

Accessibilità e interoperabilità delle risorse culturali digitalizzate

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Università di Ferrara



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VISIONI

Conferenza GARR 2022
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(...)

Our cultural heritage is an intrinsic part of our shared European values and cultural diversity which are the foundation of our European identity.

*This is why we need to preserve it. And in order to preserve it, we need to help **ensure that our European heritage is fully embedded in the Digital Decade.***

Less than 20% of the collections at our museums, galleries or libraries are digitised.

The situation is even more dramatic for sites and monuments.

At the same time, these treasures are increasingly exposed to natural and man-made risks: from the fire of the cathedral of Notre-Dame in Paris, to the regular flooding of Venice, or vandalism in the Modern Theatre in Sofia.

(...)

By 2030, we want all monuments and sites at risk, and at least 50% of the most visited ones, to be digitised in 3D.

(...)

I want a digital twin of Notre Dame, for preserving it, for re-using it. In video-games, in education, in research, in tourism.

*Thierry Breton
How digital will help us preserve our cultural heritage
Statement, 10 Novembre 2021*



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Brussels, 10.11.2021
C(2021) 7953 final

COMMISSION RECOMMENDATION
of 10.11.2021
on a common European data space for cultural heritage

EN

EN

A COMMON EUROPEAN DATA SPACE FOR CULTURAL HERITAGE

COMMISSION RECOMMENDATION OF 10.11.2021

Strategie di digitalizzazione per il Patrimonio Culturale

- **Conservazione e tutela**
dei beni e dell'identità culturale
- **Accessibilità e condivisione**
di tutte le componenti del patrimonio
(tangibile, intangibile, naturale)
- **Opportunità e sviluppo**
fattori economici e di crescita



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COMMISSION RECOMMENDATION OF 10.11.2021

Principi | Obiettivi | Priorità

Strategia di digitalizzazione basata sui
"FAIR principles"

Findable / Accessible / Interoperable / Reusable

Creazione delle **strutture** e delle **infrastrutture**
che rendano FAIR le risorse digitali
> **Data Space comune Europeo**

Sviluppo delle **tecnologie 3D**

Struttura semantica e interoperabilità delle
risorse digitali

Priorità dei siti del patrimonio a rischio o più
vulnerabili

Brussels, 10.11.2021
C(2021) 7953 final

COMMISSION RECOMMENDATION

of 10.11.2021

on a common

ANNEX I

Indicative targets for content contribution to Europeana and the data space by 2030 per Member State¹

	A	B	C	D	E	F
	Number of records on 1 February 2021	Number of high quality records ² on 1 February 2021	New high quality records by 2030	Total number of records by 2030 [= A+C]	Total number of high quality records by 2030 ³ [=B+C]	3D digital assets by 2030 ⁴
Austria	2.372.357	1.106.942	1.002.892	3.375.249	2.109.834	401.157
Belgium	2.499.646	2.247.432	1.215.817	3.715.463	3.463.249	486.327
Bulgaria	94.447	62.647	329.454	423.901	392.101	131.782
Croatia	67.357	5.456	235.877	303.234	241.332	94.351
Cyprus	30.959	1.858	71.466	102.425	73.324	28.586
Czechia	881.263	369.602	889.329	1.770.592	1.258.931	355.732
Denmark	1.032.422	662.712	676.884	1.709.306	1.339.596	270.754
Estonia	648.205	486.024	99.825	748.030	585.849	39.930
Finland	1.093.297	960.899	548.428	1.641.725	1.509.327	219.371
France	3.860.232	1.779.567	6.381.064	10.241.296	8.160.631	2.552.436
Germany	5.536.786	4.107.742	8.924.266	14.461.052	13.032.008	3.569.707
Greece	661.593	383.327	642.175	1.303.768	1.025.502	256.870
Hungary	732.033	571.425	637.732	1.369.765	1.209.157	255.093
Ireland	86.765	44.424	856.780	943.545	901.204	342.712
Italy	2.150.207	687.421	5.119.900	7.270.107	5.807.321	2.047.960
Latvia	128.505	113.341	117.705	246.210	231.046	47.082
Lithuania	224.359	182.337	209.875	434.234	392.212	83.950
Luxembourg	65.600	1.325	145.567	211.167	146.893	58.227
Malta	50.310	1.006	46.013	96.323	47.019	18.405
Netherlands	9.126.499	7.554.003	1.992.463	11.118.962	9.546.466	796.985
Poland	3.040.221	936.996	2.477.819	5.518.040	3.414.815	991.127
Portugal	203.044	138.963	727.333	930.377	866.297	290.933
Romania	135.213	84.549	1.209.889	1.345.102	1.294.438	483.956
Slovakia	15.106	453	341.636	356.742	342.089	136.654
Slovenia	598.310	382.081	166.799	765.109	548.880	66.720
Spain	2.960.596	1.228.351	3.851.622	6.812.218	5.079.973	1.540.649
Sweden	4.307.321	3.047.430	1.098.975	5.406.296	4.146.404	439.590
EU 27	42.602.653	27.148.311	40.017.586	82.620.239	67.165.896	16.007.034

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DIGITALIZZAZIONE 3D DEL PATRIMONIO CULTURALE

Entro il 2030 digitalizzazione 3D:

- di tutti i monumenti e i siti a rischio
- del 50% dei monumenti, edifici e siti più visitati

Entro il 2025 realizzazione del **15%** degli obiettivi del 2030

2.401.055 entro il 2025 (307.194 in Italia)

16.007.034 entro il 2030 (2.047.960 in Italia)

Questioni aperte

Raggiungibilità degli obiettivi

tempi e costi della digitalizzazione 3D

Dimensionamento degli obiettivi

dimensioni e caratteristiche del patrimonio culturale nei Paesi Membri

Qualità delle risorse digitali 3D

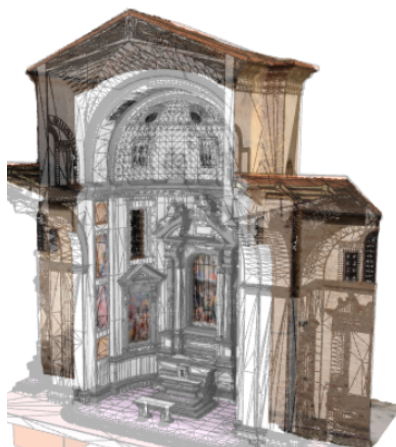
quali standard
quali parametri

Come misurare il soddisfacimento della
FAIRness

per chi, per quale utilizzo e in che modo le risorse digitali 3D devono essere
Findable / Accessible / Interoperable / Reusable

Accesso e gestione delle risorse digitali 3D

sviluppo e interoperabilità delle infrastrutture digitali



Ipotesi di lavoro

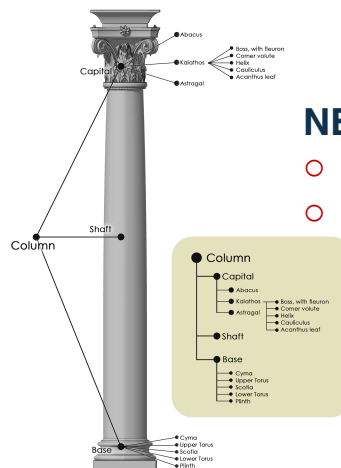
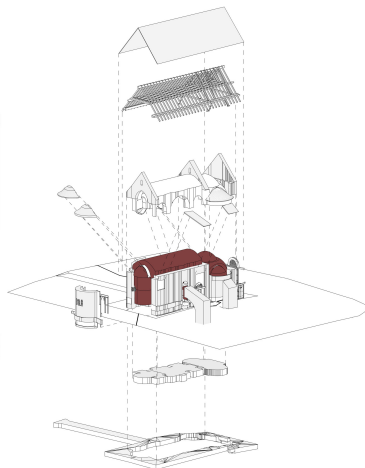
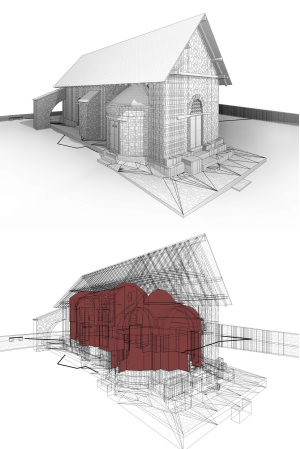
APPROCCIO MULTISCALARE

- Definizione di diversi livelli di standard di qualità delle risorse digitali 3D in relazione al loro impiego e finalità
 - Riutilizzo delle risorse già disponibili
 - Armonizzazione delle iniziative in corso
 - Standard comuni nel processo di digitalizzazione 3D



STRUTTURA SEMANTICA

- Modelli tridimensionali e piattaforme semantiche
- Sviluppo e condivisione delle ontologie



NETWORKING E DATA SPACE

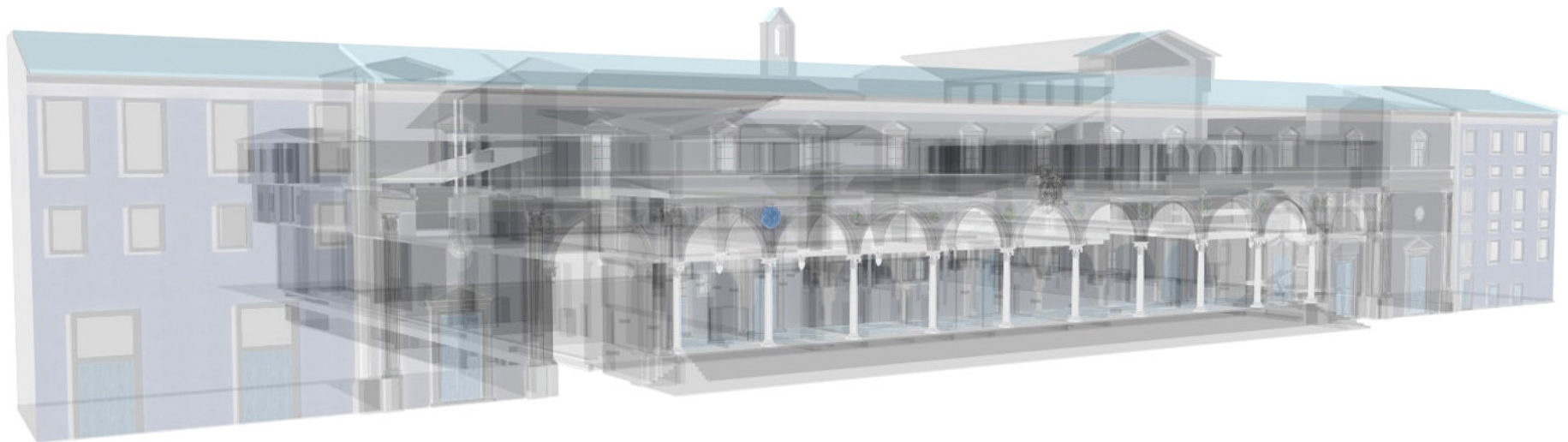
- Reti delle infrastrutture digitali
- Strumenti per la gestione, l'accessibilità e la fruizione in rete delle risorse digitali 3D (soluzioni cloud-based)

La ricerca

INTEROPERABILITÀ E INTERCONNESSIONI La piattaforma semantica INCEPTION

Il progetto **Inception_Inclusive Cultural Heritage in Europe through 3D semantic modelling** ha implementato una piattaforma semantica in cui è possibile interagire con ogni singola parte di un modello 3D (H2020 2015/2019)

Selezionando un elemento del modello o facendo una ricerca con il motore di ricerca della piattaforma, si accede ai metadati di quell'oggetto o ad altri presenti su altre piattaforme



The INCEPTION platform: aggregating and sharing semantic data on Cultural Heritage Buildings

INTEROPERABILITÀ E INTERCONNESSIONI

The diagram illustrates the interoperability and interconnections between three digital platforms:

- Inception Platform:** A 3D architectural model of the Istituzione degli Innocenti building. A green circle highlights a specific architectural element (a column capital).
- European Collections Platform:** A digital collection of cultural heritage. It shows a detailed view of the highlighted architectural element, identified as "Firenze - Ospedale degli Innocenti - Loggia - Tondo".
- Istituzione degli Innocenti Website:** A website dedicated to the Istituzione degli Innocenti. It features a large image of a child in a striped dress, which is linked to the architectural model in the Inception platform.

Red arrows indicate the flow of data and connections between the platforms, showing how information is shared and integrated across different digital environments.

IL PROGETTO 4CH

EUROPEAN COMPETENCE CENTRE FOR
THE CONSERVATION OF CULTURAL
HERITAGE

IL PROGETTO

Consorzio

19 Partners

13 Paesi

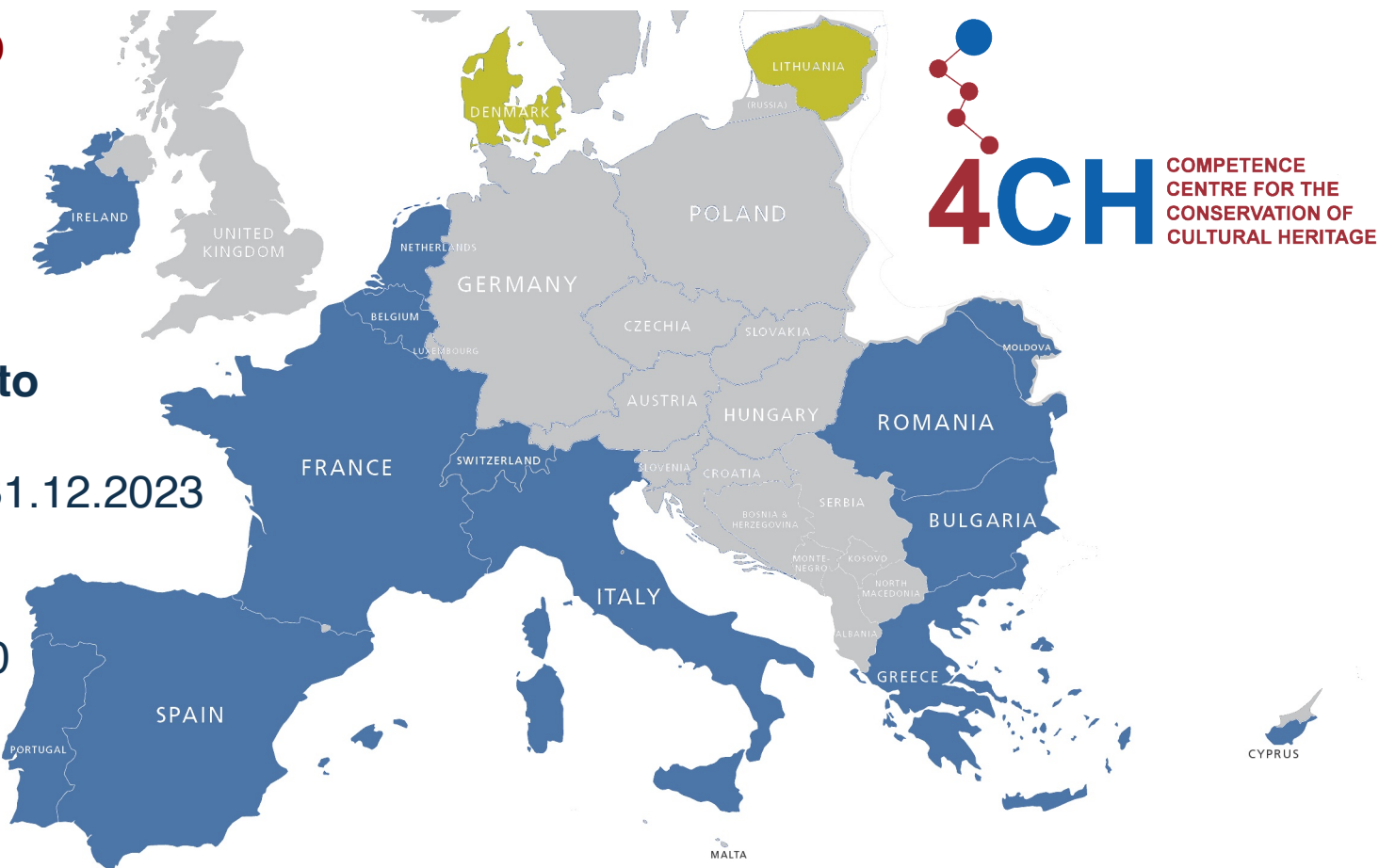
Durata progetto

3 anni

01.01.2021 > 31.12.2023

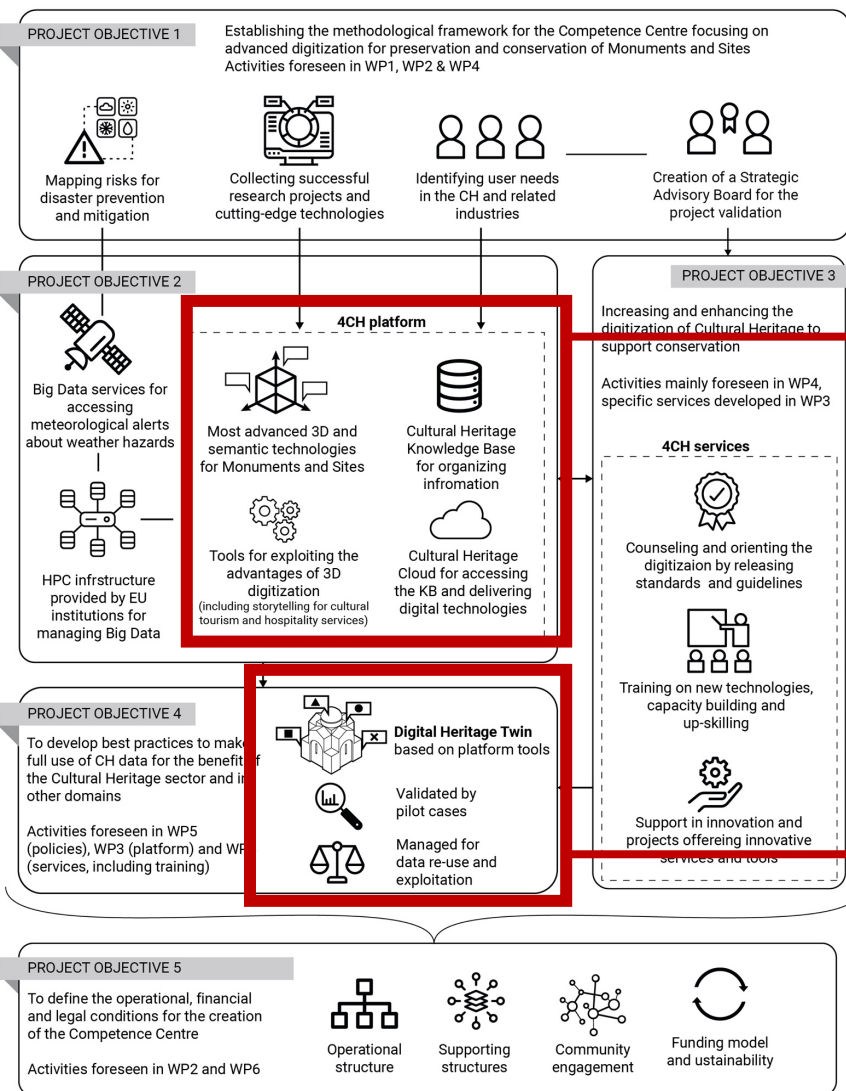
Budget

€ 3.000.000,00

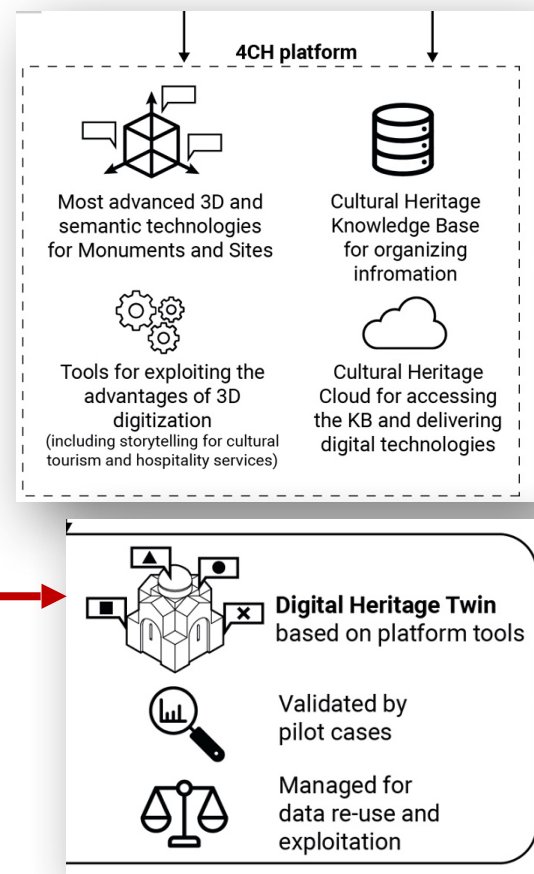


IL PROGETTO 4CH

EUROPEAN COMPETENCE CENTRE FOR THE CONSERVATION OF CULTURAL HERITAGE



La realizzazione di una piattaforma semantica e di uno spazio dati “cloud based” sono tra gli obiettivi strategici nella costruzione del Competence Centre



4CH COMPETENCE CENTRE FOR THE CONSERVATION OF CULTURAL HERITAGE

The diagram illustrates the governance structure of CH4E, organized into three levels:

- 1st Level - Governance:**
 - European Commission:** Represented by the EU flag icon.
 - CC's Governing Board:** Includes **Founders** and **Members**.
 - Strategic Advisory Board (started by Promoters):** Represented by an icon of three people.
- 2nd Level - National Network:**
 - CC's operational structure:**
 - Executive Committee:** Represented by three people icons.
 - CH Sciences and Technologies Dept.:** Represented by a building icon.
 - ICTs and 3D Technology Dept.:** Represented by a cube and arrows icon.
 - Training and Education Dept.:** Represented by a person at a screen icon.
 - Policies and Strategies Dept.:** Represented by a document icon.
 - Financial Department Dept.:** Represented by a Euro symbol icon.
 - Other departments:** Represented by three dots.
 - Supporting structures:**
 - HPCC (physical) relying on Big Data Foundation:** Represented by a network icon.
 - CH Cloud (digital) based on INFN Cloud Structure:** Represented by a cloud icon.
- 3rd Level - National Community:**
 - National Coordination Centres:** Each includes **Thematic task forces** and a **National Advisory Board** (represented by two people icons).
 - for all EU member states:** Indicated by three dots.
- CH agencies, public and private institutions, professionals and SME, policy-makers, decision makers, educational and training institutions across Europe or Europe-linked:** Represented by a network icon at the bottom.

Accessibilità e interoperabilità delle risorse culturali digitalizzate

Informazioni, approfondimenti, contatti

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inception

<https://www.inceptionspinoff.com/>



4CH

COMPETENCE
CENTRE FOR THE
CONSERVATION OF
CULTURAL HERITAGE

<https://www.4ch-project.eu/>

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