Developing Digital Competence for Emerging Surveyors

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Key words: Capacity building, Digital cadastre, Professional practice, young surveyor

1. SUMMARY

The surveying profession is undergoing rapid digital transformation, driven by advances in ICT, BIM, GIS, analytics, and automation. This paper examines how emerging surveyors, particularly in developing economies, can build the knowledge, skills, and ethical framework ('digital competence') needed to leverage these technologies.

We review recent FIG publications and global studies to align the topic with FIG Commission mandates. Commission 10 (Construction Economics & Management) explicitly prioritizes BIM and digital construction, Commission 1 (Professional Practice) emphasizes ethics and capacity in a changing digital world, and Commission 2 (Education & Capacity) highlights innovative curricula and networks for technology-driven learning. Using literature on digital skills and industry reports, the paper explores key tools (BIM, data analytics, GIS, remote sensing, digital QS software, automation) and the need for inclusion and global access, with special reference to emerging markets (e.g., ICT penetration in Africa).
We discuss challenges (skills gaps, infrastructure, ethics) and propose recommendations: integrating digital curricula, strengthening FIG-led standards (e.g., ICMS) and ethical guidelines, and expanding capacity-building initiatives. This comprehensive discussion will guide the FIG community in "future-proofing" surveying practice through digital competence development.

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2. INTRODUCTION

Surveying is a digital profession. Modern surveyors use computers, networks, and smart sensors to capture, model, and analyze the built and natural environment. As one FIG study observes, "surveyors are now expected to adapt their systems of measuring, computing and representing land features to ever-changing technologies, the only constant is change." This reflects a broader theme of the FIG 2026 Congress: "Future-Proofing the Profession: knowledge, skills, standards, and ethics to serve our changing society".

Digital competence, the combination of digital knowledge, skills, and attitudes needed for effective technology use, is thus a core requirement for surveyors. It spans basic digital literacy (IT and data skills) and advanced capabilities (BIM modelling, data analytics, programming, etc.), underpinned by ethical and professional judgment.
In the global South, where infrastructure and skills gaps persist, building this competence is both an urgent challenge and an opportunity. For example, IFC research projects that by 2030, some 230 million jobs in Sub-Saharan Africa will require digital skills. FIG's vision, aligned with the SDGs, calls for inclusive development of the surveying profession worldwide; emerging surveyors must not be left behind in the digital revolution.

Figure 1: High-precision total station (surveying the built environment) with digital interface. Modern instruments (often GNSS or laser-based) capture spatial data for BIM/GIS workflows.

2.1 Digital Competence in Surveying

"Digital competence" has been defined as the "confident, critical and responsible use of digital technologies" across all facets of work and society. It consists of three pillars: knowledge (understanding digital tools and information), skills (ability to use and create with technologies), and attitudes (critical thinking, ethics, and continuous learning). In surveying, this translates to familiarization with ICT, data management, programming, or modelling basics, as well as the judgment to apply tools appropriately. For example, surveyors must manage large geospatial datasets (data literacy), collaborate online with multidisciplinary teams (communication), and ensure data privacy and sustainability (safety and ethics).
Commission 1 underscores that professional practice must adapt to such changes. Its terms include "Professional practice, legal aspects" and "codes of ethics and applications", in response to societal change. Today's surveyors face ethical questions around digital data (e.g., privacy, bias in AI processing, and intellectual property). As Garfield Young et al. note, surveyors should not merely do old tasks with new tools, but "embrace new opportunities" and provide leadership by leveraging spatial data and digital methods. Likewise, FIG calls for "knowledge, skills, standards, and ethics" that serve society. In practice, this means educating

surveyors to critically evaluate digital information, communicate results to non-specialists, and apply ethical standards in digital workflows. Digital competence in surveying thus includes traditional geospatial expertise plus competencies such as BIM modelling, coding/automation, remote sensing, and data analytics, all underpinned by ethics.

2.1.1 Capacity Building for Emerging Surveyors

Capacity building is the foundation of digital transformation. For young surveyors, it involves structured training, mentorship, hands-on exposure, and access to modern tools. Capacity building should integrate technical skills with professional ethics, communication, and leadership development. Institutions, professional bodies, and employers play a critical role in creating learning ecosystems that encourage innovation and continuous improvement.

Strong education and training are vital to build digital competence among new surveyors. FIG's Commission 2 (Professional Education) explicitly focuses on "innovative and effective professional education and training" and on strengthening academic networks

In practice, professional bodies in Africa are already stepping up. For example, in September 2025 the Nigerian Institute of Quantity Surveyors (NIQS) held a national workshop on "Adapting Quantity Surveying Practices to Policy and Industry Change," aiming to expose members to AI-driven tools and modern workflows

NIQS leaders emphasized that such events "offer a platform for members to learn directly from experienced professionals" and build competence through training initiatives

Similarly, the Association of Private Practicing Surveyors of Nigeria (APPSN) has prioritized capacity-building in GIS and digital cadastral mapping, partnering with agencies to advance members' skills

2.1.2 Key strategies for capacity building include:

Curriculum Reform: Updating university surveying curricula to include BIM, coding, and GIS, as advocated by FIG Commission 2 and African educators

Professional Workshops: Regular industry-led training (like the NIQS AI workshop and vendor sessions on software (e.g. cost-estimating apps).

Mentoring and Networks: Encouraging young surveyors to join FIG's Young Surveyors Network (YSN) and the African Regional Network, which provide mentoring and

resourcesharing. FIG's Africa Network reports that African educators need "knowledge and skills development" for young members, both technical and soft skills

Many member associations are therefore establishing mentoring programs and YSN chapters to nurture the next generation.

3. DIGITAL CADASTRE AND MODERN PROFESSIONAL PRACTICE

Land administration in Africa is also going digital, requiring new skills from emerging surveyors. Traditionally, Nigerian land records were analog; cadastral maps were sparse and paper-based
. Today, professional bodies stress the need for digital systems. For example, APPSN (FCT) urged surveyors to "deepen their expertise in cadastral systems and adopt modern digital tools to enhance land administration"
. This includes GIS mapping for cadastral data, online land portals, and even blockchain concepts for secure records. In practice, FIG member associations in Africa (e.g. Nigeria, Rwanda, Ethiopia) are involved in land reform programs that digitize land registries and integrate spatial data. Modern professional practice also demands adherence to global standards. Surveyors Council and associations have been advocating clear roles and fee scales for cadastral surveys, especially for disputes and as-built mapping
. Ethical practice and data quality are emphasized – if surveyors do not upskill in digital methods, they "struggle to align with modern practices" and risk damaging the profession's credibility
. Thus, young surveyors must learn not only technical mapping but also land administration policy and ethics. Participation in projects like integrated land information systems (ILMIS) and UAV-based mapping (as done in some African cities) can prepare them for the digital cadastre era. Figure 2. Field mapping and digital cadastre: modern surveying increasingly relies on GIS-based maps (example map shown).

4. THE ROLE OF FIG AND THE YOUNG SURVEYORS NETWORK

The Role of FIG and the Young Surveyors Network
FIG provides a global platform to empower young surveyors. The FIG Young Surveyors Network (YSN) established in 2009 exists to create an environment that encourages the active participation of young surveyors in the work of FIG
- Through YSN, emerging professionals join FIG commissions, attend workshops, and collaborate on global projects. YSN has partnered with UN-Habitat, the World Bank, FAO and others to amplify young surveyors' impact on issues like climate change and social housing
- Notably, YSN runs the Volunteer Community Surveyor Program (VCSP), through which young members volunteer mapping and data collection for humanitarian causes (e.g. disaster risk mapping in Nepal)
- The FIG Africa Regional Network (ARN) also plays a key role. It spans North, West, East, Central and Southern Africa with Young Surveyor champions in each region. ARN keeps

surveyors connected via social media groups (FIG Africa Network on Facebook) to share low-bandwidth teaching resources when online access is scarce
- At FIG conferences, ARN hosts continental sessions and breakfasts jointly with YSN Africa, ensuring African issues (like language barriers and local challenges) are highlighted. A recent survey by ARN found that African surveyors highly value networking and mentoring, and most urgently need upskilling in both technical and soft areas
- FIG and YSN activities (meetups, webinars, inter-regional conferences) thus give young Africans exposure to global best practices and leadership opportunities.

4.2.The Role of FIG Commissions 10, 2 & 1

4.2.1. Commission 10: Construction Economics and Management

FIG Commission 10 (Construction Economics and Management) explicitly centers on digital construction. Commission 10 is chaired by Mercy Iyortyer of Nigeria, highlighting African leadership in BIM research Its mission statement (2023–26) commits to "promoting the practice of Quantity Surveying, Cost Engineering and Commercial Management globally" and "securing uniformity in education, standards and methodology for construction projects and cost management". In this context, Commission 10's Working Group 10.1 is dedicated to "Digital Technologies in Construction". The Commission's call-for-papers theme – "Digitalization as the Future Vision of the Construction Industry" – lists topics such as "Digital Integration in Construction", "Digital Construction Management", and "smart technologies in construction". These priorities align directly with the need to build digital competence in emerging surveyors, especially those focusing on cost and project management.

Commission 10 notes that "constant improvements in technological solutions in Construction Projects… create latent competencies that will conquer new frontiers". In other words, staying current with tech is seen as an opportunity for surveyors to advance their role. The Commission works to translate this into practice. For instance, it promotes international cost-management standards (ICMS) to facilitate digital data sharing and encourages the use of 5D BIM for cost planning. It also engages capacity-building: for 2023–26, Commissioner Mercy Iyortyer (Nigeria) emphasizes educational initiatives to ensure quantity surveyors can implement digital tools (e.g., BIM, cost software) in emerging economies. Commission 10 publications (e.g., FIG Coordinates and congress papers) often highlight case studies where digital tools reduce project risk or improve sustainability.

A related goal is sustainability and ethics in cost management: WG 10.2 focuses on sustainability, echoing FIG's broader SDG agenda. Digital competence here means knowing how to incorporate green criteria into BIM cost models or use data analytics for lifecycle cost assessments. Overall, Commission 10's agenda signals that digital competence is not optional: it is core to the future of surveying economics. By endorsing training in BIM and analytics, and

by providing global forums (seminars, publications) on digital practice, the Commission helps emerging surveyors gain the necessary skills.

Figure 4: A field surveyor uses a GNSS receiver and tablet. Modern surveyors combine mobile data capture devices with cloud-enabled analysis, reflecting the integration of digital tools in surveying.

4.2.2. Commission 1: Professional Practice & Ethics

FIG Commission 1 (Professional Standards and Practice) provides the ethical and governance framework for the profession. Its terms explicitly include "Codes of ethics and applications" and "Professional practice, legal aspects". In the digital era, this means guiding surveyors on responsible tech use. Commission 1 has created Working Group 1.1 on International Ethics Standards to develop guidelines for surveyors facing issues like data privacy, digital misinformation, or cyber-physical safety. For example, using UAV imagery in urban mapping raises privacy concerns, and GIS data sharing requires security protocols. Commission 1 emphasizes that capacity-building must accompany change: its mission includes "building capacity of professionals to adapt to changing circumstances" and providing "tools and approaches for issues in professional practice".

In practical terms, Commission 1 supports initiatives such as ethics training modules, codes of conduct that address digital challenges, and advocacy for professionalism in new markets. The Commission also highlights diversity and gender: its terms mention "community perception especially on gender issues". Digital competence training must be inclusive: for instance, ensuring female surveyors and marginalized groups have access to ICT education. The Congress's diversity task forces e.g., "Evolutionary Diversity and Inclusion: fostering a new generation of surveyors" align with Commission 1's outreach. Thus, Commission 1's role is to ensure that, as surveyors adopt new technologies, they remain professional and ethical. This includes integrating ethical reflection into digital training and advocating that tech advances serve societal good (SDG goals) as much as profitability.

Commission 1 also influences regulation: in many countries, licensing bodies and associations consult Commission 1 recommendations on survey standards. As digital tools blur geographical boundaries (cloud storage, online services), Commission 1's work on global best practice helps harmonize how surveyors operate. In sum, Commission 1 ensures that digital competence development goes hand-in-hand with professional integrity and inclusivity.

4.2.3. Commission 2: Education & Capacity Building

FIG Commission 2 (Education) addresses how surveyors learn these new digital skills. Its focus is innovative and effective education for surveyors. The Commission's 2023–26 program highlights "developing and strengthening academic networks", "innovative learning and teaching", and "Curriculum on the Move" to keep pace with technology. FIG's congress theme for Commission 2 - "Frontiers in Education and Training: Keeping pace with the radically changing technological landscape" – underscores this. Working groups cover curriculum

innovation (WG 2.2) and young surveyors in education (WG 2.3), ensuring that digital tools are embedded in coursework.

In practice, Commission 2 encourages universities and professional institutes to update curricula. For example, land surveying and QS programs should include BIM, GIS, remote sensing, and data analytics courses. Commission 2 chairs have organized conferences and webinars on digital pedagogy (e.g., blended and online learning methods). They also facilitate global networks: academic institutions can share course materials via FIG-affiliated networks (e.g., the FIG Curriculum Task Force). A 2022 FIG global survey of education (Commission 2's initiative) revealed that many programs in Africa and Asia are still primarily manual; this highlights the need for Commission 2-led capacity building.

Commission 2 also collaborates with the FIG Young Surveyors Network (one of its WG focuses) to engage students and early-career professionals. Young surveyors often drive tech adoption, and FIG encourages their involvement in mentoring programs and standards development. Moreover, Commission 2 partners with other commissions on topics such as land administration education and emerging tech (e.g., joint sessions with Commission 3 on GeoAI). Ultimately, Commission 2's work means more accessible, practical training in digital competencies from workshops on BIM software to incorporating IoT case studies in lectures so that emerging surveyors are prepared for the digital workplace.

These commissions provide frameworks, guidelines and standards that national associations can adopt. For instance, Commission 10's BIM best practices and Commission 2's education initiatives inform the training programs run by African bodies. Commission 1 promotes uniform standards (e.g. codes of ethics for digital practice) across borders. Together, FIG's commissions give emerging surveyors guidance on both technical skills and professional values, under FIG's motto of sustainability and community

4.3. The Role of Institutions (including NIQS and FIG-registered African bodies)

Professional institutions are critical enablers of digital competence. FIG member associations in Africa are increasingly active in this domain. For example, NIQS (Nigerian Institute of Quantity Surveyors) an affiliated FIG member explicitly lists "digitalization and capacity building" in its leadership agenda. NIQS leaders regularly advocate digital adoption. The Independent newspaper reports NIQS workshops on AI and big data in QS, supported by Nigeria's ICT Development Agency (NITDA). Likewise, the Nigerian Institution of Surveyors (NIS) and private surveyor bodies like APPSN emphasize digital cadastral reforms
-Regional bodies also contribute: the Africa Association of Quantity Surveyors (AAQS) circulates newsletters on QS digital tools and the FIG Africa Capacity Development Network hold forums (e.g. African Regional Meetings) with training segments on GIS/BIM. Collaboration among institutions is key. FIG-registered African member associations (NIQS, NIS, NIESV, etc often partner with universities and government on land and infrastructure projects, creating hands-on learning for young members. For instance, NIQS works with the Federal Capital Territory to host surveys of government projects, giving young quantity

surveyors real-world digital data practice. NIQS also co-founded the Quantity Surveyors Registration Board (QSRBN) which is exploring digital workflows for certification. On the academic side, universities in Nigeria and elsewhere are forming curricula committees with NIQS/NIS input to incorporate BIM, AR/VR, and GIS. Some institutions have joined FIG's Academic Members program for resource sharing. National licensing bodies (e.g. Surveyors Council of Nigeria) have begun requiring CPD credits in geospatial tech.
In short, from professional institutes (NIQS, NIS) to academic associations (e.g. FIG Academic Members in Africa), these institutions provide courses, networking, and advocacy that support young surveyors' digital upskilling. Their role will grow as African governments push smart city and land reform agendas that rely on modern surveying.

5. DIGITAL TOOLS AND TECHNOLOGY

Emerging surveyors must master a range of technologies. Building Information Modelling (BIM) integrates design, cost, and schedule data in 3D/4D/5D models, revolutionizing quantity surveying and cost management. BIM "empowers quantity surveyors to extract precise quantities, forecast budgets with higher accuracy, and track real-time cost variations", effectively shifting the QS role toward strategic advising. It automates traditional take-off tasks and supports clash detection, 5D simulations, and lifecycle costing. Adoption of BIM and cost-management software (e.g., Autodesk Revit, CostX, Navisworks) boosts accuracy and efficiency. For example, a project model can automatically generate bills of quantities and update costs when designs change. These digital QS tools save time and reduce errors: "BIM software generates quantities directly from 3D models, ensuring accuracy… and eliminating manual errors". They also enable collaboration in cloud platforms, aligning with FIG's call for "collaborative international standards" (such as ICMS) in construction economics.
Data analytics and AI are rapidly enhancing survey work. Large datasets (e.g., past project costs, satellite imagery, sensor networks) can be mined for trends and predictive insights. For example, machine learning models can identify cost overrun risks or optimize resource allocation before construction begins. The RICS insights report cites McKinsey (2015) that proven technologies could "automate as much as 45% of the tasks individuals are currently paid to perform", indicating major shifts in analytics. In practice, this means surveyors must become data-savvy: they may use statistical tools or AI-assisted platforms to analyse market rates, forecast budgets, or detect anomalies in project data.

Figure 3: Hands holding a tablet showing a digital building model (BIM). Emerging surveyors need to interact with such digital twins of construction projects.

GIS and remote sensing enrich surveying with spatial context. Geographic Information Systems (GIS) integrate maps, attribute data, and analysis tools. A FIG report notes that GIS "captures, manages, analyses, and displays geospatial data in a visual format," aiding efficient land administration and infrastructure planning. Surveyors use GIS to map property boundaries, plan urban development, or manage assets. For example, precise GNSS field measurements can update a GIS cadastral, while GIS analysis can inform land-use decisions. Remote sensing

(drones, LiDAR, satellites) provides high-resolution terrain and project site data. Drones collect 3D point clouds and imagery that can be quickly processed, and LiDAR systems yield detailed topographic models even in challenging terrain. Combined with GIS, these tools improve the accuracy and scope of surveying work (e.g., volume calculations, forestry surveys, change detection).

Automation and emerging tech. Robotic total stations, mobile mapping vehicles, and sensor networks automate data capture. Survey-grade robots can continuously scan a site, and GNSS rovers linked to tablets (with cloud connectivity) streamline data workflows. The Internet of Things (IoT) promises "smart" infrastructure: for instance, sensors on bridges or pipes feeding geospatial information in real time. Commission 10 explicitly pursues "Digital Technologies in Construction", reflecting the industry trend toward automation and real-time control. Indeed, RICS highlights IoT as one of five key technologies reshaping the built environment. For surveyors, this means learning to operate and calibrate such equipment and to integrate live data streams into cost or asset models.

In summary, digital competence in surveying covers a spectrum from mobile data collection tools (GNSS, total stations, drones) to advanced software (BIM platforms, GIS, analytics). Surveyors must be fluent in these tools and in critical thinking about when and how to use them. Training in these areas aligns directly with FIG Commission goals – for example, Commission 10's focus on "digital integration in construction" and "smart technologies" – and with Commission 2's educational initiatives. At the individual level, a surveyor's toolkit now includes not only a theodolite, but also a tablet running specialized software (as shown in Figure 3), a BIM model repository, and skills in data interpretation.

6. INCLUSION AND GLOBAL ACCESS

Building digital competence must be inclusive. Inequalities in education and infrastructure mean that not all surveyors have equal access to technology. FIG emphasizes reduced disparities in the profession; for instance, Task Force themes include "Inclusive pathways: access and equity in surveying education" and "reducing inequalities in the surveying profession". In practice, this calls for programs targeting underrepresented groups and regions. Commission 1's focus on community and gender, and Commission 2's on inclusive networks, reflects this commitment.

Emerging markets (Africa, Asia, Latin America) face a particular challenge. Internet and mobile access lag behind global averages: ITU data show that only ~38% of Africa's population is online (versus 68% worldwide). In least-developed countries, only ~35 -39% are connected. Without reliable connectivity, online learning or cloud-based tools are less effective. Moreover, in many rural areas, electricity and ICT infrastructure are limited. Training is also uneven: many developing-country universities still teach legacy surveying methods, lacking faculty with digital skills. Recognizing these gaps, FIG's Regional Capacity Development Network

encourages status reports on geospatial infrastructure in regions, and regional FIG events bring resources to emerging countries.

Inclusion also means language and affordability considerations: digital training materials should be translated, and software costs can be a barrier. FIG's education initiatives sometimes provide open-source tools and shared curricula to overcome cost. The Young Surveyors Network (FIGYS) plays a role by offering peer mentorship and organizing local meetups in diverse countries.

In summary, enhancing global access involves multi-pronged efforts:
(1) investing in digital infrastructure (governments and NGOs)
(2) providing scholarships and online courses for students in emerging markets
(3) ensuring FIG leadership roles represent diverse regions (e.g., FIG Commission chairs from Nigeria and other developing countries); and
(4) designing ethical, culturally aware training (so technology use is context-appropriate). By doing so, the profession can leverage digital tools to serve all communities, not just affluent ones.

7. CHALLENGES AND FUTURE OUTLOOK

Several challenges threaten digital competence development. Skill gaps and education lag: Many surveyors (especially in older generations or less-resourced areas) lack training in advanced digital tools. Educational institutions may have outdated curricula. Continuous professional development programs are needed, but funding and awareness can be limited. Commission 2's networks and workshops address this, but progress is uneven globally.

INFRASTRUCTURE AND ACCESS: As noted, connectivity and hardware availability can be low in emerging markets. Without broadband or modern instruments, even enthusiastic surveyors struggle. Cloud-based solutions promise access, but require a stable internet. FIG and partner organizations might advocate for improved geo-ICT infrastructure and subsidized equipment for developing regions.

ETHICAL AND LEGAL CONCERNS: Digital practice raises data privacy, IP, and liability issues. Who owns and protects the huge datasets surveyors collect? FIG Commission 1 is tackling ethics standards, but regulators in many countries have yet to update laws for drones, satellite data, or AI in surveying. Surveyors must navigate this uncertain legal landscape.

Technology pace and obsolescence: new technologies emerge rapidly (e.g., AI, blockchain). FIG's Fourth Industrial Revolution task forces recognize that half of the surveyor tasks could be automated. For example, a recent study estimated a 63% chance that current surveyor roles may be automated by 2035. This disruption means skills become obsolete faster. Surveyors

must learn to adapt or specialize. FIG's role is to provide foresight through research (e.g., RICS and FIG reports) and to guide retraining (e.g., FIG certifications in new tools).

COST AND RETURN ON INVESTMENT: Small firms and public agencies may hesitate to invest in digital tools without a clear ROI. Demonstrating benefits (reduced errors, saved time) is crucial. FIG can help by disseminating case studies that demonstrate cost management improvements through BIM and analytics.

Despite these challenges, the outlook is promising. Surveyors are increasingly recognized as essential actors in smart infrastructure, climate resilience and sustainable development projects – all of which rely on digital data. The push toward green and resilient cities (SDG 11, 13) require the spatial accuracy that digitally-competent surveyors provide. Furthermore, international bodies (UN, World Bank) now involve surveyors in data collection for SDGs, requiring updated skills. The confluence of global standard-setting (FIG, ISO, OGC) and technology diffusion suggests that surveyors who build digital competence will find expanding opportunities.

8. CONCLUSION AND RECOMMENDATION

In conclusion, developing digital competence is imperative for emerging surveyors to remain relevant and effective. Our review reveals that this competence is multidimensional, encompassing mastery of technologies (BIM, GIS, drones, software), data analysis skills, and the professional ethics necessary to apply them responsibly. Importantly, it must be cultivated within the frameworks of FIG Commission 10 (which provides direction on digital construction and cost management), Commission 1 (ensuring ethical practice and inclusion), and Commission 2 (evolving education and capacity-building).

Developing digital competence is both a challenge and an opportunity for emerging surveyors in Africa. This paper has outlined how a combination of education reform, technological adoption, and institutional support can prepare young professionals to lead in the digital era. We emphasized real examples NIQS training, FIG networks, African case studies to show what is already happening. The path forward is clear: invest in capacity building, foster inclusive networks for youth and women, leverage FIG's international frameworks (Commissions, YSN, CDN), and address barriers such as infrastructure deficits. By doing so, the surveyors of tomorrow will be equipped to create smarter, more resilient built environments across Africa. FIG and its member associations stand ready to support these efforts. Innovation and leadership in digital surveying must start now with the emerging generation.

8.1 Recommendations:

Integrate digital skills into education and training. Universities, colleges, and professional bodies should revise curricula to include BIM, GIS, data analytics, coding, and IoT

fundamentals. Commission 2 should facilitate this via academic networks and resource sharing. Online and blended learning (as promoted by FIG task forces) can extend reach.

Adopt and align with international standards. FIG Commission 10's promotion of standards (e.g., ICMS, unified QS practices) should be operationalized: surveyors and firms must be trained in these standards and in compliant software. This fosters interoperability across borders.

Emphasize ethics and soft skills. Professional bodies (guided by Commission 1) should include digital ethics in licensing and CPD requirements. Surveyors need not only technical ability but also an understanding of data governance, privacy, sustainability, and equity. FIG's ethics WG outputs (e.g., codes of conduct) should be incorporated into curricula.

Strengthen capacity-building in emerging markets. FIG and regional networks should target skill and infrastructure gaps. This can include mentorship programs connecting experienced (often Northern) surveyors with emerging professionals, FIG scholarships or funding for ICT equipment in universities, and translated training materials. The example of IFC's large digital skills gap in Africa highlights the scale of investment needed.

Promote inclusivity and diversity. Encourage women and youth in digital surveying through dedicated scholarships, workshops, and roles in FIG commissions. Commission 1's emphasis on gender equality and Commission 2's young surveyor initiatives should be supported by sponsoring events in diverse regions.

Promote life-long learning. Recognizing the pace of change, professional associations should incentivize continuous education in technology. FIG Commissions can organize short courses and e-learning modules (for example, webinars on UAV surveying or AI in QS). Networking events (FIG Congress workshops, webinars) should include digital trends in their agendas.

By implementing these recommendations, the surveying profession will build a digitally competent workforce ready to meet the demands of modern infrastructure, contribute to sustainable development, and uphold FIG's vision of serving society for people and the planet. In doing so, emerging surveyors from Nigeria and beyond can lead the way in a "future we want," equipped with the tools and ethics to transform the built environment.

9. REFERENCES

Bhattacharjee, S. (2025). BIM for Quantity Surveyors – uses, benefits, software, and career path. Novatr blog (20 June 2025).

Getac (n.d.). "GIS Surveying: definition, importance & applications." Getac Solutions (website)..

FIG Commission 1 (2023). Work Plan 2023–2026 – Professional Standards and Practice. FIG [Online]. (Commission 1 Terms & Mission).

FIG Commission 2 (2023). Work Plan 2023–2026 – Education and Capacity Building. FIG [Online]. (Commission 2 Focus & Tasks).

FIG Commission 10 (2023). Construction Economics and Management. FIG [Online]. (Commission 10 mission & WG titles).

FIG Congress 2026 (2023). Commission-specific topics: Professional Standards (C1), Professional Education (C2), Digital Construction (C10). FIG2026 Congress website.

IFC (2019). Digital Skills in Sub-Saharan Africa: A market and ecosystem analysis. International Finance Corporation (World Bank Group).

ITU (2024). Facts and Figures 2024 – Internet use. International Telecommunication Union report (Nov. 2024).

Novatr (2026). 10 Essential Software Tools for Quantity Surveyors in 2025. Novatr blog [Online].

Young, G., Smith, M., & Murphy, R. (2011). "Making surveying education relevant". Coordinates Magazine 22(9): 22–25.

RICS (2017). The Impact of Emerging Technologies on the Surveying Profession. Royal Institution of Chartered Surveyors, Insight Paper (July 2017).

BIOGRAPHICAL NOTES

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