COLOURS TOOL · PERCEIVE LEGACY

PERCEIVE Colour Knowledge Repository (CKR)

Platform for collecting, structuring and sharing colour resources.

Colour Heritage Data Repository | FAIR Cultural Heritage Data | Open Science Infrastructure | Digital Preservation | Interdisciplinary Research Platform

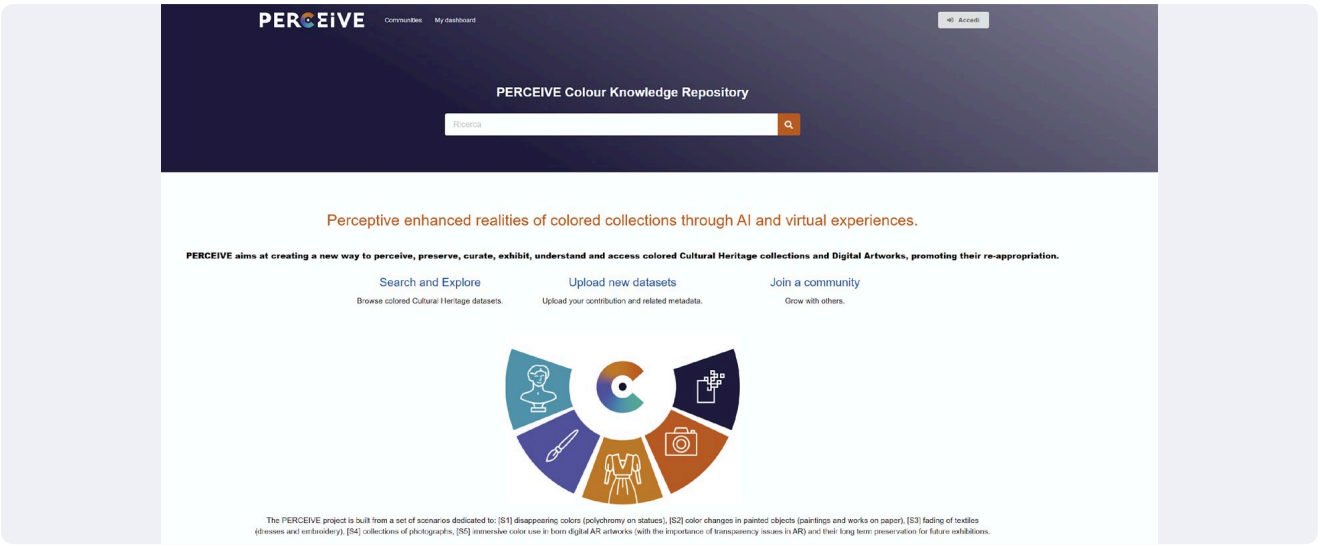


Fig. 1: Current homepage of the Colour Knowledge Repository.

OVERVIEW

The PERCEIVE Colour Knowledge Repository is an open data management platform designed to collect, structure, preserve, and openly share colour-related resources in cultural heritage. Developed within the PERCEIVE project and aligned with the objectives of the COLOURS project, CKR supports interdisciplinary research on colour in artworks ranging from ancient polychrome sculpture to paintings, textiles, and historical photography and film. The repository follows FAIR data principles supporting the full data lifecycle from acquisition to analysis and long-term preservation. It hosts 3D models, scientific datasets, high-resolution images, documentation, simulation outputs, and risk assessment data related to colour change and deterioration.

Built on the InvenioRDM framework developed by CERN, CKR ensures robust data management, advanced metadata description, and integration with external research tools. Through federated cloud storage and REST APIs, the platform enables secure, distributed access and interoperability with other digital heritage services, including PERCEIVE and future Cultural Heritage Cloud infrastructures.

Repository access: https://perceive-data.iesl.forth.gr

KEY FEATURES

- FAIR-compliant data management supporting the full data lifecycle
- Storage of heterogeneous resources (3D models, datasets, images, texts, simulations)
- Federated cloud storage for decentralized and secure data handling
- Advanced metadata schema describing acquisition, processing, and analytical methods
- Built on InvenioRDM for scalable, research-grade repository management
- REST API for interoperability and automation
- Batch uploads and metadata-only records linking to external datasets
- Community-based collaboration spaces
- Role-based access control and GDPR-compliant security framework

Funded by the European Union under Grant Agreement No 101233413. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or the European Research Executive Agency. Neither the European Union nor the granting authority can be held responsible for them. COLOURS is part of the ECCCH initiative, coordinated by the ECHOES project.

IN PRACTICE: A USER STORY

Sofia is a conservation scientist studying colour fading in 18th-century dyed textiles. Her research team has produced spectral measurements, high-resolution macro images, and predictive models simulating light-induced fading.

She logs into the PERCEIVE Colour Knowledge Repository and creates a new dataset entry. Using the metadata form, she documents acquisition methods, instrumentation details, environmental conditions, and analytical techniques used. She uploads the spectral datasets, 3D scans of the textile surface, and simulation outputs. For large files stored on an institutional server, she creates metadata-only records linked externally.

Sofia assigns her dataset to a community focused on colour fading in historical garments. Within this space, collaborators, including museum curators and exhibition designers, can access shared resources and discuss preventive conservation strategies.

Meanwhile, Marco, an art historian researching ancient polychromy, searches the repository using keywords and filters related to “multiband imaging” and “Egyptian blue.” Advanced search tools allow him to refine results by technique, object type, and deterioration phenomenon. He downloads relevant datasets and integrates them into his comparative study.

Each dataset in CKR receives a persistent identifier, ensuring citability and long-term traceability. Privacy settings allow contributors to manage access levels, from restricted research groups to fully open access.

Through CKR, Sofia and Marco are not only storing data, they are contributing to a shared, interoperable knowledge ecosystem. The repository transforms dispersed colour-related research into a structured, collaborative infrastructure that supports innovation, transparency, and open science in heritage conservation.

WHY ON THE CULTURAL HERITAGE CLOUD?

Integrating CKR within the ECCCH ensures long-term sustainability, standardization, and European-wide accessibility. CKR’s FAIR-compliant architecture, REST API, and federated storage model align technically with ECCCH principles of distributed yet interoperable infrastructures. By hosting datasets, metadata, and simulation outputs within a shared cloud ecosystem, CKR enables seamless interaction with visualization tools (e.g., Web3D platforms), restoration services, and analytical pipelines.

WHO CAN USE IT

CKR serves a broad interdisciplinary community including conservation scientists, heritage chemists, art historians, archaeologists, museum curators, exhibition designers, and digital heritage professionals. It supports researchers studying ancient polychromy, painting degradation, textile fading, and historical photography colour processes.

Within ECCCH, CKR functions as a reference knowledge base for colour science, facilitating collaboration among institutions and promoting open science practices. Its community-based structure encourages thematic groups, such as polychrome sculpture, light-sensitive objects, textiles, and historical films, fostering cross-domain innovation in heritage preservation.

EXPECTED TIMELINE

Now Live
Operational, data ingestion

Beta 2026–27
ECCCH integration and visualisation

Release 2028
Production-ready on the ECCCH

CKR has been established within the PERCEIVE framework and is currently operational as a research data repository. Under the COLOURS project, further development will enhance interoperability with additional analytical and visualization tools. An ongoing Alpha phase supports active dataset ingestion and community creation. A Beta phase (2026–2027) will focus on expanded ECCCH integration, improved data visualization modules, and enhanced API-based interoperability. By 2028, CKR is expected to operate as a fully cloud-integrated, production-ready European knowledge infrastructure for colour in cultural heritage.

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All COLOURS tools:
colours-eccch.eu/tools

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