WP8 Dissemination and Exploitation

Serena Scotton (EHPA)

Heat4COOL project has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement No 723925

WP 8 OBJECTIVES

- T8.1 – Communication and Dissemiantion:
  Ensure project acknolwedgment acroos stakeholders via communication/dissemination material and events and pubications.

- T8.2- Exploitation and standardization:
  To promote standardizations and recommend interface/framework developed in the project and promote the net zero energy consumption standard. Exploitation of project's results.

- T8.3 – Training and education:
  Organise training and education actitivities.

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T8.1 “Communication and Dissemination Plans” (M1-M48).

Task leader EHPA, all partners participating

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Work completed

T8.1 “Communication and Dissemination Plans” (M1-M48)

Task leader EHPA, all partners participating

T8.1 – as per grant agreement	Performed
• Creation of project website + social media channels	done, 2 LinkedIn + YouTube
• Creation dissemaintion material in M5 and M46	= 4
• Dissemiantion in 8 conferences	= 28
• Publication of scientific papers	= 10
• Organisation of 3 workshop with sisters projects	= 3 (last online) + 17 other workshops/webinars
• Publication of 6 newsletter	= 7
• Publication in digital newspaper, digital platform, other publications	= 7
• Participation in events	in total 81 events

ADDITIONAL ACTIVITIES:

Final event organisation, Policy paper , meeting with stakeholders,

1 more leaflet and one updated, increase number online events, gadget creation.

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Work completed M37-M54

- Social media campaigns/activities: Heat4Cool social media channels are:
  - Twitter account (@Heat4Cool_H2020): with currently 655 followers.
  - LinkedIn group: (link): with 60 members.
  - LinkedIn page (created during the 4th year – link): with 65 followers.
  - Youtube channel (link): with 31 registered people.
- 1 leaflet (+ 1 extra)
- 7 workshops/webinars with sisters projects
- 15 events dissemination + final event
- 2 videos on SCIS EU smart cities
- 4 new scientific publications
- 1 policy publication + 1 booklet

→ Presented in D8.7

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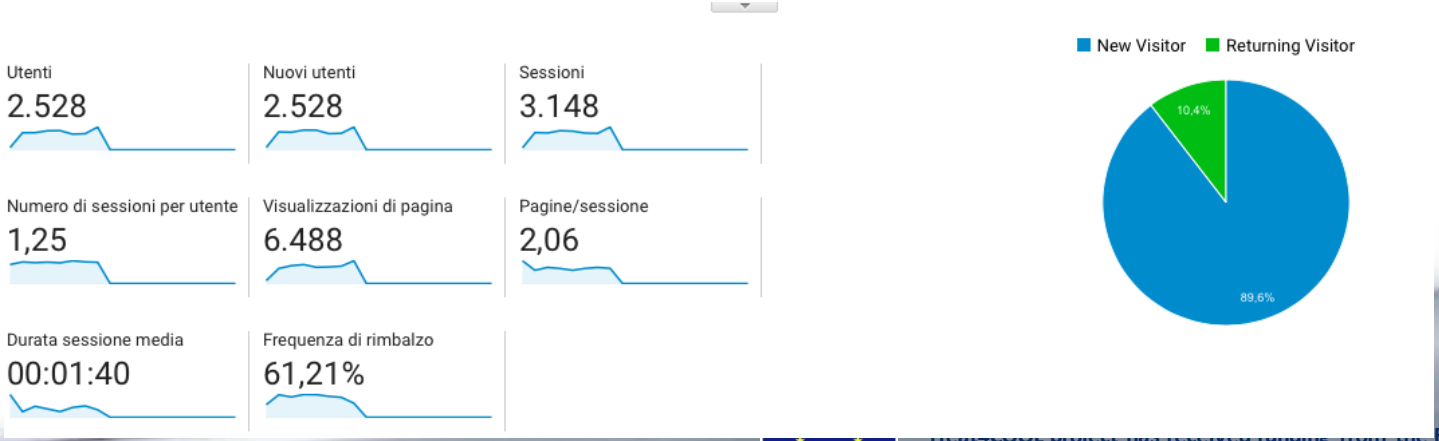
• Website analytics

	Paese	Utenti	% Utenti
1.	United Kingdom	421	16,59%
2.	United States	192	7,57%
3.	Germany	120	4,73%
4.	Italy	118	4,65%
5.	Netherlands	109	4,29%
6.	Canada	105	4,14%
7.	Belgium	104	4,10%
8.	Spain	99	3,90%
9.	India	80	3,15%
10.	France	78	3,07%



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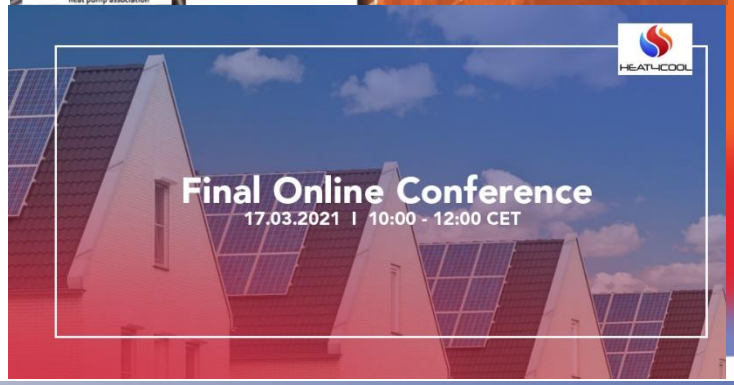

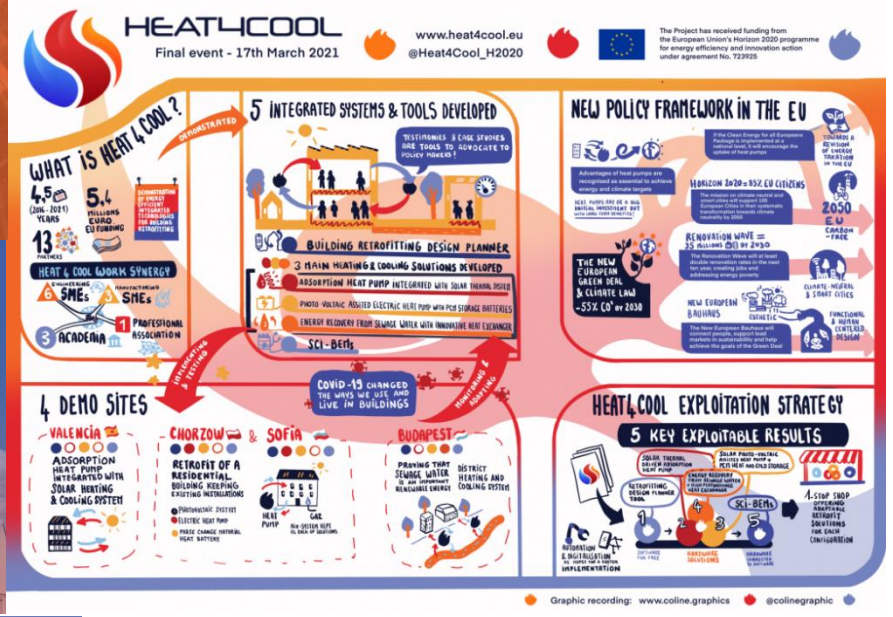

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Task 8.2. “Standardisation and Exploitation of project results” (M18-M48).

Task leader Solintel, all partners participating

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Work completed M37-M54

Task 8.2. Standardisation and Exploitation of project results

Lead partner: **Solintel,** *Participants:* ***All***

Objectives:

- Standardisation activities,
- Identification of all the commercial barriers,
- Identification of the exploitable results,
- Connect the consortium with other European and local projects and with key industrial partners,
- Technology Implementation plan of the project results,
- To establish the better strategies to manage the knowledge and overall outputs of the project, as well as IPR protection,
- Definition of exploitation plans.

Deliverable:

- **D8.8** Final Exploitation Plan (M54)

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The Heat4Cool Key Exploitable Results

Retrofitting design planner tool

Innovative HEX, cleaning methods, connecting screen

Solar PV assisted DC Heat Pump storage connected to advanced PCM heat energy storage

Solar assisted Thermal driven Adsorption heat Pump

Initial phase of the project

Construction, installation phase

Building use / Operational Phase

SCI BEMS

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The Heat4Cool Key Exploitable Results

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Solar PV assisted DC Heat Pump storage connected to advanced PCM heat energy storage

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SCI BEMS

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Retrofit Design Planner tool

Product differentiation and Unique selling proposition:

- The solution offers speed and flexibility for different building typologies and locations.
- Focus on energy, cost, GHG emissions and termal confort
- Ease of use

Type of innovation: New product /Software

Other partners interested in exploitation: Symelec

	Main contributors - partners interested in exploitation									
KER 1	AES Solar	SOLINTEL	SYMELEC	IZNAB	FAHRENHEIT	SUNAMP	THERMOWATT	WATT+VOLT	EHPA	BALKANIKA
TECNALIA										
POLIMI										
HSLU										

Contractual agreements and Transfer rights (licensing, royalties…)

Granting Access Rights

Owner

Contributor

Partners having expressed interest in KER but who are not main contributors

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Retrofit Design Planner tool

Exploitation Strategy: Tecnalia will exploit the H4C Retrosim tool offering the basic product for free but charging fees for adapting the tool to potential customer´s products and offering consulting services based around the tool.

	Polimi	W + V	Symelec	Tecnalia	HSLU	DETAILS
M						*Manufacturing, Realisation*
A/I						*Assembly/Implementation*
R	x				x	*Research*
C	x		x	x	x	*Consultancy, Training*
U			x	x		*Utilisation in other business*
SD				x		*Sales, Distribution*
S						*Services*
L						*License*

Market: Renovation markets can still be qualified as emerging and will experience substantial growth

Time to market: 1 year

Barriers: Difficulties on the communication between modules. This has required to develop some iterations to converge with the final validated version of the tool.

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Innovative HEX, cleaning methods, connecting screen

Product differentiation and Unique selling proposition:

- Efficient in constant high load and demanding weather settings
- Efficient for installations at 1MW≤
- Better heat exchanger efficiency due to cleaning control/ avoidance of sludge accumulation

Type of innovation: Significantly improved product

Other partners interested in exploitation: Symelec, Solintel

	Main contributors - partners interested in exploitation											
KER 2	POLIMI	AES Solar	SOLINTEL	SYMELEC	HSLU	IZNAB	FAHRENHEIT	SUNAMP	WATT+VOLT	EHPA	BALKANIKA	TECNALIA
THERMOWATT												

Contractual agreements and Transfer rights (licensing, royalties...)

Granting Access Rights

Owner

Contributor

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Innovative HEX, cleaning methods, connecting screen

Exploitation Strategy: Direct sale of improved Heat exchanger on already existing technology.

	Polimi	Thermowatt	Symelec	Tecnalia	HSLU	Solintel	DETAILS
M		x					*Manufacturing, Realisation*
A/I		x					*Assembly/Implementation*
R							*Research*
C		x	x			x	*Consultancy, Training*
U			x			x	*Utilisation in other business*
SD		x	x			x	*Sales, Distribution*
S							*Services*
L							*License*

Market:

- Renovation markets can still be qualified as emerging and will experience substantial growth.
- District heating is still emerging in more southern and western European markets
- Market for wastewater energy retrieval is at its infancy

Time to market: The general Thermowatt solutions are already available and the innovative heat exchanger and screening unit are ready to be implemented on top of this.

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Innovative HEX, cleaning methods, connecting screen

Barriers:

- Space and size
- Less building codes and standards related to technology typology

Key variables:

- Potential reachable Energy consumption reduction is 25-30% on the basis of traditional heating and/or cooling systems
- Energy efficiency (net heat pump efficiency) in heating (COP) can be from 3-8
- Energy efficiency in cooling (EER) can be from 4-7
- The total cost of the implementation of a complex Thermowatt solution of 1 MW size is ~ 1 million EUR. The innovation part of the Heat4Cool project represents about 20-30% of the investment

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Solar PV assisted Heat Pump connected to advanced PCM heat energy storage

Product differentiation and Unique selling proposition:
Increase percentage of harvested energy being used through the use of storage
Lower heat losses
Small and modular units

Type of innovation: Significantly improved product

Other partners interested in exploitation: Symelec, Solintel, AES Solar

	Main contributors - partners interested in exploitation											
KER 3	AES Solar	POLIMI	SOLINTEL	SYMELEC	HSLU	IZNAB	FAHRENHEIT	THERMOWATT	WATT+VOLT	EHPA	BALKANIKA	TECNALIA
SUNAMP												

Contractual agreements and Transfer rights (licensing, royalties...)
Granting Access Rights

Owner
Contributor
Partners having expressed interest in KER but who are not main contributors

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Solar PV assisted Heat Pump connected to advanced PCM heat energy storage

Exploitation Strategy: Sunamp: Direct sale of PCM storage for connection with PV assisted heat pump systems/ distribution of complete heat pump systems with Sunamp heat batteries to projects globally or to other OEMs.
AES Solar: Potential for integration with in house PV systems and in projects

	Sunamp	Polimi	W + V	Symelec	AES Solar	HSLU	Solintel	DETAILS
M	x							*Manufacturing, Realisation*
A/I	x			x	x		x	*Assembly/Implementation*
R								*Research*
C	x			x	x		x	*Consultancy, Training*
U				x			x	*Utilisation in other business*
SD	x			x	x		x	*Sales, Distribution*
S								*Services*
L								*License*

Market:

- Renovation markets can still be qualified as emerging and will experience substantial growth.
- Heat pump market is mature and characterized by multiple competitors but depending on geographic market, it is still growing substantially.

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Solar PV assisted Heat Pump connected to advanced PCM heat energy storage

Time to market: Sunamp plans to exploit the results of the project commercially within one year after required certifications are passed with their partner Veotherm who supported the development of the system. The heat batteries are already commercially available.

Barriers:

- Also, being an innovative product, it was not always straightforward for the local technicians who were not involved in its development, to repair the units or to assess the issues with the units.

Key variables:

- It has been proven by internal and independent tests that Sunamp Heat Batteries have at least 50% lower heat losses than water tank with the same storage capacity
- Compared to alternative electric devices i.e. resistance heating element-based boilers, heat pumps are 2-4 times more efficient.
- The foreseen payback time for this technology at scale is 7-10 years
- The benefit of heat pump + heat batteries systems is that the price of primary energy (electricity, usually much more expensive than gas) can get close or lower than the cost of gas, facilitating greatly the exploitation of the system (PV use and off-peak times)

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Solar assisted Thermal driven Adsorption heat Pump

Product differentiation and Unique selling proposition:

- Generation of cooling thermal energy from solar energy, achieving high electrical efficiencies as well as the possibility to increase the solar collector surface and thus the heating production.
- High cooling capacity at high outdoor temperatures compared to state-of-the-art technologies.
- Compact design

Type of innovation: Significantly improved product

Other partners interested in exploitation: Symelec, Solintel, AES Solar

	Main contributors - partners interested in exploitation											
KER 4	AES Solar	POLIMI	SOLINTEL	SYMELEC	HSLU	IZNAB	SUNAMP	THERMOWATT	WATT+VOLT	EHPA	BALKANIKA	TECNALIA
FAHRENHEIT												

Contractual agreements and Transfer rights (licensing, royalties...)
Granting Access Rights

Owner
Contributor
Partners having expressed interest in KER but who are not main contributors

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Solar assisted Thermal driven Adsorption heat Pump

Exploitation Strategy: Fahrenheit: Direct sale of adsorption heat pump for connection with solar thermal systems.
AES Solar: Potential for integration with in-house solar thermal systems and in projects

	Symelec	AES Solar	Fahrenheit	Solintel	DETAILS
M			x		*Manufacturing, Realisation*
A/I	x	x	x	x	*Assembly/Implementation*
R					*Research*
C	x	x	x	x	*Consultancy, Training*
U	x			x	*Utilisation in other business*
SD	x	x	x	x	*Sales, Distribution*
S					*Services*
L					*License*

Market:

- Renovation markets can still be qualified as emerging and will experience substantial growth.
- Heat pump market is mature and characterized by multiple competitors but depending on geographic market, it is still growing substantially.

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Solar assisted Thermal driven Adsorption heat Pump

Time to market: Fahrenheit are currently in the process of achieving TRL 7, aiming to then certify the products as required by the European Union (CE marking). It is planned that the first commercial products will be launched in 8-12 months after the end of Heat4Cool project.

Barriers:

- Insufficient driving heat
- Space constraints - Choice of dry cooler

Key variables:

- The outcomes of the testing performed show that the adsorption system allows to save 62% of the electrical energy consumption.
- Especially suited for use in ambient with high temperatures, hence in locations like South Europe and Middle East.
- The foreseen payback periods are in range of 5-7 years. For countries with incentives (e.g. BAFA incentives in Germany) this period is shortened down to 3 years.

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The Heat4Cool Key Exploitable Results

Retrofitting design planner tool

Innovative HEX, cleaning methods, connecting screen

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Solar assisted Thermal driven Adsorption heat Pump

SCI BEMS

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SCI BEMS

Product differentiation and Unique selling proposition:
Profitable interaction between the energy systems balancing user comfort, energy efficiency and services to the grid thanks to profiling mechanism.

- Use as basis open API communication standards and automation software
- Allow for flexible realization and customization of the system functionalities according to the infrastructure available
- Utilize off-the-self monitoring and control devices that are affordable and widely available
- Employ custom developed cloud services for data analysis and remote energy management.

Type of innovation: New product / Software

Other partners interested in exploitation: Tecnalia, Symelec, Solintel

	Main contributors - partners interested in exploitation											
KER 5	POLIMI	AES Solar	SOLINTEL	SYMELEC	HSLU	IZNAB	FAHRENHEIT	SUNAMP	THERMOWATT	EHPA	BALKANIKA	TECNALIA
WATT+VOLT												

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Owner
Contributor
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SCI BEMS

Exploitation Strategy: Commercialization in the WATT + VOLT product portfolio through installation fees and license fees for cloud service.
Integration of SCI BEMS features in existing app portfolio offering.

	Tecnalia	AES Solar	Symelec	W + V	DETAILS
M					*Manufacturing, Realisation*
A/I				x	*Assembly/Implementation*
R					*Research*
C	x		x	x	*Consultancy, Training*
U	x				*Utilisation in other business*
SD		x	x	x	*Sales, Distribution*
S					*Services*
L				x	*License*

Market:

- HEMS market is emerging and growing substantially around the EU

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SCI BEMS

Time to market: The SCI-BEMS will reach TRL 6 upon completion of the Heat4Cool project. According to the financial plan performed by Watt and Volt, the first 2 to 3 years years are required for further research and development to create a market-ready product reaching TRL 9.

Barriers:

- Restrictions on multisensors

Key variables:

- this energy management system is able to achieve about 10% monthly energy reduction, equating to about 100 Euros annual electricity savings and less than 2 year break even point for an average family-sized apartment.

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Summary of Achievements

- Specific list of standards affecting individual WPs and KERs.
- Identification of KERs per WPs.
- Updated list of the relevant standards ranked per technology and Technical Committee.
- Understanding of standardization needs whether it be in terms of compliance and indicative measures for design or potential liaison with CWAs or other CEN deliverables.
- Delegation of partner roles for standardization approach overview per WP.
- Presentation of Ground identification and individual exploitation approaches at partner and KER level.
- Definition of IPR and contractual agreements in line with foreseen exploitation strategy

KER#	H4C RetroSim	Innovative HEX	PV assisted heat pump connected to PCM storage	PV thermal assisted adsorption heat pump	SCI BEMS
Ownership	Tecnalia	Thermowatt	Sunamp; AES Solar	Fahrenheit; AES Solar	Watt + Volt

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Partner /KER	KER 1	KER 2	KER 3	KER 4	KER 5
POLIMI	B, O	B	B		
AES Solar			B, F, M, O	B, F, M, O	B, U, O
SOLINTEL		U, O	U, O	U, O	
SYMELEC	B, U, O	B, U, O	B, U, O	B, U, O	U, L, O
HSLU	B, F, O	B	B		
IZNAB					
FAHRENHEIT				B, F, M, O	
SUNAMP			B, F, M, O		
THERMOWATT		B, F, M, O			
WATT+VOLT	B		B		B, F, M, L, O
EHPA	Support role in project / non-industrial or research partner				
BALKANIKA TECNALIA	B, F, U, O	B			B, F, U

B	Background contributor
F	Foreground contributor
M	Exploitation through production and sale of systems
U	Use internally in other services, projects or make something else for sale
L	Licensing of the solution
O	Provide consultancy service, training, or education

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T8.3 > work presented in D8.9 > ”Education and training” (M30-M48).

Task leader EHPA, all partners participating

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Work completed M37-M54

T8.3 > work presented in D8.9 > ”Education and training” (M30-M48)

Task leader EHPA, all partners participating

- Training webpage created: https://www.heat4cool.eu/training/
- Training social media campaigns
- Online training with all technology demonstrators + demo site managers (12.05.21)
- Training material - 4 dossiers, 1 dossier per demo site
- Training videos
- “Tips for installers” videos
- Trainings directly executed by demo managers and technology providers.

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Work completed M37-M54

T8.3 > work presented in D8.9 > ”Education and training” (M30-M48)

Task leader: EHPA, ALL partners participating

- 21 trainings and education meeting/activities developed
- Reaching 2.765 people
- 13 training videos
- 4 training materials dossiers
- 4 training PowerPoint presentations

- D6.3 training and guidelines also published in the training webpage.

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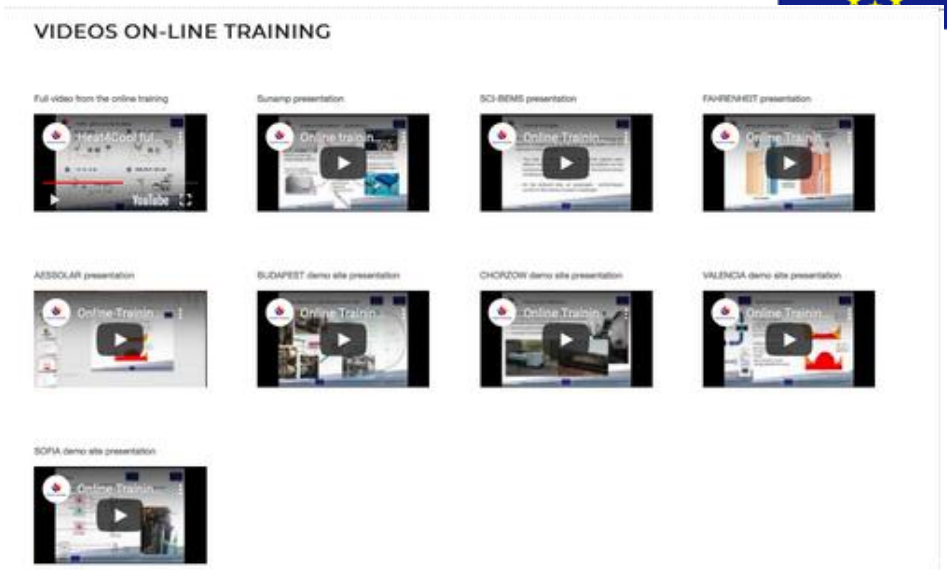

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List of deliverables and Milestones

List of deliverables

Deliverable Number[14]	Deliverable Title	Lead beneficiary	Type[15]	Dissemination level[16]	Due Date (in months)[17]
D8.1	Dissemination activities carried out and Plan for the 2nd year	12 - EHPA	Report	Confidential, only for members of the consortium (including the Commission Services)	12
D8.2	Exploitation Plan for the 2nd year	9 - SOLINTEL	Report	Confidential, only for members of the consortium (including the Commission Services)	12
D8.3	Dissemination activities carried out and Plan for the 3nd year	12 - EHPA	Report	Confidential, only for members of the consortium (including the Commission Services)	24
D8.4	Exploitation Plan for the 3nd year	9 - SOLINTEL	Report	Confidential, only for members of the consortium (including the Commission Services)	24
D8.5	Dissemination activities carried out and Plan for the 4nd year	12 - EHPA	Report	Confidential, only for members of the consortium (including the Commission Services)	36

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List of deliverables and Milestones

D8.6	Exploitation and Standardization Plan for the 4nd year	9 - SOLINTEL	Report	Confidential, only for members of the consortium (including the Commission Services)	36
D8.7	Dissemination activities carried out and Final Plan	12 - EHPA	Report	Confidential, only for members of the consortium (including the Commission Services)	54
D8.8	Final Exploitation Plan	9 - SOLINTEL	Report	Confidential, only for members of the consortium (including the Commission Services)	54
D8.9	Report on education and training activities	12 - EHPA	Report	Confidential, only for members of the consortium (including the Commission Services)	54

Schedule of relevant Milestones

Milestone number[18]	Milestone title	Lead beneficiary	Due Date (in months)	Means of verification
MS11	Standardization Plan for the project and results	12 - EHPA	54	Proposed by the WP8 leader. Checked and approved by the STC
MS12	Report on education and training activities	12 - EHPA	54	Proposed by the WP8 leader. Checked and approved by the STC

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Resources spent

- EHPA used more PMs then expected, however, managed to use the personnel cost at its disposal.

- This is due to:
  - More effort spent in trainings then expected
  - More policy monitoring and policy meeting then expected
  - Organisation of the final event (not foreseen)
  - Creation of extra communication and dissemination material considered high-valuable
  - Moreresources involved compared to previous periodic reporting
  - “Cyber attck” wesite recovery

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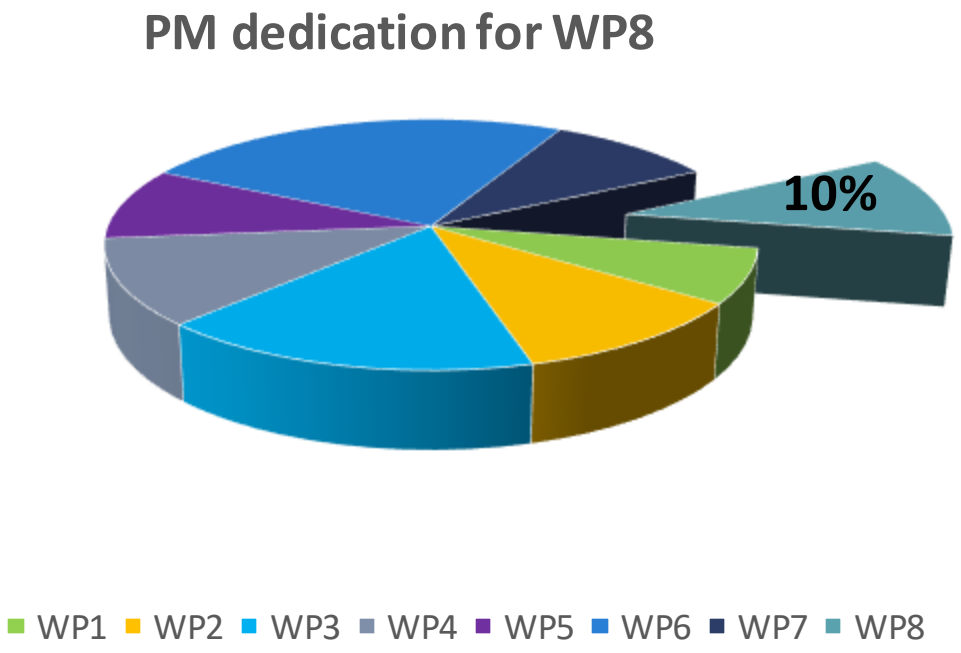
Use of budget

WP1	53,5	7%
WP2	82	11%
WP3	126	16%
WP4	99	13%
WP5	70	9%
WP6	188	24%
WP7	73	9%
WP8	81	10%
TOT	**772,5**	**100%**



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Achievements and Lessons Learnt

- All the WP8 goals have been achieved
- We managed to reach the targets and going beyond (organising more activities)
- Positive feedback

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Thank you

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