

Phase 2: Research Practice (Designing and Executing Research)

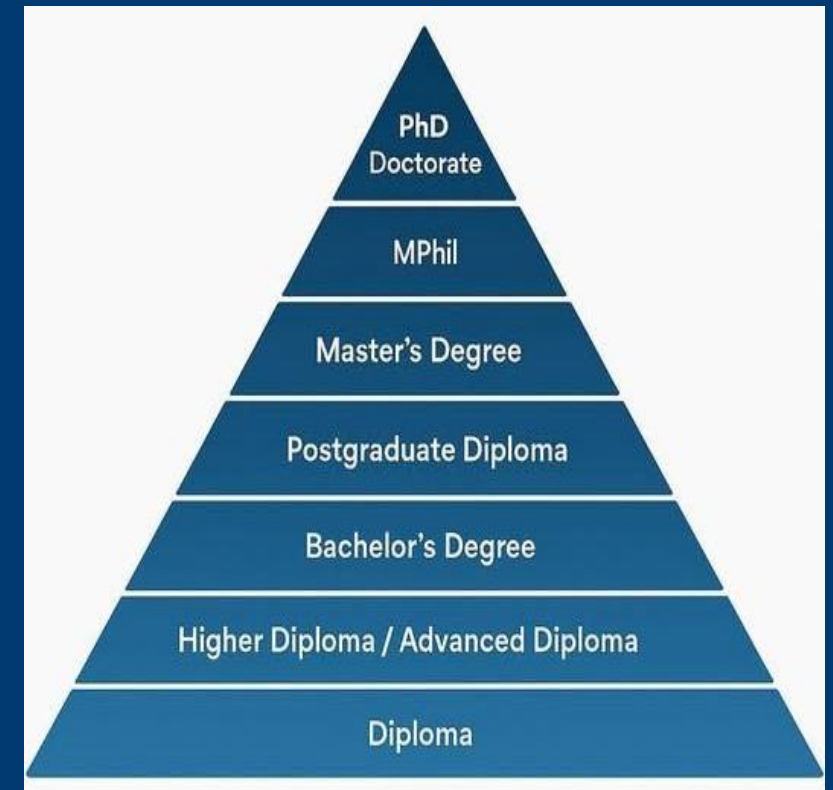
Managing the DEng: Planning, Time, and Resources

6 August 2026

[Watch Webinar Recording Here](#)

Presenter: Emeritus Professor Akhtar Kalam

EIT EMERITUS PROFESSOR



Event Conduct



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Introduction – Presenter

Emeritus Professor Akhtar Kalam

Emeritus Professor at Victoria University and EIT.

Academic Director and Chair of the Academic Board - Texila College Australia.

Director of Al-Kalam Educational Solutions.

Editor-in-Chief of AJEEE

Distinguished Professor/Adjunct Faculty in Australia, India, Malaysia and Oman.

He has published over 610 publications in his area of expertise and has written over 29 books.

Supervised 51 postgraduate research students to graduation, including 39 PhD's and 12 MEngs. Currently, 10 postgraduate research students (four PhD students at VU and six DEng students at EIT) are being supervised.

Public, University, and Motivational Lecturer.

Consultant for the electricity supply industries in Australia and overseas.

Assisted in change management plans for Universities and the higher education sector.

Education

The University of Bath, Bath, UK, D.Eng., Electrical Engineering

The University of Oklahoma, Norman, USA, MS, Electrical Engineering

Aligarh Muslim University, Aligarh, India, BSc. Eng., Electrical Engineering

St Xavier's College, Calcutta, India, Applied Science

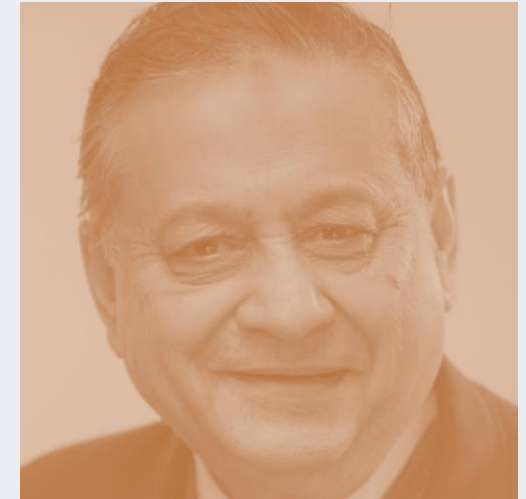
Professional Society Activities

Australian Institute of Energy – Fellow

Engineers Australia – Fellow

The Institution of Engineers and Technology, UK – Fellow.

The Institution of Electrical and Electronic Engineers, USA –Life Senior Member.



“My vision is to provide exciting higher education science and engineering courses, research, consultancy and collaborate in development work of the industry and communities within Australia and beyond.”

Agenda

1.	Welcome to Doctoral Research
2.	Designing Engineering Research
3.	Planning the Doctoral Journey
4.	Managing Research Resources
5.	Time Management for Researchers
6.	Risks and Contingencies
7.	Becoming an Independent Researcher



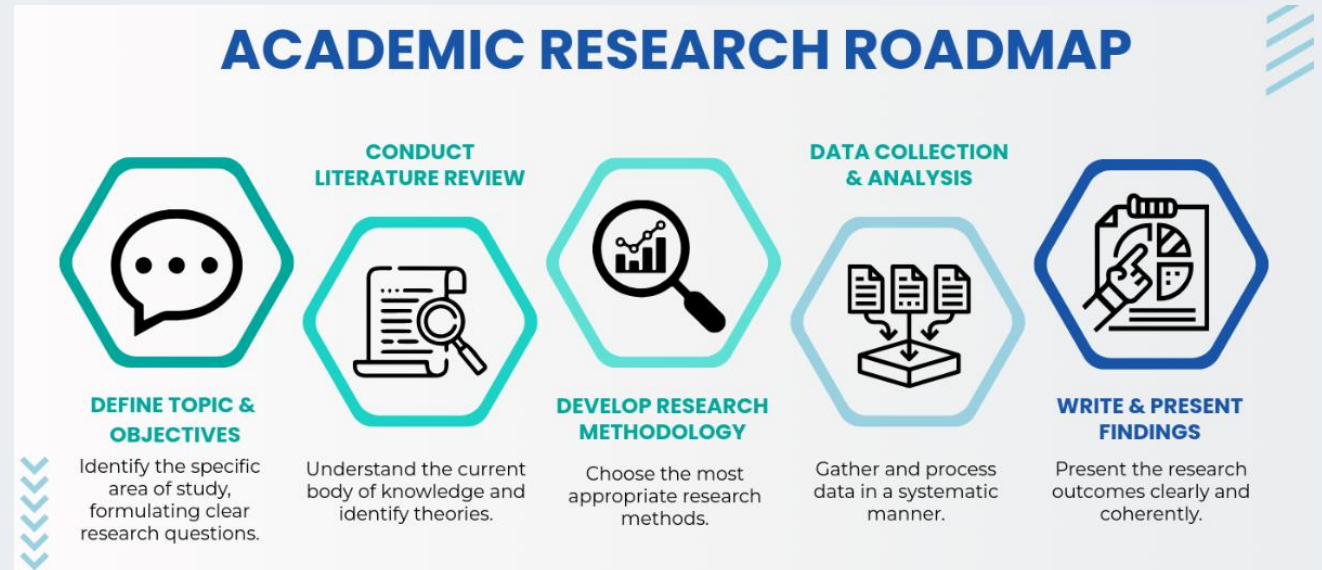
Objectives

The research objectives for managing the DEng journey are to focus on:

- Planning
- Time
- Resources.

It centres on optimising productivity, ensuring steady progress, and preventing burnout.

By applying these management principles, you can aim to balance academic rigour with personal well-being.



Doctor of Engineering (DEng)

Introduction

Graduates of the Doctor of Engineering (DEng) will be able to make original and significant contributions to the development, application and evaluation of professional knowledge by engaging with practical problems of demonstrated importance to their employment context and the wider body of engineering and technical knowledge.

An Australian accredited qualification (accredited by the Tertiary Education Quality and Standards Agency (TEQSA); Australia's independent national quality assurance and regulatory agency for higher education).



Level

Leads to an Australian Qualification Framework (AQF) level 10



Duration

3 years full-time or part-time equivalent



Delivery

Online or on-campus



Structure

120 credit points:
32 coursework units +
88 research units



Areas to be covered under the research objectives

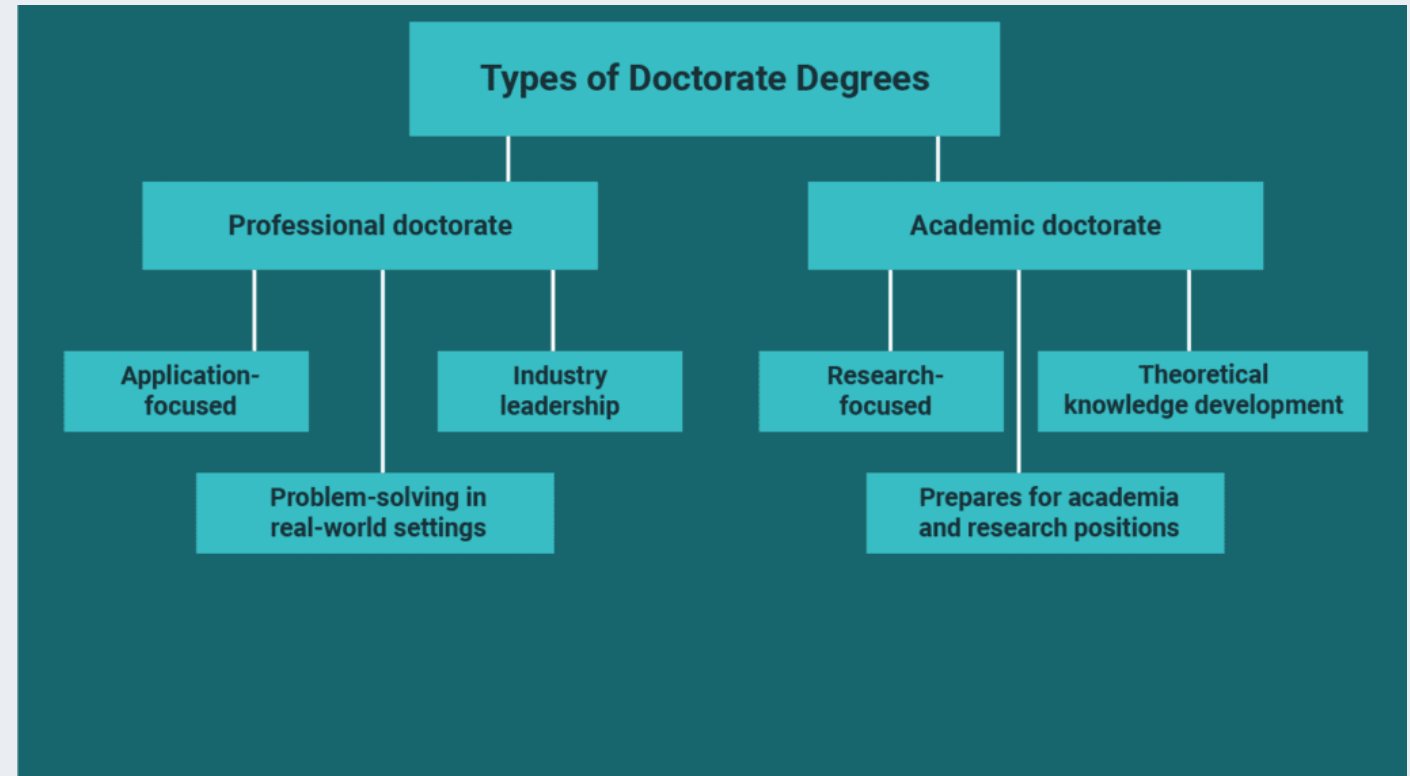
Research objectives should be SMART objectives. Today's webinar considers:

- The Doctoral Landscape & Planning
- Timeline & Milestones
- Mastering Time Management
- Securing and Leveraging Engineering Resources



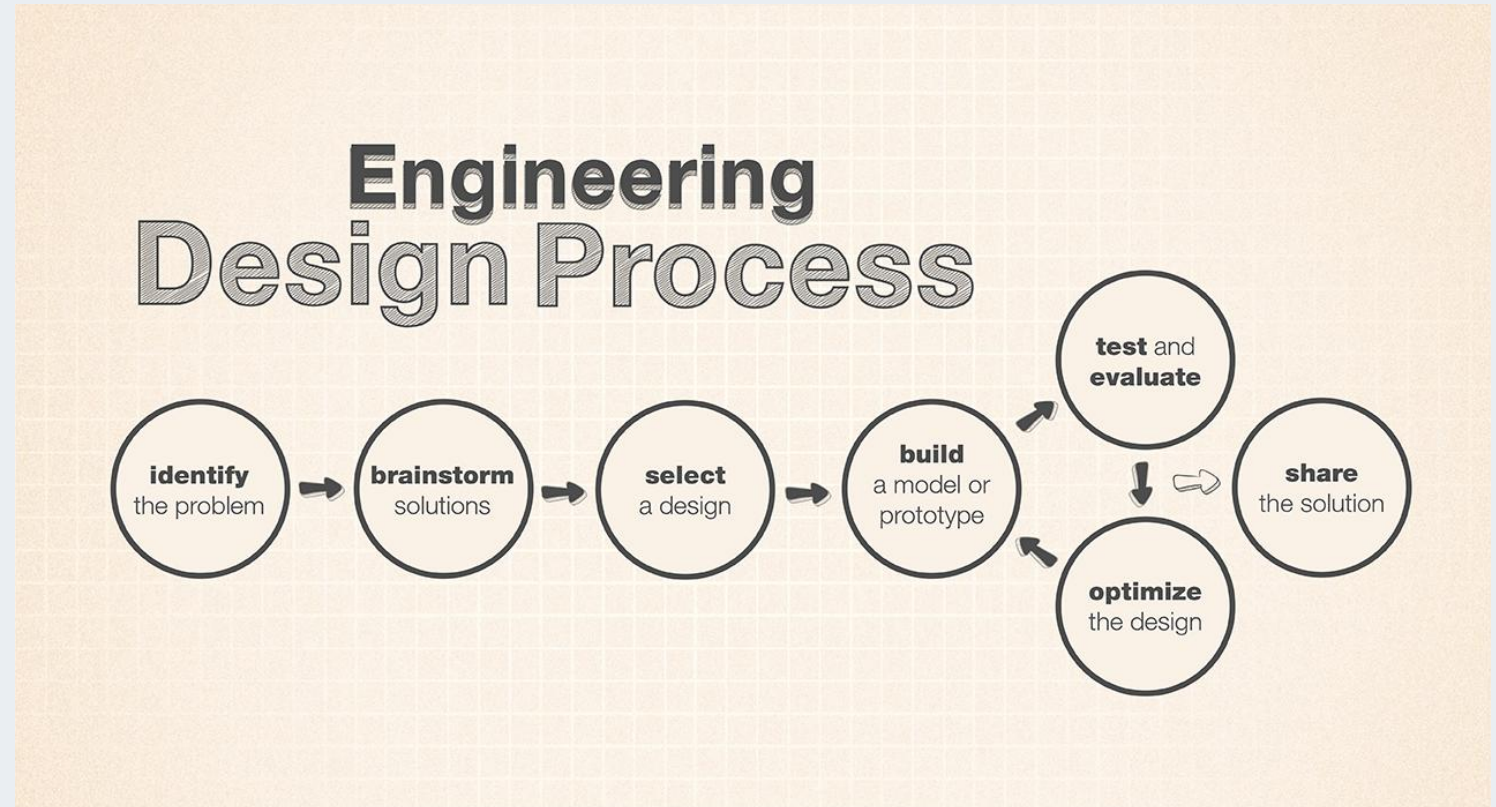
Primary Objectives

- Strategic Progression
- Resource Optimisation
- Enhanced Productivity
- Work-Life Balance



Why pursue a doctoral degree in Engineering?

- Creating new knowledge
- Industrial innovation
- Academic careers
- Leadership



Characteristics of successful DEng students

- Persistence
- Curiosity
- Discipline
- Critical thinking



Supervisors and candidates' responsibilities

Supervisors:

- Guidance
- Mentorship
- Feedback
- Networking

Candidates':

- Initiative
- Independence
- Professionalism
- Communication

Best Practices:

- Regular meetings
- Agendas
- Action items
- Documentation

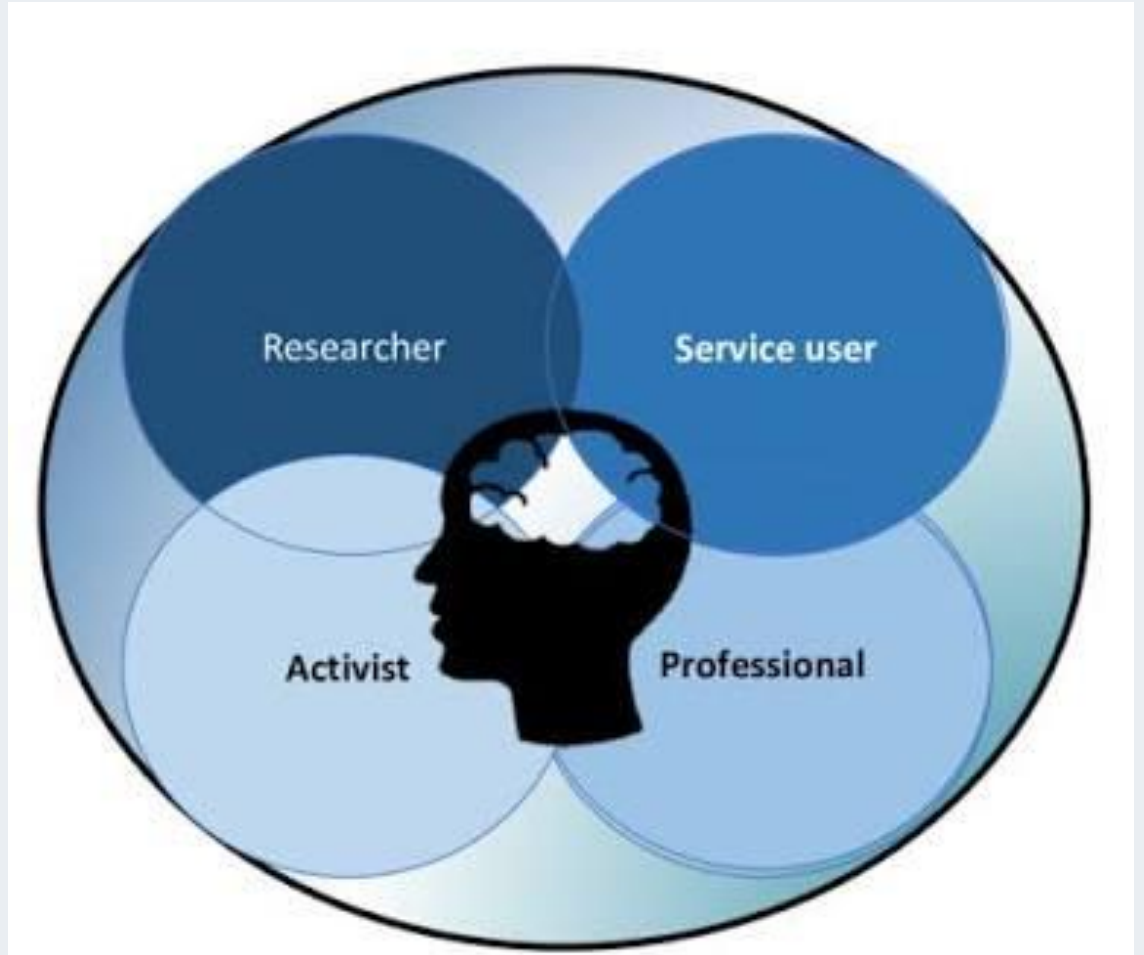
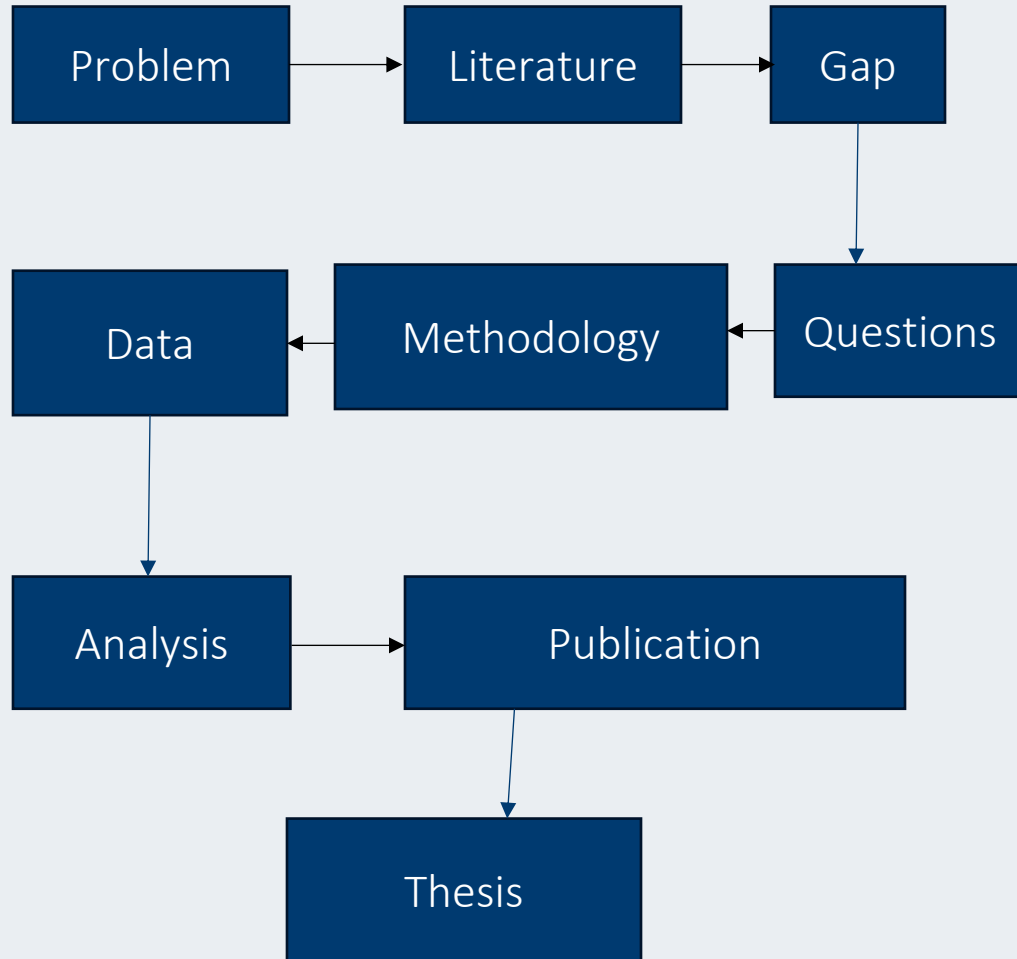


What is research?

- Basic research
- Applied research
- Translational research
- Industrial research



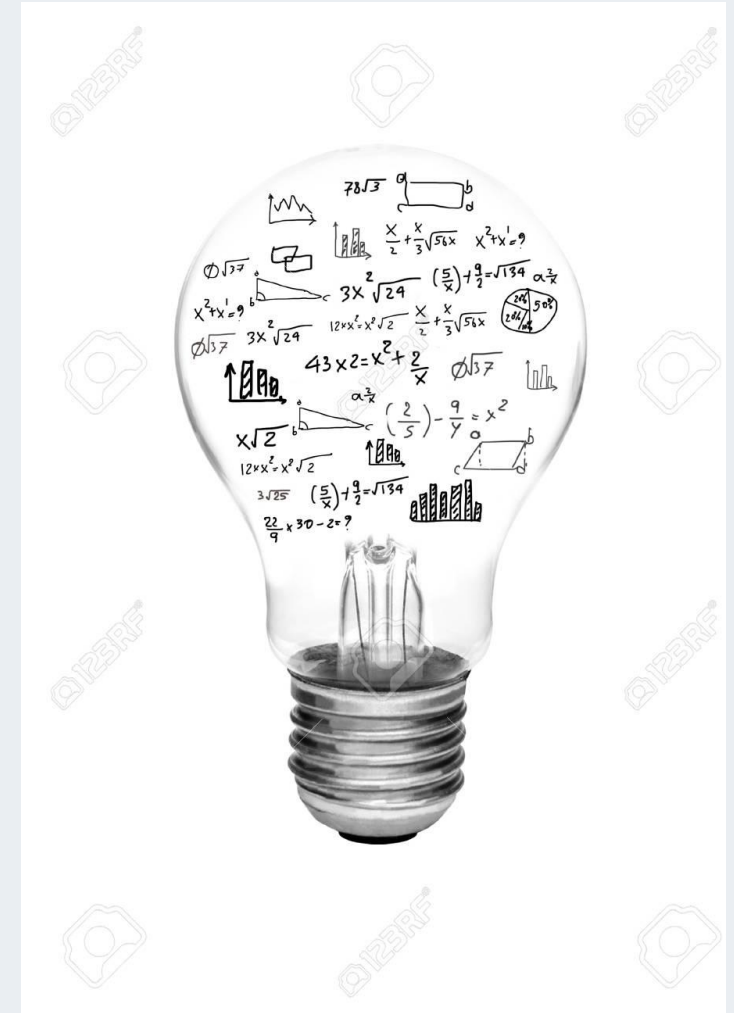
Research Lifecycle



Translating an Idea into a Research Problem

Engineering examples:

- Smart Grid
- Renewables
- AI
- Cybersecurity
- Power Electronics
- Robotics



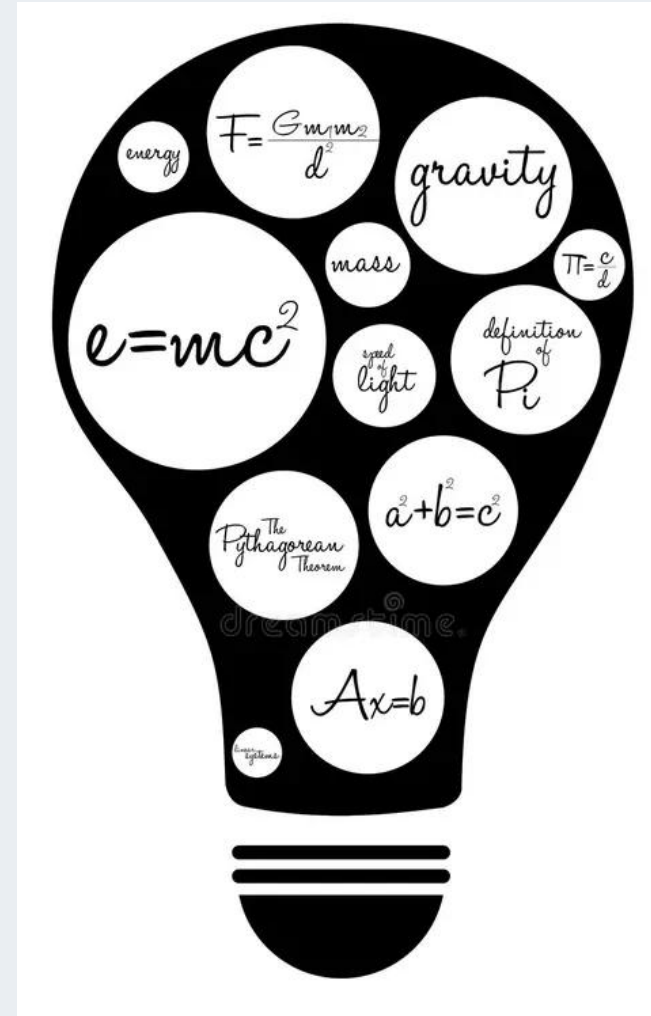
Identifying the "Research Gap"

- Literature mapping
- Bibliometric analysis
- Systematic review
- Gap analysis



Translating an Idea into a Research Question

- Poor question
- Good question
- Excellent question



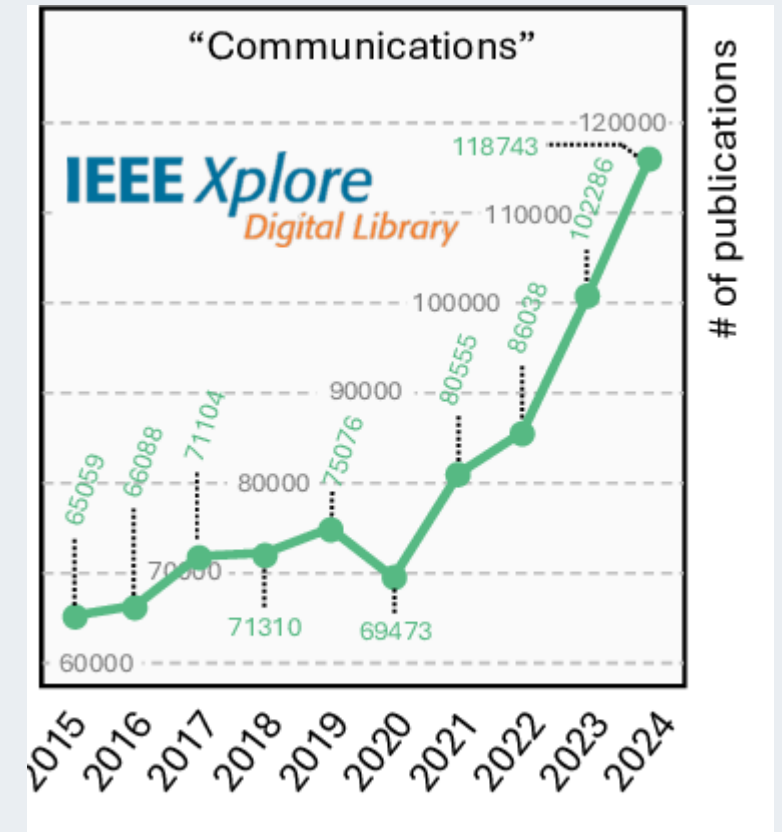
The Literature Review: More Than Just Reading

- Writing a literature review → forces you to think critically rather than read passively.
- Evaluate sources, assess credibility, compare arguments, and judge evidence.
- Learn synthesis rather than summary.
- Do not repeat what each paper says; you connect ideas across sources and build a narrative.

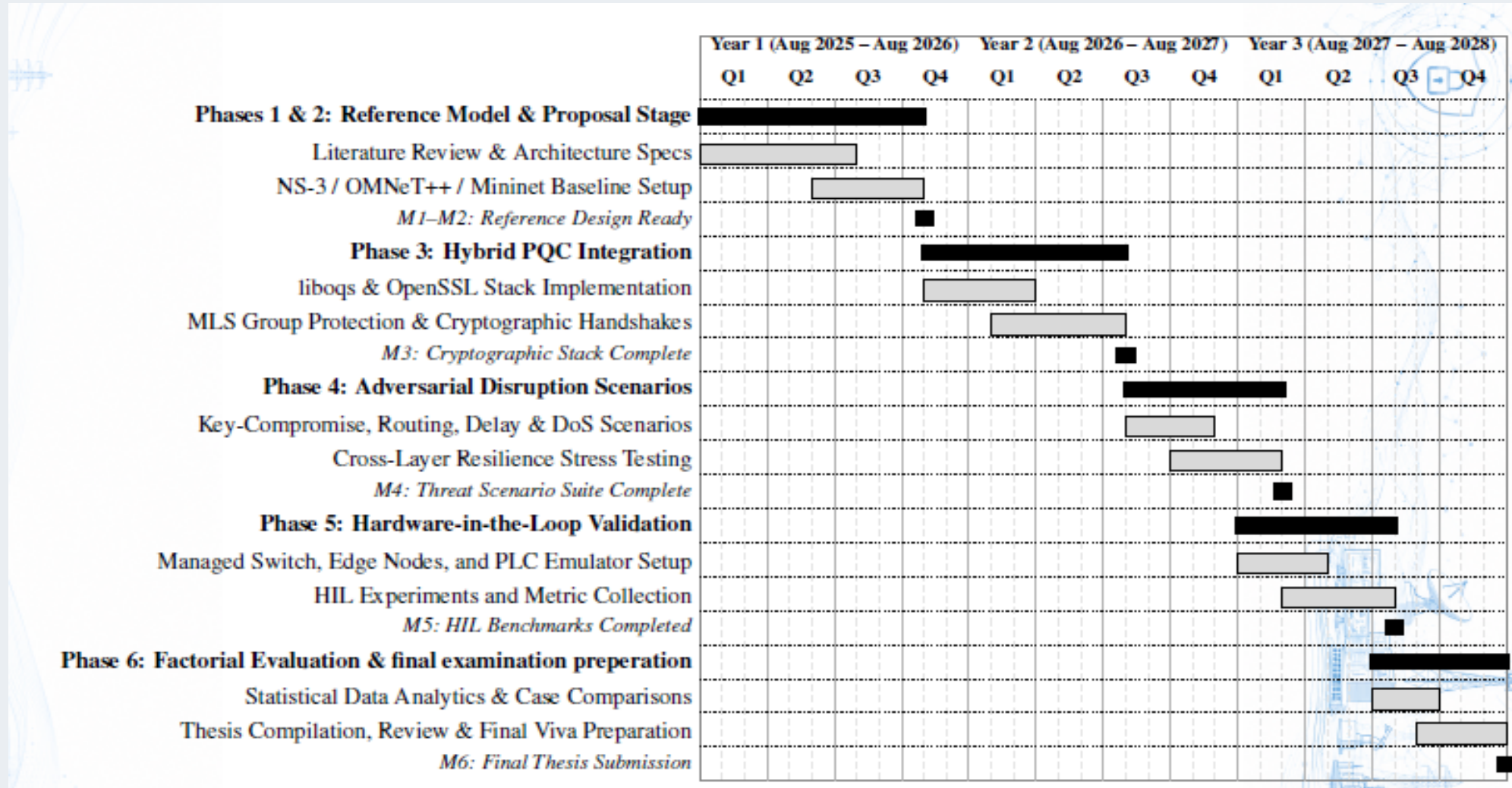


Sourcing High-Quality Literature

- Scholarly databases
- Grey literature
- AI Tools for literature searching
 - AI Academic Research Tools
 - ❖ Scopus database; Elicit (methodology analysis, gap identification) and Scite (citation context analysis, paper reliability metrics)
 - AI citation mapping and visualisation tools
- **Preprints** - Google Scholar to search specifically for preprints, as Google Scholar has timely coverage of most preprint servers including ArXiv, RePec, SSRN, BioRxiv, and MedRxiv.
- Conference papers
- Newspapers
- Dissertations and theses



Three-year Gantt Chart



The Three-Year Journey

Year 1

Proposal + Coursework
Literature
Research design

Year 2

Coursework
Data collection
Experiments
Conference papers

Year 3

Journal papers
Validation
Analysis
Writing
Submission
Examination

Structure

120 credit points:
32 coursework units
+ 88 research units



Planning

Monthly planning

- Planner
- Milestones

Weekly planning

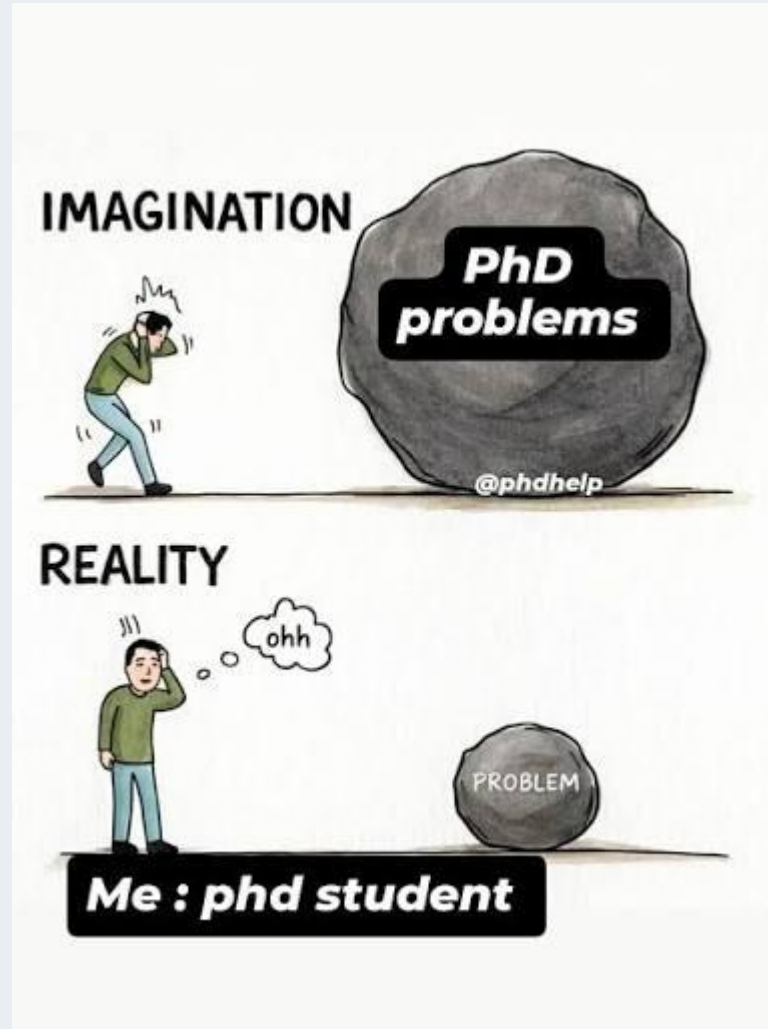
- Deep work
- Laboratory
- Reading
- Writing

Daily planning

- Pomodoro
- Time blocking
- Writing every day - 1000-word strategy

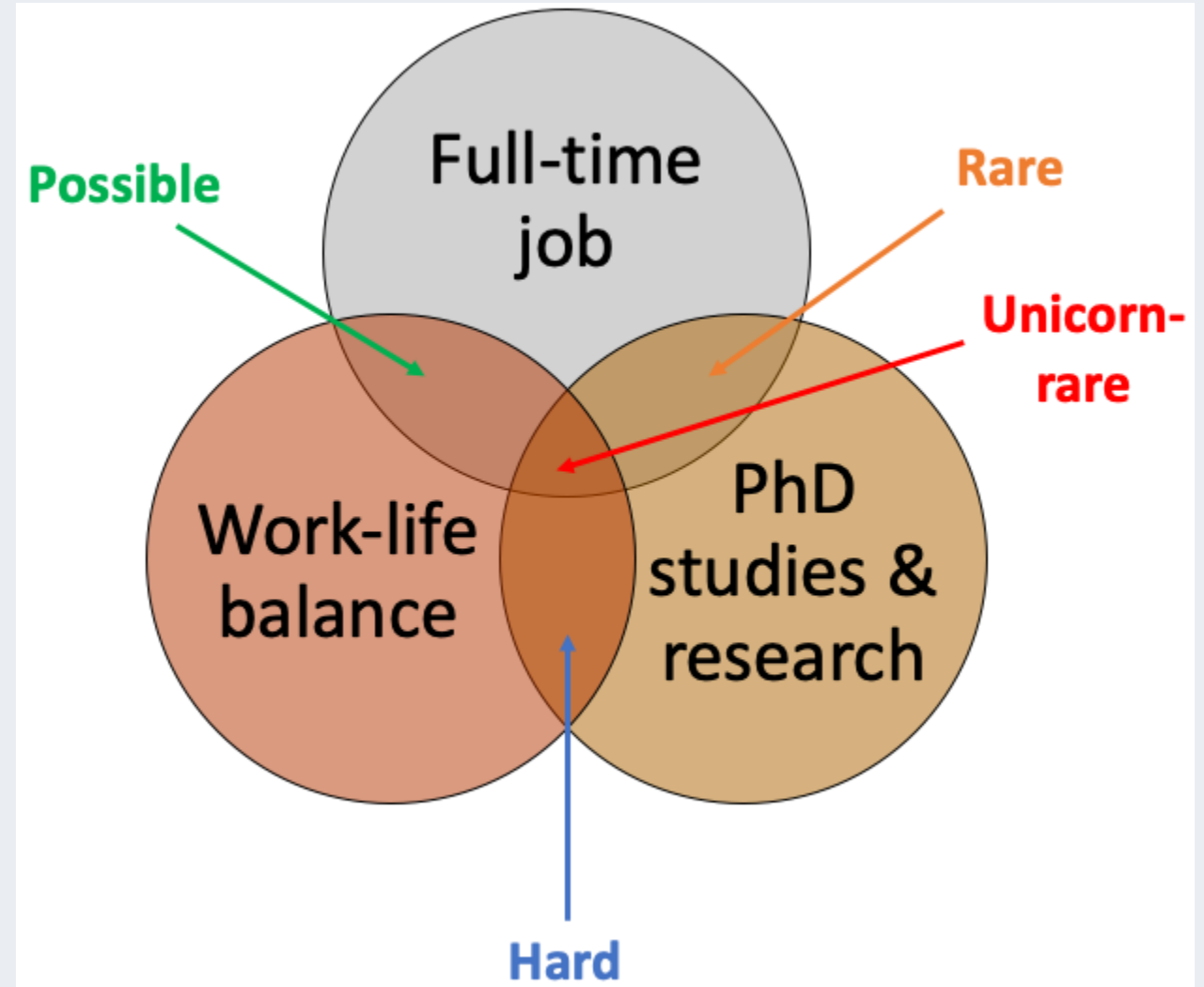
Managing interruptions

- Email
- Meetings
- Teaching



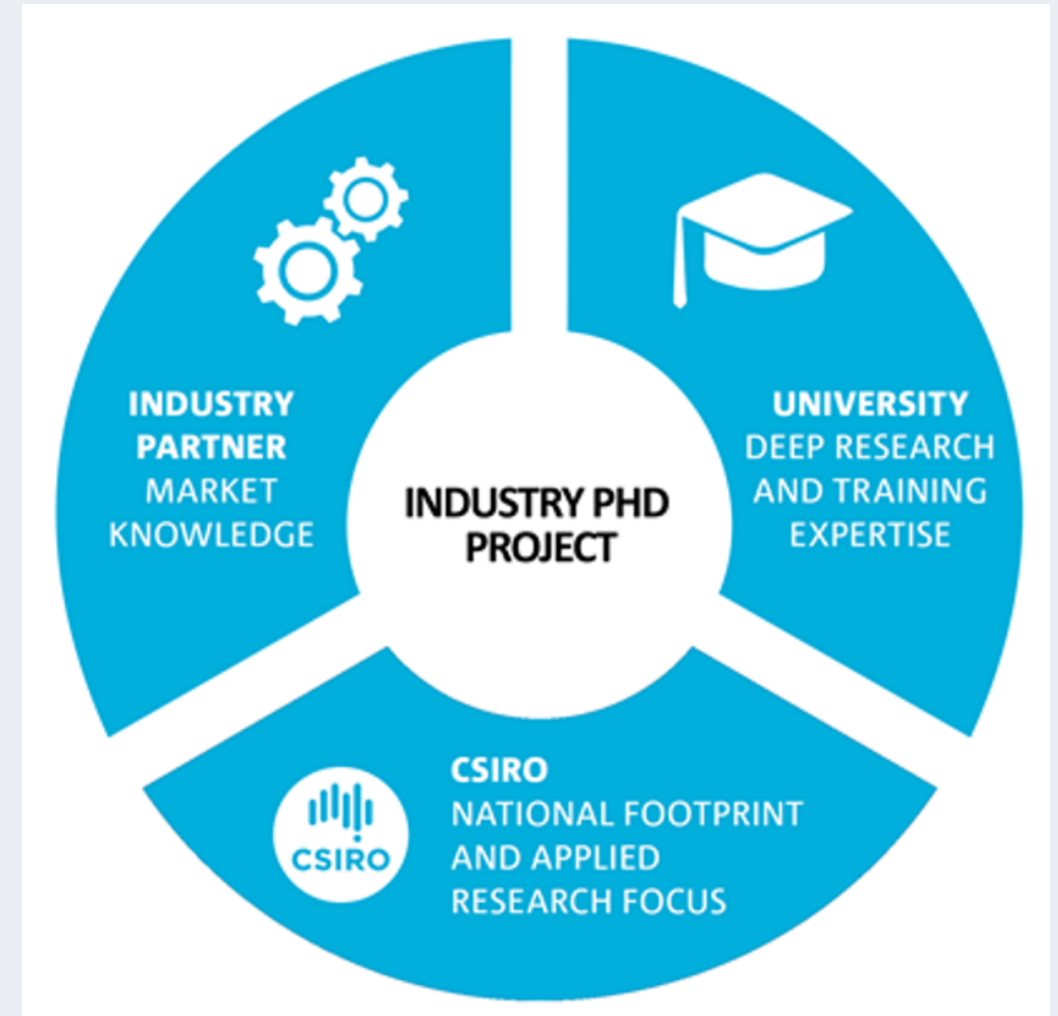
Work-life balance

- Mental health
- Burnout prevention

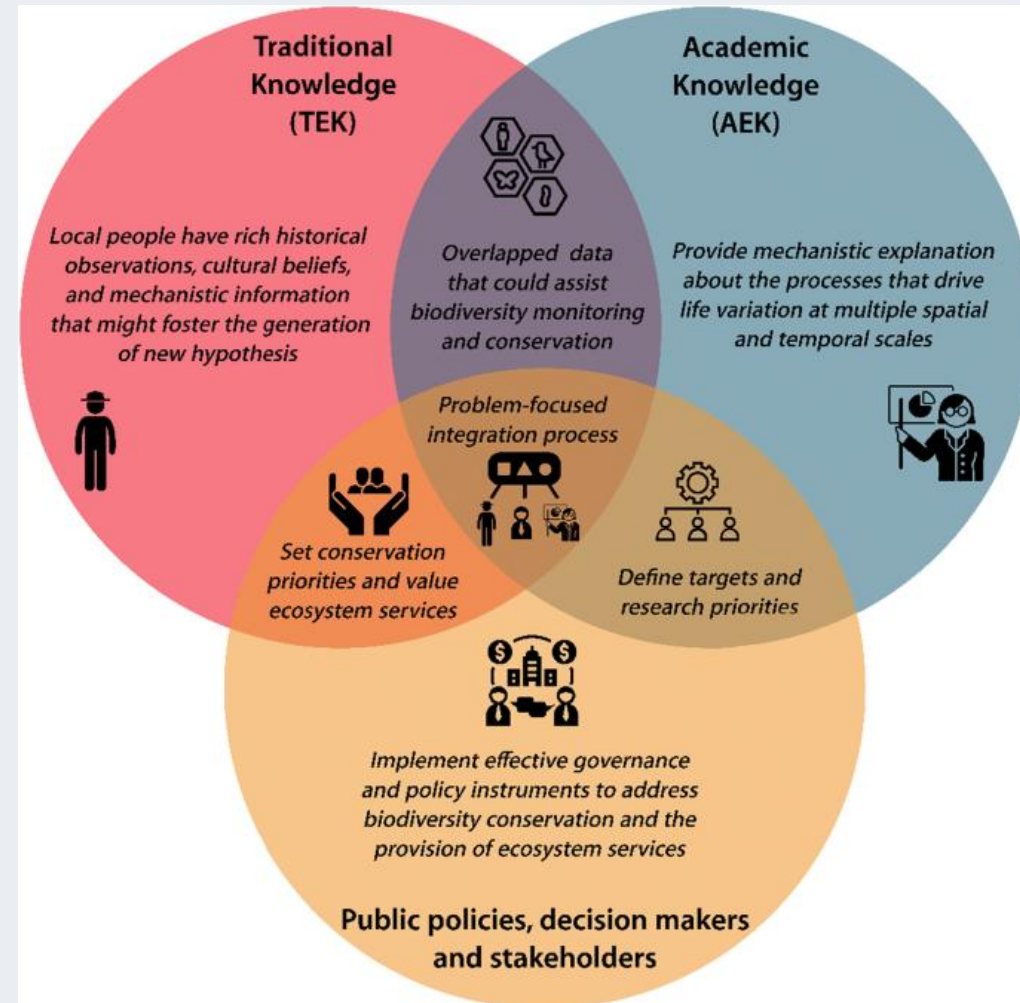
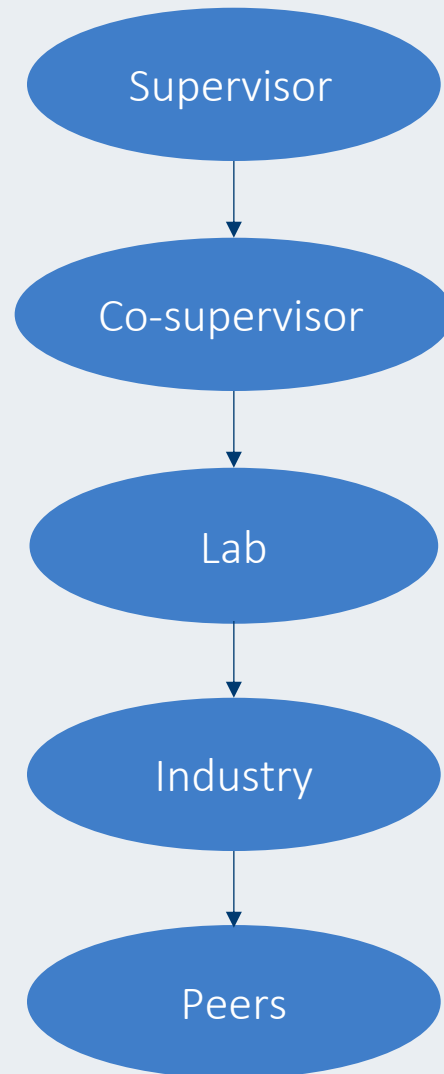


Research Resources

- Funding
- Equipment
- Library
- Laboratories
- Software
- People



Building your research ecosystem



Research software

MATLAB

Python

R

ANSYS

COMSOL

PSCAD

ETAP

LabVIEW

Power Factory



Managing references

- EndNote
- Mendeley
- Zotero

Best Reference Management Tools for Researchers

	Zotero offers automatic citation capture from web pages, PDFs, and other sources.
	Mendeley integrates very easily with Microsoft Word for seamless citation and bibliography generation.
	EndNote is very user-friendly and is widely used in the scientific and academic community.
	RefWorks supports direct export from many popular databases. Also, you can attach PDFs.
	JobRef offers options for over 15 reference formats. Also, fetches info based on ISBN, DOI, and arXiv-ID.
	PaperPile allows you to add citations to Google docs. It has a very smart and intuitive interface.
	CrossRef is a not-for-profit organization that makes research objects easy to find, cite, link, assess, and reuse.

Research data management

Storage

Backup

Version control

Cloud

Laboratory notebook

Electronic notebook examples



Funding opportunities

ARC

Industry

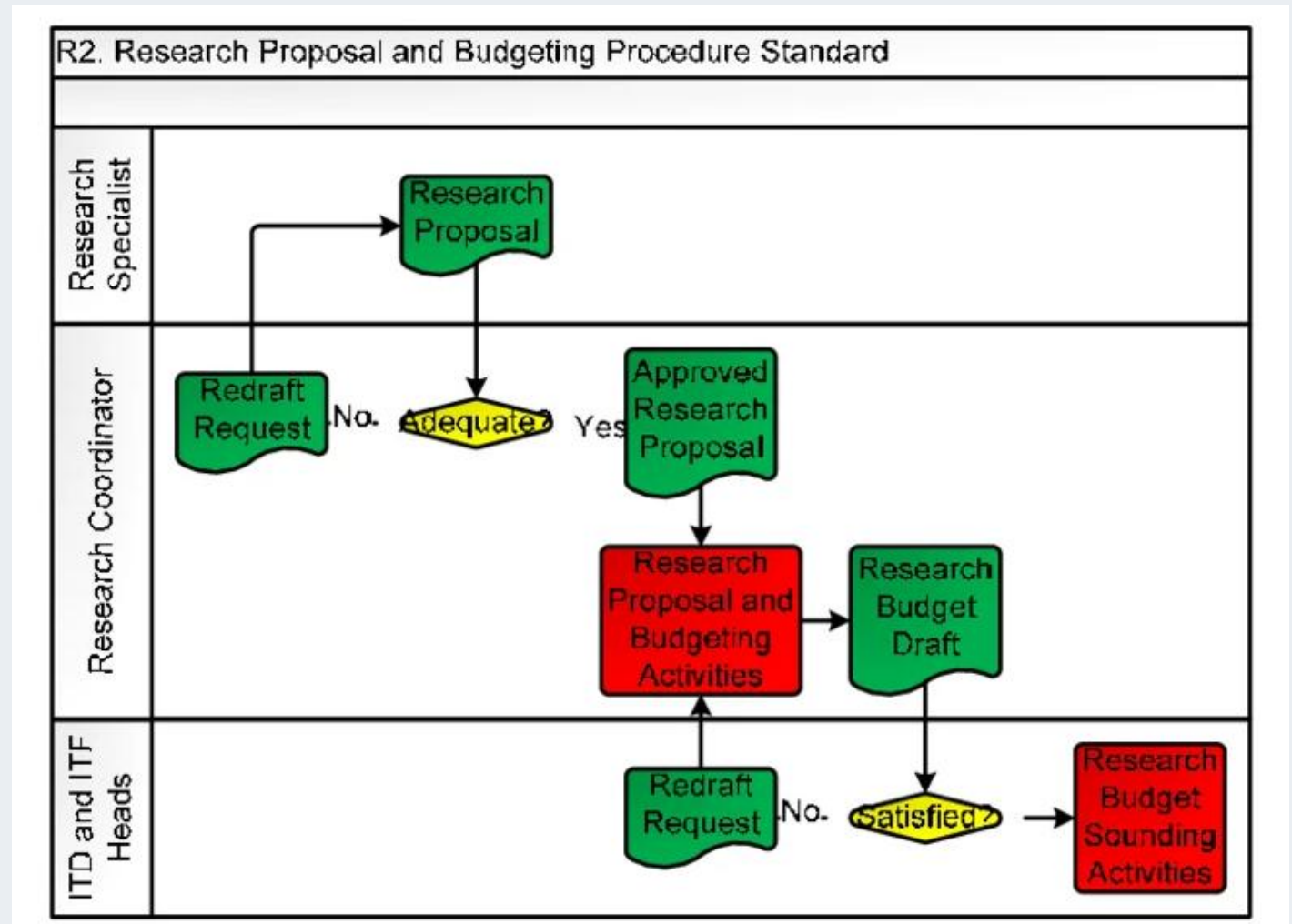
Government

International



Budgeting research

Travel
Equipment
Publication
Conference



Priority Matrix

Urgent

Important

Deep Work

Cal Newport concepts

Avoiding procrastination

Causes

Solutions



Publication

Conference strategy - Flowchart
Publication planning - Journal pipeline
Managing multiple projects
Kanban
Research dashboard



Research Risks

- Equipment failure
- Ethics delays
- Supervisor changes

- Risk management plan
- Likelihood
- Impact
- Mitigation

- Research integrity
- Ethics
- Plagiarism
- AI
- Data fabrication

- Maintaining motivation
- Psychology
- Goal setting

When research fails

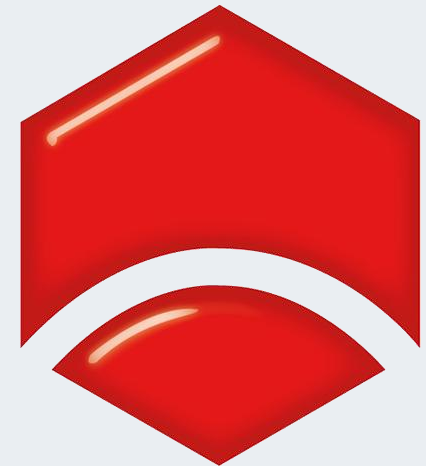
Engineering case studies
Unexpected results
Negative findings



Research identity

- Developing your research identity
- ORCID
- Google Scholar
- LinkedIn
- ResearchGate

- Building international collaborations
- Networks
- Professional societies
- IEEE
- Engineers Australia



**ENGINEERS
AUSTRALIA**

Your Doctoral Career Roadmap

Academia

Industry

Government

Consultancy

Entrepreneurship



Academic sector

Attract talented researchers and professionals with the ability to communicate effectively to contribute to their local and international profile and reputation.



Businesses and organizations in the private sector

Hiring researchers/professionals to develop and improve products, processes or services, and create a competitive edge through innovation.



Government agencies

Hiring researchers/professionals is a way to access specialist knowledge and skills.

What Will You Work On?

- Examples:
 - AI for autonomous systems
 - Green energy materials
 - Smart infrastructure
 - Biomedical devices
- Industry partnerships and real-world impact



Support and Funding

Scholarships & assistantships
Tuition coverage
Monthly stipend
Travel grants for conferences



Is a DEng Right for You?

- Passion for research and discovery
- Interest in solving complex problems
- Desire for autonomy and leadership
- Long-term commitment to innovation



How to Apply?

- Choose your research area and potential advisor
- Prepare a strong statement of purpose
- Get recommendation letters
- Highlight research or project experience



Why EIT's Deng?



Flexibility

Our online programs are designed to **suit working professionals** with practical experience in their field.



Unique Delivery Model

We deliver our **online programs** via a unique methodology that has been honed **over 10 years**.



Industry Oriented

Applied, industry focused and provides mutual benefit to industry and academia.



Work Integrated

Link your education to **workplace issues and solve problems** that you are passionate about in innovative and flexible ways.



Research

You will pursue an **independent investigation into a research problem of your own design** that makes a significant and original contribution to knowledge in the context of professional practice.



Contribution

Prepares candidates for the highest level of professional practice, in which they can contribute significantly to the development of their discipline in Engineering.

Thank You!

Upcoming courses

Courses	Start Date
Doctor of Engineering (online) 36 months	8 February 2027
On-Campus – Doctor of Engineering 36 months Perth/Melbourne	15 February 2027

Find MORE courses here: <https://www.eit.edu.au/schedule/>

Upcoming Doctoral Webinars

All upcoming Doctoral Webinars:

www.eit.edu.au/news-events/events/

3 September: Communicating Engineering Research: Writing and Presenting Effectively

1 October: From Lab to Field: Translating Research into Real-World Engineering Applications

5 November: Resilience, Reflection, and the Doctoral Mindset

3 December: Building Your Research Identity: Patents, Publications, and Professional Pathways

Q&A

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