European Certification and Qualification Association - Developments in Europe and World Wide

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Abstract

The European Certification and Qualification Association (ECQA) is the result of a series of EU funded projects from 2005 – 2014. This included European projects such as EQN (European Quality Network, 2005 – 2007), EU Certificates Campus (2008 – 2009) and DEUCERT (Dissemination of EU Certification). Nowadays, ECQA operates as an organization that is independent from funding. The members of ECQA are widely spread all over Europe and vary from universities, companies and NPOs as well as individuals.

Recent key LLP funded projects include

- Automotive Quality Alliance (AQUA) where Automotive Clusters together with ECQA elaborate a new skill set and certificate for Automotive Quality Engineers integrating functional safety, Six Sigma, and Automotive SPICE competencies.

- LEADSUS developing key skills for sustainability management in Europe, including an ECQA certificate, training offer and Europe wide exams.

- I2E Idea 2 Enterprise as a project with schools where ECQA certificates for innovation management will be implemented at high school level (Gymnasium) to empower people for innovation already at an early stage of life.

- LSSH (Lean Six Sigma for Health Care) where the LSSA (European Lean Six Sigma Academy) which was founded by a joined project with ECQA elaborates quality skills in the health care sector.

Recent strategic actions for involvement in university level include:

1. ECQA job role training has been integrated as university lectures and ECTS points are granted for the students. Examples are in functional safety management and Automotive quality management.

Recent globalisation actions include:

2. ECQA was invited as a key note to a Chinese conference organised by Chinese government bodies and a memorandum for future collaboration was signed.

Recent Europe wide recognition:

3. The EU project DEUCERT (dissemination of ECQA certificates) has been published as a good practice by the EACEA (coordinating institute of the LLP program) [12].

Keywords

European qualification standards, European certification strategy, ISO/IEC 17024, European exam systems, European learning portals

1 History

The project EQN [2],[3],[4],[11] was a strategic network project in education in which industry and educational institutions from 13 countries did networking to propose a solution to this demographic problem. Also the project should deliver an initiative of innovation in education as well [6],[8].

This resulted in:

Job Role Based Qualification Strategies [54,[6],[11]. While the universities teach for a domain (e.g. informatics engineer) the job role based qualifications are short courses which in 2-3 weeks re-qualify people in industry (access from the workplace) to sustain their value for the company and remain employed. Job roles are described in form of skills sets (similar to the skill cards in the Department of Trade and Industry in the UK), and skill sets are mapped onto training, exercises and tests.

If someone studies informatics engineer this takes approx. 5 years at a university. Assuming this as a basis a job role qualification is for instance to upgrade to a safety architect, software process improvement manager, etc.

Modular Certification. It was also assumed that people in industry at the work place are under time pressure and cannot do the whole training at once. They might do a part in year 1 and the rest in the next year. They (assuming the European mobility strategy) could do the first part from Spain the rest from a German work place.

Thus, the skills sets were structured into skill elements and each skill element has so called performance criteria. Each certificate lists elements and a full certificate is achieved if all elements are passed.

European Mobility Strategy. If, for instance, in the current economic situation Spanish workers would move to Germany for employment and later would move to UK and then back to Spain, all certifications should be added up and accepted across all countries.

This led to the concept of so called lifelong learning accounts for people. Each person in Europe can register at the system and in one lifelong learning account (like an international bank account but for education) can do self assessment, achieve skills profiles, and receive training. The account sustains and is a central service across EU countries.

This infrastructure was later established in the EU Cert campus project.

Europe Wide Standardized Approach. To be able to roil out this strategy in all countries the design of standard guidelines was important. They were translated in all major European languages.

As a result of this the ECQA [2],[3],[4],[8],[9],[11] has established a set of standard quality guidelines for

• Certification of a new job role

• Certification of training bodies

• Certification of trainers

• Certification of people

See www.ecqa.org and cooperation with ECQA under guidelines.

A job role committee (JRC) is an international working group who signed the standard ECQA JRC agreement and annually maintain the skills card and test questions pool.

ECQA certifies training bodies who train assessors in this new assessment model.

Attendees of courses do an ECQA based exam and receive an ECQA Certificate.

ECQA provides conformity assessment services based on the principles of ISO/IEC 17024:2012. From the very beginning, some core requirements of the international standard ISO/IEC 17024 for certifications of persons have been considered in the ECQA guidelines and have been updated in the current version v05 of the "ECQA Architecture".

For example, one of the core requirements of this standard is that training organisations and examiners are separated and independent from each other. ECQA supports that by

1. Establishing a Europe wide exam system which generates tests randomly per person (each person gets a different test and cannot be controlled by the training body). The exam questions are assigned to skills elements of job roles.

2. Using certified exam bodies who provide examiners to organise the exams.

3. Automatic corrections through the ECQA test system so that none can interfere the tests and the results personally.

4. Job Role Committees who elaborate and annually update a pool of multiple choice test questions.

The work in PAC [1] will be reviewed against the ECQA quality criteria and the coverage of all quality criteria is checked by reviews.

2 EUROPEAN AND GLOBAL INFRASTRUCTURE

To support the concept of lifelong learning accounts (a strategy developed in the EQN project) the EU Cert Campus project (above 20 partners from 18 countries) developed an infrastructure which supports standard procedures for lifelong account management, self ass4essment of skills, exams and administration of certificates [1],[3],[4],[8],[11].

Once this infrastructure was developed and in place (now used by above 11000 professionals and managers in European industry) it was important to find a body maintaining these services. This resulted in the legal foundation of the ECQA (European Certification and Qualification Association) in 2008.

ECQA is an international Non-Profit-Association headquartered in Austria. The income model is based on the certification business.

ECQA follows – as much as possible and useful – the processes of independent exams as outlined in ISO 17024 (ISO/IEC 17024:2012, Conformity assessment — General requirements for bodies operating certification of persons, second edition 2012-07-01).

An external pre-audit in May 2013 revealed that the ECQA self-declaration is justified: „ECQA provides conformity assessment services based on the principles of ISO/IEC 17024".

Since ISO 17024 accreditation is optional and possible only at national level and per job role, ECQA doesn´t envisage to have 30 Job roles certified in more than 20 countries. However, it is foreseen to qualify for the future ISO 9001:2015 certificate for organisations.

ECQA earns a share of each certificate sold. The income is used to further maintain the lifelong learning accounts and exams infrastructure.

The members of ECQA (and owners) are more than 60 universities and training bodies from Europe.

At the end 2013 the EACEA (Institute in the European Union coordinating the LLP program) selected the DEUCERT project (dissemination of ECQA certificates) as a best practice to be publsished in a brochure of good practice.

In 2013, ECQA signed its first memoranda of understanding and cooperation agreements with Asian und North American Partners. e.g. an agreement between the China National Committee on for Terms

in Sciences and Technologies (CNCTST) the International Network for Terminology (TermNet) to introduce ECQA in China and to organise ECQA Certified Terminology Manager certificates and training in China with Chinese and European partners. Additionally a memoranda of understanding was signed with (SOBUS) for future collaboration in Quality management and trainings in China and Europe. A cooperation with Japan already started with Nilsoft becoming the first ECQA member of Japan and ECQA started the talk to other potential partners for trainings and certifications in Japan.

As fast growing network of training and research organisations, examination bodies, industry partners and NPOs, ECQA is on its way to become the world-market leader for industry certificates for persons.

Within the next years, ECQA will implement its expansion and quality strategies, composed of a globalization strategy, a multi-language and terminology strategy and a localisation strategy – localization meaning the adaptation of ECQA products and services to the specific markets and target groups all over the world.

Quality assurance and control will be one of the core activities of ECQA for the years to come: from "mystery shopping" in order to assess the work and conformity of ECQA Certified Training and Exam Organisations and Partners to internal audits on site – ECQA will take all necessary measures to provide standardized quality services all over the world and stay a reliable brand.

The vision of ECQA is that each person in Europe might have an educational skills profile (skill card like a bank card). In ECQA this strategy is adapted in form of an online skills profile which a person can maintain in a private lifelong learning account. Instead of a physical skill card with a chip on the cards, there are now lifelong learning online accounts.

A skills profile is a representation of the coverage of competencies of a person in different skills elements. Each job role contains skills elements, the coverage of skills is shown in form of a percent mark.

Exam results are displayed in the form of a skills profile, demonstrating the coverage per skills element. See Figure 1. To be certified you must reach 66% in each skills area.
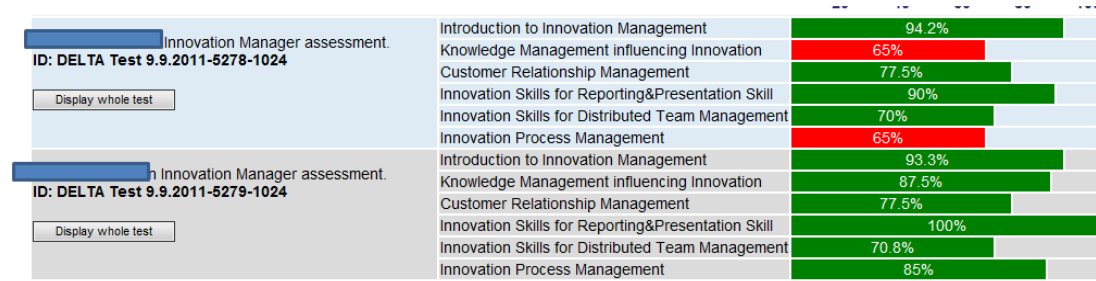

Figure 1: Typical Profile as Result of an Exam

The exam system portals are continuously updated and new functions to guarantee stability of the system during exams is extended since more than 6 years now.

The current number of 31 active professions is reworked due to some new concepts that was generated while taking a closer on the current and future needs of the target group. One idea was to cluster some of the professions, as several of them have similarities that can be used similar. For example to use project management basics in the same way in different job roles and not have differences in different job roles. This would allow participants that have already gained a certificate in a different job role to reuse their knowledge and to concentrate more on the fields being new.

Another approach was to use the current structure of modules (units & elements) to focus more on the performance criteria's. Out of this it is the idea to develop a skill based focus, which allows people to check for their current state of their skills (e.g. self-assessment, online short exam, questionnaire,…) and then be prompted with different additional skills that can be done, to gain a certificate showing the proper Job Role for this skills profile. This will then result in several current job roles, rework their ap-

proach and end up with basic (or foundation) level of certified knowledge/skills. This basic certificate is an ideal start and leads to the expert level that

The basic training will use several online platforms (e.g. MOOCs) or training providers to train the interested in those basic topics. After passing, the basic certificate and proving the knowledge and skills in the needed units and element, participants will need to gain experience in this field by working within companies to apply this knowledge and/or deepen these skills. Later then, the advanced or more experienced knowledge and skills will be then trained in blended courses and onsite courses. In all of these advanced courses, the focus is clearly for the participants to show that they can apply the advanced methods or ideas within their companies or jobs. To verify this, the exams the have to consist of the typical exam parts, where the new gained knowledge and skills are checked but additionally there will be also the need of handed in project papers that are then double blind reviewed by experts from the ECQA network.

While spreading the word in Europe, which was the main and first idea of ECQA, more and more countries all over the world become interested in the European idea of job roles and skills cards for management jobs. Out of this, many possibilities arise, but also many challenges will be faced in the future. The ECQA developed all of their skills cards together with experts from the market and universities from several European countries. This is important to get the idea and viewpoint, how the particular job role is understood in different European countries. As much as we nowadays understand the different aspects of different cultures and approaches in Europe it will be a challenge if we try to apply these skills and ideas to worldwide customers. We have a solid knowledge e.g. how innovation management is to be understood and handled in Europe, as well what a innovation manager should know and how to apply the proper skills to this position. If we now try to export this skill set e.g. to south America, China, Japan this will fail. It will not fail because the idea and the product is not good, it will fail because it has to reflect the different cultures, the different approaches and the different management styles in different regions worldwide. One solution might be the current idea that ECQA is using already: ECQA tries to check for experts in the different fields of ECQA job roles in various regions and countries all over the world and invites them into the discussion to exchange the view of the current European situation with the situation in their region/country. This enables the generated community to enlarge the idea of a European wide certificate into a worldwide view. Now it is hard to tell if there will be a European management certificate that differs from the Asian certificate, which differs from the African certificate… Or if we will agree on a basic worldwide certificate and add regional modules upon this, so people that are working in china and Europe might pick those two regional modules the deal with the differences of cultures and management aspects.

ECQA is eager to enlarge the community and by this the knowledge and understanding of different management roles worldwide by using communication tools like Facebook, LinkedIn, Xing, discussion forum and many other Web 2.0 tools. Web 2.0 tools today provide multiple possibilities for companies to gain new ideas, new customers and provide good customer relationship management [11]. As much as it is appreciated to meet friends and partners in real, time and cost limit this to a certain amount. ECQA strongly supports the idea of the open innovation approach and to exchange ideas with experts from all over the world by inviting them into our community and discuss on several, if not all, of our topics. This helps us to get the best product that helps people to understand the different aspects of their jobs better and additionally shows their skills and knowledge certified to companies all over the world.

3 EUROPEAN LIFELONG LEARNING PLATFORM STRATEGY

Once the ECQA [1] was founded and the exam procedures were in place the next problem to solve was to allow a smooth integration of a critical mass of LLP projects into the platform. The EU LLP program finances a few hundred VET projects per year. The strategy was to empower a selected set of these projects to structure the skills and learning results into ECQA standards and integrate them into the platform.

The partnership of ECQA decided that we cannot accept every LLP project or new job role. Firstly,

they must satisfy the ECQA standards and quality criteria and secondly they should relate to a specific cluster. So it was decided that in the first years of rollout (2008 – 2014) we especially support the sector of IT and services.

To integrate LLP results ECQA demands that skills are described using European standards for skills descriptions. This means that each profession to be accepted needs to create a standard skills set. ECQA reviews the compliance of these quality rules.

With the growing number of collaborating industry training initiatives and LLP projects it was necessary to automate the import of new job roles into the system. Thus a further new functionally added in 2011 was the import and export functions allowing to enter new skills sets and exam questions automatically. This requires that Job Role Committees use a standard Excel template for describing the exam questions.

The Excel includes a macro which allows you to check that syntax and semantics of your test questions are correct.

Job Role Committees reworking the test questions annually can also export the test questions pool into this Excel format, rework the content, check the syntax and semantics with the macro and import again.

QuestionId	Correct?	Question		Possible answers		
		She/he understands that if conflict is not controlled in an innovative environment it can lead to long-term inefficiencies				
592	B,C,D	Which of the following situations would a manager utilise in h	1565	A	Status or power differences	
			1566	B	Ensure innovations are within the mas	
			1567	C	Do not change team members without	
			1568	D	Never place staff on opposity sides of	
593	A,B,C	Accepting that conflict can be very distructive what practices w	1569	A	Expand resource base quickly	
			1570	B	Set challenging but attainable goals	
			1571	C	Never exceed the groups conflict resol	
			1572	D	High conflict resolution situations are l	
		She/he has gained a thorough understanding of the unterlying factos that help diffuse conflict situations				
QuestionId	Correct?	Question		Possible answers		
594	A,B	In normal circumstances which of the following would be effe	1573	A	Seek out natural leaders	
			1574	B	Delegate as much as possible	
			1575	C	Become more autocratic	
			1576	D	Ignore non-verbal cues	
595	B,C	The way forward out of conflict resolution situations would be	1577	A	Set impossible deadlines	
			1578	B	Obtain everyones point of view	
			1579	C	Situations of serious conflict are best	
			1580	D	Take no action	

Figure 2: Import / Export of Test Questions Pool

Some of the universities who are ECQA members decided to not use the multiple choice tests but to extend the system to support the APL (Accreditation of Prior Learning) procedures in the industry-university partnerships for education.

Thus a further new developed software function is the assessment of prior learning function. Here a panel of advisers (assessor of skills) can review existing knowledge of a person and assess a specific skills element to be fulfilled. In this case the exam is only to be done for skills elements where the assessment did not show coverage of the skills.

4 FUNCTIONS OF THE ECQA PLATFORM

The ECQA platform allows people from the work place to attend online skills portals, receive training,

do exams, and receive a certification [2],[3],[4],[8], [11].

With one login people can register for one or more job roles. When they register for the job role they can browse the skills and do a self-assessment.

The learning process (see Fig.3) is based on the following steps:

1. Self study: Attendees have access to skills and leraning portals and receive multimedia lectures, student notes and slides.

2. Exercises: Attendees meet trainers online and receive a "learning by doing" exercise and upload the results for discussion.

3. Group discussion and review: The results are reviewed by trainers and in online group discussions and are refined. Usually the exercises base on examples of the attendees' own organisation so that results of the course can be directly implemented and be useful for the participating organisation.
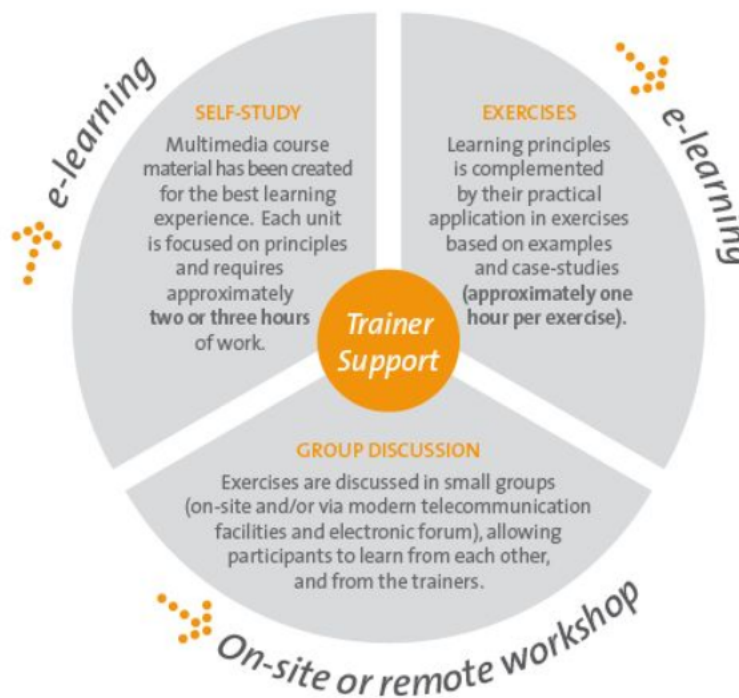
Figure 3: ECQA Learning Process

The experience shows that this type of training is successful because

*   Attendees can use their own examples and elaborate them in the course

*   Attendees enter a kind of interactive learning environment where the whole team reviews each other's work and the results become reviewed and have a practical value

*   In an online course the multimedia lectures can be attended asynchronously (when the attendees have time) and only the group meetings need to be coordinated.

*   The uploaded results can be used as learning evidences for the certificates to be issued.

Figure 4: Example Extract from an Integrated E-Learning Course

Figure 5: Example Extract from an exercise Review

5 ECQA and Recent initiatives and Outlook

In the project AQUA (EAC-2012-063) Automotive SPICE (ISO 15504), Functional Safety (ISO 26262) and Lean Six Sigma experts collaborate. The experts identified an architecture of core elements where all three approaches fit together and where a holistic view about improvement is needed. The Automotive Clusters from Austria, Slovenia, and Czech Republic are partners and roll out this knowledge in pilot courses to the industry. ECQA certifies these skills in collaboration with the Automotive clusters.

INTACS (www.intacs.info, International Assessor Certification Schema) is an international association which manages the education and certification of ISO 15504 assessors worldwide. It maintains a pool of many hundred principal, competent and provisional ISO 15504 assessors. From July 2014 onwards ECQA has been appointed the examiner and certifier for ISO 15504 assessors (as certification partner of INTACS).

In the I2E (Idea 2 Enterprise, 2012-1-CZ1-LEO05-09679, EU LLP program) the innovation manager skills will be implemented at school level (Gymnasium) and the first time an ECQA certificate will be jointly implemented between ECQA and schools.

In the LEADSUS project a new skills set for sustainability management is developed and ECQA will be certifier for this new job role (2013-1-RO1-LEO05 – 28771, EU LLP program).

In 2013 ECQA signed a contract with the Irish SW Testing board to act as the eam body and certifier for the software tester exams in Ireland.

The LSSA (www.lssa.eu) Lean Six Sigma Academy is a result of an EU project which uses ECQA as certifier and LSSH (Lean Six Sigma for Health care) is a new project where certificates will be issued for quality management skills in health care.

TRANSCERT (530940-LLP-2012-1-AT-KA3-KA3MP) develops a schema for using ECQA skills definition standards, test procedures and certificates for translators worldwide. Translator associations from Europe and other continents participate.

Recently ECQA started collaboration with universities from 10 countries to discuss and agree an ECQA for ECTS strategy.

The interplay and cross-fertilization of Higher Education (HE) and focused training in the work context has for long been a key objective in the development of a coherent and effective lifelong learning approach at the European level. In the context of HE, the Bologna process has transformed the landscape of trans-national mobility and cooperation. In the context of lifelong learning, different programmes have developed innovation and frameworks as the EQF have fostered trans-national recognition of qualifications. The European Credit system for Vocational Education and Training (ECVET) enables a better compatibility between the different vocational education and training (VET) systems in place across Europe and their qualifications. In HEI, the European Credit Transfer and Accumulation System (ECTS) plays an analogous role, and both ECVET and ECTS are based on the same foundations. These achievements have resulted in a framework enabling the interplay of lifelong learning and HE.

However, the governance and strategic directions in Higher Education Institutions (HEI) institutions are in most cases not effectively partnering with the relevant sectors of industry or doing so only for consulting in the design and evaluation of the curricula. This often results in a mismatch of the needs of enterprises and industry and the programs offered by HEI. Further, the systems for assessment in HEI are often very different from approaches to certification in industry. This points out to a need of devising and experimenting with new models for HEI and enterprise collaboration in aligning and even intertwining their educational and training offerings that consider the standards and practices used in both contexts and allow transferring credits and qualifications between the two realms. This needs to be done also respecting the business models and quality approaches used in training for industry needs together with the attainment of the competencies required in HE degrees.

In the ECQA for ECTS strategy we extended ECQA based industry certificates to become mapped into university lecturing programs and thus offer both to attendees, an industry certificates and ECTS points at the same time.

This will empower also university graduates to have (like with Microsoft diploma) European industry certificates covered in their study as well.

6 Acknowledgment

7 Literature

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