



ERCIM "ALAIN BENSOUSSAN"
FELLOWSHIP PROGRAMME



Scientific Report

First name / Family name

Hong Guo

Nationality

China

Name of the *Host Organisation*

Norwegian University of Science and Technology

First Name / family name
of the *Scientific Coordinator*

Jingyue Li

Period of the fellowship

01/04/2019 to 31/03/2021

I – SCIENTIFIC ACTIVITY DURING YOUR FELLOWSHIP

The research carried out during the fellowship period belongs to the field of Enterprise Architecture (EA) and how it helps organizations achieve alignment and agility in general and in smart city projects in particular. Three types of scientific activities have been carried out during these two years: 1) general research activities including reading and writing scientific papers for conferences and journals; 2) research dissemination activities including participating in/organizing conferences, reviewing papers, socializing, as well as conducting conversations in online/offline academia/industrial communities; 3) activities to enhance research capabilities including taking training on methods and skills for short-term research and long-term career.

During the first year, I firstly got in wide touch with researchers/ stakeholders in the host organization (i.e., IDI, NTNU) and relevant projects in the areas of smart cities and EA. Such projects include the EU/Norwegian smart city projects hosted by NTNU like +CityxChange (<https://cityxchange.eu/>) and ZEN (<https://fmezen.no/>). I also attended industry events (e.g., the largest Smart City event in the Nordics, Nordic Edge Expo 2019). With the inspiration and insights gained, I examined scientific literature, published and presented three articles at conferences together with my co-authors. Later, I thought in-depth about the follow-up research directions and started the work of a systematic literature review. I also participated in the project named "IDUN: from Ph.D. to professor" which is based on

mentorship and consists of several seminars/tasks aiming to help junior researchers develop their long-term academia career.

During the second year, I reflected upon and adjusted my research strategy (thanks to the coordinator, mentor, and co-authors for their support). I narrowed the research focus to how EA can help organizations achieve agility/alignment, started conversations in various online communities to find research problems and research implications, and extensively read a lot of scientific papers and grey literature. Later, having published 4 (and drafted 2) academic conference papers and disseminated the research results in communities, I began to apply for further financial support with two academic/ industrial projects in China.

Throughout the overall fellowship period, activities of general research and research dissemination such as reviewing papers for journals (e.g., Entertainment Computing and Technology in Society), as well as contributing to scientific conferences hosted by NTNU have been conducted multiple times (e.g., as an on-site volunteer at the I3e2019, as a reviewer at the SCIS2021 & IRIS2021, and as an online volunteer at the EASE 2020/2021). While activities to enhance general research capabilities mainly include regular meetings/discussions with the coordinator, the mentor, and the co-authors, participating seminars and completing tasks in the IDUN program, and taking various training such as those on the use of scientific tools and proposal writing.

II – PUBLICATION(S) DURING YOUR FELLOWSHIP

- Guo, H., et al., Understanding How Enterprise Architecture Contributes to Organizational Alignment. in Proceedings of the 20th IFIP Conference e-Business, e-Services, and e-Society I3E2021. 2021, Springer (In press).
- Guo, H., et al., Enterprise Architecture and Agility: A Systematic Mapping Study. In Proceedings of the 11th International Symposium on Business Modeling & Software Design – BMSD'21. 2021, Springer (In press).
- Guo, H., et al., Agile Enterprise Architecture by Leveraging Use Cases., in Proceedings of the 16th International Conference on Evaluation of Novel Approaches to Software Engineering - MDI4SE. 2021, SciTePress.
- Guo, H., et al., Boost the Potential of EA: Essential Practices, in Proceedings of the 23rd International Conference on Enterprise Information Systems - Volume 2: ICEIS. 2021. p. 735-742.
- Guo, H., & Gao, S. (2020, April). Enterprise Architectures in E-Governments Studies: Why, What and How?. In Conference on e-Business, e-Services and e-Society (pp. 3-14). Springer, Cham.
- Guo, H., Petersen, S. A., Gao, S., Li, J., & Bokolo, A. J. (2019, December). Embracing Modern Technologies and Urban Development Trends: Initial Evaluation of a Smart City Enterprise Architecture Frameworks. In European, Mediterranean, and Middle Eastern Conference on Information Systems (pp. 247-257). Springer, Cham.
- Guo, H., Li, J., & Gao, S. (2019, October). Understanding challenges of applying enterprise architecture in public sectors: A technology acceptance perspective.

In 2019 IEEE 23rd International Enterprise Distributed Object Computing Workshop (EDOCW) (pp. 38-43). IEEE.

- Gao, S., Li, Y., & Guo, H. (2019, September). Understanding the Value of Using Smartphones for Older Adults in China: A Value-Focused Thinking Approach. In Conference on e-Business, e-Services and e-Society (pp. 533-544). Springer, Cham.
- Gao, S., Li, Y., & Guo, H. (2019). Understanding the adoption of bike sharing systems: By combining technology diffusion theories and perceived risk. Journal of Hospitality and Tourism Technology.

III – ATTENDED SEMINARS, WORKHOPS, CONFERENCES

Presenting at international conferences:

- I3E 2021 (Planned)
- BMSD 2021 (Planned)
- MDI4SE 2021
- ICEIS 2021
- I3E 2020
- EMCIS 2019
- EDOC 2019

Attending international conferences:

- Global Young Scientists Summit 2021
- 7th ACM Celebration of Women in Computing: womENCourage™ 2020
- Nordic Edge 2019

Volunteering for international conferences:

- EASE2020/2021
- I3E2019

Attending seminars in NTNU (parts):

- IDUN seminar series
- Digital transformation seminar series
- Monthly ISSE webinar series
- Catch IDI 2019
- Science conversations series @NTNU
- One Hour with Europe series
- Webinar series on digital transformation hosted by NTNU Digital

IV – RESEARCH EXCHANGE PROGRAMME (REP)

Due to the epidemic, I carried out the REP with Chao Tan in Simula online during May 2021. The program was carried out through several emails and online meetings within a limited schedule. However, in-depth discussions have been triggered because Chao and I have similar scientific and industry background. I introduced my latest research results and prospects in detail to Chao. Chao raised questions such as how to use agile EA to accumulate business results, which inspired new research ideas to me. We exchanged our

understandings about EA and general modelling technique applications. We also discussed challenges such as difficult evaluation, low ROI and user acceptance and engagement, as well as possible trends of EA applications. Both of us agreed to keep in touch for further dialogue and cooperation later.