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: Prof. Pat Langdon (Email: p.langdon@napier.ac.uk)
- 2ND SUPERVISOR: Dr Faheem Malik

Subject Group: Built Environment

Research Areas: Rural Planning, Socio Economics, Automotive Engineering

Project Title: Can car sharing schemes work in rural areas of Scotland and can this achieve sustainable transport?

Project description:

Shared mobility practices such as: Car sharing systems (CSS) are intended to reduce car ownership, reduce the private car fleet, improve mobility, and traffic congestion while offering advantages for drivers such as total cost of ownership (TCO) and flexibility for drivers. CSS, as an approach to holistic and technology-led integration of mobility options is typically associated with urban and sometimes suburban mobility. While most research and practical projects focus on services operating in densely populated areas, the advantages of individual, flexible, and shared transportation services in RURAL non-densely populated areas have not been explored yet. Disincentivising car ownership and car use have also been deployed as strategies to reduce the GHG emission from transport sector.

This project addresses the need for a renewed focus on understanding the barriers to the implementation and growth of CSS in rural locations. The dependence of Scottish rural population on private car can be examined. This

research proposes to investigate aspects of automobility which focuses on consumer engagement with ownership and use in rural Scotland.

Scenarios for adoption of Car sharing appear limited in current Rural activities since this will depend on how well suppliers of the service segments the market. Finally, from the supplier side the most complex challenge is to determine whether there is a business model that aligns with the rural communities' objectives that should adopt the value of CSS.

In this project, data will be analysed focused on the characteristics of car sharing in rural Scotland areas and compared to Urban Scotland and examine whether introducing such schemes could affect car ownership. This research will analyse management policies to evaluate the economic potential of CSS services and will explore the dynamic of private car ownership in rural Scotland. The study will finally aim to develop guidelines (rule base file) for application of automobility engagement in rural areas. Also, this study could assess the impact of changes in residential location, age, and income between other factors. This will be a novel contribution to CSS and automobility engagement. This project expects to employ a mix-methods approach. Surveys, interviews, and focus group workshop are expected to be the main data collection methods to employ. It is also expected to conduct some data analysis to find the numbers car-sharing in Scotland. A GIS analysis could explore any recognisable pattern in the geographical coverage of rural car sharing systems in Scotland and Europe.

References:

Bonsall, P. (1981). Car sharing in the United Kingdom: a policy appraisal. Journal of Transport Economics and Policy, 35-44.

Wappelhorst, S., Sauer, M., Hinkeldein, D., Bocherding, A., & Glaß, T. (2014). Potential of electric carsharing in urban and rural areas. Transportation Research Procedia, 4, 374-386

Poltimäe, H., Rehema, M., Raun, J., & Poom, A. (2022). In search of sustainable and inclusive mobility solutions for rural areas. European transport research review, 14(1), 13.

Candidate characteristics

Education:

A first degree (at least a 2.1) Business, Economics, Transport studies, Engineering, Geography (GIS)

Subject knowledge:

Good fundamental knowledge of Transport operations, economics and management; GIS, sustainable design, public health, engineering design; Qualitative research methods, or Human centred design, and design for inclusion.

Essential attributes:

- Experience of Transportation analysis, Economic analysis , GIS, Familiar with social research methods
- Competent in Modelling, Data analysis, Design or Transport engineering

Desirable attributes:

- Competent in Modelling, Market analysis, Proficiency in English language