awakening | relevant | innovative | scalable | equitable

D 8.8 - Final project publishable report

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Colophon

Publishable executive summary

This deliverable summarises the outcomes and key successes of the ARISE project. The project objective was to assist the construction industry to ARISE and move towards an energy-efficient built environment, stimulating increase demand for sustainable energy skills in the Architecture, Engineering, and Construction (AEC) sector.

Contents

1. Introduction

This deliverable summarises the outcomes and key successes of the ARISE project. The project aim was to assist the construction industry to ARISE and move towards an energy-efficient built environment, stimulating increase demand for sustainable energy skills in the Architecture, Engineering, and Construction (AEC) sector. ARISE's five enabling pillars are Alignment, Access, Assignment, Accreditation, and Assistance.

- Alignment of skills with a harmonised EU Learning Framework.
- Access to online training materials and tools 24/7.
- Assignment of the digital Market -transferable recognitions, to enable a wide recognition across the EU and beyond.
- "A-Credit-action" is based on a CPD type method and a novel "cryptocurrency for skills development" reward system.
- Assistance in the initialisation of legislative changes and supportive procurement measures, to further stimulate market demand.

2. Project Objectives and Scope

The overall aim of ARISE was to develop an EU wide distinguishable recognition scheme of digital energy efficient BIM construction skills, linked with a maturity-based digital ranking system for accounting CPD based learning transactions. The development of an open competency-based qualification scheme, based on maturity levels, sought to empower micro-learning, and issuing of reliable proofs when completing these modules to make learning actions count. In addition, the project team gathered and linked BIM modules, tools, and materials with the aim of establishing a BIM resource and skills recognition pathway that all stakeholders can utilise, deliver, and stimulate.

The concept of ARISE sought to revolutionise the learning process by developing a crypto-skills exchange, monetizing the skills, and learning interface with a system based on skills recognition rather than accreditation. The initial reward of acquiring

a competence at a certain level was to be a "CERTcoin", and whilst this has changed to Open Badges, the principle remains the same to recognise skills and learning within the construction sector. The badges for recognition of learning are based on skills and time credits, stored on the receiver's own device.

ARISE sought to be an industry driven, accessible, less time consuming, and highly competitive way to up-skill blue and white collars thus increasing vocational mobility. ARISE was formed by an alliance of H2020 project partners combining their skills and contacts within the demand side to work together to achieve these aims. Two principal objectives of ARISE approach and proposal sought to address the call objectives by:

a) Improving and increasing the collaborative skills of practitioners at all levels, regarding the use of BIM and other technologies, and overall construction industry digitalisation processes and resources. We believe these are skills that will enable and enhance the sector's ability towards delivering energy-efficient buildings, and lead to the scaling up of implementation of new construction processes. Digitisation of the AEC processes, especially with BIM, promotes a holistic approach and overall benefits. Such benefits can apply to an individual building level, as well as a condominium, neighbourhood, or even at the municipality level, to enable better strategies to implement energy transition. ARISE sought to stimulate and contribute to increasing the number of skilled AEC professionals, including the supply chain, by designing and launching a recognition and training scheme of digital construction skills leveraging, symbiotic with sustainable, and energy efficiency skills.

b) In tandem and aligned with the upskilling training scheme, ARISE sought to have a direct-action plan and collaboration with Industry stakeholders (Public authorities, professional associations, building owners, tenants, and Facility managers) to support and directly stimulate the demand of such skills. ARISE worked and collaborated with a range of actors to embed high

maturity levels of BIM, energy efficiency, and digitalisation skills, facilitating that holistic approach and the possibility to analyse different scenarios in the virtual world. This would enable more informed decision making for the benefit of the whole community and built environment. Close collaboration with professional associations enabled direct awareness of professionals across the sector to promote and deliver trials training. ARISE also targeted the demand side directly while addressing the offer side, too (push & pull). ARISE actions increased and promoted the demand for skills while building the roadmap to provide such skills maturity to individuals, enterprises, and public authorities. Key to ensuring the full advantages regarding energy efficiency, was the use of digitalisation using BIM and the establishment of a baseline of shared understanding, transversal to any category, of both the demand and offer side. The development of a baseline of competences, valid for any country, and flexible enough to allow adaptation to specific contexts, was developed. The use of the skills maturity model, and the bite-sized micro-learning format, will equip AEC professionals with increased job mobility across regional countries by allowing them to carry necessary and new competencies needed for each specific country. ARISE sought to introduce a way to harmonize the methodology of defining granular competencies, making it easier to get a job in any country.
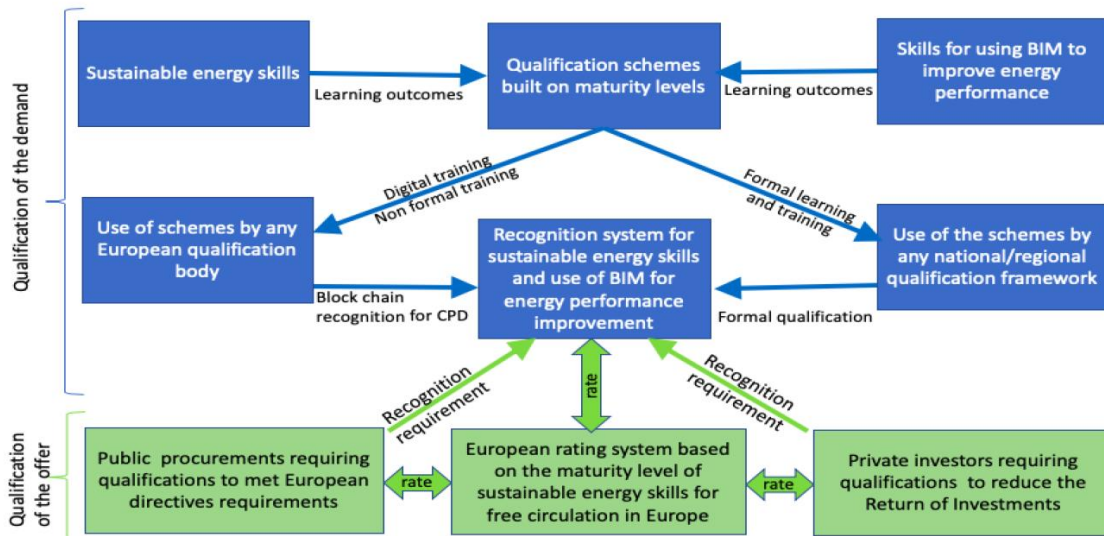
Figure 1. Schematic overview of the vision of ARISE on the digitisation of recognition.

2.1 – Specific objectives

Alongside these two general and guiding principles ARISE projects set seven specific objectives.

Objective 1: Increase the number of skilled building professionals via direct market action.

This objective sought to develop and deliver training/upskilling and other support actions addressed to AEC Workforce and stakeholders; tailor fitted to their different roles. The scheme was aimed to lead to more efficient and sustainable ways of designing, constructing, and running buildings, by increasing the number of professionals using/making use of better materials, products, and energy sources, enabled via digitalisation with BIM processes, tools and technology, including blockchain and machine learning.

This objective was validated by an increased uptake of digital, BIM, and sustainable energy construction skills including but not limited to:

- Use of BIM modelling, 4D & 5D BIM quantification & scheduling tools, and 6D simulation tools energy performance.

- Awareness and integration of digital technology tools for assessing energy performance.
- Use of digital methods for collaboration in construction.
- Use of digital construction tools (such as VR, AR, blockchain, AI and machine learning), to assist processes, design, simulations, validation, and decision making towards sustainability and energy efficiency.

Objective 2: To increase opportunity for vocational mobility, competitiveness, and employability of the AEC workforce, across Europe and beyond, with the mutual recognition of energy and digitalization skills (and its transferability) gained with further education and upskilling, delivered by ARISE.

This objective sought to further increase the number of skilled AEC professionals via the:

a) development of an acceptable mechanism to recognize skills and roles.

b) development of a digital learning transaction register, with micro accreditation/ digital CV as a way of recognition of professional skills across regions

c) identification of the skill gaps to be filled when transferring between countries.

The objective was verified by:

- Support and/or recognition and endorsement by professional organisations, or workers associations for the ARISE programme. This also included engagement with such entities, for endorsement of the ARISE programme.
- Matrix of competences based on maturity level and micro-learning.
- A "customised" digital curriculum for the AEC sector, with a digital badge/certificate.

- Research and identification of competence and skills difference and gaps between regions.

Objective 3: To support national initiatives for recognition of skills – providing transparency, digital web-based tooling and by working with EU standards.

Validation of this objective would be based on discussions with relevant stakeholders in each country, to identify requirements, presenting a matrix with different maturity levels and final version.

Objective 4: Further development, upscaling and/or combining a range of tools and initiatives into a cohesive and holistic approach.

This objective sought to update and further develop existing materials, as well as creation of new training and assessment materials to reflect market changes, new published International Standards and identified gap requirements between regions not previously addressed in past projects.

This would be validated by:

- Updated/ revise suite of training material and assessment, in line with new ARISE block chain validation mechanism, procedures and platform delivery format.
- Association of Learning Outcome Framework (LOF) with the training materials and /or body of knowledge.
- Mutual recognition of Digital competences for the use of BIM to improve energy performance of buildings based on the outcome of BIM alliance projects.
- Develop Recognition and/or Certification.

Furthermore, it would also include the development of:

- mutual recognition of professional roles in the building life cycle,

- improvement of sustainable energy skills supported by digital technologies of the future,
- provide measurable and confirmable results of improved energy performance of buildings,
- consideration of the user's end needs including the quality of indoor environment, and improved operation and maintenance.

This would be validated by:

- Competences matrix to allow mutual recognition of skills.
- Digital competences for the use of BIM to improve energy performance of buildings.
- Materials, contents, and training to demonstrate benefits of application of skills in improved energy performance.

Objective 5: Develop a digital learner record store (LRS).

The LRS provides validation and confirmation (blockchain procedures) of ARISE training achievement. This includes Individual Learning Account (ILA) and issue of "CERTcoin", which has been developed to badge of achievement.

This would be validated by:

1. Identified parameters included in ARISE training schemes and recorded in the LRS.
2. Identified differences between qualification schemes and the national qualification, in each country.
3. Identified possibilities to organise personal recognition and/or personal certification and involved sectors in each country.
4. A roadmap showcasing a pathway from the current competences to the ones needed by the new building market, based on ARISE LO Framework.

5. Creation of the LRS in the ARISE platform, that will include the creation and integration of ARISE's digital skills crypto currency prototype (badges).

Objective 6: Increase capacities of the Demand side.

This objective sought to support Demand side in understanding the need for (benefits) as well as the technical issues of sustainable energy skills. The intent was to stimulate and support the recognition of these skills including the request for these skills in procurement procedures for future projects.

The provision of capacity on the Demand side is intended to motivate and support the demand of digitalisation and energy skills. The intention is to enable the design, construction, and operation of NZEBs and other energy efficiency standards.

It was to be validated by:

1. Support to public authorities for the development of new legislative frameworks, e.g. requirements for skilled professionals in public procurement.
2. ARISE engagement with Public Administration and public/private owners, to recognise the importance of energy digital skills required to design, build, and operate in NZEBs.
3. ARISE proposals for specific tailored training and qualification for Public Administration and public/private owners.
4. Participation or promotion initiatives to raise awareness of home/building owners and tenants about the benefits of sustainable energy skills with at least 500 individuals.

Objective 7: To improve capacities of the Supply side.

This objective sought to promote how certified skills can be recognized, appreciated, requested, and stimulated in procurement procedures (for both private and public projects), for all projects.

This was to be validated by:

1. Increase capacities on the supply side for implementation of sustainable energy skills leveraged by digital skills.
2. Increase the supply of such skills in the market, stimulating competition, and consequently more demand and pressure to the supply for further and continuous improvement of skills.

3. Objective Performance and Indicators

Each of the specific objectives of the project had Key Performance Indicators (KPIs) to ascertain measurable outcomes and impact. This section of the report will consider each of the seven project objectives, noting their respective KPIs and outcomes.

Objective 1: Increase the number of skilled building professionals via direct market action.

ARISE verified this objective by the increase in number of skilled building professionals via direct market action would are presented by a record of the uptake and participation in ARISE upskilling initiatives and training by AEC industry individuals, professional associations, SMEs, and other AEC stakeholders, such as owners and Public authorities. The target was that at least 1000 upskilled, measured by register of participation in upskilling initiatives in a variety of formats such as events (virtual), website, social media interactions, uptake in courses and modules on ARISE platform training. In terms of numbers recorded towards this target:

Events Participated in 25 conferences	1,939
Website (target 4,000 sessions)	11,469 (7,587 users)
Social Media	787
ARISE Platform users	3361
ARISE Badges	3575

Table 1. Details of number of skilled professionals via direct market action.[1]

In terms of direct upskilling and access of the ARISE Platform there are 3361 registered users, 2813 users enrolled on micro modules, of which 2395 active users, having accessed modules and completed training, with 3575 badges completed.

ARISE Platform Registered Users	3,361
Active users	2,395
Badges awarded	3575

Table 2. Details of number of users and activity on the ARISE Platform

Belgium	3
Denmark	18
Ireland	79
Italy	67
Netherlands	5
North Macedonia	38
Portugal	2,743
UK	282
Other regions	126
TOTAL	3361

Table 3. Breakdown of ARISE Platform users by country/region.

We have therefore exceeded the target of 1000 upskilled users on the platform, and as such an increase in the use and application of BIM for energy efficiency.

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[1] Further details in D 8.6 Final Report on Dissemination and Communication

Based on our surveys, responses and by overall the engagement in upskilling we can confirm the following increase in BIM adoption:

- More than 1000 increase usage or interest in using BIM.
- 415 effectively completing training in BIM related subjects.
- More than 2000 enrolling and participating in upskilling via platform in BIM.

This constitutes an effective increase in BIM uptake and upskilling. As reported in D6.4, surveys regarding QF (more than 100 responders) and Materials feedback, (more than 200 responders) the ARISE participants responded positively regarding future usage of ARISE skills in their work and towards EE.

Objective 2: To increase opportunity for vocational mobility, competitiveness, and employability of the AEC workforce, across Europe and beyond, with the mutual recognition of energy and digitalization skills (and its transferability) gained with further education and upskilling, delivered by ARISE.

This objective was to be measured by 5 indicators:

1. *The development of microlearning (bite-size/small units with short term delivery) with verified badges authenticating the learning, previously known as CERTCoins.* The project believes that this will in turn enable active engagement across a range of AEC sectors, which can be measured via participation on the training platform.

"CERTcoin" was the initial proposed conceptual name for the digital badging that would record achievement and progressing of learners through the micro modules, and/or milestone achievements. It would have been issued to learners to signal completion of a module and achievement of a skill, competence, or task. Storage was intended to be via a blockchain ledger that would have features to ensure fidelity including cross platform transferability and verification. This was

intended to allow users to earn CERTcoins that could be exchanged after reaching a certain threshold for a formal certificate.

After investigation of existing IT technical solutions that could deliver the "CERTcoin" intended objectives and features, it became clear that they all use a form of Open Badges linked to an existing coin system such as Bitcoin or Ethereum. It also became clear that most of these were in the state of proven concepts, without upscaling. At the same time, it became clear that Open Badge was working on the release of Open Badges 3.0 standard. In this standard the big leap made was including blockchain based technology on Verifiable Credentials. This made the need to work with existing coin systems obsolete. While at the same time hugely improved secure linkage of a badge to a verifiable issuer and a verifiable receiver. This investigation is documented in the first WP4 deliverables.

More specifically, the ARISE team decided to choose an existing Open Badge service provider Open Badge Factory. This provider allowed the creation of modular learning pathways in which a learner must earn a certain number of Open Badges on a learning pathway, and after completion of that pathway is automated issuing a final Certificate in the form of an additional Open Badge. The original concept of rewarding achievements is maintained, while the issuing of the Badges that is fully integrated into the ARISE platform is followed. This with integration of earning Experience Point as an additional gamified feature. How it was implemented in the ARISE platform is documented in the final WP4 deliverables.

The OB3.0 standard was released in its final form at the end of May 2024. Open Badge Factory is currently implementing the standard with a first release expected at the end of 2024 and a full release at the start of 2025. This means that all badges are currently issued using the OB2.0 standard. These badges can be upgraded as soon as the OB3.0 implementation is delivered by Open Badge Factory as there is no need to change IT aspects in the ARISE platform.

WP3 (D3.1, D3.2 and D3.2) present the qualification framework underpinning the microlearning units. The Unit of Learning Outcomes are linked to the microlearning modules and the badges that are issued.

2. *To further support the recognition and transferability of skills the project was to actively engage with at least 15 national professional organizations and workers' associations to gain endorsement/support for ARISE, and/or number of agreements signed, and/or individual companies and SMEs in all partner countries and across Europe.*

The project team has engaged with more than 15 professional organisations and workers associations with 6 providing written support and endorsement of the ARISE project, objectives, and training platform. Further uptake actions within several countries involved are planned in the ARISE replication and exploitation plan.

3. *A widely recognizable training scheme, customized for different regulation, in at least 7 national CPD qualification schemes.*

The project has developed training plans customized for various pathways as identified in WP3, D3.1, D3.2 and D3.3. Whilst these have not been implemented in national CPD qualification schemes the project has developed the procedures and protocol to convert ARISE task based QF into CPD points. D7.1 and D7.2 developed by WP7 presented the methods of conversion of ARISE QF to NFQ and CPD schemes. During development of Trials the use of the approach and format of bite size micro modules for QF delivery was chosen.

4. *At least 50 digital "badging" – CERTCoins achieved and/ or "Euro pass" curricula forms downloaded from the website in each participating country.*

As noted above the CERTCoins have changed to badges and as such the platform has delivered 329 Milestone Badges (associates for training plans). In the future

these can be transformed into formal education credentials using the tools available to issue European Digital Credentials for Learning (EDC).

> 5. *Production and publishing of Matrix of skills gaps for AEC mobility.*

This has been published as part of the WP3 deliverables.

Objective 3: To support national initiatives for recognition of skills – providing transparency, digital web-based tooling and by working with EU standards.

This objective was addressed by discussions with relevant stakeholders in each country, to identify requirements, present a matrix with different maturity levels and present the final version. Each partner sought to deliver at least 3 events in their country or region, involving the three main stakeholders, e.g. architects, engineers, SMEs associations, Public administration. This was supported by the Pilot Digital Pathway energise and associated microlearning with CERTcoins. D8.6 final report on dissemination and communication provides full details on the range of events with some specific to partner regions, with others via webinar and online reaching all partner regions.

Objective 4: Further development, upscaling and/or combining a range of tools and initiatives into a cohesive and holistic approach.

This objective has been measured by:

> 1. *Set of at least 40 training modules consisting of micro-learnings, uploadable and deliverable via ARISE platform.*

This included upgrading and utilisation of previously developed material, along with new material to address and support the published Research Report on new matrix of LOF, skills, and material. In total at least 40 training modules have been developed and published on the ARISE training platform, which enables the published Matrix of competences. The publication of Research Report on new

matrix of LOF, skills, and material was completed and developed in WP3, presented in associated reports and deliverables.

2. *Nine recognition and/or certification schemes developed incorporated in the Learning Objectives Framework and overall ARISE curriculum.*

Within the platform there are several training plans covering the task pathways leading to the QF specialism. There are more than 9 Specialism pathways covered by the QF.

3. *Specific training contents (microlearning) and direct upskilling actions in the market, using a competence matrix to allow tailor fit intervention to appropriate target groups and covering specific subjects such as energy, efficiency, digitalisation, and its benefits in terms of energy performance and indoor quality. These will be used to improve capacities of at least 1000 professionals, on energy skills, as assessed and measured by the skills gap matrix developed in skills.*

Whilst specific learning has been identified and included on energy efficiency the focus is on the use of digitalisation to leverage the benefits available in terms of improved energy performance and indoor quality. As already demonstrated, we have provided improvement in capacities of a least 1000 professionals.

4. *Support and initiate at least 5 SMEs of each Partner's countries, as demonstration, and /or application of ARISE methodology, tools, and case studies for construction projects.*

As part of the registration process for the ARISE Platform, users are asked to confirm their employer size and type. Whilst this is not provided in all instances, we can demonstrate support and training for at least 5 SMEs in each Partner's country/region. This has provided demonstration and application of ARISE methodology, tools, and case studies via the ARISE platform and the website. Users are across the range of AEC professionals and companies (architects, engineers, blue collar, and technicians). As per the figures provided in relation to

users there is not an even distribution across regions and would be representative of the users presented in Table 3 above.

Objective 5: Develop a digital learner record store (LRS).

The foreseen LRS should provide validation and confirmation (blockchain procedures) of ARISE training achievement. This includes an Individual Learning Account (ILA) and issue of "CERTcoin". As is explained above, instead of CERTcoin ARISE implemented a decentralised approach on earning Verifiable Credentials in the form of Open Badges issued using the Open Badge 3.0 standard. This means that after completion of a micro-module an Open Badge is issued that contains references to the Unit of Learning Outcomes that are mastered. A complete set of Open Badges linked to a learning pathway leads to the issuing of an additional Open Badge that can be seen as the final certificate / proof for completion of a full learning pathway. Since Open Badges can be stored in digital wallets on a personal device there was no longer the need to use Individual Learning Accounts in an LRS.

Objective 6: Increase capacities of the Demand side.

The increase in capacities and support on the Demand side was measured by:

1. *Engagement with ARISE project from at least 5 Public Administrations, measured by either: letters of support, registrations in direct training actions, meetings with the ARISE team or agreement in adopting ARISE.*

The ARISE project contacted Public Administrations within partner regions to seek letters of support for the ARISE project, and whilst they did not receive this written support, we did have 11 Public Administrations attend the workshop for implementation of skills and QF ARISE (D7.6). They provide positive contributions and support for the measures outlined in D7.6 including:

- Communication campaigns for public administrations to raise awareness, interest, and information on the benefits of introducing procurement procedures and competency clauses.

- Establish and make publicly available a register of professionals, workers, and companies with required competencies for sustainable energy skills. This includes the consideration and implementation of BIM Mandates, which are already in some partner countries, and have demonstrate an increase and uptake in such skills.

2. *Develop training schemes and delivery of pilot schemes on NZEB, retrofit & renovation to Public Administrations, Clients/ Owners, Facility Managers.*

From the workshop noted above there was support from the Public Administrations for training, preferably free/funded, to raise awareness, interest, and information on the benefits of introducing energy efficiency within construction methods, as well as procurement procedures and competency clauses. The ARISE QF, learning and sample materials include the principles of EE. Platform statistics show that within BIM Basics users completed the micro module BIM Benefits – Energy Efficiency with 95 receiving this badge, and a further 192 users completing BIM Tools for Energy Efficiency Intro. This represents 287 users upskilled within these areas. BIM Modelling training also included the correct selection and use of materials for elements to ensure representative U-value calculations. This is critical for energy analysis and assessment once design is completed and will aid the reduction in the gap between as designed and constructed.

3. *Participation and promotion of at least 500 individuals overall in microlearning.*

As noted above within the training platform 287 users have completed the BIM Benefit – Energy Efficiency (95) and the BIM Tools for Energy Efficiency (192). To increase both public and AEC sector awareness the need for EE and associated skills a short video *"ARISE e-learning platform for green and digital upskilling"* was developed for the YouTube Channel. This video aimed to promote the learning

available, but also briefly highlight the benefits of EE and retrofitting. This video has 77 views on the ARISE YouTube channel.

Objective 7: To improve capacities of the Supply side.

The improvement in capacities of the supply side would be measured by:

1. *Developed* training to AEC professionals (architects, engineers, blue collar, technicians/workers, etc.). At least 12 representative schemes, covering different levels of skills maturity (basic, intermediate, and advanced).

As indicated above under objective 6, ARISE project developed a range of specific EE modules, as well as other EE related modules utilising BIM. As presented in D6.4 this included a set of "training plan" categories, devised to map and divide the QF into a deliverable format. This facilitated deployment of micro modules, which in turn would map and structure progressions through pathways, enabling flexibility for adaptation and expansion of the framework to other subject and skills as it may be required. There are currently 8 training plans as reported in D6.5 Table 2, with mapping and development of 7 at concept stage for the proposed BIM modelling pathway. Each training plan has a digital badge associated (on the gamification Dashboard, within the platform), equivalent to a milestone open badge.

2. A number of CPD type points (digital credits- CERTcoins) will be associated for each developed scheme.

As reported in D6.5 all modules have been designed to be adaptable in terms of EQF Levels, thus enabling at the same time recognition of learning when mapped to other qualifications. The micro modules provide scaffolded learning to enable progress towards higher skills maturity as set high with the QF, with addition of modules of learning. Furthermore, this supports the mapping the QF to EQF levels of NQF and other schemes., including CPDs. Timescales or periods of learning have been attributed to each module to support mapping to CPD style activities. Such activities are clear within the module, including assessment criteria and method,

ULOs and associated tasks. This facilitates the mapping, and transferability recognition for CPD recognition, as per developed D7.2 exchange model.

4. Key Successes of the ARISE Project

Alongside the project objectives, aims and KPIs the ARISE project established five enabling pillars: Alignment, Access, Assignment, Accreditation, and Assistance.

- **Alignment** of skills with a harmonised EU Learning Framework.
- **Access** to online training materials and tools 24/7.
- **Assignment** of the digital Market -transferable recognitions, to enable a wide recognition across the EU and beyond.
- **Accreditation or rather "A-Credit-action"** is based on a CPD type method and a novel "cryptocurrency for skills development" reward system.
- **Assistance** in the initialisation of legislative changes and supportive procurement measures, to further stimulate market demand.

The project supported and implemented these pillars with key successes in the following areas.

1. Qualification Framework

The development of the Qualification Framework supports the **alignment**, **assignment**, and **A-Credit-action** of skills. It enhances sustainable energy skills in the construction sector through digitalisation, focusing on Building Information Modelling (BIM). The use of task-based learning, comprising over 200 detailed tasks and subtasks facilitates the development of Units of Learning Outcomes (ULOs), ensuring that training is directly applicable to real-world scenarios and transferable. The introduction of the maturity model aligns these digitalisation skills with sustainable energy competencies. This model addresses four key players - Designers, Contractors, Clients, and Public Administrators, across the building lifecycle stages of design, construction, and operation. This enables organisations to assess their current maturity level and identify necessary steps for advancement in BIM and digitalization.

The Qualification Framework is designed to be compatible with the EQF, promoting alignment, and recognition of qualifications across Europe. This alignment supports continuous professional development (CPD) and facilitates vocational mobility within the construction sector.

2. E-Learning Platform

Key to the project aim of assisting the construction industry to ARISE and move towards an energy-efficient built environment was the development the e-learning platform. The launch of the e-learning platform offers micro-learning modules on Building Information Modelling (BIM) and energy efficiency. These modules are **accessible** anytime and anywhere, providing concise content tailored to the schedules of professionals and workers. The platform allows personalised learning pathways to address individual skill gaps, enabling **accreditation** and **A-Credit-action**. The platform has been well received by users, with **over 2000 active users** over the project duration. This has exceeded our expectations as the initial assessment of for completion of CERTcoins was based on 300 users completing 25 learning activities. The surge in numbers when the Trials launched in Portugal with the support of OA also tested our systems as it was a higher volume of enrolments than planned. Whilst both presented challenges they were welcome, representing important and key successes.

3. Dissemination - Webinars and Workshops

The project conducted webinars and workshops to promote the e-learning platform and discuss the digital transformation of the construction industry. These events facilitating the dissemination of knowledge and best practices, whilst promoting the ARISE platform to both trainees and trainers. They also engaged Public Administrators to **assist** in raising awareness and discussion around in the initialisation of legislative changes and supportive procurement measures, to further stimulate market demand. This included collaboration in the development of the policy brief with other projects, entitled "Skills for Green and digital building".

It was published in December 2022, led by HP4ALL project partners. The document maps the policy challenges and make recommendations on the value of skills-based upskilling, digitalisation of upskilling in the construction sector, green public procurement, and energy efficiency.

Summary of some key dissemination numbers:

- **Website** has **7587** users with 11469 sessions and 70078 events.
- **9 newsletters** produced with **174 subscribers**.
- **537 LinkedIn followers** with 80 on LinkedIn Forum.
- 40 YouTube followers with 4 videos and 2038 views; 130 followers on X.
- **Leaflet** reached a total number of **1665** people.
- **12 publications** on Zenodo with **457 views**.
- **ARISE Project info sent to 175855 people**.
- ARISE partners have participated in **25 conferences**, congresses and events reaching **1939 people**.
- **3** Scientific papers published and viewed by **191 people**.
- **1 Policy Briefing reached 441 people**.

4. Recognition and Award

ARISE received the Ufi VocTech Trust VocTech Future of Skills Award 2023, acknowledging its innovative approach to upskilling in the construction sector. The submission, by the project coordinator, was based on the principles of CERTCoin built on blockchain. Learners have a digital learning passport and earn 'micro-credentials', or 'SKILLcoins', which they can "cash in" for CPD points or accreditation towards a certificate. A shared 'currency' for micro-credentials would help learners, employers, and training providers to represent equivalence, giving everyone a "far better picture" of where we are on our skills journey. The submission highlighted "the gap between what industry, the economy and society needs and what's being delivered is widening,". It seeks to provide an alternative agile and flexible skills learning system not based on theory, books, and class attendance.

Digital tools should be used to engage and stimulate with learners, creating an active learning space in the digital environment.

The judges *"felt this was a provocative and bold vision for an innovative system that seeks to give greater learner agency, advance micro-credentialling and other flexible and modular forms of learning, and change the debate about the value of skills......it challenged thinking about the way skills are valued and the motivation and incentive for adults to learn."*

5. Conclusion

The achievements of the ARISE project as outlined in this report have collectively advanced the delivery and recognition of sustainable energy skills across the EU construction industry. Whilst there have been modifications and adjustment to the KPIs from the initial concept the overall impact remains successful. Implementation of the Qualification Framework, training platform, trials and dissemination ARISE has contributing to the awareness raising and upskilling of professionals and the overall advancement of the construction industry towards a more sustainable future.