

# Lost in Translation: Sustainability Complexity and its Impacts on Sustainable Supply Chain Management

by A/Prof Daniel Prior [d.prior@unsw.edu.au](mailto:d.prior@unsw.edu.au)

## Introduction

As much as 70% of global emissions stem from supply chain activities, and deforestation, slavery, poverty, and human trafficking have similar origins. In this study, we ask why. A recent EY report shows that supply chain managers often find sustainability and its role in supply chain management complex, confusing and uncertain. This led us to probe how supply chain sustainability complexity affects SSCM and how this reverberates through the supply chain. We ask, ‘how do managers interpret sustainability in SSCM, and how does this affect supply chain sustainability?’

## Background Literature

SSCM complexity is likely to place a significant cognitive burden on supply chain managers. To cope with this, recent studies show that supply chain managers benefit from SSCM information simplification (e.g. through integrated SSCM frameworks, data presentations, and measurement regimes). Supply chain managers also reduce the amount of information they consider through filtering. Supply chain managers also develop their own narratives to make sense of complex information. Supply chain managers also convey this information to others through storytelling and other sensegiving activities. While each of these processes has been studied separately, the current literature lacks a cohesive, holistic explanation as to how each relates to one another or their net effects.

## Methods

Through a detailed analysis of three case firms and their supply chain partners, we begin by scrutinizing supply chain

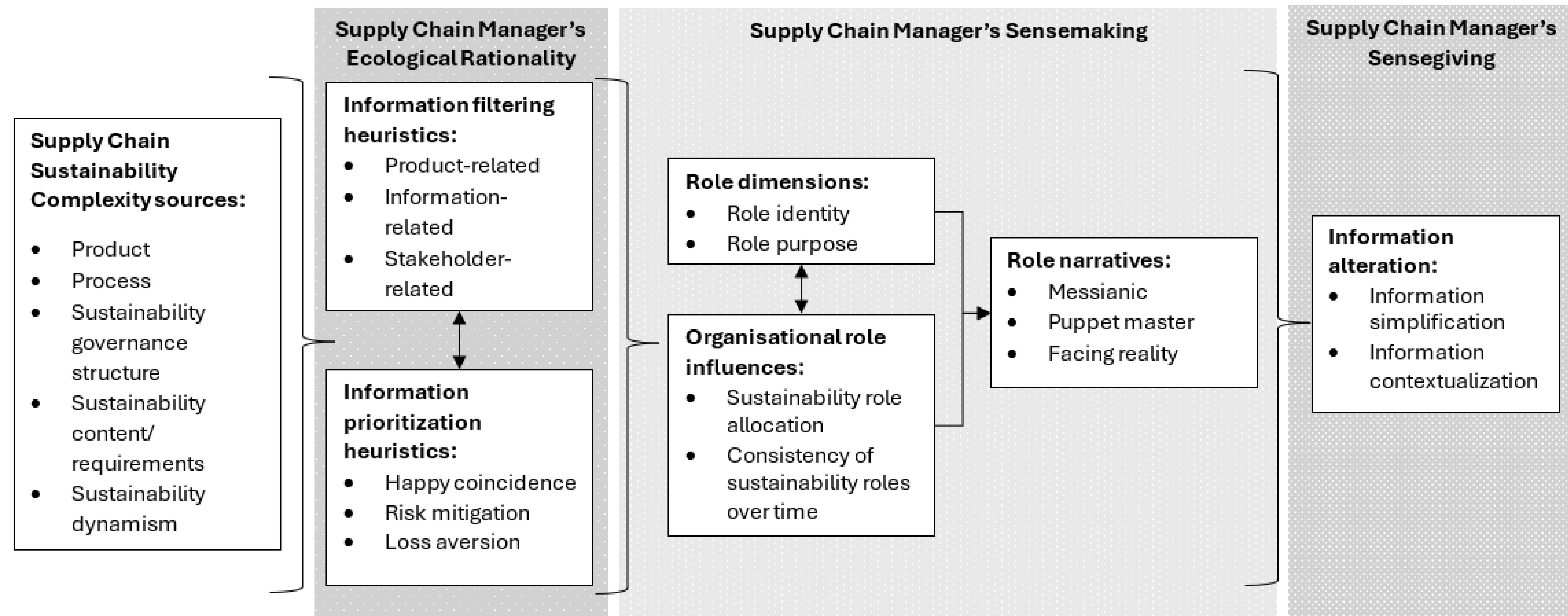


Figure 1. How sustainability complexity impacts supply chain sustainability outcomes

managers’ ecological rationality, or the ways managers respond to supply chain sustainability complexity in their immediate environments.

We next consider how supply chain managers interpret sustainability information through sensemaking.

Lastly, we analyze how supply chain managers use sensegiving to convey sustainability-related information to others within the firm and to counterparts in the firm’s supply chain.

## Findings

Our findings suggest that managers use a variety of heuristics to decide on which sustainability information to access and use, as well as how to prioritize such information. Our findings suggest that supply chain manager role interpretations, the stability of

such roles and the treatment of supply chain sustainability responsibility all affect their sensemaking activities. This produces a series of three common supply chain sustainability narratives, which vary in terms of the extent of sustainability responsibility supply chain managers accept.

Our findings suggest that supply chain managers simplify and contextualize supply chain sustainability information.

## Conclusion

The study presents a novel explanation for supply chain sustainability failure. While there is widespread interest in building supply chain sustainability, our findings show that the process towards doing so resembles a game of Chinese Whispers, where information is lost, distorted, and altered as it passes from actor to actor along the supply chain.



Scan the QR code to learn more about the Supply Chain Sustainment Research Group



# Merit 2.0: Factors in Merit Based Recruitment, Promotion and Retention in the Public Sector

Sue Williamson, Kelly Soderstrom, Vanessa McDermott, Catherine Deen, James Connor, Joe Ren, Noelle Donnelly

## The Project

The **Australia and New Zealand School of Government, the ACT government and UNSW Canberra** are partnering to examine current practices and contemporary challenges in relation to *merit*. This project examines shifting definitions and understandings of merit, and how it can be accrued and assessed. It also examines tensions in implementing merit alongside values of diversity and inclusion.



## Method

The first part of the project involves document study and analysis to understand current merit practices in the case study jurisdictions.

1

**Desktop Review** of merit protection frameworks from ACT, Qld, & Aotearoa NZ public sectors

2

**Recruitment Materials Review** using a web scraping program covering job advertisements from ACT, Qld, & Aotearoa NZ public sectors

3

**Job Advertisement Analysis** focusing on how merit is implemented and operationalised in ACT, Qld, & Aotearoa NZ public sectors



Scan QR code to view current ANZSOG projects page, where this research report will be available to view soon.

## Project Goals and Focus

The goals are to understand current merit practices and identify challenges towards the development of workable context-relevant recommendations for the **ACT, Qld, & Aotearoa New Zealand**.

## Key Findings

- The three jurisdictions have different conceptions of merit, from being individually focused to encompassing a broader conception of diversity.
- Our examination of job advertisements in all jurisdictions reveals the use of templates. While this is to be expected, it also means that D&I statements, for example, are routinely included, but are separate to merit.
- Similarly, while important, statements promoting flexible working arrangements remain separate from meaningful initiatives to progress diversity.



## Forthcoming

- **Key informants, selection panel members, and job candidates** have been interviewed about their recruitment and selection experiences.
- Based on these interviews, a report focusing on how merit is understood and implemented will be available in late 2024.
- The report will assist public sectors in Australia, and Aotearoa New Zealand to reconsider and, where necessary, amend recruitment and selection practices.



# "Personal Matters": A Systematic Review of the Impact of Leaders' Personal Lives on Work Outcomes

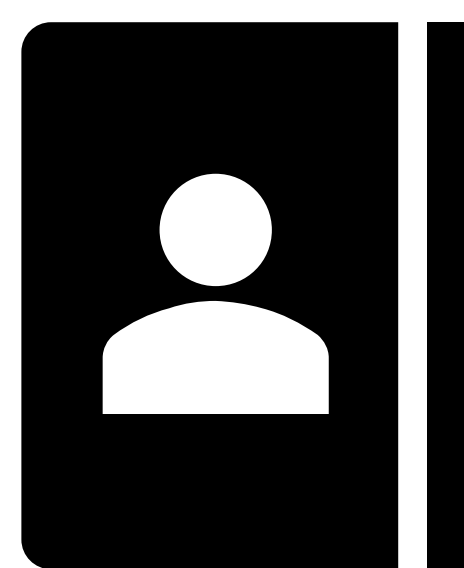
A/Prof Pauline Schilpzand, Dr Catherine Deen, Prof Simon Restubog, & Dr Yaqing He

## The Project

Popular media accounts and studies about how leaders' personal lives impact leadership practices and organisational outcomes (e.g., firm performance, risk aversion, etc.) are scattered across disciplines. This project aims to integrate scholarly understanding of the link between leaders' personal lives and its impact on leadership practices and work outcomes through a systematic review of empirical research. A total of 111 studies from various disciplines were reviewed.

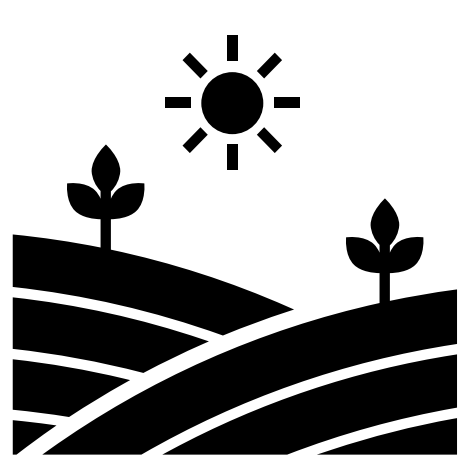
## Conceptualising 'Personal Life'

Personal life covers parts of one's life that **does not involve one's work or job**. Also known as "private life", personal life refers to a person's **domestic life**, distinct from those relating to their employment, official position, and public image. Personal life covers **personal life characteristics** and **personal life events**.



### Personal life characteristics

- Personal affiliations, values, beliefs (e.g., political affiliation, religion, social activism)
- Family characteristics (e.g., birth order, marital status, childhood background)
- Activities outside work (e.g., hobbies, leisure, travel)



### Personal life events

- Pivotal childhood experiences (e.g., trauma, disaster exposure, parental divorce)
- Pivotal adulthood experiences (e.g., death of significant others, serious health issues)

## Personal Life and Leadership Practice

### Leadership development & practice

Positive childhood experiences linked to more transformational leadership qualities. Negative childhood experiences linked to higher follower perceptions of abusive supervision.

### Leader emergence

Poverty in childhood and social class has links to limited later leader emergence (i.e., "class ceiling"). Education seems to be the key mechanism behind this class disadvantage.

### Leader effectiveness

Similarity between leaders and followers in personal aspects (e.g., religion, sociopolitical activism) relates to more positive perceptions of leader effectiveness.

### Leader earnings

Leaders who held leadership positions in high school tend to earn higher professionally, but this was only significant for white males.



For more information, scan the QR code to contact Dr Catherine Deen (UNSW Canberra)

This research is an ongoing project. It was presented at the European Academy of Management (EURAM 2024) held at the University of Bath, London.



# Helicopter Bosses: Scale Development towards Clarifying and Demystifying Micromanagement in the Workplace

Dr Catherine Deen, Prof Christian Kiewitz, Dr Jun-yeob Kim, Prof Simon Restubog, Prof Ying-Yi Chih & Mr Robert Tang



**Micromanagement (MM)** is a popular but also despised topic in management circles. Since its formal entry into the business lexicon in *The Economist* in 1975, its reputation as an undesirable management style has been consistently emphasized in mass media and practical experiences. Surprisingly, academics have not shared this interest, resulting in a deficient understanding of MM marred by disjointed definitions and paradoxical views about its effectivity.

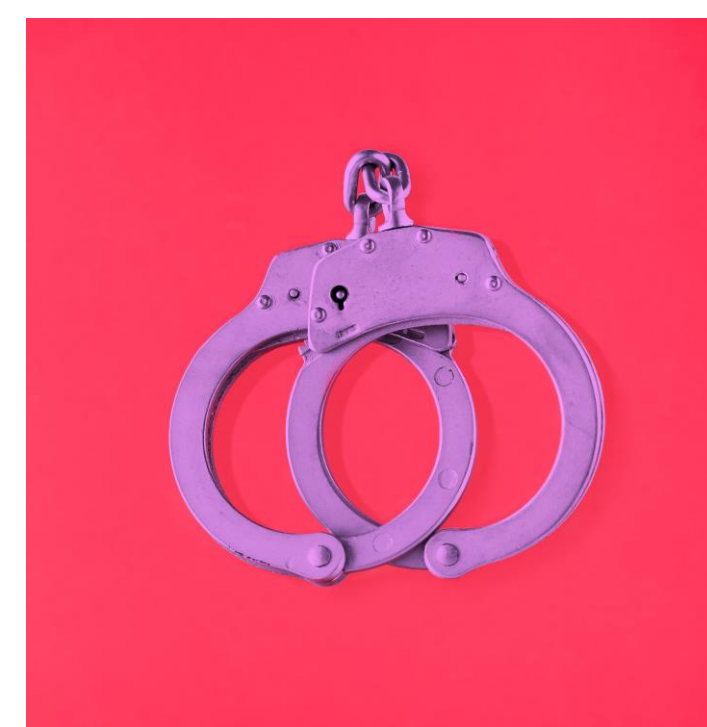
This multi-study research program aims to (1) **scientifically define and measure MM**, (2) **differentiate MM from other leadership styles**, and (3) confirm a preliminary nomological network of MM's **antecedents** and **consequences** in the context of work.

## What is micromanagement?

**Micromanagement** is a management style perceived as the **excessive, sustained, or unnecessary** use of any or a combination of the following managerial behaviours: **controlling, close monitoring, or detail focus**.

**Research approach:** Deductive definition analysis & inductive critical incident technique, and scale development resulting in a construct validated **Micromanagement Scale (MMS-17)**.

### Core Attributes of Micromanagement



**Controlling**  
"Handcuffs"

Directing or interfering with subordinates' work processes and outputs.



**Close Monitoring**  
"Surveillance Camera"

Close direct or indirect surveillance of subordinates' work processes and outputs.



**Detail Focus**  
"Magnifying Glass"

Scrutiny of small details of subordinates' work processes and outputs.

## How is micromanagement different from other leadership styles?



**Micromanagement (MM)** is theoretically and empirically distinct from the following leadership styles: **authoritarian leadership, directive leadership, initiating structure, empowering leadership, participative leadership, & abusive supervision**.

While MM shares some dark elements of control and task orientation with other styles, its unique features (i.e., excessiveness, sustained, unnecessary) and core attributes make MM different from other leadership styles.



**Research approach:** Discriminant validation using confirmatory factor analysis across three independent datasets totalling more than 850 working individuals from various fields.

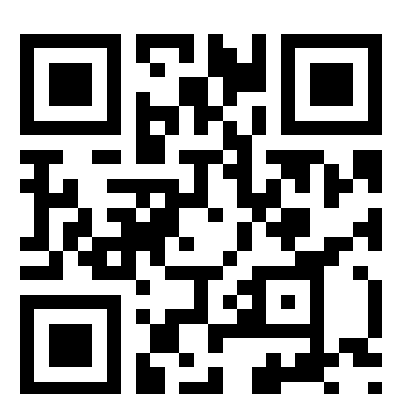
## What are the antecedents and consequences of MM in the context of work?

We offer an evidence-based nomological network of the antecedents and consequences of MM from a stress perspective. Results confirmed the following antecedents and consequences of MM.

### Research approach:

Single-paper meta-analysis with six independent samples ranging from 338 to 1338 participants.

Antecedents	Consequences
Manager Traits and Beliefs: Perfectionism (+), Theory X Beliefs (+)	Work Attitudes: Turnover intentions (+), Job satisfaction (-), Satisfaction with supervisor (-)
Follower and Job Characteristics: Tenure with organisation (-), Tenure with supervisor (-) Job autonomy (-)	Work Behaviours: Job search behaviours (+), Supervisor-directed deviance (+), Organisation-directed deviance (+), Performance (-), Negative gossip about supervisor (+)
Quality of Leader Relationship: Leader-member exchange (-), Trust (-)	Well-being: Emotional exhaustion (+)



Scan the QR code to view project documents

This research program is an ongoing project. It was presented at the Academy of Management Annual Meeting (2024) held in Chicago Illinois, USA. For more information, contact the primary investigator Dr Catherine Deen (UNSW Canberra) [c.deen@unsw.edu.au](mailto:c.deen@unsw.edu.au)

### Aim

Explore working from home (WFH) experiences and well-being of older workers

### Context

Three directorates within an Australian government jurisdiction

### Method

- Individual and group interviews with 40 older workers from management and operational levels
- Data collected between December 2021 – June 2022



Scan the QR code to view Dr Vindhya Weeratunga's researcher profile

Older workers' working from home experiences are distinct in three areas:

Leveraging WFH for work-life balance to manage health conditions

*"By WFH, it's been quite accessible for me, especially now that I've been diagnosed with cancer. It's a lot easier... my health doesn't get compromised..."* (Respondent 3, Directorate 2, Operational)

Prospect of extending their careers

*"I've got a little block of land in the country and I want to build a house and move there... If I'm WFH, I could WFH there... Let's change our thoughts about the future a little bit in a positive way, like ohh I could keep doing this a bit longer"* (Respondent 1, Directorate 3, Operational)

Potential for increased loneliness for those who live alone or struggle to connect in virtual environments

*"Because I live alone, WFH is a bit isolating. So I get up and go for walks and go way more often to the supermarkets than I probably should, just to see people..."* (Respondent 5, Directorate 2, Group 3, Manager)

### Findings

### Conclusion

Access to WFH is insufficient on its own for enhancing well-being; what is more important is older workers' ability to leverage agency over key aspects of their work, which positively impacts their well-being.

### Key takeaways

- Agency is important to overcome stressors associated with ageing and enhance well-being in later life.
- Agency is a crucial factor that could foster a sense of control and autonomy in older workers to optimise the benefits and manage the challenges associated with WFH, leading to improved well-being.
- Older workers' ability to exercise agency is contingent upon contextual factors at the macro (social and economic), meso (co-workers and manager related) and micro (personal) levels.

# What drives academic research misconduct? Researchers' perspectives

Paul Burke<sup>1</sup>, Twan Huybers<sup>2</sup>, Bronwyn Greene<sup>3</sup> and Ted Rohr<sup>3</sup>

<sup>1</sup>UTS <sup>2</sup>UNSW Canberra <sup>3</sup>UNSW Sydney

## Background

Research misconduct: breaches of acceptable scientific norms and standards

- Fabrication, falsification and plagiarism
- Questionable research practices (e.g. post-hoc hypothesis generation, withholding studies with negative results)

## Aim

Identifying the relative importance of 11 drivers of research misconduct as perceived by academic researchers

## Method

Choice experiment (hypothetical researcher 'Morgan')

## Sample

Researchers at universities in Australia, US and Europe (n=927)

## Findings

**Overall:** research misconduct more likely in case of:

- lower penalties
- lower likelihood of investigation into misconduct
- smaller negative human/animal/environmental impact

Attribute	Scenario ONE	Scenario TWO
Pressures on researchers due to rewards for academic performance	<b>Moderate</b> academic pressures	<b>Strong</b> academic pressures
Senior academics engaging in research misconduct	Research misconduct <b>not observed</b>	Research misconduct <b>observed</b>
Perceived negative impact of misconduct on humans, animals or environment	<b>Low</b> negative impact of misconduct	<b>Low</b> negative impact of misconduct
Complexity of research methods used	Use of <b>complex</b> methods	Use of <b>complex</b> methods
Specialist expertise in research collaboration	<b>No specialist</b> collaborators involved	<b>Specialist</b> collaborators involved
Probability of investigation into research misconduct	<b>High</b> probability of investigation	<b>Low</b> probability of investigation
Penalties for research misconduct	<b>Minor</b> penalties for misconduct	<b>Severe</b> penalties for misconduct
University's research integrity Code of Conduct, policies and procedures	<b>Not clearly</b> communicated <b>nor</b> embedded	<b>Not clearly</b> communicated <b>nor</b> embedded
University's training and education on research integrity	<b>Low</b> quality training and education	<b>High</b> quality training and education
University's research integrity mentoring	<b>Inadequate</b> mentoring	<b>Adequate</b> mentoring
Peer pressure/advice regarding research integrity	Pressure/advice <b>to engage</b> in research <b>misconduct</b>	Pressure/advice <b>to engage</b> in research <b>misconduct</b>

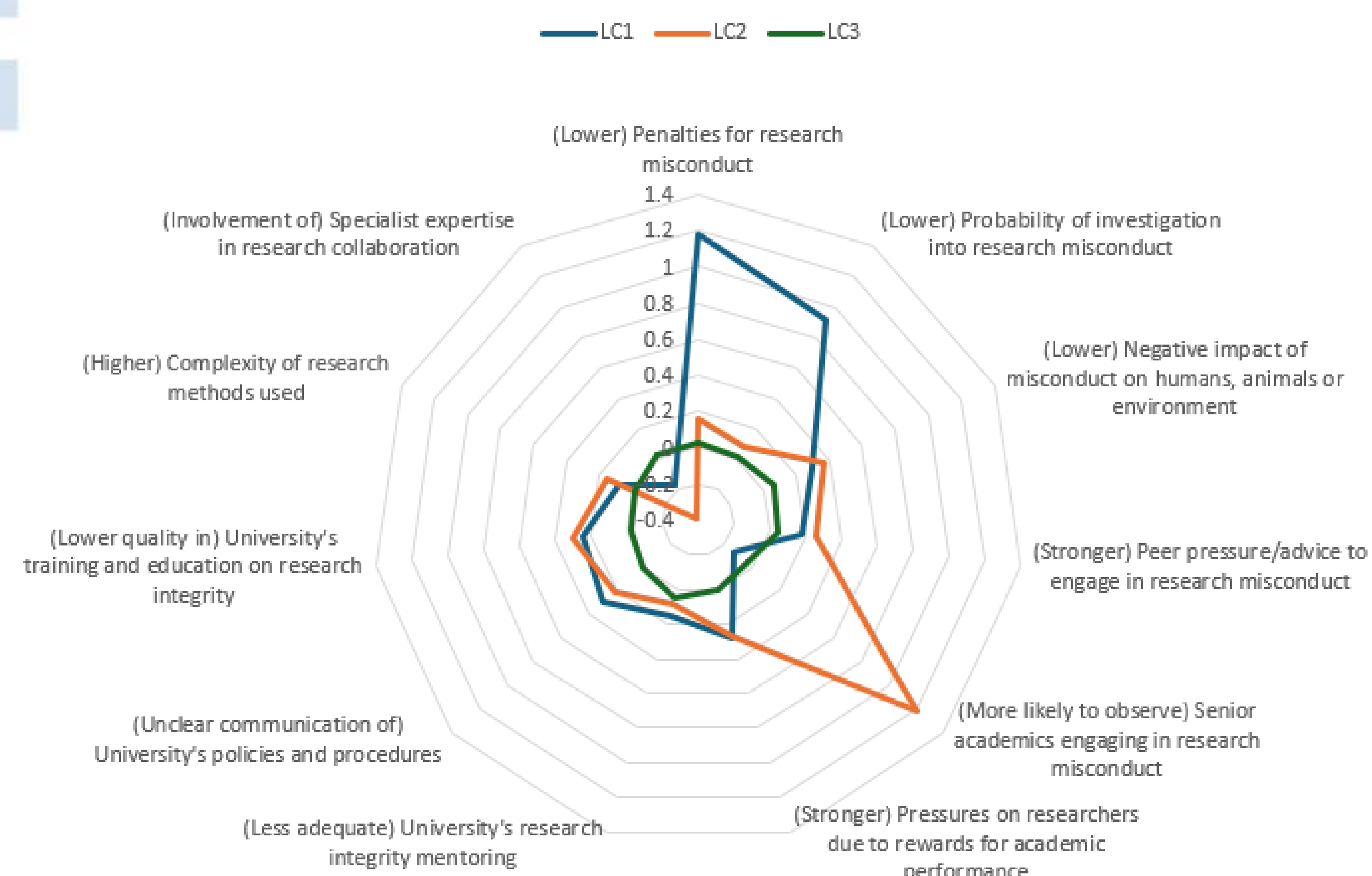
## Three 'latent classes' – main researcher characteristics:

- **Class 1** (67.5%): experienced; recognise the potential ramifications of research misconduct regarding harm done and personal consequences faced; non-STEM
- **Class 2** (17.9%): early-career; engaged in research with experts.
- **Class 3** (14.6%): mid-career; part-time/casual; inadequate communication and training/education on research integrity; misconduct peer pressure; STEM

In which scenario, do you think, would Morgan be **more likely** to engage in **research misconduct**?

## University policy implications

- Investigations of, and penalties for, research misconduct
- Safe 'speaking up'/whistleblowing regarding observed misconduct and peer pressure
- Training/education and communications regarding research integrity, codes of conduct, policies and procedures



For more information, scan the QR code to contact Associate Professor Twan Huybers (UNSW Canberra)



# A scoping study: substance use in Australian orchestras

Dr Penelope Bergen, A/Prof James Connor, Dr Vanessa McDermott

There is evidence in our study that the problem of substance use in orchestras is increasing.

95% of substance users take beta-blockers, 87% with a prescription.

Health risks for individuals are compounded by low levels of medicines literacy.

**54% of musicians reported using substances to manage performance anxiety, highlighting a systemic issue requiring management intervention rather than placing the burden on individual musicians.**

Recent amendments to Work Health and Safety Regulations prescribe that workplaces must identify and manage hazards and risks to workers' psychosocial health and safety.

Our research aims to learn more about stressors, and to inform targeted interventions and support, for individuals and organisations.

***“Performance anxiety is a huge problem in the music profession, and we do not handle it well.”***





# Overcoming gender barriers in project management

Dr Vanessa McDermott; Dr Penelope Bergen; A/Prof James Connor; A/Prof Christina Scott-Young (RMIT University); Dr Jessica Borg (RMIT University)

In 2022, 23% of Australian Institute of Project Management membership identified as women, with 30% in construction and 19% in professional, scientific and technical services. Despite the growing presence of women in project management, the strategies they use to navigate and manage their experiences is under-researched.

## Findings - women's experiences in project management

- **'Soft' discrimination** - assume lack technical expertise based on gender.
- **Direct discrimination** - call it out, labelled as aggressive, voices disregarded, removed from projects.
- **Culture of reporting not encouraged** - lack managerial support, avoided by colleagues, seen as the 'dibber'.
- **Gender disparity in workload & salary** - women 'loaded' with projects, paid less, men paid more, fewer projects.
- **Project complexity** - men given "meaty harder projects".



- **Preferential career advancement for men** - irrespective of similarity in level of experience.
- **Women more likely to be criticised** - judged for mistakes, second guessed.
- **Punished for competency** - unseemly to be assertive, but at the same time be on the top of your game.
- **Need to develop coping mechanisms** - fear asking for help and run the risk of being called 'stupid' or incompetent.

## Areas for change

- **Normalise / shift perceptions** - competence and effective communication doesn't mean aggression for women.
- **Mentors** - important but lack visibility of women in leadership and decision-making roles.
- **Value of support networks** - building communities of practice.
- **Flexible working arrangements** - support women's participation.
- **Executive level support** - influence organisational and attitudinal change.



# Supply Chain Risk Management Considering External Events Using Explainable Artificial Intelligence: A Case Study of an Australian Maritime Port

## AUTHORS

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## AFFILIATIONS

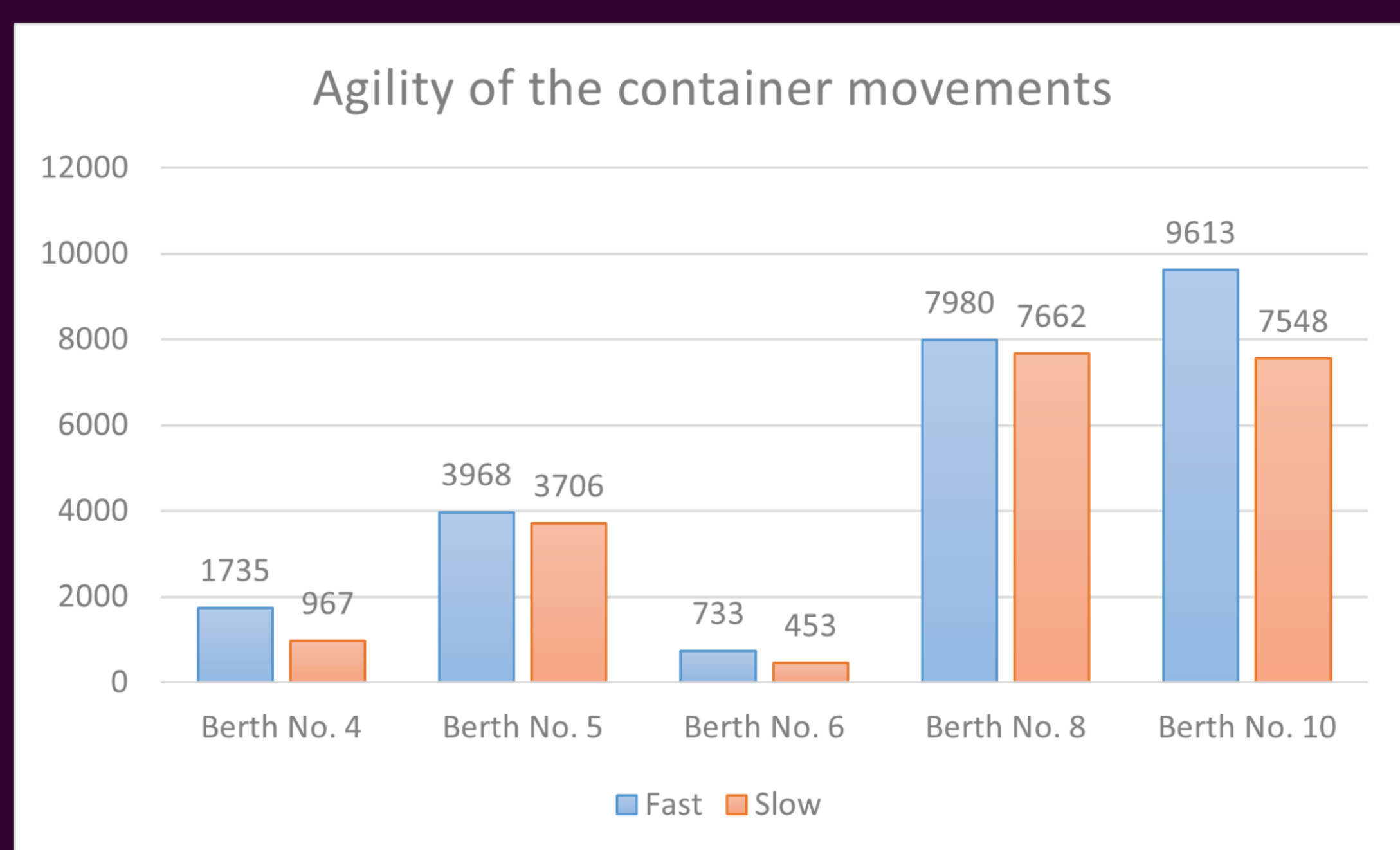
<sup>a</sup> University of New South Wales Canberra / Sydney  
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## 1. ABSTRACT

Current research employs Counterfactual Explanation (CE) to recommend risk mitigation solutions for Supply Chain Networks (SCNs). The CE is an optimisation model that modifies the features of SCN to alter machine learning (ML) output, which predicts the occurrence of risks. In addition, weather conditions are considered external events that potentially impact SCN activities. The results of implementing the ML model on an Australian maritime port dataset showed that weather conditions influence transportation agility. Then, the CE optimisation model recommended sufficient solutions to mitigate the risk impact.

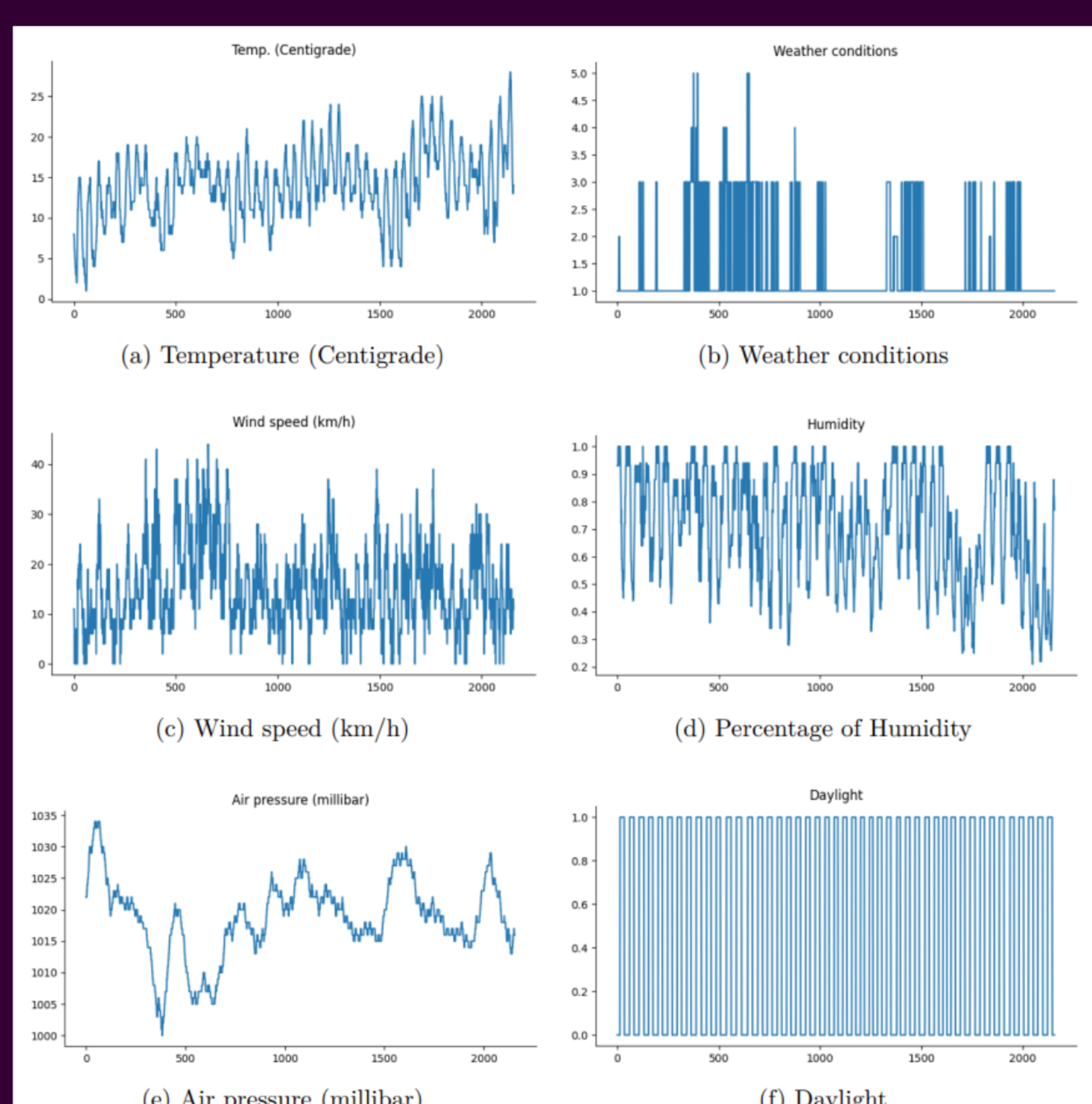
## 2. AGILITY OF CONTAINER MOVEMENT

The container movement in an Australian maritime port is considered. There are SCN features in the case study data (e.g. destination, origin, departure/arrival time, size, and weight). Using ArcGIS, the network-based shortest distance from the origin to the destination by road is calculated as the distance. The average speed of the movements is calculated using the time and distance of each movement; then, the movement's agility is categorised into "Slow" and "Fast" based on the average speed. The aim of the research is to analyse the factors that affect agility and, in the case of "Slow" movements, recommend solutions to mitigate the risks.



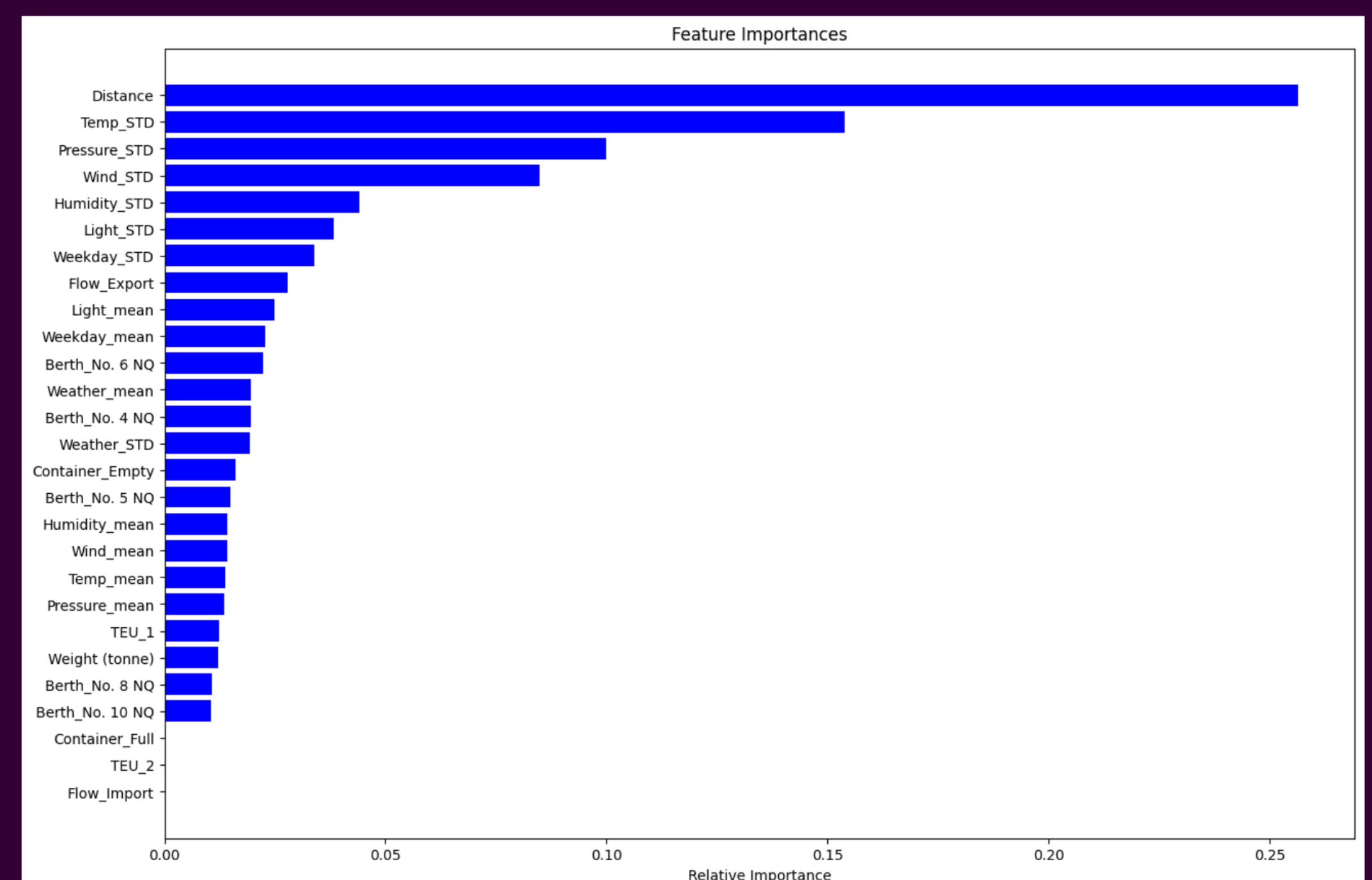
## 3. CAPTURING THE IMPACT OF THE WEATHER CONDITIONS

The weather features (i.e. temperature, wind speed, humidity, status, air pressure, and daylight) are extracted for the time horizon of the container movements. The average and standard deviation (STD) of the weather features are calculated and added to the original dataset to analyse their impact on the movement's agility as the target.



## 4. THE IMPACT OF THE WEATHER CONDITIONS ON AGILITY

The results of testing multiple ML models suggest that the XGBoost classifier performed better in classifying the movements' agility, with 92.12% accuracy and 92.71% F1 score. The analysis showed that adding weather features significantly improved the prediction accuracy since five weather features are among the most important features for the XGBoost classifier to predict the agility class.



## 5. RECOMMENDATIONS BY THE CE OPTIMISATION MODEL

The multi-objective CE optimisation model was employed in the next step to recommend solutions to avoid "Slow" movements proactively. The objectives of the CE model are the effort needed to reschedule, balance the workload on the new schedule, and reduce the violation of capacity limits.

No.	Model result (hour)	The minnum possible modification (hour)	Recommendation
Container 1	1	1	Please reschedule the transportation to 1 hours later
Container 2	9.5	-0.5	Although the minimum effort needed is 0.5 hours, reschedule the transportation to 9.5 hours later, because of the balancing the movement distribution among different periods.
Container 3	-8.5	5	Although the minimum effort needed is 5 hours, reschedule the transportation to 8.5 hours earlier, because of the balancing the movement distribution among different periods.
Container 4	42.5	42.5	Please reschedule the transportation to 42.5 hours later
Container 5	5.5	0.5	Although the minimum effort needed is 0.5 hours, reschedule the transportation to 5.5 hours later, because of the balancing the movement distribution among different periods.
Container 6	-22.5	21.5	Although the minimum effort needed is 21.5 hours, reschedule the transportation to 22.5 hours earlier, because of the balancing the movement distribution among different periods.
Container 7	8.5	8.5	Please reschedule the transportation to 8.5 hours later

## 6. RESEARCH CONTRIBUTIONS

- Considering the impact of weather conditions on SCN
- Multiple Pareto solutions of the Counterfactual Explanation optimisation model
- Justification and explainability of risk mitigation strategies

# CERIA: Contributing Event-Based Risk Identification and Assessment in Supply Chains

Maryam Shahsavari<sup>1</sup>, Omar Khadeer Hussain<sup>1</sup>, Morteza Saberi<sup>2</sup>, Pankaj Sharma<sup>1</sup>

1 - UNSW Canberra, School of Business, 2- UTS, School of Computer Science

**SUMMARY** - CERIA is an AI-based framework that uses advanced techniques to predict supply chain risks. It begins by analyzing past news articles to identify events that historically led to supply chain disruptions. These events are then used to construct a Bayesian network, mapping out the causal relationships between them. The framework continuously monitors online news to detect current occurrences of these contributing events, assigning probabilities to each. Ultimately, it assesses the overall risk of the main supply chain disruption by evaluating the combined probabilities of the contributing events.

## STEP 1 - ANALYZING PAST NEWS

Reviewing historical news articles to identify events that have previously led to supply chain risks with their causal relationships



## STEP 2 - BUILDING BAYESIAN NETWORK

Creating a Bayesian network using the identified events to model the causal relationships between them.



## STEP 3 - ANALYZING CURRENT NEWS

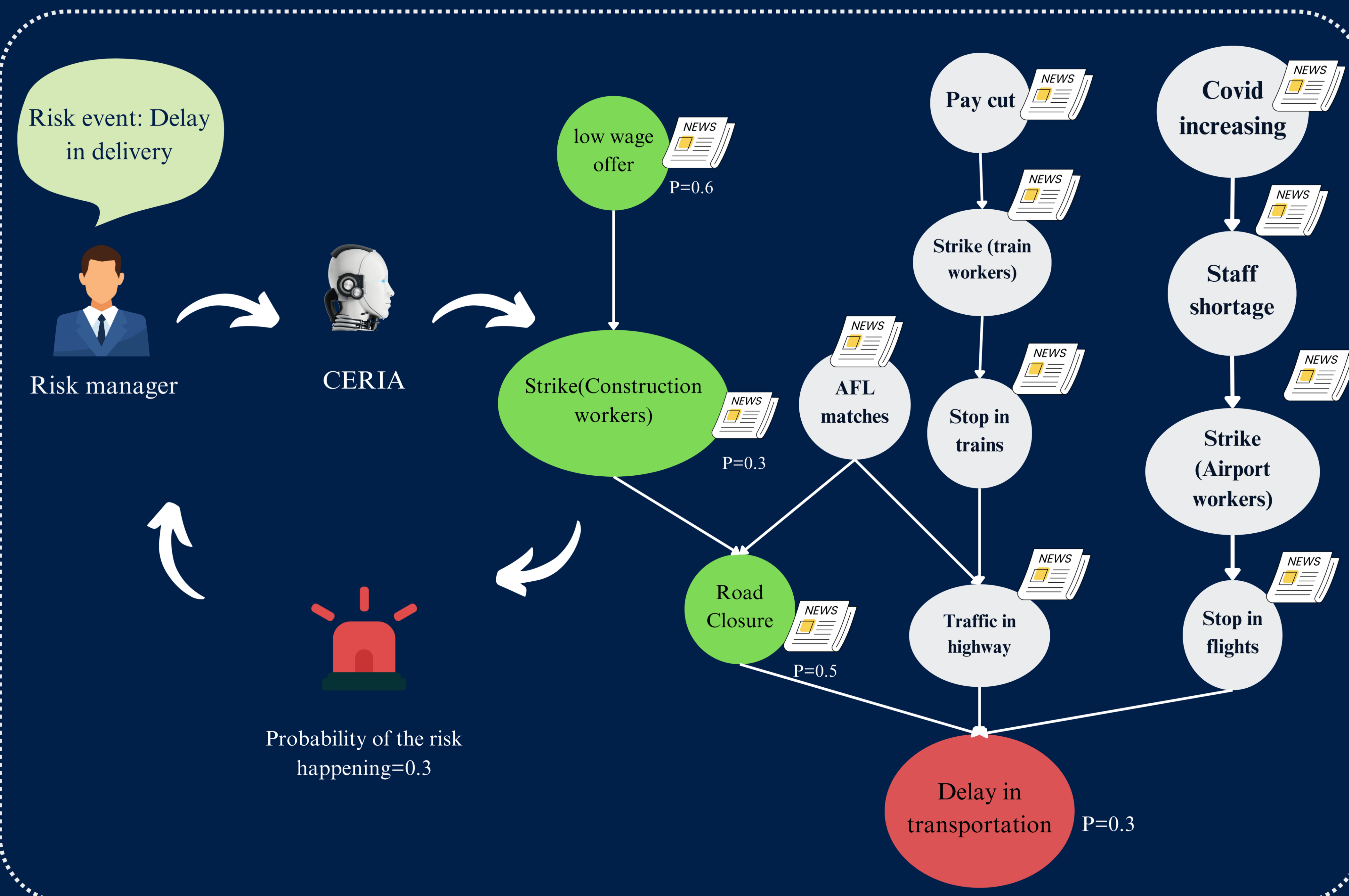
Continuously analyzing online news to detect the occurrence of events that contribute to supply chain risks, assigning probabilities to these events.



## STEP 4 - ASSESSING RISK PROBABILITY

Evaluating the likelihood of the main supply chain risk event occurring based on the probabilities of the contributing events.

$$P(B|A) = \frac{P(A \cap B)}{P(A)}$$



## EVALUATION METRICS FOR DETECTING THE OCCURRENCES OF DIFFERENT EVENTS BY ANALYZING NEWS

	Event 1 : Covid cases increasing	Event 2 : AFL matches happening
<b>Accuracy</b>	89.47%	92.98%
<b>Precision</b>	100%	92.31%
<b>Recall</b>	65.22%	92.31%
<b>F1 score</b>	78.95%	92.31%
	Event 3 : Airport staff shortage	Event 4 : Construction workers' strike
<b>Accuracy</b>	92.31%	82.27%
<b>Precision</b>	84.62%	74.04%
<b>Recall</b>	91.67%	88.23%
<b>F1 score</b>	88.0%	90.90%

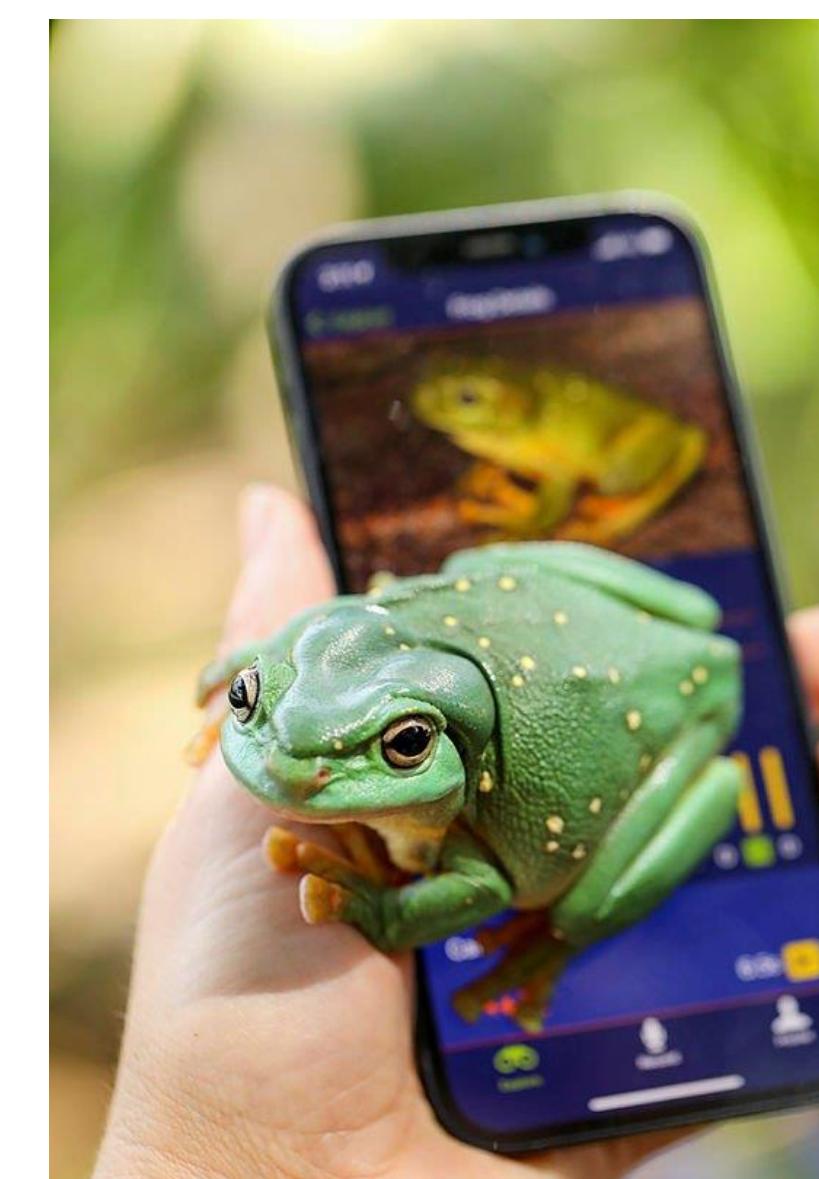
# The relational nature of citizen science

Katie Moon, Sophie Yates, Maureen Thompson, Corey Callaghan

Citizen science imagines a world where everyone can be a scientist, contributing to groundbreaking research from their own backyard. But it's not just about collecting data, it's about how we connect with nature, technology, and each other in the process. We're **moving beyond** the idea of observers and the observed (Fig. 1), and diving into a fascinating **web of relationships** that shape our experiences and the information we gather. This way of thinking, called 'agential realism', has the potential to change and improve how we approach citizen science.



Fig. 1. Traditional view of citizen science: person (subject) takes recording of frog (object)



## FrogID: turning your phone into a conservation tool

Let's hop into a real-life example: FrogID. This clever app allows anyone with a phone and an internet connection to record frog calls and contribute to a massive conservation effort. Expert validators listen to calls and verify the frogs in every single recording, and users get feedback through the app. With over 42,000 people involved and a database of **more than a million frog calls**, it's not just about the numbers. It's about the stories behind each recording - the excitement of discovering a rare species, the late-night adventures in local ponds, and the growing awareness of the fragile ecosystems in our own neighbourhoods.

## Beyond the app: how FrogID changes lives

We interviewed 30 FrogID enthusiasts, and loved hearing their stories! We discovered that for some people, using the app wasn't just changing how they saw frogs - it was transforming their relationships with nature, their communities, and even themselves (Fig 2). People were joining 'frogging' groups, teaching their kids about local ecosystems, and finding a new sense of purpose in environmental stewardship. It's like ripples in a pond - one small action creating waves of positive change.

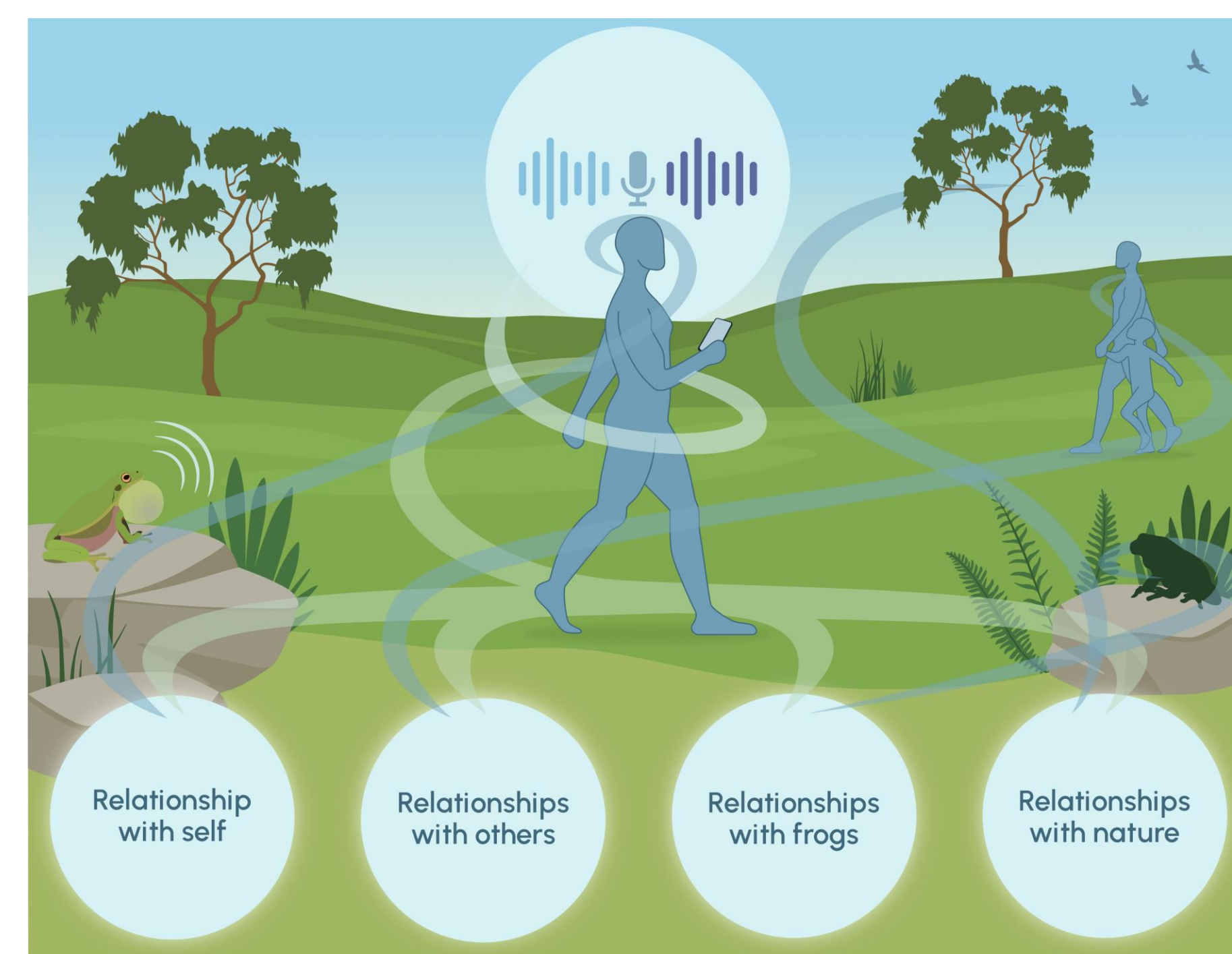


Fig. 2. The relational framework used to guide interviews



Let's break down this way of thinking into three ideas about the science of connection:

### 1. 'Intra-action'

Everything's connected: your mood, the weather, the sensitivity of your phone's microphone, who you're with – these things all play a part in what gets recorded and how.

### 2. 'Material becoming'

It's about what matters to you. The thrill of getting expert feedback, the joy of sharing discoveries with friends, the sense of contributing to something bigger - these experiences shape what data gets collected.

### 3. 'Responsibility'

Citizen scientists aren't just collecting data; they're becoming guardians of nature, educators in their communities, and advocates for conservation.

Fig. 3. The relational nature of citizen science as revealed by the themes of intra-action and entanglement, mattering and meaning, and responsibility.

## Opportunities for citizen science

This new perspective opens up a world of possibilities. Citizen science isn't just about gathering data - it's about nurturing a deep, meaningful connection with the world around us.

- For **project organisers**, relational thinking offers valuable insights on how to keep people engaged and improve data quality.
- For **participants**, we see that citizen science is a chance to contribute to knowledge advancement and environmental stewardship while enriching their own lives through learning and social connection.

So by embracing this relational view, we're fostering a more aware, engaged, and environmentally conscious society!



Scan the QR code to view publication:  
*'The relational nature of citizen science'*



# Antibiotic Dispensing in Bangladesh: Insights from Community Pharmacy Retailers (CPR)

Nastaran Nazrul Tui

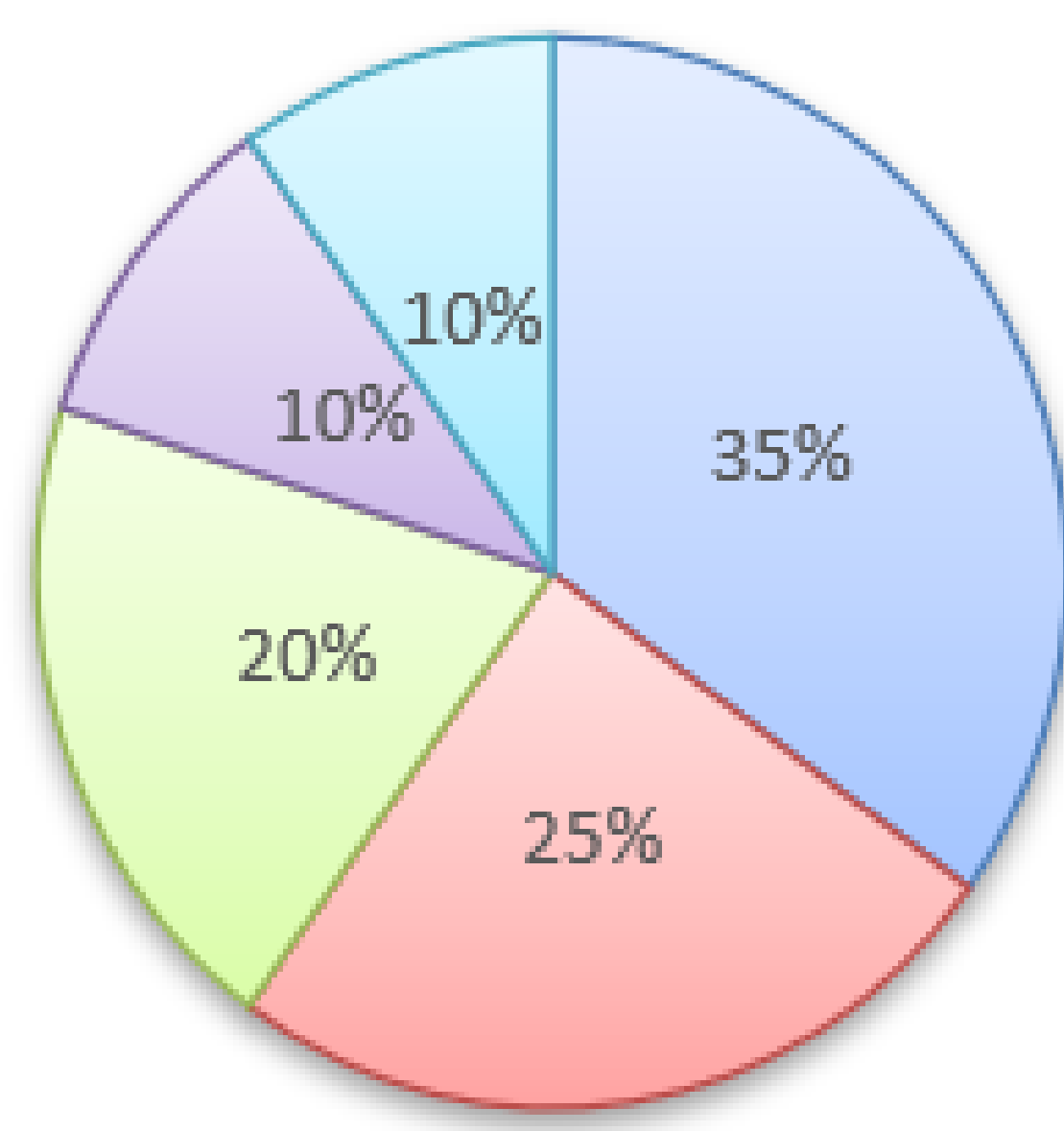
## Background

Antibiotic misuse is a significant global issue, contributing to 4.95 million deaths worldwide in 2019.

This study explores the perspectives of 20 community pharmacy retailers in Dhaka, Bangladesh, on the use of antibiotics, examining their attitudes, challenges, and practices.

Interviews were conducted in Bengali, translated, transcribed into English, and thematically coded with Nvivo for conclusions.

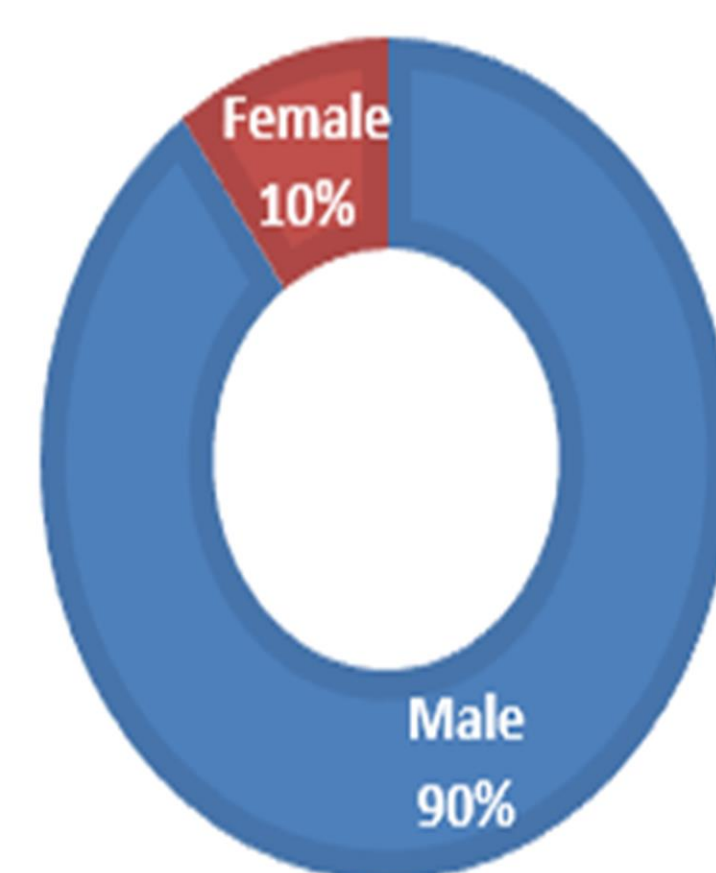
Figure 1: Educational background of CPR



■ College yr 1 - HSC ■ Bachelors Degree ■ Masters degree  
■ Class 1 - SSC ■ Diploma Degree

Figure 2 : Gender distribution of CPR

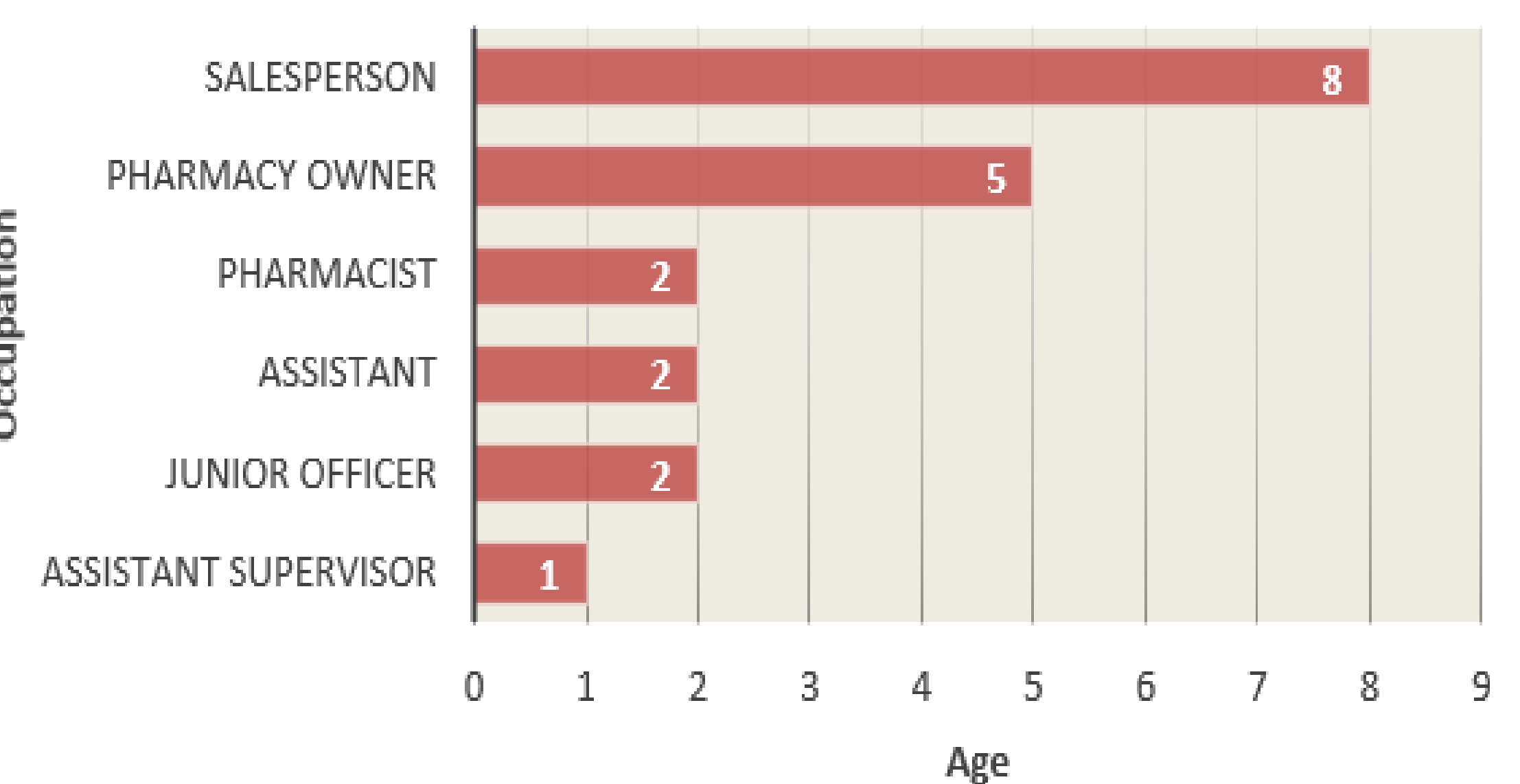
MALE ACCOUNTS FOR THE MAJORITY OF 'GENDER'.



■ Male  
■ Female

Figure 3 : Occupational background of CPR

'Occupation': Salesperson appears most often.



## Findings from in-depth interviews

### Attitude towards dispensing antibiotics

- **Beliefs about antibiotic use:** Over-relied upon due to weak immune systems i.e., antibiotic resistance due to inappropriate use across population is around 70% (World Health Organization, 2023).
- **Prescription Practices:** community pharmacy retailers prescribe antibiotics.
- **Selling Practices:** Majority (14 out of 20) CPR dispense antibiotics without prescriptions.

### Various influences face while dispensing antibiotics

- **Influence from users:** Seek antibiotics without prescriptions due to financial constraints.
- **Influence from pharmaceutical companies:** Incentivize retailers to sell specific antibiotics.
- **Pressure from Authorities:** Pharmacy owners pressurize consumers to increase sales of antibiotics.

### Perceived Behavioral Control while dispensing antibiotics

- **Self-Control of Referral:** Encourage users to consult physicians for accurate prescriptions.
- **Challenges in antibiotic dispensing:** Face job security concerns when refusing sales and confrontations with users demanding antibiotics.
- **Ease of following guidelines:** Only retailers in hospital settings find it easier to adhere to dispensing guidelines.

### Knowledge towards the use of antibiotics

- **Education on Antibiotic Use:** Limited knowledge
- **Guidelines and Training Acquired:** Majority of CPR (13 out of 20) have not received any formal training from authority
- **Infection Prevention:** Despite of having a basic knowledge gap majority (15 out of 20) CPR give advice on hygiene, diet, and smoking cessation as part of their role.

## Conclusion

Community Pharmacy Retailers in Bangladesh navigate complex influences, balancing user demands, financial pressures, and professional ethics. Their knowledge gap towards the use of antibiotics is refraining them from providing correct information about the pros and cons of the use of antibiotics to consumers, which plays a very significant role regarding the inappropriate use of antibiotics. Their perspectives on antibiotic use highlight the need for improved regulatory frameworks, continuous education, and collaboration with healthcare providers in community pharmacies to ensure the responsible use of antibiotics to reduce the burden of antibiotic resistance in Bangladesh.



For more information, scan the QR code to contact Nastaran Nazrul Tui

# Examining workplace safety in future & emerging ways of work (FEWW)

Alice Cheng. Supervisors: A/Prof. C. Caponecchia & A/Prof. S. O'Neill



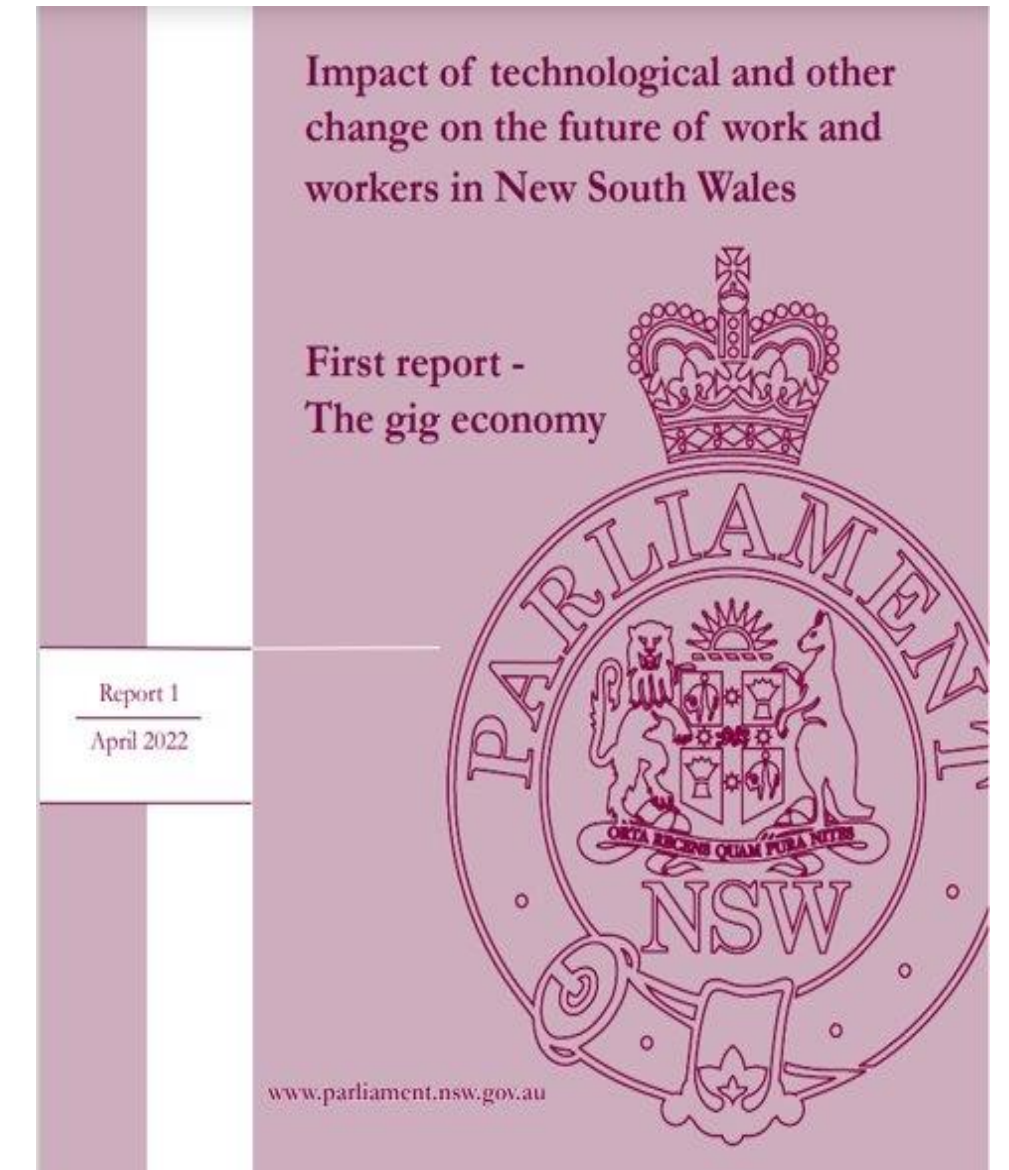
The limited research on gig worker safety has tended to focus on food delivery and transport. This study examines and contrasts the safety of gig workers across four sectors:

- food delivery,
- transport,
- healthcare & social assistance,
- task-based work



## Abstract

The rising rates of worker fatality and injury in the gig economy, coupled with findings of recent Government inquiries, suggest mechanisms for work health and safety (WHS) risk management may be ineffective for Future and Emerging Ways of Work (FEWW). This timely research aims to develop strategies (e.g., resources, tools) that may be used to address the WHS implications of FEWW such as gig work.



## Method

Following a structured literature review (see link below), Alice examined WHS hazards and risks in gig work from the perspectives of a diverse range of key stakeholders, and the impact of WHS risk on work, work design and workers.

- ✓ **A national survey of gig workers (377 responses)**  
Examined gig workers perspectives on WHS hazards and risks, injuries experienced or observed, and ways to improve their WHS.
- ✓ **Semi-structured interviews with key stakeholders (25 interviews)**  
Included gig companies (platforms), peak bodies (employer and employee), State health and safety regulators, and a government agency/policy body.
- ✓ **Semi-structured interviews with consumers of gig services (in process)**  
Currently examining consumers' experience or observations of WHS hazards, near misses and safety concerns; their understanding of consumer roles and responsibilities in relation to engaging gig services; and their perspectives on ways to improve health and safety for gig workers in Australia.

## Future and Emerging Ways of Work



## Results and outputs

A number of papers are in the publication process and Alice is writing up her thesis results.

The following paper is available in the journal Safety Science:



*Workplace safety and future and emerging ways of work: A systematic literature review*



Associate Professor Carlo Caponecchia



Associate Professor Sharron O'Neill

## Why is Lifelong Learning so important?

The world of work is changing and maintaining capability is an ongoing challenge. Whatever the role or industry, continuous learning is essential. People are not learning in the same linear, thematically focused way that they used to - they are changing careers and upskilling in ways they have never done before, and organisations are demanding flexible types of upskilling and reskilling. Learning needs to be on-demand and fill capability and knowledge gaps in ways that can be immediately applied in the workplace.

This new approach reflects the changing nature of the workforce and a need for bite sized, accessible and flexible learning that enables increased capabilities for the future. Ultimately, we must increase the opportunity for people to engage in learning in a way that now best represents how, when, and why they learn.

Lifelong Learning at UNSW Canberra will address these needs.

## Who is involved in Lifelong Learning?

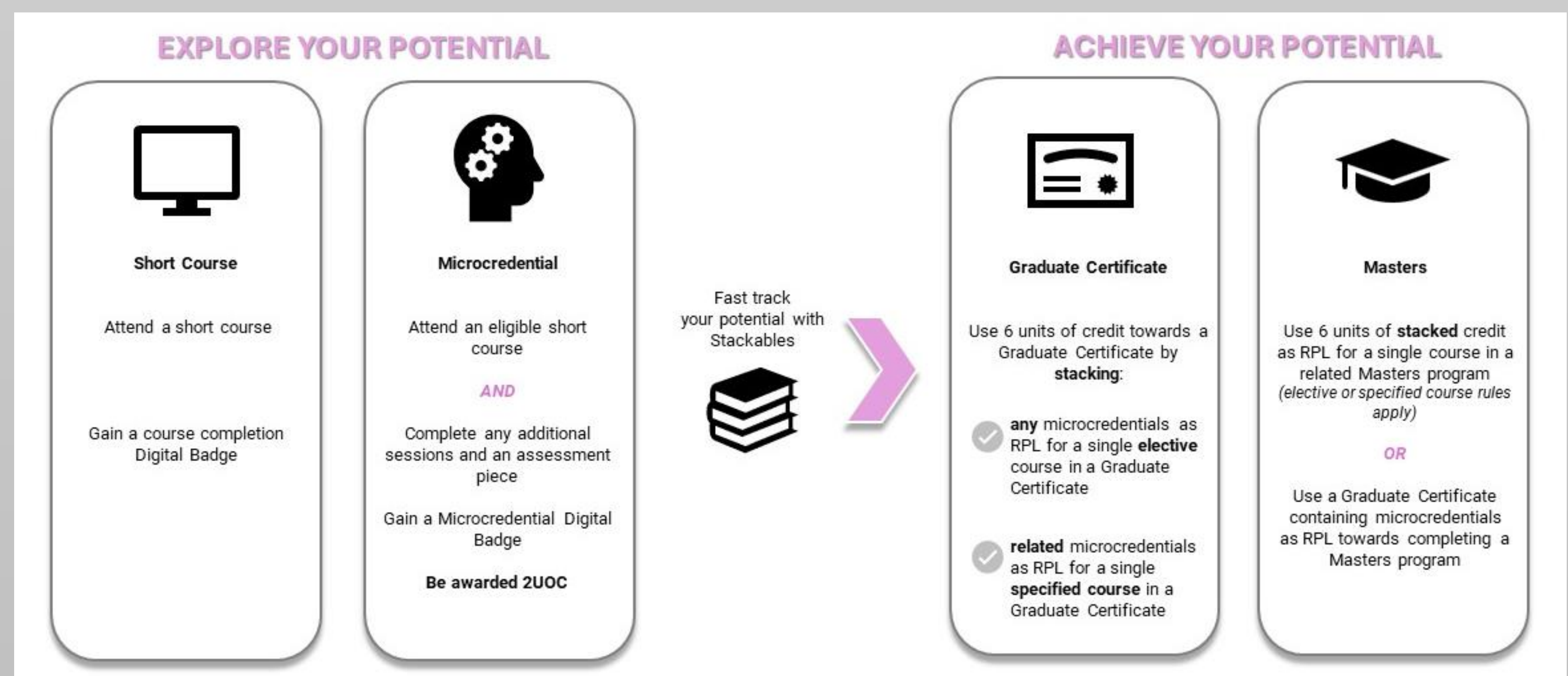
Everyone!! This initiative sees microcredentials and short courses being codesigned and delivered with government and industry partners, building on the research and teaching expertise from across the whole of UNSW. This ensures we bring learning to life through leading-edge and workplace-relevant opportunities.

## Why is UNSW Canberra different to anyone else offering these kinds of courses?

UNSW Canberra has a unique role in Lifelong Learning. We are in the position of being able to step into emerging capability gaps and offer Academic expertise and affiliated practitioner research, experiences, and relationships, with an established Canberra perspective that is embedded in everything we do. We bring these unique insights and expertise to the education landscape and deliver on effective, and workable, solutions at all levels of industry and government.

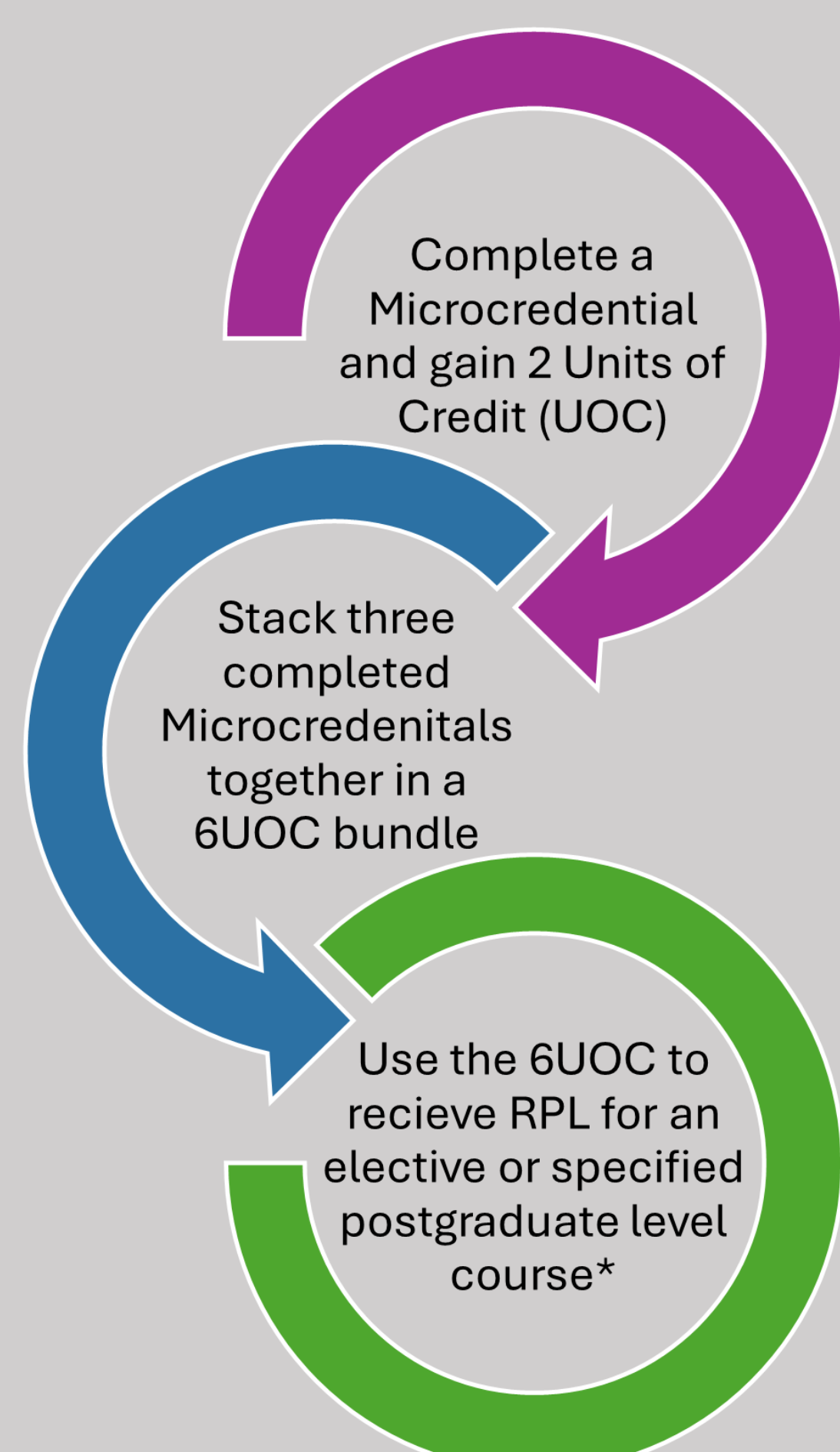
Figure 1 – Lifelong Learning pathways

Lifelong Learning offers buildable pathways to further education, meaning new and increased skillsets can not only be immediately applied in the workplace, they also offer opportunities for evidenced and stackable learning pathways into further postgraduate level study.



## How short courses and microcredentials differ

Figure 2 – How stacking works



\* Depending on which microcredentials are stacked together

**Short Courses** continue to be important as they provide for quick upskilling, re-skilling, or for exploring new skillsets that can be immediately applied in the workplace. These courses can be anywhere from 1 – 5 days in length and completing the attendance requirement will result in the awarding of a Short Course Digital Badge.



Scan the QR code to view UNSW Canberra Short Course website

**Microcredentials** are different in that they further build on the capability achieved in a short course through additional learning and assessment requirements at AQF level 9. They can be offered over a series of days or weeks. Successful completion of attendance and assessment requirements will result in the awarding of a Microcredential Digital Badge and 2 units of postgraduate level credit. Microcredentials can then be **stacked** towards further postgraduate level learning opportunities (see Figure 2)



Scan the QR code to view UNSW Canberra Microcredential website