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GREEN SCENT

SMART CITIZEN EDUCATION FOR A GREEN FUTURE

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D4.1 – SCENT Skill Cards

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1. Document Info

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1.4. Document History

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0.1	Michael Reiner	31-05-2023	Basic Setup
0.2	Michael Reiner	25-06-2023	Adding of Skillcard – first draft, description of questionnaires, alignment of units and elements into Modules, description of self assessment and exam platform
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2. Introduction

GreenSCENT – Smart Citizen Education for a Green Future – is a research and innovation project funded by the European Union's Horizon 2020 programme, under Grant Agreement N° 101036480.

GreenSCENT aims at developing a competence framework embracing all the Green Deal focus areas through an iterative, participatory, experience and learning-by-doing-based, design approach.

GreenSCENT activities embrace both experts' and researchers' inputs and advice as well as citizen participation and stakeholder engagement initiatives; in different European regions, at different educational levels (from primary schools to higher education), and at different engagement levels (from observation to data collection and processing, to contribute to scientific and policy agendas).

Using the expertise of the project partners, a draft skills card will be sent to the Advisory Board and to focus groups to gather input and feedback.

In the skills card, we will break down the skills and competences into Skill Units (U) or Modules (at university level) and Learning Elements (E). Each learning element will be described by Learning Outcomes (LO). The ECQA methodology of acronyms and numbering will be followed, to provide machine-readable descriptors for the ECQA exam and self assessment platform.

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3. Transferring The GreenComp Framework (WP1) into different levels of potential skill cards

The WP 1 generates a complete GreenComp Framework, with all the needed skills and competences. This complete overview has to be rearranged into potential skill cards for different levels (according to the chose EQF level) and the target audience.

This has to be done using the generated EQF levels per skills and competence. The idea here is to group these skills and competences into Units and Elements that can be trained and certified later.

3.1. The GreenComp Framework

A result of Task 1.1, D1.1 presents the first version of the main output of GreenSCENT project: the competence framework describing in terms of Competence Areas, Competences, and Knowledge/Skills/Attitudes (KSA) the eight main focus area identified in the Communication from the European Commission about the European Green Deal for the European Union (EU) and its citizens (specifically, identified in the sub-sections of Article 2 of the abovementioned Communication from the European Commission).

In the complete GreenComp Framework 8 Focus areas were selected:

- Climate change
- Clean energy
- Circular economy
- Green building
- Smart mobility
- From farm to fork
- Biodiversity
- Zero pollution

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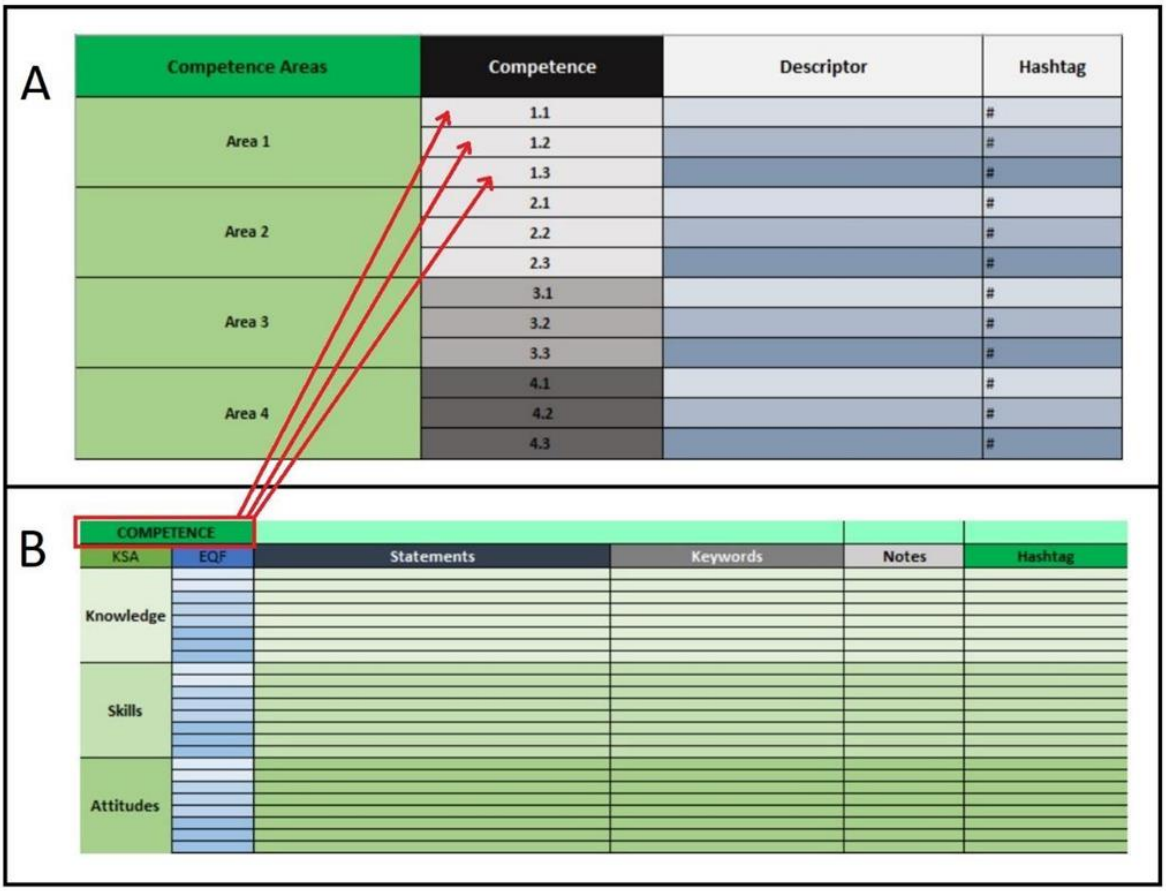

As a template for the GreenComp Framework, every competence in every Focus Area was listed and then described with Learning objectives (statements) for knowledge, skills and attitudes in the different EQF levels (if applicable).

3.2. Sectioning

After several discussions, the partners decided to divide the competences and skills into their dedicated target groups.

Kids up to 10 years age	EQF level 1-2
Kids up to 16 years age	EQF level 1-3
Adult/working	EQF level 1-4 (partially 5)
Trainers	EQF Level 1-5 (partially 6)

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3.2.1. Focus Area – Climate Change

KSA	EQF	Statements	Keywords
Knowledge	1	Understands that climate change is inevitable and that the adaptation is needed to be able to preserve functioning economy without harming nature	natural climate change, economy maintenance
	2	Knows the consequences of clearing forests, the increase of greenhouse gases in the atmosphere, nuclear waste and use of genetically modified organisms	consequences, emission increase
	3	Awareness of how climate change and technologies shape our material, intellectual, and cultural environments	technologies, different perspectives
	4	Understanding of the practical characteristic features of climate change as a form of human knowledge and inquiry	climate change features, impact, consequences
	5	Scientific knowledge and use of that knowledge to identify questions, to acquire new knowledge, to explain scientific phenomenon, and to draw evidence-based conclusions about climate change related issues	problem identification, phenomenon, evidence-based
	6	Identifies different use cases, timeframes, and typologies of climate adaptation actions (e.g., transformative, incremental, proactive, reactive)	use cases, adaptation, transformative
	7	Know how to generate a future scenario drawing a scientific predictive model	future scenarios
	8	Applies a theoretical and practical grounding in the core concepts of climate adaptation, drawing from local EU areas and exogen science approaches to analyse challenges and facilitate incremental and transformative measures	theoretical, practical grounding, local areas, transformation
Skills	1-2	Is able to personally contribute to the energy, water savings as well as reduce air pollution, extinction of plants and animals, by preserving local biodiversity	energy saving, transport mean choice
	3	Identify climate change issues, explain phenomena scientifically and use scientific evidence	issues, scientific evidence
	4	Support the use of factual information and rational explanations and express the need for logical and careful processes in drawing conclusions	factual information, evidence-based conclusions
	5	Describes and distinguishes the constitutive and behavioural properties of complex adaptive systems.	complex, adaptive systems
	6	Identifies and analyses social, political, and cultural impacts and consequences of climate change, with a consideration of populations who experience disproportionate climate impacts	impacts, consequences,
	7	Approaches climate adaptation from a multidisciplinary and holistic perspective, drawing from science perspectives, concepts, and theories to leverage adaptations trans-disciplinary nature	multidisciplinary, science perspective, multidisciplinary
	8	Describes and translates climate scenarios, current climate trends, and regional and global impacts to identify adaptation opportunities and inform adaptation action	climate scenarios, global impacts

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Attitudes	1	Show a sense of personal responsibility for maintaining a sustainable environment	responsibility, sustainability
	2	Demonstrates willingness to seek information and have an ongoing interest in climate change, including consideration of environmental science-related careers	evidence-based, factual information
	3	Willingness to engage in science-related issues regarding climate change, and with the ideas of science, as a constructive, concerned, and reflective citizen	science-related, constructive reflection
	4	Shows the exclusive emphasis is on science knowledge and methods	scientific approach
	5	Acknowledges the importance of considering different scientific perspectives and arguments	scientific perspectives
	6	Is open to novices	advancements
	7	Applies systems thinking to identify connections between climate adaptation, disaster risk reduction (DRR) and vulnerability as the basis for building resilience on social, physical, and economic levels	system thinking, interconnections
	8	Is willing to teach and inform others to take an action	effective communication

Table 1 - Climate Change – Climate Change Adaptation Practice Literacy

KSA	EQF	Statements	Keywords
Knowledge	1	Knows that action for climate change need clear identification of a problem and well defined plan	problem identification
	2	Is informed about the local and international policy frameworks in order to reduce climate change due to human impact	policy frameworks
	3	Basic understanding of climate change science	factual knowledge
	4	Understanding of scientific consensus on climate change and potential impacts	scientific consensus
	5	Knowledge of implementation of public policy on climate change	public policy
	6	Understanding of ecological principles and climate change	ecology, principles
	7	Identifies the risks that climate change poses to infrastructure and evaluates potential adaptations that address risks to infrastructure	risks, infrastructure
	8	Identifies the risks that climate change poses to economic development and evaluates potential adaptations that address risks to economic development	risks, economical development
Skills	1	Is able to identify existing issues in the context of climate change	critical thinking, problem solving
	2	Identifies a problem, comes to a clear, precise, and complete understanding of the situation	precision, decision making
	3	Identifies useful and missing data, can foresee the trends from data	data, trends
	4	Highlights key problem/solution components, suggests concrete, original, and effective solutions spontaneously	solution, originality
	5	Sets clear objectives	goals
	6	Uses a good method for goal deliberation, identification	methodical approach, goal setting

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	7	Is able to name several alternatives for possible problem solution	alternatives, problem-solving
	8	Assesses the importance of the decision as well as be able to evaluate each alternative. Predicts climate change impacts	decision-making, impact
Attitudes	1	Demonstrates willingness to take action to maintain natural resources	action taking, natural resources
	2	Willingness to seek for the problem identification in order to find solutions	problem-solving
	3	Positiveness to the constraints tied to the implementation of their solutions, as much from a personal point of view	implementation, issues
	4	Futures thinking and hindsight	future thinking
	5	Highlights the key components of the problem: vulnerable places, groups, elements, and infrastructures	vulnerabilities
	6	Positiveness to why it is important to engage in outreach on climate change and/or strategies that support adaptation to climate change	strategies, change management, adaptation
	7	Sensitiveness to the social tensions surrounding discussion about climate change	tension, discussion
	8	Openness to use different strategies to engage stakeholders	strategic thinking, collaboration

Table 2 - Climate Change – Know-how problem solving

KSA	EQF	Statements	Keywords
Knowledge	1	Knows that environmental concerns are not equally distributed across cultures	cultural differences
	2	Is aware that many societies prefer economic and political stability over environmental security	conflict of interests
	3	Understanding that the security of the environment should be a personal goal	personal responsibility
	4	Understanding that for cross-cultural collaboration the psychological barriers must be reduced (e.g. distrust, belief in external control, individualism-collectivism)	barriers, cross-cultural collaboration
	5	Understanding that the thinking required by climate change, involves cultural changes along with shifts in perspectives and practices	change management
	6	Understanding the key characteristics of scenarios as a cultural form are that they provide space for collective and reflexive modes of acting on and thinking about uncertain futures	different scenarios, future thinking
	7	Integrates and communicates climate adaptation concerns and opportunities in ways that support disciplinary bridging and cooperation	adaption, concerns
	8	Understanding that integrating more culturally rooted contributions on climate change scenarios would enrich processes of future-thinking beyond climate model outputs	systemic, future thinking
Skills	1	Identifies what observed impacts of climate change may vary regionally and seasonally	impacts, variations
	2	Can identify different national and international regulations to mitigate climate change	national, interaction goals
	3	Works alone and cooperates to reduce gas emissions, air and water pollution	cooperation
	4	Is able to discuss scientific consensus with people who hold diverse beliefs about climate change	scientific consensus

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	5	Models high standards of integrity, social responsibility, and ethical conduct through commitment to professional expertise, ethics, and adaptation standards	integrity, common responsibility
	6	Acts as a visible role model, embodying in actions and thinking the values and standards consistent with professional practice guidelines and standards	embodying, role model, high standard behaviour
	7	Practices a life-long learning orientation, continuously upgrading knowledge and expertise in ways that respond to evolving climate and climate adaptation knowledge and practice standards	lifelong learning
	8	Challenges traditional ways of thinking about things, doing things and planning for the future	critical-thinking, planning
Attitudes	1	Willingness to learn from other cultures	openness
	2	Readiness to sacrifice the economical welfare to a certain level in order to preserve environment	economics, pro-environmental sacrifice
	3	Openness to other cultures attitudes and behaviours towards climate change	acceptance, trans-cultural values
	4	Embodies a scientific mindset (i.e., curiosity, open mindedness, scepticism, and humility)	scientific mindset
	5	Identifies and is accountable for his/her own actions, behaviour, and decisions in accordance with climate-informed ethical requirements	accountability, ethical behaviour
	6	Demonstrates a recognition of professional obligations to clients and society to more generally integrate climate change and climate adaptation considerations in all plans, projects, and actions	obligations, integration, adaptation
	7	Leads from a foundation of emotional and relational intelligence, fosters a culture of honesty and transparency, and promotes ongoing learning (self and others)	scientific honesty, transparency, constant learning
	8	Adapts personal leadership style to respond to changing contexts, cultures, circumstances, and challenges	leadership, challenges

Table 3 - Climate Change – Climate change cross-cultural practice

KSA	EQF	Statements	Keywords
Knowledge	1	Knows the existence of many parties that shares the same values for climate change, but also might have diverse interests	value sharing, diverse interests
	2	Understands that the complexity of climate change depends on the impacts of climate change adaptation that must draw together solutions that span social, economic and political boundaries	complexity, adaptation, common solutions
	3	Understands that collaborations can be created with potential long-term benefits including ensuring the cost-effectiveness of planned actions, and helping to address and resolve competing priorities	long-term benefits, cost-effectiveness
	4	Understands that private companies can provide technological solutions and make them more affordable for resolving problems	technological advancements, problem-solving
	5	Understanding the importance of public awareness of the climate change issues	public awareness
	6	Understanding that non-profit or political organisations and industries have to benefit from each other in order to reach the goals	transversal benefits
	7	Identifies and supports decision-makers and staff/ roles to enable the design and implementation of climate adaptation strategies, initiatives, decisions	decision-making, implementation

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	8	Deep understanding of the political and economical positions of different stakeholders and mutual benefits	stakeholders, mutual benefits
Skills	1	Is able to identify diverse stakeholders and their interests	interests, benefits
	2	Is able to explain the importance of diverse parties collaboration	collaboration
	3	Gets involved in a non-profit organisation	non-profit organisation
	4	Demonstrates ability to involve all parties in climate change adaptation planning and implementation	cooperation, planning
	5	Applies a fundamental understanding of change management principles and models, the drivers of and barriers to change in complex adaptive systems	change management, barriers
	6	Uses an organised, systematic application of the knowledge, tools, and resources of change management to support envisioning and implementing the changes necessary for climate action	systematic action, tools deployment
	7	Acts as a catalyst for change by supporting cultural shifts and communicating alternative futures in a way that motivates, supports, and enables growth at multiple scales (individual, organisational, collective)	alternatives, effective communication
	8	Demonstrates strategic readiness to initiate, advance and resource initial and iterative adaptive changes, anticipating and resolving barriers, and assessing short- and long-term effects of change across multiple systems	readiness, advances, initiative
Attitudes	1	Open-minded point of view towards different parties	diverse interests
	2	Open-minded point of view towards different parties	diverse interests
	3	Proactive mindset	proactiveness
	4	Proactive mindset	proactiveness
	5	Positiveness to integrate different stakeholders interests for common benefit	integration
	6	Resilience to collective disagreements	resilience
	7	Anticipates and responds to the personal, social, organisational, and contextual factors that could undermine or derail change	future thinking
	8	Resilience to occurring barriers in reaching the common goal	resilience, barriers

Table 4 - Climate Change – Collaboration among diverse stakeholders

KSA	EQF	Statements	Keywords
Knowledge	1	Has basic knowledge about the climate change historically and nowadays	wide perspective
	2	Has advanced knowledge of the climate change during the history and nowadays	open-mindedness

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	3	Understanding that society must adapt to a changed climate	adaptation
	4	Understands the appropriate use of system tools such as biodiversity assessments and product life-cycle assessments	assessments, systematic approach
	5	Knows how to evaluate the risks of climate within the enterprises	risk evaluation
	6	Knows how to map changes in the climate and climate related hazards	vulnerabilities, impacts
	7	Maintains up-to-date knowledge of current trends seen in the impacts of climate change on ecosystems and the availability of natural resources on which the organisation depends	impacts, ecosystems
	8	Identifies adaptation strategies for ecosystem impacts resulting from climate change that are strategic to the organisation's operations and mission	adaptation, impacts
Skills	1	Identifies the features of climate change nowadays	factors
	2	Identifies the features of climate change nowadays and can suggest how these effects can be reduced	problem-solving
	3	Shows personally adapted and changed personal lifestyle for climate change	personal responsibility
	4	Advocates for the appropriate use of system tools such as biodiversity assessments and product life-cycle assessments	system-thinking, assessments
	5	Evaluates risks in the enterprise	risks
	6	Establishes and continually improves the organisation's capacity to track and assesses the impact on the organisation's operations and mission of existing and evolving financial, energy, and climate legislation and regulations	improvements, organisational tracking, assessments, regulations
	7	Assesses and continually improves the ability of the organisation's own policies and those of its supply chain partners to leverage opportunities and mitigate risks associated with climate change	organisational policies, risk mitigation
	8	Defines, structures, and resources the successful execution of high-value, complex projects that contribute meaningfully to the mitigation of and/or adaptation to climate change	complex projects, added value, adaptation
Attitudes	1	Acceptance that climate is changing	acceptance
	2	Openness changing own lifestyle and encouraging others to do it in favour of reducing environmental damage	lifestyle change, self-efficacy
	3	Positiveness to the future perspectives regarding climate change	future perspectives
	4	Openness to various tools and perspectives for climate change evaluation	evaluation
	5	Willingness to contribute and help for various stakeholders to inform about existing risks within the enterprises	diverse stakeholders
	6	Teams up with organisational leadership to prioritise any climate-related opportunities by understanding the relationship between climate impacts and the organisation's market drivers	cooperation, priorities setting, interrelation
	7	Works effectively with the organisation's communications unit to incorporate the organisation's position on climate change	communication, common position
	8	Addresses the climate-related risks to market drivers and market requirements through risk mitigation plans and actions	risks, market assessment

Table 5 - Climate Change – Climate informed change management

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KSA	EQF	Statements	Keywords
Knowledge	1	Knows different communication channels for climate change	communication
	2	Understands that climate change communication should be adapted to the dynamical and complex audience	communication adaptation
	3	Has different level of knowledge: economic, political, scientific to communicate the climate change	multilevel knowledge
	4	Has enough scientific knowledge to convince the climate change deniers	sceptical views
	5	Knows how to frame the impacts of climate change and the benefits of adaptation action	action taking, frameworks
	6	Knows framing specific mitigation solutions	risk mitigation, problem-solving, issue acceptance
	7	Knows how to solicit for early action alerts	action taking
	8	Is informed and knows well to describe the benefits of low emissions development	low emissions, benefits
Skills	1	Is able to describe a simple transmission model of communication, comprised of a messenger, who transmits a message through particular channels, to specific audiences	affective communication, message transmitters
	2	Is ready to hear opposing messages, through an ever-growing number and complexity of channels, to diverse audiences who have their own pre-existing beliefs, attitudes and values, and who actively interpret and construct their own meanings from the messages they receive	opposing views, critical thinking
	3	Developed ability to tackle the climate change calls for bridging the science/policy/civil society gap	problem solving, society gaps, knowledge gaps
	4	Ability to gather data for effective interdisciplinary communication	data gathering, evidence based solutions
	5	Ability to tune-up communication of climate change to various levels of education and background	multilevel information
	6	Ability to use partnerships to communicate how climate-smart industry can involve less labour-intensive techniques and deliver more reliable products than conventional approaches	cooperation, technological advancements
	7	Ability to teaming up with organisations, influential individual bloggers and spokespeople who are willing to talk about climate impacts and solutions and who are working outside environmental organisations	transversal cooperation, pro-environmental communication
	8	Is able to conduct a research and show a model of how human-induced climate change influences the likelihood of an extreme weather event	extreme weather, scientific modelling
Attitudes	1	Openness to different points of view	opposing views
	2	Openness to different points of view	opposing views
	3	Willingness to learn and adapt knowledge	lifelong learning
	4	Openness to scientific environment	systemic thinking
	5	Positiveness to the climate change adaptation	adaptation
	6	Open-mindset guiding others to the adaptation and behaviour change for climate	behavioural change, cooperative mindset
	7	Openness to different parties and diverse perspectives of climate change understanding	diverse perspectives

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	8	Scientific and approachable method to spread the knowledge	science communication

Table 6 - Climate Change – Climate change communication

KSA	EQF	Statements	Keywords
Knowledge	1	Understands that climate change issue requires wide spectra of different areas knowledge	multidisciplinary
	2	Knows how each scientific area and industrial sector can contribute to the climate change reduction	transversal cooperation
	3	Understands the scientific and industry cooperation importance	science, industry
	4	Is informed what technologies and different areas knowledge and practice can be useful for climate change action	climate action, industrial impact
	5	Is informed that climate change reduction is not only a scientific problem, but also of social sciences and humanities	industries and science transversality
	6	Is informed about the cross-sector gap for climate change action	cross-sector gaps
	7	Is informed about the cross-scientific areas gap for climate change action	lack of action
	8	Knows the strategies how to unify the different sectors and science to collaborate towards climate change action	sector unification
Skills	1	Can describe the scientific and industrial areas and their possible collaborations towards climate change action goals	cooperation, climate goals
	2	Is able to draw a strategy of how several areas could achieve a climate change action goal	climate goals, strategies
	3	Is able to tackle the issues and barriers occurring in the cross-industry cooperation process for climate change	barriers, problem solving
	4	Is able to reach an agreement between conflicting parts and offer alternative solutions	conflict management, alternatives
	5	Is able to agree on and articulate the complex range of solutions, and to implement those solutions in a compelling way	multiple solutions, complexity
	6	Is able to coordinate and unify the multiple actors involved in addressing the climate change action gap in a unifying strategic narrative	coordination, management
	7	Is able to distinguish and well identify the gap between the policies, political strategies and implementation at industrial level	policies, strategies, gaps, implementation
	8	Is able to foresee, plan and draw the long-term strategies for cross-sectorial and scientific collaboration	long-term goals, future thinking
Attitudes	1	Interest in various scientific and industrial areas	open-mindedness
	2	Interest in technological advancements and their benefits for climate change action	technological advancements
	3	Willingness to adapt to different beliefs for climate change action	adaptation, different beliefs
	4	Openness to various solutions	multiple solutions
	5	Openness to simple and complex alternatives to approach a problem	alternative choices, problem-solving
	6	Willingness to learn and apply knowledge to be compliant with various sectors interests	cross-sector interests, benefits
	7	Willingness to follow the policy guidelines for climate change and encourages peers to implement it for reaching climate change action goal	policies, climate action goals

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	8	Future strategic thinking for climate change action	future-thinking

Table 7 - Climate Change – Various scientific areas and industrial cross-sector cooperation

KSA	EQF	Statements	Keywords
Knowledge	1	Smarter adaptation: adaptation actions must be informed by robust data and risk assessment tools that are available to all – from families building homes, businesses in coastal regions and farmers planning their crops	risk assessment, families, building, workers. climate related risk
	2	Faster adaptation: the effects of climate change are already being felt, and so we must adapt more quickly and comprehensively. Developing and rolling out adaptation solutions to help reduce climate-related risk, increase climate protection and safeguard the availability of freshwater.	climate protection, climate related risk
	4	Environmental sensors	
	5	Remote-sensing platforms	acoustic, sound, vibration, Environment, weather, moisture, humidity, etc.
	6	Remote-sensing platforms	acoustic, sound, vibration, Environment, weather, moisture, humidity, etc.
	7	Predictive analysis	sensors algorithms
Skills	3	Technologies analysis and selection	innovation patterns, knowledge complexity
	6	IoT and Physical Safety	Sensors, Devices, controllers, gateways, connectivity, data analysis
Attitudes	2	Human-as-a-Sensor (HaaS) paradigm	GPS, Smartphone, wearable devices, acoustic, sound, vibration, Environment, weather, moisture, humidity, etc.
	3	Human-as-a-Sensor (HaaS) paradigm	GPS, Smartphone, wearable devices, acoustic, sound, vibration, Environment, weather, moisture, humidity, etc.
	4	Human-as-a-Sensor (HaaS) paradigm	GPS, Smartphone, wearable devices, acoustic, sound, vibration, Environment, weather, moisture, humidity, etc.
	5	Human-as-a-Sensor (HaaS) paradigm	GPS, Smartphone, wearable devices, acoustic, sound, vibration, Environment, weather, moisture, humidity, etc.

Table 8 - Climate Change – Strategy & Planning for an adaptation

KSA	EQF	Statements	Keywords
Knowledge	1	Ecology for buildings	vertical ecology

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	3	The effects of climate change are threatening the planet and all the citizens around the globe. Increasingly frequent wildfires, droughts, flooding, and rising sea levels are displacing populations and impacting supply chains, both of which are disrupting social, cultural, and economic norms	greenhouse gas emissions, building materials and construction, resilient design strategies for office building and workplace
	6	Ecology for buildings	biophilic elements
	7	Long-term ecological research	Research
	8	Fractal patterns and shapes study	stress reduction
Skills	1	Ecology	organism, population, community, and ecosystem
	5	Molecular ecology, organismal ecology, population ecology, community ecology, global ecology, landscape ecology and ecosystem ecology	Biotic Factors, Abiotic Factors, environment conservation, resources allocation

Table 9 - Climate Change – Solution Design

KSA	EQF	Statements	Keywords
Knowledge	1	Identifying existing weaknesses caused by anthropic activities that affect lands and cities and evidence, focus and monitor the threat that causes harm	climate emergency, sustainable lifestyle, land degradation, food and water scarcity
	2	Identifying existing weaknesses caused by anthropic activities that affect lands and cities and evidence, focus and monitor the threat that causes harm	climate emergency, sustainable lifestyle, land degradation, food and water scarcity
	3	Identifying existing weaknesses caused by anthropic activities that affect lands and cities and evidence, focus and monitor the threat that causes harm	climate emergency, sustainable lifestyle, land degradation, food and water scarcity
	6	Identifying, Modelling and Hedging Risks	assessment, quantitative method, economic, statistical, mathematical techniques
	8	Use of Big Data and web-based Decision Support Systems for risk assessment with respect to climate change	Big Data analytics, sources, multidimensional data management, data-driven approach, environmental factors
Skills	3	Climatic and non-climatic issues and stresses environmental change and consumption levels, and their integration with other drivers	Environmental change
	5	Methods of vulnerability assessment in natural hazards	Environmental change
Attitudes	1	Humans as part of the global ecosystem	increasing temperatures, sea-level rises, changing patterns of precipitation
	2	Humans as part of the global ecosystem	increasing temperatures, sea-level rises, changing patterns of precipitation
	3	Effect of environmental vulnerability in term of destabilisation of agriculture, housing and economies; and exacerbate health risks for populations	vulnerable people, loss of resources, land degradation, food and water scarcity

Table 10 - Climate Change – Risk Management, Vulnerability & Impact Analysis

KSA	EQF	Statements	Keywords
Knowledge	1	Future impact of climatic changes upon the frequency and severity of disasters	Impact

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	4	Technologies for first responders	risk reduction strategies
Skills	3	Community based disaster preparedness and mitigation programmes	vulnerability and capacity assessment
	4	Assess the Future Impact of Climatic Changes upon the Frequency and Severity of Disasters and the Implications for first response and Preparedness	rise of sea level, more droughts, floods, heat waves, water shortages
Attitudes	1	Mitigating climate change is recognized as an increasingly urgent task that requires understanding a range of different strategies, including voluntary behaviour change	psychological barriers
	2	Practical risk reduction options	improving simple early warning and evacuation systems
	4	Improving the disaster preparedness efforts of governments and public stakeholders in general	emergency management, disaster response, communities

Table 11 - Climate Change – Prevention and preparedness actions

KSA	EQF	Statements	Keywords
Knowledge	4	Scientific breakthroughs in various domains ranging from technologies, solutions and services: drought-resilient crops, water saving technologies, satellites for environmental observation, rapid progress in adaptation science and climate analytics as a basis for state-of-the-art climate information, scaling up of digital tools to take our adaptive capacities to the next level	co-creating a vision and innovation pathways
Skills	4	Resilience in agriculture, biodiversity, coastal areas, disaster risk reduction, energy, finance, forestry, health, infrastructure, marine and fisheries, transport, urban, water management, etc.	research and innovation
Attitudes	2	Deal with climate disruptions help citizens, communities and regions to better understand, prepare for and manage climate risks such as heatwaves, forest fires, droughts, floods, storms and diseases	transition

Table 12 - Climate Change – Resilience technologies, managing the consequences

KSA	EQF	Statements	Keywords
Knowledge	1	Net-zero transition	universal, significant, Front-loaded, Uneven
	3	Mitigation efforts to lower greenhouse gas emissions	improving air quality
	4	Adjust societies to withstand the impacts of climate change	climate solutions
	6	Establishing compensating mechanisms to address socioeconomic impacts	vulnerable people, disparities
Skills	6	Catalysing effective capital reallocation and new financing structures, including through scaling up climate finance	collaborations across the public and private sectors
	7	Developing new financial instruments and markets, including voluntary carbon markets	collaborations across the public and private sectors
Attitudes	1	Accelerating decarbonization worldwide	lifestyle
	4	Stakeholder and zero-transition	awareness

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Table 13 - Climate Change – Adaptation knowledge creation

KSA	EQF	Statements	Keywords
Knowledge	3	Conceptual background of approaches to address loss and damage associated with slow onset events	case studies, lesson learned
	4	Empirical evidence linking a cluster of slow onset events to human mobility decisions, trajectories and outcomes	migration flow, displacement of populations, relocation
	5	Climate-induced human mobility	migration flow, displacement of populations, relocation
	6	Qualitative and quantitative data analysis software	Indicators, statements, attributes
	7	Trends in slow onset events research	sea level rise, temperature increase, ocean acidification Glacial retreat, Salinization, Land degradation and deforestation, desertification, Loss of biodiversity
	8	Trans- and interdisciplinarity in slow onset climate change research	sea level rise, Temperature increase, Ocean acidification , Glacial retreat, Salinization, Land degradation and deforestation, desertification, Loss of biodiversity
Skills	1	Difference from slow-onset and sudden-onset event's impact	adverse effects of climate change
Attitudes	2	Attention received from sudden-onset disasters as their effects are more visible	tropical cyclones, typhoons, hurricanes, tornadoes, blizzards; hydrological hazards, coastal floods, mudflows, geophysical hazards, earthquakes, tsunamis, volcanic eruptions
	4	Slow onset events and the policy-makers less attention	long term effects

Table 14 - Climate Change – Monitoring the speed of phenomena and their adaption

KSA	EQF	Statements	Keywords
Knowledge	3	Climate change mitigation requires a transition in the structure of economic activity on a massive scale	geopolitics, life expectancies, greenhouse gases emissions
	4	Climate change mitigation requires a transition in the structure of economic activity on a massive scale	geopolitics, life expectancies, greenhouse gases emissions
	7	Macroeconomic and Financial Policies for Climate Change	economic impact
	8	Financial and monetary policy instruments	policy mix, mitigation tool
Skills	6	Climate Science and the Cost of Climate Change	Fiscal Policy Tools, Financial Policy Tools

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Attitudes	5	Climate risks and the adequate reflection in financial balance sheets and assets	Corporate budget
	6	Redressing the mispricing and increasing the transparency of climate risks	Physical risks, transition risk, Liability risks
	7	Supporting the development of markets for green financial securities	Credit and Insurance operators

Table 15 - Climate Change – Macro fiscal policy dedicated to climate change

KSA	EQF	Statements	Keywords
Knowledge	1	Conserving existing wetlands to prevent greenhouse gas emissions. Restorative agriculture and regrowing clear-cut forests, actively remove CO2 from the atmosphere	protect, sustainably manage and restore natural ecosystems,
	5	Creation of hybrid systems that improve resilience to climate impacts, while resulting in environmental, economic, and social co-benefits	water-related climate risks
Skills	1	Increase awareness of biodiversity	ecosystem restoration
	2	Increase awareness of biodiversity	ecosystem restoration
	3	Increase awareness of biodiversity	ecosystem restoration
	4	Nature-based recovery	climate crises
Attitudes	2	Solutions like: green roofs, rain gardens, or constructed wetlands for the damage minimisation by absorbing stormwater, reducing flood risks and safeguarding freshwater ecosystems.	water-related climate risks
	5	Nature-based solutions in urban areas	urban planning, mobility

Table 16 - Climate Change – Local adaption action and nature based solution

The different skills and competences were colour coded and then arranged into possible skill cards for the Focus area. By this the outcome at the end should find 8 different skill cards with 4 different levels each. Resulting in a total of 32 skill cards.

3.2.2. Skill card draft – Climate Change – Kids up to 10 years

Proposed skill card for Beginner level = Kids up to 10 years:

Nr.	Topic	Skill	Knowledge/Skill	EQF	Statement
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	1	Understands that climate change is inevitable and that the adaptation is needed to be able to preserve functioning economy without harming nature

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1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	2	Knows the consequences of clearing forests, the increase of greenhouse gases in the atmosphere, nuclear waste and use of genetically modified organisms
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Skills	2	Is able to personally contribute to the energy, water savings as well as reduce air pollution , extinction of plants and animals, by preserving local biodiversity
1.3.	Climate Change	Know-how problem solving	Knowledge	1	Knows that action for climate change need clear identification of a problem and well defined plan
1.3.	Climate Change	Know-how problem solving	Skills	1	Is able to identify existing issues in the context of climate change
2.1	Climate Change	Climate Changecross-cultural practice	Knowledge	1	Knows that environmental concerns are not equally distributed across cultures
2.1	Climate Change	Climate Changecross-cultural practice	Knowledge	2	Is aware that many societies prefer economic and political stability over environmental security
2.1	Climate Change	Climate Changecross-cultural practice	Skills	1	Identifies what observed impacts of climate change may vary regionally and seasonally
2.2.	Climate Change	Collaboration among diverse stakeholders	Knowledge	1	Knows the existence of many parties that shares the same values for climate change, but also might havediverse interests
2.3.	Climate Change	Climate informed change management	Knowledge	1	Has basic knowledge about the climate change historically and nowadays
2.3.	Climate Change	Climate informed change management	Skills	1	Identifies the features of climate change nowadays
3.1.	Climate Change	Climate change communication	Knowledge	1	Knows different communication channels for climate change
3.1.	Climate Change	Climate change communication	Skills	1	Is able to describe a simple transmission model of communication, comprised of a messenger, who transmits a message through particular channels, to specific audiences
6.1.	Climate Change	Adaptation knowledge creation	Knowledge	1	Net-zero transition
7.2.	Climate Change	Local adaption action and nature based solution	Knowledge	1	Conserving existing wetlands to prevent greenhouse gas emissions. Restorative agriculture and regrowing clear-cut forests, actively remove CO2 from the atmosphere
7.2.	Climate Change	Local adaption action and nature based solution	Skills	1	Increase awareness of biodiversity

Table 17 - Climate change skills card - Kids up to 10

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3.2.3. Skill card draft – Climate Change – Kids up to 16 years

Proposed skill card for Beginner level = Kids up to 16 years:

Nr.	Topic	Skill	Knowledge/Skill	EQF	Statement
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	1	Understands that climate change is inevitable and that the adaptation is needed to be able to preserve functioning economy without harming nature
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	2	Knows the consequences of clearing forests, the increase of greenhouse gases in the atmosphere, nuclear waste and use of genetically modified organisms
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	3	Awareness of how climate change and technologies shape our material, intellectual, and cultural environments
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Skills	2	Is able to personally contribute to the energy, water savings as well as reduce air pollution , extinction of plants and animals, by preserving local biodiversity
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Skills	3	Identify climate change issues, explain phenomena scientifically and use scientific evidence
1.3.	Climate Change	Know-how problem solving	Knowledge	2	Is informed about the local and international policy frameworks in order to reduce climate change due to human impact
1.3.	Climate Change	Know-how problem solving	Knowledge	3	Basic understanding of climate change science
1.3.	Climate Change	Know-how problem solving	Knowledge	1	Knows that action for climate change need clear identification of a problem and well defined plan
1.3.	Climate Change	Know-how problem solving	Skills	2	Identifies a problem, comes to a clear, precise, and complete understanding of the situation
1.3.	Climate Change	Know-how problem solving	Skills	1	Is able to identify existing issues in the context of climate change
2.1	Climate Change	Climate Changecross-cultural practice	Knowledge	1	Knows that environmental concerns are not equally distributed across cultures

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2.1	Climate Change	Climate Changecross-cultural practice	Knowledge	2	Is aware that many societies prefer economic and political stability over environmental security
2.1	Climate Change	Climate Changecross-cultural practice	Skills	1	Identifies what observed impacts of climate change may vary regionally and seasonally
2.1.	Climate Change	Climate Changecross-cultural practice	Knowledge	3	Understanding that the security of the environment should be a personal goal
2.1.	Climate Change	Climate Changecross-cultural practice	Skills	3	Can identify different national and international regulations to mitigate climate change
2.2.	Climate Change	Collaboration among diverse stakeholders	Knowledge	1	Knows the existence of many parties that shares the same values for climate change, but also might havediverse interests
2.2.	Climate Change	Collaboration among diverse stakeholders	Knowledge	2	Understands that the complexity of climate change depends on the impacts of climate change adaptation thatmust draw together solutions that span social, economic and political boundaries
2.2.	Climate Change	Collaboration among diverse stakeholders	Skills	1	Is able to identify diverse stakeholders and their interests
2.2.	Climate Change	Collaboration among diverse stakeholders	Skills	2	Is able to explain the importance of diverse parties collaboration
2.3.	Climate Change	Climateinformed change management	Knowledge	1	Has basic knowledge about the climate change historically and nowadays
2.3.	Climate Change	Climateinformed change management	Knowledge	2	Has advanced knowledge of the climate change during the history and nowadays
2.3.	Climate Change	Climateinformed change management	Knowledge	3	Understanding that society must adapt to a changed climate
2.3.	Climate Change	Climateinformed change management	Skills	1	Identifies the features of climate change nowadays
2.3.	Climate Change	Climateinformed change management	Skills	2	Identifies the features of climate change nowadays and can suggest how these effects can be reduced
2.3.	Climate Change	Climateinformed change management	Skills	3	Shows personallyadapted and changed personal lifestyle for climate change
3.1.	Climate Change	Climate change communication	Knowledge	1	Knows different communication channels for climate change
3.1.	Climate Change	Climate change communication	Knowledge	2	Understands that climate change communication should be adapted to the dynamical and complex audience

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3.1.	Climate Change	Climate change communication	Skills	1	Is able to describe a simple transmission model of communication, comprised of a messenger, who transmits a message through particular channels, to specific audiences
3.1.	Climate Change	Climate change communication	Skills	2	Is ready to hear opposing messages, through an ever-growing number and complexity of channels, to diverse audiences who have their own pre-existing beliefs, attitudes and values, and who actively interpret and construct their own meanings from the messages they receive
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Knowledge	1	Understands that climate change issue requires wide spectra of different areas knowledge
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Knowledge	2	Knows how each scientific area and industrial sector can contribute to the climate change reduction
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Skills	1	Can describe the scientific and industrial areas and their possible collaborations towards climate change action goals
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Skills	2	Is able to draw a strategy of how several areas could achieve a climate change action goal
4.1.	Climate Change	Strategy & Planning for an adaptation	Knowledge	1	Smarter adaptation: adaptation actions must be informed by robust data and risk assessment tools that are available to all – from families building homes, businesses in coastal regions and farmers planning their crops
4.1.	Climate Change	Strategy & Planning for an adaptation	Knowledge	2	Faster adaptation: the effects of climate change are already being felt, and so we must adapt more quickly and comprehensively. Developing and rolling out adaptation solutions to help reduce climate-related risk, increase climate protection and safeguard the availability of freshwater.
4.1.	Climate Change	Strategy & Planning for an adaptation	Knowledge	4	Environmental sensors
4.2.	Climate Change	Solution Design	Knowledge	1	Ecology for buildings
4.2.	Climate Change	Solution Design	Skills	1	Ecology
5.1.	Climate Change	Prevention and preparedness actions	Knowledge	1	Future impact of climatic changes upon the frequency and severity of disasters
5.1.	Climate Change	Prevention and preparedness actions	Skills	3	Community based disaster preparedness and mitigation programmes
6.1.	Climate Change	Adaptation knowledge creation	Knowledge	1	Net-zero transition

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6.1.	Climate Change	Adaptation knowledge creation	Knowledge	3	Mitigation efforts to lower greenhouse gas emissions
6.2.	Climate Change	Monitoring the speed of phenomena and their adaption	Skills	1	Difference from slow-onset and sudden-onset event's impact
7.2.	Climate Change	Local adaption action and nature based solution	Knowledge	1	Conserving existing wetlands to prevent greenhouse gas emissions. Restorative agriculture and regrowing clear-cut forests, actively remove CO2 from the atmosphere
7.2.	Climate Change	Local adaption action and nature based solution	Skills	1	Increase awareness of biodiversity

Table 18 - Climate change skills card - Kids up to 16

3.2.4. Skill card draft – Climate Change – Adults and workers

Nr.	Topic	Skill	Knowledge/Skill	EQF	Statement
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	1	Understands that climate change is inevitable and that the adaptation is needed to be able to preserve functioning economy without harming nature
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	2	Knows the consequences of clearing forests, the increase of greenhouse gases in the atmosphere, nuclear waste and use of genetically modified organisms
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	3	Awareness of how climate change and technologies shape our material, intellectual, and cultural environments
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Knowledge	4	Understanding of the practical characteristic features of climate change as a form of human knowledge and inquiry
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Skills	2	Is able to personally contribute to the energy, water savings as well as reduce air pollution , extinction of plants and animals, by preserving local biodiversity
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Skills	3	Identify climate change issues, explain phenomena scientifically and use scientific evidence
1.2.	Climate Change	Climate Change Adaptation Practice Literacy	Skills	4	Support the use of factual information and rational explanations and express the need for logical and careful processes in drawing conclusions
1.3.	Climate Change	Know-how problem solving	Knowledge	2	Is informed about the local and international policy frameworks in order to reduce climate change due to human impact
1.3.	Climate Change	Know-how problem solving	Knowledge	3	Basic understanding of climate change science
1.3.	Climate Change	Know-how problem solving	Knowledge	4	Understanding of scientific consensus on climate change and potential impacts

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1.3.	Climate Change	Know-how problem solving	Knowledge	1	Knows that action for climate change need clear identification of a problem and well defined plan
1.3.	Climate Change	Know-how problem solving	Skills	2	Identifies a problem, comes to a clear, precise, and complete understanding of the situation
1.3.	Climate Change	Know-how problem solving	Skills	3	Identifies useful and missing data, can foresee the trends from data
1.3.	Climate Change	Know-how problem solving	Skills	4	Highlights key problem/solution components, suggests concrete, original, and effective solutions spontaneously
1.3.	Climate Change	Know-how problem solving	Skills	1	Is able to identify existing issues in the context of climate change
2.1	Climate Change	Climate Changecross-cultural practice	Knowledge	1	Knows that environmental concerns are not equally distributed across cultures
2.1	Climate Change	Climate Changecross-cultural practice	Knowledge	2	Is aware that many societies prefer economic and political stability over environmental security
2.1	Climate Change	Climate Changecross-cultural practice	Skills	1	Identifies what observed impacts of climate change may vary regionally and seasonally
2.1.	Climate Change	Climate Changecross-cultural practice	Knowledge	3	Understanding that the security of the environment should be a personal goal
2.1.	Climate Change	Climate Changecross-cultural practice	Knowledge	4	Understanding that for cross-cultural collaboration the psychological barriers must be reduced (e.g. distrust, belief inexternal control, individualism-collectivism)
2.1.	Climate Change	Climate Changecross-cultural practice	Skills	3	Can identify different national and international regulations to mitigate climate change
2.1.	Climate Change	Climate Changecross-cultural practice	Skills	3	Works alone and cooperates to reduce gas emissions, air and water pollution
2.1.	Climate Change	Climate Changecross-cultural practice	Skills	4	Is able to discuss scientific consensus with people who hold diverse beliefs about climate change
2.1.	Climate Change	Climate Changecross-cultural practice	Skills	7	Practices a life-long learning orientation, continuously upgrading knowledge and expertise in ways that respond toevolving climate and climate adaptation knowledge and practice standards
2.2.	Climate Change	Collaboration among diverse stakeholders	Knowledge	1	Knows the existence of many parties that shares the same values for climate change, but also might havediverse interests

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2.2.	Climate Change	Collaboration among diverse stakeholders	Knowledge	2	Understands that the complexity of climate change depends on the impacts of climate change adaptation thatmust draw together solutions that span social, economic and political boundaries
2.2.	Climate Change	Collaboration among diverse stakeholders	Knowledge	3	Understands that collaborations can be created with potential long-term benefits including ensuring the cost-effectiveness of planned actions, and helping to address and resolve competing priorities
2.2.	Climate Change	Collaboration among diverse stakeholders	Knowledge	4	Understands that private companies can provide technological solutions and make them more affordable forresolving problems
2.2.	Climate Change	Collaboration among diverse stakeholders	Skills	1	Is able to identify diverse stakeholders and their interests
2.2.	Climate Change	Collaboration among diverse stakeholders	Skills	2	Is able to explain the importance of diverse parties collaboration
2.2.	Climate Change	Collaboration among diverse stakeholders	Skills	3	Gets involved in a non-profit organisation
2.3.	Climate Change	Climateinformed change management	Knowledge	1	Has basic knowledge about the climate change historically and nowadays
2.3.	Climate Change	Climateinformed change management	Knowledge	2	Has advanced knowledge of the climate change during the history and nowadays
2.3.	Climate Change	Climateinformed change management	Knowledge	3	Understanding that society must adapt to a changed climate
2.3.	Climate Change	Climateinformed change management	Knowledge	4	Understands the appropriate use of system tools such as biodiversity assessments and product life-cycleassessments
2.3.	Climate Change	Climateinformed change management	Skills	1	Identifies the features of climate change nowadays
2.3.	Climate Change	Climateinformed change management	Skills	2	Identifies the features of climate change nowadays and can suggest how these effects can be reduced
2.3.	Climate Change	Climateinformed change management	Skills	3	Shows personallyadapted and changed personal lifestyle for climate change
2.3.	Climate Change	Climateinformed change management	Skills	4	Advocates for the appropriate use of system tools such as biodiversity assessments and product life-cycleassessments
2.3.	Climate Change	Climateinformed change management	Skills	4	Evaluates risks inthe enterprise
3.1.	Climate Change	Climate change communication	Knowledge	1	Knows different communication channels for climate change

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3.1.	Climate Change	Climate change communication	Knowledge	2	Understands that climate change communication should be adapted to the dynamical and complex audience
3.1.	Climate Change	Climate change communication	Knowledge	3	Has different level of knowledge: economic, political, scientific to communicate the climate change
3.1.	Climate Change	Climate change communication	Knowledge	4	Has enough scientific knowledge to convince the climate change deniers
3.1.	Climate Change	Climate change communication	Skills	1	Is able to describe a simple transmission model of communication, comprised of a messenger, who transmits a message through particular channels, to specific audiences
3.1.	Climate Change	Climate change communication	Skills	2	Is ready to hear opposing messages, through an ever-growing number and complexity of channels, to diverse audiences who have their own pre-existing beliefs, attitudes and values, and who actively interpret and construct their own meanings from the messages they receive
3.1.	Climate Change	Climate change communication	Skills	3	Developed ability to tackle the climate change calls for bridging the science/policy/civil society gap
3.1.	Climate Change	Climate change communication	Skills	4	Ability to gather data for effective interdisciplinary communication
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Knowledge	1	Understands that climate change issue requires wide spectra of different areas knowledge
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Knowledge	2	Knows how each scientific area and industrial sector can contribute to the climate change reduction
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Knowledge	3	Understands the scientific and industry cooperation importance
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Knowledge	4	Is informed what technologies and different areas knowledge and practice can be useful for climate change action
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Knowledge	5	Is informed that climate change reduction is not only a scientific problem, but also of social sciences and humanities

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3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Skills	1	Can describe the scientific and industrial areas and their possible collaborations towards climate change action goals
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Skills	2	Is able to draw a strategy of how several areas could achieve a climate change action goal
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Skills	3	Is able to tackle the issues and barriers occurring in the cross-industry cooperation process for climate change
3.2.	Climate Change	Various scientific areas and industrial cross-sector cooperation	Skills	4	Is able to reach an agreement between conflicting parts and offer alternative solutions
4.1.	Climate Change	Strategy & Planning for an adaptation	Knowledge	1	Smarter adaptation: adaptation actions must be informed by robust data and risk assessment tools that are available to all – from families building homes, businesses in coastal regions and farmers planning their crops
4.1.	Climate Change	Strategy & Planning for an adaptation	Knowledge	2	Faster adaptation: the effects of climate change are already being felt, and so we must adapt more quickly and comprehensively. Developing and rolling out adaptation solutions to help reduce climate-related risk, increase climate protection and safeguard the availability of freshwater.
4.1.	Climate Change	Strategy & Planning for an adaptation	Knowledge	4	Environmental sensors
4.1.	Climate Change	Strategy & Planning for an adaptation	Knowledge	5	Remote-sensing platforms
4.2.	Climate Change	Solution Design	Knowledge	1	Ecology for buildings
4.2.	Climate Change	Solution Design	Skills	1	Ecology
4.3.	Climate Change	Risk Management, Vulnerability & Impact Analysis	Knowledge	1	Identifying existing weaknesses caused by anthropic activities that affect lands and cities and evidence, focus and monitor the threat that causes harm
4.3.	Climate Change	Risk Management, Vulnerability & Impact Analysis	Skills	3	Climatic and non-climatic issues and stresses environmental change and consumption levels, and their integration with other drivers
5.1.	Climate Change	Prevention and preparedness actions	Knowledge	1	Future impact of climatic changes upon the frequency and severity of disasters

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5.1.	Climate Change	Prevention and preparedness actions	Knowledge	4	Technologies for first responders
5.1.	Climate Change	Prevention and preparedness actions	Skills	3	Community based disaster preparedness and mitigation programmes
5.1.	Climate Change	Prevention and preparedness actions	Skills	4	Assess the Future Impact of Climatic Changes upon the Frequency and Severity of Disasters and the Implications for first response and Preparedness
5.2.	Climate Change	Resilience technologies, managing the consequences	Knowledge	4	Scientific breakthroughs in various domains ranging from technologies, solutions and services: drought-resilient crops, water saving technologies, satellites for environmental observation, rapid progress in adaptation science and climate analytics as a basis for state-of-the-art climate information, scaling up of digital tools to take our adaptive capacities to the next level
6.1.	Climate Change	Adaptation knowledge creation	Knowledge	1	Net-zero transition
6.1.	Climate Change	Adaptation knowledge creation	Knowledge	3	Mitigation efforts to lower greenhouse gas emissions
6.1.	Climate Change	Adaptation knowledge creation	Knowledge	4	Adjust societies to withstand the impacts of climate change
6.2.	Climate Change	Monitoring the speed of phenomena and their adaption	Knowledge	3	Conceptual background of approaches to address loss and damage associated with slow onset events
6.2.	Climate Change	Monitoring the speed of phenomena and their adaption	Knowledge	4	Empirical evidence linking a cluster of slow onset events to human mobility decisions, trajectories and outcomes
6.2.	Climate Change	Monitoring the speed of phenomena and their adaption	Skills	1	Difference from slow-onset and sudden-onset event's impact
7.1.	Climate Change	Macro fiscal policy dedicated to climate change	Knowledge	3	Climate change mitigation requires a transition in the structure of economic activity on a massive scale
7.2.	Climate Change	Local adaption action and nature based solution	Knowledge	1	Conserving existing wetlands to prevent greenhouse gas emissions. Restorative agriculture and regrowing clear-cut forests, actively remove CO2 from the atmosphere
7.2.	Climate Change	Local adaption action and nature based solution	Skills	1	Increase awareness of biodiversity

Table 19 - Climate change skills card adult

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3.2.5. Focus Area – Clean energy

To be defined after finalising all the given Learning objectives and EQF levels according to the first draft for climate change

3.2.6. Focus Area – Circular economy

To be defined after finalising all the given Learning objectives and EQF levels according to the first draft for climate change

3.2.7. Focus Area – Green building

To be defined after finalising all the given Learning objectives and EQF levels according to the first draft for climate change

3.2.8. Focus Area – Smart mobility

To be defined after finalising all the given Learning objectives and EQF levels according to the first draft for climate change

3.2.9. Focus Area – From farm to fork

To be defined after finalising all the given Learning objectives and EQF levels according to the first draft for climate change

3.2.10. Focus Area – Biodiversity

To be defined after finalising all the given Learning objectives and EQF levels according to the first draft for climate change

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3.2.11. Focus Area – Zero pollution

To be defined after finalising all the given Learning objectives and EQF levels according to the first draft for climate change

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4. Exam portal and self assessment

ECQA GmbH is using a very up to date exam portal. Within this portal it is possible to take certification exams as well as self assessments. The basic difference is, self assessments are free of charge (demo exams) and exams are typically paid for (business case).

4.1. Exam question types

The typical exam types the advisory board needs to choose from are multiple choice and multiple response exams.

- Multiple Choice
- Multiple Response
- Drag and Drop
- Essay (Free text with editor)
- Fill in / Select Blanks
- Hotspot
- Knowledge Matrix
- Likert Scale
- atching (also Drag&Drop Matching)
- Numeric
- Multiple lists (Pulldown, MC)
- Spreadsheet
- Coding
- Ranking
- Survey Matrix
- Text Match
- True/False
- Yes/No
- Interacting Image / Screen Simulator
- Sortable (through Drag&Drop)
- Content Only
- MS Excel (only with Windows lockdown client)
- File Upload
- Photo based answer

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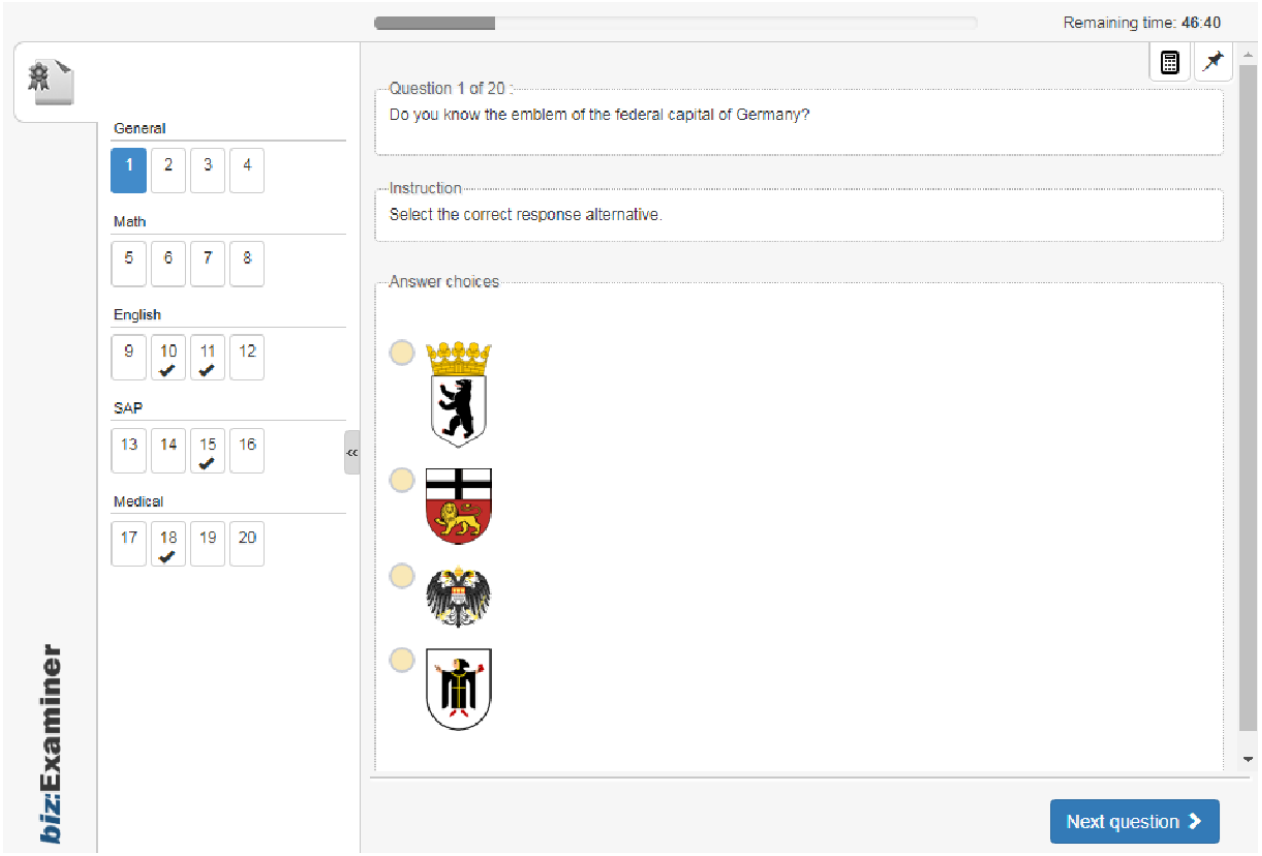
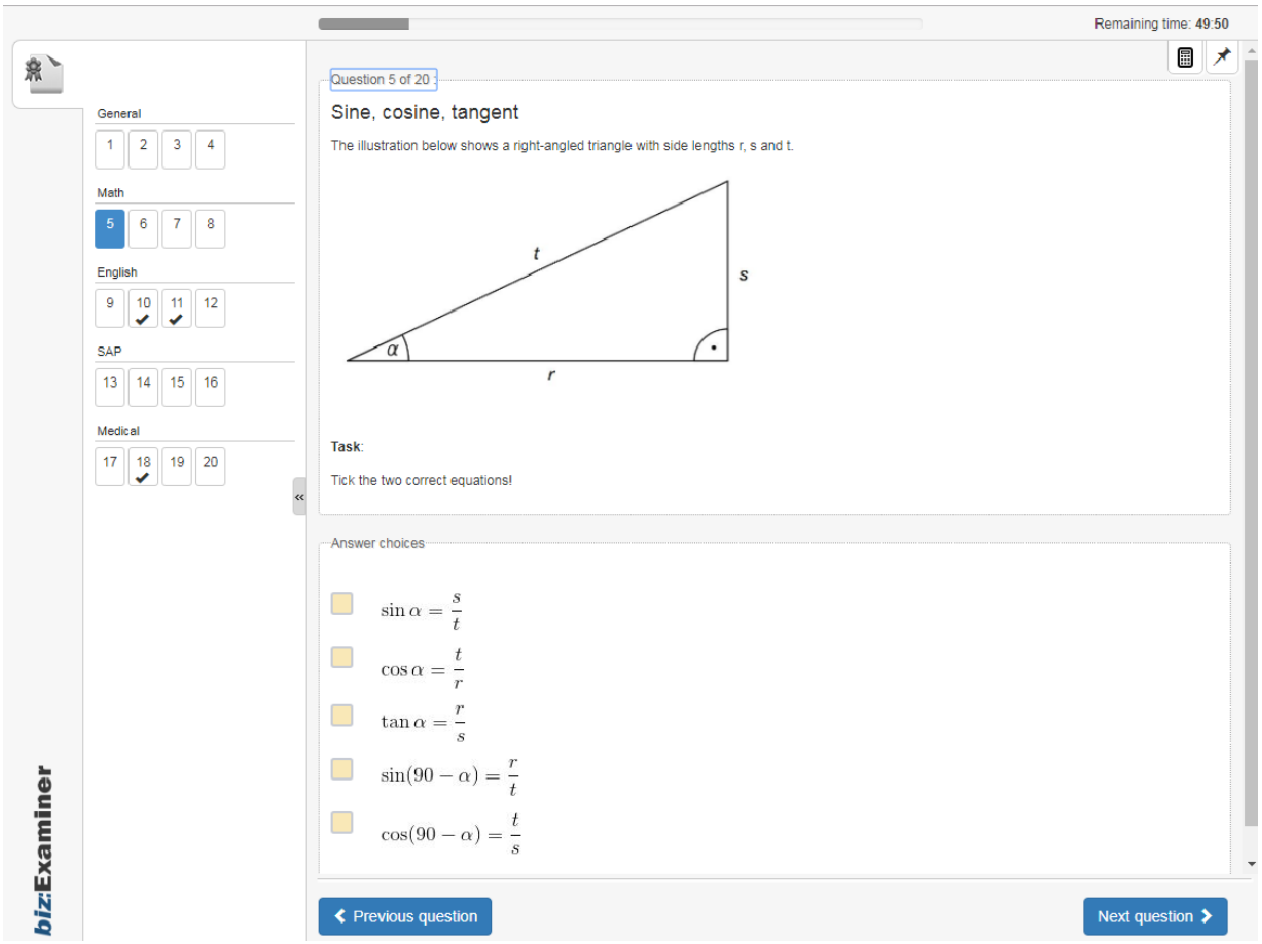
4.2. Exam question type – multiple choice



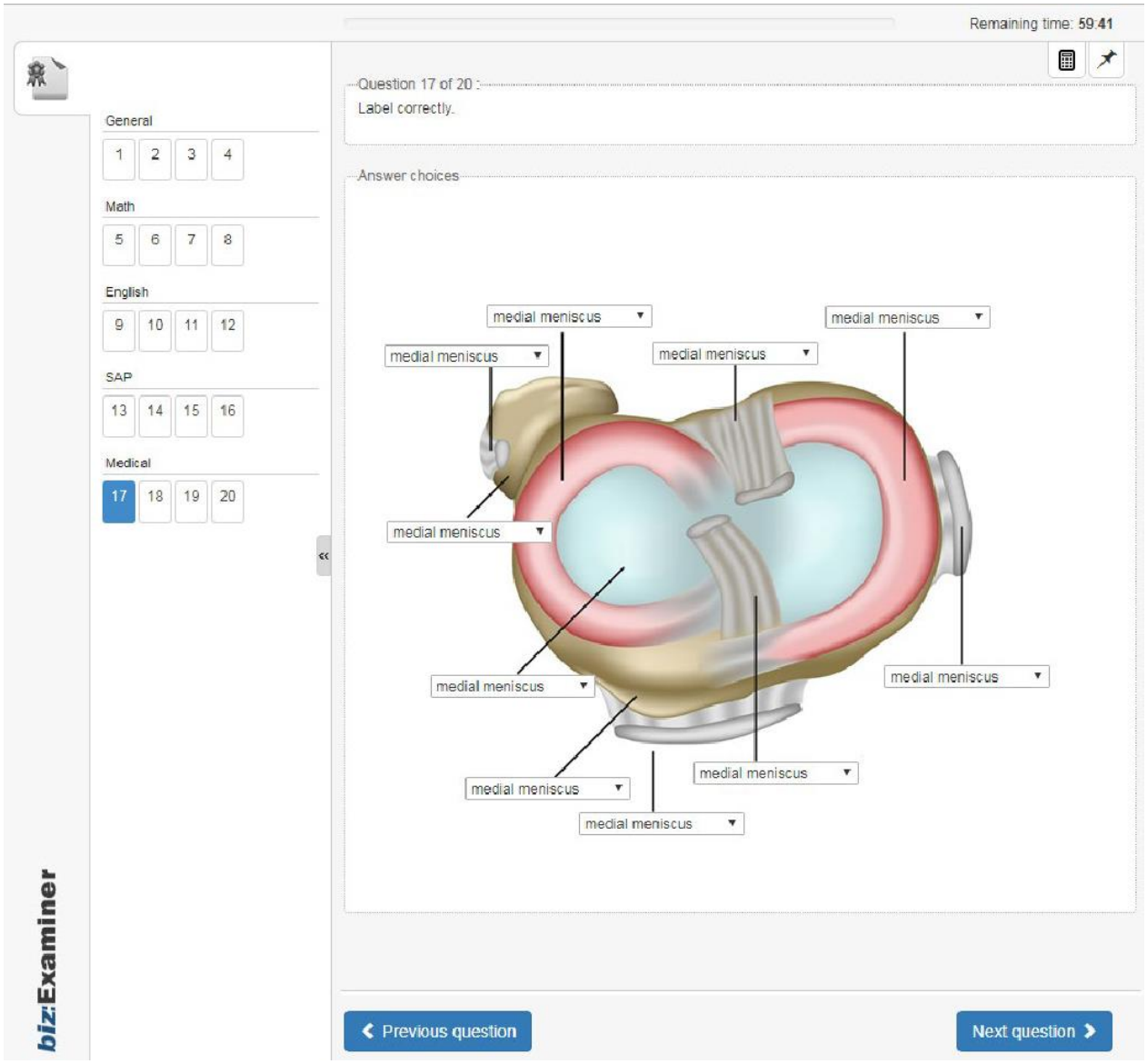
Within the very common multiple choice exam questions, participants are asked a question and given several answers. Only one (!) of these answers is correct and by this should be chosen.

4.3. Exam question type – multiple response



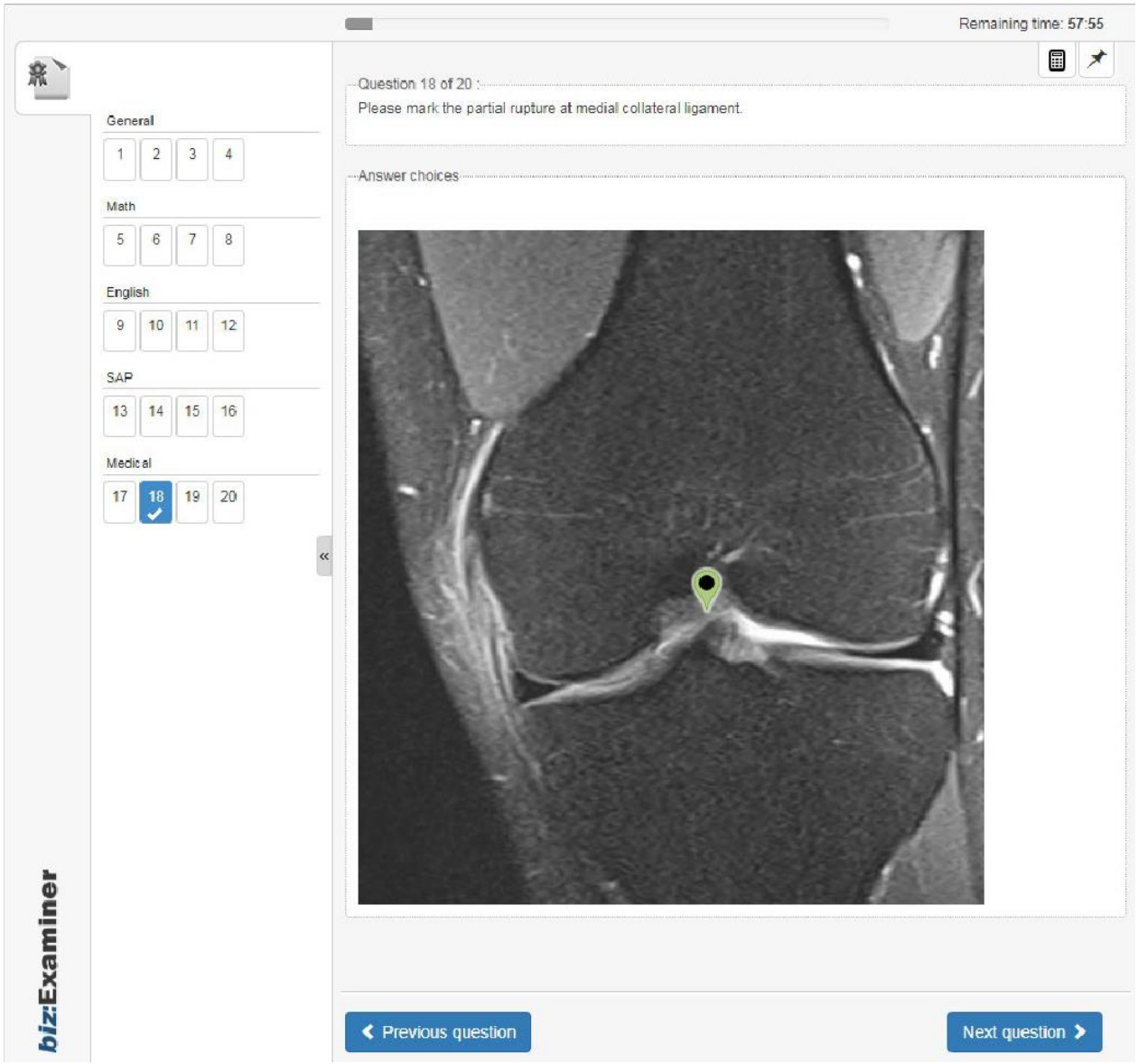
Within the very common multiple response exam questions, participants are asked a question and given several answers. One or several (even all) of these answers can be correct and by this should be chosen. This question type makes guessing quite complicated and should be chosen as the default question type.

4.4. Exam question type – Screen simulation



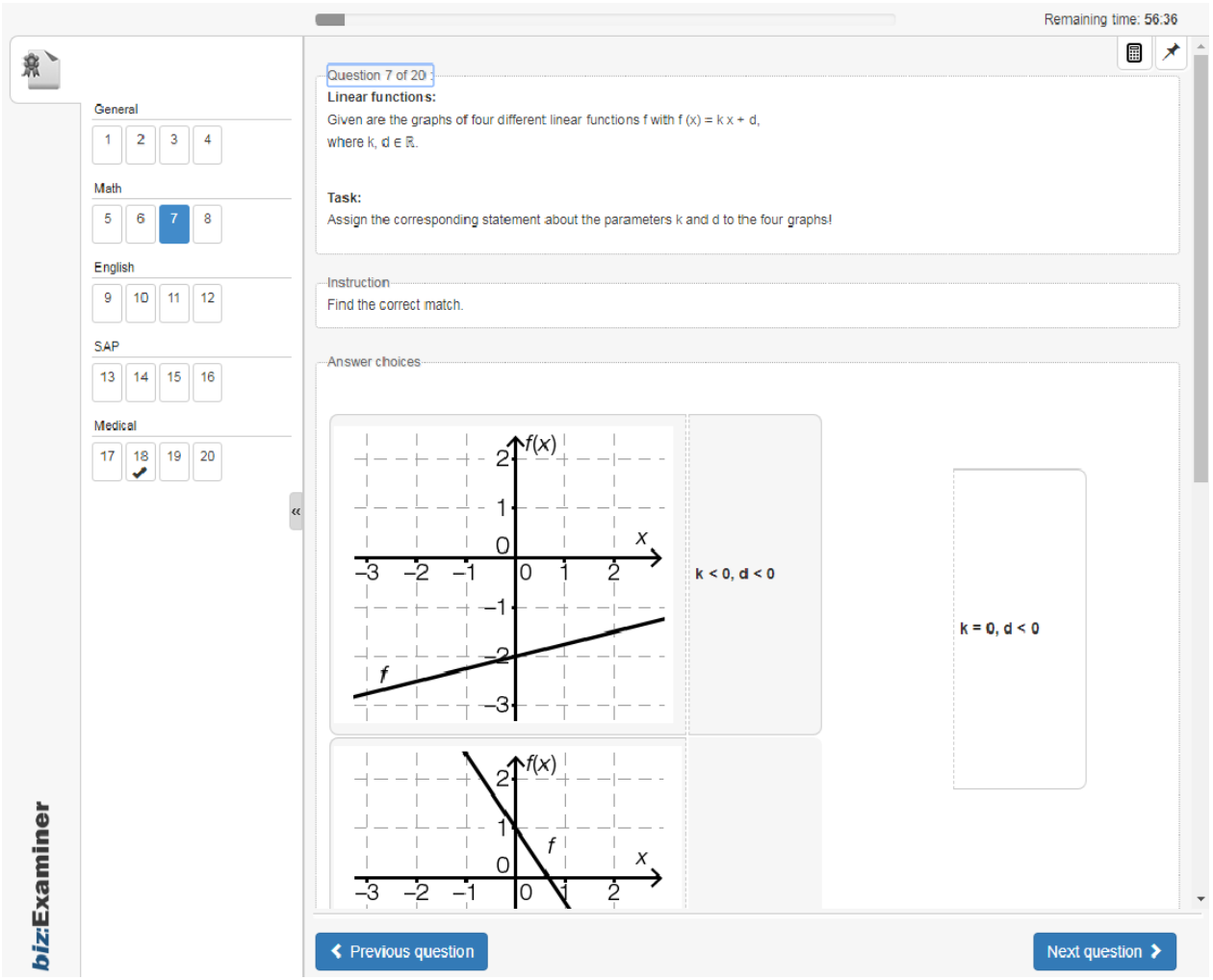
Screen simulation typically are questions where a picture is shown and several drop down fields are visible. Candidates no need to actively choose at every drop down field the correct wording for every (!) field. The more fields available the more complicated of course the question gets.

4.5. Exam question type – Hotspot



At hot sport questions typically a picture is shown and within the question candidates are asked to mark a certain spot (e.g. a ligament in a MRT picture).

4.6. Exam question type – Drag&Drop



In drag&drop questions typicall several pictures are visible and several descriptions or words need to be dragged together or missing parts of pictures need to be added to the correct picture.

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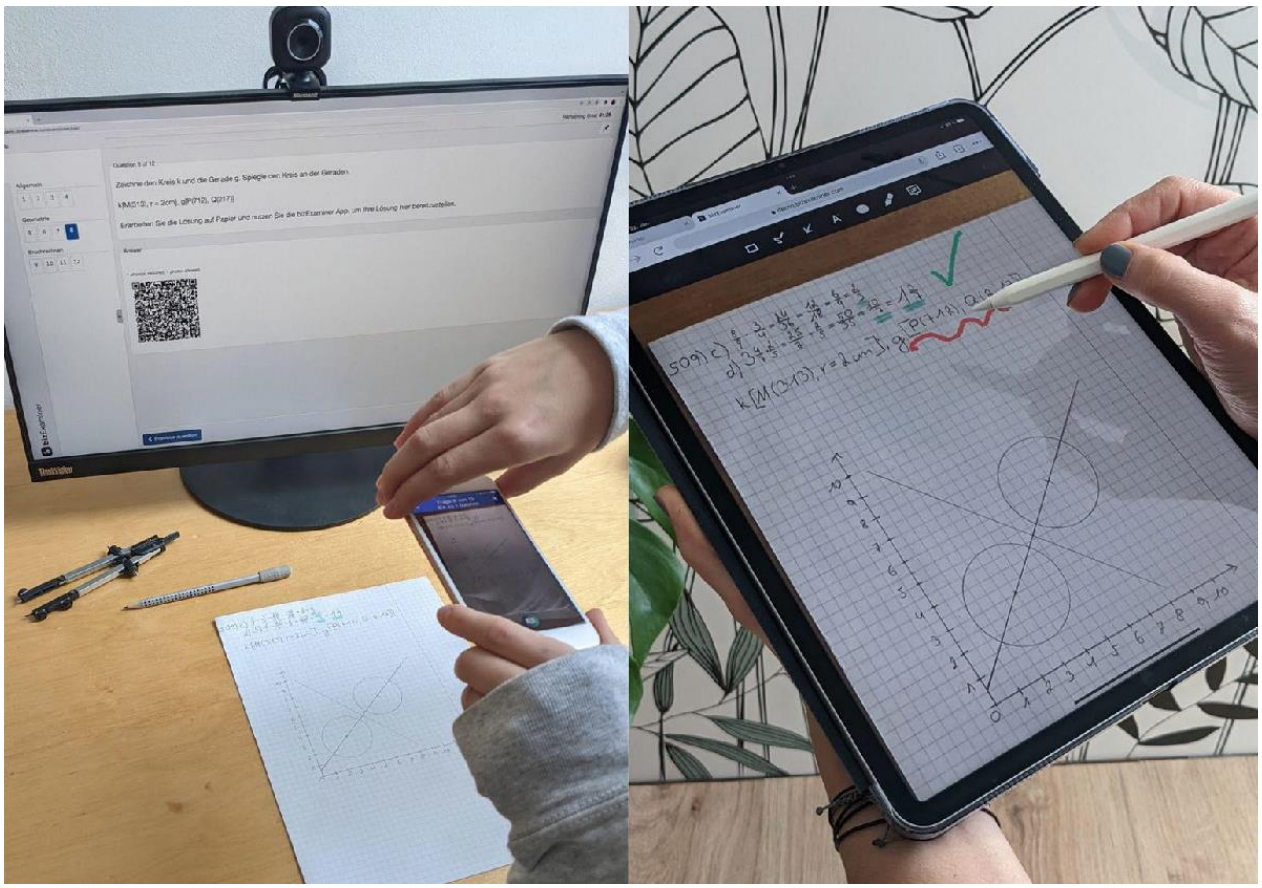
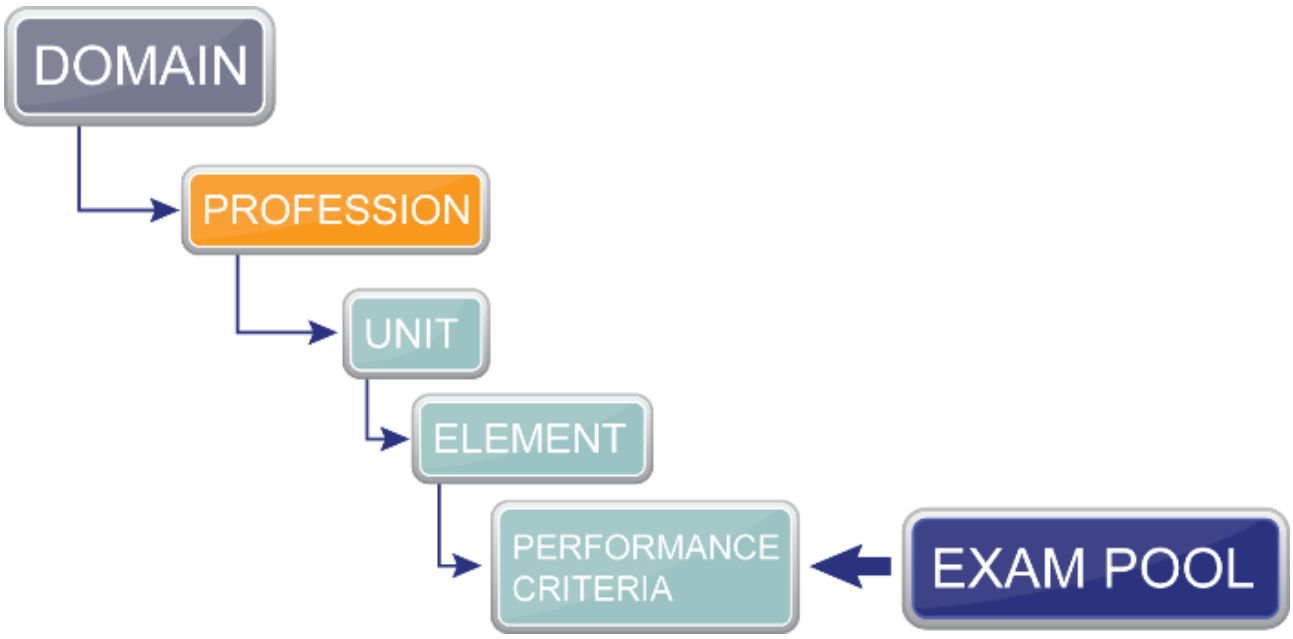
4.7. Exam question type – Photo based answer



Question on the exam portal asks the candidate to write down or draw some explanation/graph/scribble, By using the visible QR code the system allows a direct upload to the question of the taken picture (smartphone/Tablet). This kind of question has to be corrected manually.

5. Result and certificate



Within a skill card, typically the complete skill card is separated into Units and elements.

The advisory board and all the partners, will decide on a threshold within the exams per Unit/Element that is needed for passing the exam.

Possible solutions are:

Passing per skill card

Passing per unit

Passing per element

5.1. Passing per skill card

Candidates that take an examination, typically here need to answer a certain number of questions (as agreed by the advisory board) for all of the topics within a skill card. A certain amount of these questions need to be answered correctly to pass the exam. If the exam is failed, candidates need to take the complete exam again.

5.2. Passing per unit

Candidates that take an examination, typically here need to answer a certain number of questions (as agreed by the advisory board) per unit within the skill card. A certain number of the questions of every (!) unit need to be answered correct to pass the exam. If the exam is failed, candidates need to take not passed units again. Already passed units will not be shown again. Here the possibility will be to issue micro certificates per passed unit, rather than the typical certificate for a completed skill card.

5.3. Passing per element

Candidates that take an examination, typically here need to answer a certain number of questions (as agreed by the advisory board) per element within the skill card. A certain number of the questions of every (!) element need to be answered correctly to pass the exam. If the exam is failed, candidates need to take not passed elements again. Already passed units and elements will not be shown again.

5.4. Certificates

Possible certificates will include the Lastname and Firstname of the candidate, an individual number (exam portal), the date of the exam, the date until the certificate is valid and the name of the skill card or in the case of micro certificates the name of the passed unit.

On the second page typically all units and elements (sometimes even learning objectives and EQF levels will be visible) and all the agreed partner logos.

There will be an empty space in the lower left corner as this is the location for the digital validation of the pdf file.

These certificates will be prepared to use the new European digital credential system, making it easy to include these skills, competences and even complete certificates into platforms like Europass or LinkedIn.


CERTIFICATE

ECQA_202200000004

ECQA CERTIFICATE

of GreenScent competencies

Sandra Pfiel

has fully passed

ECQA CERTIFIED Climate Change Beginner Level

Krems, 19. March 2024 — Date

Prof. (FH) Mag. Michael Reiner, ECQA GmbH

18.03.2026 — Valid until


CERTIFICATE

Partner Logo 1 Partner Logo 1 Partner Logo 1

Skill Card

U1: Climate Change Adaptation Practice Literacy
E1 - Basic Knowledge (EQF 2)
E2 - Basic Skills (EQF 2)

U2: Know-how problem solving
E1 - Basic Knowledge (EQF 1)
E2 - Basic Skills (EQF 1)

U3: Climate Changecross-cultural practice
E1 - Basic Knowledge (EQF 2)
E2 - Basic Skills (EQF 1)

U4: Collaboration among diverse stakeholders
E1 - Basic Knowledge (EQF 1)

U5: Climate informed change management
E1 - Basic Knowledge (EQF 1)
E2 - Basic Skills (EQF 1)

U6: Climate change communication
E1 - Basic Knowledge (EQF 1)
E2 - Basic Skills (EQF 1)

U7: Adaptation knowledge creation
E1 - Basic Knowledge (EQF 1)

U8: Local adaption action and nature based solution
E1 - Basic Knowledge (EQF 1)
E2 - Basic Skills (EQF 1)

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6. Conclusion

The current document is a living document.

While improving the EQF and Learning objective allocation within the framework, the number of potential Skillcards will increase. The partners will support here and generate wide variety of exam variations (question, assessments, oral exams,...) and guidelines that will help to start the certification process all over Europe. The International approach is always in focus of the consortium and the advisory board.