Activities of response and recovery were a long dynamic process. Most activities related to the Tsunami are finished now, but some might continue, even today.

We are asking you to think back to the disaster and to the ad hoc actions taken in the beginning, then in the following weeks, months, and years. Much new collaboration with old and new partners was started in your organisation.

**1. Which most relevant events in real-time disaster management, beginning with the Tsunami itself, do you remember, and**



**2. Which events changed the plans and ongoing disaster management of your organisation?**

Please take your time before you answer. Try to remind slowly the months and years of your collaboration with different partners, and the disruptions by supportive or difficult things. Please use the timeline below to make notes.

**Disaster**



**Dec 2004**

## **Appendix A2: Complementing central questions**

### **Single Incidents**

**Before** - Help me to understand what it was like to do disaster management in this moment? What were the concerns of your organisation at the time?

Do you recall special events preceding the incident?

**During** - Who reacted to this critical incident?

What did others do? What was important at that time? Why?

How could it be communicated? What questions of your own organisation do you remember, and which ones from partners?

How were you informed? Did most people hear it that way?

Did you feel well informed when the incident happened?

How did your organisation react (alone – with other organisations)?

Who decided?

What kind of resources was needed?

**After** – what was changed by this incident?

How did the network of your organisation change after this incident?

Did the incident change disaster management inside your network?

Did the incident change disaster management outside your network?

### **Organisation**

When did your organisation start, what were and are its main activity fields?

In how many places did and does your organisation operate?

How are decisions made in your organisation (central, decentral)?

How is information spread usually within your organisation (channels, events, technical tools)?

Why did your organisation engage in disaster management after Tsunami 2004?

What other fields is your organisation working on?

What prepared your organisation for disaster management?

What is important to your organisation?

### **Partners**

Who have been the partners of your organisation in disaster management?

How did you find and relate to them?

Did their number change over time?

Which partners are most important to your organisation?

Is your organisation looking for new partners?

How does your organisation communicate with partners (priorities, channels, events)?

Are there reasons for your organisation to say “No” to a partnership?

What are, in your opinion, differences between local and international partners regarding information/decision making/technical standards/routines/expectations/activities?

### **Innovation**

In disaster management and reconstruction after Tsunami 2004, which things and processes were considered new by your organisation? How were they brought up?

Which things and processes were considered new by your partners?

If you think of innovation, did it come from organisational partners? From own activities? Or, from external actors?

Did you see any health care processes or products for the first time, in disaster management?

Are there, in your opinion, technical innovations related to disaster management after Tsunami 2004?

Are there social innovations related to the disaster and recovery process?

### **Competition**

Within a multitude of actors, at which points will competition grow?

Did your organisation come into competitive situations with other actors?

How were the situations solved?

What is a typical resource, or thing, or place that in response to competition did arise?

### **Communication and coordination**

In which events or at what calendar times did your organisation take part?

What did your organisation do to coordinate activities with partners?

Have there been special meetings for coordination?

Have you been able to decide on your own strategies in recovery?

At which points did your organisation face problems in coordination with other actors?

What was the tool or rule to solve coordination problems?

In the course of disaster response, have new members been included into your network?

Has ICT played a role in response activities after Tsunami 2004?

Where was it used?

Did your organisation miss more communication with some partners at some times?

When are expectations communicated between partners - in the very beginning of cooperation or at special events?

### **Issue rising**

How did your organisation raise issues in the project network?

What issues have been raised?

What issues did your partners raise?

What issues have been left behind in disaster management? Why?

Which techniques helped in issue rising?

Which elements from “outside” raised issues for disaster management?

How were interorganisational issues tackled?

**Visibility and media**

How did your organisation find right partners?

What did your organisation do to be visible?

Who should see your organisations activities?

Who should see your partners' activities?

What kinds of things were used to make organisations visible?

What have been problems in making organisations and activities visible?

What kind of media was involved? At which occasion?

Has media involvement been useful or harmful to your organisation/ your partners

What media channels is your organisation using?

Were these already used before Tsunami response activities?

## Appendix B: List of data sources

	DIN 1	DIN 2	DIN 3
<b>Primary Data</b>			
Interview local NGO	X	X	X
Interview transnational NGO	X	X	X
Interview intermediary NGO	X	X	X
Interview donor NGO	X	X	
Interview governmental actor		X	X
Participant observation	X	X	X
Control Case data: Fukushima 2011 – Hayan 2014	X		
<b>Secondary Data</b>			
Annual Reports Local NGO	X	X	X
Governmental Documents	X	X	X
Sectorwise NGO list	X		
Evaluation Report	X	X	X
Project contract	X	X	X
Project fotobook <sup>67</sup>			X
Control case data: Fukushima 2011 – Hayan 2014	X		
<b>Additional data on Tsunami 2004</b>			
Newspaper clippings THE HINDU 2005-2006	X		
Tsunami evaluation reports	X		
Governmental disaster act	X		
Magazine articles on disaster management in global relief 2010-2015	X		
Global risk reports, Hyogo framework of action	X		

---

<sup>67</sup> Photographies by Sutera, P. 2007. *Die Kinder des Tsunami*.

## Appendix C1: List of complete CIs in CI code families

Code-Family	N=39	Code
CI conflict	N=5	CI child trafficking CI doubling self-help groups CI legal barriers CI opposition to government CI skilled labor fluctuation
CI netdyn	N=14	CI competition CI contact overload pressure CI contract CI cooperation CI cooperation need assessment CI decision making CI different goals in reconstruction CI distribution CI donor travel CI lack of coordination CI lack of information CI local people disaccord CI new partner CI punctdirdis
CI psysoc	N=4	CI fear of sea CI medicare CI money spoiling self reliance CI visibility
CI resource	N=6	CI duplication CI lack of management capacity CI lack of resources CI money overload CI boat repair CI rising market prizes
CI success	N=3	CI innovative action CI solution CI LFT workshop
CI temp	N=7	CI ending relief action CI NGO Influx CI starting relief action CI starting workshop CI time pressure housing delay CI urgent CI inauguration



## Appendix C2: CI-chart Keniparam

12 actors N=166	2004 Disaster	2005	2006
<b>Local NGO</b>	CI competition CI lack of management capacity CI starting relief action CI cooperation CI lack of resources	CI lack of information CI lack of management capacity CI contract CI local people disaccord CINGO Influx CI competition CI distribution <b>CI solution</b>	CI contract <b>CI contact overload pt.</b> CI local people disaccord CI competition <b>CI money spoiling self reliance</b> CI lack of management capacity CI rising market prices
<b>Transnational NGO 1</b>	CI new partner CI cooperation need assessment CI competition	CI competition CINGO Influx CI lack of resources CI new partner <b>CI punctdirdis</b>	CI lack of information CI competition CI distribution
<b>Transnational NGO 2</b>	CI cooperation need assessment CI competition	CI new partner CI contract CI cooperation need assessment CI duplication CI different goals in reconstruction	CI skilled labor fluctuation CI opposition to government CI local people disaccord
<b>TNGO 3</b>		CI new partner <b>CI money overload</b>	<b>CI punctdirdis</b>
<b>Intermediary NGO</b>	CI cooperation need assessment	CI new partner <b>CI punctdirdis</b> CI donor travel CI distribution CI lack of information <b>CI fear of sea</b>	CI lack of information CI skilled labor fluctuation <b>CI lack of management capacity</b>

## Appendix C2 (continued 1)

2007	2008	2009	2010
<p><b>CI punctdirdis</b></p> <p>CI opposition to government</p> <p>CI local people discord</p> <p>CI distribution</p> <p><b>CI money spoiling self reliance</b></p> <p><b>CI contact overload pressure</b></p>	<p>CI houses</p> <p>CI cooperation</p>	<p><b>CI money overload</b></p> <p>CI local people discord</p> <p>CI opposition to government</p> <p><b>CI contact overload pressure</b></p>	<p>CI end of relief</p>
<p>CI lack of management capacity</p> <p>CI skilled labor fluctuation</p> <p><b>CI punctdirdis</b></p>	<p>CI houses</p> <p>CI donor travel</p> <p>CI lack of information</p> <p>CI visibility</p>		<p>CI lack of information</p> <p>CI decision making</p>
<p>CI opposition to government</p> <p>CI skilled labor fluctuation</p> <p>CI solution</p> <p>CI distribution</p>	<p>CI houses</p> <p>CI donor travel</p>	<p><b>CI money overload</b></p> <p><b>CI punctdirdis</b></p>	<p><b>CI money overload</b></p>
	<p>CI end of relief</p>		
<p>CI houses</p> <p>CI visibility</p>	<p>CI houses</p> <p>CI donor travel</p>		

## Appendix C2 (continued 2)

	2004	2005	2006
<b>Local Government</b>	CI different goals in reconstruction CI cooperation need assessment CI lack of coordination CI NGO-Influx <b>CI contact overload</b>	CI contract (Disaster Act; Coastal Regul Act) CI NGO Influx <b>CI punctualdiridis</b> <b>CI fear of sea</b> CI opposition to government	CI cooperation need assessment <b>CI money overload</b> CI time pressure housing delay
<b>Local Media</b>	CI starting relief action CI lack of information CI visibility	CI local people disaccord CI skilled labor fluctuation <b>CI fear of sea</b>	CI ending relief action
<b>Global Media</b>	CI starting relief action CI lack of information	CI NGO influx CI Lessons Learned Workshop	CI ending relief action
<b>Local Community</b>	CI lack of resources CI lack of information CI distribution CI competition	CI local people disaccord CI donor travel <b>CI fear of sea</b> CI competition CI donor travel	CI donor travel CI local people disaccord CI opposition to government CI duplication
<b>Local Houses</b>		CI starting relief action CI rising market prices	
<b>Contract</b>		CI starting relief action CI new partner CI lack of resources CI rising market prices	CI cooperation
<b>Mail</b>	CI starting relief action		

## Appendix C2 (continued 3)

2007	2008	2009	2010
CI time pressure housing delay CI money overload CI local people disaccord CI distribution	CI time pressure housing delay CI local people disaccord CI gender CI rising market prices	CI rising market prices CI NGO influx	CI time pressure housing delay
	CI solution		
	CI solution		
CI donor travel CI medicare CI child trafficking CI cooperation CI legal barriers CI contact overload	CI houses CI competition CI innovative activity	CI distribution CI opposition to government CI duplication	
CI opposition to government	CI solution		
CI cooperation	CI ending relief action		
			CI ending relief action

## Appendix C3: CI-chart Kanni

11 actors N= 133	2004 Disaster	2005	2006
<b>Local NGO</b>	CI child trafficking CI starting relief action CI opposition to government CI cooperation need assessment	CINGO Influx CI contract CI legal barriers CI new partner CI time pressure housing delay CI rising market prices CI cooperation need assessment	CI punctual diridis CI time pressure housing delay CI solution CI medicare
<b>Transnational NGO</b>	CI cooperation need assessment	CI competition CINGO Influx CI different goals in reconstruction CI rising market prices CI contract CI new partner	CI lack of information CI competition CI cooperation need assessment CINGO Influx CI solution
<b>Intermediary NGO</b>	CI decision making CI cooperation need assessment CI competition	CI distribution CI lack of coordination CI contract CI contact overload pressure CI LessLearn Workshop	CI punctdiridis CI donor travel CI cooperation need assessment CINGO Influx CI solution
<b>Local Government</b>	CI different goals in reconstruction CI cooperation need assessment CI lack of coordination CINGO-Influx CI contact overload	CI contract (Disaster Act; Coastal Regul Act) CINGO Influx CI punctual diridis CI fear of sea CI opposition to government	CI cooperation need assessment CI money overload CI time pressure housing delay CI rising market prices

### Appendix C3 (continued 1)

2007	2008	2009	2010
CI skilled labor fluctuation CI punctdirdis CI local people disaccord CI different goals in reconstruction	CI skilled labor fluctuation CI donor travel CI local people disaccord CI medicare	CI innovative action CI donor travel CI local people disaccord CI skilled labor fluctuation	CI innovative action CI local people disaccord CI medicare
CI skilled labor fluctuation CI innovative activity	CI different goals in reconstruction		
CI donor travel CI punctdirdis	CI punctdirdis		
CI time pressure housing delay CI money overload CI local people disaccord CI distribution	CI time pressure housing delay CI local people disaccord CI gender CI rising market prices	CI rising market prices CI NGO influx	

## Appendix C3 (continued 2)

	2004	2005	2006
<b>Local Media</b>	CI starting relief action CI lack of information CI visibility	CI local people disaccord CI skilled labor fluctuation CI contact overload pressure	CI innovative action CI punctured CI solution
<b>Global Media</b>	CI starting relief action CI lack of information	CI NGO influx CI Lessons Learned Workshop	CI ending relief action
<b>Gl. Donor NGO</b>		CI starting relief action	CI solution CI contact overload
<b>Gl. Private Company</b>		CI starting relief action	
<b>Local Community</b>	CI lack of resources CI lack of information CI lack of management capacity CI contact overload	CI medicare CI time pressure housing delay	CI medicare CI cooperation
<b>Contract</b>		CI starting relief action CI starting relief action CI new partner	CI starting relief action CI ending relief action CI rising market prices
<b>Green Bus</b>	CI starting relief action		

### Appendix C3 (continued 3)

2007	2008	2009	2010
CI innovative actionr	CI innovative action	CI innovative action	CI innovative action
		CI innovative action	
CI innovative action CI punctdardis			
CI ending relief action			
CI medicare	CI medicare CI different goals in re- construction	CI medicare	CI medicare
CI time pressure hous- ing delay	CI different goals in re- construction	CI different goals in re- construction	
CI ending relief action			



## Appendix D: Codebook



Number of Codes: 123, commented: 120

Code Info	Comment
<b>ACT</b>	■ Element of an heterogeneous actor-network; a socio-technical hybrid.
<b>ACT-boats</b>	■ Fisher boats destroyed/restored as livelihood item
<b>ACT-coastal regulation act</b>	■ Indian Governmental Act issued in 2005 following Tsunami 2004
<b>ACT-contract</b>	■ Contract of relief programme
<b>ACT-disaster management act</b>	■ Indian Governmental Act issued 2005 following the disaster of Tsunami 2004
<b>ACT-donors</b>	■ Organizations und humans that transfered money to support disaster management after Tsunami 2004
<b>ACT-global NGO</b>	■ Non-governmental organization of global operational structure in reach of activities, standards and resources
<b>ACT-gov</b>	■ Actors that belong to the Indian Government, here often district collectors in Tamil Nadu state districts
<b>ACT-houses</b>	■ Houses destroyed by Tsunami and then under reconstruction attracting the interest of a majority of relief actors
<b>ACT-intermediary NGO</b>	■ NGO that has an intermediary position between global and local Indian NGO
<b>ACT-local NGO</b>	■ NGO routet in a local region culturally and economically

<b>ACT-local-people</b>	■	Actors from local communities
<b>ACT-mail</b>	■	Material actors in electronical or postal mail form
<b>ACT-media</b>	■	Material actors being media devices f.ex. newspaper, radio, social media
<b>ACT-military</b>	■	Military units in relief activities
<b>ACT-NGO</b>	■	Non-governmental actors in heterogeneous relief networks aligning with governmental, military, for-profit and technical actors.
<b>ACT-police</b>	■	Human and non-human actors belonging to local police structures
<b>ACT-private company</b>	■	Corporate network actors with a for-profit orientation
<b>ACT-reports</b>	■	Documents carrying relief information within heterogeneous actor-networks
<b>ACT-telephone</b>	■	Technical actor enabling ad hoc and mobile communication, a cellphone or a landline telephone.
<b>CI</b>	■	Critical incident which changes activities and plans in real-time.
<b>CI medicare</b>	■	Incident or activity adressing medical needs
<b>CI-boat repair</b>	■	Incidental problems with quality of produced boats and catamarans
<b>CI-child trafficking</b>	■	Incidental local occurrence of child trafficking
<b>CI-competition</b>	■	Incidental competition of actors in real time disaster management
<b>CI-contact overload pressure</b>	■	Incidental pressure on actor by contact overloads (IT and physical communication)
<b>CI-contract</b>	■	Incidental contract signing for relief and rehabilitation projects between relief actors

<b>CI-cooperation</b>	■	Cooperation activity or incident impacting one or more organizations
<b>CI-cooperation need assessment</b>	■	Incidental investigation in local and cooperation needs
<b>CI-decision making</b>	■	Incident of decision making impacting ongoing plans
<b>CI-different goals in reconstruction</b>	■	Incidental appearance of different goals of heterogeneous actors
<b>CI-distribution</b>	■	Incidental distribution problem or solution
<b>CI-donor travel</b>	■	Incidental visit of global donor organization at local site
<b>CI-doubling self-help groups</b>	■	Incidental appointment of parallel self-help structures doubling existing activities
<b>CI-duplication</b>	■	Incidental replication of relief activity in a place where it already exists
<b>CI-ending relief action</b>	■	End of one or more relief components
<b>CI-fear of sea</b>	■	Occurrence of post traumatic stress in fisher families
<b>CI-inauguration</b>	■	[no entry]
<b>CI-innovative action</b>	■	Incident of an innovative action undertaken by network-actors
<b>CI-lack of coordination</b>	■	Situation of absence of coordination impacting actors activities
<b>CI-lack of information</b>	■	Situation of absence of information impacting actors activities
<b>CI-lack of management capacity</b>	■	Situation of absence of management capacity impacting relief activities
<b>CI-lack of resources</b>	■	Situation of absence of tangible or intangible resources

<b>CI-legal barriers</b>	■	Incidental confrontation between legal structures and actors activities
<b>CI-LFT workshop</b>	■	[no entry]
<b>CI-local people discord</b>	■	Incidental situation of dissaccord between local community and other relief actors
<b>CI-money overload</b>	■	Incidents related to an overload of funds and donations
<b>CI-money spoiling selfreliance</b>	■	Behaviour or perception that financial input changed behaviour in affected villages
<b>CI-new partner</b>	■	Inclusion and change of new partners in a dynamic network
<b>CI-NGO influx</b>	■	Incident of high influx of NGO in a local region
<b>CI-opposition to government</b>	■	Incidental dissaccord between governmental and non-governmental actors
<b>CI-punctual dirdis</b>	■	Punctual directedness and distance to implementing network-actors
<b>CI-rising market prices</b>	■	Issues and incidents related to rising market prices in reconstruction
<b>CI-skilled labour fluct</b>	■	Incidents of real time fluctuation of skilled labour in relief
<b>CI-solution</b>	■	Incidental solution for a problem in the reconstruction process
<b>CI-starting relief action</b>	■	Incidental beginning of a relief activity
<b>CI-starting workshop</b>	■	Incidental start-up inauguration in relief network 1
<b>CI-time pressure housing delay</b>	■	Issues related to delay in housing reconstruction or prolonged life in temporary shelters
<b>CI-urgent</b>	■	Time sensitive ad hoc action

<b>CI-visibility</b>	■	Issues related to visibility practices
<b>COLLAB-CHALLENGE</b>	■	Real-time challenge for multiple actors that have to collaborate under goal uncertainty and without central management.
<b>COLLAB-CHALLENGE-competition</b>	■	Collaboration challenge involving competition between actors
<b>COLLAB-CHALLENGE-confusion</b>	■	Collaboration challenge due to or provoking confusion
<b>COLLAB-CHALLENGE-long-term</b>	■	Collaboration challenge related to long-term relief
<b>COLLAB-CHALLENGE-rel</b>	■	Collaboration challenge involving interreligious question
<b>DIMA</b>	■	All activities related to expected, occurring or past disasters.
<b>DIMA-effects</b>	■	Effects and outcomes of global-local disaster management
<b>DIMA-exp</b>	■	Experiences of organizations and networks in disaster management
<b>DIMA-interest</b>	■	Interest actors or networks pursue in disaster management.
<b>DIMA-limits</b>	■	Limits of disaster management by one or more actors or networks
<b>DIMA-resources</b>	■	Resources enabling disaster management
<b>DIMA-stages</b>	■	Activities in and perceptions on disaster management related to phases in long-term relief
<b>DIS-effects</b>	■	Disaster impact of Tsunami 2004
<b>DIS-exp</b>	■	Real time experiences of different actors
<b>HEALTH-phys</b>	■	All accounts on health issues that relate to physiological problems

<b>HEALTH-psy</b>	■	All accounts of health issues in disaster management related to psychological problems
<b>INNOACT</b>	■	Innovative activities in real-time disaster management.
<b>INNOACT-distribution</b>	■	Innovative activity related to distribution problems in relief
<b>INNOACT-eshiporient</b>	■	Innovative activity in relief increasing entrepreneurial orientation
<b>INNOACT-forprofit</b>	■	Innovative activity in relief related to business
<b>INNOACT-gender</b>	■	Innovative activity in relief related to gender aspects
<b>INNOACT-learning</b>	■	Innovative activities related to learning processes in relief
<b>INNOACT-medicare</b>	■	Innovative activities in relief related to the medical field
<b>INNOACT-NGOactivity</b>	■	Innovative activity by a non-governmental actor
<b>INNOACT-startup</b>	■	Innovative activity involving start-ups
<b>NETDYN</b>	■	Network dynamic between actors in real time collaboration
<b>NETDYN-capBuild</b>	■	Network relations between actors that foster capacity building on institutional level
<b>NETDYN-capBuild-Housing</b>	■	Network relations fostering capacity building in housing
<b>NETDYN-capBuild-Res</b>	■	Network relations providing resources for capacity building
<b>NETDYN-capBuild-Train</b>	■	Network relations contributing to training and capacity building
<b>NETDYN-churchNGO</b>	■	Network relations between religious and NGO actors

<b>NETDYN-coordination</b>	■	Networked processes of coordination
<b>NETDYN-distrust</b>	■	Network relations showing distrust between actors
<b>NETDYN-emerge</b>	■	Network relations enhancing network emergence
<b>NETDYN-globloc</b>	■	Real-time collaboration in global-local relief networks.
<b>NETDYN-govNGO</b>	■	Real time cooperation in networks between governmental and NGO actors
<b>NETDYN-inklud</b>	■	Dynamic of network inclusion of unusual actors
<b>NETDYN-leadership</b>	■	Network dynamics related to leadership and governance
<b>NETDYN-locNeed</b>	■	Network dynamic arising around local needs
<b>NETDYN-missing local knowledge</b>	■	Network dynamics arising around missing local knowledge
<b>NETDYN-NGOexclusion</b>	■	Network processes that exclude NGO
<b>NETDYN-NGOLocCom</b>	■	Network processes between local community and NGO
<b>NETDYN-NGONGO</b>	■	Network dynamics between different NGO actors
<b>NETDYN-scale-up</b>	■	Network dynamics related to organizational up scaling
<b>NETDYN-trust</b>	■	Network dynamics related to trust between actors
<b>NGO-STRAT</b>	■	The way an organization collaborates and influences the relief process.
<b>NGO-STRAT-advocacy</b>	■	[no entry]
<b>NGO-STRAT-community development</b>	■	Activity advancing NGO relief strategy towards community building

<b>NGO-STRAT-coordination</b>	■	Activity advancing NGO relief strategy towards better coordination
<b>NGO-STRAT-differences</b>	■	Situation marking differences in NGO relief strategies
<b>NGO-STRAT-entrepreneurship</b>	■	Activity advancing NGO relief strategy towards entrepreneurship
<b>NGO-STRAT-equal rights</b>	■	Activity advancing NGO relief strategy towards equal rights
<b>NGO-STRAT-expKnow</b>	■	Activity advancing NGO relief strategy based on expert knowledge
<b>NGO-STRAT-gender</b>	■	Activity advancing NGO relief strategy towards gender rights
<b>NGO-STRAT-media-behaviour</b>	■	Activity related to NGO relief strategy regarding use of media
<b>NGO-STRAT-multiple donors</b>	■	Activity indicating NGO relief strategy of multiple donor inclusion
<b>NGO-STRAT-scale</b>	■	Activity related to will or unwill of NGO to scale up in relief
<b>REAL TIME-plan</b>	■	Account of real time planning in relief
<b>SUSTAINABILITY</b>	■	Sustainable outcomes of disaster management meeting the triple bottom-line.
<b>SUSTAINABILITY-eship</b>	■	Activities that aim at or yield in sustainability and entrepreneurial orientation or activity
<b>SUSTAINABILITY-resilience</b>	■	Activities related to sustainable outcomes of disaster management, especially resilience of local structures
<b>TIMELINE</b>	■	Disaster management activities related to a timeline, chronological orientation of actors
<b>VIS</b>	■	Visibility or invisibility of artifacts, organizational actors and activities



## Appendix E: List of code families

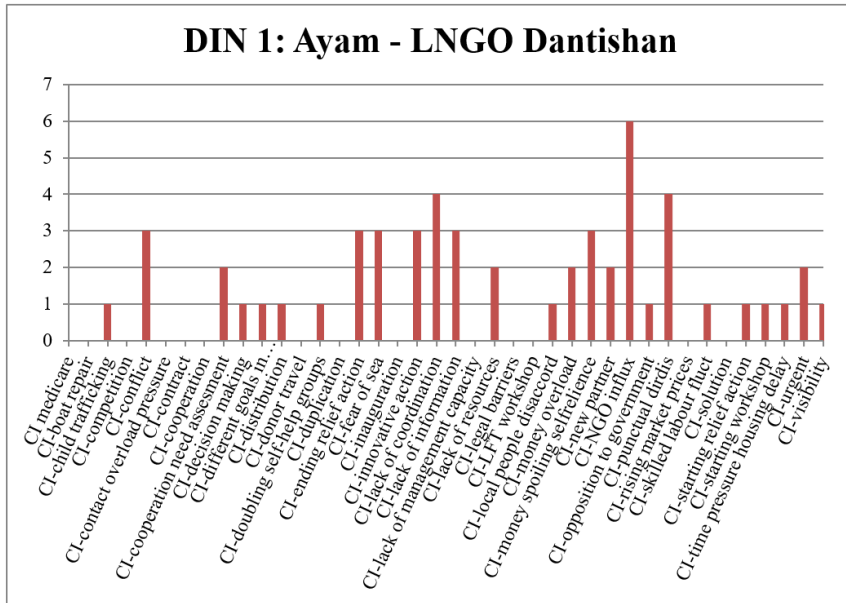


List of 2 code families of the codes ACT and CI

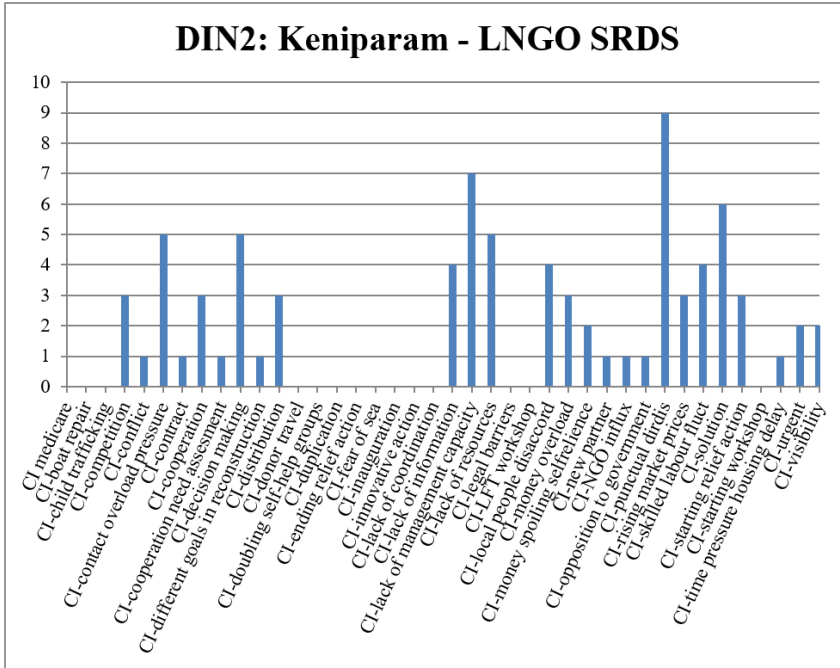
Code Family	Codes
ACT-non-org	<ul style="list-style-type: none"><li>• ACT-boats</li><li>• ACT-coastal regulation act</li><li>• ACT-disaster management act</li><li>• ACT-donors</li><li>• ACT-gov</li><li>• ACT-mail</li><li>• ACT-media</li><li>• ACT-reports</li><li>• ACT-telephone</li></ul>
ACT-org	<ul style="list-style-type: none"><li>• ACT-global NGO</li><li>• ACT-intermediary NGO</li><li>• ACT-local NGO</li><li>• ACT-military</li><li>• ACT-NGO</li><li>• ACT-police</li><li>• ACT-private company</li></ul>
CI-conflict	<ul style="list-style-type: none"><li>• CI-child trafficking</li><li>• CI-doubling self-help groups</li><li>• CI-legal barriers</li><li>• CI-opposition to government</li></ul>
CI-net-dyn	<ul style="list-style-type: none"><li>• CI-competition</li><li>• CI-contact overload pressure</li><li>• CI-contract</li><li>• CI-cooperation</li><li>• CI-cooperation need assesment</li><li>• CI-decision making</li><li>• CI-different goals in reconstruction</li><li>• CI-distribution</li><li>• CI-donor travel</li><li>• CI-lack of coordination</li><li>• CI-lack of information</li><li>• CI-local people disaccord</li></ul>

	<ul style="list-style-type: none"><li>• CI-new partner</li><li>• CI-punctual diridis</li></ul>
CI-psysoc	<ul style="list-style-type: none"><li>• CI medicare</li><li>• CI-fear of sea</li><li>• CI-money spoiling selfreience</li><li>• CI-visibility</li></ul>
CI-resources	<ul style="list-style-type: none"><li>• CI-boat repair</li><li>• CI-duplication</li><li>• CI-lack of management capacity</li><li>• CI-lack of resources</li><li>• CI-money overload</li><li>• CI-rising market prices</li><li>• CI-skilled labour fluct</li></ul>
CI-success	<ul style="list-style-type: none"><li>• CI-innovative action</li><li>• CI-LFT workshop</li><li>• CI-solution</li></ul>
CI-temp	<ul style="list-style-type: none"><li>• CI-ending relief action</li><li>• CI-inauguration</li><li>• CI-NGO influx</li><li>• CI-starting relief action</li><li>• CI-starting workshop</li><li>• CI-time pressure housing delay</li><li>• CI-urgent</li></ul>

## Appendix F1: Cross-tabulation of CIs and LNGOs/DINs in Ayam



## Appendix F2: Cross-tabulation of CIs and LNGOs/DINs in Keniparam



## Appendix F3: Cross-tabulation of CIs and LNGOs/DINs in Kanni

