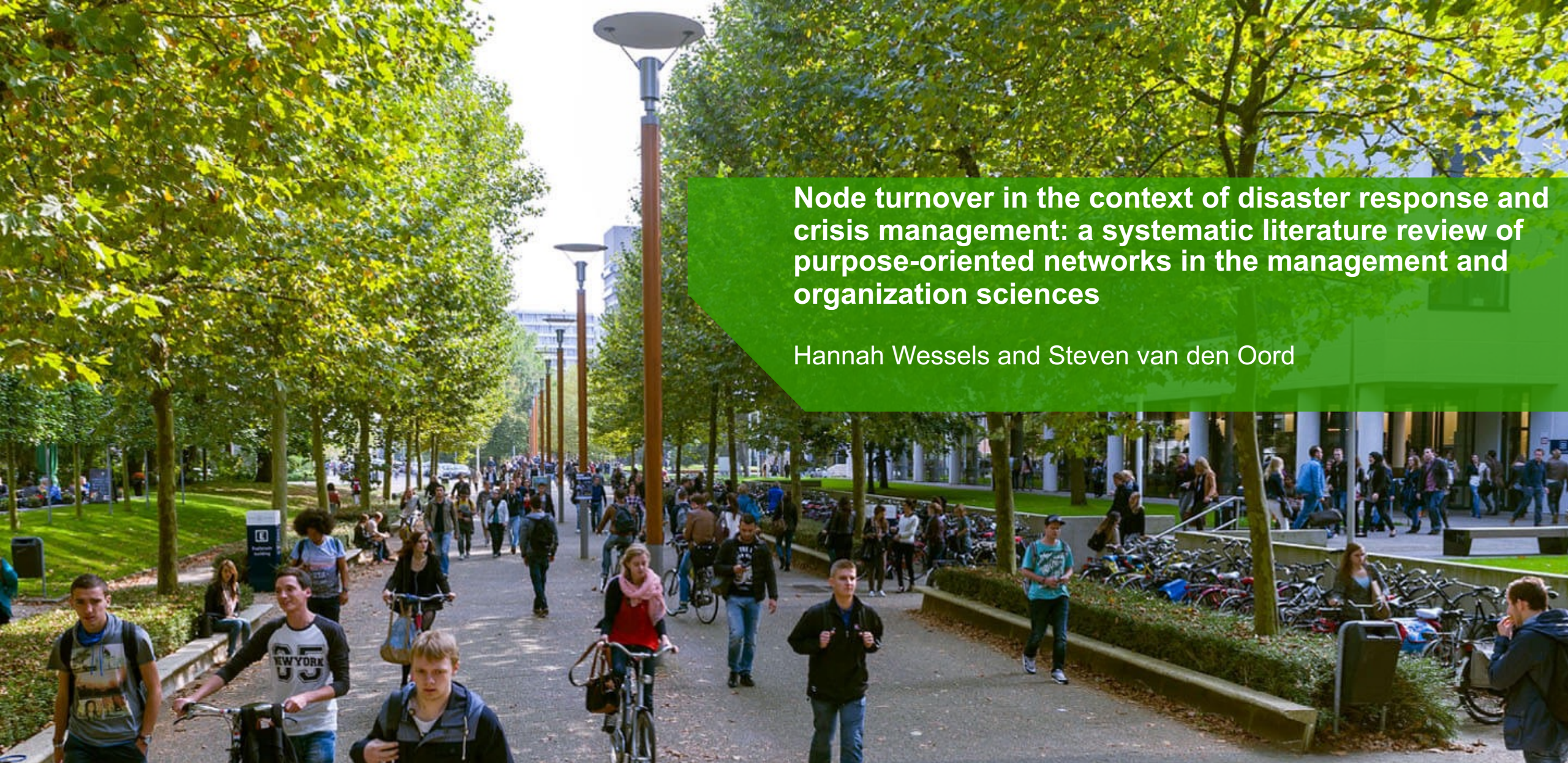
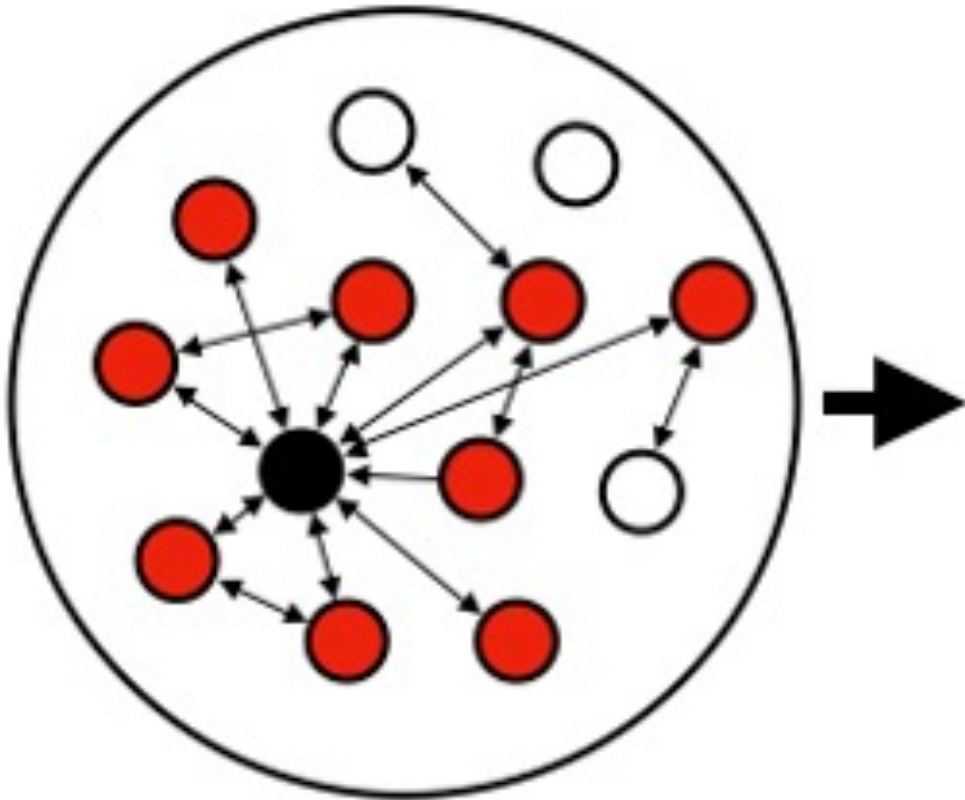




Node turnover in the context of disaster response and crisis management: a systematic literature review of purpose-oriented networks in the management and organization sciences

Hannah Wessels and Steven van den Oord

Common ground on PONs – the Provan school



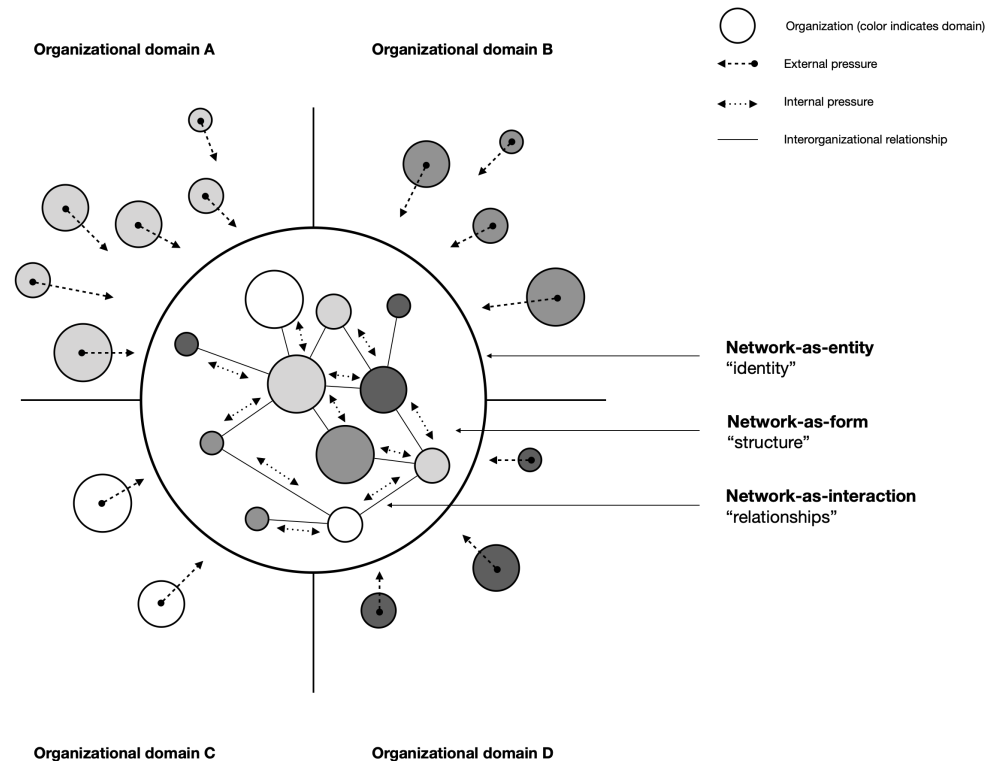
- Provan and Milward (1995)
- Human and Provan (2000)
- Provan and Kenis (2008)

Provan, K. G., & Milward, H. B. (1995). A preliminary theory of interorganizational network effectiveness: A comparative study of four community mental health systems. *Administrative science quarterly*, 1-33. <https://doi.org/10.2307/2393698>

Human, S. E., & Provan, K. G. (2000). Legitimacy building in the evolution of small-firm multilateral networks: A comparative study of success and demise. *Administrative science quarterly*, 45(2), 327-365. <https://doi.org/10.2307/2667074>

Provan, K. G., & Kenis, P. (2008). Modes of network governance: Structure, management, and effectiveness. *Journal of public administration research and theory*, 18(2), 229-252. <https://doi.org/10.1093/jopart/mum015>

Setting the scene and focus today



Three key developments in the Provan school

1. From GDNs to PONs (inception of the Across the Pons Team Science initiative)
2. From a (closed) internal, whole network perspective, to an external network of networks perspective (Nowell et al., 2019; van den Oord et al., 2020; Nowell & Albrecht, 2023; Albers et al., 2025)
3. Theoretical advancements by moving towards dynamic configurational recipes of network effectiveness (Smith, 2020)

Complications and concerns

- **Disaster versus crisis?**
- **Phenomenological distinction in GDNs/PONs?**

	Disaster (Event-driven)	Crisis (as a process/ or condition)
The purpose is disaster response or crisis management	Disaster response networks - Type of PON	Crisis management networks - Type of PON
The purpose is NOT disaster response or crisis management	PONs confronted by a disaster - Primary purpose is not disaster response, but it may require the network to act.	PONs in crisis - Primary purpose is not crisis management, but crisis may reframe its purpose and efforts

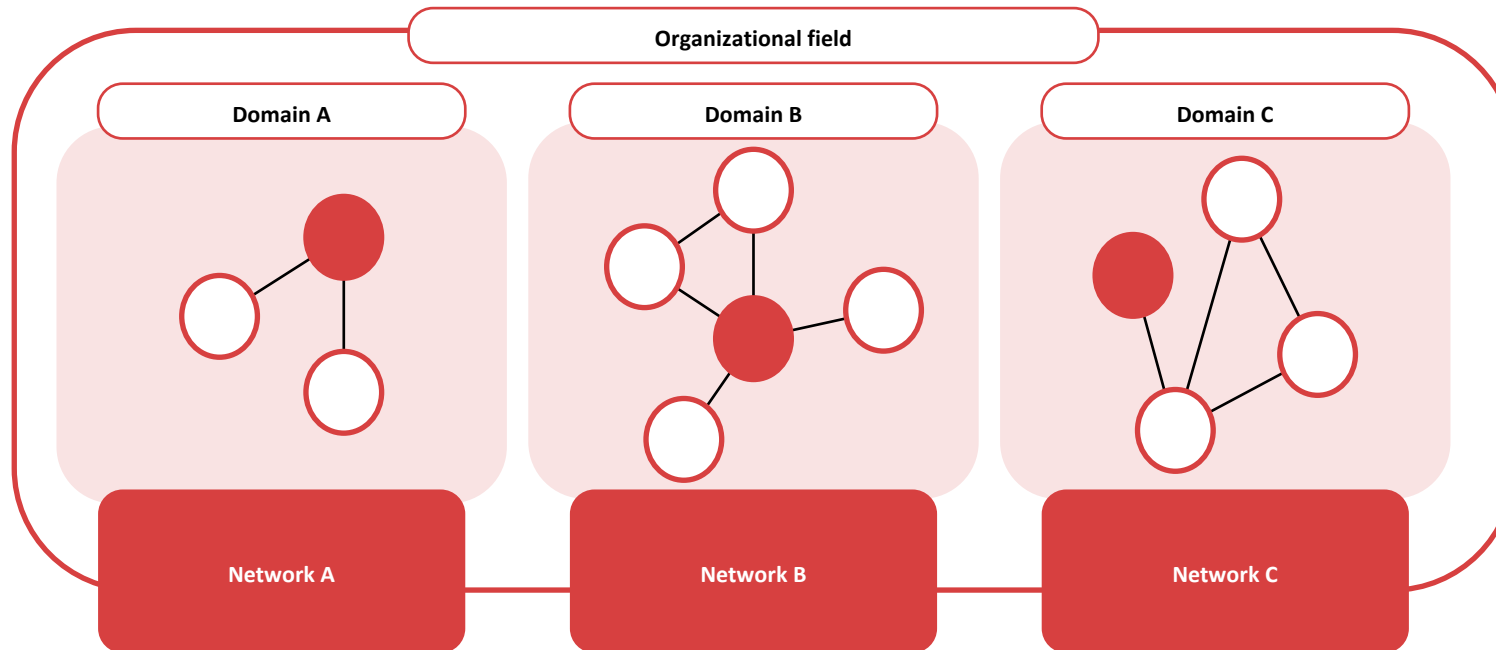
Complications and concerns – cont'd

- **Turning point in whole network research: introduction of the external network perspective by Branda Nowell**
 - From “wholes” (networks) to “populations in domains and fields” (e.g., networks in an ecosystem)

Independent variable or input focus (drivers)	Dependent variable or outcome focus		
	Individual network	Two or more networks	Population of networks in domain or field
Network variables	<i>Impact of a network on another network</i>	<i>Impact of a network on multiple networks</i>	<i>Impact of a network on a population of networks in a domain of field</i>
Domain or field variables	<i>Impact of a domain or field on a single network</i>	<i>Impact of a domain or field on multiple networks</i>	<i>Impact of a domain or field on a population of networks in a domain of field</i>

Complications and concerns – cont'd

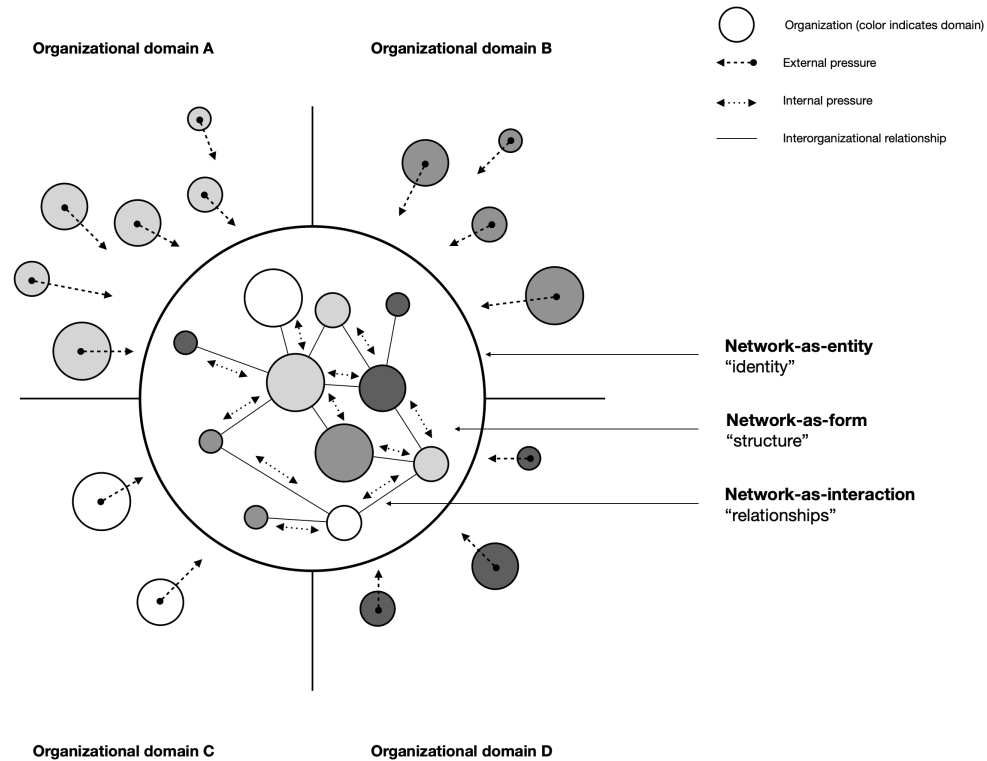
- **Turning point in whole network research: introduction of network of networks**
 - Lateral linkages between domains within a field are what we call: a *network of networks*



Albers, S., van den Oord, S., Koch, B., & Mandt, T. (2025). "20: Strategic airline alliances: governance, selective integration, and networks of networks". In *Research Handbook on Air Transport Leadership and Governance*. Cheltenham, UK: Edward Elgar Publishing. Retrieved Sep 18, 2025, from <https://doi.org/10.4337/9781803926988.00028>

Van den Oord, S., Vanlaer, N., Marynissen, H., Brugghehans, B., Van Roey, J., Albers, S., Cambré, B., & Kenis, P. (2020). Network of networks: preliminary lessons from the Antwerp Port Authority on crisis management and network governance to deal with the COVID-19 pandemic. *Public Administration Review*, 80(5), 880-894. <https://doi.org/10.1111/puar.13256>

Complications and concerns – cont'd



Unpacking the dynamics of PONs and their embeddedness in their broader environment

1. **Context and phenomenological distinction:** disaster vs. crisis; type of PONs
2. **Network configurations** of purpose, system (three or more organizations), joint efforts, and governance
3. **Node turnover and its drivers:** actor attributes, relational factors, contextual factors.

Lemaire, R. H., McKeague, L. K., & Sedgwick, D. (2024). Ebb and flow of network participation: flexibility, stability, and forms of flux in a purpose-oriented network. *Journal of Public Administration Research and Theory*, 34(4), 547-562. <https://doi.org/10.1093/jopart/muae012>

Mannak, R. S., Markus, A., Meeus, M. T., Raab, J., & Smit, A. C. (2023). Network dynamics and its impact on innovation outcomes: R&D consortia in the Dutch water sector. *Social Networks*, 74, 62-70. <https://doi.org/10.1016/j.socnet.2023.02.004>

Carboni, J. L., Saz-Carranza, A., Raab, J., & Isett, K. R. (2019). Taking dimensions of purpose-oriented networks seriously. *Perspectives on Public Management and Governance*, 2(3), 187-201. <https://doi.org/10.1093/ppmgov/gvz011>

Berthod, O., & Segato, F. (2019). Developing purpose-oriented networks: A process view. *Perspectives on Public Management and Governance*, 2(3), 203-212. <https://doi.org/10.1093/ppmgov/gvz008>

Research objectives and contributions



Advances the understanding of **node turnover** as a multi-dimensional process in PONs.



Highlights implications for how we study **network effectiveness**.



Provides an integrative framework that helps scholars and practitioners **anticipate and manage node turnover** in disaster response and crisis management.

Design, data, and methods

Research Question: How do networks manage node turnover to remain effective in disaster or crises?

Sources: 26 journals across management, public administration, and emergency management.

Search Scope: ISI Web of Knowledge, SSC index (1988–2024), no time limits.

Keywords: “Network*” AND crisis/disaster/emergency terms.

Design, data, and methods



Refinement: 1,074 → 988 documents (English, article type).



Data Handling: articles exported to Excel for coding.



Screening: Titles and abstracts of articles reviewed with the following inclusion/exclusion criteria: network as UoA, empirical articles (no conceptual, methods articles), with a focus on disaster or crisis, node turnover, and effectiveness.



Assessment: 24 articles downloaded and read full

Design, data, and methods



Twelve articles were included, downloaded, read, and classified.



Data organized in a structure based on Provan et al. (2007) and van den Oord et al. (2023).



Indexed by content: author, title, abstract, year, and source. Summarized by research question, study type, unit of analysis, data, country, sector, and key findings.



Analyzed by themes: network description, governance, node turnover, crisis/disaster type, effectiveness using PONs dimensions of Carboni et al. (2019) and node-turnover of Chen et al. (2022)

Preliminary findings

Included articles

	Author(s)	Year
1	Moynihan, D.P.	2009
2	Kapucu, N. Arslan, T., & Collins, M.L.	2010
3	Nowell, B. and Steelman, T.	2014
4	Schmidt, A.	2019
5	Park, C.H. and Johnston, E.W.	2019
6	Ku, M.Y., Han, A.H., & Lee, K.H.	2021
7	Kapucu, N., Hu, Q., Harmon, M., & Toro, P.	2021
8	Niu, Y.F., Tao, Z.G., & Zhang, H.B.	2022
9	Chang, S.M.	2024
10	Wu, G.D., Hu, Z.B., Wang, H.M. & Liu, B.S.	2024
11	Roiseland, A., and Traetteberg, HS.	2024
12	Wang, F., Hou, XR, & Feng, XL	2024

Disasters and crises

Natural Disasters (Earthquakes, Hurricanes, Floods, Volcanoes, Fires)

- Earthquakes: Gyeongju (2016), Pohang (2017), Haiti (2010), Japan EQ + Nuclear Crisis (2011)
- Hurricanes: Katrina & Rita (2005), Irma (2017)
- Fires: Laguna (1993), Cedar (2003), Tecolote (2010), Schultz (2010), Bull (2010)
- Volcanic Eruption: Indonesia (2010)
- Urban Flooding/Waterlogging: Tianjin & Chongqing, China

Public Health Crises

- MERS outbreak (South Korea, 2015)
- COVID-19 (Wuhan & broader China, 2019–2020)
- Exotic Newcastle Disease (US, 2002–2003)

Man-Made Crises & Violence

- Oklahoma City Bombing (1995, US)
- Pentagon Attack (2001, US)
- Post-election violence (Kenya, 2007–2008)
- Refugee Crisis (Netherlands, 2015–2016)

Emergency Management & Evacuations

- Police districts responding to emergencies (2021–2022 interviews)

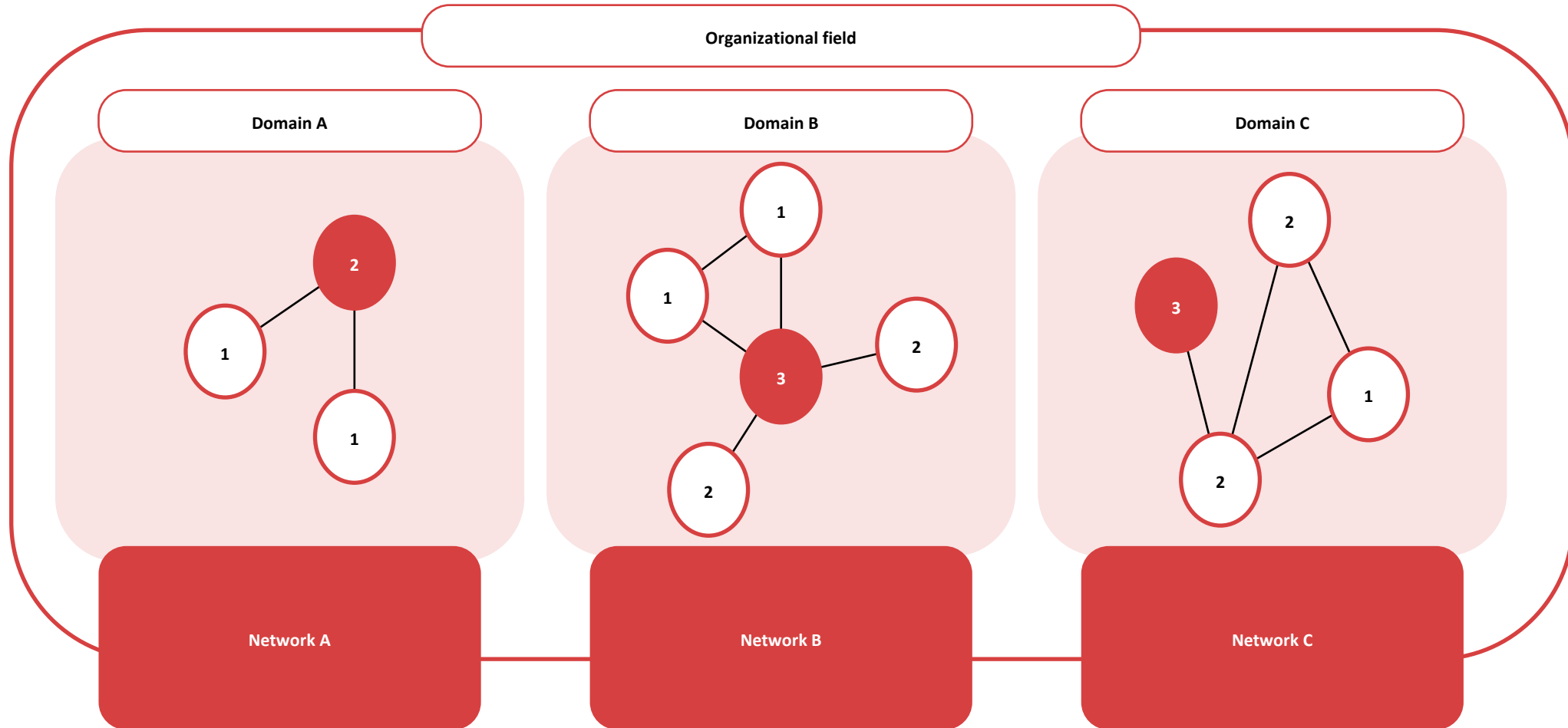
Phenomenological distinction

Governance Description	Governance Mode
Incident Command System (ICS) most closely resembles a network administrative organization (NAO).	Network Administrative Organization (NAO)
FEMA/DHS acted as lead organization.	Lead Organization
Local forest as responsible authority; escalates to Regional/National IMT.	Tiered Lead Organization
Safety Regions as standing authority coordinating shelters during refugee crisis. Ambiguity if Lead Org or NAO.	Lead Organization? / NAO?
MOHW led health-related response; MPSS coordinated non-health under PM supervision.	Multiple Lead Organizations (shared leadership)
JPCMSC as hybrid: NHC centralized leadership within a network.	Hybrid (Lead Agency + Centralized Network)
Disaster Control Center (MPSS → MIS). Lead Organization Governance.	Lead Organization
Networks in two cities resemble lead-organization-governed networks.	Lead Organization
Post-COVID network: decentralized with clustering.	Participant-Governed (Decentralized)

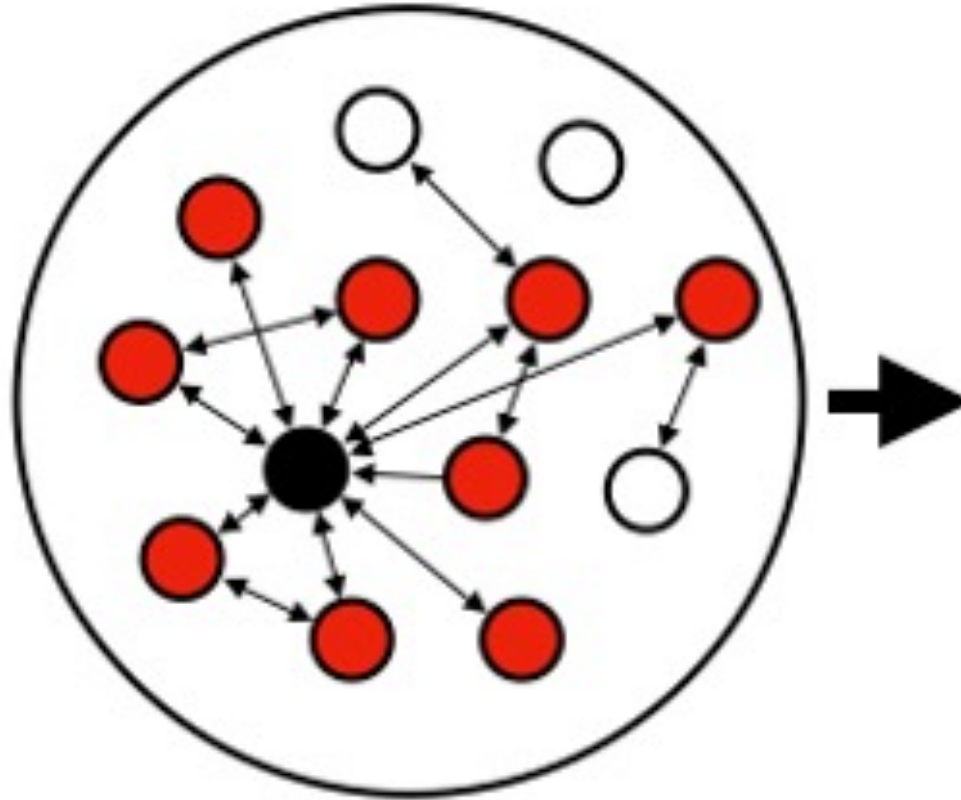
Preliminary finding: apples to apples?

	Disaster (Event-driven)	Crisis (as a process/ or condition)
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Preliminary finding II: from network to domain/field?



Preliminary finding III: node-turnover



Key takeaways

Trends	Concerns	Preliminary findings
Disaster, crisis, emergency From GDNs to PONs	Apples-to-apples	Fragmented evidence on “crisis networks” and lack of evidence on “networks in crisis”
From a (closed) internal, whole network perspective, to an external network of networks perspective	Network in isolation	The turning point in whole network research is not yet evident in the literature, despite the disaster and crisis being clearly domain- and field-wide phenomena.
Theoretical advancements by moving towards dynamic configurational recipes of network effectiveness	Opening up the black box	Anecdotal findings on entry and exit of network members and drivers of node turnover



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