

# Empowering the Next Generation of Surveyors: Innovations in Technical Education, Professional Standards, and Sustainable Development in Australia

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**Key words:** Capacity building; CPD; Education; Engineering survey; GNSS/GPS; History; Implementation of plans; Laser scanning; Photogrammetry; Positioning; Professional practice; Reference systems; Remote sensing; Spatial planning; Standards; Young surveyor

## SUMMARY

The surveying profession faces transformative challenges driven by rapid technological advancements, evolving global needs, and the pressing demand to achieve sustainability. To remain relevant and resilient, surveyors must align professional standards with innovative teaching practices and emerging geospatial technologies. This paper positions education as a unifying force across the surveying community, advocating for partnerships with industry, government, and international organisations to create a global network of learning and resources. Collaborative efforts are essential for providing real-world learning opportunities, ensuring equitable access to cutting-edge technology, and fostering the adaptability and flexibility required to pivot as technologies evolve.

The paper also addresses the critical need to fill the skills shortage by integrating surveying education into school curricula, exposing younger generations to the profession and promoting diversity from the earliest stages of learning. Building a pipeline of skilled, inspired professionals from schools to universities is essential for securing the future of the profession. Such efforts encourage greater inclusivity and innovation by attracting individuals from diverse backgrounds and perspectives, ensuring a vibrant and sustainable workforce capable of addressing future challenges.

Focusing on the Sustainable Development Goals (SDGs), particularly SDG 4 (Quality Education), SDG 9 (Industry, Innovation, and Infrastructure), SDG 5 (Gender Equality), and SDG 17 (Partnerships for the Goals), this paper explores how advancements in GeoAI, big data analytics, and earth systems science are being integrated into surveying education. These technologies are critical for preparing future surveyors to address global challenges such as climate change, resilient infrastructure development, and sustainable resource management. Education plays a pivotal role in

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equipping surveyors with the skills to contribute to infrastructure resilience (SDG 9) while fostering diversity and inclusion in the profession (SDG 5). Additionally, partnerships between academia, industry, and international organisations (SDG 17) ensure equitable access to modern technologies and knowledge, enabling the profession to adapt to new demands.

The paper further highlights the transformative potential of blended learning and participatory methodologies in surveying education. By incorporating these approaches, students and professionals can develop the skills necessary to harness innovative geospatial technologies effectively. Early exposure to surveying concepts and career opportunities through school-based initiatives not only addresses the skills shortage but also inspires a new generation of surveyors to pursue the profession.

By aligning education with global priorities and embedding sustainability in learning, surveying education contributes to broader goals, including SDG 11 (Sustainable Cities and Communities), SDG 13 (Climate Action), and SDG 15 (Life on Land). This research underscores the critical importance of education in shaping a diverse, technologically adept, and future-ready workforce.

Aligning with the FIG Working Week 2025 theme of Collaboration, Innovation, and Resilience, this paper demonstrates how education can drive sustainable development, strengthen global partnerships, and prepare the surveying profession to thrive in an increasingly digital and interconnected world.

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