



A Plan for a Joint Study into the Impacts of AI on Professional Competencies of IT Professionals and Implications for Computing Students

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CCS CONCEPTS

• **Social and professional topics** → **Professional topics; Computing education; Computing education programs; Computer science education;**

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ITiCSE 2024, July 8–10, 2024, Milan, Italy

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ACM ISBN 979-8-4007-0603-5/24/07

<https://doi.org/10.1145/3649405.3659527>

KEYWORDS

Artificial intelligence, generative AI, large language models, IT Profession, computing competencies, computing curricula

ACM Reference Format:

Tony Clear, Åsa Cajander, Alison Clear, Roger McDermott, Andreas Bergqvist, Mats Daniels, Monica Divitini, Matthew Forshaw, Niklas Humble, Maria Kasinidou, Styliani Kleanthous, Can Kultur, Ghazaleh Parvini, Mohammad Polash, and Tingting Zhu. 2024. A Plan for a Joint Study into the Impacts of AI on Professional Competencies of IT Professionals and Implications for Computing Students. In *Proceedings of the 2024 Innovation and Technology in Computer Science Education V. 2 (ITiCSE 2024), July 8–10, 2024, Milan, Italy*. ACM, New York, NY, USA, 2 pages. <https://doi.org/10.1145/3649405.3659527>

1 BACKGROUND AND RELATED WORK

As Artificial Intelligence (AI) continues to make its presence felt in transforming workplaces around the world [4][10], and the Information Technology industry in particular, it is essential to understand its impact on the work practices of IT professionals, and the implications for computing students and curricula. This research project builds on work initiated jointly, in Sweden, New Zealand and Scotland, investigating concerns about the increasing impacts of Artificial Intelligence in IT Sector workplaces for employee work engagement [11][13][10] and the implications for tertiary study, assessment and curricula in computing [3], [8],[10], [9]. “Work engagement”, has been defined as the positive inner state where employees are fully present and engaged in their work, and is closely linked to motivation, learning, productivity, and accountability [11], [13]. Within the context of (Generative) AI at work, IT professionals have been noted as early adopters of AI [10], [4]. Their involvement in implementing and utilising AI technologies can provide valuable insights into the interplay between AI and work engagement. The implications for students are significant as future IT professionals, who must acquire and enhance competencies to adapt and thrive in digital workplaces.

2 GOALS OF THE WORKING GROUP

By exploring the relationship between work engagement and learning, this study aims to shed light on the dynamics that drive employee engagement and its connection to the professional development of competencies. The previous study has interviewed IT professionals with the following research questions (RQ):

RQ1: How does AI influence work engagement for IT professionals?

RQ2: How does AI affect the socio-technical work dynamics for IT professionals?

RQ3: What are the implications of integrating AI on the acquisition and enhancement of professional competencies and the learning processes of IT professionals?

3 METHODOLOGY

This working group aims to analyse the corpus of interview data collected from multiple countries to better understand the implications for computing students, tertiary computing education curricula and assessment of the new professional competencies emerging from this work. This study informed by the literature on work engagement, automation and motivation for IT professionals [11], [13], will use a combination of multi-vocal literature review [7] and qualitative research methods [1], [5], including thematic analysis of the interviews, to investigate the state of the practice in and challenges IT Professionals face within their local/global work contexts [12]. The literature on professional competencies in computing [3], [2], [6], will be drawn upon to characterise the new needs identified in this analysis. Further implications for computing curricula design and assessment will be developed from this analysis.

4 EXPECTED DELIVERABLES

The working group report will provide an empirically derived set of global findings relating to the new competencies and needed

adaptations required by the integration of AI into IT professional work practices and patterns. Insights informing policy, curriculum development and assessment design for AI-integrated curricula are also potential outcomes of the work.

ACKNOWLEDGMENTS

The AFA funded project Work engagement in automation, robotics and AI (AROA, dnr 220244) and the Uppsala University Strategic Activities Fund for EDU-AI are gratefully acknowledged, as are the contribution of the interviewees from each country.

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