



# VALIDATION TOOL

## for smart city competencies

Project Output 2  
January 2023

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## 1. Introduction

This **Validation Tool for smart city competences** (Tool) is an integrated result and summary of the work performed for Intellectual Output 2, comprising the entire certification process of the new European Job Profiles: ECQA Certified Smart City Project Developer, ECQA Certified Smart City Project Manager and ECQA Certified Smart City Management Consultant. Funded by Erasmus + Program 2020 – 2022 EU program for education, training, youth and sport. KA2 Strategic Partnerships, including certification of the educational components for both academic and vocational levels (ECTS/ECVET).

The report describes and explains:

- the objectives of Intellectual Output IO2 and the associated KPIs.
- the complex certification process of all aspects of the new profiles.
- the methodology used to achieve the goals of IO2.
- the final outcomes and sustainability after the end of the project.
- the validation methods of prior learning.

## 2. Objectives

Intellectual Output 2 aimed to provide guidance for the creation of a standardized and certifiable competence framework (profile) for

- Smart City Project Developer
- Smart City Project Manager
- Smart City Project Management Consultant.

This profile includes a Skill Card and Certification Schemas for candidates, who sit exams to qualify as Smart City Project Developer, Smart City Project Manager and Smart City Project Management Consultant.

The **main objectives** of this Tool are:

- to explain the complex ECQA certification process to the project consortium;
- to adapt the process to the specific needs and requirements of the Skills4citiesproject, if needed;
- to make sure that all Skills4cities partners follow the ECQA quality standards of certification;
- to prepare the steps to establish a Job Role Committee (JRC)/Focus Group (FC), composed of representatives from industry, academia and other stakeholders, in order to assure quality and sustainability of the Skills4cities skill card and test questions used for certification;
- to provide a certification scheme for the Skill Card to qualify as the above listed professional roles

- to guarantee that educational components are described as learning outcome
- to assure transferability of skills through a European certificate and a standardized certification methodology, linking the skills of Smart City Project Developer; Smart City Project Manager; Smart City Project Management Consultant to ECTS and ECVET as well as to the Skills Passport.

All objectives of IO2 have been achieved, all related tasks for IO2 were done.

### 3.KPIs

All KPIs and specific indicators for IO2 were met.

All partners followed the ECQA standards.	Yes
The steps for the Skills4cities Job Role Committee/Focus group are finalized.	Yes
If needed and feasible, the certification process has been adapted to the specific needs and requirements of SKILLS4CITIES.	Yes
A Certification Scheme is available.	Yes

### 4. Methodology

ECQA explained and monitored all certification steps and requirements from the very beginning of the project to its end, and throughout all Intellectual Outputs:

In IO1 the required skills and competences were described as learning outcomes, following international taxonomies that are compliant with ECQA standards. By providing guidance and insights into the ECQA standards, rules and procedures, ECQA secured an efficient and effective start of the project and a proper certification process that all partners could understand. The result of IO1 is the Skill Card of the new profiles: Smart City Project Developer; Smart City Project Manager and Smart City Project Management Consultant which is the core of the Skills4cities certification.

(See Annex I: The three Skill Cards for Smart City Project Developer, Smart City Project Manager and Smart City Project Management Consultant IO2 and follow the development of these new profiles and the recognition of the Skills4cities certification).

### 5. The Certification Process

ECQA provides a world-wide unified certification scheme for new and emerging professions and job roles or job profiles). The same exam pool, exam rules and the same electronic exam system are used for certification exams in any participating country. ECQA joins and works with experts from the market and supports the definition and development of the competences (knowledge, skills and attitudes) required for new and emerging job profiles and roles. ECQA defines and verifies quality criteria for trainers, training organizations and training materials, to assure the

same level of quality world-wide.

ECQA certifies, according to the ECQA rules, procedures and quality guidelines:

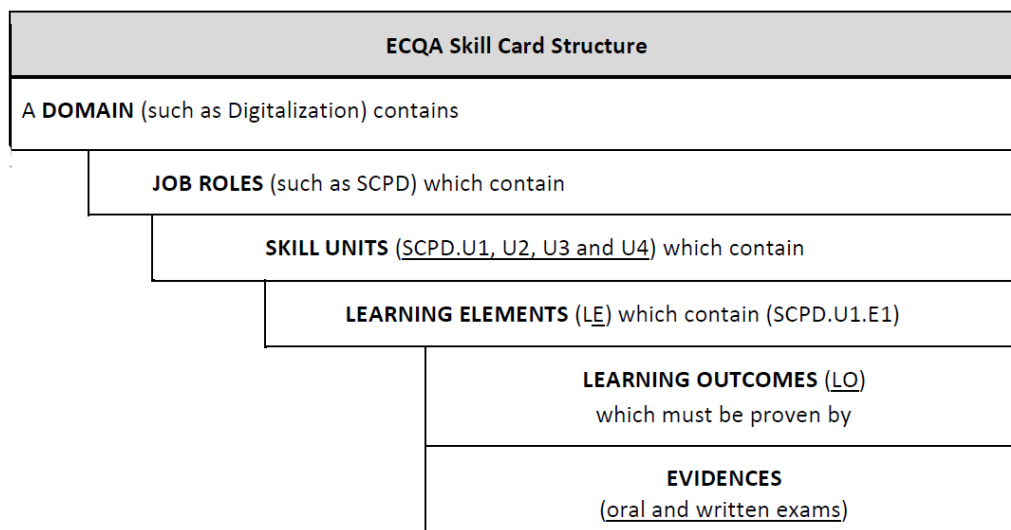
- job roles (such as the new job role profiles SCPM, SCPD, SCPC)
- persons (trainees, experts, professionals),
- skill cards (skills and competences frameworks),
- training materials,
- trainers,
- training organisations,
- self-assessment questions,
- exam questions, and
- exam organisations

The certification procedure offers modularity of certification. This assures also modularity of trainings all over the world. Only verified and approved organisations and individuals may become ECQA certified service providers, experts, trainers, etc.

## 5.1. Terminology

One of the first documents ECQA explained and shared with the project partners was the master thesis about the specific terminology of ECQA written by Blanca Nájera and published in 2012. ECQA presented and discussed the most important and relevant concepts and terms with the Skills4cities partners (see annex III - ECQA Terminology). The core of any ECQA Certificate is the so-called skill card (see Chapter 7 1). A skill card is the knowledge map of the skills units, learning elements and learning outcomes that define and standardize the qualifications of a specific profession or job role. Skill cards are structured in Units (U), learning elements (LE) and learning outcomes (LO). Since the ECQA Skill card of Skills4cities (see Chapter 7.1 and Annex I) is the core of the Certification of SCPD, SCPM and SCPMC and the core of the Skills4cities IO2 outcomes, the following table illustrates the specific ECQA terminology using the example of the skill card structure.

**Table 1.** ECQA structure of a Skill Card applied to S4C



## 5.2. How ECQA certifies Skills4cities

Certification processes need a good understanding of the concept of certification, and of the certification steps and requirements. Certification is a complex topic, which is often misunderstood or confusing. This is the reason why ECQA explained the ECQA certification process very early and many times to the Skills4cities project partners: at the kick-off-meeting, with presentations and at Skills4cities online and face-to-face meetings.

A basic understanding of certification in general is needed, to understand the difference of the use of certification in general language (e.g., a certificate of attendance) and in specialised language, e.g.: certification is always provided by an independent, third party (a certifying body), not by a training provider who offers a course with a certificate of attendance. A certificate of attendance is just a confirmation that a person attended a course, not a confirmation that a person has certain skills and competences, as given in a real certificate issued by an independent third party. ECQA explained certification and the certification processes already at the kick-off meeting in 2020, and in many Skills4cities meetings (online and in person meeting).

The relevant certification topics presented and discussed were:

1. What is Certification?
2. How does ECQA certify job roles?
  - Certification in 5 steps
3. How to get certified by ECQA?
  - as professional
  - as trainer
  - as training and exam organization
4. Who/What is ECQA?
  - Ways of working with ECQA
  - ECQA strategies for the future

In these presentations and discussions, Prof. (FH) Mag. Michael Reiner, CEO of ECQA GmbH, explained all the details around certification and ECQA (GmbH) certificates relevant for the Skills4cities certification, as summarized in the given report. ECQA Certification is an independent third-party certification. ECQA is independent, because it does not act as a training body for the Skills4cities or any other job roles.

The independent certification body ECQA GmbH issues a statement (a certificate), that a person fulfilled specified requirements. These requirements are specified in the proper Skill Card (see annex II), in Skills4cities documents, and in ECQA Guidelines.

ECQA Certification is governed by the following principles:

- Free and equal access for all applicants,
- Evaluation criteria are outlined in specified standards, it is in Skills4cities documents and in ECQA Guidelines,
- Scope of certification is restricted to the contents of the reference document, is the Skill card.

The processes of the ECQA are mapped onto the ISO 17024 international standard for the certification of persons, widely following the requirements of this standard. Some of the ECQA processes and guidelines have been updated during 2021 and 2022.

They are available as downloads on the new ECQA website (as of August 2022) at: <http://www.jobcertification.eu/index.php/downloads>. ECQA described and explained all details about ECQA Certification, Processes, Standards and Guidelines in the following documents:

- ECQA Processes at ECQA and ECQA GmbH
- Job Role Committee (JRC) Agreement
- New: Focus Groups: Focus Group Accessibility

These new documents are annexed to the given IO2 report (see annex IV).

The JRC Agreement (see annex VI) and other documents to be signed by project partners were updated and made available during and in particular at the end of the project.

### 5.3. Certification in 5 Steps

In general, the process of creating ECQA certificates for new and emerging job roles has the following five steps, which were applied during the Skills4cities project, and adapted to the sustainable exploitation of Skills4cities results at the end of the project:

**1. As a first step**, a Job Role Committee (JRC) is built and develops a skill card or competences portfolio or framework for a certain profession or job role. A Job Role Committee is an international working group with renowned experts and drivers of their industry, who signed the standard ECQA JRC agreement (see Chapter 6 and annex VI) and annually maintain the skill card and exam questions pool.

In the SKILLS4CITIES project, the JRC corresponds to the project consortium already built. The skill cards for SCPD, SCPM and SCPMC were jointly developed by the S4C partners in IO1, see **Annex II**.

**2. In a second step**, the Job Role Committee develops 1 self-assessment question and 3-4 exam questions per learning outcome, following the rules and quality standards of ECQA. Ideally, this is done in parallel with step 5, see below. In the SKILLS4CITIES project, a self-assessment, instead of an exam, is provided. Therefore, only 1 question per LO was developed

An example of Multiple-Choice Questions for the SKILLS4CITIES self-assessment is added to this report in **Annex VII**.

ECQA monitored the entire process, provided a template for Multiple Choice Questions (MCQs). ECQA reviewed the implementation of the ECQA Guidelines for the creation of



multiple-choice questions (see annex VII), to secure academic and vocational levels. All the partners were assigned certain specific modules to develop questions for.

**3. Third step.** After careful review by ECQA GmbH, the developed questions were imported into the online exam portal. All the Multiple-Choice Questions (MCQs) for the self-assessment are provided on our online exam platform, Biz examiner, free of charge. This also allows us to get feedback from professionals and promote the new job roles and certificate. Individual links for each job role have been created.

**4. In a fourth step,** a pool of exam questions (2-3 per Learning Outcome and different from the self-assessment questions) will be created and made available online at the ECQA exam portal. Again, in the S4C project, only a self-assessment was developed, so partners only needed to develop 1 question per LO. In the future, when the results of SKILLS4CITIES will be fully exploited, the written online exam could start with a large number of multiple-choice questions developed within the S4C Job Role Committee/Focus Group.

ECQA follows the Open University Approach: Exams are always possible also without trainings, but practical requirements are to be defined by the JRC beforehand. Requirements could be for instance: one skill unit is a project elaborated by the examinee and presented to an ECQA Certified Assessor.

During 2021 and 2022, a **new certification process** of ECQA and ECQA GmbH has been designed to which this tool is adopted. It will be applied to the S4C certification and exploitation:

The ECQA **certification of persons has 3 phases:**

1. An exploration phase (with the definition of stakeholders and goals)
2. A development phase (with a Skills Card or Competence Card at the end)
3. A Roll-out (with a syllabus, trainings, exam questions, exams, and certificates)

Phases 1 and 2 are guided by the Non-Profit Organisation ECQA, phase 3 is performed by the limited company ECQA GmbH, where ECQA NPO holds 60% of shares.

The ECQA certification processes are annexed to this document in Annex IV.

## 6. Job Role Committee (JRC)

ECQA revised and updated its certification processes during 2021 and 2022, following a new strategy: Instead of having many different job roles that are focused only on the particular skills necessary for their job role, ECQA and ECQA GmbH foster the creation of a large European skills and competences portfolio with Focus Groups, who are sharing competences rather than skills.

A Job Role Committee (JRC) is composed of representatives from the respective industry, academia and other stakeholders. In the past, any ECQA JRC had to comprise experts from at

least three different countries, which stressed the European dimension of the job role and the JRC. At present, JRCs are organised within and encouraged to work together in larger teams who represent Focus Groups (FGs). An ECQA® Focus Group (FG) is an international working group of distinguished experts and professionals who commit their work to safeguard the quality standards of ECQA®. They work together in a cluster of job roles, e.g., in the cluster »Accessibility«, »Innovation« or »Sustainability« to maintain the skills cards and relevant stakeholders of these clusters.

FG members are individuals (often nominated by organisations) who are experts in the FG domain, with a high interest in European standardization. They apply for membership in the FG by submitting their CV with a description of their motivation to join the FG. The FG votes by simple majority on their application.

ECQA JRCs and Focus Groups are a key factor for the quality of an ECQA Certificate. If a job role belongs to a new or emerging profession, where non- or very heterogeneous training is available - which usually is the case with ECQA job roles - , the JRC also needs to apply for the certification of the job role.

This was not the case in the S4C project, where the S4C project consortium was funded by the European Commission to establish the new job role. This is enough proof of the relevance of an ECQA Job Role and the qualification of the JRC.

Within the SKILLS4CITIES project, the first JRC was created with the project consortium. They also developed the skill cards and the self-assessment questions.

## 7. Summary of the SKILLS4CITIES Certification

### 7.1. Skills4Cities Skill card

In vocational context, the knowledge map of the skill units, learning elements and learning outcomes, which define and standardize the required state-of-art qualifications of a specific profession or job role, is called a skill card. The focus of ECQA skill cards is on the practical skills, since an ECQA Certificate, similar to a driving license, confirms the ability of persons holding this certificate. The ECQA skill card methodology follows the success story of the European Computer Driving License (ECDL). What ECDL is for Computer skills, ECQA certificates are for new and emerging job roles, profiles or professions.

#### 1. Learning Elements and Outcomes

Skill cards are structured in:

- Units (called modules in academic curricula),
- Learning elements (called units in academic curricula) and
- Learning outcomes.

The S4C skill card consists of 4 Skill Units (U) with 1-8 Learning Elements (LEs) per Unit. Every job role has a unique constellation of Learning Elements and Learning outcomes.

The individual and detailed skill cards can be found in **Annex II**. The following is an example of the SCPD where total of 13 Learning Elements are required.

**Unit 1** is about TRANSVERSAL SKILLS (SKILLS4CITIES U.1) and is broken down into different Learning Elements, depending on the job profile.

- E1: Creative thinking
- E2: Familiarity with new technologies & ICT
- E3: Innovative thinking
- E4: City / urban planning policies
- E8: Intercultural competences
- E10: Emotional intelligence/ empathy
- E14: Leadership and conflict management
- E16: Public communication

**Unit 2** covers DISRUPTIVE TECHNOLOGIES and consists of the following two learning elements throughout all job profiles.

- E20: Internet of things
- E22: Smart sensors

**Unit 3** is about SMART CITY PROJECT DOMAINS and is broken down into different Learning Elements, depending on the job profile

- E28: Economy, trade and industry

**Unit 4** addresses SMART CITY CHALLENGES (SKILLS4CITIES.U4) and is broken down into different Learning Elements, depending on the job profile.

- E36: Technological challenges
- E38: Collaboration among stakeholders and governmental constraints

For each LO there are self-assessment questions.

The SKILLS4CITIES skill card is annexed to this report in **Annex II**.

ECQA has used the term skill card for many years, using it for the underlying concept of (factual, theoretical) knowledge and (practical) skills.

In September 2022, ECQA president proposed to the ECQA Executive Board to replace the term skill card with a new one, namely with Competence Card (CompCard). The new term also stands for a larger concept than the old one: It has become common standard in the EU to talk about competences rather than skills.

Competences are defined as the entire knowledge, skills and attitude a professional need for a profession or job role.

## 7.2. Certification Scheme for Candidates

The SKILLS4CITIES certification scheme contains all information an interested person or candidate needs to apply for the SKILLS4CITIES certification provided by ECQA GmbH and Koena as first ECQA Certified training and exam organization.

The document specifies how the competence are certified by ECQA GmbH.

The certification organisation ECQA GmbH is an Austrian company, which is 60% owned by the non-profit organisation European Certification and Qualification Association (ECQA).

Only the knowledge and skills of natural persons are certified.

The certification is largely based on the principles of the International Standard ISO/IEC 17024:2012-07 Conformity assessment - General requirements for bodies certifying persons. The core of the knowledge and skill requirements of the certification scheme is the SKILLS4CITIES skill card with its skill units and learning elements (see chapter 7.1). The certification schemes are annexed to this report, see annex VIII.

By issuing a certificate according to the certification scheme for candidates, ECQA GmbH confirms that certified persons are competent to act in their proper field. This means that the certificate is much more a “driving licence” for the given job role than a confirmation about theoretical skills a person has in the field of digital accessibility.

## 7.3. SKILLS4CITIES Trainers

SKILLS4CITIES trainers should be competent professionals in their field, certified by ECQA GmbH. The SKILLS4CITIES project partners could be the first ECQA Certified trainers for the Job Role.

**Professionals** who want to become ECQA Certified Trainers for the Job Role need to follow the Rules and Process Steps for Certification of ECQA Trainers (see annex IV).

**Trainers** have to prove experience in the job role. The work experience has to be documented by references from companies or organisations.

Required is also a minimum of coaching by an already ECQA certified SKILLS4CITIES trainer, with positive feedback at the end of the coaching. A trainer candidate can also act as a co-trainer for an already ECQA certified trainer. The trainer also has to prove trainer experience or former consulting and development in the field. A list of former teachings, courses, consulting or development has to be provided in the certification process. The trainer has to provide evidence that he or she has held industrial or university courses, or performed consultancy or development projects in the field. The certifying body ECQA GmbH has to approve or disapprove any trainer candidate. ECQA GmbH can ask Focus group members to evaluate trainer applications according to the standardised criteria.

A pass/fail criterion for ECQA Certified Trainers is any evaluation with “poor” in the **Table 2** below:

**Table 2**

Proven former teaching, consulting or development in the field.	poor	fair	good	excellent
Teachings, consulting or development are related to the skill card.				
Proven expertise in the field by publications or references				

ECQA has standardised rules and process steps for the certification of trainers. These rules are annexed to this report in **Annex IV**.

## 7.4. Exam Organisations

Only ECQA Certified training organisations are allowed to conduct ECQA exams.

An SKILLS4CITIES Exam Organisation holds examinations for the Job Roles, using the exam material and exam portal provided by ECQA GmbH. Currently, as of August 2022, this is the new exam system Bizexaminer. The Exam Organisation performs certification activities strictly and exclusively according to ECQA rules.

The Exam Organisation has the right to perform other certification activities outside of ECQA Certification Schemes independently and without any obligation to ECQA. All steps and requirements of the ECQA standards for the certification of Exam Organisations must be followed and met. They are described in the Agreement between ECQA GmbH and Exam Organisation candidates.

This agreement is annexed to this report as **Annex XI**.

One of the most important requirements is the avoidance of any conflict of interest, according to ISO 17024: The examiner must not be the trainer of an SKILLS4CITIES training for the examination candidates. Employees of the Exam Organisation are not allowed to perform SKILLS4CITIES trainings and be the examiner at the same time, to avoid conflict of interest.

However, if the Exam Organisation has also a training department or enough staff, it is possible to act both as ECQA Certified Training Organisation and Exam Organisation, as long as different staff is used:

The Exam Organisation has to prove that examiners were not the trainers of examination candidates

## ANNEXES

### Annex I -- EQF Level official description

### Annex II – Skills4cities Skill Cards

The Skills4cities Skill Cards describes the skills needed for **Smart City Project Developer**

1 ECTS/ECVET=25 hours

UE Code	Unit Title	Element Title	learning Outcome code	Learning Outcome Description
U1.E1	Transversal Skills	Creative Thinking	SCPD.U1.E1.LO1	capable of developing, modifying or importing tailor-made solutions from de work environments for specific needs building upon the new technologies on the market.
U1.E1	Transversal Skills	Creative Thinking	SCPD.U1.E1.LO2	knowing when a new approach is required
U1.E1	Transversal Skills	Creative Thinking	SCPD.U1.E1.LO3	able to use "creative thinking" as a way of introducing and applying innovative practices
U1.E1	Transversal Skills	Creative Thinking	SCPD.U1.E1.LO4	Be able to understand data mining and its insights in relation to innovative applications (e.g., behavioural sciences etc.).
U1.E1	Transversal Skills	Creative Thinking	SCPD.U1.E1.LO5	able to develop a powerful vision mindset by investing on how to take a smart city initiative with a long-term imprint
U1.E2	Transversal Skills	Familiarity with new technologies & ICT	SCPD.U1.E2.LO1	having sufficient knowledge about technology servers as a basic skill in the information-based society, being able to share information in an ethical way.
U1.E2	Transversal Skills	Familiarity with new technologies & ICT	SCPD.U1.E2.LO2	choose proper ICT tools for problem solving and effective work.

U1.E2	Transversal Skills	Familiarity with new Technologies & ICT	SCPD.U1.E2.LO3	able to formulate and map realistic, attainable and long-term goals by applying digital-based and sustainable solutions
U1.E2	Transversal Skills	Familiarity with new Technologies & ICT	SCPD.U1.E2.LO4	Executing tasks remotely, using the most recent cloud and distance working arrangements for cooperation.
U1.E2	Transversal Skills	Familiarity with new Technologies & ICT	SCPD.U1.E2.LO5	able to adapt to digital technologies and use them in the framework of online projects from concept to completion
U1.E3	Transversal Skills	Innovative Thinking	SCPD.U1.E3.LO1	know and distinguish innovative trends in terms of information and digital technologies'
U1.E3	Transversal Skills	Innovative Thinking	SCPD.U1.E3.LO2	able to come up with innovative and disruptive solutions capable of inspiring others in implementing his or her vision.
U1.E3	Transversal Skills	Innovative Thinking	SCPD.U1.E3.LO3	able to identify when a new approach is required, use design thinking approach to create new ideas and solutions or to improve something existing
U1.E3	Transversal Skills	Innovative Thinking	SCPD.U1.E3.LO4	able to develop a powerful vision mindset by investing on how to "take action" and "overcome obstacles"
U1.E3	Transversal Skills	Innovative Thinking	SCPD.U1.E3.LO5	able to adapt ideas, knowledge (knowhow) into different cultural, political contexts or stages of development
U1.E4	Transversal Skills	City/ Urban Planning Policies	SCPD.U1.E4.LO1	able to know the basic disciplines for Geographic Analysis: GIS, Remote Sensing, Digital Cartography
U1.E4	Transversal Skills	City/ Urban Planning Policies	SCPD.U1.E4.LO2	able to develop and analyze urban-level SWOT analysis.
U1.E4	Transversal Skills	City/ Urban Planning Policies	SCPD.U1.E4.LO3	understanding of the interaction among the economy, transportation, health and human services, and land-use regulation.

U1.E4	Transversal Skills	City/ Urban Planning Policies	SCPD.U1.E4.LO4	knowledge of urban spatial structure, the way in which cities work, plan making and project evaluation
U1.E4	Transversal Skills	City/ Urban Planning Policies	SCPD.U1.E4.LO5	able to acknowledge Urban Growth Theories in a way of explaining the internal demographic, spatial, and economic growth of cities
U1.E8	Transversal Skills	Intercultural Competences	SCPD.U1.E8.LO1	able to create an interculturalism and inclusive team which brings fosters the ng parts of each of its members while trying to turn weaknesses into strengths
U1.E8	Transversal Skills	Intercultural Competences	SCPD.U1.E8.LO2	able to respond to others in a way that is descriptive, non-evaluative, and non-judgmental and recognizes cultural diversity and differences
U1.E10	Transversal Skills	Emotional Intelligence / Empathy	SCPD.U1.E10.LO1	able to establish and maintain harmonious professional relationships by demonstrating respect for and sensitivity to others.
U1.E10	Transversal Skills	Emotional Intelligence / Empathy	SCPD.U1.E10.LO2	e able to apply emotional intelligence when managing a team: recognize and manage your emotions and the emotions of others
U1.E10	Transversal Skills	Emotional Intelligence / Empathy	SCPD.U1.E10.LO3	Be able to adapt changes and new realities and develop growth feedback
U1.E14	Transversal Skills	Leadership and Conflict Management	SCPD.U1.E14.LO1	understanding of group dynamics, communication techniques and successful ways to manage conflicts and work-induced stress.
U1.E14	Transversal Skills	Leadership and Conflict Management	SCPD.U1.E14.LO2	able to apply strong leadership and motivation skills which can lead to build a successful team
U1.E14	Transversal Skills	Leadership and Conflict Management	SCPD.U1.E14.LO3	ability to overcome obstacles, to pitch in and keep the schedule on track within the team
U1.E16	Transversal Skills	Leadership and Conflict Management	SCPD.U1.E14.LO4	able to acknowledge and adapt to different leadership styles



U1.E16	Transversal Skills	Public communication	SCPD.U1.E16.LO1	able to use language as a flexible tool to share and collect information, exchanging ideas and openly exploring a variety of perspectives adjusting style and content.
U1.E16	Transversal Skills	Public communication	SCPD.U1.E16.LO2	to communicate complex messages, adapting the message to the audience and fostering two ways understanding
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO1	able to understand the communication process of IoT devices based on the most common connection protocols: Wi-Fi, Bluetooth, 4/G connection
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO2	integrating software and electronic components to connect and exchange data without human interaction.
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO3	understand the basic concept of IoT and having the ability of applying it into the smart city concept.
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO4	knowledge of current applications of IoT in smart cities and the trends for potential new key areas of application.
U2.E22	Disruptive Technologies	Smart Sensors	SCPD.U2.E22.LO1	knowledge of sensors: what they are, their purpose and their applications and how to install them
U2.E22	Disruptive Technologies	Smart Sensors	SCPD.U2.E22.LO2	able to read, analyse and incorporate information gathered through sensors.
U2.E22	Disruptive Technologies	Smart Sensors	SCPD.U2.E22.LO3	ability to apply smart sensor technology to optimise existing processes, improve efficiency, and conduct continuous monitoring.
U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPD.U3.E28.LO1	ability to analyse and apply theoretical and conceptual knowledge in the field of economics and industry, incl. in micro- and macroeconomics, trend analysis, investment climate analysis, value chains and international trade and production models.
U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPD.U3.E28.LO2	able to use tools for solving micro- and macro-economic problems, to manage sources, collect, analyse and interpret data and results from the areas of research, coming from applying economic criteria and choosing alternatives

U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPD.U3.E28.LO3	ty to apply specific knowledge and tools for strategic management and decision making.
U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPD.U3.E28.LO4	able to analyse and apply specific economic and industry knowledge and tools for the management and decision-making process.
U4.E36	Smart City Challenges	Technological Challenges	SCPD.U4.E36.LO1	ability to work with Smart City platforms and tools.
U4.E36	Smart City Challenges	Technological Challenges	SCPD.U4.E36.LO2	able to use technological tools such as QR codes and geolocalization.
U4.E36	Smart City Challenges	Technological Challenges	SCPD.U4.E36.LO3	able to create public digital services and synergies
U4.E36	Smart City Challenges	Technological Challenges	SCPD.U4.E36.LO4	able to apply technological solutions when needed
U4.E36	Smart City Challenges	Collaboration among Stakeholders and Governmental constraints	SCPD.U4.E38.LO1	able to communicate, cooperate, manage and engage with stakeholders
U4.E36	Smart City Challenges	Collaboration among Stakeholders and Governmental constraints	SCPD.U4.E38.LO2	able to understand the background of a project and provide relevant input to stakeholders.
U4.E36	Smart City Challenges	Collaboration among Stakeholders and Governmental constraints	SCPD.U4.E38.LO3	able to clearly present a complex and high-technological Smart City project/idea to a wider-audience
U4.E36	Smart City Challenges	Collaboration among Stakeholders and Governmental constraints	SCPD.U4.E38.LO4	able create strong links and create a trustworthy and reliable network with multi-stakeholders

## The Skills4cities Skill Cards describes the skills needed for **Smart City Project Manager**

UE Code	Unit Title	Element Title	Learning Outcome code	Learning Outcome Description
U1.E1	Transversal Skills	Live Thinking	SCPD.U1.E1.LO1	Capable of developing, modifying or importing tailor-made solutions from work environments for specific needs building upon the newologies available on the market.
U1.E1	Transversal Skills	Creative Thinking	SCPD.U1.E1.LO2	Knowing when a new approach is required
U1.E1	Transversal Skills	Creative Thinking	SCPD.U1.E1.LO3	Be able to use "creative thinking" as a way of introducing and applying innovative practices
U1.E1	Transversal Skills	Creative Thinking	SCPM.U1.E1.LO6	Be able to adapt solutions or/and alternatives into different social, political, or economic contexts or stages of development of a project
U1.E1	Transversal Skills	Creative Thinking	SCPM.U1.E1.LO7	Be able to create scenarios or hypothesis that could be linked to a project, activity etc. problem
U1.E3	Transversal Skills	Innovative Thinking	SCPM.U1.E3.LO1	Know and distinguish innovative trends in terms of information and digital technologies'
U1.E3	Transversal Skills	Innovative Thinking	SCPM.U1.E3.LO2	Be able to come up with innovative and disruptive solutions capable of inspiring others in implementing his or her vision.
U1.E3	Transversal Skills	Innovative Thinking	SCPM.U1.E3.LO3	Being able to identify when a new approach is required, use design thinking approach to create new ideas and solutions or to improve something existing
U1.E7	Transversal Skills	Working in Teams	SCPM.U1.E7.LO1	Understanding of group dynamics, communication techniques to create a positive environment and to enhance team effectiveness
U1.E7	Transversal Skills	Working in Teams	SCPM.U1.E7.LO2	Be able to support the team by being cooperative, collaborative, and available to work and talk with
U1.E7	Transversal Skills	Working in Teams	SCPM.U1.E7.LO3	Be able to build trust by sharing information, being transparent and promote involvement, especially in international teams

U1.E7	Transversal Skills	Working in Teams	SCPM.U1.E7.LO4	Be able to coordinate working teams and set common shared goals for developing a smart and sustainable city by applying ICTs which will improve the quality of life
U1.E7	Transversal Skills	Working in Teams	SCPM.U1.E7.LO5	Be able to understand how a team works and what dynamic force the members can collaboratively bring to the project
U1.E8	Transversal Skills	Intercultural competences	SCPM.U1.E8.LO1	Be able to create an interculturalism and inclusive team which brings fosters the strong parts of each of its members while trying to turn weaknesses into strengths
U1.E8	Transversal Skills	Intercultural Competences	SCPM.U1.E8.LO2	Able to respond to others in a way that is descriptive, non-evaluative, and non-judgmental and recognizes cultural diversity and differences
U1.E10	Transversal Skills	Emotional Intelligence /Empathy	SCPM.U1.E10.LO1	Able to establish and maintain harmonious professional relationships by demonstrating respect for and sensitivity to others.
U1.E10	Transversal Skills	Emotional Intelligence /Empathy	SCPM.U1.E10.LO2	Be able to apply emotional intelligence when managing a team: recognize and manage your emotions and the emotions of others
U1.E10	Transversal Skills	Emotional Intelligence /Empathy	SCPM.U1.E10.LO3	Be able to use conflict management when a challenge or problem arises in the framework of a team
U1.E10	Transversal Skills	Emotional Intelligence /Empathy	SCPM.U1.E10.LO4	Be able to support open and honest communication and active listening to achieve team commitment
U1.E10	Transversal Skills	Emotional Intelligence /Empathy	SCPM.U1.E10.LO5	Be able to adapt one's own image and stance across different institutional contexts
U1.E11	Transversal Skills	Mobilise others	SCPM.U1.E11.LO1	Able to Implement peer monitoring and improvement processes.
U1.E11	Transversal Skills	Mobilise others	SCPM.U1.E11.LO2	Able to mobilize people, organizations, and partners in developing goals, executing plans, and delivering results.
U1.E11	Transversal Skills	Mobilise others	SCPM.U1.E11.LO3	Able to develop and cultivate effective relationships and build support through influence and negotiation.
U1.E11	Transversal Skills	Mobilise others	SCPM.U1.E11.LO4	Be able to adapt to changes and new realities and develop the ability to provide growth feedback to others
U1.E12	Transversal Skills	Task/ Time Management	SCPM.U1.E12.LO1	Able to prioritize, organize, and manage tasks, resources and activities in a time and resource-effective manner.

U1.E12	Transversal Skills	Task/ Time Management	SCPM.U1.E12.LO2	Familiarity with the project management process and project lifecycle
U1.E12	Transversal Skills	Task/ Time Management	SCPM.U1.E12.LO3	Able to draw up workforce capabilities' profiling
U1.E12	Transversal Skills	Task/ Time Management	SCPM.U1.E12.LO4	Be able to manage projects with the same life cycle and focus on their sustainability
U1.E12	Transversal Skills	Task/ Time Management	SCPM.U1.E12.LO5	Be able to find the interconnections and interrelations between projects
U1.E13	Transversal Skills	Decision-making	SCPM.U1.E13.LO1	Ensuring that decisions are made based on policies, rules and organizational directives and solving the emerging problems.
U1.E13	Transversal Skills	Decision-making	SCPM.U1.E13.LO2	Be able to make strategic decisions and better the chances of a project's success
U1.E13	Transversal Skills	Decision-making	SCPM.U1.E13.LO3	Be able to take a decision in a short period of time with a long-term effect
U1.E13	Transversal Skills	Decision-making	SCPM.U1.E13.LO4	Be able to know how and when to use strategic thinking, risk thinking and taking initiatives
U1.E14	Transversal Skills	Leadership and Conflict Management	SCPM.U1.E14.LO1	Understanding of group dynamics, communication techniques and successful ways to manage conflicts and work-induced stress.
U1.E14	Transversal Skills	Leadership and Conflict Management	SCPM.U1.E14.LO2	Be able to apply strong leadership and motivation skills which can lead to build a successful team
U1.E14	Transversal Skills	Leadership and Conflict Management	SCPM.U1.E14.LO3	The ability to overcome obstacles, to pitch in and keep the schedule on track within the team
U1.E14	Transversal Skills	Leadership and Conflict Management	SCPM.U1.E14.LO4	Be able to exhibit strong leadership and motivation skills which can lead to build a successful team



U1.E14	Transversal Skills	Leadership and Conflict Management	SCPM.U1.E14.LO5	Be able to build trust by sharing information, being transparent and promote involvement
U1.E15	Transversal Skills	Finance Management	SCPM.U1.E15.LO1	Comprehension and analyzing of financial and economical documents.
U1.E15	Transversal Skills	Finance Management	SCPM.U1.E15.LO2	Able to draft budget sheets and levelled financial analysis and understand / evaluate cash flow scenarios
U1.E15	Transversal Skills	Finance Management	SCPM.U1.E15.LO3	Be able to allocate resources efficiently
U1.E16	Transversal Skills	Public Communication	SCPM.U1.E16.LO1	Using language as a flexible tool to share and collect information, exchanging ideas and openly exploring a variety of perspectives adjusting style and content.
U1.E16	Transversal Skills	Public Communication	SCPM.U1.E16.LO2	Able to communicate complex messages, adapting the message to the audience and fostering two way understanding
U2.E20	Disruptive Technologies	Internet of Things	SCPM.U2.E20.LO1	Be able to understand the communication process of IoT devices based on the most common connection protocols: Wi-Fi, Bluetooth, 4/G connection
U2.E20	Disruptive Technologies	Internet of Things	SCPM.U2.E20.LO2	Integrating software and electronic components to connect and exchange data without human interaction.
U2.E20	Disruptive Technologies	Internet of Things	SCPM.U2.E20.LO3	Understand the basic concept of IoT and having the ability of applying it into the smart city concept.
U2.E22	Disruptive Technologies	Smart Sensors	SCPM.U2.E22.LO1	Knowledge of sensors: what they are, their purpose and their applications and how to install them
U2.E22	Disruptive Technologies	Smart Sensors	SCPM.U2.E22.LO2	To be able to read, analyze and incorporate information gathered through sensors.
U2.E22	Disruptive Technologies	Smart Sensors	SCPM.U2.E22.LO3	Ability to apply smart sensor technology to optimize existing processes, improve efficiency, and conduct continuous monitoring.
U2.E22	Disruptive Technologies	Smart Sensors	SCPM.U2.E22.LO4	Be able to create an action plan based on the results of sensors

U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPM.U3.E28.LO1	Ability to analyze and apply theoretical and conceptual knowledge in the field of economics and industry, incl. in micro- and macroeconomics, trend analysis, investment climate analysis, value chains and international trade and production models.
U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPM.U3.E28.LO2	Be able to use tools for solving micro- and macro-economic problems, to manage resources, collect, analyze and interpret data and results from the areas of research, coming from applying economic criteria and choosing alternatives.
U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPM.U3.E28.LO3	Ability to apply macro- and micro-economics data and analysis to interpret trends and make decisions for the project management
U3.E28	Smart City Project Domains	Economy, Trade and Industry	SCPM.U3.E28.LO4	Knows and be able to develop and/or use strategic plans, including for smart cities project management.
U4.E36	Smart City Challenges	Technological Challenges	SCPD.U4.E36.LO1	Ability to work with Smart City platforms and tools.
U4.E36	Smart City Challenges	Technological Challenges	SCPD.U4.E36.LO2	Be able to use technological tools such as QR codes and geolocalization
U4.E36	Smart City Challenges	Technological Challenges	SCPM.U4.E36.LO3	Be able to have foundational knowledge of IT infrastructure and architecture and know how to "promote" it within the team
U4.E37	Smart City Challenges	Financial Constraints	SCPM.U4.E37.LO1	Ability to oversee and manage large multidisciplinary projects' budgets; to elaborate detailed and accurate cash flows and budget expenditures predictions.
U4.E37	Smart City Challenges	Financial Constraints	SCPM.U4.E37.LO2	Be able to deliver value to stakeholders through successful completion of projects, grant management and delivery of products
U4.E37	Smart City Challenges	Financial Constraints	SCPM.U4.E37.LO3	Be able to allocate resources efficiently and effectively
U4.E37	Smart City Challenges	Financial Constraints	SCPM.U4.E37.LO4	Be able to identify, expand, and exploit the opportunities in a project

U4.E37	Smart City Challenges	Financial Constraints	SCPM.U4.E37.LO5	Be able to properly manage the budget and financial challenges/issues
U4.E38	Smart City Challenges	Collaboration among Stakeholders and Governmental restraints	SCPM.U4.E38.L01	Be able to communicate, cooperate, manage and engage with stakeholders
U4.E38	Smart City Challenges	Collaboration among Stakeholders and Governmental restraints	SCPM.U4.E38.L02	Being able to understand the background of a project and provide relevant input to stakeholders.
U4.E38	Smart City Challenges	Collaboration among Stakeholders and Governmental restraints	SCPM.U4.E38.L03	Ability to clearly present a complex and high-technological Smart City project/idea to a wider-audience
U4.E38	Smart City Challenges	Collaboration among Stakeholders and Governmental restraints	SCPM.U4.E38.L04	Be able create strong links and create a trustworthy and reliable network with multi-stakeholders
U4.E38	Smart City Challenges	Collaboration among Stakeholders and Governmental restraints	SCPM.U4.E38.L05	Be able to understand the institutional structure of an organization
U4.E38	Smart City Challenges	Collaboration among Stakeholders and Governmental restraints	SCPM.U4.E38.L06	Be able to create and nurture relationships with organizations at the institutional level
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPM.U4.E39.LO1	Ability to organize multi stakeholder and multidisciplinary projects and prioritize
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPM.U4.E39.LO2	Be able to find connections between public health policies and project management
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPM.U4.E39.LO3	Ability to clearly present a complex and high-technological Smart City project/idea to a wider-audience
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPM.U4.E39.LO4	Be able to know the difference between a vision and a mission in a project and how to implement them



## The Skills4cities Skill Cards describes the skills needed for **Smart City Project Management Consultant**

UE Code	Unit Title	Element Title	Learning Outcome code	Learning Outcome Description
U1.E1	Transversal Skills	Creative Thinking	SCPC.U1.E1.LO1	Be capable of developing, modifying or importing tailor-made solutions from outside work environments for specific needs building upon the new technologies available on the market.
U1.E1	Transversal Skills	Creative Thinking	SCPC.U1.E1.LO2	Knowing when a new approach is required
U1.E1	Transversal Skills	Creative Thinking	SCPC.U1.E1.LO3	Be able to use "creative thinking" as a way of introducing and applying innovative practices
U1.E1	Transversal Skills	Creative Thinking	SCPC.U1.E1.LO6	Be able to adapt solutions or/and alternatives into different social, political, or economic contexts or stages of development of a project
U1.E1	Transversal Skills	Creative Thinking	SCPC.U1.E1.LO7	Be able to create scenarios or hypothesis that could be linked to a project, activity etc. problem
U1.E4	Transversal Skills	City/ urban planning policies	SCPC.U1.E4.LO2	Able to develop and analyze urban-level SWOT analysis.
U1.E4	Transversal Skills	City/ urban planning policies	SCPC.U1.E4.LO3	Understanding of the interaction among the economy, transportation, health and human services, and land-use regulation.
U1.E4	Transversal Skills	City/ urban planning policies	SCPC.U1.E4.LO4	Knowledge of urban spatial structure, the way in which cities work, plan making and project evaluation
U1.E4	Transversal Skills	City/ urban planning policies	SCPC.U1.E4.LO5	Be able to acknowledge Urban Growth Theories in a way of explaining the internal demographic, spatial, and economic growth of cities

U1.E4	Transversal Skills	City/ urban planning policies	SCPC.U1.E4.LO6	Be able to develop a location and space study in order to provide solutions to modern challenges in urban areas
U1.E6	Transversal Skills	Critical Thinking	SCPC.U1.E6.LO1	Be able to use critical thinking in analyzing issues/challenges and making proper and informed decisions, to solve and manage issues
U1.E6	Transversal Skills	Critical Thinking	SCPC.U1.E6.LO2	Able to objectively analyze information and draw rational conclusions.
U1.E6	Transversal Skills	Critical Thinking	SCPC.U1.E6.LO3	Be able to analyze given data in order to get answers and to provide recommendations
U1.E6	Transversal Skills	Critical Thinking	SCPC.U1.E6.LO4	Be able to pay attention to the details when a problem arises
U1.E8	Transversal Skills	Intercultural Competence	SCPD.U1.E8.LO1	Be able to create an interculturalism and inclusive team which brings fosters the strong parts of each of its members while trying to turn weaknesses into strengths.
U1.E8	Transversal Skills	Intercultural Competence	SCPD.U1.E8.LO2	Able to respond to others in a way that is descriptive, non-evaluative, and non-judgmental and recognizes cultural diversity and differences
U1.E10	Transversal Skills	Emotional intelligence/ empathy	SCPM.U1.E10.LO1	Able to establish and maintain harmonious professional relationships by demonstrating respect for and sensitivity to others.
U1.E10	Transversal Skills	Emotional intelligence/ empathy	SCPM.U1.E10.LO2	Be able to apply emotional intelligence when managing a team: recognize and manage your emotions and the emotions of others
U1.E10	Transversal Skills	Emotional intelligence/ empathy	SCPC.U1.E10.LO3	Be able to use conflict management when a challenge or problem arises in the framework of a team
U1.E10	Transversal Skills	Emotional intelligence/ empathy	SCPC.U1.E10.LO4	Be able to support open and honest communication and active listening to achieve team commitment

U1.E10	Transversal Skills	Emotional intelligence/ empathy	SCPC.U1.E10.LO5	Be able to adapt one's own image and stance across different institutional contexts
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO1	Be able to understand the communication process of IoT devices based on the most common connection protocols: Wi-Fi, Bluetooth, 4/G connection
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO1	Be able to understand the communication process of IoT devices based on the most common connection protocols: Wi-Fi, Bluetooth, 4/G connection
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO1	Be able to understand the communication process of IoT devices based on the most common connection protocols: Wi-Fi, Bluetooth, 4/G connection
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO2	Integrating software and electronic components to connect and exchange data without human interaction.
U2.E20	Disruptive Technologies	Internet of Things	SCPD.U2.E20.LO3	Understand the basic concept of IoT and having the ability of applying it into the smart city concept.
U2.E22	Disruptive Technologies	Smart Sensors	SCPD.U2.E22.LO1	Knowledge of sensors: what they are, their purpose and their applications and how to install them
U2.E22	Disruptive Technologies	Smart Sensors	SCPD.U2.E22.LO2	To be able to read, analyze and incorporate information gathered through sensors.
U2.E22	Disruptive Technologies	Smart Sensors	SCPD.U2.E22.LO3	Ability to apply smart sensor technology to optimize existing processes, improve efficiency, and conduct continuous monitoring.
U3.E35	Smart City Project Domains	Digital Infrastructure and Networks	SCPC.U3.E35.LO1	Ability to analyze and understand the impact of digital infrastructure on the economy in general and on the city and urban processes in particular.
U3.E35	Smart City Project Domains	Digital Infrastructure and Networks	SCPC.U3.E35.LO2	Be able to use best practices for digital infrastructure and networks.

U3.E35	Smart City Project Domains	Digital Infrastructure and Networks	SCPC.U3.E35.LO3	Ability to map and/or interpret and use strategic infrastructure, develop and/or participate in the implementation of localized smartcity projects.
U3.E35	Smart City Project Domains	Digital Infrastructure and Networks	SCPC.U3.E35.LO4	Be able to initiate and/or manage and coordinates localized smart city projects and identifies processes, phenomena and patterns in urban areas.
U3.E35	Smart City Project Domains	Digital Infrastructure and Networks	SCPC.U3.E35.LO5	Be able to interpret geographic data and use maps and/or perform GIS analysis
U4.E37	Smart City Challenges	Financial Constraints	SCPC.U4.E37.LO1	Ability to oversee and manage large multidisciplinary projects' budgets; to elaborate detailed and accurate cash flows and budget expenditures predictions.
U4.E37	Smart City Challenges	Financial Constraints	SCPC.U4.E37.LO2	Be able to deliver value to stakeholders through successful completion of projects, grant management and delivery of products
U4.E37	Smart City Challenges	Financial Constraints	SCPC.U4.E37.LO3	Be able to allocate resources efficiently and effectively
U4.E37	Smart City Challenges	Financial Constraints	SCPC.U4.E37.LO4	Be able to identify, expand, and exploit the opportunities in a project
U4.E37	Smart City Challenges	Financial Constraints	SCPC.U4.E37.LO5	Be able to properly manage the budget and financial challenges/issues
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPC.U4.E39.LO1	Ability to organise multi stakeholder and multidisciplinary projects and prioritise.
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPC.U4.E39.LO2	Be able to find connections between public health policies and projectmanagement
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPC.U4.E39.LO3	Ability to clearly present a complex and high-technological Smart Cityproject/idea to a wider-audience
U4.E39	Smart City Challenges	Managerial and Organizational Challenges	SCPC.U4.E39.LO5	Be able to develop a solution-oriented mindset by mapping out all aspects of a problem and present innovative solution

## Annex III – ECQA Core Terminology

**EXAM ORGANISATION:** institution or entity entitled to organize exams for certain professions or jobroles, and to issue certificates to participants on behalf of the ECQA (ECQA, Nájera 2012).

FG: See Focus Group.

**FOCUS GROUP (FG):** Associate members of the Non-Profit Association ECQA who commit their work to maintain the skill card and exam questions for specific professions or job roles in annual releases. An ECQA FG consists of a number of experts in a given profession, who initiate, develop and frequently revise job roles within the ECQA training and certification scheme.

**JOB ROLE:** Professional activity or profession, with a set of specific skills and competences required for a state-of-the-art performance (ECQA, Nájera 2012).

**JOB ROLE COMMITTEE (JRC):** See Focus Group.

JRC: See Job Role Committee.

**LEARNING ELEMENT:** each part of a skill unit for a skill card that provides structure and content to define and assess the knowledge for a job role (ECQA, Nájera 2012).

**LEARNING OUTCOMES:** 'statements of what a learner knows, understands and is able to do on completion of a learning process, which are defined in terms of knowledge, skills and competence.' (Source: EQF 2008). ECQA used to call them Performance Criteria until 2015.

**MODULE:** see Skill Unit.

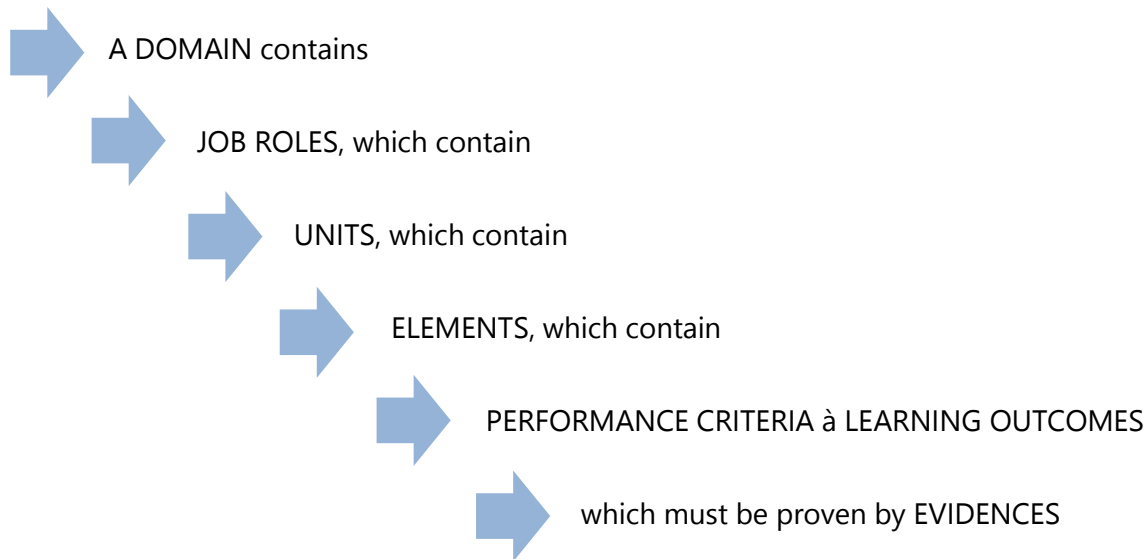
**PERFORMANCE CRITERIA:** see Learning Outcomes.

**SKILL:** 'the ability to apply knowledge and use know-how to complete tasks and solve problems.'

(Source: European Qualifications Framework - EQF 2008)

**SKILL CARD:** In vocational context, knowledge map of the skill units, learning elements and learning outcomes that define and standardize the required state-of-art qualifications of a specific profession. Skill cards are structured in units (called modules in academic curricula) learning elements (called units in academic curricula) and learning outcomes.

**SKILL DESCRIPTION:** ECQA has the following standard for skills description:



**SKILL UNIT:** biggest component of a curriculum, also called Module (at universities) and Unit in vocational training (European Commission, 2011). In SKILLS4CITIES a Unit (U) structures the skills of a Digital Accessibility Mediator into four main components (Units 1,2,3 and 4).

**TRAINING ORGANISATION:** entity that provides courses and trainings for one or more ECQA certified job roles, and has been officially certified by ECQA, after successful evaluation and certification, having proved to work according to ECQA requirements and quality criteria for Training Organisations.

## Annex IV – Certification Processes

### Certification of persons

The certification of persons under the ECQA certification procedure consists of **3 phases**:

1. An exploration phase (with the definition of stakeholders and goals)
2. A development phase (with a Competence Card at the end)
3. A Roll-out (with a syllabus, trainings, exam questions, exams and certificates)

ECQA® NPO organizes and is responsible for the exploration and development phase, ECQA® GmbH – or any other qualified certifying body – for the roll out.

The ECQA® process is transparent, easy, and fast – and open to all interested parties: At the beginning and at the end of the process, stakeholders are invited to provide feedback and comments, and to work in the respective Focus Group.

**Start:** The process starts when an individual or a group of people (physical or juridical persons) contact ECQA® with the aim to describe, harmonize or certify the competences (knowledge, skills and attitudes) of a profession or job role. There must be an intrinsic interest of an individual or a group (consisting of at least 2 persons) in the development of a Competence Card (CompCard) or a Skills Card.

- A Competence Card (CompCard) includes the knowledge, skills and professional attitude of a given profession or job role.
- A Skills Card includes the knowledge and skills of a given profession or job role.

**1<sup>st</sup> Exploration Phase:** In the exploration phase (2 months), a Focus Group is established, and builds stakeholders, goals and a canvas (Business Plan).

An ECQA® Focus Group (FG) is an international working group of distinguished experts and professionals who commit their work to safeguard the quality standards of ECQA®. They work together in a cluster of job roles, e.g., in the cluster »Accessibility«, »Innovation« or »Sustainability« to maintain the skills cards and relevant stakeholders of these clusters. FG members are individuals (often nominated by organisations) who are experts in the FG domain, with a high interest in European standardization. They apply for membership in the FG by submitting their CV with a description of their motivation to join the FG. The FG votes by simple majority on their application. Members of a FG should represent the given industry, come from companies, NPOs, associations, universities, training providers, etc. If the FG is able to submit a list of at least 189 stakeholders (7 stakeholders in each of the 27 EU member states), to prove the European dimension of the CompCard, and to deliver a template with goals and the business case for the CompCard within 2 months, the development phase starts. Otherwise, the FG is cancelled.

**2<sup>nd</sup> Development Phase:** In the development phase (4 months), the FG invites stakeholders to work on the CompCard: Relevant competences (knowledge, skills and attitudes) of the given profession or job role are described by the FG members in English.

FG members communicate via the ECQA® platform.

If the CompCard is accepted by the FG, it will be published at the ECQA® platform. Otherwise, the CompCard will be canceled, but the FG remains.

Every two years, ECQA® NPO asks the FG to review the CompCard and decide:

1. Amendments?
2. Remain unchanged?
3. Withdrawal?

When the CompCard is published, the roll-out phase can start, with ECQA® GmbH or any other qualified certification body.

**3<sup>rd</sup> Roll-out Phase:** The FG develops a syllabus, trainings, exams and certificates. This phase is managed by ECQA® GmbH or any other qualified certifying body.

### Steps to develop an ECQA CompCard and Certificate

invites stakeholders to work on the CompCard: Relevant competences (knowledge, skills and attitudes) of the given profession or job role are described by the FG members in English.



CompCards and Skills cards will be managed and checked by ECQA® NPO.

Syllabus, training materials, exam questions, exams, certification and recertification will be managed and done by ECQA® GmbH.



## Annex V – Checklists for ECQA Certified Training Materials

### Original ECQA Quality Design Check

Below we list the Original and proposed ECQA Quality Check for Design of ECQA Certified Training Materials for the SKILLS4CITIES project. This list can be used by potential training organisations.

I	Design review
	Criteria
<b>1</b>	<b>Slides</b>
<b>1.1</b>	<b>Heading slide</b>
1.1.1	The profession - logo - in good and original quality
1.1.2	The unit
1.1.3	The element
1.1.4	ECQA - URL <a href="http://www.ecqa.org">www.ecqa.org</a>
1.1.5	All elements readable - no overlapping text in headers or footers
<b>1.2</b>	<b>Slide with the list of Learning Objectives</b>
1.2.1	Learning objectives of the Element on one of the first slides
<b>1.3</b>	<b>Slides related to the content of the Element</b>
1.3.1	Slides are numbered (reflected structure of the training material)
1.3.2	If an overview slide is used, name it "Agenda" and place it after the slide with the list of Learning Objectives
1.3.3	If a summary slide is used, name it "Summary" and place it before the References
1.3.4	Text is large enough to be well readable for presentation
1.3.5	Pictures and graphics with text are large enough to be readable for presentation
1.3.6	Font - arial
1.3.7	Headline size 36 (if possible), text on slide size 24 (if possible), references not smaller than size 20, reference to authors not smaller than 14 and student notes size 12
1.3.8	Text color is black, titles are dark blue Accessibility: Black

1.3.9	Highlighted text is light blue - NO, not bold for accessibility reasons
1.3.10	Title of the slides starts with a capital letter
1.3.11	All slides shall have titles in their headlines
<b>1.4</b>	<b>Exercises and/or examples slides</b>
1.4.1	Provided exercises and/or examples for easier understanding of the slides
1.4.2	Instructions for exercises are provided on the slides
1.4.3	Title of the exercises and/or examples slides shall be Exercise or Example, respectively
<b>1.5</b>	<b>References slides</b>
1.5.1	A list of sources used for development of the slides content is provided
1.5.2	The references are according to the quotation rules detailed in the revised Quality Management Plan D2-01
<b>1.6</b>	<b>Reference to Authors</b>
1.6.1	A list of authors of the training material is provided
1.6.2	The reference number and name of the project (in case training material was supported by EU Commission)
1.6.3	The disclaimer about responsibility for the content is added (in case training material was supported by EU Commission)
<b>2</b>	<b>Student notes</b>
2.1	Student notes text is available as far as possible
2.2	Student notes length is appropriate according to the slides
2.3	Student notes have size 12



## Content Review Checklist

ECQA Certified Training Material - Quality Review: CONTENT								
Element:	<Unit No. + Element No.> <Title of the Element>							
Reviewer:	<Name + Organization>			<Date of the review>				
Review Criteria:								
				Fulfilled in general?				
- The terminology is consistent				yes/no				
- The content is relevant and uptodate				yes/no				
- Slides cover the complete set of learning objectives				yes/no				
- Each learning objective is explained in enough details to allow generation of 5 qu				yes/no				
- Examples are given				yes/no				
- References to other models are given				yes/no				
- Explanations how to fulfil requirements in standards are given				yes/no				
<b>Content review - Slides and student notes</b>								
Date	Slide No.	Comment	Severity (Minor/Major)	Corrected by	Date	Comment	Status	Status:
	general	valid for all slides, student notes						open
	5	valid for specific slides, student notes						corrected
								rejected
								closed:
								only reviewer can close it

## Annex VI – Job Role Committee (JRC) Agreement

### JRC Agreement to be signed by Skills4cities partners

The Skills4cities Job Role Committee Agreement should be signed by as many Skills4cities partners as possible, to secure the quality and sustainability of the new profile and the respective certification for SCPM, SCPD. SCPC.

Why? Because they update relevant skills and competences on a regular basis, and review the goals and the business case for the Skills Card or CompCard. JRC members also shape and group skills and competences to job roles or professions that characterize the labour market, and enlarge the network of the FG by inviting new FG members.

All these activities and duties secure the sustainability of the certification.



European Certification & Qualification Association

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 Tel.: +43-664-344-6180  
 www.ecqa.org  
 info@ecqa.org

---

- ¶
- ¶
- ¶
- **Agreement on Job Role Committee Membership – Focus Group Accessibility** ¶
- ¶
- The certification of persons has 3 phases: ¶
  1. → An exploration phase (with the definition of stakeholders and goals) ¶
  2. → A development phase (with a Skills Card or Competence Card at the end) ¶
  3. → A Roll-out (with a syllabus, trainings, exam questions, exams, and certificates) ¶
- ECQA® NPO organizes and is responsible for the exploration and development phase, ECQA® GmbH – or any other qualified certifying body – for the roll out. ¶
- ¶
- The ECQA® process is transparent and open to all interested parties: At the beginning and at the end of the process, stakeholders are invited to provide feedback and comments, and to work in the respective Focus Group. ¶
- ¶

The phases and steps to develop an ECQA® Skills or Competence Card and Certificate are described in Annex 1.

¶

### 1. → Scope of the Agreement ¶

The scope of this agreement refers to the collaboration between the European Certification and Qualification Association (ECQA®) NPO and a Job Role Committee (JRC) member within the Focus Group (FG) Accessibility/Sustainability.

The agreement is a proof that ECQA® has officially granted the member a position in the JRC(s):

- → **ECQA® Certified Digital Accessibility Mediator — basic level** ¶

within the Focus Group Accessibility/Sustainability ¶

¶

### 2. → The Role and Duties of an ECQA® Job Role Committee and Focus Group member ¶

1. → All job role committee and focus group members are associated members of the ECQA® Association (NPO).

They apply for ECQA® associate membership and for membership in the FG by submitting their CV with a description of their motivation to join the FG. All memberships are free of charge.

The FG votes by simple majority on their application.

Members of a FG should represent the given industry, come from companies, NPOs, associations, universities, training providers, etc.

FG members are committed to support the goals of the FG. They:

- → discuss and drive the trends and developments within the skills and competences relevant for the Focus Group.
- → shape and group skills and competences to job roles or professions that characterize the labor market.
- → update relevant skills and competences on a regular basis.
- → enlarge the network of the FG by inviting new FG members.
- → contribute to and maintain a list of FG and JRC stakeholders in each of the 27 EU member states, to prove the European dimension of the skills and competences.
- → discuss and review the goals and the business case for the Skills Card or CompCard.
- → promote the activities and achievements of the FG.

2. → FG members participate at least twice a year in a FG meeting, taking place virtually and/or face-to-face at the ECQA® Days (ECQA® annual meetings or conferences).

3. → JRC members meet at least twice a year with other JRC members to discuss JRC related tasks. Every two years, JRC reviews the Skills Card or CompCard and agrees on updates, amendments or withdrawal. The JRC meetings can take place virtually using teleconference and web-based teamwork systems.

4. → The JRC member fully commits to using and promoting the defined set of skills and competences of the ECQA® JRC and FG.

5. → The JRC member keeps all communication and data exchanged with ECQA® and the JRC confidential. ¶

¶

### 3. → The Role and Duties of ECQA® NPO in a Focus Group ¶

1. → ECQA® NPO supports JRC and FG members with a web-based teamwork environment (ECQA® Platform) so that JRCs can exchange information on the set of skills and competences (skills cards or CompCards). ¶
2. → ECQA® NPO ensures that information about FG stakeholders and actual sets of skills and competences are available to all JRC members. ¶
3. → ECQA® NPO manages the annual updates of the sets of skills and competences in cooperation with the certification and technology partner ECQA® GmbH. ECQA® NPO holds 60% of the shares of ECQA® GmbH. ¶
4. → Every two years, ECQA® NPO asks the FG to review the Skills Card or CompCard and decide:
  - 1) Amendments? 2) Remain unchanged? 3) Withdrawal? ¶
5. → ECQA® NPO keeps all communication with JRC and FG members confidential. ¶

¶

### 4. → Liability ¶

1. → Each contracting party shall release the other from any civil liability in respect of damages resulting from the performance of this agreement, suffered by itself or by its personnel, to the extent that these damages are not due to the serious or intentional negligence of the other party or its personnel. ¶
2. → If ECQA®'s registered, protected name or logo or has intentionally been misused by a JRC and FG member, ECQA® will take any necessary legal action to re-establish its reputation. ¶

¶

Rechteckig

### 5. → Changes / Duration ¶

1. → Changes to the agreement require a written form, purely verbal agreements cannot be accepted. ¶
2. → The agreement is valid from the date of signature to end of the year. The JRC and FG membership is prolonged automatically for one year unless the JRC and FG member sends a written authorized request for termination of membership. ¶
  1. → ECQA® may cancel the agreement in case the JRC and FG member does not work according to the agreement. The Executive Board of ECQA® decides about termination of agreement. ¶
  2. → The agreement can be cancelled at any time from either side with a 3 months notice. A cancellation requires a written form. ¶

¶

### 7. → Law ¶

1. → Austrian law applies. ¶
2. → The law court of Krems, Austria, applies. ¶

Rechteckig



**European Certification and Qualification Association**  
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Tel.: +43-664-344-6180  
www.ecqa.org  
info@ecqa.org

European Certification &  
Qualification Association

We hereby agree to all clauses of the **ECQA<sup>®</sup> Job-Role-Committee-Membership-Agreement-/Role-and-Duties-of-an-ECQA<sup>®</sup> Job-Role-Committee-and-Focus-Group-member**

for the Job-Role-Committee:

- **ECQA<sup>®</sup> Certified Digital Accessibility Mediator – basic level** within the Focus Group **Accessibility/Sustainability**

**Organization**

Short-Name			
Organization			
Address:			
Street + Nr.			
Post-Code/City			
Country			
Phone		Mobile	
Website			
Bank-Address			
IBAN			
Bank-Account			
BIC/Swift-Code			

**Contact Person**

	Legal representative	Expert
Title		
First-Name		
Surname		
Gender	<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other	<input type="checkbox"/> Female <input type="checkbox"/> Male <input type="checkbox"/> Other
E-mail		
Street + Nr.		
Post-Code		
City		
Country		
Phone		Mobile

## ECQA Focus Groups

The ECQA Focus Group (FG) IOT is a large and engaged community of professionals in the field of digitalization in general etc.

The following document explains what an ECQA FG is and how experts can join.  
Description of ECQA® Focus Groups

### 1. What is an ECQA Focus Group?

An ECQA® Focus Group (FG) is an international working group of distinguished experts and professionals who commit their work to safeguard the quality standards of ECQA®. They work together in a cluster of job roles, e.g., in the cluster »IOT«, »Innovation« or »Sustainability« to maintain the skills cards and relevant stakeholders of these clusters.

FG members are individuals (often nominated by organisations) who are experts in the FG domain, with a high interest in European standardization.

They apply for membership in the FG by submitting their CV with a description of their motivation to join the FG. The FG votes by simple majority on their application.

### 2. The role and duties of an ECQA® Focus Group member

2.1. All job role committee and focus group members are associated members of the ECQA® Association (NPO). They apply for ECQA® associate membership (free of charge), and for membership in the FG by submitting their CV with a description of their motivation to join the FG. Members of a FG should represent the given industry, come from companies, NPOs, associations, universities, training providers, etc. FG members are committed to support the goals of the FG. They:

- discuss and drive the trends and developments within the skills and competences relevant for the Focus Group.
- shape and group skills and competences to job roles or professions that characterize the labor market.
- update relevant skills and competences on a regular basis.
- enlarge the network of the FG by inviting new FG members.
- contribute to and maintain a list of FG and FG stakeholders in each of the 27 EU member states, to prove the European dimension of the skills and competences.
- discuss and review the goals and the business case for the Skills Card or CompCard.
- promote the activities and achievements of the FG.

2.2. FG members participate at least twice a year in a FG meeting, taking place virtually and/or face-to-face at the ECQA® Days (annual meetings or conferences).

2.3 FG members meet at least twice a year with other FG members to discuss FG related tasks.  
Every two years, FG reviews the Skills Card or CompCard and agrees on updates, amendments



or withdrawal. The FG meetings can take place virtually using teleconference and web-based teamwork systems.

2.4 The FG member fully commits to using and promoting the defined set of skills and competences of the ECQA® FG and FG.

2.5 The FG member keeps all communication and data exchanged with ECQA® and the FG confidential.

### **3. Benefits of being FG member**

Focus Group members are the drivers in their communities. They shape the trends and developments in their profession, job role, and industry.

As an ECQA® Focus Group member, they have access to a powerful network of other key drivers from European and non-European countries. They get inspired by good practice, cooperation and joint events and discussions with other FG members.

### **4. The role of ECQA® in a Focus Group**

4.1. ECQA® NPO supports the FG members with a web-based teamwork environment (ECQA Platform) so that FGs can exchange information on the set of skills and competences (skills cards or CompCards).

4.2. ECQA® NPO ensures that information about FG stakeholders and actual sets of skills and competences are available to all FG members.

4.3. ECQA® NPO manages the annual updates of the sets of skills and competences in cooperation with the certification and technology partner ECQA® GmbH. ECQA® NPO holds 60% of the shares of ECQA® GmbH.

4.4. Every two years, ECQA® NPO asks the FG to review the Skills Card or CompCard and decide: 1) Amendments? 2) Remain unchanged? 3) Withdrawal?

4.5. ECQA® NPO keeps all communication with FG and FG members confidential.

### **How to become a Focus Group Member?**

Membership in an ECQA® Focus Group (FG) is per invitation by a FG member, or the FG manager. Candidates also can apply for membership in the FG by submitting their CV with a description of their motivation to join the FG. Applications need to be sent to the FG manager. All job role committee and focus group members are associated members of the ECQA® Association (NPO). All memberships are free of charge.

## **Annex VII – Multiple Choice Questions for the Skills4cities written self-assessment.**

All Multiple-Choice Questions (MCQs) were delivered in the ECQA template for easy and machine-readable upload to the new ECQA examsoftware Bizexaminer. The following table is an example of how MCQs are developed and represented for the self-assessment.

Explanations of abbreviations, acronyms and numbering:

MC = Multiple Choice with Single response, MR = Multiple Response SCPD.U1.E1.LO1 = Smart city project developer, Unit 1, Element 1, Learning Outcome 1 correct: a, b, c = correct answers are: answer a, answer b, answer c.

Topic	Type Quest	Settings Result	Name Question	Question Text	Answer a	Answer b	Answer c	Learning Outcome
Trans versal Skills	MC	correct: a	SCPD.U1.E1.LO1	How can digital technologies support the growth of your organisation?	By being adapted to my specific socio-economic context	By adopting one size-fit-all solutions	By managing more information than before	Be capable of developing, modifying or importing tailor-made solutions from outside work environments for specific needs building upon the new technologies available on the market.
Trans versal Skills	MC	correct: b	SCPD.U1.E1.LO2	How can you address the inefficiency of a management process?	By allocating more financial resources	By identifying new Solutions through creativity	By extending the time available for deadlines	Knowing when a new approach is required
Trans versal Skills	MC	correct: c	SCPD.U1.E1.LO3	Which of the following techniques do NOT stimulate creative thinking?	Brainstorming	Lateral Thinking	Horizontal Thinking	Be able to use "creative thinking" as a way of introducing and applying innovative practices
Trans versal Skills	MC	correct: a	SCPD.U1.E1.LO4	Which of the following situations is an example of data mining applied to behavioural sciences?	Monitoring social media patterns for tailor-made advertisements	Direct observation of clients' purchases	Survey on consumers' attitudes for online shopping	Be able to understand data mining and its insights in relation to innovative applications (e.g., behavioural sciences etc.).
Trans versal Skills	MC	correct: b	SCPD.U1.E1.LO5	What is the vision most smart cities share?	The creation of a sustainable economy	To improve citizens' life through the employment of digital (smart) solutions	The provision of more timely services e.g., public transport	Be able to develop a powerful vision mindset by investing on how to take a smart city initiative with a long-term imprint



Trans versal Skills	MC	correct: a	SCPD.U1.E2.LO1	Which of the following is an emailserver?	IMAP Internet MessageAccess Protocol	LAN	SMB Server Message Block	Having sufficient knowledge about technology servers as abasic skill in the information-based society, being able to share information in an ethical way.
Trans versal Skills	MC	correct: c	SCPD.U1.E2.LO2	Please indicate the Project Managementplatform among the following options.	WhatsApp	Microsoft Teams	Asana	Choose proper ICT tools for problem solving andeffective work.
Trans versal Skills	MC	correct: c	SCPD.U1.E2.LO3	Indicate the necessary elementsto make a realistic map for your goals	Time	Financial Resources	Both	Be able to formulate and map realistic, attainable and long-term goals by applying digital-based and sustainable solutions
Trans versal Skills	MC	correct: b	SCPD.U1.E2.LO4	How can you efficiently cooperateonline?	Through direct emails andphone calls	Through an online co-working space e.g. Google Drive	Through instant-messaging and onlinemeeting	Executing tasks remotely, using the most recent cloud anddistance working arrangements for cooperation.
Trans versal Skills	MC	correct: a	SCPD.U1.E2.LO5	Which of the following applications can be integrated into AdminProject platform?	Microsoft Office	Zoom	Facebook	Be able to adapt to digital technologies and use them in the framework of online projects from concept to completion

## Annex VIII – Certification schemes



### Certification Scheme Skills4Cities

#### *Smart City Project Manager*



**Version 1.0:** 2022-10-07

E-Mail: [info@ecqa.org](mailto:info@ecqa.org)

Internet: <https://www.jobcertification.eu/index.php>

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## 1. Scope of this Document

This certification scheme specifies the procedure of how the competence of persons in the field of Smart City Project Manager is certified by ECQA GmbH. The certification organization ECQA GmbH is an Austrian company, which is 60% owned by the non-profit organization European Certification and Qualification Association (ECQA). The object of certification is exclusively / solely the competence of natural persons.

The certification is largely based on the principles of the International Standard ISO/IEC 17024:2012-07 Conformity assessment - General requirements for bodies certifying persons.

## 2. Competence Requirements

### *2.1. Transversal Skills*

The competences that the learners will acquire in this context will support the execution of a successful work in an innovative and creative way, necessary for different contemporary situations – beyond Smart Cities' projects. These competences will promote a culture of a lifelong learning across various jobs, for the learner to be able to adapt to different contexts according to various parameters.

#### **Individuals must have the following knowledge regarding the basics and framework of Transversal Skills.**

1. Vision
2. Analytical Skills
3. Soft Skills

#### ***Vision***

#### **Individuals must have the following competencies regarding Vision.**

- Creative Thinking

#### ***Analytical Skills***

#### **Individuals must have the following competencies regarding Vision.**

- City / Urban planning Policies
- Critical Thinking

#### ***Soft Skills***

Individuals must have the following competencies regarding Soft Skills

- Intercultural Competences
- Emotional Intelligence / Empathy

## *2.2. Disruptive Technologies Competences*

The goal of this TM is to provide the necessary knowledge to understand these technologies and the relative impact they can have and already have on our lives. The learner will go through the basic information in regard of this new devices, protocols and so forth, while also acquiring practical and to a lesser extent technical capability to implement solutions powered by such technologies.

The use of Internet of Things labs, where possible, either remotely or through direct access to simulation labs, is strongly advised for the development of practical technical competences. The type of activities to be carried out, while falling in the categories presented in this TM, will rely on the characteristics of the existing labs.

### **Individuals must have the following knowledge regarding the basics and framework of Disruptive Technologies.**

1. Internet of Things
2. Smart Sensors

## *2.3. Smart City Project Domain Competences*

The purpose of this module is to gather the competences needed in all the sectors transversally touched by projects developed to make cities smarter.

For this reason, the TM will go through different disciplines, spanning from economics, public policies, sustainability, and basic engineering. All these areas have been found to enter into play whenever a Smart City project is either conceived, developed, and implemented.

### **Individuals should have the following knowledge regarding the basics and framework of Smart City Project Domain Competence.**

- Digital Infrastructure and Networks

## *2.4. Smart City Challenges*

To ensure the smooth implementation of the largest number of projects possible, this TM is specifically focused on targeting and addressing the most common challenges emerging during all the phases of project development and implementation. These roughly cover the same sectors the Smart Cities' project managers have to face in order to conceive and practically implement the project idea.

### **Individuals should have the following knowledge regarding the basics and framework of Smart City Challenges.**

- Financial Constraints
- Managerial and Organizational Challenges



### 3. Examination Admission Requirements

Prerequisite for admission to the examination is:

- Related studies with at least 20-30 ECTS or completion of the S4C course.or
- Proof of practical experience in the field of training of at least 2 years.or
- Proof of a successfully passed Interview before a committee. (Not older than 3Months)

*Questions will be on topics like:*

- A question about real-life scenarios
- A question about professional experience
- A question about code of conduct

The interview will be carried out by one of the experts of the project partners.

### 4. Multiple-Choice Exam

The examination is done in writing as a multiple-choice test online. The exam consists of **45 questions**, from a pool of more than **90 questions in total**, from the 4 subject areas as per section 2.1 to 2.4. The maximum duration of the written exam is set at 1.5 hours.Any extra material is prohibited during the exam.

### 5. Evaluation Criteria

#### *5 1. Multiple-Choice Exam*

Each question is scored with a maximum of one point each. There are several answeroptions per question. For each learning element according to section 2.2.1 to 2.2.5 atleast 60% of the total score must be achieved. In order for a question to be correct, all right answered need to be given.

#### *5 2. Overall Assessment and Examination Repetition*

In order to pass the overall examination, at least 60% in all elements must beachieved. Negatively assessed elements can be repeated at a later date.

### 6. Issue and validity of Certificates

The successful evaluation of the initial certification examination, according to section5, is a prerequisite for the issuance of a certificate. The certificates are valid for 3 years.

### 7. Recertification

#### *7 1. Certificate renewal criteria*

In order to renew the certificate, the certificate holder must fulfill the following criteria:



1. The certificate holder must provide evidence of relevant continued education in the amount of at least 24 hours for the entire certification cycle.
2. The certificate holder must provide evidence of current, relevant practical activity. This must be provided in the form of a description of the activity or project.
3. The recertification fee must be paid by the certificate holder and a valid e-mail address must be provided, so that the new certificate can be delivered electronically.

## *7.2. Issue of the certificate*

After fulfilling all the criteria, according to 7.1.1 and 7.1.2, the certificate is renewed for three years.

## *7.3. Deadlines*

Recertification must take place x weeks / months before the certificate expires. In exceptional cases, recertification may also take place after expiry of the certificate. In this case, the following conditions apply:

1. If the recertification takes place after the expiration of the validity of a certificate within a period of maximum six months, the recertification shall be carried out in accordance with the criteria and process specified in Section 7.1. Otherwise, an audit to the extent of the initial certification shall be performed in accordance with Section 5.
2. The validity of the certificate is always based on the date of initial certification. This means that the date of the initial certification is always taken as the starting point, regardless of the recertification date, that actually took place.



## Certification Scheme Skills4Cities

### *Smart City Project Developer*



**Version 1.0:** 2023-01-31

E-Mail: [info@ecqa.org](mailto:info@ecqa.org)

Internet: <https://www.jobcertification.eu/index.php>

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# 1. Scope of this Document

This certification scheme specifies the procedure of how the competence of persons in the field of Smart City Project Developer is certified by ECQA GmbH. The certification organization ECQA GmbH is an Austrian company, which is 60% owned by the non-profit organization European Certification and Qualification Association (ECQA). The object of certification is exclusively / solely the competence of natural persons. The certification is largely based on the principles of the International Standard ISO/IEC 17024:2012-07 Conformity assessment - General requirements for bodies certifying persons.

## 2. Competence Requirements

### 2.1. Transversal Skills

The competences that the learners will acquire in this context will support the execution of a successful work in an innovative and creative way, necessary for different contemporary situations – beyond Smart Cities' projects. These competences will promote a culture of a lifelong learning across various jobs, for the learner to be able to adapt to differ contexts according to various parameters. Individuals must have the following knowledge regarding the basics and framework of the four Elements within Transversal Skills.

1. Vision
2. Analytical Skills
3. Soft Skills
4. Project Management Skills

#### ***Vision***

**Individuals must have the following competencies regarding vision.**

- Creative Thinking
- Familiarity with new Technologies & ICT
- Innovative Thinking

#### ***Analytical Skills***

**Individuals must have the following competencies regarding vision.**

- City / Urban planning Policies

#### ***Soft Skills***

**Individuals must have the following competencies regarding Soft Skills**

- Intercultural Competences
- Emotional Intelligence / Empathy

#### ***Project Management Skills***

Individuals must have the following competencies regarding Project Management Skills

- Leadership and Conflict Management
- Public Communication

## *2.2. Disruptive Technologies Competences*

The goal of this TM is to provide the necessary knowledge to understand these technologies and the relative impact they can have and already have on our lives. The learner will go through the basic information in regard of this new devices, protocols and so forth, while also acquiring practical and to a lesser extent technical capability to implement solutions powered by such technologies. The use of Internet of Things labs, where possible, either remotely or through direct access to simulation labs, is strongly advised for the development of practical technical competences. The type of activities to be carried out, while falling in the categories presented in this TM, will rely on the characteristics of the existing labs.

**Individuals must have the following knowledge regarding the basics and framework of the two Elements within Disruptive Technologies.**

- Internet of Things
- Smart Sensors

## *2.3. Smart City Project Domain Competences*

The purpose of this module is to gather the competences needed in all the sectors transversally touched by projects developed to make cities smarter. For this reason, the TM will go through different disciplines, spanning from economics, public policies, sustainability, and basic engineering. All these areas have been found to enter into play whenever a Smart City project is either conceived, developed, and implemented.

**Individuals should have the following knowledge regarding the basics and framework of Smart City Project Domain Competences.**

- Economy, Trade, and Industry

## *2.4. Smart City Challenges*

To ensure the smooth implementation of the largest number of projects possible, this TM is specifically focused on targeting and addressing the most common challenges emerging during all the phases of project development and implementation. These roughly cover the same sectors the Smart Cities' project managers have to face in order to conceive and practically implement the project idea.

**Individuals should have the following knowledge regarding the basics and framework of the two Elements within Smart City Challenges.**

- Technological Challenges
- Collaboration among Stakeholders and Governmental restraints

## **3. Examination Admission Requirements**

Prerequisite for admission to the examination is

- Related studies with at least 20-30 ECTS or completion of the S4C course.or
- Proof of practical experience in the field of training of at least 2 years.or
- Proof of a successfully passed Interview before a committee. (Not older than 3 Months).

*Questions will be on topics like:*

- A question about real-life scenarios
- A question about professional experience
- A question about code of conduct

The interview will be carried out by one of the experts of the project partners.

## **4. Multiple-Choice Exam**

The examination is done in writing as a multiple-choice test online. The exam consists of 45 questions, from a pool of more than 90 questions in total, from the 4 subject areas as per section 2.1 to 2.4. The maximum duration of the written exam is set at 1.5 hours. Any extra material is prohibited during the exam.

## **5. Evaluation Criteria**

### *5.1. Multiple-Choice Exam*

Each question is scored with a maximum of one point each. There are several answer options per question. For each learning element according to section 2.2.1 to 2.2.5 at least 60% of the total score must be achieved. In order for a question to be correct, all right answers need to be given.

### *5.2. Overall Assessment and Examination Repetition*

In order to pass the overall examination, at least 66% of all elements must be achieved. Negatively assessed elements can be repeated at a later date.

## **6. Issue and validity of Certificates**

The successful evaluation of the initial certification examination, according to section 5, is a prerequisite for the issuance of a certificate. The certificates are valid for 3 years.

## **7. Recertification**

### *7.1. Certificate renewal criteria*

In order to renew the certificate, the certificate holder must fulfill the following criteria:

- The certificate holder must provide evidence of relevant continued education in the amount of at least 24 hours for the entire certification cycle.
- The certificate holder must provide evidence of current, relevant practical activity. This must be provided in the form of a description of the activity or project.
- The recertification fee must be paid by the certificate holder and a valid e-mail address must be provided, so that the new certificate can be delivered electronically.

### *7.2. Issue of the certificate*

After fulfilling all the criteria, according to 7.1.1 and 7.1.2, the certificate is renewed for three years.

### *7.3. Deadlines*

Recertification must take place x weeks / months before the certificate expires. In exceptional cases, recertification may also take place after expiry of the certificate. In this case, the following conditions apply:

1. If the recertification takes place after the expiration of the validity of a certificate within a period of maximum six months, the recertification shall be carried out in accordance with the criteria and process specified in Section 7.1. Otherwise, an audit to the extent of the initial certification shall be performed in accordance with Section 5.
2. The validity of the certificate is always based on the date of initial certification. This means that the date of the initial certification is always taken as the starting point, regardless of the recertification date, that actually took place.
3. The validity of the certificate is always based on the date of initial certification. This means that the date of the initial certification is always taken as the starting point, regardless of the recertification date, that actually took place.





European Certification &  
Qualification Association



## Certification Scheme Skills4Cities

### *Smart City Project Management Consultant*



**Version 1.0:** 2023-01-31

E-Mail: [info@ecqa.org](mailto:info@ecqa.org)

Internet: <https://www.jobcertification.eu/index.php>

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## 1. Scope of this Document

This certification scheme specifies the procedure of how the competence of persons in the field of Smart City Project Management Consultant is certified by ECQA GmbH. The certification organization ECQA GmbH is an Austrian company, which is 60% owned by the non-profit organization European Certification and Qualification Association (ECQA). The object of certification is exclusively / solely the competence of natural persons.

The certification is largely based on the principles of the International Standard ISO/IEC 17024:2012-07 Conformity assessment - General requirements for bodies certifying persons.

## 2. Competence Requirements

### *2.1. Transversal Skills*

The competences that the learners will acquire in this context will support the execution of a successful work in an innovative and creative way, necessary for different contemporary situations – beyond Smart Cities' projects. These competences will promote a culture of a lifelong learning across various jobs, for the learner to be able to adapt to different contexts according to various parameters

**Individuals must have the following knowledge regarding the basics and framework of Transversal Skills.**

- Vision
- Analytical Skills
- Soft Skills

#### ***Vision***

**Individuals must have the following competencies regarding vision.**

- Creative Thinking

#### ***Analytical Skills***

**Individuals must have the following competencies regarding Analytical Skills.**

- City / Urban planning Policies
- Critical Thinking

#### ***Soft Skills***

**Individuals must have the following competencies regarding Soft Skills**

- Intercultural Competences
- Emotional Intelligence / Empathy

### *2.2. Disruptive Technologies Competences*

The goal of this TM is to provide the necessary knowledge to understand these technologies and

the relative impact they can have and already have on our lives. The learner will go through the basic information in regard of this new devices, protocols and so forth, while also acquiring practical and to a lesser extent technical capability to implement solutions powered by such technologies.

The use of Internet of Things labs, where possible, either remotely or through direct access to simulation labs, is strongly advised for the development of practical technical competences. The type of activities to be carried out, while falling in the categories presented in this TM, will rely on the characteristics of the existing labs.

**Individuals must have the following knowledge regarding the basics and framework of Disruptive Technologies.**

- Internet of Things
- Smart Sensors

### *2.3. Smart City Project Domain Competences*

The purpose of this module is to gather the competences needed in all the sectors transversally touched by projects developed to make cities smarter. For this reason, the TM will go through different disciplines, spanning from economics, public policies, sustainability, and basic engineering. All these areas have been found to enter into play whenever a Smart City project is either conceived, developed, and implemented.

**Individuals should have the following knowledge regarding the basics and framework of Smart City Project Domain Competences.**

- Digital Infrastructures and Networks

### *2.4. Smart City Challenges*

To ensure the smooth implementation of the largest number of projects possible, this TM is specifically focused on targeting and addressing the most common challenges emerging during all the phases of project development and implementation. These roughly cover the same sectors the Smart Cities' project managers have to face in order to conceive and practically implement the project idea.

**Individuals should have the following knowledge regarding the basics and framework of Smart City Challenges.**

- Technological Challenges
- Collaboration among Stakeholders and Governmental restraints

## **3. Examination Admission Requirements**

Prerequisite for admission to the examination is:

- Related studies with at least 20-30 ECTS or completion of the S4C course.

- Proof of practical experience in the field of training of at least 2 years.or
- Proof of a successfully passed Interview before a committee. (Not older than 3Months)

*Questions will be on topics like:*

- A question about real-life scenarios
- A question about professional experience
- A question about code of conduct

The interview will be carried out by one of the experts of the project partners.

## **4. Multiple-Choice Exam**

The examination is done in writing as a multiple-choice test online. The exam consists of 45 questions, from a pool of more than 90 questions in total, from the 4 subject areas as per section 2.1 to 2.4. The maximum duration of the written exam is set at 1.5 hours. Any extra material is prohibited during the exam.

## **5. Evaluation Criteria**

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In order for a question to be correct, all right answers need to be given.

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In order to pass the overall examination, at least 60% in all elements must be achieved. Negatively assessed elements can be repeated at a later date.

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The successful evaluation of the initial certification examination, according to section 5, is a prerequisite for the issuance of a certificate. The certificates are valid for 3 years.

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### *7.1. Certificate renewal criteria*

In order to renew the certificate, the certificate holder must fulfill the following criteria:

- The certificate holder must provide evidence of relevant continued education in the amount of at least 24 hours for the entire certification cycle.
- The certificate holder must provide evidence of current, relevant practical activity. This must be provided in the form of a description of the activity or project.
- The recertification fee must be paid by the certificate holder and a valid e-mail address must be provided, so that the new certificate can be delivered electronically.



## *7.2. Issue of the Certificate*

After fulfilling all the criteria, according to 7.1.1 and 7.1.2, the certificate is renewed for three years.

## *7.3. Deadlines*

Recertification must take place before the certificate expires. In exceptional cases, recertification may also take place after expiry of the certificate. In this case, the following conditions apply:

1. If the recertification takes place after the expiration of the validity of a certificate within a period of maximum six months, the recertification shall be carried out in accordance with the criteria and process specified in Section 7.1. Otherwise, an audit to the extent of the initial certification shall be performed in accordance with Section 5.
2. The validity of the certificate is always based on the date of initial certification. This means that the date of the initial certification is always taken as the starting point, regardless of the recertification date, that actually took place.

## Annex IX – Certification of Trainers

<sup>1</sup> This summary certificate shows that he/she passed all elements from all units of the job role. The certificate will be sent after attending the training of trainers and after passing the exam.

European Certification and Qualification Association

[www.ecqa.org](http://www.ecqa.org)

### Checklist for Trainer Certification

ECQA Trainer Certification Rules	yes	no
<p><i>ECQA Trainer Rule 1:</i></p> <p>The trainer can prove experience in the specific domain related to the job role/profession (for which he/she will do the training).</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>ECQA Trainer Rule 2:</i></p> <p>The trainer has run through the certification process and has reached a summary certificate<sup>1</sup> concerning the certain job role/profession.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>ECQA Trainer Rule 3:</i></p> <p>The trainer has to been coached (or acting as a co-trainer for an already accredited trainer) at least once in the teaching of the learning elements of the skills card of the profession.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>ECQA Trainer Rule 4:</i></p> <p>The trainer can prove former consulting, development or trainer experiences.</p>	<input type="checkbox"/>	<input type="checkbox"/>

## Criteria for the Trainer Certification

### 1. Criteria 1: Required Competence Coverage

**ECQA Trainer Rule 1: The trainer can prove experience in the specific domain related to the job role/profession (for which he/she is doing the training).**

Explanation:

- ✓ A study at a university and 3 years work experience in the field **OR** no university study and 8 years work experience in the field

**AND**

- ✓ Industrial references (from companies) **OR** at least 2 publications

### 2. Criteria 2: Required Knowledge Background

**ECQA Trainer Rule 2: The trainer has run through the certification process and reached a "summary certificate" concerning the certain job role/profession.**

Explanation:

- ✓ The trainer has to go through the certification process (pass all elements of the skill card) and proving that he/she has the knowledge and can pass the exam.
- ✓ Developers of the job role/profession don't have to do the exam and don't need a summary certificate. Because of the development of the job role he/she has proved that he/she has the required knowledge background.

### 3. Criteria 3: Required Minimum Coaching

**ECQA Trainer Rule 3: The trainer has to been coached (or acting as a co-trainer for an already ECQA certified trainer) at least once in the teaching of the learning elements of the skills card of the profession.**

Explanation:

- ✓ An already ECQA certified trainer has to provide a positive reference.



#### 4. Criteria 4: Required Experience Log

**ECQA Trainer Rule 4: The trainer can prove former consulting, development or trainer experiences.**

Explanation:

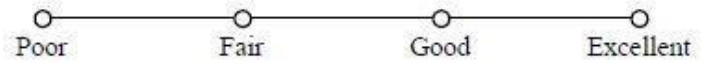
- ✓ A list of former teachings, courses, consulting or development has to be provided in the certification process. The trainer can prove that he/she held industrial or university courses, consulted projects or related development projects before.
- ✓ If in any of the below criteria a rating “poor” is done, this will be a failure criteria for the trainer acceptance.

#### How would the trainer be rated in the following areas?

Proven former teaching, consulting or development in the field



Teachings, consulting or development are related to the skill card



Proven expertise in the field by publications or references



*Table 1 : Qualitative Trainer Criteria*

## Annex X – Certification of Training Organisations

### Checklist for Training Organisation Certification

ECQA Training Organisation Certification Rules	yes	no
<p><i>ECQA Training Organisation Rule 1:</i></p> <p>The training organisation can declare which skill card they will cover. The skill card represents a job role certified by ECQA.</p>	<input type="checkbox"/>	<input type="checkbox"/>
<p><i>ECQA Training Organisation Rule 2:</i></p> <p>The training organisation can prove that the set of training materials covers all performance criteria of the skill card.</p>		
<p><i>ECQA Training Organisation Rule 3:</i></p> <p>The training organisation can prove that they have at least one qualified trainer (can also be work contract based, not necessarily this requires an employment), who is accredited as ECQA certified</p>		
<p><i>ECQA Training Organisation Rule 4:</i></p> <p>The training organisation can prove that they have consulting, service or training experiences and success record in the field related with the skill card.</p>		
<p><i>ECQA Training Organisation Rule 5:</i></p> <p>The training organisation is committed to use the ECQA registration and test portals. Via these portals all certificates will be electronically maintained across Europe.</p>		

### Criteria for Certification of Training Organisations

#### 1. Criteria 1 and 2: Required Skill Card Coverage

ECQA Training Organisation Rule 1: The training organisation can declare which skill card they will cover. The skill card represents a job role certified by ECQA.

ECQA Training Organisation Rule 2: The training organisation can prove that the set of training materials covers all performance criteria of the skill card.

**Explanation:**

The training organisation applies for a certification by declaring which skill card/job role they plan to offer and by sending the training materials for an audit to the ECQA organisation.

The ECQA coordinates the work with job role related committees who are doing the actual audit. The audit checks if the training material covers all skills units, learning elements and performance criteria of the skills card as a minimum.

**2. Criteria 3: Required Competence Coverage**

ECQA Training Organisation Rule 3: The training organisation can prove that they have at least one qualified trainer (can also be work contract based, not necessarily this requires an employment), who is accredited as ECQA certified trainer.

Explanation:

The training organisation applies for a certification by sending copies of the certificates of at least one related trainer for an audit to the ECQA organisation

**3. Criteria 4: Required Organisational Background**

ECQA Training Organisation Rule 4: The training organisation can prove that they have consulting, service or training experiences and success record in the field related with the skill card.

## Annex XI – Certification of Exam Organisations

The following agreement serves as model and first draft for the specific agreements with Skills4cities partners and other Organisations who want to become ECQA Certified Exam Organisations, in order to offer and conduct exams for ECQA certified

- Smart City Project Manager
- Smart City Project Developer
- Smart City Project Management Consultant

### Exam Organisation Agreement

#### Agreement between ECQA GMBH and Exam Organisation (EO)

Nr. of Agreement: **EO**-<Country Code>-<EO ID>-<sequence nr.> (filled out by ECQA GMBH)

**ECQA GMBH** (VAT No. ATU70191339) is represented by Prof. (FH) Mag. Michael Reiner, ECQA GMBHCEO.

#### Exam Organisation (EO):

*Short description, Address, Website*

*VAT No.>, represented by <Name and position of authorized person>*

#### ECQA GmbH Representative for Monitoring of Exam Organisation:

*<Name, Address, Postal Code/City>*

#### Scope of the Agreement

The scope of this contract refers to appointment of ... (EO) as an ECQA GMBH Exam Organisation. Details of the Exam Organisation are given in Appendix I.

#### Appointment as ECQA GMBH Exam Organisation

ECQA GMBH hereby appoints the above identified organisation as an ECQA GMBH Exam Organisation aimed to certify participants of Exams for ECQA GMBH Job Roles. The list of Job Roles is provided as an Appendix II to this Agreement and is updated according to interest of both parties.

ECQA GMBH has the right to appoint as an Exam Organisation also any other Exam Organisation without any obligation to Exam Organisation listed above.

The Exam Organisation performs certification activities for Job Roles, defined within the ECQA GMBH and listed in Appendix II to this Agreement strictly and exclusively according to ECQA GMBH rules. The Exam Organisation has the right to perform other certification activities outside of ECQA GMBH Certification Scheme independently and without any obligation to ECQA GMBH.

## Duties of ECQA GMBH

1. ECQA GMBH defines the general rules for operation of ECQA GMBH Certification Scheme.
2. ECQA GMBH provides the exam portal for all Job Roles defined within ECQA GMBH Certification Scheme.
3. ECQA GMBH assures availability of exam portal at any time to support the exams organized by the Exam Organisation.
4. ECQA GMBH maintains and upgrades the exam portal considering the feedback from Exam Organisation. ECQA GMBH keeps the right to decide which improvements of the exam portal will be done and when to implement them.
5. ECQA GMBH assures the technical support for usage of exam portal.
6. ECQA GMBH assures that the pools of exam questions used within exams for all Job Roles are available, up to date, professional and large enough to assure relevant exams. At least three questions exist for each Learning Outcome within each Element of all Units to be randomly selected for an exam. Pools of test questions are updated at least every two years by ECQA GMBH Focus Groups or Exam Committees.
7. ECQA GMBH ensures independence of electronic exams by random selection of questions from the exam pool. The Exam Organisations cannot control the content of exams.
8. ECQA GMBH assures that the Exam Organisation can administer within exam portal all exams, lists of exam participants and lists of certified participants.
9. ECQA GMBH archives and maintains all test and certification data provided within the exam portal (to ensure full traceability of certification records).
10. ECQA GMBH provides the templates for certificates for a specific Job Role.
11. ECQA GMBH assures that improvement requests for certification of services will be reviewed by relevant ECQA GMBH bodies and acted upon in due time.
12. ECQA GMBH grants the Exam Organisation the right to use the ECQA GMBH logo and reference to relationship with ECQA GMBH in all forms of marketing and informative materials.
13. ECQA GMBH promotes the Exam Organisation as ECQA GMBH authorised Exam Organisation on the web site, in flyers and at ECQA GMBH related conferences and other events.
14. ECQA GMBH will provide up to date information about relevant events at ECQA GMBH (in a form of electronic newsletter or similar).
15. ECQA GMBH appoints a representative to support cooperation with Exam Organisation and to manage the monitoring of Exam Organisation activities.
16. ECQA GMBH keeps all communications with the Exam Organisation confidential.

## Duties of the Exam Organisation

1. An Exam Organisation (EO) holds examinations for Job Roles listed in Appendix II using

exam material and exam portal provided by the ECQA GMBH.

2. An Exam Organisation implements the exams consistently with following general rules:

- EO organizes and promotes exams for certain Job Role.
- EO administers exams, participants of exams and certified participants using the exam portal.
- EO files in an archive any and all data concerning the examination participants, examinations [performed] and examination results.
- EO assures the traceability of examination activities.

The examination must be implemented and supervised at the examination location by an examiner appointed by the Exam Organisation who is known by name, who has been suitably trained and who has entered into obligation to keep these matters confidential.

- Examiners support performance of exams by:
  - advising and supervise candidates during examinations.
  - informing participants about their results.
  - generating, printing and arranging signatures and distribution of certificates and publishing of certified participants at ECQA GMBH web page.

2. Following successful examination, the Exam Organisation shall issue a certificate to the examination candidate. EO issues certificates in English, assuring the consistency with ECQA GMBH templates for certificates and usage of ECQA GMBH logo and contact information.

3. EO offers the certification service on the market and for international participants independently of and without any obligation to any other ECQA GMBH registered Exam Organisation.

4. EO independently of ECQA GMBH defines internal organisation supporting certification services and pricing policy.

5. EO may organize the seminars to offer participants the preparation to exams. EO may hire only an ECQA GMBH registered Training Organisation to provide the trainings, but it is free to choose any organisation on the ECQA GMBH List of Registered Training Organisations. Employees of EO are not allowed to perform trainings.

6. EO shall continually publish times and dates of public examinations. The EO may also publish dates for examinations it will hold directly following training courses. In such an event, it must list all of the examinations that Training Organisations have submitted to it for publication.

7. Information on upcoming exams need to be published to ECQA GMBH at least three weeks prior to the exam. The information has to include the names (first- and last name) of the participants, the login name of the participant (ECQA GMBH exam portal) and the examination fee the participant has paid.

8. EO may charge the examination candidates with an examination fee. For this purpose, it is to prepare a Schedule of Fees in advance. The Schedule of Fees is to be made

available to the examination candidates or parties who are interested in the examination, should they so demand.

9. EO reports at least bi-annually to ECQA GMBH about certification services performed. Reports should include list of examinations performed defined by:
  - Examination date
  - Number of examination participants
  - Number of certified participants
  - Amount of charged examination fee
10. EO keeps all data exchanged with ECQA GMBH confidential.

### **Finances**

1. The minimum payment per exam is 75 Euro, independent from the examination fee of the Exam Organisation.
2. If a large number of exams is to be carried out, a reduction of the minimum 75 Euro can be negotiated prior to the exam. This option has to be agreed on by Exam organisation as well as ECQA GMBH.

### **Terms of the Agreement, Termination, Changes**

1. The present Agreement shall commence on date of being signed by the last party. Its term shall amount to 36 months. The Agreement shall be silently extended by 24 months in each case, unless it has been terminated while observing the period of notice as set out here in below.
2. The Agreement may be terminated by either party at any time, observing a six-week period of notice, if a grave breach of contractual obligations is given which, when taking all circumstances of the individual case into account and balancing the interests of the two contractual parties, indicates that it can no longer reasonably be expected of a party to continue the present Agreement, and if said breach is not remedied within an appropriate period of time despite a written warning having been issued. This shall also apply in case of several breaches of contractual obligations which, if seen together, indicate that it cannot be reasonably expected of the respective other party to continue the present Agreement.
3. The termination is to be made in writing via registered letter.
4. Changes to the contract require a written form; purely verbal agreements cannot be accepted.

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