

Title Report: D3.3.1 - HP Skills and Competency Framework Draft

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Based on T3.1 (Training Providers Survey (M1-M10) (EHPA, LIT, IERC, CTA, ESV, RINA-C)) and T3.2 (National and European Union Prospective Training Frameworks Analysis (M1-M10) (EHPA, LIT, IERC, CTA, ESV, RINA-C)), coupled with insights from T2.3 (Heat Pump Experts - Survey of Skills Needs & Opportunities (M3-M6) (IERC, EHPA, LIT, CTA)) and T4.1 (Evaluation of current public and market acceptance of HPs (M1-M6) (LIT, EHPA, IERC, ESV, CTA, RINA-C)) a comprehensive picture of the diverse engaged stakeholders, their upskilling characteristics, current status, continues learning and adaptation barriers, as well as future opportunities can emerge. EHPA will draft a HP Skills Competency Framework by Month 12 of the project which will be analysed by all partners at Project Meeting 2. Once finalised, this competency framework will be presented to the sector through a consultative process involving a number of mechanisms including:

- EHPA will organise a stakeholder workshops through its members to gain feedback.
- The Draft Framework will be provided on the project website and partners websites for a period with a mechanism for feedback to be provided.
- LIT, ESV and CTA will engage with their National HP Expert Group to gain feedback and consideration on the framework. In addition, input will be sought from Observer Regions.
- EHPA will engage its members and their extensive expertise in the HP sector at its annual Forum
- EHPA will present the Draft Framework and key points at events targeted at stakeholders in the field (e.g. HP Summit)

Based on the feedback received, and the results and outcomes from WP5, EHPA will amend and update the Competency Framework for finalisation in Month 28.

This document refers to designing a draft of the Heat Pump Skills and Competency Framework (D3.3.1), with a final document being prepared as part of D3.3.2, using the resources and inputs explained above.

Project details			
Project acronym	HP4ALL	Start / Duration	September 1, 2020
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2 Executive summary

HP4All brings together leading experts across Europe to enable capacity and skills development within the Heat Pump sector and to ensure that the energy efficiency gains afforded by heat pumps are realised. HP4All, following a holistic, systemic point of view, will work both with the supply side (manufacturers, SMEs, installers etc) and demand side (building owners, public sector etc.). This way, the project will enhance, develop, and promote the skills required for high quality, optimised Heat Pump (HP) installations within residential/non-residential buildings bringing Europe to the forefront of the climatization sector. With the drafting of a competency framework, based on research, data gathering, collaboration with other projects, organising of events, stakeholder interviews and a process of constant feedback and updating being the corner stone towards achieving the HP4All objectives.

This document is the HP4ALL HP Skills and Competency Framework Draft (contract no.891775)

3 Acronyms and abbreviations

BIMEET	BIM-based EU -wide Standardized Qualification Framework for achieving Energy Efficiency Training
BUSLEAGUE	Dedicated to stimulating demand for sustainable energy skills in the construction sector
CRAFTEDU	Setting up national qualification and training scheme for craftsmen in the Czech Republic and developing the further offer of training courses in Slovakia, Austria and Bulgaria
CTA	Technological Corporation of Andalusia
D (E.G. D3.1.1.)	Deliverable
DG	Directorates-General
EHPA	European Heat Pump Association
ERDF	European Regional Development Fund
EU	European Union
HP/S	Heat Pump/s

HR	Human Resources
IAEA	International Atomic Energy Agency
IERC	International Energy Research Centre
INSTRUCT	Evidence-based market and policy instruments Implementation across EU to increase the demand for eEnergy Skills across conSTRUCTION sector value chain
LIT	Limerick Institute of Technology
M (E.G. M12)	Month
EU	European Union
NZEB / NZEB	Near Zero Energy Building
OECD	Organisation for Economic Co-operation and Development
RINA-C	RINA Consulting
SHRM	Society for Human Resource Management
T (E.G. T3.1.)	Task
TRAIN4SUSTAIN	Establishing Future-Oriented Training and Qualification Quality Standards for Fostering a Broad Uptake of Sustainable Energy Skills in the European Construction Sector
WP	Work Package

4 Introduction

This document is the HP4ALL HP Skills and Competency Framework Draft (contract no.891775) corresponding to D3.3.1 (M12) lead by EHPA. This document contains all relevant information regarding the initial Draft of the HP Skills and Competency Framework. It draws initial inspiration from other projects in the field (EU funded projects under Horizon 2020 e.g. BUSLeague¹), other previous deliverables and data gathering of HP4All (T2.3.; T3.1.; T3.2.; T4.1.), as well as Competency Frameworks that are used in other organisations/sectors (e.g. the OECD). Taking into account the 16 month process from the completion of this draft structure and the final document, as well as the large data gathering (from research, likeminded project collaboration, expert inputs and other), it serves as a starting point for discussion, validation and as an instrument for gathering relevant stakeholder feedback. With the process, data gathering, instruments and stakeholders involved being described below, all leading to the relevant Competency Framework and suggestions for the next steps meant to use it at its full potential, as well as the process of updating it based on changing parameters.

5 Process, data gathering, instruments and stakeholders

Input from other project deliverables

Though all relevant project resources will be employed in designing and gathering data that can be used for the Competency Framework, with the project partners, Observer / Leader Regions, events and research all coming together, of particular interest and already considered since the inception of the project proposal, are a set of deliverables that while achieving their purpose, can also build and act as data gathering instruments for D3.3. Of these, a particular attention will be given and indeed, designed into T2.3.; T3.1.; T3.2. and T4.1.

The Heat Pump Experts – Survey of Skills Needs & Opportunities (T2.3.), already offered the possibility of engaging directly with Heat Pump experts and gathering their feedback, with its conclusions being taken into account and employed in the drafting and argumentation of the Competency Framework. As, the task was meant to understand the status of the HP market from the point of view of those currently working in it, including the drivers and barriers that could stimulate or restrict the demand for skills in the European construction sector specifically related to HP system design, installation, commissioning and ongoing maintenance. To establish this baseline position, a survey will be carried out with the panel of HP experts developed in Task 2.2. IERC with inputs from other partners will develop a survey template (by M3) to enable comparison of the results and LIT, CTA, ESV will carry out the survey with participants at the three respective pilot Expert Groups to gather insights into the barriers that

¹ BUSLeague is an international project co-funded by the European Union's Horizon 2020 framework programme for research and innovation (LC-SC3-2018-2019-2020 – Building a Low-Carbon, Climate Resilient Future: Secure, Clean, and Efficient Energy) under grant agreement No. 892894.

are preventing upskilling of the workforce and HP roll out around Europe. EHPA will conduct a review with members for their inputs also to consider the full EU perspective. To ensure maximum participation, the survey will be translated and adapted from English into Spanish and German for use in each pilot country. The list of suitable HP Experts will be agreed by the consortium by M4. To supplement the results of the survey, each partner country (LIT, CTA, ESV) will also run 1 focus group event in their country by M6, with 5-10 relevant stakeholders that are willing to share their experiences and speak in more detail about their observations. IERC, in collaboration with the project team, will develop a standard focus group workshop format to be used in each country that will enable standardisation and comparison of the data gathered in the different countries. The outputs from each country will be collated into a report by IERC (D2.3). This Deliverable, when combined with D2.1 and D4.1 from WP4 on End User Demands, will provide a comprehensive consideration of the supply and demand considerations of HP skills at an EU and Member-state level.

Training Providers Survey (T3.1.), that was built around a competency framework structure, complemented with a look into past, current and future practices as to temporally adapt our framework and not include any skills/competencies that the training providers (in their experience) consider to be less important in the current and future environment. Indeed, the structure being based on a competency framework of four separate stages. The first one is defining the purpose of the framework (To facilitate the mass deployment of Heat Pumps and the upskilling of workers to transition from installing fossil fuel boilers to installing Heat Pumps) and then assemble a team (in this case the project partners) that has a holistic view of the sector. The second step is to collect information (e.g. surveys, interviews) from the relevant stakeholders. After the information is collected, it needs to be analysed and validated, with the final step, being its implementation and potential adaptation to diverse National and European requirements.

Keeping the theme of using the surveys/interviews to inform the next deliverable (draft competency framework, the questions will follow a set of blocks (each made out of a set of skills that professionals in the HP field should have:

1. Technical competencies
 - a) Problem solving/troubleshooting
 - b) Digital
 - c) Preventative maintenance
 - d) Calibration and testing (rigour and accuracy)
 - e) Continuous improvement (lifelong learning)
 - f) Renewable Energy Systems Integration
2. Customer orientated competencies
 - a) Customer communication and management
 - b) Client focus
 - c) Influencing
 - d) Interpersonal relationships
 - e) Promotional/Sales
3. Business competencies
 - a) Financial Management
 - b) Efficient organisation of resources
 - c) Commercial awareness (how the company works)
 - d) Innovation and entrepreneurship
 - e) Negotiation and decision making
 - f) Perseverance (result driven)

4. Organisational competencies
 - a) Coaching and mentoring
 - b) Adaptability
 - c) Teamwork
 - d) Delegate
 - e) Logistics
 - f) Change management
 - g) Project management
5. Health and safety
 - a) Local building codes and safety regulations
 - b) Safety procedures and standards (in case of HVAC equipment failure; equipment replacement)

While keeping in mind the minimum requirements (if such requirements exist) present in each region/country, for the installation of a Heat Pump (in addition to the training provided by manufacturers), for residential and non-residential buildings.

National and European Union Prospective Training Frameworks (T3.2.) that undertakes an analysis of the upcoming European and National upskill policies, being assessed as follows:

- EU regulations in this matter – planned implementation frameworks of directives that aim to improve and homogenise this sector on an EU level. This will be conducted by EHPA and RINA
- National and Regional prospective frameworks in IE, ES, AT to see an overview on the future regulations and the potential impact, comparing them with the strengths and weaknesses of the current market along with the extra skills and competences that are needed to optimize the results in nZEB-construction and renovation projects. (LIT, CTA and ESV will complete this review)
- Use of best practice examples that can be replicated in upskilling building professionals and/or blue collar workers across the building design, operation and maintenance value chain. IERC will conduct this analysis

This analysis will draw on relevant education, training, energy policies and directives thus considering the potential for mutual recognition of skills and competencies, as well as potential challenges in meeting the supply of the upskilling provision. EHPA will compile this data into D3.2.

And an evaluation of current public and market acceptance of HPs that aimed to target end users across different categories (residential, non-residential; building owners, building managers; public, private etc.). Each will have their own specific influences and demands on the market for skills and quality. This task will examine the readiness of end users to accept HP implementation. LIT, with assistance from IERC and RINA-C, will develop tools and resources e.g. interview questions, online surveys (by M2) to be used with end users in each pilot country that will evaluate their current attitudes and opinions towards HPs. These questions will cover: the real or perceived risks of using HPs, opinions on ease of operation & maintenance, perception of installation and operating costs, suitability for use in different situations, knowledge of how/where to find information about HPs, new innovations and emerging solutions etc.. A particular focus will be placed on knowledge and skills within the market, and end users perceptions and expectations in this regard. Each region will select and apply appropriate tools to gather the data and identify critical trends and issues to be addressed for end-users. The consortium will use their respective networks to facilitate

participation from 15-30 building owners/end users in each region. LIT will collate the results from the survey into a report (D4.1), by M4.

The outcomes from this survey will inform the development of the Knowledge Hub and Performance Tool in Tasks 4.2 and 4.3 while also supporting the development of the Awareness Campaign in T4.4.

Input from other likeminded projects

With the assistance of the 'buildup.eu' initiative, a set of webinars focusing on sustainable energy skills in the construction sector was started. This endeavour, not only offering an efficient dissemination portal, but also connecting stakeholders and EU funded projects that are in the same (or similar) field, with broadly comparable sets of objectives. Indeed, the Competency Framework benefiting and building upon, work that was or is being carried out in likeminded projects such as:

BIMEET – a project leverages the take-up of ICT and BIM through a significant upgrade of the skills and capacities of the EU construction workforce. This project is built around a strong consortium relying on educational and research & technology expertise, robust experience of accrediting bodies, training supply chain and a wide engagement of industry led best practice.

BUSLeague - addressing and overcoming the challenges of the stimulation of demand for energy skilled workforce (demand side), along with hands-on capacity building to increase the number of skilled workforce across the building design, operation and maintenance value chain (supply side). BUSLeague will achieve this objective by developing and implementing a cross European recognition of energy skills, together with upscaling successful training methods and techniques which have already been developed in previous EU and National initiatives such as BUILD UP Skills, Construction Skills. BUSLeague focusses on a blend of four elements: mutual recognition of energy skills, awareness raising, capacity building and legislative changes.

INSTRUCT – a project that introduces changes in the requirements for construction workers and to prove the close link between energy skills and the energy performance as well as the effect of reducing greenhouse gas emissions. In addition, the INSTRUCT also supports legislative changes, thanks to which energy skills will need to be confirmed by certificates, desired by investors. The top-down and bottom-up activities in the INSTRUCT project are intended to eliminate the existing shortage of construction skills and thus to create buildings that are 100% energy efficient.

The **NZEB Roadshow** - designing and constructing mobile training and demo units that will serve as information centres to raise awareness of the benefits of nZEBs and will create the necessary conditions for effective communication between stakeholders. With very careful attention to exterior and interior design, the centres will offer real-life experience of quality nZEB and will be equipped with all necessary technologies to provide full information of the processes with relevance to the building's performance in terms of comfort, internal air quality parameters and energy consumption.

CraftEdu – a project developing and expanding upon the voluntary initiative “Building Future” aimed at supporting energy efficiency and use of renewable energy sources in buildings, including support to training of construction professionals by employers

TRAIN4SUSTAIN - making comparable and unifying the current qualifications in sustainable energy across Europe. Doing so will help converge contents, curricula and trainings to be "state of the art". This implies that energy professionals' qualifications will be valid across borders, making it easier for them to find a job abroad. To make this possible we are developing a European Skills Registry, a Skills Passport, an e-Inventory and a Match-Making hub.

Research into Competency Frameworks from other fields

A brief look into the structure and rationale of Competency Frameworks from other fields will be used, as to complement (as well as inform and assist in the design of templates) our work. With a few examples below:

EU Competency Framework for the management and implementation of the ERDF and Cohesion Fund - These User Guidelines have been developed by the European Commission, DG Regional and Urban Policy (DG REGIO) to help administrations involved in the management and implementation of the ERDF and Cohesion Fund to implement the EU Competency Framework and Self-Assessment Tool ('the instruments').

The Competency Framework - A guide for IAEA managers and staff - The Agency's competency framework includes core values, and core and functional competencies. The definitions of these components are as follows:

Core values are principles that influence people's actions and the choices they make. They are ethical standards that are based on the standards of conduct for the international civil service and are to be upheld by all staff.

Core competencies provide the foundation of the framework, describing behaviours to be displayed by all staff members. They are defined by occupational roles for a given job.

Functional competencies are defined by duties and responsibilities assumed by staff members for a given job. Based on the job complexity and level of responsibility, and the seniority of the occupational role, an average of three to five functional competencies are assigned to a given job.

OECD Competency Framework - Classifying jobs into families allows the Organisation to determine whether it has the capabilities necessary to achieve maximum impact and to locate where those capabilities are found. Job families can be used to set job requirements at the corporate level for similar jobs, to view potential matches and bridges for in-house mobility, to provide corporate learning opportunities, and to design structured career development programmes. At the OECD, each job falls under one of the three job families: Executive Leadership, Policy Research, Analysis and Advice, and Corporate Management and Administration.

SHRM professional HR competency model - This competency model is designed to serve as a resource for HR professionals interested in developing proficiency within each critical competency, from professionals just entering their HR career to those at the executive level. In other words this competency model can help you, the HR practitioner, develop a road map to achieve your HR professional goals. This competency model is intended to be used for developmental purposes only. Selection decisions should not be based upon this model.

Data gathering: Workshops

Given the type of stakeholders and membership, EHPA will organise stakeholder workshops through its members to gain feedback. This activity will include two online workshops (via Zoom) that will be conducted in May 2022 and December 2022. The workshops will use the Mural tool as well as templates made in the tool for data gathering (the use of breakout rooms might be used if deemed necessary). Consortium partners will share the event registrations as well as participate and guide the discussion and/or moderate a breakout room (if such a tool will be employed). Note that EHPA, has conducted and tested these tools in several previous events, with the tools being deemed as suitable for the task.

Data gathering: Project website

The Draft Framework will be provided on the project website and partners websites for a period with a mechanism for feedback to be provided. This will be designed in such a way as to gather the feedback directly on the document (set of the same documents but multiplied as to avoid errors and to keep track of where the feedback is coming from). The webpage dedicated to this task will include a short description and rationale of the work, will link to information regarding supporting events (e.g. registration to the stakeholder workshops) and benefit from a document (link to the document) that is hosted on the EHPA public OneDrive tool, as to easily consult, add comments and update (using track changes). These tools will be employed for 6 months, between M18 and M24 as to allow a document structure/template and to finish before the deliverable is due in M28.

Data gathering: Project website

LIT, ESV and CTA will engage with their National HP Expert Group to gain feedback and consideration on the framework. In addition, input will be sought from Observer Regions. This will be done with the aid of interviews based on pre-determined and agreed upon templates. The interview tool, being used as it suitably complements the other tools employed, while gathering a more in-depth set of inputs and expert (usually from experience) feedback. The interviews taking place at the same time as other data gathering methods (M16-M20). Additionally, interviewees from Observer regions, would make suitable interview candidates and offer an extended view, based on the circumstances of their particular region as well as its particularities that a competency framework should include.

Data gathering: Heat Pump experts at the EHPA annual Forum

EHPA will engage its members and their extensive expertise in the HP sector at its annual Forum. At the time of writing, EHPA has a membership of over 145, with HP manufacturers, HP component manufacturers, Research centres, Testing centres, consultancies, and other making up the membership breakdown per type. In addition, the EHPA annual Forum, brings together hundreds of experts in the field, as well as press and policymakers in an event that spans a multitude of days. Its format is either fully live, fully online or a hybrid between a live event that is being broadcasted online. More information and official website of the EHPA

Forum (2021) : <https://hp-forum.eu/> . With the participants being consulted and encouraged to provide inputs at the EHPA annual Forum in 2022.

Data gathering: Other relevant events (e.g. The Heat Pump Summit)

EHPA will present the Draft Framework and key points at events targeted at stakeholders in the field, some examples of such events below:

Name of the event	Link to website
Mostra Convegno Expocomfort	https://www.mcexpocomfort.it/en-gb.html
EU Sustainable Energy Week EUSEW	https://eusew.eu/
European Heat Pump Summit	https://www.hp-summit.de/
Chillventa	https://www.chillventa.de/
ISH	https://ish.messefrankfurt.com/frankfurt/de.html
Sustainable Places	https://www.sustainableplaces.eu/

Data gathering: Templates

A set of templates will be designed by EHPA for data gathering as per the requirements needed with a tentative list below:

Name of template	Purpose
Workshop Mural template	To gather data and inputs as part of the EHPA organised workshops (Mural template)
Partner Interviews	To gather data and inputs as part of the partner organised interviews (MS Word template)
Websites	To gather data and inputs on the project and partner websites (MS Word template shared with editing privileges from MS OneDrive)
Events	To gather data and inputs as part of events where EHPA participates in / EHPA annual Forum (printed MS Word template or QR code to electronic template websites)

Competency Framework Structure

The tentative structure of the competency framework, based on the tools detailed above is:

1. Executive Summary
2. Acronyms and abbreviations
3. Introduction (foreword from an HP expert)
4. Relevant inputs from other project deliverables
5. Input from other likeminded projects

6. Research into Competency Frameworks from other fields
7. Data analysis: Workshops
8. Data analysis: Project website
9. Data analysis: National Heat Pump Expert Groups & Observer Regions
10. Data analysis: Heat Pump experts at the EHPA annual Forum
11. Data analysis: Other relevant events
12. Conclusion
13. Defining terms
14. Competency framework based on conclusion
15. Next proposed steps
16. Suggested update process
17. Annexes (templates, interviews and other resources)

6 References

- EU Competency Framework for the management and implementation of the ERDF and Cohesion Fund - User guidelines for the EU Competency Framework and Self-Assessment Tool V1 3rd November 2017 (https://ec.europa.eu/regional_policy/en/policy/how/improving-investment/competency/)
- The Competency Framework - A guide for IAEA managers and staff (<https://www.iaea.org/sites/default/files/18/03/competency-framework.pdf>)
- Talent.oecd – Competency Framework (https://www.oecd.org/careers/competency_framework_en.pdf)
- SHRM Competency Model (<https://www.shrm.org/learningandcareer/career/pages/shrm-competency-model.aspx>)