ICNDT

The World Organisation for NDT

ICNDT – ECNDT

Joint Workshop on Certification of Personnel 2026 - Report

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This is the report on a Joint ICNDT – ECNDT Certification Workshop held in Verona at the 14th ECNDT June 2026.

Introduction

A joint ECNDT – ICNDT workshop, entitled ICNDT Certification Workshop, was held during the 14th ECNDT conference held in Verona Italy. It was a well-attended workshop with nine presentations offered. Unfortunately, there was only sufficient time for seven presentations. This report attaches all 9 presentations.

The papers presented were: Harold Jansen, Past Chair ICEC, "Personnel Certification in the NDE 4.0 era", (presented by Colin Bird, ICEC Secretary); Patrick Boulton, PCN Certification Engineer, "Collaborative Pathways in NDT Certification, how BINDT and international partners shape the future of competence and standards"; Sajeesh K Babu Chair of ICNDT, NDTSS – SGNDT, "Digital Transformation of ISO 9712 Certification, Development of an End-to End Certification Management System by NDTSS"; Bento Alves, President FSEND and Chair ICNDT WG1, "The Future of Certification: Quality Skills and Safety"; David Bajula vice-chair of ASNT CMC and Chair of ISO TC 135 TAG, "Unspoken Consequences"; Mike Farley Past Chair ICNDT and Colin Bird, ICEC Secretary, "Legally Defensible Best Practice in NDT"; Glen Tubrett, CINDE, "The Future of Certification, Innovation for Better Growth". Additional papers: Etienne Martin, President of COFREND, ISO 9712," From the common basis to specific applications - A vision for qualification and certification of NDT personnel". Dr James Watson, BINDT Council member "New ISO 9712 ET Certification Structure for a Modern World –Including ISO 9712 Eddy Current Array Training & Certification".

This report summarises the presented papers and suggests some conclusions. There is a link to the ICNDT website where all the presentations can be found.

Paper Summaries

Personnel Certification in the NDE 4.0 era

Colin Bird presented a paper on behalf of Harold Jansen considering the challenges of NDT certification in the 4.0 era. The paper emphasised the need for certification to ISO 9712 and 17024 by certification bodies recognised by GACI and the ICNDT MRA. He emphasised that the standards require that the certificated personnel require job and equipment specific training before the technician is fully qualified for the specific tasks they are being used for. This job specific training should be to a depth which enables full understanding of the techniques and equipment in the digital era. The candidate should also be trained in the knowledge of how to use AI generated results safely. i.e. A technician needs sufficient training and authority to question AI generated results and override where necessary.

Collaborative Pathways in NDT Certification: How BINDT and International Partners Shape the Future of Competence and Standards

Patrick Boulton's paper emphasised the importance of international collaboration including common international standards, peer collaboration, harmonised practices (He mentioned that BINDT makes good use of the ICNDT MRA) and continuous improvement. Together using all these foundations, you can achieve global recognition together with public and industry confidence.

He emphasised that the details within ISO 25107 and ISO 25108 must not be forgotten with respect to ISO 9712.

The important overall goal is that we need to generate competent technicians.

We also need to encourage children and young engineers to take up NDT as a career pathway. He challenged the room with a question "How do we interest young people?". He further questioned "How do we educate in this digital era?". We need to use digital data as a training aid. It provides a relatively efficient and fast way to create numerous examples of defect situations which would be prohibitively expensive and time consuming to physically manufacture. He recommended use be made of the UK CAA Report CAP 1933 "Guidance on Web-based learning for aerospace" which covers use of synthetic training devices and requirements on use of AI.

Digital Transformation of ISO 9712 Certification: Development of an End-to End Certification Management System by NDTSS

Sajeesh K Babu presented the fully digitised certification scheme created by NDTSS. He showed that every step of the certification process has been digitised including training records, experience, examination marking, re-certification and experience and finally certificate awards. He showed that the technicians could examine their own records to see whether they have sufficient experience/training for the specific technique. They could see when their re-certification was due and the progress of any examination including the examination score.

He noted that 96% of the NDT technicians certified in Singapore are foreign increasing the difficulty of tracking records and experience.

He showed the efficiency of the system for both the NDT technician and the PCB and said it could be made available to other PCBs.

The Future of Certification: Quality Skills and Safety

Bento Alves' presentation concentrated on two basic points; critical issues regarding ISO 9712 and the results of ignoring the quality chain leading to catastrophic failures.

He then briefly introduced the work of WG1.

Bento Alves identified the first critical issue as the shortage of NDT technicians causing a supply bottleneck. As an example, there are 300,000 unfilled welding positions across Europe with a 15% shortage of inspection personnel. It is estimated that 30% to 40% of Europe's senior technicians are within 5 to 10 years of retirement creating a critical risk for inspection of critical infrastructure.

The presentation also emphasised the situation already introduced by Patrick Boulton; few people go into the NDT profession through a standard career path.

He noted that there were two workshops on certification in ECNDT 2026, but he asked, who is the target audience? Surely it needs to be End users, but they are not present at the conference? It was noted that in this workshop there was only 1 end user and that person was an NDT professional.

He noted that certifications bodies must be shown to be accredited to ISO 9702 and ISO17024 by accreditation bodies which are recognised internationally, (now by GACI). He said that there had previously been a Guide for the use of Accreditation bodies audits of NDT PCBs and asked if this could be updated/republished.

Bento Alves asked the question," Can a large inspection company with divisions which cover training and certification as well as NDT service delivery? "Certify its own employee's and claim this complies with ISO9712.

A further question was asked: does ISO 9712 specify the qualifications of the trainer? The answer is No. This needs to be tightened.

A further question was raised; Is 50% self-training acceptable leading to ineffective Metacognition? (Overestimating mastery and merely remembering examination facts rather than truly understanding). He also asked, "how can EFNDT member societies prevent this type of unacceptable behaviour? We must use Independent National Accreditation Bodies accredited by GACI and ICNDT.

He concluded with three strong statements;

a) Most rule violations occur when training and examination takes place outside of both the accreditation bodies and the PCBs home country. (This being backed up by the experience of ICNDT – ICEC).

b) Accreditation bodies should conduct audits in the locations and countries where the certification is undertaken.

c) It is the responsibility of EFNDT and ICNDT to raise the awareness of poor practices and lobby for improvement.

Unspoken Consequences

David Badjula presented a powerful paper which continued from the previous themes where NDT failures have led to structural failures and loss of life. These failures were caused by poor NDT performance and lack of ethics. He asks the questions: Do we learn from law suits? and is there a question of Certification v Competency?

He demonstrated that just because there is digital data which captures everything it does not mean that the technician has controlled the software to a level to identify the defects.

He then presented a number of cases of structural failure in large constructions where the NDT should have identified defects but did not. He also presented a number of cases where there was deliberate fraud in duplicating radiographic images. It is noted this does not need to be confined to radiography and is probably just as easy to create fraudulent ultrasonic data. He noted that these types of fraud can be detected by software checks.

He noted that fraud and incompetency was a general global disease which is growing due to our flawed

certification system, loss of ethics and pathos plus logos (persuasion) – Nietzsche. i.e. technicians and NDT companies being leaned on to come up with the correct answer.

David Badjula claimed that in general 50% of Level III's are administrators and not competent/not proficient on the tools. He criticised Level III's over-riding Level II's and assuming final authority on results. L3's are not regularly practically tested. He asked if we should subdivide Level 2 into collect, assess and sentence. Or create a level 2.1 for defect sentencing.

Importance of Certification Harmonisation

Mike Farley presented a joint paper by himself and Colin Bird emphasising the need for legally defensible certification of NDT technicians.

The paper commenced with examples of structural failures leading to loss of life and public court cases which could well have been the result of failures to use NDT properly He also presented two cases where Colin Bird had personal insight which did not reach the public domain which cost industry >€100M. Failures to properly use NDT and failures in its implementation have led to loss of life and prosecutions for professional negligence. Some of these failures (but not all) are consequences of inadequately trained and certified personnel.

Legally defensible best practice requires:

a) Full certification (ISO9712) from an accredited certification body (ISO 17024) which has been recognised by the ICNDT MRA.
b) Job specific training and examination provided by the employer of the technician in the specific requirements of the techniques on the plant or simulated plant.

c) **Due consideration of** human factors to reduce pressure and to come up with the correct result. The paper included the results of research to find out what AI would answer if asked the question "What is legally defensible best practice in NDT certification". The answers strongly aligned with the authors' recommendations.

The Future of Certification: Innovation for Better Growth

Glen Tubrett delivered a powerful presentation clearly identifying a problem with standardisation. i.e. Standardisation is a race to the bottom. The greater the scope the standard attempts to deliver the less specific the standard becomes. The more people and organisations a standard have to satisfy, the more the tendency to present the lowest standard and not the best standard in order for the standard to be internationally accepted.

This situation encourages industries and end users to add on their own certification and training not because they do not want harmonisation but because they need something that harmonisation does not provide.

However more, harmonisation to common standards does encourage free trade and a common minimum standard.

In Canada, the nuclear industry has attempted to change this situation. Historically it took 6 years to publish a Canadian supply standard. Now it has been reduced to a 6 month process by communicating the value of the standard to their supply chain.

Discussion

A lively and thoughtful discussion was held with respect to all the points highlighted in the presentations. This summary report tries to highlight the discussions in the form of the outstanding points.

Etienne Martin pointed out that many of the issues raised with respect to technician competency arise due to a lack of basic knowledge in the NDT techniques and called for a raise in the standard of teaching of the NDT basics. He also stated that more emphasis should be placed upon individual technique qualification.

Nobody disagreed with the level of education required and Patric Boulton and others noted that they have started running basic education courses for potential technicians to raise their ability in numeracy and IT ability.

Colin Bird noted that he had been used as a consultant to try to raise the education NDT level of technicians above the standard level II and Level III so that they can deliver real techniques competently.

It was noted that some industries now were requiring psychometric examination of technicians to try to evaluate whether they will deliver the appropriate quality of inspection when the technicians are not being closely observed or examined. i.e. Have they sufficient ethics. i.e. We are humans and most humans try to follow the easiest path to satisfy their observed need.

A further question was if the NDT community does not improve the situation, noting the growing numbers of serious accidents then governments will step in making the situation slower and reducing innovation.

It was suggested that ICNDT should publish prosecutions for incompetent NDT on their web site to highlight consequences to plant owners and NDT technician employers.

Colin Bird stated that there are now many systems on sale using machine learning and AI to analyse NDT data. However more they all come with the requirement for the NDT technician to make the final decision on the data analysis. He then asked whether a technician will ever overwrite a data analysis recommendation created by AI. To do that the technician requires education to the same level if not higher than the AI system they are using. This emphasised that technicians need further education beyond the standard levels for advanced and complex systems.

Patrick Boulton stated that simulated and pre-recorded data is an effective way to provide training on many complex and advanced inspection systems.

David Badjula suggested that we may need a Level 2.1 for digital and more advanced techniques. Thomas Wenzel noted that the competence gap is becoming wider.

Patrick Boulton suggested that the number of certificates that can be held simultaneously by an individual should be reduced. He considered that it is not possible to properly hold many certificates when each certificate requires continuous practise within each year. However, to reduce the number of certificates the general level of education in each NDT technique needs to be raised to enable the depth and width of knowledge within each certificate to cover a wider range of techniques. This point reflects the concerns that Etienne Martin raised at the beginning of the discussion.

The discussion then concentrated on ethics and provided suggestions that technicians should be required to attend ethics seminars. Possibly the structured credit system could include some measure of ethics It was noted that there are no mechanisms to internationally “black ball” technicians who deliberately conduct NDT fraudulently.

In response to a question from Mike Farley, “What are the most important actions for ICNDT arising from this Workshop?”

Bento Alves said “Extend the ICNDT Guide”

Several people said “Educate End-Users”, internationally but also nationally. We need an ICNDT strategy.

Conclusions

A well supported and effective workshop was held during the 14th ECNDT conference in Verona, Italy 2026. There was lively discussion at the end of the presentations which could have lasted much longer but the conference timetable had to bring the discussions to an end.

Conclusions prepared by the joint chairs of the seminar:

1. ICNDT at the Executive (IEC) level, at the ICNDT Advisory Committee, at Working Group 1 and at the ICEC should take account of the outcomes of the Workshop in their own strategic planning and short-term actions

2. Global harmonisation to ISO9712 is a necessity for the NDT global economy.

3. NDT competence and delivery is broader than just NDT Training and Certification. ICNDT needs to broaden its scope in the ICNDT Guide to Qualification and Certification of NDT Personnel" to include other important attributes in the quality chain including Human Factors and Industrial Practice, Ethics and Employer job-specific training and qualification.

4. Failures to properly use NDT and failures in its implementation have lead to loss of life and prosecutions for professional negligence. Some of these failures (but not all) are consequences of inadequately trained and certified personnel.

5. Legally defensible NDT Certification Best Practice is considered as; personnel certified to ISO 9712, ISO17024, the certification scheme accredited by a GACI member and then registered under the ICNDT Schedule 2 MRA.

6. Training (and certification)needs to keep pace with technological advances in cooperation with colleges/universities, equipment manufacturers and NDT end users. Currently it has fallen behind.

7. ICNDT needs a strategy to engage the end users to better understand how quality in NDT is achieved, including the role of training and certification.

8. We need to enforce ethics. The NDT community has been too nice for too long with rogue traders.

Some violations of NDT certification occur when certification bodies operate outside of their home countries. Accreditation Bodies (and ICNDT) need to include, in their auditing, the systems used by PCBs to control AQBs and Examination Centres.

Acknowledgements

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The presentations can be read in full on the ICNDT web pages under https://www.icndt.org/ICNDT-Activities/ICNDT-Documents.

Colin Bird ICEC Secretary for ICNDT

Published on behalf of ICNDT by the Publishing Department, The British Institute of Non-Destructive Testing, Riverside Way, Bedford Road, Northampton NN1 5NX, UK Tel: +44 (0)1604 438300 | Fax: +44 (0)1604 438301 | Email: info@bindt.org | Web: www.bindt.org

The ICNDT is registered as a legalised Association with its seat in Vienna, Austria. Registered Office: 1230 VIENNA, Jochen-Rindt-Straße 33 Chair: S K Babu Email: chairman@icndt.org

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