Engineering and Physical Sciences Research Council Doctoral Landscape Award

PROJECT TITLE: Data/AI-driven service design innovation

Lead Supervisor: Dr Boyeun Lee

Co-Supervisors: Dr Laura Phillips (Laura.Phillips@exeter.ac.uk)

Webpage: https://experts.exeter.ac.uk/39177-boyeun-lee

Project details: Industry 4.0 is driving the development of increasingly interconnected products and services that requires new business processes and open up opportunities for deriving value from data (Porter and Heppelmann, 2014). In this context, the ability to efficiently extract value from the data—combined with effective management of data and design knowledge—serves as a technological enabler, helping companies stay competitive (Chattopadhyay et al., 2017). The benefits of utilising big data and AI include designing new service concept ideas (Kim et al., 2016), understanding business competitors (Ye et al., 2020), improving design efficiency whilst connecting users (Bogers et al., 2018), service innovation (Schymanietz et al., 2022), and organisational value creation (Lee, 2022).

Despite the recognized potential of data and AI in innovation, adoption remains limited. As of early 2023, only 13% of companies globally report using AI in their product and service development processes (McKinsey, 2023). Research on data and AI in product service innovation is still surprisingly sparse (Cooper, 2024). Eighty-three studies were identified in the Journal of Service Research focusing on AI-related topics for the last five years. However, these primarily address areas such as customer experiences with service robots (Lariviere et al., 2024; Schepers et al., 2022), AI as a service agents (Kim et al., 2024; Koponen et al., 2024), rather than exploring broader applications of AI in service design and innovation. Leading scholars (Zhang et al., 2021; Lee and Ahmed-Kristensen, 2024) have called for deeper investigation into the benefits of data analytics and AI within real business contexts.

This PhD studentship aims to contribute to this emerging field by advancing our understanding of AI-driven service design innovation. The project is structured around two key research questions:

1. How can data and AI be leveraged to create innovative services and transform design practices?
2. What are the ethical, societal, and economic challenges in adopting emerging technologies for value creation?

To address these questions, the research will pursue three primary objectives:

1. Map the AI Landscape in Service Design Innovation: This involves exploring the current applications of AI in service design, identifying existing tools, process, and methods to establish a comprehensive view of the state of AI integration in the industry, providing a foundation for further research.
2. Investigate Service Providers' Use of Data and AI: This objective focuses on studying how companies utilize data and AI to develop innovative services, examining specific cases to identify success factors, barriers, and challenges.

3. Develop a Framework for AI-Driven Service Design Innovation: Based on insights from the first two objectives, this project will propose a framework to guide organizations in implementing data and AI for service design innovation and sustainable value creation.

Through this studentship, the candidate will contribute to foundational research in AI-driven service innovation, working at the intersection of design, digital innovation, and service dominant logic. The project has the potential to produce valuable insights for both academia and industry, supporting companies in their journey towards adopting AI for enhanced service design while addressing ethical and societal considerations.

Bibliography

Porter, M., and Heppelmann, J. 2014. How Samrt, Connected Products Are Transforming Competition. Harvard Business Review. 23

Chattopadhyay, P., Mondal, S., Bhattacharya, C., Mukhopadhyay, A., Ray, A., 2017. Dynamic data-driven design of lean premixed combustors for thermoacoustically stable operations. J. Mech. Des., Trans. ASME 139 (11).

Kim, M., Lim, C., Lee, C., Kim, K., Choi, S., Park, Y. 2016. Data-driven approach to new service concept design. Int. Conf. Explor. Serv. Sci.

Bogers, S., Deckers, E., van Kollenburg, J., Frens, J., Hummels, C., Rutjes, H., 20

Project specific entry requirements: Academic entry qualification overview

This PGR studentship requires applicants to have a Bachelor's degree with First Class Honours (Distinction) or Upper Second Class Honours (1st or 2:1, or >3.3/4.0 GPA) and a Master's degree, ideally with research experience in a relevant design discipline (e.g., service design, design management, design research, digital innovation, service innovation). We will also consider applicants with relevant research or industry experience.

We are looking to recruit a highly motivated PhD student with strong written and oral communication skills. Therefore, non-native English speakers are required to meet the following minimum scores: an IELTS score of 6.5 overall and no less than 6.0 in any section; or a TOEFL (internet-based) score of 90 overall, with a minimum score of 21 for writing, listening, reading and speaking.

Potential PhD programme of study: PhD in Management

Department: Management

Location: Exeter

Please direct project specific enquiries to: Boyeun Lee (b.l.lee@exeter.ac.uk)

Engineering and Physical Sciences Research Council

University of Exeter

Engineering and Physical Sciences Research Council Doctoral Landscape Award

Please ensure you read the entry requirements for the potential programme you are applying for.

To Apply for this project please click on the following link - **APPLY HERE**