Generative Artificial Intelligence - Industry perspectives linked to UniSA

Module Goal: To equip academic staff with a comprehensive understanding of Generative AI (Gen-AI)'s impact on the industry and its reflection on higher education and its collaboration with industry, foster skills for effective Gen-AI integration into teaching and assessment and enhance strategies for maintaining academic integrity and graduate employability in the Gen-AI era.

Definitions:

- **Industry**: In this module, "industry" refers comprehensively to the various sectors, organisations, and businesses that comprise the professional workforce and job market. It encompasses the collective body of employers, companies, and professional fields that Gen-AI is impacting and for which Tertiary Education Institutions (TEIs) are preparing graduates.

- **Employers and Industry Partners:** These are the entities that hire university graduates and engage in collaboration with TEIs to align curricula with evolving workforce demands. They are key stakeholders whose perspectives on skill requirements, ethical considerations, and opportunities/challenges are central to the module.

- **Workforce and Job Market:** It represents the overall environment where jobs exist, skills are required, and professionals operate. The term encompasses the daily work processes, productivity, and economic growth influenced by Gen-AI.

Participants were asked what the impact of Generative AI (GenAI) was on industry, and why this is important for academic staff to understand?

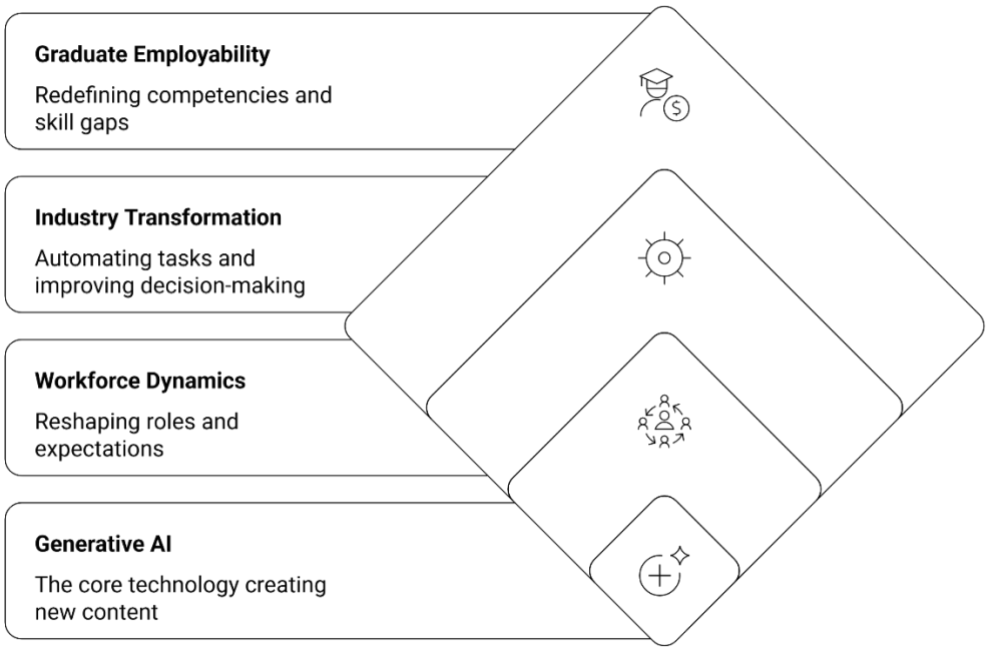
Q1. What is the impact of Generative AI (Gen-AI) on industry, and why is it important for academic staff to understand?

Generative Artificial Intelligence (Gen-AI) refers to AI tools capable of creating new content, such as text, code, images, or designs, often in response to prompts. Its emergence, particularly with widely accessible tools like GPT-3.5 in late 2022, has been a profoundly **disruptive force**, reshaping job markets, altering industry expectations, and redefining the competencies sought in graduates from Tertiary Education Institutions (TEIs) (Chan & Hu, 2023; Dwivedi et al., 2023)

For academic staff, understanding Gen-AI is crucial because:

- Gen-AI is fundamentally changing daily work processes across multiple sectors, with projections indicating significant impacts on employment and productivity growth.(McKinsey, 2023)
- The gap between the skills of university graduates and employers' expectations is widening due to Gen-AI. Many entry-level roles no longer require advanced cognitive skills that Gen-AI can perform at high speed and low cost, potentially eliminating these jobs and hindering graduates from gaining essential early-career experience.(Jung et al., 2024; Waring, 2024)
- Gen-AI automates routine tasks, enhances decision-making, and improves productivity (Brynjolfsson et al., 2023). Nearly 75% of companies have already integrated Gen-AI into their business strategies (Accenture, 2024).
- Students can benefit from personalised learning, writing support, and efficient research, but concerns persist about over-reliance stifling critical thinking and complicating academic misconduct detection (Chan & Hu, 2023).

Figure 1: "What is Generative AI for Industry & HEIs?"



Q2. How is Gen-AI transforming industry practices, and what are the associated risks and opportunities?

Gen-AI is profoundly transforming industry practices, bringing both significant benefits and considerable challenges:

Opportunities and Benefits:

- Gen-AI automates repetitive tasks like coding, data processing, legal drafting, and report writing, leading to increased efficiency and freeing human workers for higher-value work. For instance, 36% of survey participants cited task automation as a key impact.
- Gen-AI enhances predictive analysis accuracy, complex problem-solving, and decision-making in the workplace. Approximately 45% of survey participants highlighted improved productivity, and 45% selected "Improved data analysis and decision-making" as an opportunity.
- Projections suggest Gen-AI could enhance global productivity growth by 1.5 percentage points over the next decade and add trillions to the global economy annually. This can drive higher labour demand and create new, more specialised job opportunities.
- Gen-AI can help minimise costs across various industries.
- While less cited than efficiency, Gen-AI can accelerate innovation.

Challenges and Risks:

- Gen-AI threatens both low- and high-skill jobs previously thought immune to automation, with 27% of occupations facing high automation risks. This necessitates continuous workforce reskilling and can create skills development gaps.
- Significant concerns include **bias** in training data, **data privacy**, **data security**, and **intellectual property (IP) risks**. Robust monitoring frameworks are crucial to mitigate these.
- There is a widespread concern (87% of participants) about the lack of human judgment and intuition due to **over-reliance** on technology, which might lead to weakened critical thinking, problem-solving skills, and vulnerability to technological failures.
- Without human intervention and review, the validation of Gen-AI-generated outcomes may diminish, increasing the risk of errors and oversights.

Figure 2: Gen-AI's Dual Impact on Industry

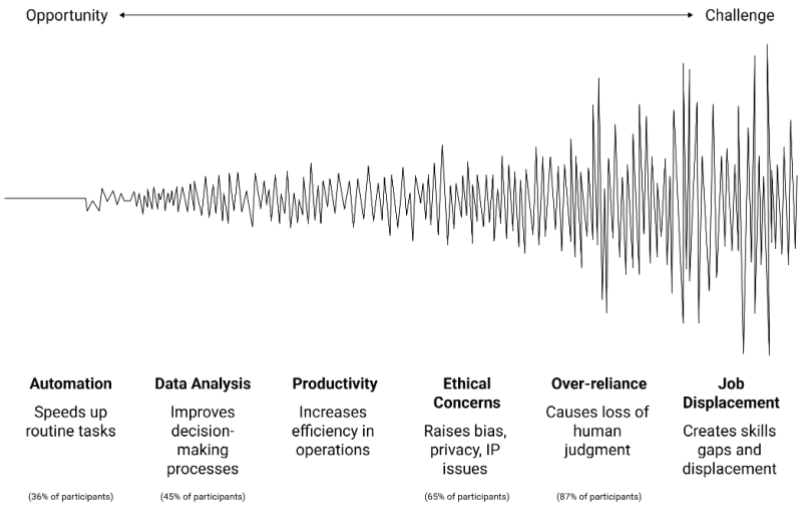
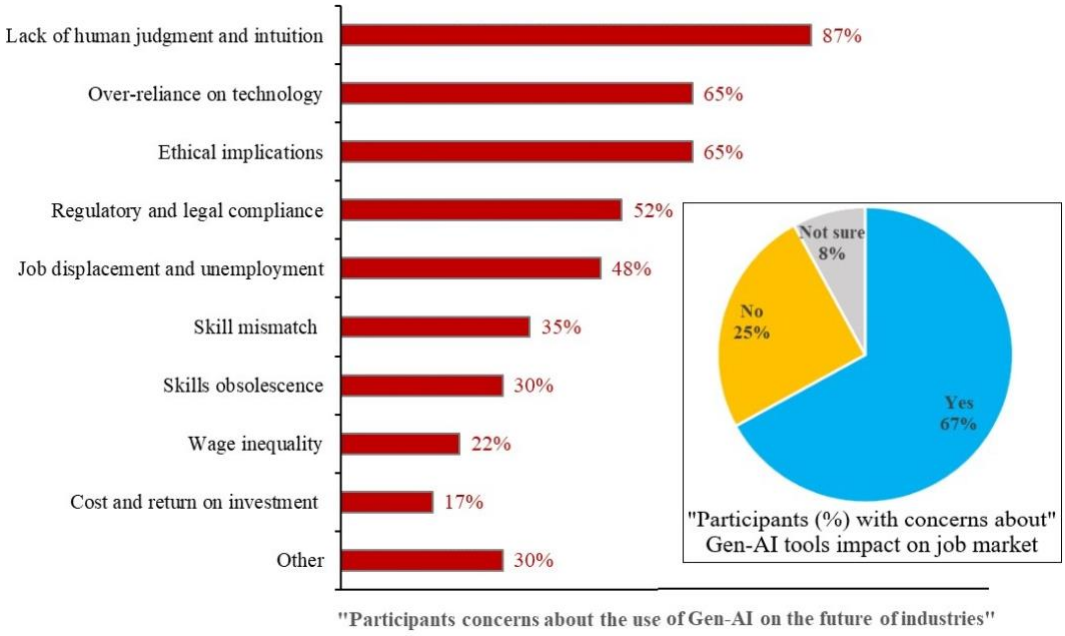


Figure 3: Participants' concerns about the impact of Gen-AI tools on the job market



Q3. What essential skills do industries expect from graduates in the Gen-AI era, and how does this impact TEIs' curricula?

The Gen-AI era is reshaping skill demands, with 44% of skills expected to be disrupted within five years (Mezhoudi et al., 2023)(WEF, 2023). Industries increasingly require graduates who can work effectively with Gen-AI tools while possessing strong human-centric competencies.

Essential Skills for Graduates:

1. **Non-Technical (Soft) Skills:** These are highly sought after and less susceptible to automation:
    - **Critical Thinking (22%):** Identified as the most essential non-technical skill, crucial for evaluating Gen-AI outputs, assessing validity, and making sound decisions in complex or ambiguous situations.
    - **Problem-Solving (18%):** Essential for navigating new challenges and applying human judgment where Gen-AI outputs may be insufficient.
    - **Adaptability (12%):** Vital for navigating job transitions, upskilling, and staying competitive in rapidly changing industries.
    - **Communication (12%):** Crucial for integrating Gen-AI effectively into multidisciplinary roles and ensuring clear interaction.
    - **Creativity (12%):** Important for innovation, especially as Gen-AI handles mundane tasks.
    - **Ethical Reasoning:** Necessary to assess the ethical implications of Gen-AI outputs (e.g., bias, data privacy) and ensure responsible use, particularly in sensitive sectors like healthcare, legal, and finance.
    - **Lifelong Learning:** A mindset essential for continuous upskilling and navigating rapid technological advancements.
    - **Teamwork:** Important for collaborative environments.

2. **Technical Skills:** Graduates need proficiency in AI-related fields, but with a focus on interpretation and adaptation:
    - **Data Analysis and Interpretation:** Crucial for understanding and leveraging Gen-AI outputs.
    - **Gen-AI Programming and Development:** While Gen-AI can assist, foundational understanding remains essential.
    - **Adaptability and Continuous Learning:** Essential for working with evolving technologies.
    - **Creativity and Innovation (Technically Applied):** Applying Gen-AI to innovative solutions.
    - **Gen-AI Literacy:** The ability to use Gen-AI tools effectively and critically.

Implications for TEIs' Curricula:

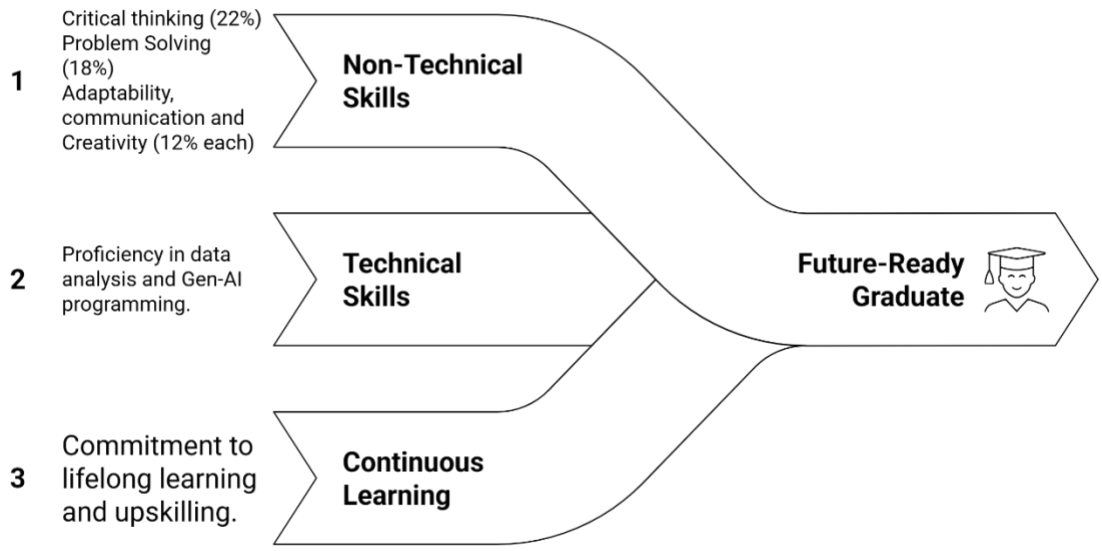
• **Balance Technical and Non-Technical Skills:** Curricula must be flexible and balance both types of skills to prepare graduates effectively.

• **Integrate Gen-AI into Learning:** TEIs should support students in integrating Gen-AI-powered technologies into their learning and skills development practices, while being mindful of potential negative impacts on critical thinking.

• **Focus on Foundational Skills:** While embracing Gen-AI, universities must ensure students develop foundational knowledge and skills that allow them to critically evaluate AI outputs, rather than over-relying on the tools.

• **Collaboration with Industry:** Close partnerships are crucial to align curricula with evolving industry expectations and bridge skill gaps.

Figure 4: Essential Graduate Skills for the Gen-AI Era



Q4: How can academics effectively collaborate with industry partners to integrate Gen-AI into teaching and learning while maintaining academic integrity?

Effective integration of Gen-AI requires a multi-pronged approach focusing on pedagogical responsibility, curriculum redesign, ethical guidance, and continuous collaboration.

Strategies for Academic Staff:

1. **Co-develop Curricula and Programs:** Collaboration between Tertiary Education Institutions (TEIs) and industries is crucial for aligning educational outcomes with the evolving demands of Gen-AI-integrated workforces (Jung et al., 2024). Academics should encourage industry participation in developing relevant curricula and programs to equip graduates with competencies that meet employers' expectations(Mezhoudi et al., 2023). This includes creating **new specialised courses or training programs on Gen-AI tools** to prepare students for the rapidly changing work environment(Li et al., 2022).

2. **Integrate Practical Experiences:**
    - **Internships and Work-Integrated Learning (WIL):** Industrial internship programs for both students and staff, and graduate WIL, are effective ways to offer students industrial knowledge and work experience, thereby improving graduate employability(Babashahi et al., 2024). These programs also encourage interaction between academics and industry staff, improving academics' practical experience and keeping them updated with the latest industrial technologies, while fostering collaborative teaching and research(Aboderin & Havenga, 2024).
    - **Practical Projects and Assignments:** Including practical projects or assignments in the curriculum, especially those reflecting real-world challenges and technological advancements, is a key strategy. This enriches teaching methods with practical experience and digital skills.

3. **Foster Dialogue and Feedback:** Organising **joint workshops or seminars** to discuss the impact of Gen-AI and providing feedback on graduate skill requirements are well-supported collaborative strategies(Shi & Wang, 2025). This constant engagement ensures programs remain relevant and address the complexities of Gen-AI(Jung et al., 2024). Utilising **TEIs' alumni networks** can also serve as a valuable resource for connecting students with industry professionals, mentorship, and job opportunities (Faizan et al., 2024).

4. **Emphasise Foundational Skills and Critical Evaluation (to maintain academic integrity):** Collaboration should explicitly aim to develop skills that are crucial for managing Gen-AI's complexities and upholding academic integrity:
    - **Critical Thinking and Problem-Solving:** Industry partners emphasise the need for graduates to develop higher-order skills like **critical thinking (22%)** and **problem-solving (18%)** to assess Gen-AI outputs in ambiguous or complex scenarios. Academics must teach students to interpret the output and **not just blindly make sense**, as over-reliance on Gen-AI could weaken these essential skills(Dahri et al., 2025).
    - **Ethical Reasoning and Human Judgment:** Academics, in collaboration with industry, must ensure graduates develop **ethical reasoning skills**, particularly in sectors where Gen-AI decisions have significant implications (e.g., healthcare, legal, finance). This includes being knowledgeable about **AI ethics, data management, bias, data privacy, and intellectual property (IP) risks**, and ensuring responsible and equitable use of Gen-AI technologies. Industry partners highlight concerns about the **lack of human judgment and intuition (87%)** and the risks associated with data security and bias.
    - **Assessing Gen-AI Outputs:** Students need to learn to critically assess Gen-AI-generated content, **test its accuracy**, and filter information to ensure it is **reliable and relevant**. There is

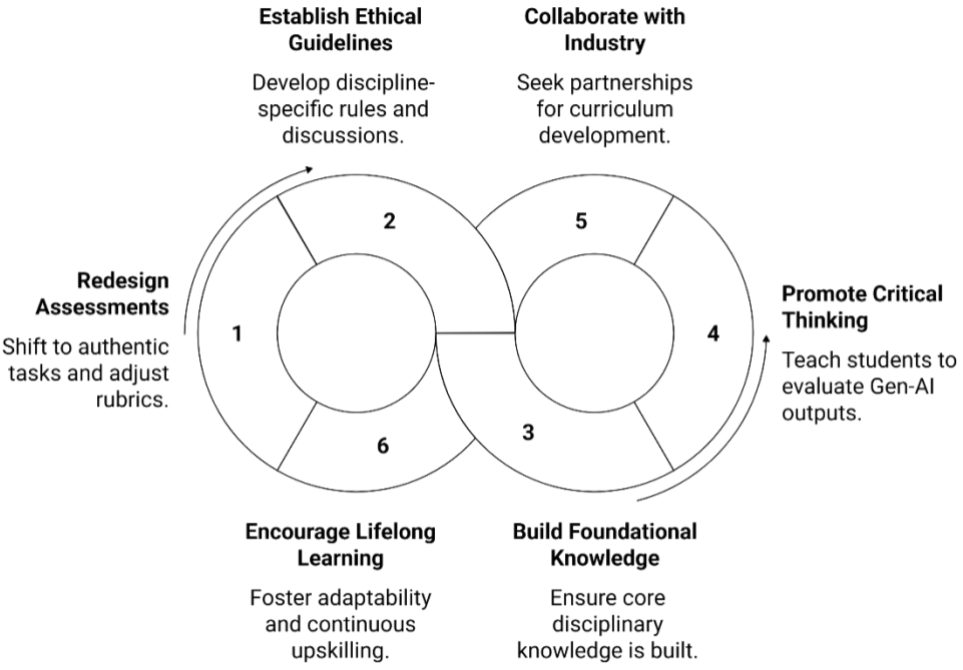
a concern that without human intervention, the **validation of Gen-AI-generated outcomes may diminish**.

- **Maintaining Foundational Technical Skills:** While embracing Gen-AI, it is crucial that students maintain basic foundational technical skills (e.g., programming). Academics need to design courses in a way that students develop expertise alongside Gen-AI proficiency, rather than defaulting to AI for everything, ensuring they can develop the experience to assess if Gen-AI output is right.
- **Governance and Oversight:** Industry views **governance and ethical oversight** as vital to mitigate risks like errors and biases from Gen-AI. Collaborations can help TEIs establish robust frameworks for the ethical and responsible integration of Gen-AI into education.

5. **Provide Clear Guidance and Ethical Frameworks:**
    - Industry experts urge academics to offer clear, discipline-specific guidelines with examples of ethical and appropriate Gen-AI use within courses.
    - Also, they recommend programmatic restructuring to redesign entry-level, first-year foundational courses that build disciplinary knowledge *before* students engage deeply with Gen-AI tools. Mid-level courses should focus on evaluating Gen-AI outputs, and capstone experiences should require application in complex, real-world tasks involving synthesis and independent decision-making.

6. **Promote Lifelong Learning and Critical Evaluation:**
    - Encourage students to adopt a continuous learning mindset to stay competitive and adapt to technological advancements, including GenAI. In addition to improving their ongoing skills related to critically assessing Gen-AI outputs, testing accuracy, and filtering information for reliability and relevance.

Figure 5: Integrating Gen-AI Ethically and Effectively in HEd: Industry view



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