



**Bridging the Gap – Offering innovative Education for Experts in Cultural Heritage of the European Union**

**Sustainable Places**

**Nice**

**7<sup>th</sup> – 9<sup>th</sup> September 2022**

Co-funded by the  
European Union



# Main topics



Purpose and objectives



Skills requirement in Cultural Heritage



Need for modern skills in Cultural Heritage



Need for modern tools in Cultural Heritage



Virtual training of manual crafts work



Virtual Building Damage Identification



Motion Sickness in virtual manual activities



# Skills requirement in Cultural Heritage

# Skills requirement in Cultural Heritage (1)

- the need to keep Cultural Heritage in shape and available for future generations
- the need to keep historic sites “accessible and adequate for current and future generations requirements”
- Traditional buildings ...
  - ... do have an enormous added-value
  - ... need traditional crafts
  - ... do have a positive impact on climate protection
  - ... are part of circular economy
  - ... are different

## Skills requirement in Cultural Heritage (2)

Why then we need modern skill?

- Skills at risk → need to attract young people by modern means like VR/AR, interactive serious online games, virtual learning of manual craft works
- Interpretation of Cultural Heritage → Developing new target groups by using VR/AR, virtual museums, view of buildings over time
- Shortage of staff → use digital means to reduce staff needed with e-invoices, e-procurement, digital processes for sales and administration



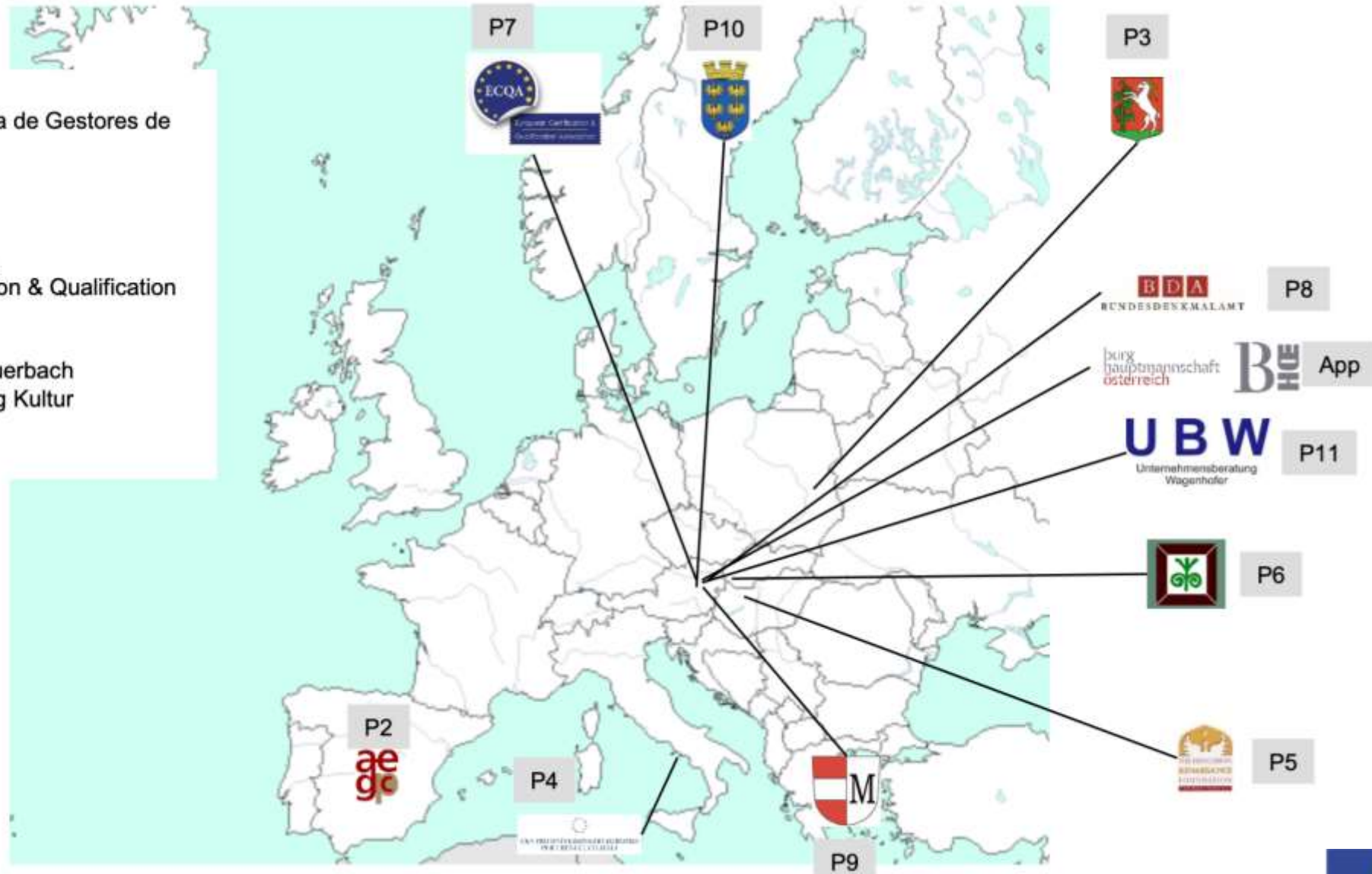
# Purpose and objectives



# Digital Expert for Cultural Heritage / INCREAS

- Specific objective n°4 in the field of Skills enhancement: Analysis of education and skills enhancement for cultural heritage
- Specific objective n°5 in the field of Skills enhancement: Quality standards
- Specific objective n°6 in the field of testing innovative approaches: Innovation in heritage: mapping, testing prototyping
- Specific objective n°7 in the field of testing innovative approaches: Innovation and the life-cycle of heritage professions

- APP ... BHÖ
- P2 ... Asociación Española de Gestores de Patrimonio Cultural
- P3 ... City of Lublin
- P4 ... CUEBC
- P5 ... MRA
- P6 ... Národný Trust, n. o.
- P7 ... European Certification & Qualification Association GmbH
- P8 ... BDA
- P9 ... Marktgemeinde Mauerbach
- P10 ... Land NÖ – Abteilung Kultur
- P11 ... UBW GmbH



INCREAS is a pilot project Co-funded by the European Union





# Virtual training of manual crafts work / VI-TRAIN

## Preparing for the digital future and for further pandemics

### 1. Covid-19 as reason for project

- Covid-19 rules avoid f2f training courses
- Future training courses for craftspersons

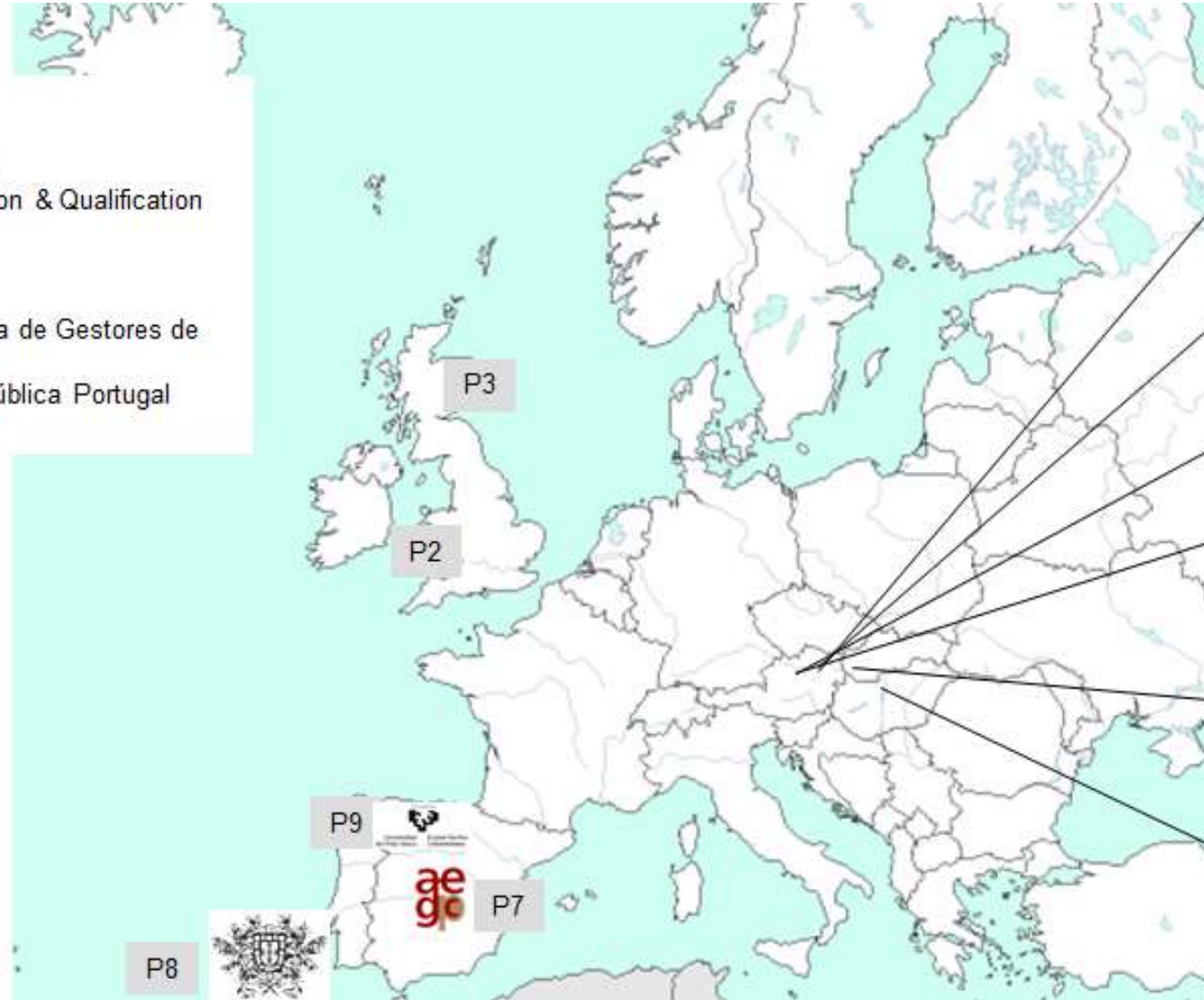


### 2. Intense request for digital training courses

- EU Commission request digitisation
- First research showed no results
- Different scenarios



- APP ... BHOe
- P2 ... IMC Krems
- P3 ... Národný Trust, n. o.
- P4 ... European Certification & Qualification Association
- P5 ... UBW GmbH
- P6 ... MRA
- P7 ... Asociación Española de Gestores de Patrimonio Cultural
- P8 ... Presidência da República Portugal
- P9 ... UPV/EHU



 Burghauptmannschaft Österreich App

**UBW** P5  
Unternehmensberatung  
Wagethaler

 P4  
European Certification & Qualification Association

 **IMC** P2  
FH KREMS  
UNIVERSITY OF APPLIED  
SCIENCES / AUSTRIA

 P3

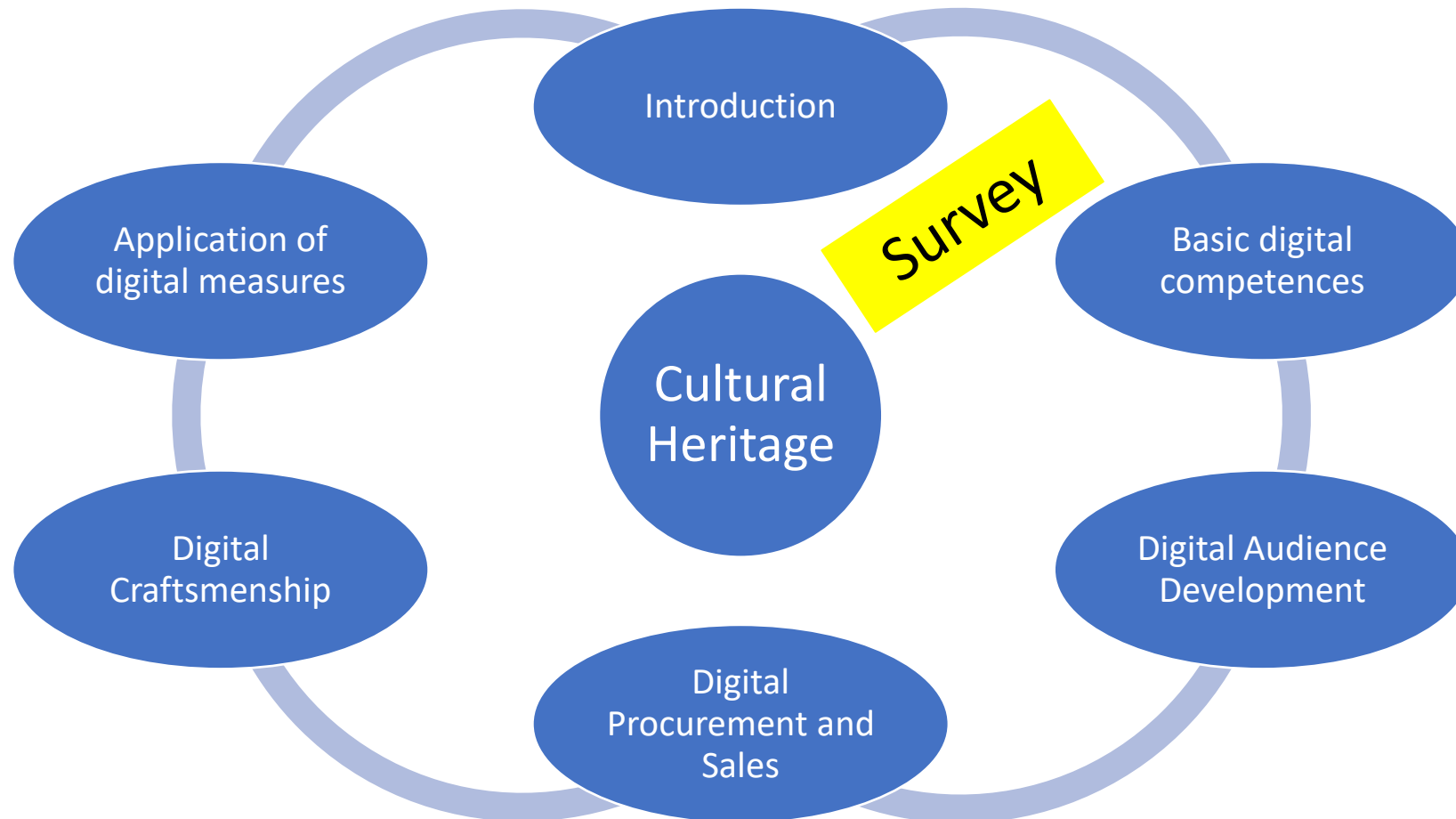
 P6





# Need for modern skills in Cultural Heritage

# Required digital skills in Cultural Heritage / INCREAS



# Digital Expert for Cultural Heritage / INCREAS

Curricula	Unit	Learning element	EQF Level
<b>Digital Expert for (Built) Cultural Heritage</b>			<b>EQF</b>
	<b>U1</b>	<b>Introduction</b>	
DCH	U1.E1	Cultural Heritage Management - Overview	4
DCH	U1.E2	Terminology and digital basic competences	4
	<b>U2</b>	<b>Basic Digital Competences for Cultural Heritage</b>	
DCH	U2.E1	Digital Transformation of organisations	5
DCH	U2.E2	Digitisation strategy	5
DCH	U2.E3	Process management for the digital world	5
DCH	U2.E4	Digital Maturity	5
DCH	U2.E5	Data protection in Cultural Heritage	5
DCH	U2.E6	Acceptance procedures for digital products and services	5
	<b>U3</b>	<b>Digital Audience Development for Cultural Heritage</b>	
DCH	U3.E1	Design and monitor customer / visitor journeys	5
DCH	U3.E2	Big data usage for Cultural Heritage	5
DCH	U3.E3	Digital interpretation	5
DCH	U3.E3	Extended Reality	5
DCH	U3.E3	Serious games as mean of Audience Development	5
DCH	U3.E4	Ecology in Audience Development	5
	<b>U4</b>	<b>Digital procurement and sales for Cultural Heritage</b>	
DCH	U4.E1	European framework for eProcurement	5
DCH	U4.E2	Digital sales for Cultural Heritage	5
DCH	U4.E3	Digital purchasing for Cultural Heritage	5
DCH	U4.E4	Ecology in Digital Procurement	5
	<b>U5</b>	<b>Digital Craftsmanship for Cultural Heritage</b>	
DCH	U5.E1	Digital changes/developments for craftspersons	5
DCH	U5.E2	Data gathering in (built) Cultural Heritage (e.g. 3D laserscanning, photogrammetry, etc.)	5
DCH	U5.E2	BIM for Cultural Heritage	5
DCH	U5.E3	Software development insights	5

1,5 Days

2 Days

1 Day

1,5 Days

# Requirements for Virtual Building Damage Identification / VI-TRAIN

- Scanning selected estate (Laser scan and photo)
- Generating a stock model
- Business case for use
  - Inspection interval
  - Need for lift and riser
  - Haptic feedback
  - ...

# Virtual Building Damage Identification / VI-TRAIN

Curricula	Unit	Learning element	EQF Level
Virtual Building Damage Inspection			EQF
	<b>U1</b>	<b>Introduction</b>	
BDI	U1.E1	Cultural Heritage Management - Overview	4
	<b>U2</b>	<b>Scanning theory</b>	
BDI	U2.E1	Laser scanning	4
BDI	U2.E2	Photogrammetry	4
BDI	U2.E3	Drones	4
BDI	U2.E4	Building Information Modelling	4
BDI	U2.E5	Modelling of traditional Buildings	4
	<b>U3</b>	<b>Scanning practice</b>	
BDI	U3.E1	Use of Laserscans	4
BDI	U3.E2	Use of Drones	4
BDI	U3.E5	Use of Photogrammetry	4
	<b>U4</b>	<b>Building Damage Inspection</b>	
BDI	U4.E1	Process of Building damage Inspection	4
BDI	U4.E2	Virtual Building Damage Inspection	4
BDI	U4.E2	Assessment of Building Damage Inspection	4
BDI	U4.E3	Feasibility and Business Concept of Virtual Building Damage Inspection	4
	<b>U5</b>	<b>Ecological Footprint of Virtual Building Damage Inspection</b>	
BDI	U5.E1	Ecological Footprint of Virtual Building Damage Inspection	4

1,5 Days

1,5 Days

3 Days



# Need for modern (digital) tools in Cultural Heritage



# BIM for Cultural Heritage Guideline / BIMherit

Resolution

Process of scanning



Digital twin

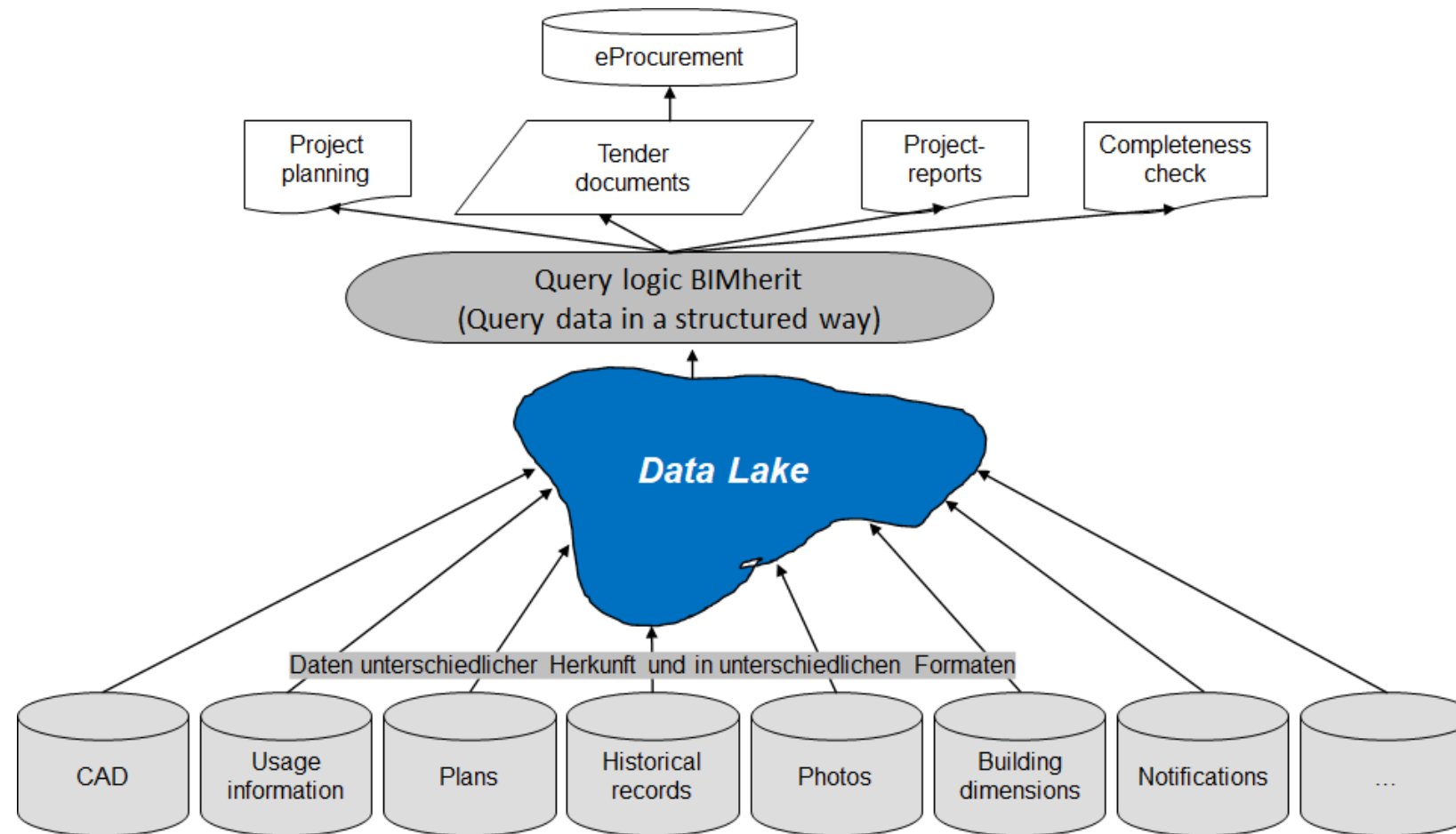


Attribution

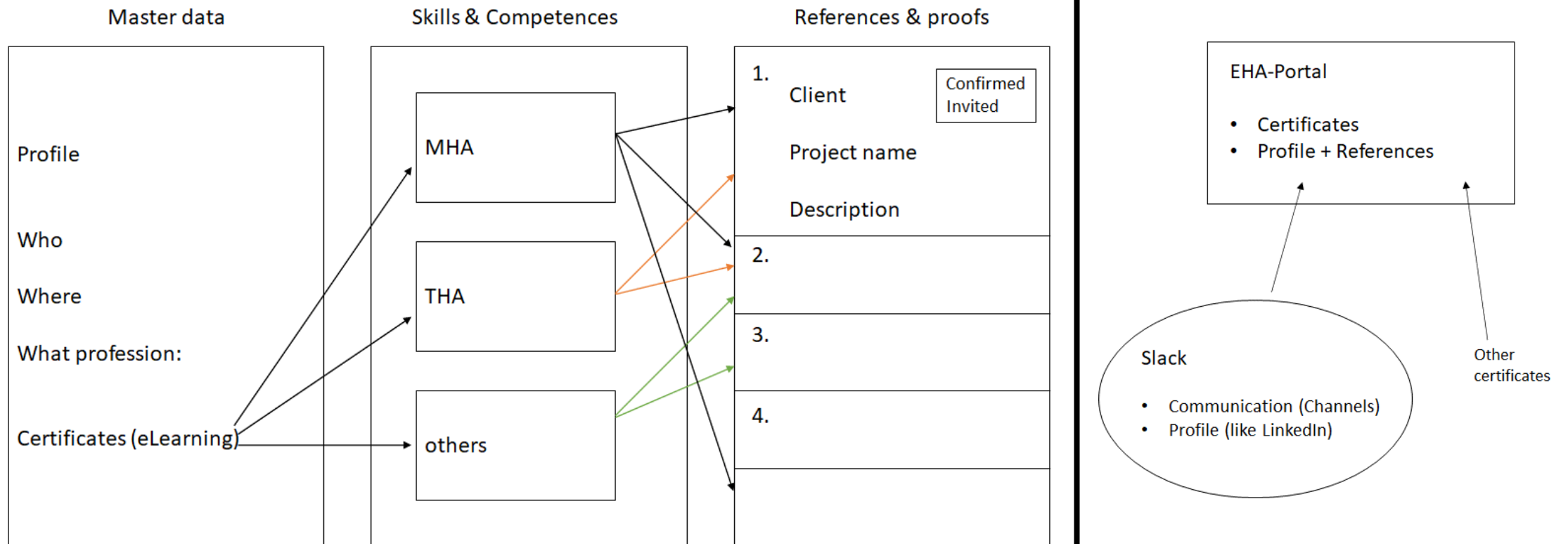
Level of detail

Surveys required by  
Architectural Conservation

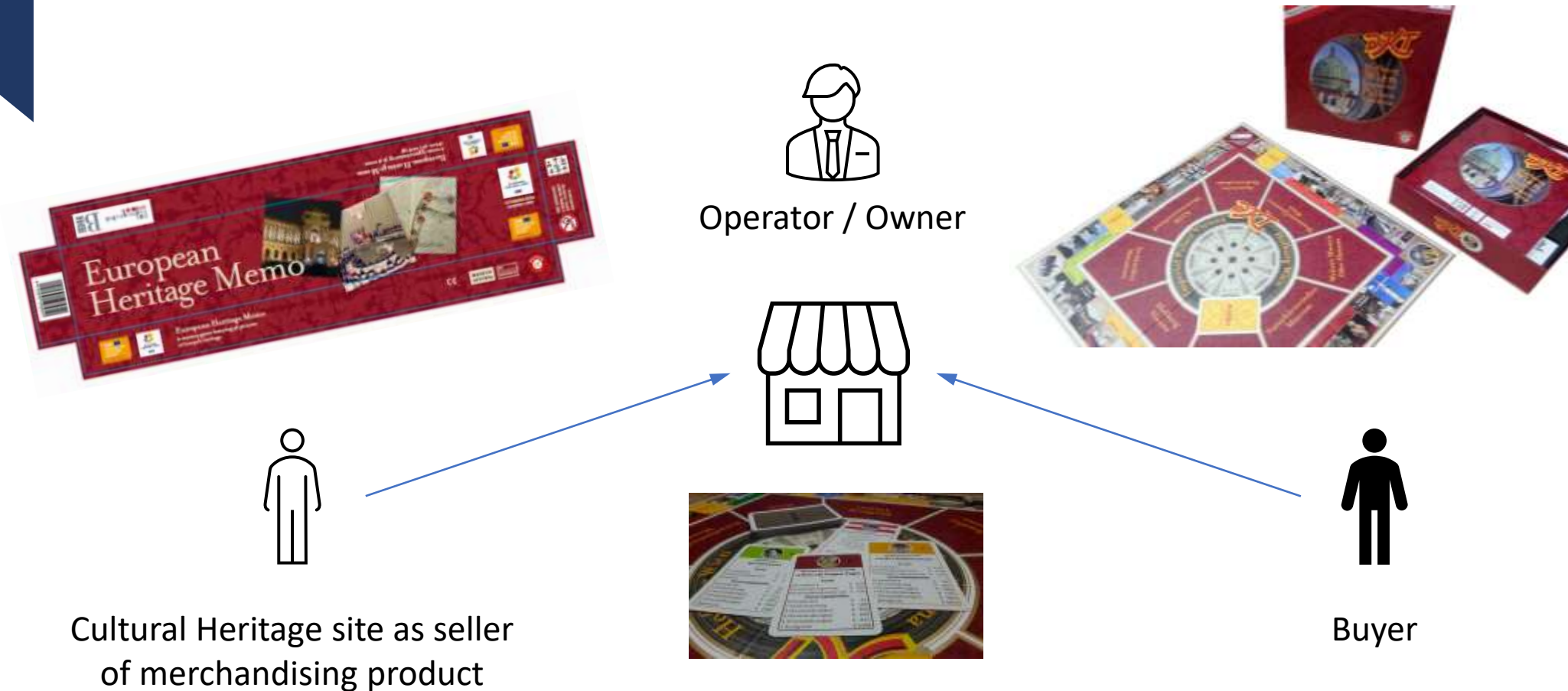
# BIM for Cultural Heritage / BIMherit



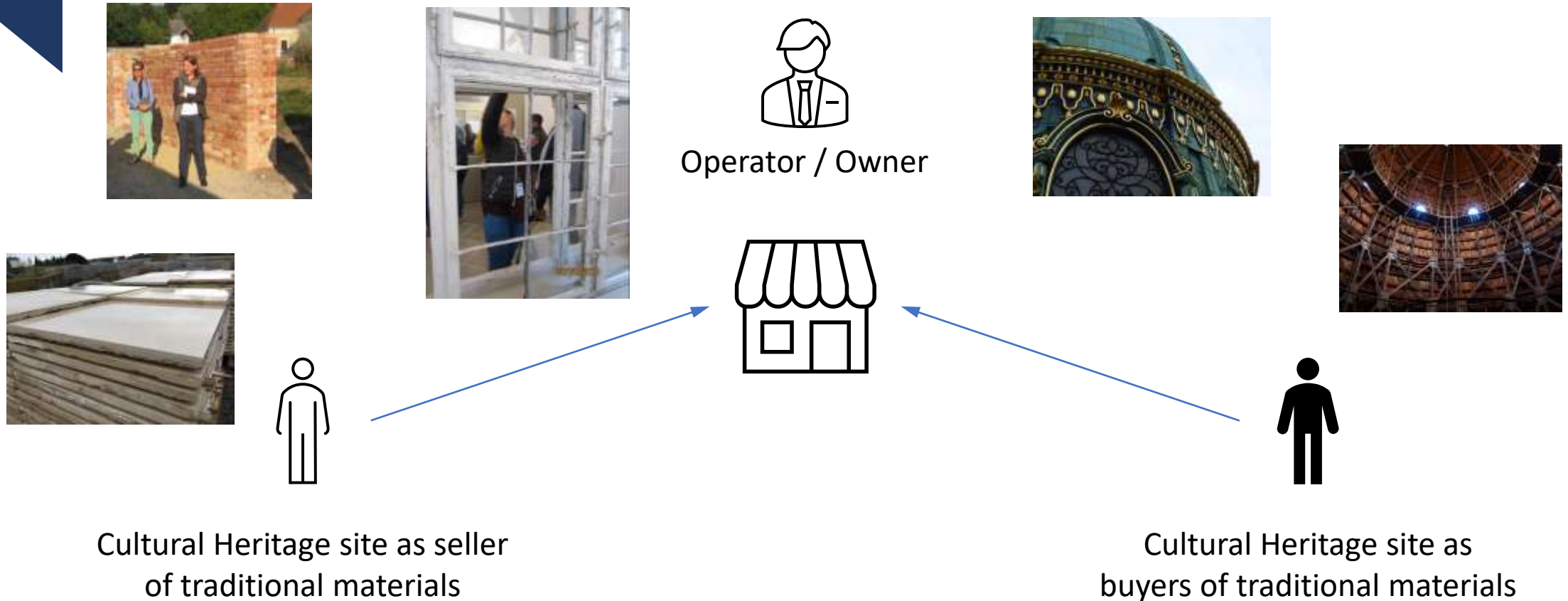
# Expert pool / INCREAS

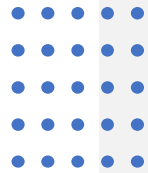





# Online Market places Small Cultural Heritage sites / INCREAS



# Online Market places Traditional Materials / INCREAS





# Virtual training of manual craft work – Theory

# Virtual training of manual crafts work / VI-TRAIN (1)



# Virtual training of manual crafts work / VI-TRAIN (2)

Criteria	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Name	Craft activity with high physical intensity	Craft activities with existing	Craft activities – physical execution in different places	Craft activity with chemical processes	Craft activity with dexterity
Pre-recording?	Possible	Possible	Preferred	Possible	Possible
Workpiece in real needed?	Yes	No	Yes	No	No
Tool in real needed?	Yes	Yes, but no real welding head	Yes	No?	No
Training in real time?	Not required	Not required	No	Not required	Not required
<i>Preconditions</i>					
Video	Yes	Yes	Yes	Yes	Yes
Audio	Yes	Yes	Yes	Yes	Yes
Simulation work progress	No	Yes	No	Yes	No
VR/AR Glasses	Yes	Yes	No	Yes	Yes
Motion capture gloves	Yes	No	No	Yes	Yes
Motion capture suits	Yes	No	No	No	No
Artificial Intelligence	No	Yes	No	Yes	No
Examples	Forging of window fittings	Welding on a flange - simulation	Welding on a flange - real	Slaking lime at construction site	Plastering a wall





# Virtual building damage identification – Theory

# Virtual building damage identification – Theory / VI-TRAIN

- Other presentation

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# THANK YOU FOR YOUR ATTENTION!



[www.increas.eu](http://www.increas.eu)

<https://www.projektwelt-burghauptmannschaft.eu/en/event/flip-1-increas>



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Pilot project of the EU Commission



Erasmus+ project



Co-funded by the  
European Union

