

6-30-2024

## Ole Hanseth, the Man of Complexity and Infrastructure

Kalle Lyytinen

Case Western Reserve University, [kjl13@case.edu](mailto:kjl13@case.edu)

Follow this and additional works at: <https://aisel.aisnet.org/sjis>

---

### Recommended Citation

Lyytinen, Kalle (2024) "Ole Hanseth, the Man of Complexity and Infrastructure," *Scandinavian Journal of Information Systems*: Vol. 36: Iss. 1, Article 9.

Available at: <https://aisel.aisnet.org/sjis/vol36/iss1/9>

This material is brought to you by the AIS Journals at AIS Electronic Library (AISeL). It has been accepted for inclusion in Scandinavian Journal of Information Systems by an authorized administrator of AIS Electronic Library (AISeL). For more information, please contact [elibrary@aisnet.org](mailto:elibrary@aisnet.org).

## Reflection note

# Ole Hanseth, the Man of Complexity and Infrastructure

Kalle Lyytinen  
Case Western Reserve University  
*kjl13@case.edu*

Luckily, scholars have diverse careers and share different interests and ambitions. Without such differences in styles, tastes, experiences, wits, and settings we would not produce research diversity. Without diversity we would not have new ideas, experience excitement produced by clashes of positions and logics, and ultimately we would fail to advance science. One beautiful example of the value of diversity is the academic career, the scholarship and the multiple research *ouuvres* of Ole Hanseth which have moved the IS field forward in Scandinavia. Though Ole exemplifies many of the typical facets of Scandinavian scholarship (Lyytinen, 2023)—being open to wide range of theoretical views, focus on practice, emphasis on value across stakeholders, and critical views—he is not, and has never been a typical Scandinavian IS scholar of his era. He has not followed nor manifested the typical styles of research nor selected common topics of Scandinavian IS research. First difference is that he had extensive experience as a professional developer in the trenches—especially in healthcare systems before he entered academia. This deeply affected the choice of his research topics, formulation of his research program, and the ways in which meaningful research needs to be carried out. For Ole the topics had stay in close touch with a practice though the theoretical narrative as shown below was in most cases peppered with highly abstract, alien and sometimes wild theoretical accounts!

Ole's research style and taste among Scandinavian scholars of his era is unique. First, Ole was also one of the first to engage in thick qualitative inquiries over long periods of time that allowed him to stay close to the practice. Second, though he is not unique in this sense, he is a pure bread hedgehog of selecting a single topic for his academic career which has been haunted by a one and single question: the emergence of new types of artifacts and their impacts we now call 'infrastructures'—evolving, installed bases of

IT functionalities and related organizational capabilities shared and enabled by several communities and stakeholders. Most of his research on this topic has been directly motivated by his experiences as a professional developer around large healthcare systems in Norway in the 80's and early 90's. In personal interactions with him—whichever research topic or question we might work on—he always comes with a story or an example of a situation from his professional work in Norwegian healthcare sector (or participation in related standards). Many Scandinavian IS scholars of his era (including me and several others) have instead followed direct academic careers, though most of us had at least one toe in the practice. In the Scandinavian research ethos we all also worked towards (at least potentially) practical solutions or constructive methods to arrive at such solutions (called now 'design science'). Therefore, for most contemporaries the connection to practice was indirect, translated, and reported and we aligned our research towards addressing such second hand interpretations.

Another unique feature is Ole's research angle and topics. Infrastructures were new and novel topic in the mid 90's when Ole entered the academic scene. Infrastructures did not belong to the common research arsenal of Scandinavian school (Lyytinen & Iivari, 1999). Nearly all IS research in Scandinavia in the 80's and early 90's was geared towards designing, building and implementing a singular application (so called 'systemeering' or 'systems analysis and design') and was informed by Langeforsian view that emphasized system modelling in various forms which enabled to articulate design solutions based on reasoning around the models improving the systems' fit with their organizational environment. What was left in the field focused on managing portfolios of applications as an IT management/alignment problem or proposed system integration solution in terms of business or system architecture—a topic called at that time IT planning.

Based on his experience and the style of research Ole perfected over the career he would in fact staunchly question and challenge most of the 'holy cows' of the Langeforsian school in his personal style. This included among others the primacy of modelling and related reasoning, assuming single rationality in design, and the pursuit of optimized system solutions. For Ole modelling and complete early specification was not a solution but a problem, if we expanded the inquiry horizon from developing and implementing a singular application (design time) to that of managing an evolving pool of IT functionalities as an installed base, i.e., expanding the time and space horizons of the system development and use problems not as separate phases, but more as a complex system evolution problem where design time and run time will interact over time within a complex and evolving multi-level organizational and institutional environment. When multiple functionalities, related logics, and stakeholders are meshed into such

## Lyytinen: Ole Hanseth, the Man of Complexity and Infrastructure

complex systems there is no more single rationality to be clarified through a clear pool of system requirements—or as my Finnish colleagues emphasized—there is no single pragmatic main solution. Rather as developers we face growing heterogeneity, multiple logics and a constant struggle to integrate the expanding logics and how to align them with the evolving pool of IT functionalities. Consequently, there is no single system of principles guiding system development. Rather, we need to reckon with multiple logics and contradictory efforts.

Finally, Ole pointed out the importance of the installed base and how it will eventually undermine all smart efforts to optimize the overall system solution—the weight of the installed base and institutional inertia that comes with it would always fight back (mostly successfully) and the more one tries to overcome it, the more the idea of an optimized solution will turn out to be an illusory utopia. Ole, by advancing this alternative ‘infrastructural view created a totally new way to think about systems and systems development, how to analyze in such settings the connections between the local and the global, how to understand the dialectic between the run time and the design time, or how architectures and communities are connected—whether we like it or not (Sorensen et al., 2017). The audacity and force in which Ole advanced these views over the last 30 years in Scandinavia and globally is unparalleled, and we as a community would be much poorer without Ole’s contributions.

The scale and complexity of the topics which Ole has pursued as part of his infrastructure journey is not a simple cup of tea. Therefore another unique feature of his career is the relentless pursuit of theory in a true sense—as a means to reveal and explain a complex phenomenon rather than mechanistically adopting some favorite reference theory and rehashing the phenomenon in the language of the theory to simple and often trivial looking cause-effect relationships. Ole’s style has been always different, which I would call multi-perspective, and nuanced. Ole has during his career stayed faithful to the prominent topics of infrastructure such as standards, data, system dependencies, use and (mis) alignment, multiplicity of user groups, regulation and so on. But his style is that over the years he has constantly re-read the interactions and dynamics of around these phenomena using multiple theoretical lenses in a manner which I would characterize as kaleidoscopic. The pieces of the kaleidoscope that he has been putting together include complexity theory (Hanseth & Lyytinen, 2010; Jacucci et al., 2006), actor network theory (Hanseth, 1996; Monteiro & Hanseth, 1996), theories of modularity and interfaces (Hanseth et al., 2006; Hanseth & Lyytinen, 2010), user learning and feedback based systems (Grisot et al., 2014; Hanseth & Lyytinen, 2010); theories of risk and risk society (Hanseth & Ciborra, 2007), and recently assemblage theory (Hanseth & Rodon, 2021). These theories have not been taken from the bookshelf and just

condensed for the IS context—rather Ole has used these theories as a guiding search-lights and sensitizing devices to reveal novel elements or relationships in infrastructures, to explain why or how the phenomenon is composed as it is, or how it has evolved, or failed to evolve. Most IS scholars sample across similar units of analysis and stay at the same level of analysis. Ole is different. He typically samples across multiple units of analysis within the same study and tries then to show by concrete alignment or matching of similarity why these units/relationships are present and what they mean. In this regard his studies follow the similar kaleidoscopic narrative where different phenomena become tied together by abstract dispositions, similarity arguments, or dialectic of the opposites. This does not always make reading his pieces easy or that they necessarily follow a single logic. Rather his works are like streams of ideas and evidence where varying elements and sub-streams are merged together either in the end or ultimately by the specific reading of the reader. But the readings are always evocative—they make one to see the world in a different light and from a different angle. The multiplicity and richness of his theoretical selections show in his research output. He has significantly shaped our understanding what infrastructures are; how they organize around key relationships (as defined by architectures, standards, power etc); how their evolution is tension driven and non-linear; what role different stakeholder groups and user communities play in their evolution and so on.

Finally, I would like to note the unique experience of conducting research with Ole. I have written only one major piece with him (though important, Hanseth and Lyytinen 2010) and edited a special issue to a journal with him (Jacucci et al., 2006). I have also observed his work manners as a reviewer and an editor. Ole's style is in all these engagement is always dialogical. He wants to enter in a dialogue, move to multiple positions, search for new relationships between those positions, make new openings and also drop topics of there is a need for it. He is one of the most innovative and dynamic scholars I have worked with over my career. His style comes with challenges. It is often hard to maintain a lucid story line, the story suffers from significant leaps, or reaching a tight and enticing closure may be difficult. But the journey is always worth of traveling as one learns by working with Ole. Both will move ahead and come up with new and fresh ideas. Ole's style has also ensured that we as a community have moved ahead and learned to ask new types of questions calling for a new type of theorizing. Always smiling and always laughing as one does with Ole. What we learn is that research should not be taken too seriously despite it deals with serious matters. A good glass of wine will also make the travel smoother and worth of doing.

## Bibliography

- Aanestad, M., Hanseth, O., Monteiro, E., Niemimaa, M. & Ribes, D. (2024). From Methodological Symmetry to Gaia: Latour's Legacy and Untapped Potential for IS Research, *Journal of the Association for Information Systems*, 25(2), 182-195.
- Grisot, M., Hanseth, O. & Thorseng, A. A. (2014). Innovation Of, In, On Infrastructures: Articulating the Role of Architecture in Information Infrastructure Evolution, *Journal of the Association for Information Systems*, 15(4), 197-219.
- Hanseth O. (1996). *Information Technology as Infrastructure*, PhD Thesis University of Gothenburg.
- Hanseth O, & Ciborra C. U. (2007). *Risk, Complexity and ICT*, Edgar Elgar Publishing.
- Hanseth O, & Lyytinen K. (2010). Design theory for adaptive complexity in information infrastructures, *Journal of Information Technology*, 25 (1), 1-19.
- Hanseth, O., & Modol Rodon, J. (2021). The Dynamics of Architecture-Governance Configurations: An Assemblage Theory Approach, *Journal of the Association for Information Systems*, 22(1), 130-155.
- Hanseth, O., Jacucci, E., Grisot, M., & Aanestad, M. (2006). Reflexive Standardization: Side Effects and Complexity in Standard Making, *MIS Quarterly*, 30, 563-581.
- Iivari J., & Lyytinen K. (1999). Research on Information Systems Development in Scandinavia—Unity in Plurality, *Scandinavian Journal of Information Systems*, 10(1-2), 135-185.
- Jacucci E., Hanseth O., & Lyytinen K. (2006). Information Systems and Complexity, Special Issue, *Information Technology and People*, 19(1).
- Lyytinen K. (2024). Scandinavian IS Research: Origins, Evolution, and Future, *Scandinavian Journal of Information Systems*, (forthcoming)

Monteiro, E., & Hanseth, O. (1996). Social Shaping of Information Infrastructure: On Being Specific about the Technology. In: W. J. Orlikowski, G. Walsham, M. R. Jones, & J. I. Degross (Eds.) *Information Technology and Changes in Organizational Work, IFIP Advances in Information and Communication Technology*, (pp. 325-43), Boston, MA, Springer US.

Sorensen C., Lyytinen K., & Tilson D. (2017). Generativity in digital infrastructures: a research note. In: D. Galliers & M-K. Stein (Eds), *The Routledge Companion to Management Information Systems*, (pp. 253-275), Routledge, New York and London.