

Engineering Vacation Research Internship Program



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PROJECT MANAGEMENT RESEARCH PROJECTS

PROJ2021-22/1 Transitions of project organisations from traditional to agile environments to maximise value

Supervisor: Karyne Ang

Eligibility:

- Self-directed (able to work independently) and demonstrates high initiative to develop own knowledge through critically analysing and seeking out resources
- Strong capabilities using NVivo to code and run queries and models to analyse the qualitative data
- Ability to draw upon the data and suggest logical and creative ideas to visually present ideas / conceptualisations.
- Able to conduct a quality literature review in line with the research aims and questions, theoretical frameworks, data and findings.
- Insightful research and excellent writing skills

Project Description:

This project traces how organisations transition from traditional to agile portfolio environments to build resilience and adapt to their changing environments while maximising value for their stakeholders. Several problematic transition issues identified in the case studies include organisation structure/design and systems legacies, leadership and team capabilities and varying stakeholder value expectations. The study aims to contribute to the understanding of how these transitions affect the different ways organisations manage projects and portfolios to maximise value for their stakeholders. This study is significant in understanding how transitions (or changes) impact on value maximisation in project organisations. Theoretical frameworks by Ang, Killen and Eskerod (Value Spectrum and Sensemaking Framework) and Time, Teams, Tasks and Transitions (Lundin and Soderholm) inspire this study.

This internship role will require the candidate to conduct a targeted literature review, qualitative data analysis and interpretation of the findings, preparation of presentation slides and a draft journal paper.

Requirement to be on campus: No

PROJ2021-22/2 Mapping dynamic and emergent stakeholder value dimensions in project portfolios

Supervisor: Karyne Ang

Eligibility:

- Self-directed (able to work independently) and demonstrates high initiative to develop own knowledge through critically analysing and seeking out resources
- Strong capabilities using NVivo to code and run queries and models to analyse the qualitative data
- Ability to draw upon the data, suggest creative and logical ideas to visually map and present ideas/conceptualisations based on several theoretical frameworks

- Able to conduct an extensive literature review to map out the extant literature in line with a focused section of the theoretical frameworks, data and findings.
- Ability to use VosViewer as a literature review technique would be an advantage
- Excellent research and writing skills

Project Description:

The prospects of a flexible, resilient, and adaptive organisation driven by the provision of value for its stakeholders through its projects and portfolios are attractive but do not come without challenges in practice. This project explores how value is identified and when new facets of value emerge, particularly in agile and dynamic environments across various organisational levels – project, portfolio, and enterprise.

The study aims to contribute to fresh perspectives of identifying and mapping value that is emergent (unplanned/unanticipated) and identify patterns about how emergent value relates to decision making in organisation project management. Theoretical frameworks by Ang, Killen and Eskerod (Value Spectrum and Sensemaking Framework) and Time, Teams, Tasks and Transitions (Lundin and Soderholm) inspire this study.

The candidate will conduct a literature review, qualitative data analysis and interpretation of the findings, preparation of presentation slides and a draft journal paper incorporating the literature review and analysis and insights.

Requirement to be on campus: No

PROJ2021-22/3 Developing a Social Network-Identity Model for Stakeholder Engagement in Infrastructure Projects using Netnography

Supervisor: Dr Ken Chung

Eligibility: Distinction average, strong data analytics skills (e.g. coding in Matlab and/or Python, R or other statistical packages) and written communication skills.

Project Description:

Public infrastructure megaprojects are complex and often met with opposition. This requires meaningful and effective stakeholder engagement. In this research, we seek to understand community voice and sentiment (emotion-work) with regards to infrastructure projects (such as roads development and building an aerotropolis) through the use of social identity theory, social network analysis and social media data analysis.

Requirement to be on campus: No

PROJ2021-22/4 Tracking the Career Path of BPM Graduates

Supervisor: Dr. Ken Chung

Eligibility Criteria: Distinction average, qualitative data analysis, understanding of social network analysis.

Project Description:

The Bachelor of Project Management (BPM) degree launched in 2012 and has continued with much success. This project tracks BPM graduates from 2015 onward to understand their career trajectory, experience with industry, including challenges and dilemmas faced during their career path. This research will take a social identity-based approach looking at the connections and salience of various identities.

Requirement to be on campus: No

PROJ2021-22/5 Productivity in Project and Team Based Work

Supervisors: Prof. Lynn Crawford and Prof. Julien Pollack

Eligibility: Students enrolled in an undergraduate or postgraduate coursework degree at the University of Sydney or other Australian University. Applicants must have a weighted average mark (WAM) of 75 or above in their undergraduate studies, undergraduate applicants must have completed at least 96 credit points at the time of application. Good English language skills, written and verbal.

Project Description:

Project management is knowledge work and according to Peter Drucker, measurement, and improvement of productivity of knowledge work is one of the most challenging managerial issues of the 21st century.

This research project aims to:

- Improve understanding of productivity in the context of project and team-based work.
- Develop methods for measurement and communication of productivity; and
- Identify innovative ways of improving productivity and sustainability in the way initiatives are managed and delivered.

It contributes to an important societal issue – the measurement and improvement of productivity of knowledge work in increasingly projectified and distributed work environments. Work to be done includes literature review, interviews, transcription editing and analysis use using qualitative data analysis software (Atlas.ti). It will support development of a white paper, journal article and grant application.

Requirement to be on campus: Good to be on campus but not a requirement.

PROJ2021-22/6 Wellbeing and Productivity in Project Based Work

Supervisors: Prof. Lynn Crawford and Prof. Julien Pollack

Eligibility Criteria: Students enrolled in an undergraduate or postgraduate coursework degree at the University of Sydney or other Australian University. A weighted average mark (WAM) of 75 or above in undergraduate studies or postgraduate studies, at least 96 credit points of undergraduate studies completed at the time of application. Good English language skills, written and verbal.

Project Description:

Wellbeing and productivity are fundamental to social and economic sustainability and are inextricably linked at all levels of endeavour from global to local. Workplaces are changing rapidly in response to societal and technological change and to catastrophic events such as the COVID-19 pandemic. At the same time, work in organisations is increasingly being undertaken through projects. This research focuses on the impact of COVID-19 and remote and distributed working in terms of wellbeing and productivity of project-based work and implications for future ways of working.

The internship will involve literature review and analysis of data from various sources as well as other work as required to support development of a white paper, journal article and grant application.

Requirement to be on campus: Good to be on campus but not a requirement.

PROJ2021-22/7 The role of legislation in resilience of infrastructure projects

Supervisor: Dr Nader Naderpajouh

Eligibility Criteria: Interest in the legal system in Australia and literature of law is preferred but not required.

Project Description:

The aim of this research is to explore the Australian legislation context to ensure resilience of infrastructure projects. The research assistant will be guided by the supervisor to search, retrieve, and catalogue the relevant legislations and acts and develop a system-wide legislative map to ensure resilience in the context of infrastructure projects. This research will be part of an ongoing research project on understanding the extent and potential for the associated legislations and how they impact planning, design, and operation of the infrastructure systems. This research will be further developed as an ARC discovery grant proposal to further explore the resilience culture in the infrastructure sector in Australia, including the legislative, cultural, and individual mind-set on the concept of resilience within the sector and how they are formed within the projects.

Requirement to be on campus: No

PROJ2021-22/8 Employing network analytics and Fuzzy approaches to explore various aspects of the Critical path method

Supervisor: Dr Shahadat Uddin

Eligibility Criteria: Analytical minded/Engineering background

Project Description:

The critical path (CP) method, a widely used technique by project management professionals, is an algorithm to schedule a set of inter-dependent project activities. The resultant critical path(s) during the project planning stage can be affected by various reasons (e.g., delay due to natural causes) during the project execution stage. This project aims to employ network analytics and Fuzzy approaches to explore the alternatives and required adjustments (e.g., allocate more time and crashing activity duration) of CPs (which resulted from the planning stage) while facing unexpected situations during the project execution phase.

Requirement to be on campus: No

PROJ2021-22/9 Stakeholder network and Project complexity

Supervisor: Dr Shahadat Uddin

Eligibility Criteria: Data science and Complex networks

Project Description:

There are many approaches in the literature to understand the complex nature of a project. This project will employ a stakeholder network approach to explore the level of complexity associated with projects. Often, there are many stakeholders involved in a project. Their level of connections and communications also contribute to the perceived level of project complexity. This project will use advanced methods and approaches from 'complex network' and 'data science' domains to explore project complexity.

Requirement to be on campus: No