

## IMPACT

V4Design promotes the re-use of visual and textual content, such as documentaries, paintings and their critiques so as to be re-purposed and be used for the inspiration of architecture and video game (VR) designing.

V4Design will achieve the following impacts:

- Re-use and re-purpose the vast troves of existing multimedia content.
- Improve and facilitate the inspiration and design process.
- Assist architects, designers and video game creators to have a greater impact with their work.
- Produce enriched dynamic 3D models with geometric, semantic and textual knowledge.
- Enable architecture and video game design in real and VR environments

## EXPECTED RESULTS AND TECHNOLOGIES

The final outcome of V4Design will include:

- The final V4Design solution which will be offered as a plug-in for the Rhino platform and as back-end modular platform for video game design.
- Research modules and services (e.g. localization of objects and buildings, extraction of architectural 3D models, extraction of aesthetic concepts and emotional affect, embedding of semantic knowledge in dynamic 3D models, etc.), under commercial, open source or freeware licenses.

## Key Technologies

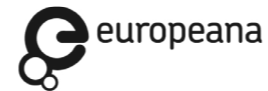
V4Design will utilize and advance the following technologies:

- Web data mining for crawling visual and textual data.
- Aesthetics extraction and texture proposals.
- Language understanding and text generation.
- 3D reconstruction, 3D modeling and 3D linking.
- Semantic knowledge representation and reasoning.

## PROJECT CONSORTIUM



HERZOG & DE MEURON



## CONTACT US

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**V4Design: Visual and textual content re-purposing FOR (4) architecture, Design and virtual reality games**



In a world where visual and textual data are in abundance, V4Design aims at developing novel technologies and solutions to facilitate multimedia content re-use and re-purposing by semantically enriching it and transforming it in a 3D representation so as to inspire and support the design, architecture, as well as 3D and VR game industries.



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## CHALLENGES AND OVERALL GOAL

### Challenges

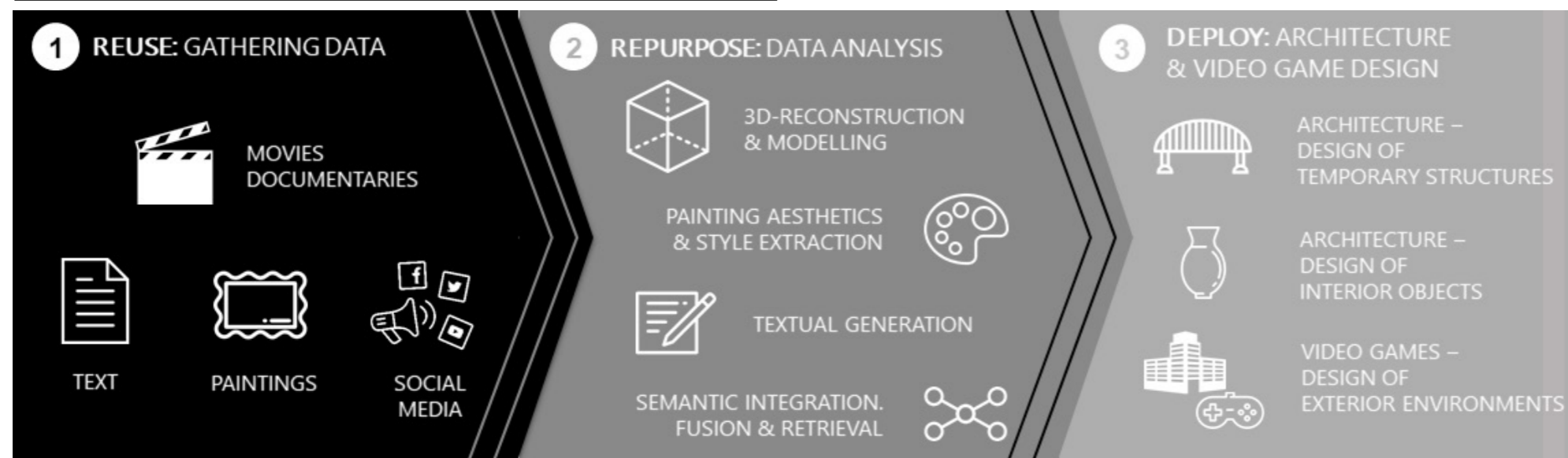
- Vast troves of visual and textual data, which are of great interest to architects and video game designers, such as paintings, video footage, documentaries, movies, reviews or catalogues and artworks, are currently difficult to be reused by the creative industries.
- Works of art can serve as sources of inspiration and assist the design process towards innovative designs, new concepts, or period-focused structures, among others.

### Overall Goal

The goal of V4Design is to:

- (1) re-use textual and visual content** by enabling its efficient collection from content providers and crawling from public web resources;
- (2) re-purpose of content** by developing novel approaches for 3D reconstruction and modelling, buildings and objects localization, aesthetics and style extraction, generation of 3D objects enhanced with semantics and explanatory text descriptions and
- (3) deploy innovative architecture, design and VR game authoring applications.**

## PROJECT ARCHITECTURE



## USE CASE 1

### Architectural design related to existing or historical buildings and sites and their environments

**Users:** Architects, designers and artists

#### Scenario 1: Outdoor design for an historic landscape in Delphi, Greece

**Application:** 3D models of buildings, debris, and the surrounding landscape will be extracted to support the design process of large objects (pavilions, land art, interior architecture etc.).

#### Scenario 2: Concept design for a new building in central Berlin, Germany

**Application:** 3D models, images and maps of the immediate vicinity and reference models of similar size and style, will be used to study various design options.



## USE CASE 2

### Architectural design related to artworks, historic or stylistic elements

**Users:** Architects, interior architects and product designers

**Application:** 3D-models inspired by artworks of a specific style, historic spatial elements and arrangements will be easily accessed for the design, modelling and actual fabrication of novel collections of small scale industrial objects (e.g. furniture), with reference to these styles.

## USE CASE 3

### Design of virtual environments, related to TV series and VR video games architectural design, related to artworks, historic or stylistic elements

**Users:** Visual content producers (film, TV industries)

**Application:** 3D-models of interior elements and scenes will be extracted from existing video contents to build interactive media and VR games with the same assets, scenes and characters.

## USE CASE 4

### Design of virtual environments, related to actual news for VR (re-) living the date

**Users:** Worldwide users that want to live or re-live news events in a VR environment

**Application:** Selected parts of past and more recent news coverage which will be transformed to 3D and VR environment that will allow users to have a more realistic information experience.