



School of Computing, Engineering, and the Built Environment Edinburgh Napier University

PHD STUDENT PROJECT

Application instructions:

Detailed instructions are available at :

<https://www.napier.ac.uk/research-and-innovation/doctoral-college/how-to-apply>

Prospective candidates are encouraged to contact the Director of Studies (see details below) to discuss the project and their suitability for it.

Project details

Supervisory Team:

- DIRECTOR OF STUDY: Dr Dubem Ikediashi (Email: d.ikediashi@napier.ac.uk)
- 2ND SUPERVISOR: tbc

Subject Group: Built Environment

Research Areas: Architecture, Building & Planning

Project Title: Machine Learning Approach to managing Facilities Management (FM) Supply Chain Risks

Project description:

The UK facilities management (FM) industry witnessed a growth of 4.8% in 2022, 5.1% in 2023 and is expected to hit £52billion equivalent to 7.5% of the country's GDP in 2026. Despite this, much of the spotlight has been on the continued risks and uncertainties to its supply chain. In a recent report by the University of Sussex's UK Trade Policy Observatory (UKTPO), UK businesses including FM are claimed to be struggling with increased costs, labour and skills issues and supply chain (SC) shortages following the country's exit from European Union. With advances in digital technologies, the facilities management industry has continued to explore the use of abundant digital innovations to mitigate this challenge by transforming its processes including managing its supply chain risks with the ultimate aim of optimising SC performance.

This PhD studentship offers an exciting opportunity to conduct a research examining Machine Learning as one of the key digital innovations in the UK FM industry to manage SC risks and uncertainties. In this context, the successful

candidate will be expected to engage with strategic industry players within the UK FM sector to collect and analyse both qualitative and quantitative data within a range of case-studies in the sector.

Applicants should submit a more detailed proposal that expands the broad outline given above. They are encouraged to contact the supervisor to further explore and discuss their proposal before submitting their application.

Candidate characteristics

Education:

Minimum 2:1 degree in Construction Management, Facilities Management, Real Estate, Building, Architecture, or a related Built Environment discipline

Subject knowledge:

Facilities Management

Essential attributes:

- Knowledge of key quantitative and qualitative research data analytical techniques
- Knowledge of ML programming
- Use of multi-decision making analytical tools such as AHP, ANN, etc
- Knowledge of real estate, facilities management, digital technologies
- Good written and oral communication skills
- Strong motivation, with evidence of independent research skills relevant to the project
- Good written and oral communication skills

Desirable attributes:

- Honest and humble
- Passionate about research
- Team player
- Hardworking
- Self-motivated
- Ability to do research independently with minimal supervision