Main findings Education Theme

- **Systems thinking and architecture are foundational** - As AI automates routine tasks, framing problems, weighing trade-offs and judging solutions matter more.
- **Systems-of-systems need a sociotechnical view** - Products sit in larger systems with no single authority: collaboration and managing uncertainty become core skills.
- **Digital engineering and AI transform practice** - MBSE, digital twins and agentic AI empower small teams, but engineers must validate outputs and stay accountable.
- **Experiential learning and ecosystems** - Industrial projects, capstones and HIL simulators build system-level competence, backed by academia, industry and government.
- **Responsible AI is a strategic priority** - Safety, sustainability, data governance and sovereignty must guide not only whether a technology works, but whether it fits.
- **Soft skills are as vital as technical depth** - Collaboration, communication, organizational learning and leadership help engineers manage uncertainty and influence systems.

Recommendations Education Theme

1. **Embed systems thinking early -** Teach system framing, stakeholder analysis, architecture and trade-offs from the first years, linked to detailed design.
2. **Integrate AI and digital engineering -** Build skills in MBSE, digital twins and AI workflows; assess tool choice, validation and accountability.
3. **Expand experiential learning -** Offer industrial projects, multidisciplinary capstones, HIL testbeds and open-source tools for reproducible V&V.
4. **Develop systems-of-systems skills -** Add cybernetics, organizational behaviour, collaboration and leadership to work across institutional boundaries.
5. **Establish competency frameworks -** Use evolving frameworks to align universities, employers and governments, supporting lifelong learning.
6. **Promote responsible innovation -** Test new tools with evidence, question assumptions, and build in safety, sustainability and data governance.