



INTERNATIONAL COMMITTEE FOR
NON-DESTRUCTIVE TESTING

The World Organisation for NDT

**Minutes of a meeting of
ICNDT Working Group 1: Qualification and Certification
Wednesday 13th June 2018
Gothenburg, Sweden**

Participants:	Alexander Mullin Dave Bajula Amy Bereson Gerhard Aufricht Gerald Idinger Keith Arcus João Rufino Teles Filho Pui Kei Yuen Jingyuan Ji Matthias Purschke Ralf Holstein Mirmajid Ghaemi Diwakar D Joshi Shohei Ooka Kyung-Cho Kim Goran Sofronic Sajeesh Kumar Babu Harold Jansen Rodolfo Rodríguez Cemil Hakan Gur Vitaly Radko Nicole Banks	Chair, Russian Society for NDT America (ASNT) America (ASNT) Austria (ÖGfZP) Austria (ÖGfZP) Australia (AINDT) Brazil (ABENDI) Canada (CINDE) China (ChSNDT) Germany (DGZfP) German (DGzFP) Iran (IRNDT) India (ISNT) Japan (JSNDI) Korea (KSNT) Serbia (SDIBR) Singapore (KSNT) South African (SAINT) Spanish Society for NDT Turkey (Turk NDT) Ukraine (USNDT) United Kingdom (BINDT)
Observers:	Mike Farley Tony Wooldridge David Gilbert Patrick Brisset Laura Obrutsky Norikazu Ooka René Klieber Dimitriy Kozlev Jennifer Jimenez Darcy Corcoran Michael Turnbow D Mandina (part time)	Past Chair (ICNDT) ICEC Secretary General Secretary ICNDT IAEA Canada (CINDE) Japan (JSNDI) Switzerland (SGZP/SSNT) Ukraine (USNDT) Secretary TC 135 SC7 Chair TC 135 SC7 ASME

1. Welcome & Apologies

The Chair welcomed all and thanked the hosts.

Apologies were received from Helle Rasmussen, Danish Society of NDT.

The Chair declared that a quorum was achieved.

2. Adoption of the Agenda

The agenda was amended to include the following:

- Presentation from J Jingyuan (China)
- Date and venue for the next physical meeting.
- Event in China – 2018 QC China
- 23rd Exhibition in Qualification, Control & Test Equipment, 29 October – 29 November 2018, Shanghai – contact J Jingyuan.
- WG1 meeting – 30-31 October?
- Maternity leave.

3. Approval of Minutes of the previous meeting held on 15 November 2017 in Singapore

The minutes of the previous meeting were approved.

Actions arising:

Action Ref. No. WG1/2015-10-30/..	Desc.	WHO	STATUS/COMPLETE BY
3.	Update directory of PCBs	SKB/DJG	Ongoing.
10.	Consider suggestion re: TR25107 vs. CP105	AM	Ongoing.
11.	Renewal by certification	AM	Complete. Covered on the agenda.
15.	Continue work on discussion paper for Roles & Responsibilities	AM	Ongoing. Covered on the agenda.

Action Ref. No. WG1/2016-11-06/..	Desc.	WHO	STATUS/COMPLETE BY
4.	Create a sub-committee group to discuss Roles & Responsibilities of PCBs, AQB's and AECs further	RH	Covered on the agenda.
5.	Next update of ICNDT Guide for APCNDT 2017?	AM	Awaiting revision of ISO 9712. Ongoing.
6.	Consider Risks and Opportunities	IEC	Ongoing Covered on the agenda.
7.	Consider interpretation of requirements for work experience	IEC	Ongoing. Covered on the agenda.

Action Ref. No. WG1/2017-06-05/..	Desc.	WHO	STATUS/COMPLETE BY
3.	Consider draft document on job-specific training & certification for next meeting	HJ	Ongoing. Covered on the agenda.
4.	AINDT to continue work on definitions and guidance on industrial experience	KA/PM	Ongoing. Covered on the agenda.
5.	Work to continue on interpretation of Table D1	NB/JM	Ongoing. Covered on the agenda.
6.	Work to continue on grading of practical exams	AM	Ongoing. Covered on the agenda.
8.	Issue questionnaire to gauge interest in training and cert in Civil Engineering NDT	AM	Ongoing. Covered on the agenda
9.	Work to continue on NDT societies' assessment of employer-based certification	VR	Ongoing. Covered on the agenda
10.	Work to continue on inspection qualification bodies and docs to be circulated	AM/SKB	Ongoing. Covered on the agenda

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
1.	Action Plan – B17 - advise how to proceed after the ISO meetings have taken place.	SB	Ongoing. Covered on the agenda

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
2.	Action Plan B18 – make a recommendation as to how to conduct surveillance for ISO 9712.	AM	Ongoing. Covered on the agenda

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
3.	Form a task group to consider the suggestions from NDTSS	AM	Ongoing.

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
4.	Provide WG1 with spreadsheet and report on European activities.	RR	Complete.

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
5.	Provide report.	SKB	Complete.

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
6.	Work out a plan for how to proceed after the ISO meetings and make a recommendation to WG1.	AM/SKB/JMF	Ongoing. Representatives have been nominated to TGs.

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
7.	Obtain copy of the Idinger presentation	DJG	Complete.

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
8.	Carry out a survey of WG1 and collect/collate results.	RH	Covered on the agenda.

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
9.	Circulate draft table for grading of practical examination	AM	Covered on the agenda.

Action Ref. No. WG1/2017-11-15/..	Desc.	WHO	STATUS/COMPLETE BY
10.	Speak to J M Farley with a view to re-evaluating the questionnaire	RR	Covered on the agenda.

4. WG1 Membership

Current status – N Ooka to be replaced by S Ooka. D Joshi from the Indian Society for NDT was welcomed as a new member. N Ooka will now be an observer.

Some members' terms were expiring and a letter for re-nominations was required.

G Sofronic was having to resign from WG1 due to work.

Action Ref. No. WG1/2018-06-13/..	Desc.	WHO	STATUS/COMPLETE BY
1.	Circulate letter for re-nominations to WG1	AM	Ongoing.

5. Action Plan

Improvements have been made to part of the ICNDT Strategic Plan.

The Chair ran through the Action Plan.

Committee Admin

- Done routinely.
- ToR reviewed in 2013
- Update re above membership.

Action Plan Item A - Communication and Knowledge Sharing

- A1- reports from regions have been received.

Europe

- A report was provided by R Rodriguez.
- MRA ongoing.
- ISO 9712 review – ongoing.
- Survey results have been circulated.
- Section on Certification Bodies, whether compliant with ISO 9712 or not and numbers of certificate holders.
- The group is focussing on two areas – promotion to younger people and projects (EU Framework/Horizon 2020).
- Forums as per BoD Report.
- The EFNDT MRA renewal process is ongoing.

AFNDT

- A report was provided by H Jansen (copy attached).

Latin America

- A report was provided by J Filho (copy attached).

North America

- A report was provided by P K Yuen.
- Canada: Efforts in updating training methods.
- Additive Manufacturing.
- Good report from Mexico.
- A Bereson advised that ASNT and ABENDI were co-sponsoring Aerospace Symposium.

Asia Pacific

- S K Babu reported that there was a growing trend towards 3rd party certification in SE Asia region.

The Chair thanked regions and invited more actions/projects from regions for WG1, e.g. e-learning and online exams, risk analysis. The Chair proposed including item(s) in Action Plan.

6. Representation of WG1 in TC 135 SC7 Task Groups

- TC 135 SC7 – Darcy Corcoran has replaced Sharon Bond.
- IAF and ISO/CASCO WG30 reports are attached.
- ASME – M Turbow presented a report on progress with ANDE project (history/background/reason for project).

The Chair commented that more liaison status had been established and we will consider further action.

IEAE

- Report to follow.

Action Plan items A4, A5, A6 and A7 – most were ongoing and some were covered on the agenda.

A9 – Organise periodical meetings with ASNT to discuss personnel certification matters - there is a possibility of meetings at the ASNT Fall Conference.

Action Plan items A10 and A11 are ongoing.

Action Plan Item B – Global Harmonisation and Recognition

B1 – Review and update the ICNDT Guide and Recommendations on NDT Personnel Qualification and Certification were mentioned.

B2 – Develop recommendation for administering practical examination was covered on the agenda.

B3 – Participation in maintaining of ICNDT Examination question bank (EQB) – twice a year is being considered. Agreed to cooperate with TG6 (Asia Pacific Federation).

B4 – Develop the table of ISO standards used for NDT of different products – covered on the agenda.

B5 – B14 – covered on the agenda.

B15 – Establish Task Group to discuss if NDT Societies/PCBs could assess and approve employers' certification to ICNDT requirements - ongoing.

B7 has been suspended as special interest group has been created.

7. Current situation with revision of ISO 9712:2012 - Contribution of WG1

A report on TC135/SC7 was presented and is attached. The Chair went through the TC assignments of ICNDT representatives for ISO 9712. Each representative gave a brief report.

S K Babu asked about TC1 Psychometrics/grading of practical exams.

Darcy Corcoran gave a presentation.

Outcome – specific recommendation of how clauses should be changed. Conclusions will be circulated to WG1.

It was suggested that we need to specify/consider whether clauses are mandatory and which are recommendations.

8. Improvement of OP19 and OP20

A Wooldridge presented the revised OP19 which has been agreed by CEC and IEC and would be voted on at the GA on Thursday 14th June.

A Wooldridge explained the qualifications of auditors in respect of NDT experts.

There were two other changes – 6.1, 2(c) – 'reserves the right', and 6.3 'inclusion of qualified NDT Assessor'.

There were no proposed changes to OP20 (unless any were advised at the CEC meeting).

9. Substitution renewal by certification

R Holstein gave a presentation (copy attached). The next step is to hand over R Holstein's survey to Task Group 6 (SC7).

10. Interpretation of Table D.1 of ISO 9712: 2012 (Action B11)

N Banks referred to the proposal that J Moody went through at the last meeting in Singapore.

Table D.1 is the general requirements for all methods. The aim was to interpret this for each method and it was suggested that a table be created with interpretation of D1 for each method.

A Mullin to draft the table for discussion at the next meeting.

Action Ref. No. WG1/2018-06-13/..	Desc.	WHO	STATUS/COMPLETE BY
2.	Draft table with interpretation of D1 for each method for discussion at the next meeting.	AM	Ongoing.

11. Recommendation for grading of practical examination (Action B10)

A Mullin had prepared a draft table. The question was asked as to how many points can be deducted for failure to complete actions (for radiography in this case). The question was asked what is meant by 'failing to report' and discussion followed.

12. Task Group for discussion if NDT Societies/PCBs could assess and approve employers certification to ICNDT requirements (Action B15)

MRA – three documents were proposed by Singapore for those companies who want to be recognised by ICNDT for employer based certification.

New opinion/proposal from ASNT was presented.

Employer-based programme assessment but ASNT think there should be an enhancement of employers' responsibility in administering theory/specific and practical exams.

ICNDT should provide guidelines but ASNT believe that SNT L3 would need to go through the whole process to get ISO 9712 (except considering experience).

An exam would be needed. This could be a full exam or an audit of employer's written practice could be conducted as an alternative offered to re-exam.

Work on this will continue and a report will be given at the next meeting.

13. Task Group for discussion if NDT Societies/PCBs could establish an expert group to oversee the inspection qualification activities (Action B16)

A survey of opinions of different countries was presented (attached).

With reference to promoting validation of test material, M Farley asked if societies could provide support for inspection qualification. An ICNDT workshop was suggested but it was agreed to have a session at the WCNDT to compare experiences on inspection qualification in different industries.

S K Babu advised that in SE Asia there is a growing trend toward accreditation to ISO 17025.

M Farley advised that ICNDT would promote best practice so that, if inspection not accreditation to international standard, performance demonstration would be required.

S K Babu commented that for proficiency testing accreditation to ISO 17043, the results were not good. M Turnbow commented that, looking at the history of the nuclear industry in USA, proficiency levels increased but are still only 50%.

14. Harmonisation and recognition - risks and opportunity analysis

A presentation was provided by P K Yuen (attached).

- Impacts of MRAs – not just PCBs, all stakeholders – responsibilities – reputation and credibility.
- Survey/questionnaire – Group members will be asked for comments.
- Feedback will be analysed and reported back to WG1.

Action Ref. No.	Desc.	WHO	STATUS/COMPLETE BY
WG1/2018-06-13/..			
3.	Analyse feedback on the survey/questionnaire and report back to WG1.	P K Yuen	Ongoing.

S K Babu suggested a risk register for MRA and a template for a risk register for all certification bodies.

M Farley asked to what extent can we rely on Accreditation Bodies?

15. Surveillance as a process required by ISO/IEC 17024:2012

The Chair referred to ISO 17024. A questionnaire was circulated and the results of the analysis summary were reported:

- Majority want to see process of surveillance.
- Need clear definitions of what is meant by surveillance in accordance with ISO 17024.
- To be reviewed in ISO 9712 Task Groups also.

16. Maternity Leave

N Banks requested a common approach to maternity leave. Maternity leave is classed as a 'significant interruption'. R Rodríguez made the point that we are dealing with competence and other things, not just maternity. A 'refresher' exam prior to return to work was suggested but it would need to be fair.

A Bereson pointed out that this could be complicated due to local laws/regulations.

It was proposed that a Task Group be established which would be chaired by N Banks.

17. ICNDT Examination Question Bank (EQB)

A Wooldridge explained the four options for the future documents (based on the results of the questionnaire):

- Continue with current system – including adding further questions.
- ICNDT develop new online version – expand and maintain range of questions and expand the delivery system.
- ICNDT concentrate on question bank themselves and use one of the societies to deliver.
- Could ICNDT establish agreement and see if they can help?

This is to be discussed with CEC.

18. Job Specific Training and certification being carried out to supplement ASNT and ISO 9712 certification

H Jansen gave a presentation (copy attached).

M Turnbow commented on ANDE experience regarding the Qualification Card. K Arcus referred to ISO 17025. R Rodríguez commented that job specific training was good as it draws attention to a gap. This needs to be flagged up to employers as they are the liable ones. P K Yuen suggested that layers of accountability should be added.

19. Experience Requirements in ISO 9712:2012

K Arcus gave a presentation (attached). There are comprehensive procedures in AINDT but would like to see the experience requirements tightened up in ISO 9712 revision.

20. IAEA

P Brisset gave a presentation.

New cycle – 4 projects:

Latin America
Asia Pacific (2019)
Europe
Africa (small)

21. EU Projects

Nardoni
E-learning (Mandina)
Civil Engineering
RT for cultural heritage

E-learning Aims and Objectives

Reduce training time/costs
Reduce training and theory

Members are invited to contribute material.

22. CEC Report

To be circulated.

Action Ref. No. WG1/2018-06-13/..	Desc.	WHO	STATUS/COMPLETE BY
4.	Circulate CEC Report	HJ	Ongoing.

23. WCNDT 2020

Kyung-Cho Kim gave a presentation.

WG1 was invited to hold a meeting and convene a session at WCNDT 2020 on ISO 9712.

24. Any other business

PAC MLA – further details to be sent to P K Yuen.

Action Ref. No. WG1/2018-06-13/..	Desc.	WHO	STATUS/COMPLETE BY
5.	Send further details regarding PAC MLA to P K Yuen	DJG	Ongoing.

Meeting closed.

REPORT EUROPE ACTIVITIES GOTHENBURG 2018

1. EFNDT MRA is regularly updated and working well
2. ISO 9712 revision is on the way and discussions are going on

ASSOCIATION/ COMMITTEE /FORUM	NORWEGIAN SOCIETY OF NON- DESTRUCTIVE TESTING.	POLISH SOCIETY FOR NONDESTRUCTIVE TESTING AND TECHNICAL DIAGNOSTICS SIMP Not applicable, training and certification is done by designated national institution - UDT	CZECH SOCIETY FOR NDT 8 certified centers now operate in our country. the CZECH society for ndt works only with a part of them.	HUNGARIAN ASSOCIATION FOR NDT (MAROVISZ):	<u>DGZFP</u> <u>GERMANY</u>	AEND SPAIN	HDKBR CROATIA	RELACRE FSEND PORTUGAL
TRAINING								
Number of training courses			185	No training is organized by MAROVISZ	> 500	111+ ?? recognized training organizations	24	14
Method			UT, MT, PT, VT, RT, ET, AT ...		AT, ET, LT, MT, PT, RT-D, RT-F, RT-S, RI, TT, UT, PA, TOFD, VT, Radiation Protection	ET, MT, PT, RT, UT, TOFD, VT, LT	MT, PT, UT, VT, RT	VT, PT, MT, UT and RT
Number of students			2350		Approx.7800 (DGZfp) + 1900 in recognized training organizations = 9700	679 + ?? recognized training organizations	148	83
CERTIFICATION								
Standard			EN ISO 9712	EN ISO 9712	EN ISO 9712	ISO 9712	EN ISO 9712	EN ISO 9712
Number of certificates			8400	186	8 000	8389	242	225
Number of people			5200	152	5000	4127	242	75

REPORT EUROPE ACTIVITIES GOTHENBURG 2018

ASSOCIATION/ COMMITTEE /FORUM	NORWEGIAN SOCIETY OF NON- DESTRUCTIVE TESTING.	POLISH SOCIETY FOR NONDESTRUCTIVE TESTING AND TECHNICAL DIAGNOSTICS SIMP	CZECH SOCIETY FOR NDT	HUNGARIAN ASSOCIATION FOR NDT (MAROVISZ):	<u>DGZFP</u> <u>GERMANY</u>	AEND SPAIN	HDKBR CROATIA	RELACRE FSEND PORTUGAL
DIFFUSION								
Workshop	NDT CONFERENCE, 28 – 30 MAY 2017		6	2	diverse	Some lectures in universities	2	
Conferences	NDT LEVEL III SEMINAR, 13 – 14 NOVEMBER 201	47. Krajowa Konferencja Badań Nieniszczących 47. National Conference on Nondestructive Testing, http://www.kkbn.pl/	2	one (national with international participation)	diverse	Next national conference 2019	1	4 th National Conference on NDT, 14 and 15 december, Évora – 118 participants Candidacy for the organization of the ECNDT2022
Magazines		Badania Nieniszczące i Diagnostyka (Nondestructive Testing and Diagnostics) www: http://www.bnid.pl	1	one (in Hungarian language)	5	3 digital and paper issued	1”	
NDT promotion to younger people	NDT INFORMATION # 1-2017, # 2- 2017, # 3-2017	Medal with the name of the Professor Zdzisław Pawłowski NDT promotion to younger people: The Award of the President of PTBNiDT for the best MA thesis in NDT field (since 2017)	2	one presentation for students at the university	diverse		1	
PROJECTS				one project on AE benchmarking				

REPORT EUROPE ACTIVITIES

GOTHENBURG 2018

Activities of Forum for National Aerospace NDT Boards (ANDTBF)

We hold two Forum meetings annually, last meeting is 28 November, Lisbon

Developing an approach by which NANDTB's can be audited and approved independently such that OEM's can have confidence in NDT personnel examinations under the general control of NANDTB's
Standardised approach to Annual Maintenance Review per EN 4179.
Standardised approach to demonstrating general knowledge of other NDT methods required of a Level 3.

Meeting of the EFNDT Railway forum

The next meeting will take in Germany September 18th.

Meeting of the EFNDT Maine forum

The next meeting will take in Spain (Palma de Mallorca) June 22nd

REPORT EUROPE ACTIVITIES GOTHENBURG 2018

INTERNATIONAL EVENTS

2018 Jun 24-29, Berlin	14th Quantitative Infrared Thermography Conference - QIRT 2018
2018 Jul 10-13, Manchester	European Workshop on Structural Health Monitoring Series (EWSHM 2018)
2018 Sep 12-14, Senlis	33rd European Conference On Acoustic Emission Testing (EWGAE 2018)
2018 October 4-5, Saarbruecken,	SHM-NDT-2018: International Symposium on Structural Health Monitoring and Non-Destructive Testing
2018 Oct 22-24, Athens	1st Internatioanal Conference on Welding & NDT of HSNT & WGI (1st ICWNDT-2018)
2018 Oct 24-26, Dresden	10th International Symposium on NDT in Aerospace 2018



African Federation of NDT – AFNDT 2017 / 2018 Report



AFNDT Membership

(Signatories to the AFNDT Constitution – Adopted April 2014)

Full Membership:

a.	Algeria	Research Center in Industrial Technologies	CRTI
b.	Angola	National Technological Centre	CTN
c.	Cameroon	Hydrocarbures-Analyses-Controles	Hydrac
d.	Ghana	Ghana Atomic Energy Commission	GAEC
e.	Kenya	Kenya Bureau of Standards	KEBS
f.	South Africa	South African Institute of Non-Destructive Testing	SAINT
g.	Sudan	Sudanese Society For Nondestructive testing	SSNDT
h.	Tunisia	Mechanical & Electrical Industries Technical Centre	(Cetime)
i.	Morocco		Comend
j.	Libya	Welding Center Tripoli - Advanced Occupational Centre for Welding Technology	

Secretariat & Associate Member:

k.	South Africa	Southern African Institute of Welding	SAIW
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AFNDT President

During the 7th African Conference of Non-Destructive Testing (ACNDT 2016) that was held in Oran, Algeria Dr SAHAIMI Kamal from Comend in Morocco, was elected as the new AFNDT president replacing Dr ZERGOUG Mourad from Algeria.

AFNDT Annual General Assembly

Due to challenges relating to communication and personnel availability, no AFNDT AGM was held during 2017.

An AFNDT AGM is scheduled for October 2018 to be held in South Africa.

AGM - AGENDA ITEMS

- 1) Establish a Regional AFRA / AFNDT project to promote NDT standardisation and infrastructure development
- 2) Establish communication channels and protocols
- 3) Align the AFNDT constitution with that of ICNDT
- 4) Initiate and grow NDT infrastructure in each African country – National society, Standardisation / Industrial / NDT Scheme committees, ATB's, ExC, PCB's & AQB's – initially regional, then sub-regional then national + have ICNDT MRA 1 signatories (ICNDT Main Members) in each country
- 5) Initiate an African MRA (Mutual recognition agreement) once (4) is established, and link to International community via ICNDT.
- 6) AFNDT Conference 2019 / 2020 - Morocco

ACTION LIST / 2018 OBJECTIVES

Objective: The intent of this effort is to represent a fully 'operational' African Federation for NDT at the 2020 World Conference in South Korea, and hopefully to have a large contingent from Africa presenting papers and participating in the event. :

Operational refers to the following

- 1) Registered commercial entity
- 2) Website
- 3) Generating funds – either self generating / sponsorships
- 4) Addressing ICNDT fees and ensure payment for all members
- 5) All 54 countries represented in AFNDT (currently only 16 countries)
- 6) Quarterly meetings – teleconference + 1 annual AGM
- 7) Regional action plan & strategy

QUALIFICATION & CERTIFICATION ACTIVITIES

Qualification and Certification of NDT personnel I mainly performed according ISO 9712 and ASNT SNT-TC-1A, with limited local personnel involved in inspections (except in South Africa)

Main PCB's / Certification schemes active in Africa:

- 1) BINDT PCN
- 2) COFREND
- 3) SAIW Certification SAQCC-NDT

Harold Jansen – AFNDT Executive Secretary

NDT Regional Meetings - Latin America

2018 / 2019

Argentina - AAEND

✓ **XII CORENDE (12º Congreso Regional de Ensayos No Destructivos y Estructurales / XII Regional Congress of Non Destructive and Structural Testing)**
Córdoba, Argentina, **2019**

✓ **Art 2020 (Conferencia Internacional de Investigaciones no destructivas y microanálisis para el diagnóstico y conservación del patrimonio cultural y ambiental / International Conference on Non-destructive Research and Microanalysis for the Diagnosis and Conservation of the Cultural and Environmental Patrimony)**
Argentina, **2020**

Brazil - ABENDI

✓ **CONAEND (Congresso Nacional de Ensaio Não Destrutivos / 34th National NDT Congress)**
São Paulo – SP, Brazil, August 27 - 29, **2018**

✓ **COTEQ (Conferência de Tecnologia de Equipamentos / Technology Conference of Equipaments)**
Rio de Janeiro, Brazil, **2019**

Ecuador – IAEA (ARCAL)

✓ **TN-RLA1014-1705286 - Curso Regional de Capacitación sobre Ensayos No Destructivos para Estructuras Civiles / Regional Capacitation Training on NDT for Civil Structures)**
Quito, Ecuador, May 14 – 18, **2018**

June /2018

For WG1 Action Plan – Regional Report

Pan-America Report – North America

Major events that were held:

- COTEQ Conference, Rio Brazil, May 15 – 19, 2017
- ICPIIT ASNT Conference, Galveston Texas USA, May 17 – 20, 2017
- NDT in Canada Conference, Quebec Canada; June 6 - 8, 2017
- ASNT Annual Fall Conference 2017, Nashville Tennessee USA; Oct 30 – Nov 3, 2017
- ASNT Research Symposium, Orlando Florida USA, Mar 26 – 29, 2018

Major upcoming events:

- NDT in Canada Conference, Halifax, Nova Scotia, Canada; June 19 - 21, 2018
- ASNT Digital Imaging 2018; Foxwoods Resort, Connecticut July 24 – 26, 2018
- ASNT Annual Fall Conference 2018, Houston TX USA; Oct 28 –31, 2018
- Next Pan-American Conference, Monterrey Mexico 2019

North America

Canada

Canada's national NDT society, Canadian Institute for Non-Destructive Evaluation, leads and supports the various international ISO and ICNDT activities, having key staff serving as chairs and members in committees and subcommittees. As a society, it also serves as a key liaison for national and international activities, and in bridging the connection between its members, the industry, and the society's mandate, along with engaging with Canada's national certification scheme. The following are highlights of activities of the Canadian Institute of Non-destructive Evaluation and the general industry in Canada.

The industry in Canada has seen slow but steady growth of NDT activity in the last year. The oil and gas sector is recovering from the effects of several years of low oil prices and in Ontario, nuclear power plant activity is growing however several large pipeline projects that were forecast for the industry have been canceled. Industry reports a very busy spring with most inspectors working. They caution that this surge is due to the convergence of shutdowns and large jobs and not a sustainable increase in volume. Projections for summer and fall are a return to more normal volumes.

- In December 2017, CINDE announced its first online courses that meet NRCan training requirements. Past CINDE online courses were refresher courses or study aids. This new offering allows students to complete their theory training online and come to CINDE to complete their practical training and get a certificate for NRCan licencing.
- CINDE has announced a plan to renovate and modernize its head office. Located as part of the Mohawk College campus, the CINDE office has blended into the Mohawk facility for almost 40 years. This renovation will focus on creating a professional and independent image and brand for CINDE. Construction is expected to be completed in September 2018.
- CINDE has partnered with the Mohawk College Additive Manufacturing Laboratory on an exciting research project. The Mohawk Additive Manufacturing Laboratory is a multiyear, multimillion dollar initiative funded by government and industry to help companies innovate with this new technology. CINDE's technical experts are working to apply NDT techniques used on traditionally produced metal parts on the parts produced using the additive techniques. This will help determine equivalence and support the development of future codes and standards.

Canada is currently implementing the latest ISO 9712-2012 without modifications under the national standard, "CAN/CGSB 48.9712-2014 / (ISO 9712:2012, IDT) - Non-destructive testing - qualification and certification of NDT Personnel." Data from trends over the last 5 years indicates that Canada is seeing a slow and mild increase in the number of certificate holders.

The national certification standard (CAN/CGSB – Canadian General Standards Board) and the national personnel certification body (PCB) are both administered by the Government of Canada, with the federal department of Natural Resources Canada (NRCan) maintaining the national authority to implement the PCB – via the NRCan National NDT Certification Body (NDTCB), and it is supported by the following national committees:

- CGSB 48/2 Standard Committee (for publishing the CAN/CGSB standard)
- National Scheme and Technical Committees (for establishing rules & content for scheme)
- NRCan NDTCB National Advisory Committee (for strategic guidance for the NDTCB)

The NRCan NDTCB holds the following external accreditations:

- ISO 9001:2015 from CGSB – Standards Council of Canada (SCC-Canada-IAF) – for general Quality Management System requirements
- ISO 17024:2012 from International Accreditation Services (IAS-USA-IAF) – for specific Personnel Certification Body requirements

The NRCan NDTCB provides certification services to its clients in both official languages of Canada, English and French, and it oversees a network of Accepted/Recognized Training Organizations and Authorized Examination Centres in support of fulfilling the requirements of

the certification scheme. The current Accepted Training Organization (ATO) requirements are being revised and will be updated to the Recognized Training Organization (RTO) framework, along with better alignment with ISO/TR 25107.

The NRCan NDTCB has also launch its first Computer-Based Testing system for its CNSC Exposure Device Operator Exam in November 2017. It is an electronic online exam system with in-person proctoring at a nation-wide network of exam centres and administered in both official languages. There are plans to fully migrate all the NDTCB written exams to the CBT platform in the near future.

Canada holds the chair/secretariat position for ISO/ TC135/SC7, which is responsible for the development of the international ISO 9712 standard, and is very active nationally and internationally to undertake the next systematic review of the ISO 9712 standard.

USA

ASNT Computer-based Testing update:

ASNT is well into the second year of computer-based testing (CBT) around the world and continues to lead the industry in this delivery model executing a world-class program. The process to apply, schedule, and sit for a certification examination, now has the convenience of 24 hour scheduling access and thousands of tests centers around the world from which to choose. The consistent administration of the examinations across all test sites ensures the utmost integrity of examination security and candidate identification so ASNT certifications remain regarded with the highest of standards.

ASNT holds accreditations / approvals through the American National Standards Institute (ANSI):

ISO17024 – Conformity Assessment – General requirements for bodies operating certification of persons.

ANSI – Essential Requirements: Due process requirements for American National Standards. Applies to ANSI/ASNT CP105 (Topical Outlines for Qualification of Nondestructive Testing Personnel), ANSI/ASNT CP106 (Nondestructive Testing – Qualification and Certification of Personnel) and ANSI / ASNT CP189 (For Qualification and Certification of Nondestructive Testing Personnel) and expect to soon have the ACCP (ASNT Central Certification Program) re-accredited following the launch of our revitalized ACCP testing protocols.

Standards Documents Published

ANSI/ASNT CP-105: ASNT Standard Topical Outlines for Qualification of Nondestructive Testing Personnel (2016)

This newly approved ANSI Standard, ANSI/ASNT CP-105: Training Outlines for Qualification of Nondestructive Personnel, replaces the recommended training course outlines that appeared in early editions of Recommended Practice No. SNT-TC-1A. The 2016 edition includes updated training references, training outlines for microwave testing, and expanded training outlines for thermal/infrared, phased array/TOFD and Computer/Digital RT (CR/DR).

ANSI/ASNT CP-189: ASNT Standard for Qualification and Certification of Nondestructive Testing Personnel (2016)

ANSI/ASNT CP-189-2016 is an ANSI standard that establishes the minimum requirements for the qualification and certification of nondestructive testing (NDT) and predictive maintenance (PdM) personnel, including the minimum training, education, and experience requirements, as well as criteria for documenting qualifications and certification. This standard also requires the employer to establish a procedure for the certification of NDT personnel and that the employer incorporate any unique or additional requirements in the certification procedure.

Recommended Practice No. SNT-TC-1A: Personnel Qualification and Certification in Nondestructive Testing (2016)

Recommended Practice No. SNT-TC-1A provides guidelines for employers to establish in-house certification programs for the qualification and certification of nondestructive testing personnel. Since 1966, employers have used this industry-valued document as the general framework for their NDT certification programs. Additionally, we are establishing a joint industry committee with ASME, AWS and API to collaborate on pending updates for greater industry acceptance.

New in the Pipeline:

ASNT is laying the groundwork for creating a Performance Demonstration Qualification (PDQ) program for the Oil & Gas Industry. The name of the program has been established as ASNT Industry Sector Qualification (Oil & Gas). The purpose is to standardize PDQ testing for NDE technicians, alleviating the burden of owner/operators from providing and maintaining their own programs.

ASNT continues on its path reshaping ACCP to fully adopt ISO/IEC 9712 This also includes the implementation of revised Authorized Examination Center (AECs) process to administer ACCP examinations.

ASNT is in the final development stages of creating an Employer-based Certification Audit Program (ASNT EBC). This program will be a review of a company's written practice, verification of compliance with the defined requirements in the written practice to provide the assurance that it complies with SNT-TC-1A and/or CP-189.

Mexico

In October 2017, initiated the Project RLA0056, "Strengthening Regional Cooperation (ARCAL CXLVII)" with the collaboration of members from Argentina, Brazil, Spain and México.

From 30 October to 3 November 2017 was the First Coordination Meeting Non-Destructive Testing (NDT) technologies for ARCAL Members and workshop on NDT for civil structures testing, in Mexico City, Mexico.

The purpose of the meeting was:

- 1) Report on the status of the NDT in general, but with a special focus on civil structures testing, in the participating Member States.
- 2) Introduce and review the project with the project coordinators.
- 3) Discuss about harmonization of certification within the region.
- 4) Discuss and coordinate the implementation of project activities.

The second workshop on NDT for civil structures testing in Mexico had the next topical

- 1) Lectures on various technologies (radiation based and others) applied in the field. With lecturers from Argentina, Brazil, Spain and Mexico.
- 2) Case studies from various MSs. From Spain and Argentina
- 3) Discussion on the relevant topics to develop a common approach of the NDT applications in the field including the aspect of training, qualification, certification of the NDT personnel for testing civil structures.

M.Sc. Francisco Robles Piedra from the National Institute of Nuclear research (ININ) is the Mexico's National Liaison Officer/National Coordinator.

M.Sc. Robles is working to close with Dr. Cesar Belinco from the Nuclear Energy Institute from Argentina to coordinate the different workshops and training courses of this project.

The Mexican Institute of NDT (IMENDE) as National Certification Body of NDT personnel is working with M.C. Robles to promote the certification ISO 9712 Scheme to certificate the first generation in México of LEVEL 3 on different NDT Methods.



**SECRETARIAT OF ISO/TC 135/SC 7
NON-DESTRUCTIVE TESTING - PERSONNEL QUALIFICATION
CANADA (SCC)**

ICNDT Presentation ISO 9712 Systematic Review

June 2018

ISO 9712 Update

- ▶ Systematic review of ISO 9712 was initiated.
- ▶ Over 400 comments were submitted by various countries. (Including comments from ICNDT)
- ▶ Two days of meetings for TC 135 SC 7 were held in November 2017 in Singapore.
- ▶ Due to the number of comments and amount of time it was decided to develop a resolution to form common topics and setup Task groups.
- ▶ Task groups chairs and volunteers were solicited and groups formed.

ISO 9712 Update

Task Group #1

Convenor: United States (Marvin Trimm)

- ▶ **Psychometrics** (section 8), timeframe around examinations / assessing narrative questions (qualification exam)
- ▶ Grading of practical exams for levels 1 & 2

ISO 9712 Update

Task Group #2

Convenor: Germany(Ralf Holstein)

- ▶ **Experience** requirements / continuity of experience / significant interruption / qualified supervision / when does experience start (training) / employer continuity (section 5.5)
- ▶ Employer responsibilities (including vision requirements aspect)
- ▶ Candidate responsibilities
- ▶ Foreword of standard to include relationship of organizations (employer, CB, individual)

ISO 9712 Update

Task Group #3

Convenor: United Kingdom (Andy Bakewell)

- ▶ **Vision** Requirements (section 7.4) / technical side / frequency

ISO 9712 Update

Task Group #4

Convenor: Japan (Takamasa Ogata)

- ▶ Training **hours vs.** specified **outcomes** / e-learning (section 7.2)
- ▶ **Alignment** / update **of** references to approved **TS 25107 & TS 25108**
- ▶ **Recognition of training organizations** / term satisfactory in section 7.2.1 (procedures) / training validity / responsibilities of training organizations (item 5 in the standard) / link to TS 25108

ISO 9712 Update

Task Group #5

Convenor: France (Robert Levy)

- ▶ Methods / techniques/ sectoring review (develop matrix)
(see **table 1**) / specimens per sector

ISO 9712 Update

Task Group #6

Convenor: Canada (Craig Martin)

- ▶ **Period of validity** initial certification (section 9.4) /
recertification / renewal

ISO 9712 Update

Task Group #7

Convenor: Russia (Alexander Mullin)

- ▶ **Certification Body** (sections 5.2.2, 5.3, 5.4) ICNDT WG1 to submit report prior to next meeting in Sweden

ISO 9712 Update

- ▶ Each of the Task Groups have already begun work on their specific topics and developed recommendations to bring forward at the upcoming Sweden meetings June 16-19.
- ▶ Groups will meet face to face prior to reporting back to the larger group with their recommendations.
- ▶ Larger group will move ahead with making revisions to the standard.

ISO 9712 Update



**Presentation
Finished.**

Any questions?

darcy@qcccanada.com if you require any further information.



**SECRETARIAT OF ISO/TC 135/SC 7
NON-DESTRUCTIVE TESTING - PERSONNEL QUALIFICATION
CANADA (SCC)**

**Ms. Jennifer Jimenez
International Secretary**

Canadian General Standards Board

Tel: (873) 469-3225

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Gatineau, Canada

K1A 1G6

Email: jennifer.jimenez@tpsgc-pwgsc.gc.ca

May 28, 2018

ISO/TC 135/SC 7

**REPORT OF THE SECRETARIAT
ISO/TC 135/SC 7
PERSONNEL QUALIFICATION**

1. Membership

1.1 **"P" Members (34):** Argentina (IRAM), Australia (SA), Austria (ASI), Belgium (NBN), Brazil (ABNT), Canada (SCC), China (SAC), Czech Republic (UNMZ), Finland (SFS), France (AFNOR), Germany (DIN), Hungary (MSZT), India (BIS), Indonesia (BSN), Iran, Islamic Republic of (ISIRI), Italy (UNI), Japan (JISC), Kazakhstan (KAZMEMST), Korea, Republic of (KATS), Malaysia (DSM), Netherlands (NEN), Norway (SN), Philippines (BPS), Poland (PKN), Romania (ASRO), Russian Federation (GOST R), South Africa (SABS), Spain (UNE), Sweden (SIS), Switzerland (SNV), Ukraine (DSTU), United Kingdom (BSI), United States (ANSI), Zimbabwe (SAZ).

1.2 **"O" Members (10):** Bulgaria (BDS), Colombia (ICONTEC), Croatia (HZN), Denmark (DS), Kenya (KEBS), New Zealand (NZSO), Portugal (IPQ), Slovakia (SOSMT), Sri Lanka (SLSI), Thailand (TISI).

1.3 **Leadership:**

Canada

Mr. Darcy Corcoran – International Chair *pending outcome of TC 135 CIB ballot*

Ms. Jennifer Jimenez – International Secretary

Ms. Sharon Bond – International Chair *now retired*

2. Liaisons

2.1 **Internal:**

ISO/TC 17/SC 19 – Steel -Technical delivery conditions for steel tubes for pressure purposes

ISO/TC 108/SC 5 - Condition monitoring and diagnostics of machines

ISO/CASCO – Committee on conformity assessment

2.2 **External:**

International Atomic Energy Agency (IAEA)

International Committee for Non-Destructive Testing (ICNDT)

3. ISO International Standards published

ISO 9712:2012 *Non-destructive testing -- Qualification and certification of NDT personnel* ****new edition work currently underway as a result of the last systematic review**

ISO/TS 11774:2011 *Non-destructive testing -- Performance-based qualification* ****confirmed in 2016**

ISO 18490:2015 *Non-destructive testing -- Evaluation of vision acuity of NDT personnel*

ISO 20807:2004 *Non-destructive testing -- Qualification of personnel for limited application of non-destructive testing* ****confirmed in 2014**

ISO/TS 22809:2007 *Non-destructive testing -- Discontinuities in specimens for use in qualification examinations* ****confirmed in 2014**

4. Work items

4.1 ISO/TS 25107 *Non-destructive testing -- Guidelines for NDT training syllabuses* ****approved for publication by SC7, at ISO for editing**

ISO/TS 25108 *Non-destructive testing -- Guidelines for NDT personnel training organizations* ****approved for publication by SC7, at ISO for editing**

ISO/NP TS 21759 *Non-Destructive testing -- Guidelines for training, qualification and certification of non-destructive testing engineers (coordinator)* ****moved to TC 135 for further development work**

4.2 **Working groups:**

Working Group 9 – Revision of training guidelines

Datum

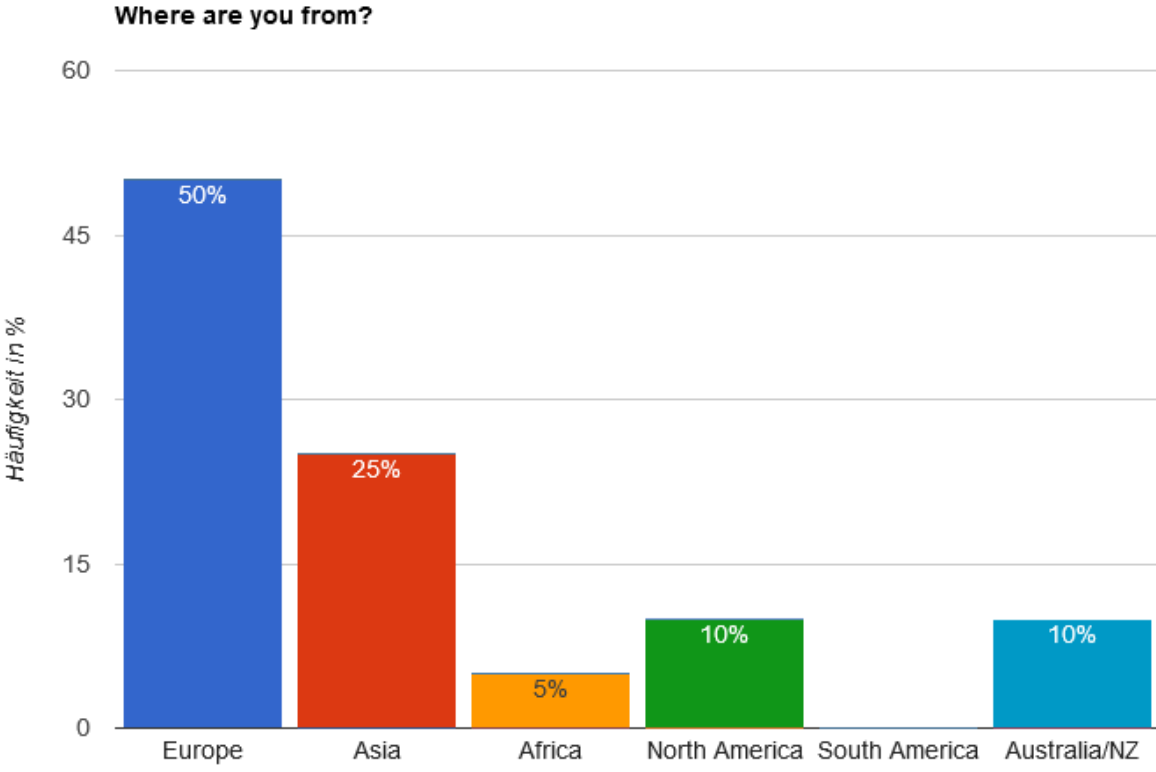


DEUTSCHE
GESELLSCHAFT FÜR
ZERSTÖRUNGSFREIE
PRÜFUNG e.V.

ICNDT WG1

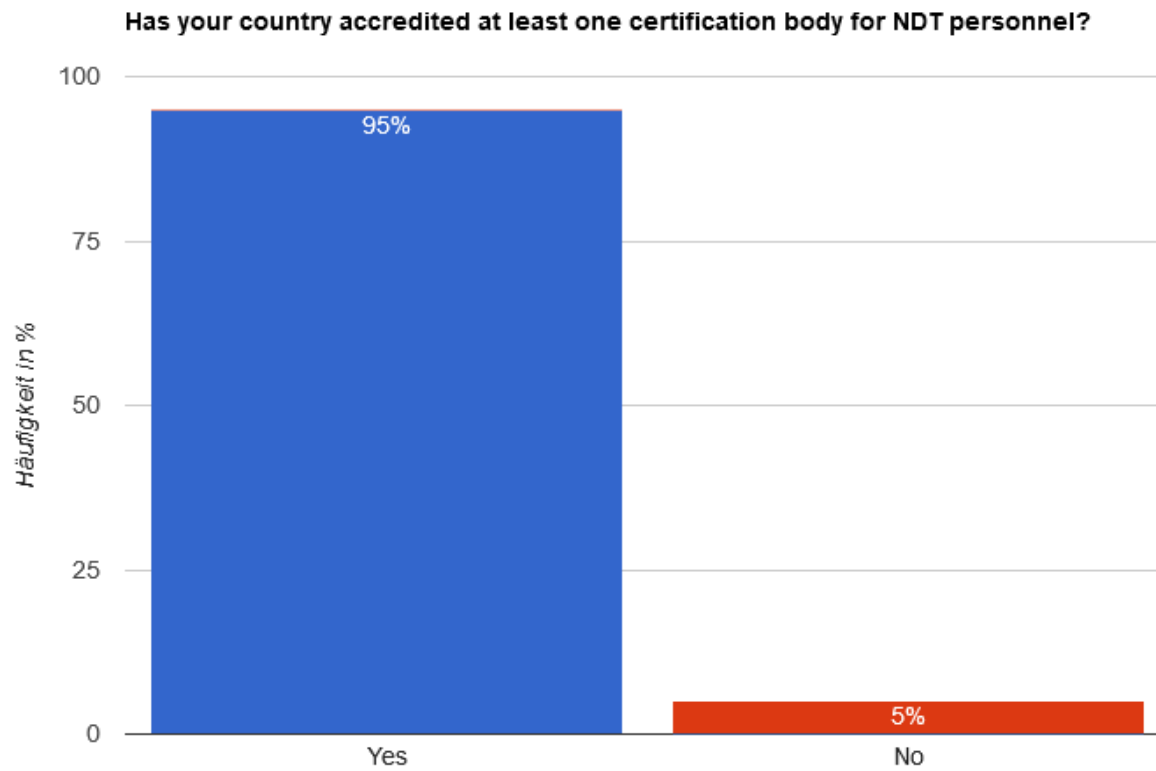
Renewal or Recertification

Region of Origin



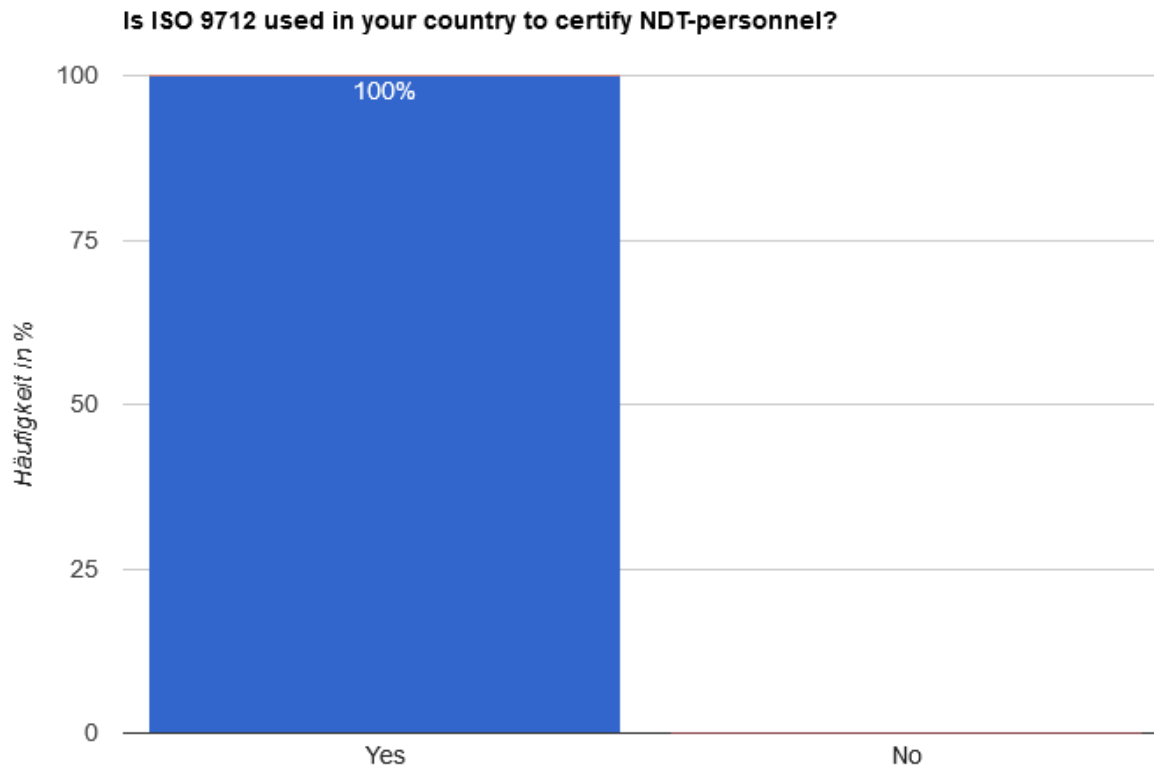
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Accreditation



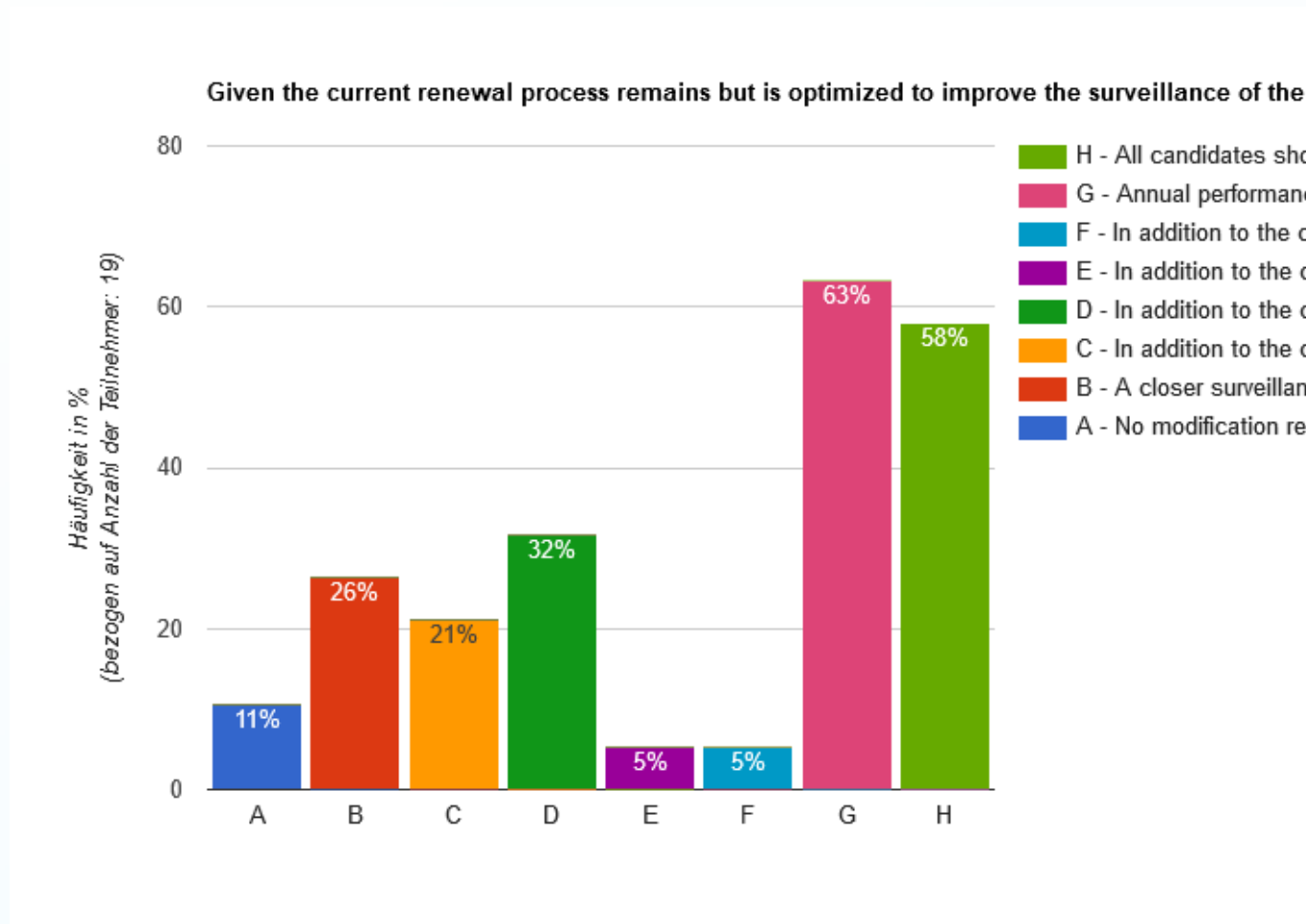
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Using ISO 9712?

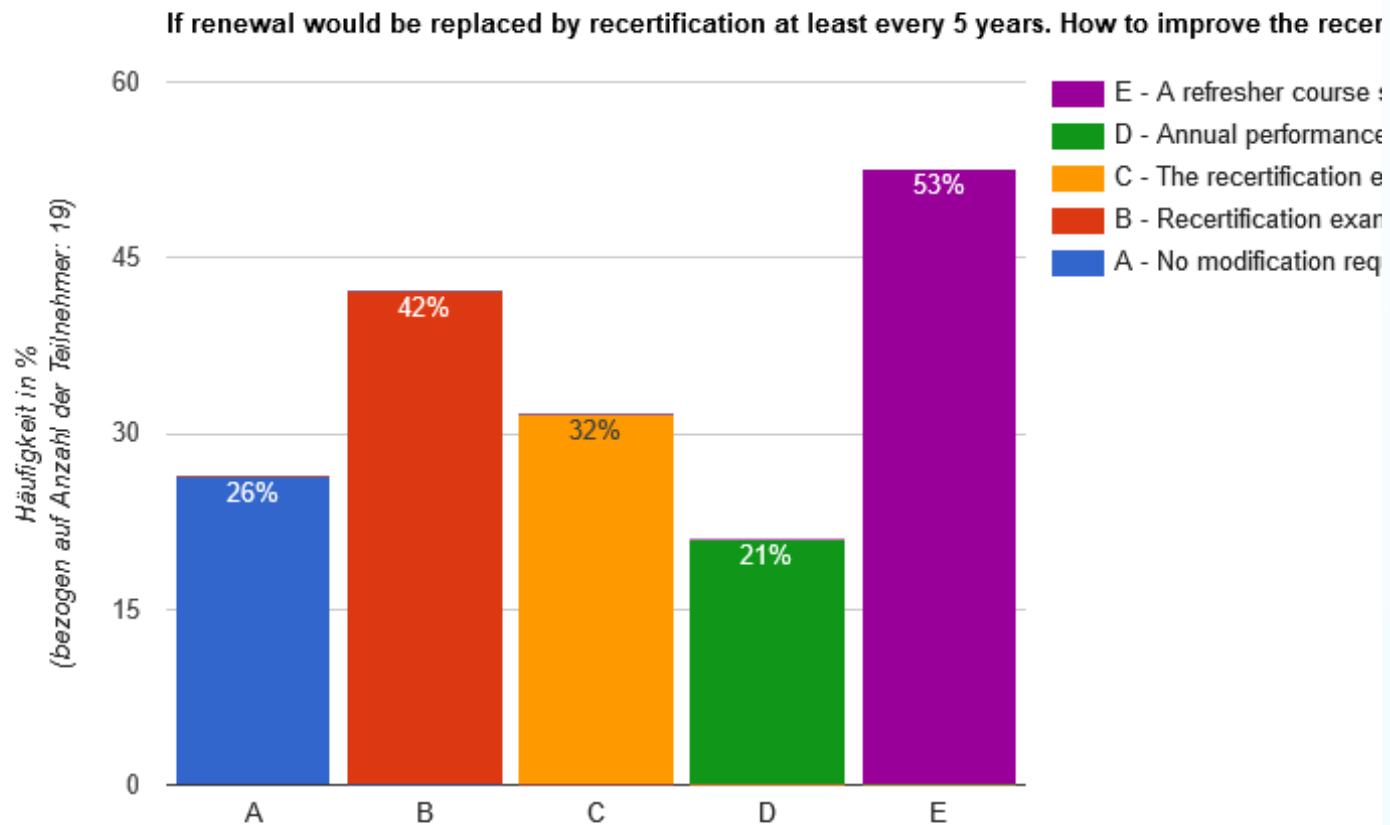


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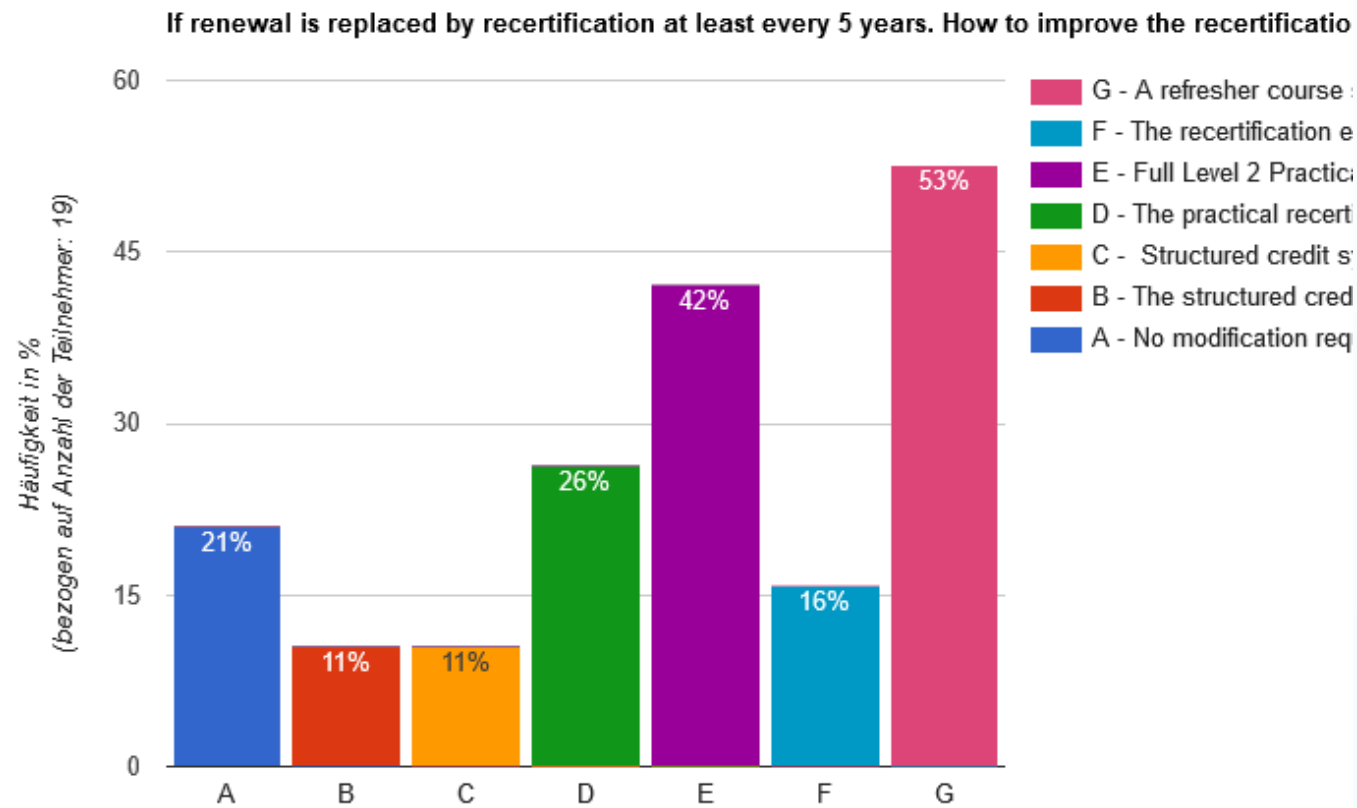
Option 1: Optimization of Renewal



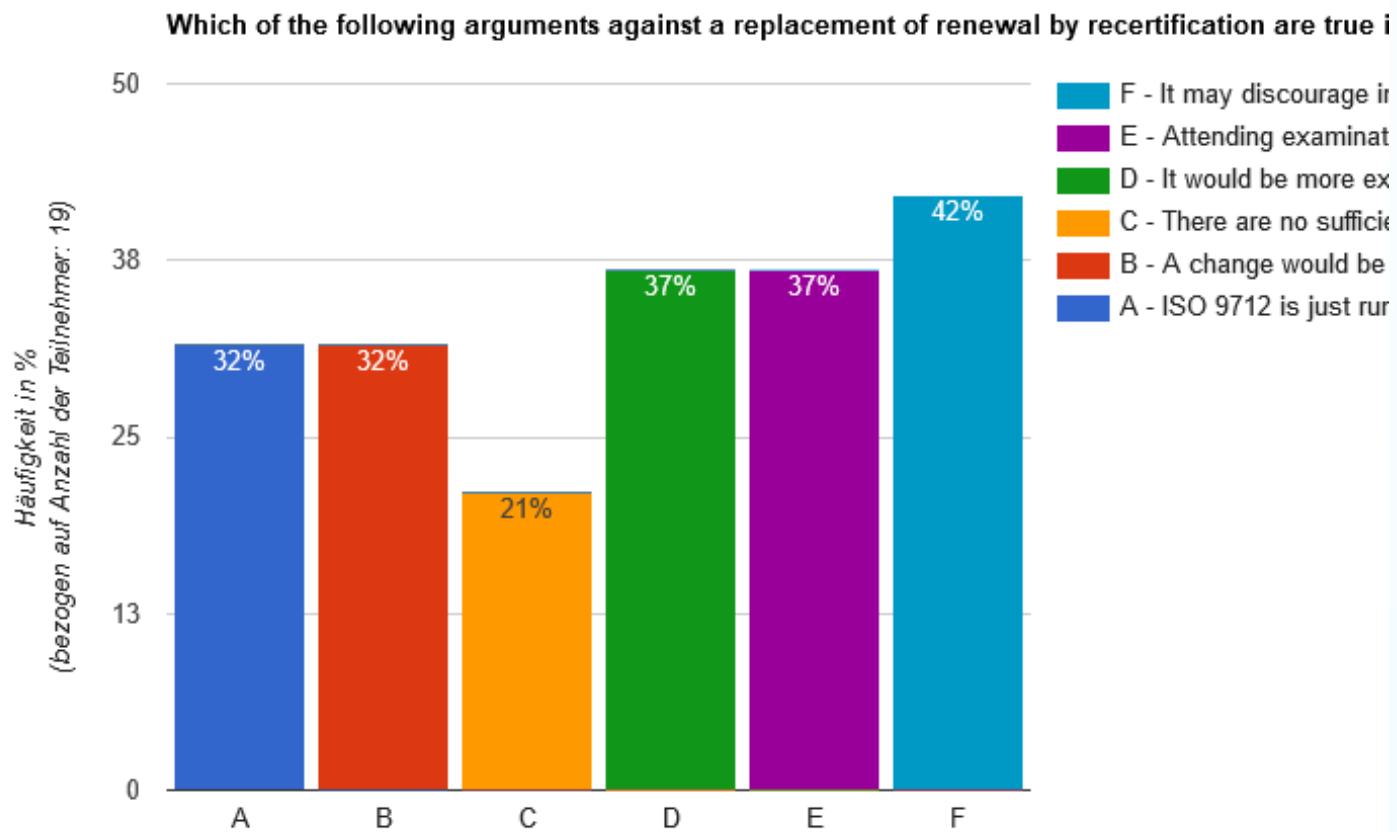
Option 2: How to improve Renewal of L 1 + 2



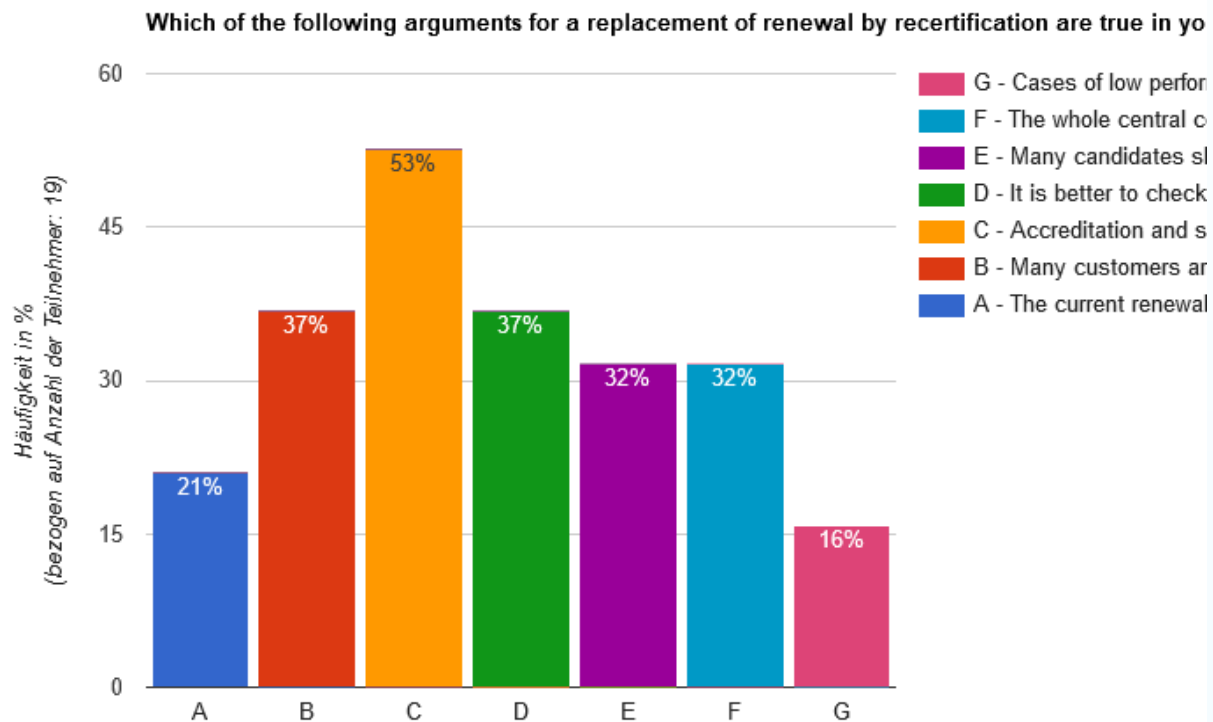
Option 2: How to improve Renewal of L 3



Arguments against replacement of Renewal



Arguments for a replacement of Renewal



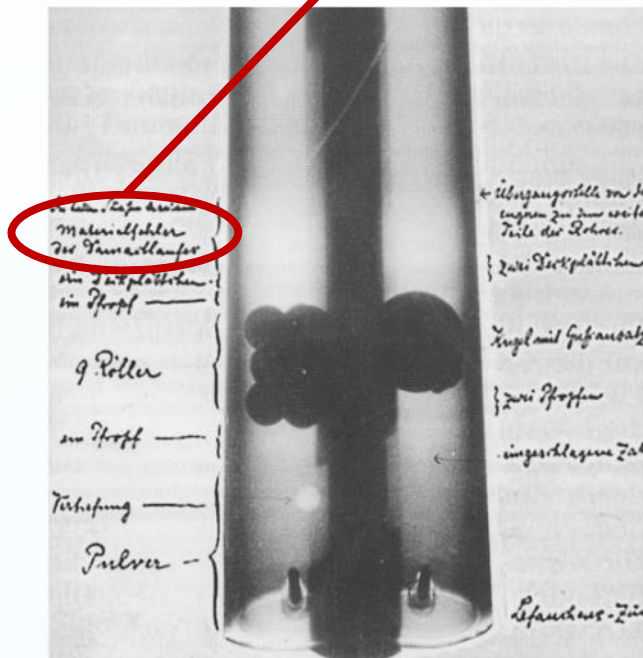
Titelmasterformat durch Klicken bearbeiten

Blindtext	
13:20	Blindtext <i>A. Walther, BauConsulting Dr. Walther, Brandenburg</i>
13:40	Merkblatt Korrosionsmonitoring <i>T.F. Mayer, Ingenieurbüro Schießl Gehlen Sodeikat, München</i>
14:00	Intelligente Brücke <i>P. Haardt, BAST, Bergisch Gladbach</i>
14:20	Big Data <i>T. Hartmann, TU Berlin</i>
14:40	Zustandsbeurteilung von Ingenieurbauwerken mittels statischem und kinematischem Laserscanning <i>W. Lienhart, TU Graz, Österreich</i>

Beispiel Folie: Farbe allgemein

Dezente, farbliche Kennzeichnung der jeweiligen Verfahren; siehe auch Verfahren-Icons
Beispiel: Strahlenschutz = gelb, hier anhand einer Folie von Charlotte Kaps

Materialfehler des Damastlaufes



Wilhelm Conrad Röntgen führt 1895 Experimente durch

- Lumineszenzpapier beginnt zu leuchten
- Röntgen veröffentlicht am 28. Dez. 1895: „Eine neue Art von Strahlen“
- Einladung der Physikalisch-Medizinischen Gesellschaft in Würzburg am 23. Jan. 1896

WG1 TASK GROUP B16	SURVEY OF INSPECTION QUALIFICATION ACTIVITIES IN ICNDT MEMBER COUNTRIES	DOC 2 rev 0 2018/05/11
MEMBER COUNTRY:.....SUMMARY.....SOCIETY:.....WG1.....		

ITEM	QUESTIONS	COMMENTS																																																											
		Japan	Canada	India	Serbia	Austria	Brazil																																																						
1.1		certification to ISO 9001																																																											
	Are most NDT organisations in your country certified according to ISO 9001?	Yes	Few, approx. 10-30%	YES	90% certified acc. ISO 9001 (TUV, SGS, Bureau Veritas, etc.) 30% certified acc. ISO 14001 and OHSAS 18001	Yes	Yes																																																						
1.2		Accreditation to ISO/IEC 17020 or ISO / IEC 17025																																																											
	Approximately, what proportion of organisations carrying out NDT in your country are accredited to one of these standards?	Yes, but very few %.	Very few, approx. <10%	10%	80% accredited most acc. ISO 17025 as NDT labs, 10% accredited acc. ISO 17020 as Inspection Body, 10% labs work as non-accredited. Accreditation is not mandatory in Serbia.	5-10	Approx 15%																																																						
2		INSPECTION QUALIFICATION/ VALIDATION/ PERFORMANCE DEMONSTRATION/PERFORMANCE BASED QUALIFICATION																																																											
	Is inspection qualification/ validation/ performance demonstration/ performance based qualification used in your country?	Yes.	Some	To certain extent	yes	Yes	Yes																																																						
	In which industries and against which reference documents? Applicable reference (eg ENIQ, ASME, PDI, ISO 11774) Mandatory or Voluntary?	<table border="1" style="width: 100%;"> <tr><td></td><td></td><td></td></tr> <tr><td>Nuclear</td><td>NDIS 0603</td><td>V</td></tr> <tr><td></td><td>* See mark below.</td><td></td></tr> <tr><td></td><td></td><td></td></tr> <tr><td></td><td></td><td></td></tr> </table>				Nuclear	NDIS 0603	V		* See mark below.								<table border="1" style="width: 100%;"> <tr><td>Manufacturing</td><td>ASME + PED</td><td>V</td></tr> <tr><td>Railway</td><td>ISO 3834</td><td>V</td></tr> <tr><td>Nuclear</td><td>ASME + National Standard</td><td>V</td></tr> <tr><td>Oil & Gas</td><td>ASME & API</td><td>V</td></tr> <tr><td>Boilers</td><td>IBR</td><td>M</td></tr> </table>	Manufacturing	ASME + PED	V	Railway	ISO 3834	V	Nuclear	ASME + National Standard	V	Oil & Gas	ASME & API	V	Boilers	IBR	M	<table border="1" style="width: 100%;"> <tr><td></td><td></td><td></td></tr> <tr><td>Oil & Gas</td><td>ASME, ASNT& API</td><td>V</td></tr> <tr><td>Power</td><td>ASME, ISO 17020, ISO 17025</td><td>V</td></tr> <tr><td></td><td></td><td></td></tr> <tr><td>Aerospace</td><td>EN 4179</td><td>M</td></tr> <tr><td>In service testing</td><td>ASME, ISO 9712</td><td></td></tr> </table>				Oil & Gas	ASME, ASNT& API	V	Power	ASME, ISO 17020, ISO 17025	V				Aerospace	EN 4179	M	In service testing	ASME, ISO 9712		<table border="1" style="width: 100%;"> <tr><td></td><td></td></tr> <tr><td>Nuclear</td><td>National Standard</td></tr> <tr><td>Oil & Gas</td><td>ASME,API, AWS</td></tr> <tr><td>Power</td><td>ASME, AWS</td></tr> </table>			Nuclear	National Standard	Oil & Gas	ASME,API, AWS	Power	ASME, AWS
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Oil & Gas	ASME,API, AWS																																																												
Power	ASME, AWS																																																												
3	Is your NDT Society involved in inspection qualification/ validation/ performance demonstration/performance based qualification?	No.	No	No	No directly, only through its members	Yes	YES																																																						
4	Can your society provide a speaker on NDT inspection qualification/ validation/ performance	Yes/no/ <u>perhaps</u> Name: TBA Email:	No	Yes Dr. B. Venkatraman bvenkat@igcar.gov.inperhaps	Yes Gerald Idinger, Gerhard Aufricht office@oegfzp.at	Rufino rufino@rufinoteles.com.br																																																						

ITEM	QUESTIONS	COMMENTS					
		Japan	Canada	India	Serbia	Austria	Brazil
	demonstration/performance based qualification in your country at a future ICNDT Workshop?						

JSNDI * Certification of personnel for performance demonstration of ultrasonic testing systems based on NDIS 0603: JSNDI Standard for Performance demonstration for ultrasonic testing systems —

Qualification and certification of personnel

ITEM	QUESTIONS	COMMENTS					
		Russia	China	Ukraine	Singapore	South Africa	Spain
1.1		Certification to ISO 9001					
	Are most NDT organisations in your country certified according to ISO 9001?	No, less than 20%	Yes	A small number of organizations	yes	yes	Yes
1.2		Accreditation to ISO/IEC 17020 or ISO / IEC 17025					
	Approximately, what proportion of organisations carrying out NDT in your country are accredited to one of these standards?	ISO / IEC 17025 – approx. 50%	Yes around 30%	Approximately 70%	Yes around 60% to ISO/IEC 17025	Approx 5%	30%
2		INSPECTION QUALIFICATION/ VALIDATION/ PERFORMANCE DEMONSTRATION/PERFORMANCE BASED QUALIFICATION					
	Is inspection qualification/ validation/ performance demonstration/ performance based qualification used in your country?	Yes	Yes	Yes	Yes Annual	Yes, but mainly in one industrial sector viz. Power generation	Yes
	In which industries and against which reference documents?					Manufacturing Railway	
	Applicable reference (eg ENIQ, ASME, PDI, ISO 11774)						Nuclear ASME ENIQ
	Mandatory or Voluntary?	Nuclear Russian norms, partly ENIQ M	Oil & Gas ASME ASNT API V	Virtually all major industries ISO 17025, ISO 17020, industry rules 60 % m	Oil & Gas ASME V	Power ASME V	
3	Is your NDT Society involved in inspection qualification/ validation/ performance demonstration/performance based qualification?	No.	No		No	Yes	Yes
4	Can your society provide a speaker on NDT inspection qualification/ validation/ performance demonstration/performance based qualification in your country at a future ICNDT Workshop?	Yes/no/ <u>perhaps</u> Name: TBD Email: mullin@ndt-rus.ru	Yes Name: Ji Jingyuan Email: mib8888@163.com	Yes Name: Vitalii Radko Email: Garwardv@i.ua	Yes Name: S K Babu Email: skbabu@ndtss.org.sg	Yes Name: Dr Manfred Johannes Email: Manfred Johannes MJohannes@csir.co.za / saint@saint.org.za	YES Name: Blas Romero Rodolfo Rodriguez Email:r.rodriquez@aend.org



ICNDT WG1 Task B12
**Mechanisms and Outcomes of Mutual Recognition –
Desired Outcomes and Analysis on Risks and Opportunities**

prepared by

P.K. Yuen

Director – Head of National Certification Body

National Non-Destructive Testing Personnel Certification Body /
Organisme national de certification en Essais-Non-Destructif

Government of Canada / Gouvernement du Canada

2018 June





Discussion - Outline

- Personnel Certification Bodys' (PCBs') Current Challenges & Considerations
- Analysis – Risk and Opportunities
- Next – Steps / Discussion



PCB – Current Challenges & Considerations

- Evolving demographics – applicants
 - Changing expectations – “right-now” and “no-fail” expectations
 - Quality of submissions/applicants – low First-Time Quality
- Personnel - HR Investment
 - Short term focus – from both applicants and industry
 - Training, mentorship, transfer of knowledge, and preparation.
- NDTCB’s gatekeeping and candidates’ “failures”:
 - Application – administrative rejection (lack of proper form completion, attention to detail, missing requirements, etc.)
 - Technical – exam failures (lack of competency, training, experience, self-study, accountability, etc.)
- Reality check: users always look for paths of least resistance -> easiest and quickest (lowest common denominator approach)
 - A PCB’s certification (ISO 9712 based or adopted schemes) is not the only option
 - PCBs are always challenged to preserve the right balance of quality and accessibility
 - ***Maintaining balance nationally is difficult enough ... and with more external factors ... it may not get easier ...***
 - ***Responsibility to “protect” the system’s reputation and integrity.***
 - ***Human factors: conflict of interest, business pressures, entrepreneurship, etc.***



Risks and Opportunities (1/2)

- ICNDT and its WG1 are already initiating and putting in place many controls and quality improvements + harmonization tools that are elevating the overall quality of ISO 9712 - based certification schemes
- The MRAs are important considerations for all involved:
 - Should review Pros and Cons + Short, Medium and Long-Term considerations
 - Quality Management model (ref ISO 9001:2015): « Planning to address Risks & Opportunities » for the organization.
- Systematic analysis and review of pathways, roles and behaviors
 - Impacts on PCBs must be reviewed, but also important to consider:
 - Societies, AQB, AECs, Training Centres
 - Regulators, Users (companies/individuals), Etc.



Risks and Opportunities (2/2)

- An updated and broad survey questionnaire (ref attached Survey B12-1) will be a key tool to help further analyze and prioritize items for consideration
 - Focuses on opportunities and risks specific to PCBs, its country/region, and their stakeholders
 - Covers the mobility (import&export) of important topics such as:
 - Certified personnel
 - Goods
 - Certification services
 - Training and Examination services
 - Recognizing that there are positive considerations and intrinsic value for mobility/trade internationally.
 - Designed to incite a balanced approach to review all factors from multiple perspectives; a full spectrum review is critical to ensure a fair and diligent process.

5





Summary – Next Steps

- Mutual Recognition: Credible, Controlled and Sustainable for All-Involved
 - Plan for future technologies and rapidly evolving landscape
- NDT inspections - value of certification is linked to:
 - Quality of work, trust, integrity, reputation, competency, professionalism, oversight, enforcement, etc.
 - If these characteristics are diluted (either by the PCB or its MRA partners), the negative impacts can be broad and long-term damaging to the industry, and reduce users/regulators endorsement of certification.
- ICNDT WG1 has the great opportunity and responsibility to shape the present and future of NDT certification internationally
 - Detailed analysis of cause and effects of MRA and its implementation, be proactive to properly anticipate → mitigate risks and leverage opportunities
 - **Updated survey and questionnaire has been developed and will be further compiled/analyzed**
 - **Prioritization and solutions should further emerge from members' comments**
- Harmonization, Mutual-Recognition, Reciprocity ... big goals – embracing the challenge
 - Must still ensure: Quality, Safety, Integrity, Credibility
 - Must also be promoted and supported via Fairness, Equality and Harmony amongst all partners and collaborators



QUESTIONS?

DISCUSSION

FEEDBACK



Additional Slides Info & Reference



ICNDT – MRA General Objectives

- Elevate standards (i.e. improve quality and proliferation of ISO 9712 and other associated standards and requirements as the main NDT standards globally)
- Harmonise NDT personnel certification operations of PCBs
- Mutually support sustainable and strong national societies and PCBs that can continuously promote ICNDT and credible adoption of recognized ISO 9712-type schemes and standard in local regulations, codes, and employer/job-site requirements.
- Recognition of certified personnel for performing work in a country other than that of their PCB
- Reciprocal acceptance of inspected goods for import/export
- Generate greater value and quality for all ISO 9712-type schemes and certificate holders



Canada's Long-Standing Commitment to International Collaboration, Development and Harmonization (Promoting Quality and Value)

- National Society: CINDE (Canadian Institute for NDE)
- National PCB: NRCan NDTCB [Government of Canada] – since 1960
 - Canada adopts ISO 9712:2012 without modifications under the national standard CAN/CGSB-48.9712-2014
 - The national CAN/CGSB standard and the national personnel certification body (PCB) are both administered by the Government of Canada, with the federal department of Natural Resources Canada (NRCan) maintaining the authority to implement the NDTCB (PCB)
- Canada (Society & PCB) has strong interests in and is committed to executing sustainable and credible recognition strategies
 - Fair, sustainable and long-term
 - Mutually beneficial - maximize value for all certificate holders and industry users
 - Safeguarding quality and system integrity
- In support of ICNDT's core objectives and mandates



Canada's System and Perspectives (1/2)

- National Society: CINDE (Canadian Institute of NDE)
- National PCB: NRCan NDTCB [Government of Canada] – since 1960
- Canada adopts ISO 9712:2012 without modifications under the national standard CAN/CGSB-48.9712-2014
 - The national CAN/CGSB standard and the national personnel certification body (PCB) are both administered by the Government of Canada, with the federal department of Natural Resources Canada (NRCan) maintaining the authority to implement the NDTCB (PCB)
 - Mandate for materials technology:
 - Value-added use of materials for sustainable development in Canada and globally
 - Industry competitiveness and productivity
 - Energy efficiency
 - Efficient use of natural resources
 - Security, reliability and environmental impact of major infrastructures



Canada's System and Perspectives (2/2)

- Canada (Society & PCB) is interested and committed to executing sustainable and credible recognition strategies
 - Fair, strategic and long-term
 - Mutually beneficial - maximize value for all certificate holders and industry users
- Long-term value of North American, Pan-Am, and Global collaboration
 - Significant and positive developments in the region
- Canada's Commitment:
 - CINDE's participation
 - NRCan's (PCB) participation
 - ISO TC135/SC7 Chair (for ISO 9712)
 - CGSB/SCC support



Structured industrial experience,
in-service assessment
and
consequent company authorization

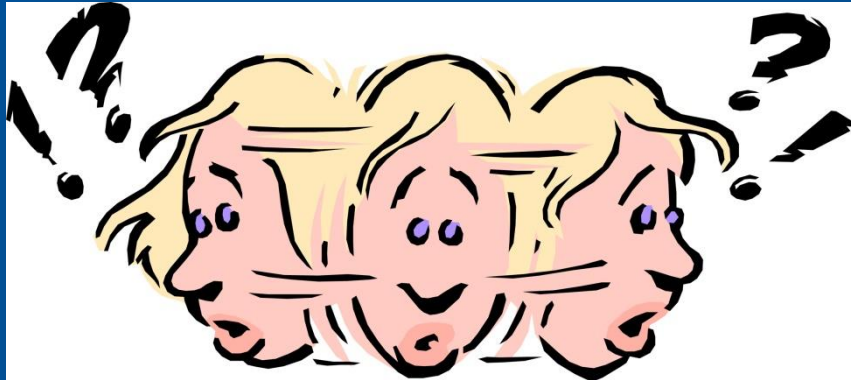
Harold Jansen – SAIW Certification



TASK :

Provide feedback on Job-specific training and certification being carried out to supplement ASNT and ISO 9712 certification

- What?
- Is it required?
- Yes we do it. Please show me? It must be here somewhere...



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Industrial Survey (National)

Summary of survey findings:

- ❖ Structured company specific on-the-job-training ranges from non-existent to limited by personnel availability.
- ❖ The outcomes of job-specific training are limited to passing of tests and not based on structured assignments or stipulated outcomes.
- ❖ Documented proof of training, assessments and outcomes are not properly recorded or documented.
- ❖ The need for written practice is mainly end-user driven.

The image shows a screenshot of a survey form titled "INDUSTRIAL SURVEY : Industrial Experience". The form is divided into several sections:

- COMPANY CONTEXT:** Includes fields for Company Name, Sector activity (Power Generation, Petrochemical, Aviation, Rail, Truck & Trailer, Marine, Mining, Construction, Paper & Pulp, Other), and a field for "Provide detail for 'other'".
- PERSONNEL:** Contains questions about NDT personnel, such as "Does your company utilize permanently employed NDT personnel?", "How many NDT personnel are permanently employed?", "Does your company utilize contracted NDT personnel?", "Are most of these contracted personnel private individuals or via labour brokers?", "How many contracted NDT personnel are utilized during peak periods?", and "Does your company subcontract all NDT activities to an external company?".
- TRAINING:** Includes questions about general NDT training, "Who provides general NDT training to your personnel?", "General training is based on which of the following standards?", "Does your company provide company specific NDT training?", "Is company specific training mandated?", "Is company specific training provided in accordance with your written practice?", "Is company specific training performed in a structured way?", and "Company specific training outcomes are based on which of the following?".
- QUALIFICATION & CERTIFICATION:** Contains questions about training outcomes, "Are these outcomes evaluated and assessments recorded?", "Does your company mandate in-service training following general NDT training?", "Does this training form part of the industrial experience duration?", "Is the training provided structured", "Are these records provided to the relevant certification body?", "Personnel are qualified and certified in accordance with which standard?", and "Does your company certify or authorise its personnel to work on their behalf?".

The form also includes a footer with "SABW", "Industry Survey", and "1" (page number).

Industrial Survey (National)

Summary of survey findings:

- The majority of company authorisations issued are based on PCB related qualification outcomes and certificates, which essentially relates to 'general competence of NDT operator' and not to company specific quality documents, processes, equipment, etc.
- Statement is made of '*Why do I need to do something that is not required*'

The image shows a screenshot of the 'INDUSTRIAL SURVEY : Industrial Experience' form. The form is divided into several sections:

- IF CONTEXT:** Includes fields for Company Name, Sector activity (Power Generation, Petrochemical, Aviation, Rail, Truck & Trailer), and Provide detail for 'other'.
- PERSONNEL:** Contains questions about NDT personnel, such as 'Does your company utilise permanently employed NDT personnel?' and 'How many contracted NDT personnel are permanently employed?'.
- TRAINING (Continued):** Includes questions about training documentation and structured mentorship programs.
- INDUSTRIAL EXPERIENCE:** Contains questions about when industrial experience starts, whether it is stipulated in practice, supervised, and recorded.
- QUALIFICATION & CERTIFICATION:** Includes questions about whether personnel are qualified and certified in accordance with standards like ISO 9712, ASNT, or other.

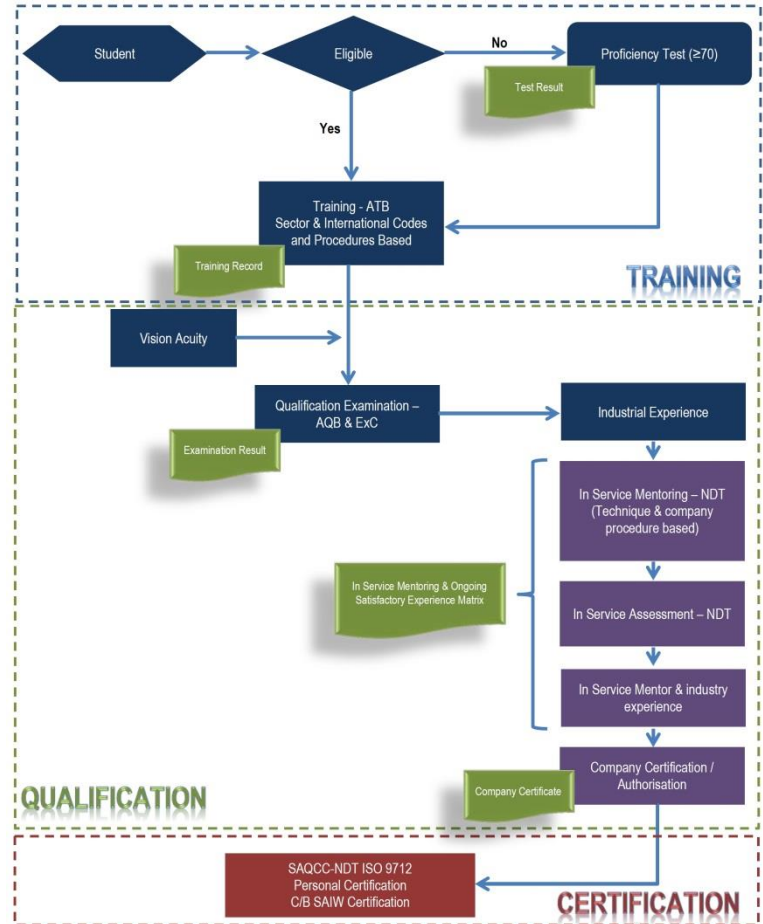
The form also includes a 'SAVE' button at the bottom left and a page number '2' at the bottom right.

ISO 9712 Process

While ISO 9712 provides definite guidelines for physical ability, examination and certification, two aspects remains, to a large extent, ambiguous and open-ended viz.

- ❖ Industrial experience
- ❖ Surveillance / ‘Continuous satisfactory performance’

(Training is addressed in ISO/TR 25107 & 25108; referenced in ISO 9712)



Ambiguity of ISO 9712 relating to Industrial Experience

ISO 9712 provides the minimum duration (Table 3) relating to industrial experience and stipulates possible reductions (§ 7.3.3) while aspects concerning to the following is not clearly addressed or vaguely referred to:

- ❖ Eligibility
- ❖ Requirements
- ❖ Assessment
- ❖ Responsibilities
- ❖ Outcomes



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Requirements - Duration

- ❖ Minimum industrial experience duration (ISO 9712) vs. SAQCC-NDT ATB Training.

Method	Level 1	Level 2	Level 3
ECT, RT	3 months ATB Training ≈ 15% (ATB Training: 2 weeks)	9 months ATB Training ≈ 5% (ATB Training: 2 weeks)	18 months ATB Training ≈ 1.5% (ATB Training: 6 days: ECT, 5 days: RT)
MT, PT, VT	3 months ATB Training ≈ 18% (ATB Training: 32 hrs)	3 months ATB Training ≈ 6% (ATB Training: 32 hrs)	12 months ATB Training ≈ 1.9% (ATB Training: 1 week)
UT	3 months ATB Training ≈ 23% (ATB Training: 3 weeks)	9 months ATB Training ≈ 8% (ATB Training: 3 weeks)	18 months ATB Training ≈ 1.5% (ATB Training: 1 week)

SO WHAT MUST BE DONE DURING THIS PERIOD?

- ❖ Industrial experience far exceeds the ATB training requirement, thus it is of critical importance and can not be left unspecified.



Requirements – Intent of Industrial Experience

The intent of the industrial experience is to:

- ❖ apply the basic knowledge (theory & specific applications according to international codes and standards) gained during the ATB training phase,
- ❖ to apply the method and techniques within a controlled operating environment (company quality system),
- ❖ to generate relevant reports and documents,
- ❖ to understand the communications protocol and
- ❖ to master the skills pertaining to the NDT technique within a mentored environment

ALL BASED ON COMPANY SPECIFIC DOCUMENTS & PROCEDURES



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Duties – Tasks vs. competency

The qualification level duties within ISO 9712 is qualified within the following sections:

- ❖ Level 1 Operator §6.1
- ❖ Level 2 Technician §6.2
- ❖ Level 3 Technologist §6.3 and to some extent Annex E Engineering of NDT

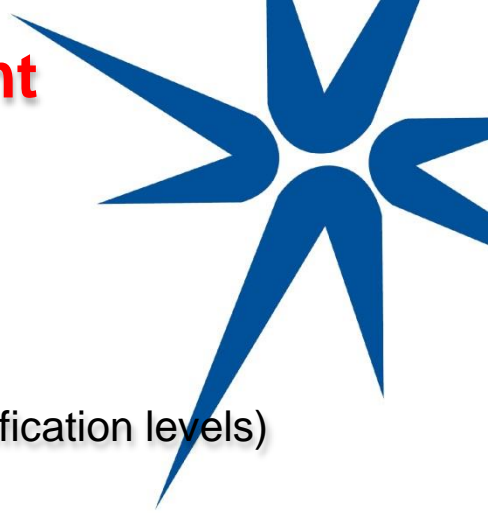
However the quantification is related to a duration and not to assignments / assessments designed to determine competence

(ISO 17024 - 3.6 Competence - ability to apply knowledge and skills to achieve intended results)

Competency can not be restricted to a:

- ❖ Specific duration; nor to a
- ❖ Number of assignments, but rather to **satisfactory outcomes achieved**

Assignments & Outcomes based assessment



Company specific mentoring:

- QMS & operating procedures
- Written practice

Structured Practical Assignments (Apart from those defined in the qualification levels)

- Operational checks
- Functionality checks
- Equipment & pre-test calibration
- Inspection & reporting (Level 2: Written Instruction; Level 3: Procedure)
- Inspection validations

A minimum number of activities must be defined and assessed prior to the candidate being regarded as eligible for the performance assessment



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Assignments & Outcomes based assessment



Activities are defined based on the method and technique requirements within the industrial / product sector and should not be selected to limit the individuals capability of being certified.

Those activities that can not be performed within the company structure, needs to be identified and can form part of the dedicated practical course component (§7.3.3.5) mentioned under possible reductions and can be strategically utilised to address aspects not covered during in-service mentoring while reducing half of the industrial experience requirements.



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Who is responsible for the practical experience component?

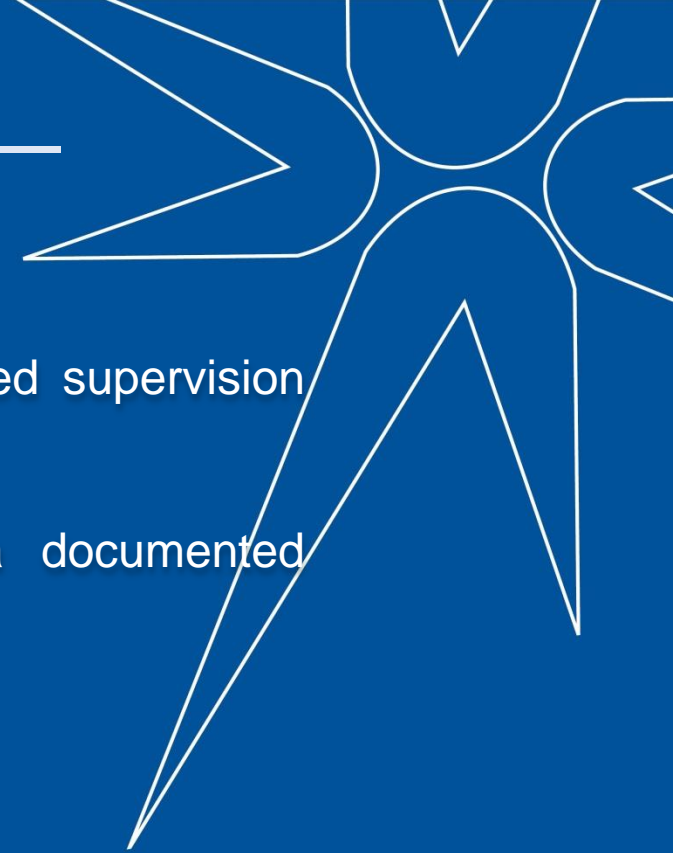
- ❖ The employer is responsible for on-the-job training (mentoring), company authorisation (based on assessment outcome) and to have a documented procedure to describe this process and assign responsibilities, usually managed by the responsible and appointed Level 3 (Written practice)
- ❖ The Certification Body shall evaluate the experience and determine its acceptability based on the scheme requirements, set by the PCB in collaboration with industrial participation.
- ❖ Therefore the PCB should stipulate relevant experience requirements and outcomes to be achieved prior to certification – this guidance or support from ISO 9712 is not currently in place.



Outcomes

Following:

- ✦ company specific mentoring,
- ✦ mastering of technique specific skills under qualified supervision and
- ✦ consequent successful assessment based on a documented written practice
- ✦ the company authorisation / certificate is issued



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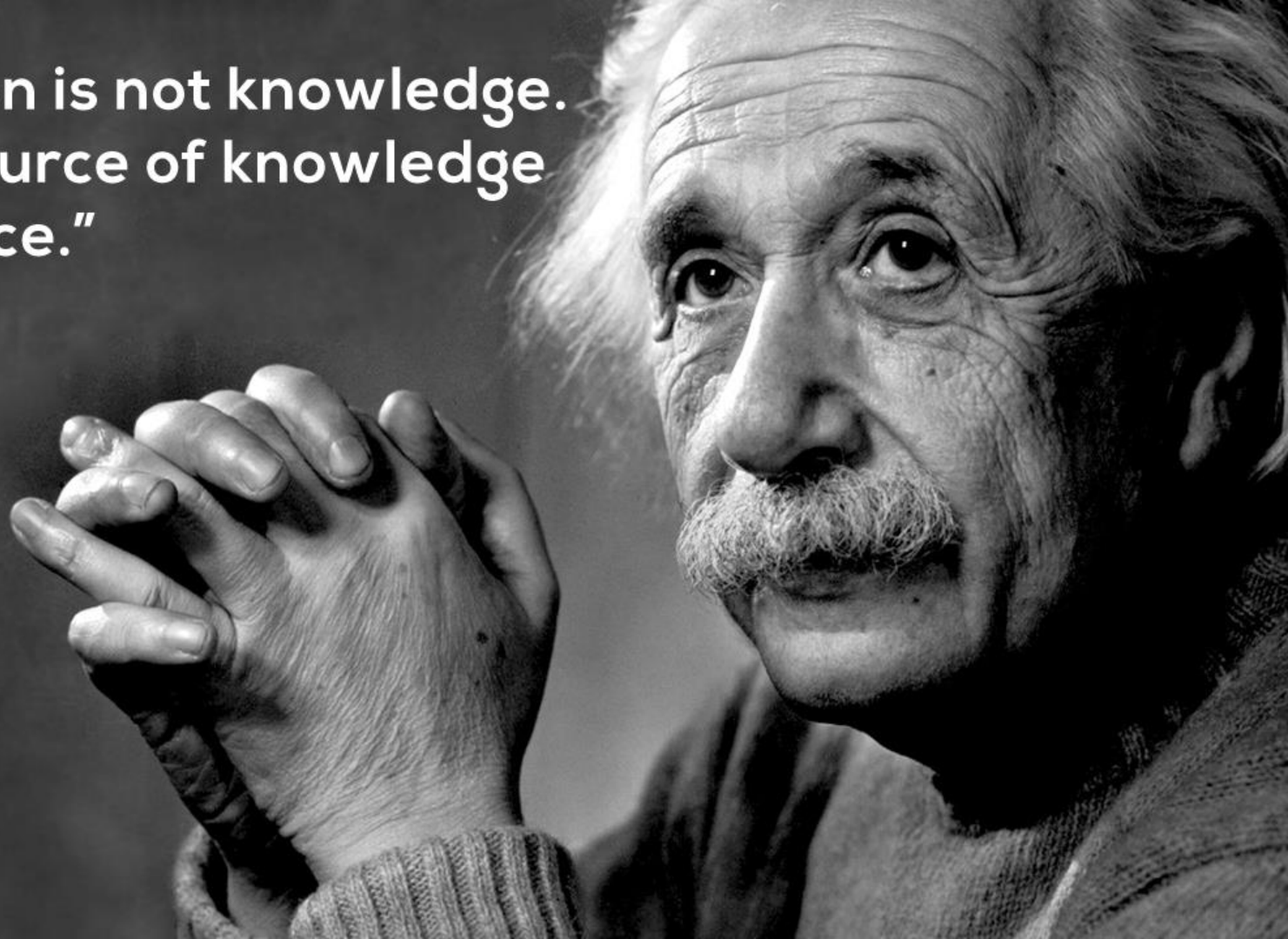
Proposed solutions:

- ✦ Define / quantify minimum outcomes related to industrial experience & job specific training.
- ✦ Consider adopting a Company Authorisation / 'Certification' process similar to ASNT SNT-TC-1A within ISO 9712 (Possibly ISO 9712 Part 2)
- ✦ Provide a normative annex within ISO 9712 providing guidance towards company authorisation, considering both industrial experience and job specific training requirements.



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**"Information is not knowledge.
The only source of knowledge
is experience."**



ISO 9712

Non-destructive testing — Qualification and certification of NDT personnel

Assessment of 7.3 Industrial NDT experience

Keith Arcus Chairman AINDT NDT Certification Board

ISO 9712 Industrial NDT experience

7.3.1 General

The minimum duration of experience to be gained in the sector where the candidate is seeking certification shall be as given in Table 3, with the possible reductions given in 7.3.3. When the candidate is seeking certification in more than one method, the total time of experience shall be the sum of the experience in each method.

Table 3 — Minimum industrial experience

NDT method	Experience months ^a		
	Level 1	Level 2	Level 3
AT, ET, LT, RT, UT, TT	3	9	18
MT, PT, ST, VT	1	3	12

^a Work experience is based on a nominal 40 h/week or the legal week of work. When an individual works in excess of 40 h/week, he may be credited with experience based on the total hours, but he shall be required to produce evidence of this experience.

Experience requirements are simply stated in ISO9712.

A simple evaluation of experience as a date to date value often leads to inflation of the actual NDT industrial experience

The AINDT prefer to evaluate industry experience in hours. Table below from the AINDT - Guide to Qualification and Certification Non-destructive Testing

3.8 MINIMUM NDT TRAINING & EXPERIENCE (CUMULATIVE TOTALS) – ISO 9712

NDT Method	Level 1		Level 2		Level 3	
	Training (Hour)	Experience (Months) (Hours*)	Training (Hours)	Experience (Months) (Hours*)	Training (Hours)	Experience (Months) (Hours*)
Eddy Current Testing	Not Available		88	12 (1728)	136	30 (4320)
Magnetic Particle Testing	16	1 (144)	40	4 (576)	72	16 (2304)
Penetrant Testing	16	1 (144)	40	4 (576)	64	16 (2304)
Radiographic Testing	Not Available		120	12 (1728)	160	30 (4320)
Computerised/Digital Radiography	Not Available		40	6 (864)	64	12 (1728)
Ultrasonic Testing	40	3 (432)	120	12 (1728)	160	30 (4320)
Phased Array (PAUT)	Not Available		80	6 (864)	104	12 (1728)
TOFD	Not Available		80	6 (864)	104	12 (1728)
Visual	Not Available		40	4 (576)	64	16 (2304)

Industrial experience in months is based on a nominal 40 h week or the legal week of work. When an individual is working in excess of 40 h/week, he may be credited with experience based on the total hours, but he shall be required to produce evidence of this experience.

*AINDT recognises 36 hours as the typical Legal working week in Australia (i.e. MT2 36hrs x 4mths x 4wks)

ISO 9712 Industrial NDT experience

The AINDT application forms are available on the AINDT website.

We are continually improving the forms with notes to guide the candidates on the information required. *(We would prefer they read the Guide to certification but.....)*

And also to make them easier for our administration staff to process.

- The industrial experience is always reviewed by a member of the applications committee. (Level 3)
- The administrators check the bona fides of each referee and telephone the referee to check on each candidates experience.

ISO 9712 Industrial NDT experience

AINDT reserve the right to request additional proof in the form of log books or time sheets if doubt exists.

The AINDT has found the current system works well.

It has detected a number of doubtful applications.

- one candidate, 3 methods applied for, each application claimed 40 hours per week for the same time period. 120 hours per week for 1 year. all 3 applications rejected.
- candidate transferring in from another scheme, insufficient hours of experience but full Level 2 in the other scheme. previously evaluated date to date!

ISO 9712 Industrial NDT experience

Example:

Candidate Bob Smith claims UT Welds experience From 1 January to 31 December 2017.

However actually performed only 100 hrs of ultrasonics between these dates.

Based on the date to date method, there would be know way to detect this.

ISO 9712 Industrial NDT experience

AINDT believe that evaluating experience on an hours basis gives a more realistic view of a candidates experience.

Using an estimate of the average hours spent per week is not precise, but provides a good estimate to work on.

As previously mentioned, AINDT faces competition from foreign accredited AQB's which use a date to date method of evaluation of industrial experience.

A level playing field please.

ISO 9712 Industrial NDT experience

AINDT had seen situations and received feedback where candidates sit overseas examinations with other CB's AQB's in Australia

Then a week later attempt to transfer these foreign certifications to AINDT in an attempt to bypass our experience requirements.

AINDT have tightened up the requirements for transfers to AINDT certification to combat this issue....

ISO 9712

AINDT has no real issues with the current version of ISO 9712.

The five pillars of 9712 are

- Visual acuity
- Training
- Examination
- Industrial Experience
- Code of Ethics

Once these 5 requirements are met then certification may be given.

Harmonisation should be a secondary goal.

Strengthening ISO9712 where weaknesses are found will provide greater acceptance and harmonisation will follow.

