

SKILLS FOR COMPETITIVENESS

**From evidence-based priorities to
action.**

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From priorities to actioning cooperation in 6 months



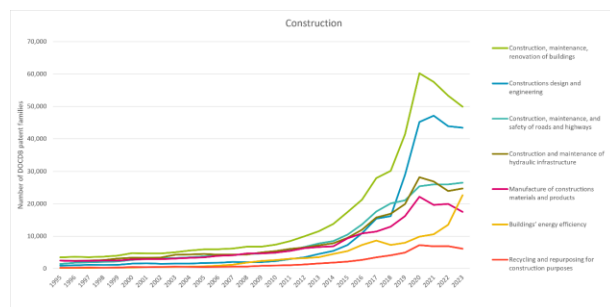
NB Stakeholder consultations (3 rounds per sub/sector) are embedded across the framework to keep the analysis aligned with sector realities and national priorities. Minimum 50% must be from domestic SMEs. VET providers lack capacity to contribute.

A three-dimension framework links technologies to skills

The analysis translates global technology signals into sub/sector-specific adoption capacity and workforce implications relevant for the economy - with consultations informing every stage.

01 Innovation dynamics

Worldwide patent evidence (+4.4. million patents for 3 sectors) identifies major technology trends and potential disruptors.



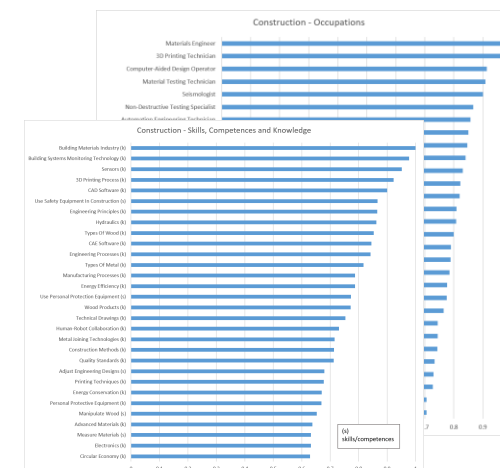
02 Adoption readiness

National capabilities, institutions, regulation and industry practice are assessed on a four-level readiness scale. Focus on locally relevant technologies.

| Technological and Innovation Concepts | Global Score | Readiness Score |
|---|--------------|-----------------|
| Raw Materials | 1.000 | ooo |
| Sensorized Instruments | 0.756 | |
| Modular and Prefabricated Constructions | 0.599 | o |
| Robotics & Automation | 0.588 | |
| Anti-seismic technologies | 0.556 | o |
| Smart PPEs & Exoskeleton | 0.525 | |
| 3D printing & Additive Manufacturing | 0.523 | |
| Non-destructive testing (NDT) | 0.517 | |
| Route planning | 0.506 | |
| Digital Twin | 0.493 | |
| Smart Building & Infrastructure | 0.488 | o |

03 Skills implications

ESCO-based semantic matching links priority technologies to skills, competences and occupational profiles – for locally relevant technologies.



Example

The construction sector in Montenegro is shifting toward digital project delivery, sensing and smart building systems.

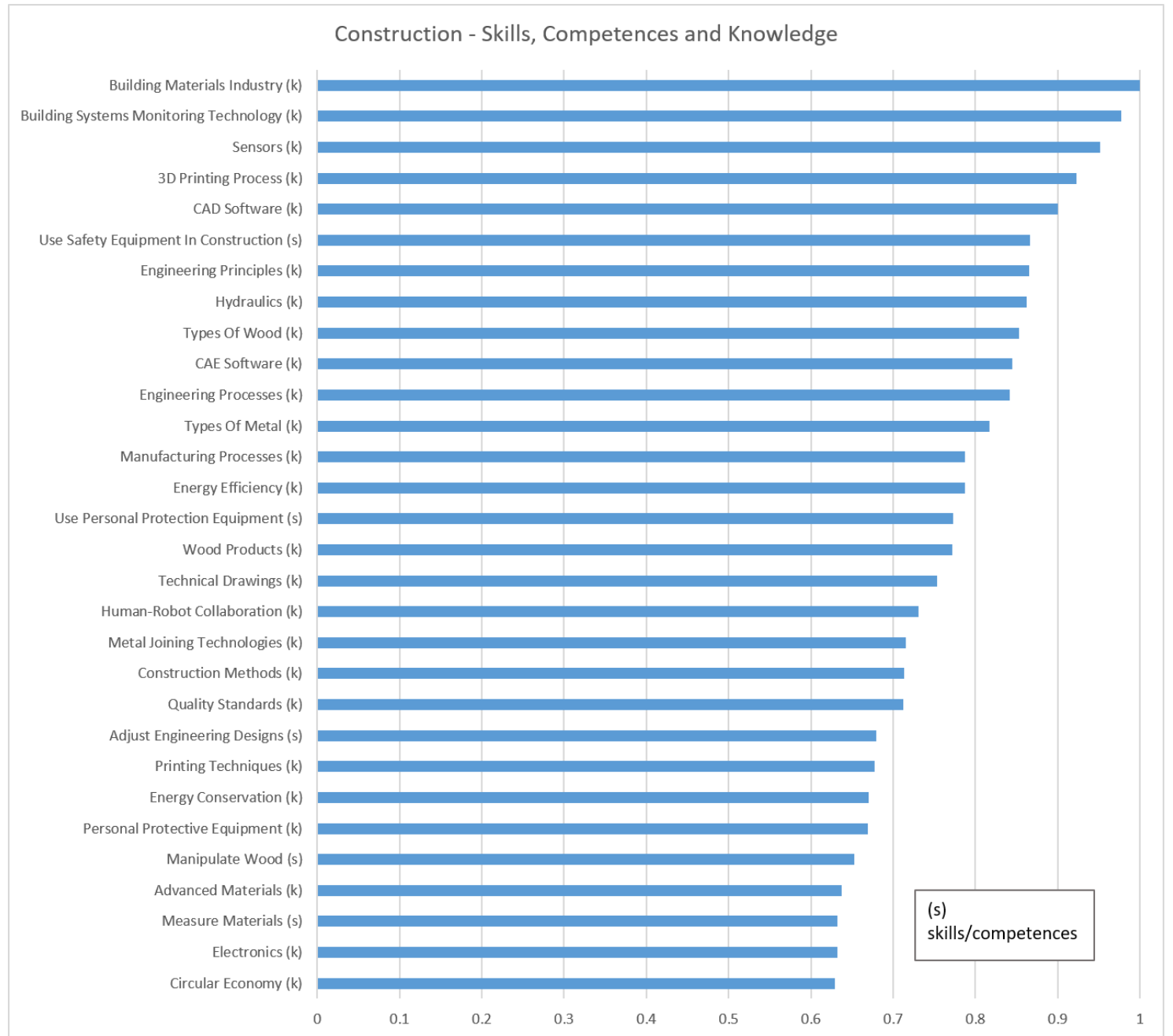
- The identified technologies in each sub-sector were ranked using a **Global Score** that combines patent volume, growth rate and the strategic relevance of the corresponding subsectors.
- **High-scoring technologies** represent widely researched innovations with rapid growth driven by significant R&D investment and are therefore most likely to achieve widespread adoption and shape future skills demand.
- **Lower-scoring technologies** (below 0.5) are early-stage innovations with longer-term potential.
- Locally relevant technologies are selected for skills analysis.

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Example cont'd

Construction needs hybrid profiles, not only more workers.

- Practical and job-ready skills are weak; exposure to modern equipment, digital tools and work-based learning is limited.
- Operational digital competences are insufficient for BIM, digital workflows, model maintenance and monitoring devices.
- Smart building system skills remain fragmented across installation, commissioning, operation and maintenance.
- Accreditation and programme adaptation are too slow for rapid technology change in a small labour market.



Example cont'd

Identifying top 3 high-impact technology-skills pairings (all AI-powered)

- The reports do not call for broad technology bets, but a short list of deployable pairings where skills investment can directly unlock productivity and competitiveness.

| Technology | Associated skills |
|---|---|
| Digital design and modelling tools (CAD, Digital Twin, BIM) | Skills in digital design and modelling, BIM-based workflows, construction standards and technical documentation management Engineers and managers need stronger modelling and workflow competences, while technicians require practical skills in drafting, data entry, digital workflows, and model maintenance. |
| Monitoring and sensing technologies (sensors, NDT, drones, computer vision systems) | Skills in inspection and monitoring technologies, safety procedures, and quality control across construction processes Demand will grow for technicians trained in operating sensing equipment, conducting structured inspections, and managing digital safety routines. |
| Energy efficient and smart building systems (BMS/BAS and advanced energy management solutions) | Skills in installation, operation, and maintenance of energy-efficient and smart building systems across the building lifecycle. Installers and maintenance technicians need updated competences in smart system integration, digital controls, and modern retrofitting techniques. |

Priority actions across the 3 sectors require the whole skills ecosystem

Each report translates technology–skill pairings into roles for VET, higher education, adult learning and business support organisations.

VET providers

Make priority technologies core curriculum content; expand work-based and equipment-based learning.

Higher education

Strengthen applied laboratories, interdisciplinary modules and industry-linked projects.

Adult learning

Scale certified short courses, micro-credentials and fast-track requalification.

BSOs & employers

Provide advisory support, shared access to equipment and company-level skills diagnostics.

The recommended sequence is consistent: focus the technology agenda, translate it into job-ready skills/competences, and use flexible provision to close gaps faster than formal curriculum cycles allow.



Selected publications

- [Critical raw materials: Why skills matter | ETF](#) – version 2.0 upcoming in fall 2026
- [Skills for Smart Specialisation in Montenegro - Energy and Sustainable Environment' priority domain | ETF](#)
- [Skills for Smart Specialisation in Montenegro - Construction' priority domain | ETF](#)
- [Skills for Smart Specialisation in Montenegro - Sustainable Agriculture and Food Value Chain' priority domain | ETF](#)
- [Skilling up the Western Balkans agri-food sector: digitalising, greening | ETF](#)
- [Skills for smart specialisation - Rivne, Ukraine: Summary report | ETF](#)
- [Skills for smart specialisation in Moldova: Understanding and managing skills as a key resource for growth and competitiveness | ETF](#)
- [Skills for smart specialisation in Montenegro: Understanding and managing skills as a key resource for growth and competitiveness | ETF](#)