2023-10-25

COURSE SYLLABUS

Frontiers in Digital Innovation Research

Phenomena, Theories, and Approaches

7,5 ETCS credits

Anna Essén, SCDI and Stockholm School of Economics:

anna.essen@hhs.se

Johan Magnusson, SCDI and University of Gothenburg:

johan.magnusson@ait.gu.se

Johan Sandberg, SCDI and Umeå University

johan.sandberg@umu.se

2023-10-25

Background

Digital technologies demonstrate unique properties, such as malleability and flexibility. Such properties make them generative, in the sense that they continuously produce new opportunities for the creation of products, services, infrastructures, business models, and organizational forms (Bharadwaj et al., 2013; Lyytinen et al. 2016; Nambisan et al. 2017; Yoo et al. 2010). Digital technologies are also increasingly affordable and accessible, radically lowering entry barriers. As new stakeholders are engaged, value creation processes spread far beyond corporate lab environments, further embedding digital technologies into society. Ultimately, digital technologies alter the environments of organizations, give rise to tensions and opportunities, and call for profound change in how they organize for innovation (Gregory et al. 2015; Sandberg et al. 2020; Svahn et al. 2017).

In response, the information systems (IS) community has established a strong foundation for research on topics such as digital innovation (Fichman et al. 2014; Yoo et al. 2012; Yoo et al. 2010), digital infrastructure (Constantinides et al. 2018; Henfridsson and Bygstad 2013; Tilson et al. 2010), digital transformation (Majchrzak et al. 2016; Nambisan et al. 2019), and digital ecosystems (El Sawy et al. 2010; Jacobides et al. 2018; Suseno et al. 2018; Tiwana 2015). This research is further accelerated by regional and global initiatives, such as Swedish Centre for Digital Innovation and the AIS special interest group on Digital Innovation, Transformation, and Entrepreneurship (SIG DITE).

Target Audience/Entrance Qualifications

The course is designed for Ph.D. students pursuing a dissertation on digital innovation, digital transformation, digital entrepreneurship, or a similar topic.

We accept a maximum of 18 students. Applicants will be evaluated on the match between thesis focus and course content.

Learning Outcomes

After finalizing the course, participants shall demonstrate a capacity to design creative research studies of transformative digital innovation phenomena. More specifically, the participants should increase their abilities to conduct the following tasks on an advanced level:

- *Identify* and *analyze* phenomena of relevance for research and practice.
- F*ormulate* relevant research questions.
- *Develop* appropriate theoretical frameworks.
- *Assess* methodological options and *select* appropriate methods to leverage different types of data sources.
- *Evaluate* methodological design choices.
- *Reflect* on contributions of research.
- *Recommend* dissemination strategies.

2023-10-25

Content, Structure, and Faculty

This Ph.D. course offers an overview of contemporary research in the area of digital innovation. In particular, it showcases a range of theories and approaches that researchers can employ to study the many complex phenomena associated with digital innovation (see Table 1 below). A range of focus areas are discussed in relation to selected readings and illustrated by SCDI research projects. The course is divided into four phases, including both online and offline sessions. We will run the offline sessions in Riksgränsen – an internationally renowned ski resort in the very northern parts of Sweden.

Phase 1: Introduction to the course and to foundational work on digital innovation.
When? Two-hour long sessions at two occasions on March 6th and 8th.
Activities: Two online meetings, preparation for phase 2 by reading the assigned material.
Location: Zoom

Phase 2: Seminar week with presentations by SCDI researchers
When? Full days, March 18th - 22nd.
Activities: Offline presentations and seminars.
Location: Riksgränsen

Phase 3: Online seminars with SCDI affiliated researchers
When? Two-hour long sessions at four occasions between April 8th - 12th.
Activities: Four online seminars
Location: Zoom

Phase 4: Application writing
When? April 15th - May 20th
Activities: Writing, reviewing, and presenting the research application (the final examination, see below). Includes both online meetings and a final hybrid seminar (in Gothenburg or on Zoom) on the 20th of May where we will conclude the course together.
Location: Zoom (except for the final day May 20th

For examples of the content of the course and its teachers, see Table 1. Additional teachers will be involved and we will update the schedule before the course starts.

Table 1: Faculty, perspectives, and phenomena introduced in the course.

Topic	Instructors

Citizen Science in Digital Collective Action Research	Lisen Selander, University of Gothenburg
Context is King! Considering Particularism in Research Design and Reporting	Robert Davison, City University of Hong Kong
Process Theorizing: A Critical Realist Approach to Digital Innovation in Healthcare	Anna Essén Stockholm School of Economics
Digital Innovation – Frontiers and Directions	Ola Henfridsson, University of Miami
Investigating Complex Digital Systems	Johan Sandberg, Umeå University
How AI can drive digital transformation in organizations	Jonny Holmström, Umeå University
Researching Emerging Technologies	Juho Lindman, University of Gothenburg
Lexical Framing…	Fredrik Svahn, University of Gothenburg
Scaling Digital Ventures.	Henrik Wimelius, Umeå University
Digital materializing in digital transformation studies	Daniel Nylen, Umeå University, and Daniel Skog, Umeå University
Organizing in the Digital Age: Frontiers in Digital Innovation Research	Kalle Lyytinen, Case Western Reserve University
Pragmatic Programmatic research	Johan Magnusson, University of Gothenburg
Literature reviews for applications and papers	Alexandre Asatiani, University of Gothenburg

Examination

To complete the course, students are required to write a complete research application, targeting a recognized research funding agency[1]. The examination engages the specified learning outcomes across four general criteria; scientific contribution; practical relevance; originality/creativity; and feasibility.

This form of examination is selected to (1) stimulate extensive engagement with the course literature, (2) foster a creative thesis design process, and (3) support long-term career development.

[1] E.g. Vetenskapsrådet, Stiftelsen för Strategisk Forskning, Wallenbergstiftelserna, Forte, VINNOVA if you are acting in the Swedish market.

2023-10-25

Grading

Pass or Fail

Tuition

The course is offered free-of-charge together with lodging and board at Riksgränsen.

Required Reading

A list of course literature will be released eight weeks before the course start.

References

Bharadwaj, A., El Sawy, O. A., Pavlou, P. A., and Venkatraman, N. 2013. "Digital Business Strategy: Toward a Next Generation of Insights," *MIS Quarterly* (37:2), pp. 471-482.

Constantinides, P., Henfridsson, O., and Parker, G. G. 2018. "Platforms and Infrastructures in the Digital Age - Special Issue Introduction," *Information Systems Research* (29:2), pp. 381-400.

El Sawy, O. A., Malhotra, A., Park, Y. K., and Pavlou, P. A. 2010. "Research Commentary: Seeking the Configurations of Digital Ecodynamics: It Takes Three to Tango," *Information Systems Research* (21:4), pp. 835-848.

Fichman, R. G., Dos Santos, B. L., and Zheng, Z. 2014. "Digital Innovation as a Fundamental and Powerful Concept in the Information Systems Curriculum," *MIS Quarterly* (38:2), pp. 329-A315.

Gregory, R. W., Keil, M., Muntermann, J., and Mähring, M. 2015. "Paradoxes and the Nature of Ambidexterity in It Transformation Programs," *Information Systems Research* (26:1), pp. 57-80.

Henfridsson, O., and Bygstad, B. 2013. "The Generative Mechanisms of Digital Infrastructure Evolution," *MIS Quarterly* (37:3).

Jacobides, M. G., Cennamo, C., and Gawer, A. 2018. "Towards a Theory of Ecosystems," *Strategic Management Journal* (39:8), pp. 2255-2276.

Lyytinen, K., Yoo, Y., and Boland Jr, R. J. 2016. "Digital Product Innovation within Four Classes of Innovation Networks," *Information Systems Journal* (26:1), pp. 47-75.

Majchrzak, A., Markus, M. L., and Wareham, J. 2016. "Designing for Digital Transformation: Lessons for Information Systems Research from the Study of Ict and Societal Challenges," *MIS Quart.* (40:2), pp. 267-277.

Nambisan, S., Lyytinen, K., Majchrzak, A., and Song, M. 2017. "Digital Innovation Management: Reinventing Innovation Management Research in a Digital World," *MIS Quarterly* (41:1), pp. 223-238.

Nambisan, S., Wright, M., and Feldman, M. 2019. "The Digital Transformation of Innovation and Entrepreneurship: Progress, Challenges and Key Themes," *Research Policy* (in press).

Sandberg, J., Holmström, J., and Lyytinen, K. 2020. "Digitization and Phase Transitions in Platform Organizing Logics: Evidence from the Process Automation Industry," *MIS Quarterly* (44:1), pp. 129-153.

Suseno, Y., Laurell, C., and Sick, N. 2018. "Assessing Value Creation in Digital Innovation Ecosystems: A Social Media Analytics Approach," *The Journal of Strategic Information Systems*).

Svahn, F., Mathiassen, L., and Lindgren, R. 2017. "Embracing Digital Innovation in Incumbent Firms: How Volvo Cars Managed Competing Concerns," *MIS Quart.* (41:1), pp. 239-253.

Tilson, D., Lyytinen, K., and Sørensen, C. 2010. "Research Commentary---Digital Infrastructures: The Missing Is Research Agenda," *Information Systems Research* (21:4), pp. 748-759.

Tiwana, A. 2015. "Evolutionary Competition in Platform Ecosystems," *Information Systems Research* (26:2), pp. 266-281.

Yoo, Y., Boland, R. J., Lyytinen, K., and Majchrzak, A. 2012. "Organizing for Innovation in the Digitized World," *Organization Science* (23:5), pp. 1398-1408.

2023-10-25

Yoo, Y., Henfridsson, O., and Lyytinen, K. 2010. "Research Commentary: The New Organizing Logic of Digital Innovation: An Agenda for Information Systems Research," *Information Systems Research* (21:4), pp. 724-735.