ERCIM fellowship Programme
Final scientific report

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Host Organisation	Norwegian University of Science and Technology (NTNU)

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I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

During my ERCIM fellowship, I have worked at the Platforms for Healthcare and Welfare Services in Municipalities (PlatVel) project at Department of Computer Science (IDI). The following list shows the details of my scientific activities:

1. **Systematic literature review of digital platforms in public sector**: Public sector is under pressure to transform public services by addressing the changing requirements and societal expectations. Digital platforms have the potential to transform public sector because of their modular architecture and outsourcing of the innovation cost. Many projects of using digital platforms in the public sector aim to create public value, which refers to the expectations of the actors involved in the platform ecosystem. A platform ecosystem may involve various autonomous actors like citizens, public agencies, and third-party complementors. However, most of the platform projects focus on efficiency as the main public value. Focusing only on efficiency can have adverse outcomes on the social values like trust and confidence in the public agencies. For instance, the citizens may face additional administrative burdens, and the complementors may face challenges entering and staying in the platform ecosystem. Therefore, the impact of digital platforms on public value creation needs to be studied. In this research project, we aim to develop a systematic literature review by synthesizing literature on digital platforms in public sector. We focus on the governance mechanisms used in the digital platforms and how these governance mechanisms yield public value.

2. **Platform ecosystem around Helseplattformen**: In this research project, we aim to explore the formation of platform ecosystem in public organizations using the Norwegian healthcare platform (Helseplattformen) as a case study. The Helseplattformen is the new Electronic Health Record (EHR) system, which integrates all the healthcare providers in Central Norway. The Helseplattformen was built using packaged software purchased from a vendor, which was customized for the Norwegian context. By 2022, the Helseplattformen is functional in Trondheim municipality and the St. Olav Hospital in Trondheim. The next step for Helseplattformen is to form a platform ecosystem around the EHR and encourage open innovation. An innovation strategy for Helseplattformen is proposed, and an innovation sandbox will be created. This project aims to perform a qualitative study of the innovation sandbox using the lessons learnt in our systematic literature review of digital platforms in public sector.

3. **Identifying Threshold Concepts in IT3010: Empirical Research Methods in IT and Digitalization**: Training in empirical research is essential for computer science graduates regardless of whether they pursue an academic research career or become practitioners with the responsibility for making decisions. The CS students at the IDI learn about empirical research in the introductory master's course IT3010. Since students usually pass such introductory courses using mimicry, e.g., defining and solving superficial research problems, using textbook keywords without understanding, and paraphrasing arguments from literature. Hence, the CS graduates may lack the skills related to empirical research and critical thinking. Meyer & Land's theory of Threshold Concepts helps answer questions like why students struggle with complex concepts, why they use mimicry, and why they cannot develop skills to apply them. A threshold concept is a piece of troublesome knowledge that transforms students' understanding and imparts a new way of thinking

about the subject and themselves. This project aims to perform a qualitative study using the Threshold Concepts theory to analyze IT3010. The findings of this study will help redesign IT3010. The results may also be relevant for education in empirical research in general.

II – PUBLICATION(S) DURING YOUR FELLOWSHIP

The following workshop paper is published during my fellowship:

Name of authors, title, reference: Syed Sajid Hussain and Babak Farshchian, "How do public sector platforms create public value through their governance models? A systematic literature review", 5th Nordic Workshop on Digital Foundations of Business, Operations, Strategy, and Innovation (DBOSI 2023), Oslo, Norway.

Abstract: Government as a Platform is a vision of transforming the digital infrastructure of public sector using a platform model. This may enable innovation by internal and external actors, increase the organizational efficiency of public agencies, and reduce costs for the public sector. Existing research reports various platform projects in the public sector and many of these projects aim to create public value. However, little is known about the impact of governance models for public value creation in a healthy platform ecosystem. This paper develops a systematic literature review by asking the research question: How do public sector platforms create public value through their governance models? We analyse the included literature to identify key concepts, best practices, lessons, and pitfalls. The findings may help better understand public value creation and advance the debate on using digital platforms in the public sector.

Status: published

Also, the following journal paper is prepared during my fellowship:

Name of authors, title: Syed Sajid Hussain and Babak Farshchian, "What are the different governance mechanisms in public sector platforms and how do they yield public value? A systematic literature review"

Abstract: Existing research reports various approaches of transforming public sector using digital platforms and many of these public sector platforms aim to create public value. Public sector platforms may enable open innovation to increase the organizational efficiency of public agencies. However, the impact of public sector platforms on public value creation is understudied. This paper develops a systematic literature review by asking the research question: What are the different governance mechanisms in public sector platforms and how do they yield public value? The paper provides three contributions. First, it uses the role of public sector and the type of digital platform to identify six configurations of public sector platforms. Second, it identifies the governance mechanisms used in each of the platform configurations. Third, it presents the positive and negative outcomes of the governance mechanisms on public value. These findings may help advance the debate on public value creation using public sector platforms.

Status: The paper will be submitted to a journal.

III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

I presented at the following seminars, workshops, and conferences during my fellowship:
1. 5th Nordic Workshop on Digital Foundations of Business, Operations, Strategy, and Innovation (DBOSI 2023), 02-03 February 2023, University of Oslo, Norway.
2. NTNU Seminar on Sustainable Digital Transformations 2022, 1 November 2022, Trondheim, Norway.
3. Workshop for Young Researchers: "Platform Studies: The Emerging Research Field in Norway", TIK Centre for Technology Innovation and Culture, University of Oslo, Norway, 21 June 2022.

I attended the following seminars, workshops, and conferences:
4. ERCIM Forum on Digital Ethics in Research: Beyond Compliance, 17-18 October 2022, online
5. NTNU Excited Seminar Week on Research in IT Education, 30 May – 3 June 2022, Trondheim, Norway.

I am serving as a co-chair for the 21st European Conference on Computer-Supported Cooperative Work, which will be held on 5 -9 June 2023 in Trondheim, Norway. I am also involved in the local organization for the conference.

IV – RESEARCH EXCHANGE PROGRAMME (REP)

I visited the centre for Effective Digitalization of Public Sector (EDOS) at Simula Research Laboratory, Oslo, Norway for one week (29 January – 03 February 2023) for the REP of my fellowship. I was hosted by Prof. Magne Jørgensen at the EDOS. I presented my literature study of public sector platforms in a seminar at the EDOS. I had meetings with several researchers at the EDOS about digitalization of public sector. Also, I had meetings with digital platform researchers at the University of Oslo related to my research at the Helseplattformen project. The REP provided me opportunities for future collaborations.