From competence development to global recognition

NDT Personnel Certification in the NDE 4.0 era

Why personnel certification matters

Is a certificate evidence of competence or evidence of compliance?

Safety-critical industries

Regulatory compliance

Workforce mobility

Competence assurance

GLOBAL TRENDS SHAPING NDT CERTIFICATION

- Independent Third-party certification
- Competency-based assessment
- Digital credential verification
- NDE 4.0 and AI integration
- Global harmonization
- Workforce mobility and skills shortages

GLOBAL ACI Mutual Recognition Arrangement (MRA)

- Level 1 ISO/IEC 17011:2017 Requirements for Accreditation Bodies - NAB
- Level 2 Certification of Persons
- Level 3 ISO/IEC 17024:2026 Requirements for Bodies Certifying Persons
  - Personnel Certification Body (PCB)
  - ISO 9712:2021 Scheme Qualification and Certification of NDT Personnel
    - Level 1, 2 and 3 NDT Personnel
- International Recognition: ICNDT MRA Schedule 2 Recognition
  - ICNDT Membership
  - ICNDT MRA 1 Signatory – National NDT Society
  - ICNDT MRA 2 Registration – PCB : OP 19 and / or OP 20

  (Where applicable and approved)

Why the MRA matters?

- International recognition
- Reduced duplicate exams
- Mobility
- Market access
- Confidence

Is ISO 9712 still fit for purpose?

- **Strengths** Global acceptance; proven framework and independent certification
- **Challenges** NDE 4.0; AI assisted inspection; digital examinations; Competence vs training hours and global consistency

NDT Personnel Competency Roadmap for NDE 4.0

Today	Future		
Method Knowledge	Digital Competence		AI Awareness
Equipment Operation	Data Interpretation		Data Science
Defect Detection	Predictive Assessment	+	Automation
Procedure Compliance	Decision Support		Robotics
Manual Reporting	Digital Analytics		Cybersecurity
Inspector	Integrity Specialist		Digital Twins

Building competence

Education → Training → Experience → Certification → Authorization

Knowledge	Practical Skills	Experience
NDT Principles	Equipment use	Workplace exposure
Materials	Calibration	Real defects
Codes & Standards	Inspection	Product sectors
Safety	Evaluation	Industrial sectors
	Reporting	Problem solving

BUT certification alone does not equal competence therefore the following is also required

COMPETENCY-BASED QUALIFICATION

Judgement

Decision making; risk assessment; technique selection and recognition of limitations

Professional Behaviour

Integrity; ethics; safety culture; communication and responsibility

Certified NDT Professional

Future Certification Model

- Digital credentials
- Remote assessment
- Competency portfolios
- AI-assisted inspections
- Continuous competence monitoring
- International recognition frameworks

What should ISO 9712:2030 look like?

CONCLUSION

The future of NDT certification lies in globally harmonized, competency-based and independently verified systems. Through ISO 9712, ISO/IEC 17024, accreditation and mutual recognition frameworks, the industry is strengthening confidence in competence while supporting workforce mobility, safety and asset integrity worldwide.

QUESTIONS & DISCUSSION

Questions for the Industry

- Are training hours still a valid measure of competence?
- How should AI impact certification?
- Should ISO 9712 become fully competency-based?
- What barriers remain to global recognition?
- What level of knowledge is required by a level 3.