

BIM REALITIES:

Stories of people building the future



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Executive summary

Building Information Modelling (BIM) continues to reshape the architecture, engineering, construction, and operations (AECO) sector. It has become a must-need tool, enabling the digital management and design of buildings and engineering processes.

By integrating data and fostering interdisciplinary coordination, BIM streamlines construction processes, reduces costs and enhances sustainability. It is proven to facilitate efficient collaboration, improved decision-making, and enhanced project outcomes. It enhances workflows and mitigates risks across the entire lifecycle of a project.

Many share the view that the sector must embrace BIM, in combination with other digital technologies such as new visualisation tools and big data analysis.

Why? Players across the sector are reaping the benefits of digital transformation – upstream and downstream. Leaders say they're seeing more than 50% improvements in categories such as customer satisfaction, innovation, and productivity¹.

Alongside BIM's technical promise, power lies in the people who use it.

In this report, we share stories from across Europe, Middle East and Africa (EMEA) – from Autodesk Learning Partners involved in preparing people and organisations to make the most of BIM. Their initiatives are designed to support players from the AECO ecosystem at different stages in their careers, in a range of countries at varying levels of digital maturity. Their experiences, programmes and perspectives are shaped by the

challenges and needs of the markets in which they operate. Individually and collectively they contain best practice advice which has significant relevance beyond their own countries.

These stories show real impact from practical initiatives – they highlight the realities associated with preparing and upskilling for BIM. They demonstrate how:

- **Standards and mandates** create the framework for adoption.
- **Upskilling and reskilling** bridge the gap between technology and productivity.
- **Partnerships between education and industry** accelerate digital readiness.
- **Diversity and inclusion initiatives** open the sector to new talent.

BIM Realities provides a snapshot of initiatives in the sector. A sector where digital capability is becoming as essential as technical competence. As the sector evolves toward sustainability, automation, and data-driven delivery, BIM will remain at its core, shaping not just how projects are built, but how future professionals learn, collaborate and lead.

It shines a light on what works, what challenges persist, and what's needed next: coordinated investment in people, policy, and practice.

Global investment in digital transformation is projected to reach almost

\$4 trillion by 2027².

Yet, 70% of organizations struggle to realise their digital transformation objectives³.



Employers believe 44% of workers' skills will be disrupted in the next five years and that six in 10 staff members will require training before 2027⁴.

BIM REALITIES:

Stories of people building the future

We're delighted to share the following collection of stories from across the Autodesk Learning Partner network in EMEA. They highlight the realities of transitioning to BIM – they aim to show different aspects of the digital adoption journey, such as career stage, country-preparedness, or specific requirements. They all have something in common – valuable learnings which can add value around the world.

STORY 1

Building capability, capacity and confidence in Ethiopia's BIM future – CMI-BIM Training Center, Ethiopia
Page 10

STORY 2

From tradition to transformation: shifting from 2D to BIM in Cyprus – ARI EDUCATION, Taskinkoy-Lefkosa, Cyprus
Page 16

STORY 3

Upskilling and reskilling in Greece: the foundations for a digital future in construction – FACEtoFACE, Greece
Page 22

STORY 4

Transnational collaboration transforming technical construction education in Nigeria – Gribs International Services, Nigeria
Page 30

STORY 5

Bridging education and industry: building a BIM-ready generation in South Africa – Modena Design Centres, South Africa
Page 36

STORY 6

Early careers in BIM: building digital capacity in the UAE – BIMelite, UAE
Page 44

STORY 7

Building the future: BIM, training and evolving skills in Kazakhstan – Line Practic LLP, Kazakhstan
Page 50

STORY 8

Building Kenya's future: BIM training and infrastructure skills development – ADCC International East Africa, Kenya
Page 56

STORY 9

Addressing Jordan's sustainability and growth ambitions with BIM skills – Archizone, Jordan
Page 62

STORY 10

Building female skills and aspirations in the Kenyan AECO market – HiCAD Africa, Kenya
Page 68

STORY 11

Skills, training and education in the age of digital construction – Astrid D. Øie, Autodesk and Tomas Karlsson, KnowledgePoint
Page 74

Increasing adoption of a practical tool for AECO

BIM is no longer a future trend but an everyday reality for many in the construction and infrastructure sectors. What began as a specialist tool has become a practical way to deliver projects with greater accuracy, efficiency, and collaboration.

In many largescale infrastructure and smartcity developments across the region, BIM adoption rates are around 50% – on smart city developments in the UAE and Saudi Arabia sustainability planning pushes this to more than 55%⁵.

Whether adopting international or creating national standards, many countries have established foundations for the use of BIM. Building on these foundations, governments and organisations are increasingly mandating BIM workflows, recognising their potential to drive efficiency, sustainability, and cost-effectiveness.

Mandates influence and accelerate adoption, driving significant changes across the industry. They require all project stakeholders to collaborate digitally from a project's inception. When governments mandate BIM for public projects, architects, engineers, and contractors need to follow suit.

But more than that. Players across the AECO ecosystem – architects, engineers, contractors, and operators – are increasingly expecting to use BIM on their projects⁶. The global BIM market is forecast to grow beyond USD 26 billion by 2030, expanding around 12% annually⁷.

The momentum is clear.

Clients are demanding digital delivery, contractors are investing in teams and tools and universities are increasingly focusing on building BIM capability. Standards and mandates set expectations, but the real difference is made on live projects – where skilled professionals apply BIM processes to manage risk, improve coordination and add value across the lifecycle.

As adoption deepens, building capability and confidence in the workforce is proving just as important as the technology itself.



International standard for BIM⁸

Developed and published by the International Organization for Standardization (ISO), ISO 19650 is the global standard for the implementation of BIM, focusing on the collaborative process integral to the entire life cycle of constructed assets. It provides a framework for managing information from the conception of a project, through construction and operation to decommissioning.

ISO 19650: Organization and digitization of information about buildings and civil engineering works, including building information modelling (BIM) – Information management using building information modelling.

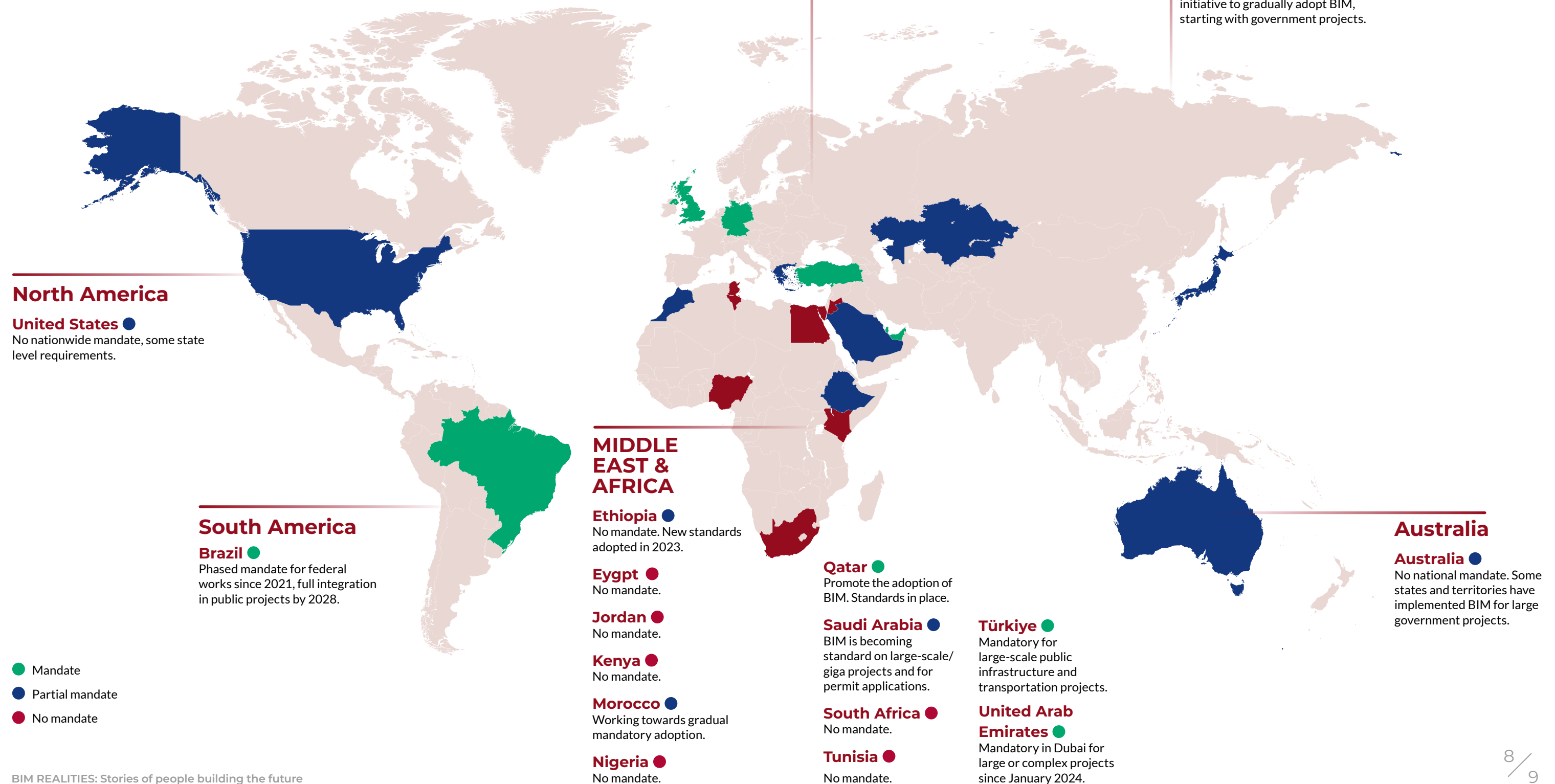
<https://www.iso.org/standard/68078.html>



BIM is shaping the way projects are designed, delivered and managed around the world. On the following pages, our map reveals BIM standards, mandates and adoption frameworks in selected markets. It provides a snapshot of how governments and industry bodies are setting requirements to drive collaboration, efficiency, and compliance in construction and infrastructure projects.

BIM mandates and adoption

BIM adoption is patchy across the globe. This map highlights regulatory and industry expectations in selected markets, showing where standards are established and mandates are driving progress. It provides a view of how digital construction practices are evolving and where collaboration and compliance are gaining traction. Additional markets and further detail can be found in the map in the Appendix.



STORY 1

Building capability, capacity and confidence in Ethiopia's BIM future

In 2023, The Institute of Ethiopian Standards published its first national BIM standard – a key step in modernising the Ethiopian construction sector.

The transition to BIM across the sector is being led by the Ethiopian government – developing BIM syllabus, coordinating awareness events, and overseeing implementation on national projects. This focus on the new standard gives government agencies, industry bodies, and private companies the confidence to embrace BIM.

But standards alone are not enough; people need the skills to apply them. That's where Autodesk Learning Partner, CMI-BIM Training Center, efforts are focused.

Since the publication of the national standard, demand for BIM training has grown across the sector. Government bodies have begun mandating the use of BIM on public projects, while private firms increasingly recognise the competitive advantage it offers.

“BIM awareness is no longer an issue. Today, organisations are focused on building BIM teams and seeking certification for their professionals,” says Feleke Assefa from CMI-BIM Training Center in Addis Ababa.

Developing trainers, building capacity

A cornerstone of CMI-BIM Training Center's efforts has been its train-the-trainer programme. Over three rounds, 65 industry professionals, university lecturers and members of professional associations have completed the programme.

Training is designed to ensure participants gain a thorough understanding of BIM technology and its practicability – using Autodesk Revit to build capability and understanding.

Trainers are equipped to cascade their knowledge through universities, professional networks, and regulatory bodies, multiplying the impact of the initial programme. A proven way to boost capacity and capability, the train-the-trainer initiative has been delivered in partnership with the likes of the South Africa BIM Institute, GIZ and professional associations.

The Autodesk Learning Partner actively monitors global BIM developments through professional networks and online platforms. Best practices are carefully adapted to Ethiopia's unique context and integrated into both training modules and standard-setting efforts, in collaboration with the Ethiopian

Standards Institute. It aligns its training to the national standards, as well as ISO 19650 and other international BIM standards.

There's a significant focus on how standards are applied in practice – preparing learners for real-world work environments.

“Our approach is not just about theory. Every learner works on a detailed G+3 residential building project that covers architecture, structure, and MEP, as well as 4D, 5D and clash detection,” explains Feleke Assefa.

Demand for training is gathering pace – in 2024 alone, CMI-BIM Training Center trained 927 participants. Its instructor team of eight delivered courses with an average satisfaction rating of 91.1%, reinforcing the organisation's focus on maintaining high instructional quality.

Government and industry collaboration

CMI-BIM Training Center works in collaboration with government ministries and industry associations – all of which have vested interest in increasing capacity and capacity in the system.

- FDRE Ministry of Urban Development and Infrastructure (MoUI) is responsible for formulating and implementing national policies for urban development, planning, and infrastructure. Its powers include developing national urban plans and standards, coordinating infrastructure projects, and regulating the construction industry.
- The Construction Management Institute, created as part of MoUI, is responsible for ensuring effective implementation of the country's short- and long-term construction programmes and projects in terms of time, finance, and quality. Amongst its priorities is building project management capacity within project delivery partners.
- Regulatory authorities such as the Ethiopian Construction Authority (ECA) and Oromia Construction Authority (OCA), along with professional associations like the Ethiopian Consultant and Contractor Associations.

International partners add further momentum. GIZ Ethiopia's Sustainable Training and Education Programme has funded trainer development and student training, linking BIM skills directly to employability.



Challenges – and opportunities

Delivering BIM training in Ethiopia is not without hurdles. High software costs, limited access to computers and infrastructure gaps are recurring themes. Some professionals fear that digitalisation could threaten traditional roles.

Yet the opportunities are far greater.

With growing numbers of skilled professionals and strong government backing, Ethiopia is positioning itself as a regional leader in BIM adoption. Job creation, international competitiveness, and more efficient project delivery are all within reach.

CMI-BIM Training Center sees the next few years as critical. With BIM standards in place, the focus will shift to mandating BIM use on major projects. Training will continue to evolve, incorporating new global practices and responding to industry needs.



Ethiopian Standard: ES 7030:2023⁹

- First published in June 2023.
- Prepared under the direction of the Technical Committee for Construction management systems (TC 134) and published by the Institute of Ethiopian Standards (IES).
- Reference made to CIC BIM standard general, Version 2.1-2021, published by Hong Kong Construction Industry Council.
- Designed to enable an Appointing Party / Client to specify, manage and assess BIM deliverables by architects, engineers, surveyors, and contractors in Ethiopia.
- The use of the standard should ensure that project deliverables produced using the BIM processes achieve an agreed level of quality.



CMI-BIM Training Center is based in Addis Ababa, Ethiopia. The Construction Project Management Institute (CMI), re-established by Proclamation No. 1263/2014, strengthens the country's construction project delivery by building capacity. It develops policies and strategies, establishes international-standard certification and competency systems, provides research, training, and consultancy. CMI identifies and addresses skills gaps, standardises methodologies, facilitates technology transfer, benchmarks project competitiveness, and collaborates with local and international institutions to enhance efficiency, quality, and professionalism in construction project management.



<https://cmi.gov.et/>

Making the leap from 2D to BIM

Many individuals and organisations across the AECO sector still work in 2D environments. Workers are used to using printed paper plans on site, and in some cases 2D drawings are recognised as formal, legal documents in contracts.

While many organisations have made the leap to BIM, a significant number still operate in 2D or partial-digital states. This is borne out in reported rates of BIM adoption – around 50% across the region⁵. But, in Africa as an example, although over 90% of firms report awareness of BIM, only about 30% have implemented it fully¹⁰.

Transitioning to BIM can feel daunting, whether due to cost, time, cultural resistance, or uncertainty about return on investment. And because, as we've seen, it is not actually mandated by governments or authorities.

Expertise and training are often cited as barriers to the shift from 2D to BIM. Autodesk's Design & Make Report 2024 highlights how 72% of AECO firms

believe they need to invest significantly in digital skills to remain competitive in the next five years¹¹.

With the right support, teams can embrace digital tools and reap the rewards.

Across the Autodesk Learning Partner network, requests for and delivery of training on the tools to perform BIM workflows are increasing. This is borne out in multi-year growth in demand for training from the experienced and expert partners and their instructors in the network¹².

Investing in such skills will help organisations to move from 2D to BIM; they will build the capability to operate in a digital environment increasingly demanded by today's infrastructure, construction, and complex-systems world.



The next story, from Cyprus, shows how small and medium enterprises can drive digital transformation from the ground up, even in the absence of formal mandates. It highlights how transformation can start small – and how these steps contribute to significant benefits.

A roadmap from 2D to BIM



Engage leadership and culture:

ensure that BIM is championed, that the value is defined and communicated, that old workflows are challenged.



Assessment of current state:

map which teams use 2D, where BIM would provide the biggest uplift, what training gaps exist.



Start small, define milestone:

for example review one process, run a pilot BIM project, train a core team, and document lessons learned.



Select the right training:

training which covers more than “how to use software” to include “how to work differently” (culture, process, collaboration, data-handovers).



Scale and embed:

reflect on learnings (from a pilot), refine workflows, roll out to other projects, continuously monitor performance, and evolve.



Measure return and share wins:

capture productivity, cost, risk-reduction data, and communicate value to all stakeholders.

STORY 2

From tradition to transformation: shifting from 2D to BIM in Cyprus

For more than seventy years, the Ari family has been building homes, landmarks, and trust. Founded in 1952 in Larnaca and re-established in Northern Cyprus after 1974, the company has grown into a well-respected contractor with around 100 employees. Its portfolio spans luxury villas, boutique hotels, mosques, and large-scale commercial projects such as a 15,000-square-metre logistics centre. It expanded into the training and education field in 2020 as an Autodesk Learning Partner.

Through generations, the company's reputation has rested on a simple promise:

"What we have done is the guarantee for what we will do."

Today, that same ethos guides the firm to push for change in the AECO market – one shaped by digital construction methods and BIM.

Legacy meets innovation

Sifa Ari, architect, academic and Autodesk Certified Instructor Silver, is the third generation to lead the family business. She recalls how her grandfather and father relied on paper drawings, personal trust, and face-to-face agreements in their work. Contracts were informal because the community was small and relationships carried more weight than signatures.

"The most important value I've inherited is trust," Sifa explains.

"As we adopt BIM, I want to keep that integrity alive while making our work more transparent, efficient and collaborative."

The shift to BIM has not been without challenges. Many firms in Cyprus still rely heavily on 2D drawings, with BIM adoption limited to a small but growing group of forward-thinking professionals.

Yet for Sifa, the case for change is clear.

Why 2D is no longer enough

After visiting sites as a child and two decades as an architect, Sifa has seen the same issues resurface: miscommunication, mistakes, and delays caused by mismatched drawings. Architectural and structural plans failed to align, resulting in costly conflicts on site.

Even at the early stages of adoption within her company, Sifa has already noticed better organisation and

clearer communication among teams, particularly with younger engineers who are naturally receptive to digital workflows.

BIM promises to have the greatest impact on construction site coordination and lifecycle management. Beyond design, it will make construction, maintenance, and demolition processes more sustainable and efficient.

BIM as a way of thinking

Sifa wears several hats: architect, part-time university instructor, and Autodesk instructor. Each role gives her a distinct perspective:

- As an architect: BIM is a tool for accuracy and teamwork.
- As an academic: BIM is essential knowledge shaping the next generation.
- As an instructor: BIM is not just about software, it's a way of thinking that connects data, people, and processes.

She often counters misconceptions, such as the belief that BIM is only about 3D modelling and pretty visuals. "BIM is about coordination. It combines data on cost, timing, and maintenance, involving everyone from architects to contractors."

Her approach is to start small: introducing simple processes like clash detection or quantity take-offs that demonstrate immediate benefits without overwhelming teams.

Education as a catalyst

In Cyprus, the use of BIM is voluntary; no government mandate or standards yet exist. And, without hands-on training, there's a risk BIM simply stays theoretical.

These factors make universities and training providers key in accelerating change.

Sifa talks about how universities shouldn't just teach BIM software, but also integrate it into design thinking and project management. Universities are key to preparing students for the realities of modern construction.

At the European University of Lefke, she ran a seminar which attracted more than 100 students and young professionals, evidence of a growing appetite to learn. Their most common questions? How BIM will affect their careers, which tools to start with, and whether it's relevant in Cyprus.

Her answer is always the same: "BIM is shaping global construction. Early adopters get ahead – and Cyprus cannot afford to be left behind."

Overcoming barriers

The road to digital adoption is not without obstacles. Cultural resistance among older professionals, the cost of investment, and a shortage of skilled personnel all slow progress. But Sifa is optimistic: with strong leadership, hands-on training, and gradual wins, these hurdles can be overcome.

She sees BIM having the greatest impact over the next decade on construction site coordination and lifecycle management – from design and build to maintenance and eventual demolition. Transparency, efficiency, and teamwork are the benefits she believes the sector needs most urgently.

A digital legacy

For Sifa, BIM is more than a professional tool; it is a personal passion. *"I've seen the problems it solves," she says. "Being part of fixing those problems really motivates me."*

Her ambition is to honour her family's values of trust and quality, while preparing the business for a digital future. *"I want to keep the legacy alive, but also make our company more efficient, innovative and ready for what's next."*

Her advice to hesitant professionals is clear: *"Start small, but start now. Pick one process, test it, and see the difference. The future is digital."*



Sifa Ari is a BIM and digital transformation specialist. She runs her family construction business, lectures at Eastern Mediterranean University and is the founder of ARI EDUCATION an Autodesk Learning Partner in Taskinkoy-Lefkosa, Cyprus. The training business was established in 2020 to provide training to everyone who wants to improve themselves in the field of information technologies. Working with academia and companies, it enables people to be productive in their careers, helping them develop technical design and visualisation skills.



<https://arieducation.com.tr>

Building capability for a digital construction future

The AECO workforce is shifting rapidly, driven by an ageing labour pool, post-pandemic labour-market churn and accelerating technology adoption. Increasingly digital working methods are essential rather than optional.

This digital shift is accelerating the need for digitally-literate workers, specifically BIM-literate. At project level contractors that use BIM report measurable benefits (faster workflows, earlier clash detection, and more reliable quantity estimates), which in turn raises employer demand for staff who can run collaborative BIM processes rather than just produce drawings.

At a macro-level, the nature of work is changing: the World Economic Forum's Future of Jobs analysis highlights automation, AI and the green transition will disrupt substantial shares of current roles and tasks over the coming years. This translates into 85% of employers indicating they plan to upskill their workforce between 2025 and 2030¹³.

More tasks will be performed by machines or AI, and industry studies emphasise a persistent gap between demand for digital skills and available talent. For AECO this means routine, manual drafting and site-based paperwork are increasingly replaced by model-based data workflows – but the people skills to manage models, data exchanges and interdisciplinary coordination are in short supply¹⁴.

Reskilling and upskilling to keep pace with technological change are central to the sector's future competitiveness. Among infrastructure companies, 70% expect reskilling and upskilling to improve talent retention and enhance competitiveness and productivity, with 50% planning to increase talent mobility through training programmes¹³.

The practical implications are clear.

Organisations must invest in targeted reskilling and continuous upskilling programmes focused on BIM workflows, data literacy, and interdisciplinary collaboration. Upskilling for BIM should combine hands-on software training with process education (model-authoring standards, common data environments, clash-management, and digital handover) and be tied directly to on-project experience so learning translates quickly into productivity gains.

A blended approach – one combining technical capability with process fluency and real projects – is the fastest path to closing the gap between digital tools and the people who use them to deliver projects.

Governments, training providers, and industry associations are responding by embedding upskilling and reskilling within national digitalisation strategies – and vice versa. Investment in training is increasingly recognised not as a cost but as an enabler of productivity, quality, and innovation. Effective initiatives combine technical instruction with cultural change, helping teams to rethink workflows, embrace data-driven practices and collaborate across disciplines.



Against a backdrop of the modernisation of its construction sector, our story from Greece offers an example of how a coordinated national effort – supported by public policy, industry engagement, and dedicated learning partners – can lay the foundations for a digital future.

STORY 3

Upskilling and reskilling in Greece: the foundations for a digital future in construction

Greece's construction industry is undergoing one of its most significant transformations in decades. After years of limited digital adoption, the sector is now embracing BIM as part of a drive to modernise the built environment. This shift is creating strong demand for upskilling and reskilling across the AECO ecosystem.

The Greek government has made BIM central to its digitalisation agenda. In 2024, the National BIM Strategy was formally approved, setting out a five-year roadmap to integrate BIM across public works and private developments. Supported by the Recovery and Resilience Facility (Greece 2.0)¹⁵, the strategy aims to not only digitise project delivery but also build the workforce capabilities required to sustain it.

High-profile projects are acting as catalysts for wider industry adoption, stimulating demand for professionals with digital capabilities. The Ellinikon redevelopment – one of Europe's largest urban regeneration initiatives – has mandated BIM across all buildings and infrastructure. Similarly, public infrastructure works such as Athens Metro Line 4 now require BIM in both design and construction.

The state of play: digital capability on the rise

While Greece started from a relatively low baseline, BIM maturity is now accelerating. Until recently, BIM use was confined to a few flagship projects or international collaborations. Today, large Greek firms are building digital capability and integrating BIM processes into their operations. Professional associations such as The Technical Chamber in Greece (TEE), The Hellenic Association of Design Firms (SEGM) and The Panhellenic Association of Engineers Contractors of Public Works (PEDMEDE) also play a pivotal role in promoting training, standards, and knowledge sharing.

Greek Autodesk Learning Partner, FACEtoFACE, supports organisations to transform their workforces through upskilling and reskilling training programmes. Each year around 150 people are upskilled and reskilled on BIM-related programmes, helping them to gain much-needed industry-relevant digital skills and associated certifications.

FACEtoFACE's general manager, and Autodesk Certified Instructor (ACI) Platinum, Exarchopoulos P. George notes*, *"Greece's AECO digital capabilities are rapidly evolving but we still lag behind some other countries. With support from national and European initiatives, we are catching up quickly. We're proud to play our part."*

There has been a notable mindset shift. Once viewed primarily as a 3D design tool, BIM is now recognised as a critical operational capability across the full project lifecycle – from design to construction, handover, and maintenance. Across the ecosystem, organisations increasingly value BIM for its potential to improve asset performance, efficiency, and sustainability.

"We see and hear from our clients that BIM's greatest benefits appear during the operations and maintenance phase," explains George. *"It's no longer about producing better drawings. It's about managing buildings and infrastructure more intelligently."*



Skills in demand across the AECO spectrum

The momentum around BIM has exposed significant digital skills gaps across the construction workforce. Demand spans the entire sector, but the greatest need lies among site engineers, project managers, and cost estimators – as these are roles traditionally less exposed to digital tools.

Field engineers now require BIM literacy to use models for coordination and supervision. Project managers must learn to lead multidisciplinary teams in digital environments, while cost estimators need 5D BIM skills for model-based budgeting. New roles such as BIM Coordinators, Information Managers and Digital Delivery Managers are also emerging to ensure data consistency and collaboration across project stakeholders.

Upskilling efforts are therefore essential. Not only to equip individuals with software proficiency but to foster a collaborative culture where teams work around shared digital information.

Upskilling as a national workforce strategy

Digital capability is at the heart of Greece's broader workforce development agenda. The National BIM Strategy includes dedicated actions to train all engineers in BIM, introduce certification schemes and embed BIM education in university curricula¹⁶. This holistic approach aligns with priorities for a green and digital economy, ensuring professionals remain competitive internationally.

As George explains, "Ongoing training is treated as an investment to make Greek professionals leaders in the digital transformation of construction."

BIM training is also proving a powerful tool for talent attraction and retention. Younger engineers see BIM knowledge as essential for career growth and international mobility. Employers who offer structured training – often through Autodesk-certified programmes – are gaining an edge in recruitment and staff engagement.

"BIM training acts as an employer branding tool," says George. "It shows that a company is investing in its people and future. That's highly attractive to young professionals."

The current and future realities of upskilling and reskilling

The benefits of BIM training are becoming clear on the ground. At Athens Metro Line 4, teams trained in BIM have reported improved design coordination and reduced rework across structural and MEP disciplines. Similarly, at the Ellinikon, full BIM adoption has been crucial to managing complexity, reducing clashes, and keeping construction on schedule.

When teams are trained, George explains, "there's less rework, better coordination, and more accurate budgeting through 5D models. BIM enables issues to be resolved digitally before they occur on site."

Despite progress, barriers remain. Cost, time, and mindset continue to be obstacles, particularly for small and medium-sized firms. Software interoperability issues and, until recently, the absence of Greek BIM standards/libraries create technical difficulties. The government is addressing these through incentives, such as EU-funded training programmes, a national "BIM Communication Platform" and proposed tax or subsidy schemes to offset training costs.

Cultural change is critical. "Construction has always been slow to adopt new practices," says George. "But with the right support, training and leadership, attitudes are changing."

As digital delivery, data management and sustainability converge, BIM roles are evolving rapidly. Future professionals will need strong data literacy, collaboration, and simulation skills to design and manage sustainable, efficient assets.

For Greece, BIM is more than a technology. It offers an opportunity for the country to build a modern, competitive construction workforce. Investment in upskilling and reskilling pays off – in productivity, quality, and innovation.

As George concludes, "BIM training is a win-win. Staff enrich their careers, companies deliver better outcomes, and the entire sector moves forward together."

The benefits of upskilling: we now all speak the same language

For many, BIM training has been transformative. One trainee, a civil and architectural engineer working on the Ellinikon, describes the shift:

“Before BIM training, my role was limited to supervision using 2D drawings. Now, I use 3D models on site to coordinate crews, check details in real time, and detect clashes before work is executed. My daily routine became smarter – instead of reacting to problems, I prevent them digitally.”

They note that BIM has improved accuracy, reduced stress, and enhanced collaboration across teams:

“In the past we faced delays and rework due to miscommunication between designers and the site - drawings didn’t always match, leading to onthespot changes. We needed a tool and methodology to unify all project information. With BIM training from Face-to-Face, I gained this capability – working in a single digital environment where architects, engineers and the site share the same model.

“We now all speak the same language by looking at the 3D model, rather than trying to coordinate with drawings and phone calls,” they add.

“BIM turned me from an execution-focused supervisor into an active coordinator with informational control. I am now more efficient and precise in my work.

“Projects run smoother, with fewer failures and better cost control.”



Autodesk Learning Partner, FACEtoFACE, operates learning laboratories in Athens, Daphne, Amarousi and Piraeus. Established in 1984, FACEtoFACE is a lifelong learning provider, licensed by EOPPEP and the Ministry of Education. With particular focus on upskilling and reskilling Greek professionals to meet the demands of the new digital economy, it aims to provide high quality educational services and support. Its qualified instructors offer training via in-classroom and online training.

Investing in capacity building in digital construction

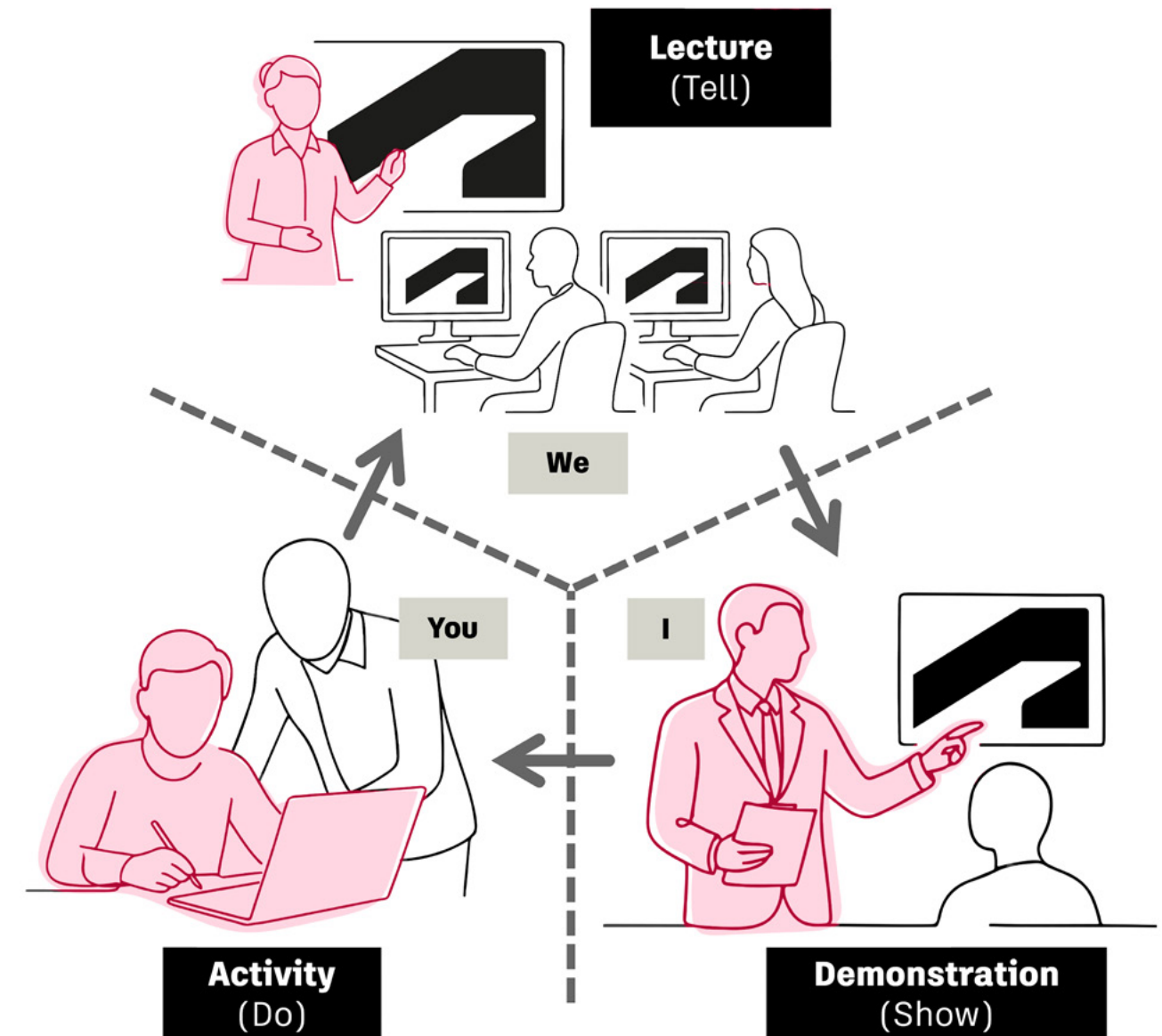
The AECO industry worldwide is in the throes of digital transformation. Platforms such as Autodesk Forma and associated products like Autodesk Construction Cloud, Revit and Navisworks integrate workflows and reshape how projects are reshaping how projects are planned, designed, constructed, and managed. These innovations promise greater efficiency, collaboration, sustainability, and asset performance – and they also require a workforce equipped with the right skills.

Upskilling and reskilling are essential to ensure professionals can operate effectively in digital workflows. Modern construction demands proficiency not only in the tools themselves but also in data management, interdisciplinary collaboration, and digital processes. Organisations, educators, and governments increasingly recognise that investment in training is central to delivering successful projects and fostering longterm sector competitiveness.

Capacity building is critical in this context. Developing capability at scale requires more than oneoff training sessions, it needs sustainable, systemic approaches that embed digital skills within institutions and professional networks.

The trainthetrainer model is particularly effective. By equipping instructors or “master trainers” with expertise in digital construction tools and methods, knowledge can be rapidly cascaded to students and professional peers, creating a multiplying effect that strengthens the entire ecosystem.

Embedding training capability in such a way helps institutionalise digital practices and workflows (for example in technical colleges, professional associations, or construction firms) rather than treating them as oneoff events.



The story from Nigeria highlights how the train-the-trainer approach is being deployed through the collaborative DT4TVET initiative. It demonstrates how capacity building can underpin digital transformation in construction education and professional development, supporting a modern, competitive workforce.

STORY 4

Transnational collaboration transforming technical construction education in Nigeria

The Nigerian AECO sector is a key contributor to national economic development but is characterised by challenges, including technological laggardness, fragmentation, infrastructural needs, and macroeconomic volatility.

Traditional approaches to construction have relied heavily on manual labour and fragmented workflows, creating inefficiencies and limiting opportunities for collaboration. At the same time, graduates often leave educational programmes without the digital skills demanded by modern construction projects.

Autodesk Learning Partner, Grib Integrated Services, is playing its part in addressing digital skills needs to address these challenges through the DT4TVET initiative, anchored by Dr. Dubem Ikediashi, the Principal Investigator, is a transnational education collaboration between Edinburgh Napier University, UK and the University of Uyo, Nigeria with support from the British Council.

By integrating BIM and immersive technologies into teaching and learning, it empowers instructors to deliver more effective, inclusive, and innovative education. The programme also supports the employability of young construction professionals, giving them the tools to meet international standards and thrive in a globalised market.

Dr Christopher Chidi Belonwu from Grib Integrated Services says, *“We are proud to be part of the DT4TVET initiative – contributing to tackling the digital adoption challenge through awareness workshops and seminars on the potential of digital technologies in the construction sector.”*

“We are partnering with professional bodies and schools to emphasise the importance of digital technologies in the construction industry – and this includes building capacity and capability through a train-the-trainer model.”

Collaborating to modernise TVET

Construction educators and professionals gathered at the University of Uyo in Nigeria for a two-day workshop. The event saw educators, instructors, and industry professionals from the UK and Nigeria collaborate to equip Nigerian TVET instructors with the digital skills they need to bring their students into the era of Construction 4.0.

Thirty-two participants from universities, polytechnics, and technical colleges across Nigeria engaged in hands-on sessions using Autodesk Revit and Navisworks Manage. Participants explored how BIM can transform project planning, coordination, and collaboration in construction.

The sessions highlighted the power of immersive technologies, including Virtual and Augmented Reality, to visualise construction tasks before a single brick is laid. By allowing students and professionals to simulate workflows digitally, the workshop addressed a pressing challenge: the reliance on manual methods that are often slow, error-prone, and costly.

During the workshop, participants experienced firsthand how BIM can:

- Reduce errors and rework, saving time and costs
- Encourage collaboration between professionals and disciplines
- Promote inclusivity, allowing female professionals and those less able to participate fully
- Align Nigerian construction practices with international standards

Participants valued the practical nature of the workshop and highlighted the importance of new BIM skills – for them and for their students. Eric Emeka Agu, a lecturer from the Institute of Management and Technology Enugu, summed it up, *“It’s the in thing. Let’s all embrace BIM for the future of our profession and for sustainable built environment.”*



Cascading learnings to future generations

The train-the-trainer model is key for capacity building in the Nigerian AECO sector – given it allows knowledge and skills to be rapidly and cost-effectively disseminated at a large scale, creating a sustainable, self-reliant training infrastructure.

Each participant from the workshop is expected to cascade their learning to colleagues in their institutions, creating a multiplying effect across Nigeria's TVET system.

After the workshop, many of the participants highlighted the importance of using their new knowledge and skills to help future generations of construction workers.

Helen Ebikari Ebini, a basic technology subject teacher from Government Girls Secondary school, Rumueme, Rivers State, says *“To teach the young learners and expose them about what they will meet in future if they decide or are interested in technology.”*

The initiative also highlighted the urgent need to establish Centres of Excellence or Innovation Labs in Nigerian universities to sustain BIM adoption and skills development. Future priorities include capacity building for educators and professionals, upgrading infrastructure to support digital technologies, and policy frameworks encouraging BIM integration across higher education and government-funded projects.

Through this transnational collaboration, DT4TVET demonstrates how digital technologies can transform construction education, making it more effective, inclusive, and aligned with the needs of modern industry.

For Nigeria, it is a step toward a workforce capable of meeting the demands of Construction 4.0, improving employability, and strengthening the country's competitiveness on a global stage.



Importance of BIM for AECO Industry in Nigeria

- BIM reduces the high reliance on manual methods of construction which is error prone and leads to rework.
- It encourages inclusion and diversity, presenting a better opportunity for gender balance in the construction industry where female professionals can effectively participate in projects.
- It has the potential to revolutionise how construction skilled workers operate and deliver projects since they can visualise their tasks before getting to the site.
- In Nigeria where the rate of collaboration among construction professionals is low, BIM allows professionals to interface with each other to ensure the project is delivered to the satisfaction of clients.



Gribs Integrated Services Ltd provides engineering, construction, and project management training and services in Nigeria. It is an Autodesk Learning Partner and a training center under the National Skills Qualifications Framework (NSQF) for the training of Artisans and Craftsmen under construction trades. It offers a wide range of courses, including project management, and construction safety, as well as practical skills training in areas like electrical installation, masonry, and pipefitting.



www.gribsintegratedservices.com
<https://www.linkedin.com/company/gribs-integrated-services-limited/>

Preparing for what comes tomorrow

The technologies and workflows used today in design, construction, and manufacturing are evolving rapidly. To remain relevant, BIM education must go beyond current practice and equip learners for a future shaped by automation, AI, robotics, digital twins, and sustainability-driven design.

Universities, technical schools, and vocational providers are under increasing pressure to prepare students for careers that don't yet exist. Early exposure to digital design helps learners develop the skills, confidence, and mindset required to navigate complex, technology-driven environments.

Partnership models between industry and education are central to this approach.

Providers within the Autodesk Learning Partner network collaborate with schools, universities and vocational institutions to integrate digital design into curricula, upskill educators, and align classroom learning with practical industry standards.

Through national skills competitions, university training programmes, and teacher development initiatives, these partnerships provide learners with authentic, hands-on experience while fostering interdisciplinary collaboration and project-based problem solving.

By combining structured industry engagement, applied learning, and forward-facing skills frameworks, these partnerships ensure that the BIM talent pipeline meets today's demands. But more than this, it is also embedded in the realities of what's happening in industry – and can be agile, adaptable, and ready to transfer opportunities and learnings.



The next case study is from South Africa, highlighting the importance of building bridges between industry and education. By embedding digital design and BIM principles into classrooms, initiatives are helping to equip the next generation with the practical skills, confidence, and mindset required to drive transformation across the built environment.

STORY 5

Bridging education and industry: building a BIM-ready generation in South Africa

South Africa's built environment is evolving rapidly, driven by the need for smarter, more efficient, and sustainable ways to design and construct.

Around the world, the AECO sector increasingly relies on BIM and other digital design technologies to improve efficiency, collaboration, and sustainability. Yet, adoption in South Africa remains limited. Barriers such as inconsistent standards, high costs, and a shortage of skilled professionals continue to slow progress.

The solution begins in the classroom.

By introducing learners to digital design early, Autodesk Learning Partner, Modena Design Centres, is helping bridge the gap between education and industry. It is equipping the next generation of engineers, designers, and technicians with the skills and confidence to thrive.

As Karin Smith, Group Marketing Manager at Modena puts it, *"Early engagement with digital tools like CAD and Revit allows learners to visualise, model and problem-solve in ways that mirror real industry environments. This not only accelerates their technical proficiency but also instils the mindset needed for effective participation in BIM processes."*

Through teacher training, student development, and university partnerships, Modena is helping to create a pipeline of talent ready to meet South Africa's evolving digital needs.

Policy alignment and focus

Modena's initiatives translate strategic and policy priorities into tangible outcomes. They're designed to complement South Africa's national digital skills agenda, such as the National Digital and Future Skills Strategy (2021-2025) and the Department of Basic Education's Digital Education Strategy.

This means the work in schools and universities is closely connected to priorities to build digital capability across all levels of education and training, and promote the integration of technology into classrooms while equipping both learners and teachers with essential 21st-century competencies.

Digital design education is where South Africa's BIM transformation begins. Skills in Engineering Graphics and Design (EGD) and Computer-Aided Design (CAD) provide a solid foundation for BIM competency.

Directly relevant to BIM workflows, they enable learners to:

- Model and visualise projects in 3D
- Collaborate effectively in shared digital environments
- Understand the value of data-driven decision-making

This approach not only enhances students' technical proficiency but also strengthens national readiness for digital construction and manufacturing environments.

Heather McDade, Director Modena Durban says, *"Our current focus is on mastering the fundamentals of design technology in education. That's where every transformation begins. By strengthening these skills now, we're preparing the ground for broader BIM adoption in the years ahead."*

Reaching schools and tertiary institutions

Working with secondary schools, technical schools and universities, activities focus on educator capacity-building, curriculum integration, and practical skills development. These programmes aim to develop technical proficiency while cultivating the digital literacy and problem-solving skills necessary for integrated BIM workflows.

Jo-Ann Steyn, Training Centre Manager at Modena emphasises, *“Training is about unlocking potential. It’s not just about software – it’s about showing educators and learners how technology can help them create and solve problems.”*

To ensure learners are prepared for digital design careers, Modena partners with a national network of technical schools to upskill teachers and integrate digital design concepts into curricula.

- Supporting educators through advanced training in 2D and 3D digital design tools
- Helping schools align classroom learning with practical industry standards
- Providing assessment models that measure readiness for digital and BIM workflows

Secondary school, Maranatha Christian School, offers a dedicated EGD centre with CAD workstations and 3D printers. Training is voluntary and often undertaken during school holidays, funded by students seeking Autodesk-

aligned certification. Since 2019, 80+ learners have completed AutoCAD Fundamentals courses delivered by Modena, enhancing academic achievement and career readiness.

Autodesk-certified training is offered to students at Durban University of Technology (DUT). The programme is having impact. In 2025 alone, 43 first-year students trained in AutoCAD Fundamentals, 31 second/third-year students trained in Revit Fundamentals, and 43 advanced students completed AutoCAD Advanced courses. DUT plans to expand these programmes across additional departments in 2026, demonstrating scalability and impact.

“Early exposure to CAD and Revit helped me understand design in 3D, not just on paper. I now feel ready to apply these skills in my future career,” DUT Interior Design Student.

National Skills Competition 2025

The 2025 competition, hosted in partnership with the Sasol Foundation, Kagiso Trust, the Department of Basic Education and the Department of Higher Education and Training, brought together nearly 300 learners, educators, and TVET students from all nine provinces.

With an ambition to encourage learners to pursue careers bridging design and construction, the event showcased disciplines central to South Africa’s future workforce, including EGD and CAD, alongside construction, manufacturing,

and electrical trades. Modena supported the digital design categories, ensuring competition tasks reflected industry standards and workflows using Autodesk tools. Participants developed:

- Design thinking and innovation
- Precision and technical skills
- Digital literacy essential for transitioning from 2D drafting to 3D modelling and BIM environments

“Your contribution played a pivotal role in delivering an event that not only celebrated technical excellence but also ignited hope, passion, and purpose among South Africa’s future artisans,” Sasol Foundation & Kagiso Trust



Laying the groundwork for South Africa's digital future

Karin Smith, Group Marketing Manager, says:

"Transformation begins with access – to technology, skills development and opportunities that connect education with industry realities. By combining practical exposure, accredited training and collaboration with educators and institutions, the next generation of designers, engineers and technicians is being equipped to lead South Africa's digital evolution."

"Our work in classrooms, workshops, and competitions lays the groundwork for a smarter, data-driven construction and manufacturing sector tomorrow. We see this as one where BIM isn't just a tool, but a way of thinking, collaborating, and building."

"True transformation is not just about technology, it's about people. When learners gain skills that open doors and educators feel equipped to guide them, we create hope and momentum."

The national curriculum review planned for 2026 is expected to introduce a formal digital component into technical subjects. Modena is supporting readiness for that transition by providing early access to design technology and training where infrastructure allows.

As South Africa continues to invest in digital transformation, such initiatives provide a framework which can be scaled – and offer a blueprint for other regions. They show how education and industry can work hand-in-hand to build a BIM-ready generation equipped for the challenges of tomorrow.

"Participating in the competition gave me the chance to test my school-based knowledge. It broadened my horizons of possible career opportunities and uplifted me mentally to push through the rest of my Grade 11 and 12 school years." Jean Potgieter, Hartbeespoort High School

"I was impressed by the quality of their sketches and the rigor of their design solutions. This event truly bridges classroom learning with industry expectations and career readiness," C. Hattingh, EGD Judge.



Fernandé Marx, an EGD Judge, *"Learners showed strong skills in both their sketches and design solutions. This competition is a powerful bridge between classroom theory and the future of work."*



Modena Design Centres is a South African Autodesk Platinum Partner and Authorised Training Centre with offices across major cities including Johannesburg, Cape Town and Durban. Modena helps educators, students and professionals adopt digital design technologies that connect learning with industry, supporting South Africa's transition to a smarter, more sustainable digital economy.



MODENA

<https://www.modena.co.za/>

Getting started with BIM: developing early careers

BIM is transforming how the built environment is designed, constructed, and managed. For many young professionals, it is also reshaping career pathways. For apprentices, college students, and recent graduates, early exposure to BIM can make the difference between a traditional role and a career that embraces innovation, collaboration, and digital workflows.

The first engagement with BIM can inspire and shape careers. Structured learning opportunities help those early in their careers gain confidence alongside competence. From hands-on experiences and immersive tools, to supportive mentors, peer collaboration, and access to industry-recognised certifications can help make “learning click”.

Vocational programmes, universities, and learning partners play a pivotal role in this journey. Effective initiatives combine technical instruction with opportunities to apply skills in real-world or simulated projects, helping learners understand not only how to use BIM software but also how to work collaboratively, communicate digitally, and contribute to integrated project delivery.

Access is critical. Offering opportunities – through scholarships, flexible learning models, or targeted outreach – will only strengthen the long-term health of the industry.

The WorldSkills Digital Construction Occupational Standard provides a useful benchmark for what early-career professionals need to know. Competitors in WorldSkills competitions are expected to interpret briefs, produce accurate structural and architectural models, and demonstrate attention to detail, quality assurance, problem-solving, time management, communication, and visualisation skills.

This and other early experiences shape career trajectories, giving young professionals the skills and confidence to participate fully in a digitally enabled AECO ecosystem. They highlight that behind every innovation is a person who needed a first chance to learn, experiment, and grow.



WorldSkills Digital Construction Occupational Standard¹⁸

Digital Construction is the process of creating, coordinating, and managing AEC digital assets across an entire project. WorldSkills competitions reflect the practical, hands-on skills required to succeed in real-world digital construction projects. Competitors work on a Digital Construction project information model and are expected to produce Structural and Architectural Models, applying ISO 19650-1 and 19650-2 BIM standards using:

- **Software:** Autodesk Revit, Autodesk Navisworks, Autodesk Construction Cloud
- **Core skills:** interpreting a brief, quality assurance, attention to detail, 3D modelling, time management, problem solving, communication and visualisation

These skills provide a practical benchmark for early-career professionals, ensuring they can contribute effectively to integrated project workflows and the digitally enabled AECO environment.

WorldSkills 2024 Digital Construction

<https://www.worldskills.org/what/projects/wsos/2024/events/579/skills/1714>



Our story from the UAE shows how capabilities translate into opportunities for young professionals entering a fast-growing, technology-driven market. It details how structured vocational programmes and industry partnerships can successfully introduce early-career professionals to BIM, equip them with relevant technical skills, and help them envision a pathway into a digital construction career.

STORY 6

Early careers in BIM: building digital capacity in the UAE

The UAE's construction market is one of the most dynamic in the world. Valued at around USD 42 billion in 2025 and set to grow steadily over the next five years, the market is underpinned by mega-projects, smart city strategies, and a national drive for sustainability¹⁹.

Digitalisation is key, with BIM embedded into government mandates and increasingly demanded by industry. There's an urgent demand for a workforce skilled in digital modelling, data integration, and collaborative design.

Opportunities for young people entering the sector are clearly expanding. Career options now go far beyond traditional civil engineering or architecture. BIM technicians, digital coordinators, sustainability analysts, project managers, and facilities specialists are all essential to project delivery.

However, employers struggle to recruit digital-ready graduates to fill such roles.

Bridging this gap is essential if the sector is to keep pace with growth – and in enabling the country to achieve its ambitions.



Inspiring the next generation

BIMelite, an Autodesk Learning Partner based in Dubai, is tackling this challenge head-on. Its mission is to inspire youth and early-career entrants by showing the real-world impact of BIM.

Investment in youth and early-career development is key to national competitiveness in the built environment. As such, training is closely aligned with UAE government priorities such as sustainability, digital transformation, and inclusivity.

Sai Krishna, founder and CEO of BIMelite says, *“Well-planned and well-executed skills development programmes are essential for players across the AEC ecosystem. Enthusiastic, talented young recruits bring new ways of thinking, innovation, and energy – but they need support to become work-ready.”*

“They need to develop and learn how to apply their BIM skills – without being overwhelmed by the intensity of the construction sector in this region.”

Workshops, guest lectures, and “taster” programmes expose students to BIM in practice. By showcasing iconic UAE and global projects, BIMelite brings to life the breadth of roles available – from digital coordination and project management to sustainability analysis and facility management. Through interactive technology demos – such as 3D visualisation and digital twin simulations – students see how digital construction shapes cities and drives sustainability.

Muhammed Aqeel, a BIM modeller/co-ordinator says, *“BIM opened my eyes to the bigger picture. I used to see myself mainly as a technical designer, but now I see how my work connects with construction,*

operations, and even facility management. There are so many paths in digital construction that I can grow into.”

Practical training courses, bootcamps and internships give learners hands-on exposure to industry workflows. A core feature is access to Autodesk technologies such as Revit, Navisworks, Civil 3D, InfraWorks and Autodesk Construction Cloud products. Students undertake project-based assignments simulating real-world challenges: clash detection, sustainability analysis and 4D/5D modelling.

Muhammed Zeeshan, a civil engineer transitioning into BIM, reflects, *“Learning BIM completely reshaped my career outlook in AEC, highlighting new opportunities in digital collaboration and efficiency. BIMelite gave me the practical training to be job-ready and confident in pursuing BIM roles.”*

Mentorship and apprenticeship opportunities add further support, helping learners build confidence and professional networks.

Training is aligned with global certification pathways, ensuring that graduates are job-ready not just for local opportunities, but also for the international marketplace.

Skilling to meet adoption in action

Uptake and adoption of BIM is growing across the Emirates. The Dubai Municipality BIM mandate requires its use on tall buildings and large-scale public projects.

Government strategies around smart cities and sustainability provide direction and create demand for skills. BIMelite aims to train and mentor hundreds of students annually, feeding a talent pipeline that can sustain the UAE's rapid pace of development. It works in collaboration to build the capacity to meet the needs of government strategies and targets – with universities to integrate BIM into curricula and host awareness sessions, and with employers to offer project data, case studies, and internships, ensuring that learning reflects current practice.

This model ensures alignment between education and industry, while supporting national ambitions for efficiency, innovation, and sustainability.

Sai Krishna says, *“By investing in BIM skills, individuals can open doors to exciting opportunities both locally and internationally. The demand for BIM-proficient talent is rapidly growing as governments and developers increasingly mandate BIM for infrastructure and building projects.”*

“At BIMelite, we are committed to supporting this evolution by providing high-quality, hands-on training guided by experienced professionals. Together, we can build a more efficient, sustainable, and digitally empowered construction industry – one skill at a time.”

Students report improved employability after gaining exposure to professional workflows, while employers note the value of graduates who are job-ready in BIM technologies. Documented success stories, case studies, and measurable outcomes – such as placements or productivity improvements – help build the case for further investment in early-career development.

The UAE's AECO sector is growing, and BIM is becoming the backbone of its delivery.

But without a strong pipeline of digitally skilled professionals, growth could be constrained. Early-career programmes are key in preparing a new generation for the digital construction era.

Previous learner, architect and interior designer, Hajira Parveen says to those starting out, *“Start with curiosity and patience. Understand the why behind every tool, not just the how. BIM is more than software – it's a mindset. Embrace it, and it will transform the way you design, collaborate, and see your projects come to life.”*



BIMelite is an Autodesk Learning Partner based in Dubai. It has an expert team of highly qualified BIM professionals who use cutting-edge technologies and processes to achieve the highest quality building information. BIMelite was an early entrant in the BIM & 3D modelling services segment in the UAE, India & Egypt. It aims to accelerate the engineering and construction sector transition to adopting and adapting BIM technologies in the modern built environment.



BIMelite <https://bimelite.ae/>

The evolving skillset: what firms need next

As firms adopt BIM – and then more advanced BIM workflows – the skills and knowledge they seek must evolve. Employer expectations shift as their digital adoption grows.

No longer is it sufficient for a new hire to simply “know Revit.” Firms are seeking BIM talent with capabilities that go beyond modelling – from data analytics and digital coordination to understanding standards, sustainability metrics, and cloud-based collaboration. They want professionals who combine technical proficiency with collaboration, communication and systems thinking.

The modern BIM professional needs fluency in relevant workflows, automation, common data environments, and cloud platforms.

Research suggests 73% of AECO professionals feel they need additional training to keep up with new construction technologies²⁰. Yet only around 30% of firms currently have formal upskilling programmes in place²⁰.

BIM adoption is accelerating, driven by country priorities and large-scale national projects. In many markets, government-backed infrastructure programmes are paired with new expectations for digital delivery – these are borne out in national plans. As a result, firms are looking for professionals who combine technical proficiency with collaboration, communication and systems thinking.

That’s where training providers – such as those in the Autodesk Learning Partner network – come into play. With expertise and deep sector experience, their training is designed to reflect real project needs rather than static curricula. It is agile and industry-aligned: instructors who work on live projects bring current insight into the classroom, and programmes adapt continually to market changes.

Skilling programmes are no longer one-time events, but part of a continuous process. From modular, practice-based learning to validation through certification and professional standards, they must address a multiplicity of needs — again and again.



As BIM adoption increases, the skills demanded by employers evolve. Our story from Kazakhstan talks about professionals adapting to more complex, data-rich and collaborative roles. It underscores how BIM learning never stops – skills must evolve as fast as technology does.



STORY 7

Building the future: BIM, training and evolving skills in Kazakhstan

Kazakhstan's architecture, engineering and construction (AECO) sector is undergoing transformation. A sector experiencing growth, both in production volume and employment – the latest data showed employment in construction had risen to more than 660,000²¹. Overall forecasts point to continued growth underpinned by public infrastructure spending and capital investment.

Government-backed infrastructure programmes, urban modernisation projects and significant foreign investment, are driving the industry to deliver more efficiently, sustainably, and collaboratively. However, there's a growing labour shortage across the sector – and the current unfilled roles are expected to double by 2030²².

BIM has a role to play in addressing the challenge – and in meeting evolving employer needs.

The government has signalled BIM adoption is a priority, particularly in state-funded projects. The growing use of international standards and digital processes is reshaping not only the way buildings and infrastructure are designed

but also how projects are managed and delivered. Across the country, large-scale developments such as transport hubs, energy facilities and new urban districts are central to national growth. For these, and the sector in general, BIM offers the promise of reduced costs, greater transparency, and improvements to long-term asset management.

Employers increasingly recognise technical proficiency alone is not enough; success in a BIM-enabled environment requires collaboration, communication, and the ability to think systemically.

Line Practic LLP, an Autodesk Learning Partner based in Kazakhstan, is working in partnership with employers to meet this emerging skills landscape.

From siloed disciplines to integrated teams

In the recent past, most architects and engineers worked in relative isolation, focusing on their own discipline. Today, demand for BIM skills – and associated need for collaboration – has grown.

For architects, proficiency in Autodesk Revit has become a baseline requirement. At the same time, the emergence of professional BIM managers – and the structured BIM teams they lead – marks a fundamental shift in how projects are delivered. Employers are now looking not only for technical expertise, but also for the ability to collaborate effectively across disciplines.

Leadership and adaptability help BIM managers drive organisational change. Clear communication ensures that project teams stay aligned. The ability to work in coordinated teams, following agreed standards, realises value from digital tools.

“Communication has improved in quality,” says Dinara Aitbayeva from Line Practic, “Whereas in the past it was often dominated by disputes, today it is characterised by structured interaction, common standards, and a clearer understanding of the purpose behind each change.”

In practice, this means that engineers are involved at earlier stages of the design process, project managers are working with real-time data, and contractors are better aligned with design teams. BIM has changed not just how documentation is produced, but how entire projects unfold.



Training for a changing market

Line Practic's training model leverages industry experience. All instructors are practicing professionals who continue to work on live projects whilst also training. This helps to ensure course content reflects the latest market demands, rather than static curricula.

“Our training is being constantly adapted. Each new programme launch takes into account the latest changes in the market. We structure the training in a way that ensures learners develop the skills needed to be fully prepared for real work as soon as they complete the course.”

Feedback from customers on training suggest the approach is landing well – analysis of the evaluations from 230 customers in the current year show an overall experience rating of 89.46%¹².

Practical experience is critical for anyone in a BIM-enabled workplace. Integrating into a coordinated BIM team takes time, as it requires not only technical skills but also a shared understanding of processes and standards.

BIM management requires a grasp of organisational processes that can only come from hands-on experience within a company. Early exposure accelerates readiness but must be complemented by ongoing professional development.

Certification: a standard for quality

Industry-recognised certifications, such as Autodesk credentials, are playing an important role in Kazakhstan's talent ecosystem. While certification cannot fully capture someone's practical abilities, it gives employers confidence in core competencies.

It also validates the quality of instruction: if a course is certified, learners know their instructors' skills have been assessed and endorsed at the highest level. For learners, this provides not only a career advantage but also access to answers and insights grounded in real project experience. As Dinara puts it: *“In real life, theory does not always work the way it is written in textbooks.”*



Advice for employers: get ahead of the market

For firms navigating this evolving landscape, the message is clear.

“Don't wait until a new technology is fully adopted by the government and used everywhere – if you do, you will probably be too late. Look at the risks, find the benefits and cost-effectiveness for your own company, and use those new technologies as a competitive advantage.”



Line Practic LLP is an Autodesk Learning Partner based in Astana, Kazakhstan. Established in 2006, it has extensive experience of developing and delivering practice-led training programmes which equip professionals with the skills needed to succeed in an evolving AECO landscape. As well as offering a range of training programmes, Line Practic regularly offers free webinars on topical issues affecting the sector.



<https://www.l-p.kz/>

Skilling to meet the infrastructure challenge

Infrastructure is no longer just about roads, bridges, or energy grids. It's about the systems, processes and digital tools that make these assets resilient, efficient, and futureready.

Globally, meeting the infrastructure challenge is monumental. According to McKinsey & Company, about US\$106 trillion of investment will be required between now and 2040 across seven critical verticals including transport, energy and power and waste and water²³.

What this means for organisations working in sectors such as construction, engineering and infrastructure is significant. Technical competence remains essential, but more is needed.

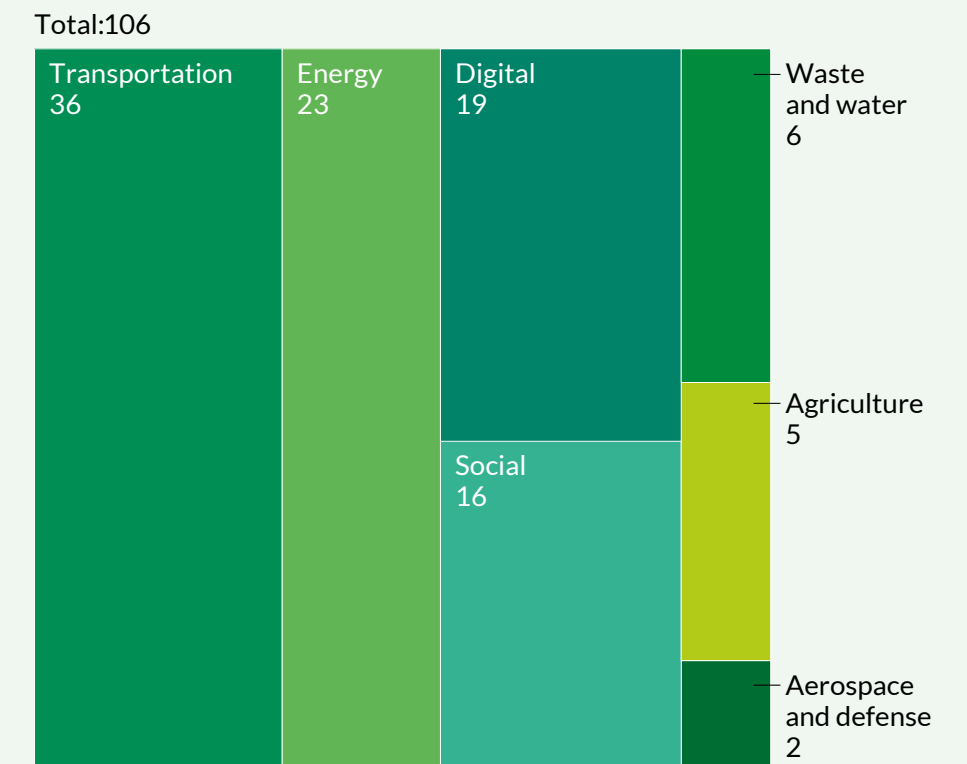
But labour shortages are causing substantial delays and cost increases among infrastructure projects, during both construction and operations²³.

The ecosystem requires a workforce that is digitally enabled, capable of crossdiscipline coordination and comfortable collaborating across complex, layered systems of physical and information flows. As digital tools become standard on infrastructure programmes, the people who use them must also think differently – they need to integrate information, collaborate across teams, and deliver long-term value. Organisations need to build and sustain institutional capability: embedding digital readiness, collaborative workflows, and adaptive learning into their DNA.

Training and upskilling are key. There's a need to develop people who can manage not just the designandbuild phase, but the full lifecycle of assets: from conceptual design, through construction, to longterm operations and maintenance.

Cumulative infrastructure investment is expected to reach as high as \$106 trillion by 2040.²³

Total infrastructure investment projected through 2040, by sector, \$ trillion



Note: Figures do not sum, because of rounding.
Source: Food and Agriculture Organization; Global Infrastructure Hub; International Energy Agency; International Monetary Fund; Organisation for Economic Co-operation and Development; Preqin; United Nations; World Bank; World Economic Forum; McKinsey



The following story illustrates this shift. Kenya's infrastructure ambitions are being matched, in part, by investment in human capability. Training providers, government agencies and industry are working together; and the next generation of infrastructure professionals are being prepared to plan, build, and manage smarter.

STORY 8

Building Kenya's future: BIM training and infrastructure skills development

Kenya is at a pivotal moment in its development journey. The government's ambitions for affordable housing, improved transport, expanded energy access and resilient water systems are driving unprecedented levels of infrastructure investment. Yet delivering projects at this scale and complexity demands more than just capital and machinery: it requires new ways of working, collaboration across disciplines, and digital tools that extend the life and value of assets.

BIM is increasingly recognised as a crucial enabler of this transformation. Although the government in Kenya has not yet mandated BIM usage, multilateral banks and international organisations funding projects in the country require its use on projects. This requirement drives demand for skills, knowledge, and leadership to embed BIM into everyday practice.

At the forefront of this shift is ADCC, an Autodesk Learning Partner dedicated to training engineers, consultants, and government agencies in BIM methodologies. By combining technical instruction with an emphasis on collaboration, project management, and long-term asset operation, ADCC is equipping Kenya's infrastructure workforce with the capabilities needed to meet national priorities.

Training for impact

ADCC has developed a suite of infrastructure-focused training programmes, delivered to both government and private sector clients. Using Autodesk technologies such as Civil 3D, InfraWorks, Revit and AutoCAD, participants learn how to move seamlessly from conceptual design to detailed design within a single collaborative environment.

In 2025 alone, ADCC has trained more than 75 engineers, many of whom are part of design teams working on roads, water, and energy projects. These engineers are being prepared to act as BIM champions within their organisations, building momentum and confidence in new ways of working.

Importantly, ADCC's programmes go beyond software proficiency. Sessions address interoperability with other platforms, cloud-based collaboration, and the management of projects within a common data environment. This ensures that learners not only use the tools effectively but also understand how BIM supports efficiency and transparency across the project lifecycle.

To nurture the next generation, ADCC offers discounted training for students and is working with universities to assemble larger cohorts – helping to build capacity and capability for the future. Senior managers and decision-makers, meanwhile, are engaged through targeted webinars that demonstrate the strategic benefits of BIM adoption.



Why BIM matters for Kenya's infrastructure

For Kenya's ambitious infrastructure plans, BIM delivers value at multiple levels:

- Design consultants benefit from powerful collaboration features, clash detection, and AI-driven analysis.
- Project managers gain from automated scheduling and coordinated teamwork in a shared digital environment.
- Owners and operators retain design models and data that inform long-term asset maintenance and management, reducing costly errors.

BIM also plays a key role in managing relationships with key stakeholders. Communities can interact with models in their local environment, helping to secure public approval — often a requirement for funders such as the World Bank or IMF.

As ADCC puts it: "BIM is a crucial tool for projects before, during and after construction. BIM models also help win community approval for projects as they can interact with the proposed models in their environment and see the changes of the environment being proposed."

"After construction, it ensures that the facility management team has full visibility of the design process and decisions made, reducing rework and improving operational efficiency."

Challenges to adoption

Despite the clear benefits, barriers remain. Without government standards or a clear mandate, adoption is left to individual organisations.

ADCC believes that government has a key role to play. By compensating contractors for the cost of BIM tools (just as they are paid for mobilising machinery) and introducing BIM requirements on publicly funded projects, Kenya could accelerate progress. Publishing national BIM standards would provide consistency and confidence across the industry.

Partnering for progress

ADCC works closely with government agencies, contractors, consultants, and universities to build a critical mass of skilled professionals. This collaboration is already paying dividends.

Eng. Joseph Otira, Senior Engineer at the Kenya Rural Roads Authority (KeRRA) says: *"Our partnership with ADCC has given us access to approved instructors, allowing us to identify training requirements quickly. Our team has gained essential skills in managing design data, drafting, modelling, and road design presentation."*

"The benefits are clear: easier collaboration, faster project delivery within timelines, and cost savings. BIM allows us to accurately quantify requirements for infrastructure works."

Learners also praise the programmes for their interactivity, practicality, and relevance: *"The trainer's wealth of knowledge and the interactive nature of the programme were excellent. I can now carry out more detailed road designs, especially at intersections and junctions, and present outputs more clearly. BIM increases overall productivity and helps save significant project costs."*

Looking ahead

Kenya's infrastructure future depends on building more and building smarter. As early-career engineers trained in BIM enter the workforce and today's BIM-literate designers move into management positions, the implementation of BIM will be the industry default.

To aid this, there's a need to prepare the workforce, champion digital skills, and ensure that BIM is not just a tool but a mindset embedded in how Kenya designs, delivers and manages its vital infrastructure.

As Vikas Tonge, Director at ADCC says: *"Just as we invest heavily in machinery, we must also prioritise effective project management. BIM technologies deliver significant cost savings and efficiency throughout the project lifecycle, and therefore they deserve proper attention and strategic investment."*



ADCC International East Africa is an Autodesk Learning Partner based in Nairobi, Kenya. It is a specialist in BIM and the infrastructure market, training and preparing architects and engineers to capitalise upon BIM technology. Working in partnership with universities, government departments and commercial organisations, it also offers architectural and engineering design services and solutions, topographic mapping, GIS, photogrammetry and electrical distribution surveys.



<https://adcciea.com/>

Sustainability, growth and the skills imperative

Rapid urbanisation, population growth, and rising economic activity are driving unprecedented demand for housing, infrastructure, and commercial developments worldwide.

At the same time, climate change, resource scarcity, and international sustainability commitments are placing new pressures on the construction, engineering, and infrastructure sectors. Globally, buildings and construction account for nearly 40% of energy-related carbon emissions and 36% of final energy use, according to the International Energy Agency²⁴.

Governments, funders, and clients increasingly expect projects to deliver not only on time and on budget but also in a sustainable and resource-efficient way.

BIM is becoming a key enabler, allowing architects, engineers, and contractors to coordinate designs, optimise resources, reduce errors, and evaluate sustainability outcomes.

From a skills perspective, professionals need the ability to integrate digital tools, data-driven workflows, and sustainable design strategies into complex projects. BIM skills are essential for delivering projects that balance efficiency, cost, and environmental impact.

Yet, skills gaps persist, particularly in emerging economies and regions undergoing rapid development, where traditional workflows may dominate and digital adoption is still growing.

Training programmes that develop these capabilities not only equip individuals to advance their careers but also support national objectives for energy efficiency, low-carbon construction, and resilient urban growth.



The buildings sector accounts for over one-third of global energy consumption and emissions²⁵.



The next story from Jordan is about meeting the demands of a rapidly changing sector which requires a focus on practical skills, digital workflows, and sustainability awareness. Professionals who can combine technical expertise with an understanding of environmental performance will be essential to shaping the next generation of buildings and infrastructure – not just in Jordan, but across the region and globally.

STORY 9

Addressing Jordan's sustainability and growth ambitions with BIM skills

Growing populations, urban expansion, and increasing focus on green building practices, means the ability to deliver smarter, more sustainable projects is essential.

In Jordan, and across the wider region, there's demand for professionals who can deliver projects that are not only efficient but sustainable. From hospitals to housing developments and smart cities, complex projects increasingly require digital workflows that support energy efficiency, resource optimisation, and low-carbon outcomes.

Jordan-based Archizone Academy, an Autodesk Authorized Training Center (ATC®), is helping meet these needs by equipping learners with BIM skills which help them stay relevant in a changing market. Training programmes are designed to enable learners to coordinate designs, reduce errors, and improve project sustainability, while also advancing their careers. ATC®

One learner, transitioning from AutoCAD to Revit, reflected on the impact of training: *"The Revit training at Archizone significantly enhanced my skills in 3D modelling, coordination, and project documentation. It allowed me to work more efficiently with my team, reduce errors during the design and construction phases, and contribute to completing projects on time. Overall, the training has made a noticeable difference in the quality and speed of my work."*

Enabling achievement of sustainability goals

Jordan's national energy efficiency targets, low-carbon initiatives, and donor and funder requirements for green building standards mean that projects increasingly rely on BIM workflows to optimise performance.

Clients and funders are increasingly valuing sustainability outcomes in their project requirements. There is a growing preference for energy-efficient designs, green building certifications, and life-cycle carbon assessment. Sustainability considerations are often linked to financing, operational cost reduction, and corporate social responsibility goals.

Sustainability-focused concepts are integrated within training programs. Learners practice using BIM workflows to evaluate building performance, optimise design solutions, and support sustainability goals in real projects. Employer workshops and pilot exercises demonstrate how BIM can contribute to measurable sustainability benefits, such as improved energy efficiency and resource management.

Addressing digital skills gaps

With an estimated there are around 187,000 registered engineers in Jordan, professionals across the are looking to combine career growth with contributions to sustainable, high-performance projects.

However, skills and knowledge gaps linger – most notably practical BIM competencies such as federation, data handover, 4D/5D planning and digital collaboration. Employers are looking for advanced scheduling and sustainability analysis skills.

Training is not just about acquiring software proficiency, it is about enabling careers, allowing professionals to take on more responsibility and contribute to increasingly complex projects. Programmes are designed to ensure learners can meet current project needs as well as building capabilities that will define the next decade of AECO in Jordan.

Mohannad Zahran from Archizone said: *“Our training programmes are designed not only to teach software but also to transform the way professionals think and work. They have an impact on careers.”*

“A BIM technician who completed the Revit and BIM Management track progressed to a BIM coordinator role within nine months, while a contractor team applied 4D sequencing to reduce rework and accelerate project milestones.”

Archizone integrates practical training with real-world experience to strengthen professional skills. Its collaborations include agreements with Al al-Bayt University and the Applied Science University, training programs for the Ministry of Public Works and Housing, and courses delivered through international organisations such as USAID.

Learners experience practical, project-based applications of BIM, preparing them to contribute immediately to live projects such as the Tafila Hospital Project in Jordan, a 500-bed healthcare facility serving the southern region.

Mohannad said: *“Our learners applied their BIM skills in architectural, structural, and MEP coordination, clash detection, and quantity take-offs. This helped improve collaboration, accuracy, and efficiency throughout the project.”*

Always looking forward

Although not yet mandated, the use of BIM in Jordan is increasing – adoption is largely voluntary and project-driven. Some large consultants or government-funded projects request BIM deliverables, but currently there isn't a national decree requiring BIM for all public projects.

Given the fast-moving nature of the sector in Jordan and beyond, training needs to anticipate and prepare for emerging industry trends and employer needs – for those working across the AECO ecosystem (architects, junior designers, site engineers and coordinators, BIM technicians, BIM managers, contractors' coordination staff).

An industry advisory board of local professionals provides guidance to align training with real project needs. Monitoring of technology trends and feedback loops also contribute to curriculum and course content development.

As Jordan continues to grow its infrastructure, housing, and smart city projects, it needs professionals skilled in BIM, committed to sustainability and advancing their careers. Professionals who have the skills to deliver smarter, greener, and more efficient buildings.



Prediction: essential skills for AECO professionals in Jordan

- **Advanced BIM modelling** for efficient project design, coordination, and management.
- **4D/5D planning and cost management** to analyse project schedules, costs, detect clashes, and simulate construction sequencing.
- **Parametric and generative design** for creating flexible and sustainable design solutions.
- **Energy and sustainability analysis** to assess building performance and reduce resource consumption.
- **Digital collaboration and cloud-based project management** to facilitate teamwork across multidisciplinary teams.



Archizone Academy is an Autodesk Learning Partner is based in Amman, Jordan. Established in 2012, it develops and delivers training programmes to professionals across the AECO ecosystem. It integrates practical training with real-world experience to strengthen professional skills, and works collaboratively with agreements with universities as well as government and international organisations.

Bridging the gender gap in the construction sector

Around the world – and, in particular, across much of the Middle East and Africa – women remain significantly under-represented in the AECO sector.

While women make up nearly half of the global workforce, they account for only 9.5% of the construction workforce worldwide²⁶. In Kenya, that figure is 3%²⁷ and South Africa around 10%²⁸, highlighting significant imbalance.

Persistent barriers continue to limit women's participation: restricted access to technical and digital training, lack of role models and mentorship, and enduring perceptions that construction is a "male profession."

As we explore in this report, the AECO industry is transforming. BIM and other digital tools are creating new opportunities for women to participate in design, coordination, and data-driven project delivery. These are roles which are less dependent on physical labour and more on creativity, collaboration, and problem-solving. As governments across embed digital construction into infrastructure and transformation plans, the demand for BIM-capable talent is growing rapidly.

There are signs of change. In Kenya, women represent a third of students in two public universities offering different industry courses, including architecture, real estate, planning, construction management, quantity surveying, and interior design²⁹. And in South Africa, nine out of 11 architects who worked on Leonardo – Africa's tallest building – were women, in a country where only one in five architects are women³⁰.

Across the Autodesk Learning Partner network we're seeing targeted initiatives to support women into the sector. They're helping women to see that construction is a career choice they can make – and to understand what it means to work in a sector going through significant modernisation and change. They aim to bridge the gap between education and industry expectations while advancing national or regional goals for technical skills development, and sector transformation.

There's a clear economic imperative for opening-up and preparing women to work in the sector through access to digital construction skills. As the construction sector across EMEAR continues to digitalise, building women's capabilities in BIM and related technologies will be key to meeting workforce demands, fostering innovation, and driving sustainable infrastructure development across the region.



Our next story comes from Kenya – it describes how a programme provides young women from technical institutions with practical BIM training, certification, and work experience. It demonstrates how opportunity and digital tools can open pathways for women and other underrepresented groups in construction.

STORY 10

Building female skills and aspirations in the Kenyan AECO market

Across Kenya's AECO sector, women are under-represented and have fewer employment opportunities. Access to training is often limited – and there's a lack of visible female role models and mentors.

One initiative is bridging these gaps.

The Build4Skills programme has successfully equipped young women from Kenyan TVET institutions with industry-relevant digital skills. The programme, designed by Authorized Learning Partner, HiCAD Africa, is delivered in partnership with Autodesk and GIZ (Deutsche Gesellschaft für Internationale Zusammenarbeit).

HiCAD identified a significant gap between current educational practices and AECO sector's growing demand for advanced technical skills, especially in design and drafting software. The training provider recognised the importance of equipping students and educators with tools and

training that are directly aligned with industry standards.

By combining practical training in Autodesk Revit and Civil 3D, with certification and work experience, the programme bridges the gap between traditional education and the evolving demands of the construction and engineering industries. The initiative aligns with Kenya's national priorities for technical skills development in the AECO sector, supporting Vision 2030 by enhancing infrastructure development and ensuring that technical training meets industry demands³¹.



Ruchika Gajjar from HiCAD said: *“The Build4Skills programme has been transformative in equipping young women with critical digital skills for the AEC industry. By integrating practical training with industry-standard software and real-world experience, we are not only preparing students for the workforce but also upskilling TVET trainers to ensure sustainable knowledge transfer.*

“This initiative is creating a new generation of highly skilled professionals—both men and women—who are ready to meet industry demands and drive innovation in the sector.”

Programme overview

Over the course of eight weeks, 20 talented female students from Kiambu Institute, Thika Technical Institute, and Nairobi Technical Institute underwent intensive training by HiCAD in digital design tools. These students, specialising in civil engineering, architecture, electrical engineering, and mechanical engineering, were given hands-on exposure to Autodesk software. They learnt about the role such software plays in BIM.

Seeking to empower young women in a traditionally male-dominated field, the programme is designed to enhance their technical proficiency, equipping them with skills to compete in the job market. The participants, aged between 19 and 25, were selected through a rigorous process based on academic performance, passion for the AECO industry, and their commitment to intensive training.

Marion, a Revit Mechanical student commented: *“The training program was an incredible opportunity. I loved the comprehensive approach that combined both theoretical learning and hands-on practical experience.*

“The instructor was highly knowledgeable and supportive, creating an environment that fostered growth and curiosity. The collaborative nature of the program gave me insight on a part of my career that I never knew existed of which I am grateful for.”

Participating students were universally motivated and recognised the importance of the skills developed through the programme:

“Before this programme, I had never heard of Revit, let alone used it. Now, I can confidently create 3D models and collaborate in BIM environments,” Sheila, Revit Architecture student

“I used to think AutoCAD was the only design software in the world. Now, I feel like I’ve unlocked engineering superpowers!” Ogeto, Revit Electrical student

Collaboration with industry

Following the training aspect of the programme, the students completed industrial placements, gaining real-world experience at top firms across the industry. These four-week placements were hosted by organisations including National Housing Corporation, Norkun Intakes, Triad Architects, Esteel Construction Ltd, DLR Group Africa, Kiri Consult and Emplan Ltd.

Participating companies highlighted their commitment to supporting young professionals and integrating digital tools into industry workflows. Organisations acting as work experience hosts were impressed with the students’ dedication and skills.

Emplan Ltd commented: *“Part of our mission to drive transformative change in the building services sector across East Africa, we are committed to fostering innovation and nurturing future talent. And having a long-standing relationship with Hi-CAD offered us the opportunity to support the young women during their attachment training.*

“We aim to empower the next generation of engineers while promoting diversity and inclusion within the industry. This initiative not only supports the development of critical skills but also reflects our dedication to shaping a sustainable, innovative future. We believe in setting higher standards in MEP services and are excited to collaborate with Hi-CAD to create lasting value for both our region and the engineering community even in the future.”

Several students have since been retained by their host companies, securing jobs in the AECO industry. Two have also joined the HiCAD Africa team, where they mentor other TVET students and support ongoing BIM training initiatives. HiCAD Africa continues to connect graduates with job opportunities and strengthen mentorship in TVET institutions.

Leaders from the participating TVET institutions recognise Build4Skills for addressing the gap in practical, industry-relevant training for women. Industry partners who hosted the students for professional attachments noted that many graduates lack the technical skills required in today’s job market – their feedback reaffirmed the value of initiatives like Build4Skills in better preparing students for industry demands.



Women in construction – some facts:

- Women constitute only 9.5% of the global construction workforce²⁶.
- Women account for just 3% of the workforce in Kenya’s construction industry, which was worth more than CAD20 billion in 2023²⁷.
- Gender pay gaps still exist in the digital construction sector. Men are paid more for the same job than their female counterparts³².



HiCAD Africa is an Autodesk Authorized Training Center based in Nairobi, Kenya. It specialises in BIM Consultancy, focused on empowering AECO companies through innovative Building Information Modelling (BIM) solutions. It is dedicated to empowering professionals and students with the skills and knowledge they need to excel in their careers, providing hands-on, practical experience with industry-leading software tools which are led by certified instructors.



<https://hacad.co.ke/>

Closing the gap between talent and technology

The conversation around BIM has shifted: adoption is no longer a question of *if*, but *how quickly* organisations can build the skills to make it work in practice. Increasingly governments are mandating digital delivery and standards, yet firms consistently report that the shortage of people with the right digital skills is the single largest barrier to progress³³.

The opportunities are equally clear. Early-career professionals entering the workforce expect digitally-connected workflows and collaborative tools as standard. Employers, meanwhile, are looking to BIM to improve efficiency, drive sustainability, and increase project resilience. However, the talent gap remains significant: two-thirds of leaders struggle to find the technical skills they need¹.

Practical, hands-on training is central to bridging this gap. Programmes that combine project-based learning, certification, and exposure to real-world workflows – such as training from Autodesk Learning Partners, skills competitions, and TVET partnerships – allow learners to build confidence, competence, and industry relevance.

These initiatives equip students and professionals with BIM software expertise and with critical skills in collaboration, data literacy, and problem-solving, which are essential in modern digital construction environments.

Certification plays a key role in validating skills, supporting employability, and signalling workforce readiness to employers. Employee certifications provide benefits

beyond the individual level; they positively impact organisations. Certified staff can enhance overall workforce expertise and productivity, helping companies meet business and customer needs more efficiently and gain a competitive edge³⁴.

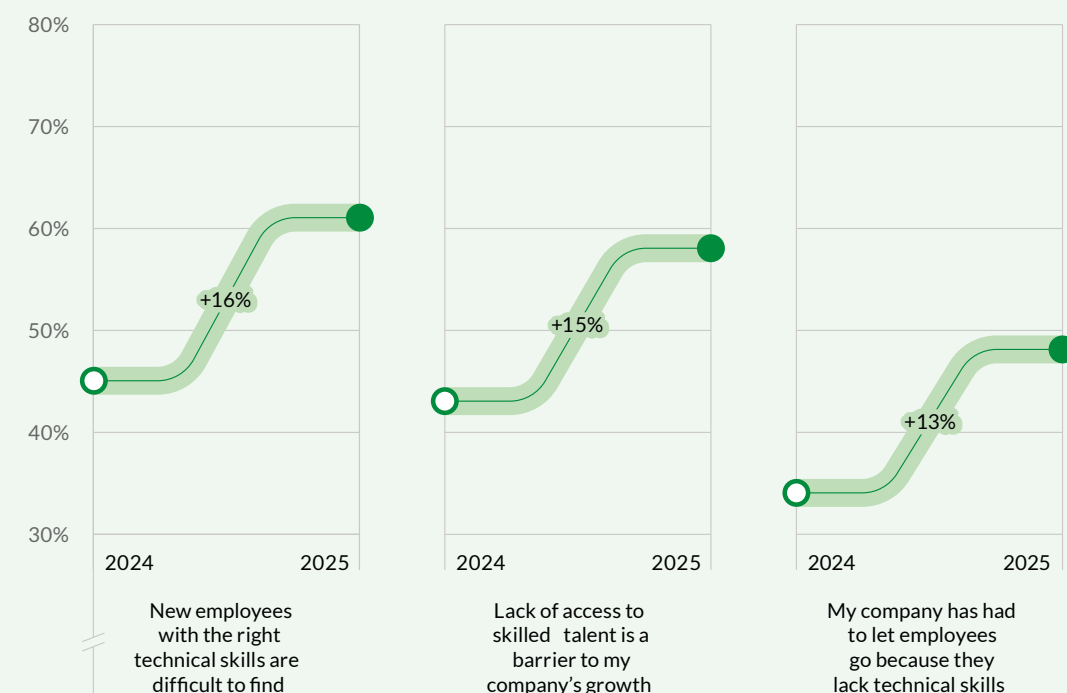
By aligning training with real project workflows, integrating continuous upskilling strategies, and fostering collaboration between industry, educational institutions, and training providers, the AECO workforce will be prepared to meet the demands of a digital, data-driven construction sector.

In regions where the demand for BIM-capable talent far outstrips supply, investing in integrated training and certification is not a cost, but a strategic enabler. And, Autodesk Learning Partners stand ready to address the need for skilled talent.

Such an investment helps to close skills gaps, strengthen workforce resilience and unlock the full potential of digital construction. The value is in doing so is that projects can be delivered more efficiently, collaboratively, and sustainably.

Nearly two-thirds of organizations are confronting a skills gap¹

36% year-over-year increase in leaders who say they struggle to find candidates with the right technical skills



AECO respondents. Percentage of respondents who agree to statements: 1. New employees with the right technical skills are difficult to find. 2. My company has had to let employees go because they lack technical skills. 3. Lack of access to skilled talent is a barrier to my company's growth. 4. The workforce is rapidly aging. 5. My company is implementing a continuous learning program to mitigate the shortage of skilled workers. 5 point scale. Top two = agree.



Building capability in the digital construction era goes beyond product training, it requires a coordinated approach that combines practical learning, continuous upskilling, and recognised certification. And, at its heart should be instructors who combine sector knowledge, product mastery, and the ability to engage and educate. So, to round out our stories, we focus on training and certification – and hear from Autodesk and KnowledgePoint.

STORY 11

Skills, training and education in the age of digital construction

Across the region, the conversation around BIM is no longer about if it will be adopted, but how quickly organisations can build the skills to make it work in practice. Governments and stakeholders are increasingly adopting standards and mandating digital delivery, yet firms consistently report that a shortage of people with the right digital skills is the most significant barrier to progress.

The opportunities are clear. Young professionals entering the industry expect digital tools and collaborative ways of working as standard, while employers are seeking to use BIM not only to improve efficiency but also to deliver on sustainability goals and project resilience. This places training and education at the heart of the BIM agenda.

In the following conversation, Astrid Øie of Autodesk and Tomas Karlsson of KnowledgePoint explore the realities of building BIM skills, the gaps that must be addressed, and the partnerships needed to unlock the full potential of digital construction.

Astrid Øie, Autodesk: Technology doesn't have to be a barrier to BIM adoption – those who tackle the complexities of digital transformation are reaping the rewards of their efforts. However, talent remains a perennial problem, with 27% of AECO organisations experiencing a skills gap, and the majority saying lack of skilled talent is hindering growth¹. The potential of BIM is immense, but unlocking it requires a workforce that is both confident and capable.

Tomas Karlsson, KnowledgePoint: Our experience echoes this. Across the Middle East and Africa, our learning partners talk about how there's significant focus by governments and alike on closing skills gaps and opening-up opportunities in the AECO sector. They also highlight broader challenges relating to infrastructure – such as limited connectivity and unreliable electricity supplies – and accessing technology, which have a knock-on impact on adoption and upskilling.



Astrid: The gap between technology and skills needed to apply it fully, poses significant risks for projects and for industry competitiveness. The search for skilled talent is especially difficult – in our State of Design & Make report in 2025, nearly two-thirds of leaders say they struggle to find the skills they need. Moreover, the talent crunch is being exacerbated by the growing number of organisations that are letting people go because they lack the right technical skills. Autodesk is committed to addressing this issue through development initiatives and comprehensive training.

Tomas: We're seeing an emerging trend among early-career professionals (those who've grown up in a digital world). They expect digitally-connected workflows like BIM to be standard in their roles, yet they often lack practical experience and exposure to – or insights from – real-life projects during education. Employers need graduates who can contribute immediately, which makes practical training critical.

We shouldn't overlook lifelong learning – for a couple of reasons. BIM is not static, new developments are emerging all the time – cloud workflows, AI and digital twins and the like. We're also seeing a cultural shift – roles are changing and traditional work practices are being replaced. Organisations must adopt continuous upskilling strategies, or risk widening knowledge gaps with each new wave of technology.

Astrid: Hands-on learning is crucial. It allows learners to practice collaboration, project workflows and data-driven decision-making in a controlled environment – building confidence and competence. Initiatives like WorldSkills and its Digital Construction skill competition are a great example¹⁸. These programs offer valuable real-world experience and exposure to industry standards such as BIM workflows and collaborative problem-solving. These competitions help bridge the gap between academic learning and real-world application, demonstrating to both learners and employers the tangible value of skills development.

Tomas: This exposure to practical challenges at an early stage in their careers helps them to understand the impact of their work on project delivery, while reinforcing the need for continuous learning as BIM tools and processes evolve. Across our region, we see examples of this practical support happening day-in, day-out. Our learning partners are offering young people the opportunity to not only develop their skills, but also build relationships with potential employers – setting them up for success in the future job market. Often this happens in collaboration with universities and TVET institutions – critical for building capacity and resilience at a national level.

Astrid: The opportunity is clear: narrowing the skills gap unlocks BIM's full potential and equips the next generation to deliver projects more efficiently, collaboratively, and sustainably. Companies that invest in integrated training approaches are not only improving project outcomes but are also building resilience into their workforce.

Tomas: BIM demands collaboration, data literacy and critical thinking – these are all competencies that cannot be developed through one-off training courses. The reality is BIM training shouldn't be treated as a cost centre, but as a strategic investment in capacity, resilience and capability. This mindset shift is essential if the sector is to keep pace with change, particularly in regions where the demand for people with BIM skills far outstrips supply.

Astrid: Collaboration is key for this sector. The most effective outcomes emerge when industry, training providers, educational institutions and companies like ours work together. By aligning curricula with real project workflows, we ensure training is current, relevant and immediately applicable. Train-the-trainer initiatives are proven to boost capacity and capability. Training by industry-experts alongside certification offers immediate value.

When leaders across the AECO sector consistently express difficulty finding the skills they need, it reinforces the need for a co-ordinated approach to education, training and development.

Tomas: In my experience, that alignment benefits learners too – whatever stage they are in their career. When training is directly linked to business objectives – such as smoother handovers, stronger collaboration, or better sustainability outcomes – engagement rises. Delivery data from our learning partners reflects this – learners, and their employers, are more satisfied when they see a direct link between the training and impact of those new skills in the workplace.



Astrid D. Øie, Sr Autodesk Learning Partner Manager, is leading the Autodesk Authorized Training Center Channel in EMEA. The channel is key in upskilling and training the current- and future workforce.

Tomas Karlsson is the head of channel services at KnowledgePoint. This means he oversees the management of outsourced extended enterprise learning programmes, recruiting and supporting global network of training providers on behalf of organisations, including Autodesk.

Certification: validating capability

In the digital construction era – with BIM, asset data, connectivity, and AI converging – the demand for certified professionals will continue to rise. In fact, Pearson VUE data tells us “skilling” is the top reason for pursuing certification (43% of respondents)³⁵.

Certification acts as a credible, thirdparty signal that an individual has mastered not only platform or tool but also the collaborative, datadriven workflows underpinning modern project delivery.

Embedding certification pathways into training programmes adds clear value for students, learners, and their employers

– across the AECO ecosystem. Ensuring the learning includes realworld workflows, industry best practices, and aligned evaluation ensures the certification is meaningful.

For AECO organisations in the EMEAR region and beyond, building a certified talent pipeline is a key competitive differentiator.



Benefits of certification

81% of managers

say that certified employees produce higher quality work³⁶

72% of managers

believe that certification helps to significantly improve overall productivity³⁶

72% of managers

feel that IT certification significantly increases employee work efficiency (i.e., completing tasks in less time)³⁶

Turning BIM Realities into action

The future of BIM depends on people. As technologies evolve, so too must our approaches to learning. Through collaboration between Autodesk, its Learning Partners, and the wider AECO community, we can accelerate the digital transformation of the sector and create opportunities for more inclusive, future-ready growth.

The stories shared in BIM Realities demonstrate what's possible when technology meets capability – when governments, employers and training partners work together to make digital practice the norm.

The next step is to act on what these stories show: invest in people, align policy and practice, and build systems that make digital capability the default.



For employers: lead the digital shift

- **Make digital skills strategic.** Treat BIM and data capability as critical infrastructure, essential for competitiveness, resilience, and innovation.
- **Embed training and certification.** Build structured learning, apprenticeships, and certification into live projects with partners and professional bodies.
- **Embrace new talent.** Open opportunities through collaboration, work experience, and early-career pathways to bring fresh perspectives into digital teams.

For policymakers and public agencies: create the conditions for success

- **Pair mandates with capability.** Combine BIM requirements with training, standards, and clear guidance to ensure effective adoption.
- **Lead by example.** Use public projects to set best-practice standards and drive demand for skilled professionals.
- **Link education to industry.** Align curricula with real-world BIM practice and scale proven training models like apprenticeships and train-the-trainer schemes.



About the Autodesk Learning Partner Program

With Autodesk courses and certifications, businesses can gain the knowledge and skills needed to create high-quality building and infrastructure designs. Students can develop the skills they need to build productive careers in the AECO sector.

Autodesk Learning Partners stand out as knowledge leaders. They are organisations or businesses with enhanced Autodesk solutions expertise and verified, effective teaching techniques. They are authorised, trained, and supported by Autodesk to empower you to learn and stand out in your field, ready to pursue new job opportunities and career advancement.

Autodesk Authorized Training Centers (ATC®) empower future innovators in an ever-evolving world by delivering high quality learning experiences to customers, industry professionals, students, and educators. ATCs work with organisations to evaluate business needs and adapt their training to workflow and processes. ATCs offer delivery options from classroom to instructor-led virtual training to ensure that your team gain the required skills in a way that minimises business interruption.

Autodesk Authorized Academic Partners (AAP) support Autodesk education initiatives and focus on preparing educators to inspire and empower the next generation of innovators to prepare for the industries of the future. AAPs can offer comprehensive services that combine training with access to Autodesk software and curriculum resources. They embed Autodesk professional certification within their courses, and frequently support and recognise students by rolling out projects, competitions, and extra-curricular training activities.

Autodesk Certified Instructors (ACI) are trusted, credentialed professionals who are recognised for their Autodesk solutions and product mastery, professional training delivery, and advanced instructional skills. ACIs are vetted by Autodesk and affiliated with Autodesk Learning Partners. Their mission is to empower learners, enabling them to adapt in an ever-changing world.

<https://autodesk.com/partners/learning>



About Knowledgepoint

KnowledgePoint adds value to learning organisations by delivering a range of learning support services. From learning materials fulfilled in both print and digital to administrative services and global training network management, we make life easier for our learning industry partners.

Our customers are training and learning organisations and teams; they design, create, and deliver learning programmes. We work in partnership with them, providing practical solutions which support these efforts. In doing so, we make a real difference to them and their learners. We help them achieve positive learning experiences and outcomes, boost customer and learner satisfaction, and realise cost and resource efficiencies.

As the Autodesk Learning Partner Distributor for the EMEAR territory, we manage the training partner network including recruiting, revenue management, and providing ongoing support and enablement to academic, training and learning partners.

<https://knowledgepoint.com/autodesk/>



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Appendix: BIM mandates and adoption



MIDDLE EAST & AFRICA

Ethiopia - No mandate. New standards adopted in 2023, building on the standards used in Hong Kong.

Egypt - No mandate. The Egyptian government has not published guiding documents or standards.

Jordan - No mandate. BIM adoption is largely voluntary and project-driven. Some larger consultants or government-funded projects may request BIM deliverables.

Kenya - No mandate. Some major public and private projects are voluntarily requesting BIM.

Morocco - No mandate. The government is working towards a gradual mandatory adoption strategy. Adoption is growing, BIM is being used on some mega-projects. The Moroccan Institute for Standardization has developed standards based on ISO 19650.

Nigeria - No mandate. No clear standards or collaborative digital practices for the AEC industry.

Qatar - A Government/Industry BIM programme was initiated in July 2011 to promote the adoption of BIM across public and private sectors. The country's Public Works Authority (Ashghal) developed its own BIM standards and protocols

Saudi Arabia - No mandate. BIM is becoming standard on large-scale/giga projects and for permit applications, with the goal of aligning the industry with the country's Vision 2030 goals and global standards.

South Africa - No mandate. No consistent use of standards. Adoption is driven by the private sector and individual companies.

Tunisia - No mandate. Due to the lack of a national standard, companies often adopt international standards, like ISO 19650.

Türkiye - Mandatory for large-scale public infrastructure and transportation projects, enforced by the Ministry of Transport and Infrastructure.

United Arab Emirates - Mandatory in Dubai for large or complex projects since January 2024. Abu Dhabi and other parts of the UAE also have a focus on BIM adoption.

ASIA

China - No mandate. Adoption encouraged by the government.

Hong Kong - Mandatory for all construction works for the government's public works projects. This mandate, effective from April 1, 2025, requires BIM models as part of tender information, and BIM has become an integrated, contractual process, not just a deliverable, for public works projects.

Japan - No mandate. Increasing adoption led by government bodies such as the Ministry of Land, Infrastructure, Transport and Tourism (MLIT)

Kazakhstan - No mandate. There is a government-backed initiative to gradually adopt BIM, starting with government projects and developing standards, regulations, and

training programs. A 2017 roadmap and the approval of the BIM "Concept" set the strategic direction for this digital transformation in the construction sector

Singapore - Since 2025 BIM has been mandatory for new building projects with a Gross Floor Area (GFA) of 5,000 sqm or more. Submissions must comply with the openBIM standard.

South Korea - Mandatory for all public construction projects exceeding a certain threshold, with the government progressively expanding the scope and setting goals for full digital construction implementation by 2030. The mandate began with public projects worth over KRW 50 billion (approximately \$50 million USD) from 2016 and is supported by national BIM guidelines, libraries, and integration with smart construction initiatives.

AUSTRALIA/NEW ZEALAND

Australia - No national mandate. Some states and territories, like Queensland and NSW, have implemented BIM for large government projects through initiatives like the Digital Engineering framework.

New Zealand - No mandate. Adoption is increasing, with clients starting to request ISO 19650-compliant individuals and deliverables, and the government encouraging digital transformation in the construction sector.

EUROPE

Austria - Mandatory for budget control in the construction of public buildings since 2018 and for tenders and public works contracts since 2020. Austria has its own advanced BIM standards: ÖNORM A 6241-2 (covering all BIM levels including 3), developed by the Austrian Standards Institute and published in 2015.

Belgium - No mandate

Croatia - No national mandate. BIM incorporated into the ePlanovi platform for planning documents in 2025.

Czech Republic - Mandated for large public construction projects. The government's Digital Czechia Strategy includes a specific BIM Strategy.

Denmark - Mandated for most public sector construction projects, having been the first country to do so in 2007 for larger projects and progressively implementing it for regional, municipal, and social housing projects since 2011. The mandate requires the use of BIM and the Industry Foundation Classes (IFC) standard for digital models.

Finland - Since 2007 on Senate Properties BIM has been a requirement for IFC compliance. Government bodies and the RAVA3Pro project require it for building permits and public projects.

France - The government, through initiatives like the Plan Transition Numérique dans le Bâtiment (PNTB), actively promotes BIM for large public and infrastructure projects. A roadmap was released in 2017 to encourage standardization and integration of BIM into construction workflows, with the ultimate aim of full implementation by 2025.

Germany - Mandatory for public contracts related to the building of federal infrastructure projects since 1 Jan 2021, and this obligation was later extended to buildings commissioned by the national government from the end of 2022.

Greece - No mandate. A national BIM Strategy is in place to promote its gradual implementation in public construction projects and foster digital transformation in the sector.

Italy - BIM phased mandate since 2019, required for public projects over €1M by 2025.

Netherlands - No nationwide mandate. Government authorities such as Rijkswaterstaat and educational institutions require its use on their projects. The Dutch government supports BIM adoption through the BIM Locket, a platform promoting open BIM standards and knowledge sharing.

Norway - Since 2010, the Norwegian Directorate of Public Construction and Property (Statsbygg) has required BIM use in all its public projects. Committed to Open BIM and uses its own BIM manual, SIMBA, to specify requirements for digital submissions.

Poland - Phased BIM adoption on public procurement projects by 2030.

Portugal - Decree has mandated its integration into municipal procedures by January 5, 2026, and the government aims for full national implementation by 2030

Spain - BIM mandatory for public projects over €2M since 2018, with growing regional adoption.

Sweden - High BIM adoption, guided by industry standards. Individual government bodies, such as the Swedish Transport Administration (Trafikverket), have established their own BIM strategies and requirements for their infrastructure projects, like roads, rails and bridges.

Switzerland - No mandate. The ISO 19650 standard has been adopted for managing construction information and a framework for designing BIM processes.

United Kingdom - Mandatory since 2016 for public procurement projects using UK BIM Framework (based on ISO 19650)

THE AMERICAS

Brazil - Phased mandate for federal works since 2021, full integration in public projects by 2028.

Canada - No national mandate. Some provinces and federal initiatives may require BIM for specific public infrastructure projects.

Chile - The Chilean government has been working towards making it mandatory for all centrally procured public infrastructure projects since 2020 through its PlanBIM initiative. While regulations to fully mandate BIM have not yet been issued, the government has adopted a standard, aligned with ISO 19650

Mexico - No mandate. Government initiatives through the Ministry of Finance and Public Credit promote BIM in the construction industry.

Peru - Obligatory for government projects since 2022.

United States - No nationwide mandate, some state level requirements (e.g., Wisconsin mandates for public projects over \$5M). Federal agencies like the General Services Administration (GSA), the Department of Defense, and the U.S. Army Corps of Engineers are incorporating BIM into their projects

