

euteknos
Rete Innovativa Regionale



Cofinanziato
dall'Unione europea



REGIONE DEL VENETO



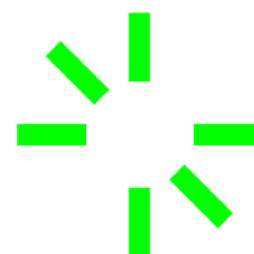
RETE INNOVATIVA REGIONALE

Euteknos

the oldest Cluster of the future



InnovatiVE
RETI INNOVATIVE REGIONALI
VENETO



Cluster
Nazionale
**Made
in Italy**



**EUROPEAN CLUSTER
COLLABORATION PLATFORM**



About us

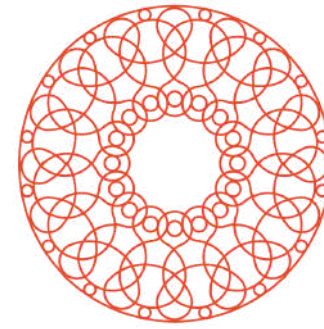
Organismo
di Formazione
accreditato
dalla Regione
del Veneto



Coop.Services is a training organization accredited by the Veneto Region for higher and continuous education, based in Este (PD). Founded in 1990, Coop.Services has always supported young people, professionals, and businesses by offering training courses and consultancy services aimed at professional growth and business innovation.

Over the years, before the creation of the Euteknos Cluster, numerous training courses focused on restoration were developed and delivered. From this experience, the Euteknos Cluster was born, with Coop.Services as the leader, evolving the focus from the valorization of the past to the present and the future.

Today, Coop.Services' mission is to bridge the gap between labor demand and supply, continuously adapting to market changes. Our training is based on modern, effective methodologies designed to rapidly impart knowledge and practical skills that can be immediately applied in the workforce, with a strong commitment to enhancing the cross-functional competencies essential for the professional and personal growth of each worker.



About us

EUTEKNOS represents the new frontier of artistic manufacturing and craftsmanship in Veneto, embodying the region's cultural production system. It includes the creation of '*creative-driven*' products and services for a market where design is the distinguishing factor. Here, high-level craftsmanship acts as the link between the luxury market and sustainable, limited-edition collections, often designed by entrepreneurs and designers.

EUTEKNOS serves as a collaborative hub, bringing together artisanal businesses, universities, art academies, and public institutions. These groups join forces to develop economic initiatives that have a positive and sustainable impact on the region. In partnership with research centers, universities, and other Regional Innovative Networks (RIR)/Clusters, EUTEKNOS harnesses innovation and technical knowledge transfer, often tailored to the specific needs of RIRs.



Objectives

The main goal is to strengthen the **competitive advantage** of Veneto's artistic manufacturing companies, creating a network of **shared rules** and **aesthetic canons** capable of producing works of the highest cultural and aesthetic quality, formal and technical.

The other, more specific objectives are:

- Provide informational and operational support for coordinated actions, various initiatives, and research projects
- Interact with the Veneto Region and other public administrations
- Ensure active participation of network members in projects
- Facilitate access to new technologies
- Invest in "design" to restore the ability to propose decorations and ornaments aligned with emerging markets
- Promote "digital manufacturing," which combines the artistic value of the product with technological innovation



Services



- **Internationalization:** Support for the expansion into foreign markets for network businesses.
- **Communication and Marketing:** Strategic consulting for the promotion and enhancement of companies and their products.
- **Consulting on Funding Calls:** Assistance in the design, management, and reporting of funded projects.
- **Creation of Start-ups and Development of New Business Branches:** Support for creating and growing new entrepreneurial ventures.
- **Technical-Specialized Training:** Tailored training programs to update and enhance the skills of businesses.
- **Patents and Intellectual Property:** Consulting for the protection and enhancement of innovations.
- **Matchmaking:** Facilitating connections between businesses, research entities, and new partners to foster strategic collaborations.



The programme

Regarding the research projects developed by the Cluster through public funding, including **POR FESR and FSE+**, the main **areas of intervention** are:

- Decoration and industrial design
- Rapid prototyping and additive manufacturing
- Advanced sensor technology and traceability
- Surface treatments and new materials
- FabLab and KIBS for process and product innovation
- Internationalization of artistic products

The network therefore acts on the combination of the historical and cultural relevance of artistic productions, and the forms of innovation that address the aesthetic-functional updating of artefacts, the integration of digital technologies into traditional processes, the exploration of new product areas, and the creation of international production, information and commercial networks. The ultimate goal is to support the great experience of Veneto entrepreneurs and craftsmen by accompanying ancient knowledge step by step into the future.

Smart Specialisation Strategy (S3)

The Smart Specialization Strategy is the tool that, since 2014, regions and member countries of the European Union have been required to adopt **to identify objectives, priorities, and actions** that can maximize the effects of investments in research and innovation, focusing on concentrating resources on the specialized areas characteristic of each territory.

In this context, it requires all actors in the territory to collaborate to define development objectives that provide concrete responses to current challenges, in line with the goals proposed by the **2030 Agenda for Sustainable Development**, the **European Green Deal**, the **European Recovery Plan (Next Generation EU)**, and the related national (**PNRR**) and regional (**Veneto towards 2030**, **Veneto Sostenibile**, etc.) initiatives.

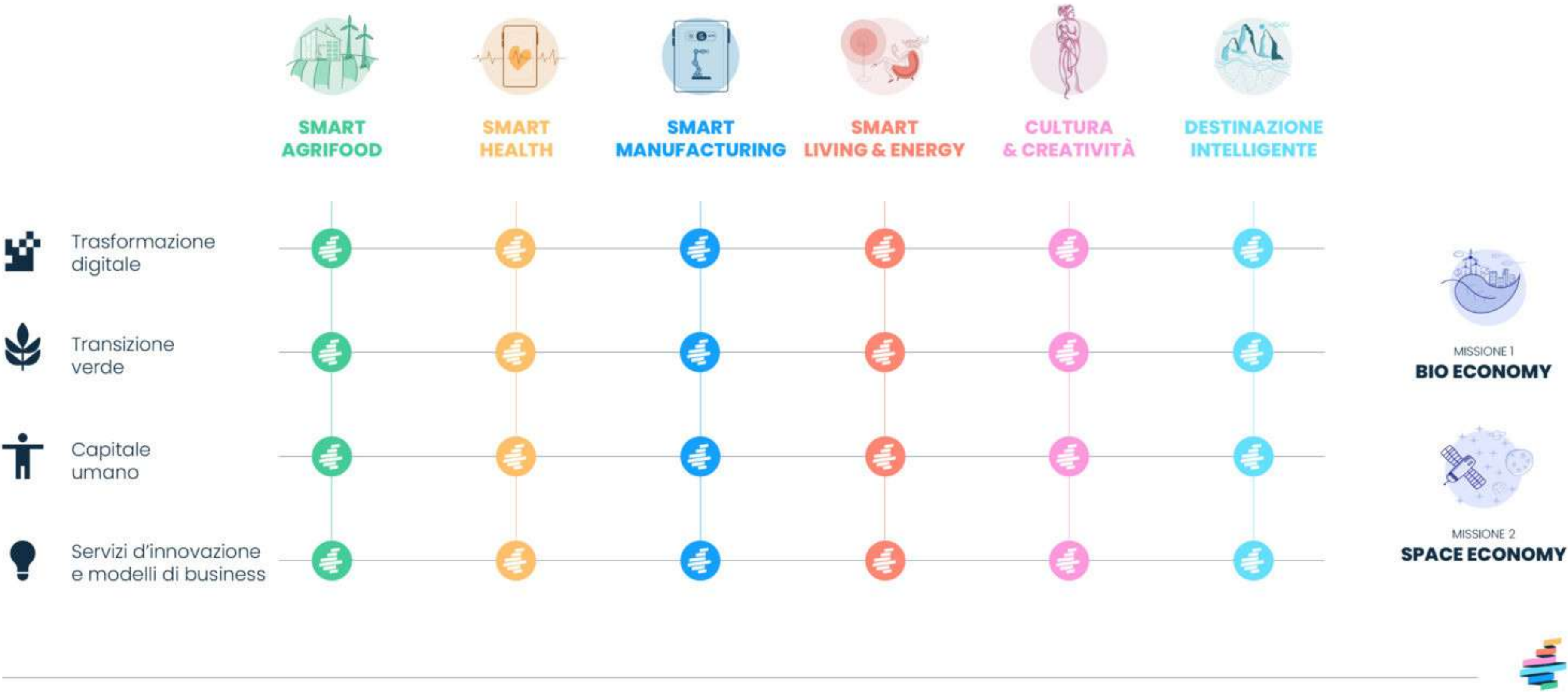
There are 6 areas of specialization:

1. SMART AGRIFOOD
2. SMART MANUFACTURING
3. SMART LIVING & ENERGY
4. SMART HEALTH
5. CULTURE AND CREATIVITY
6. SMART DESTINATION

The S3 definition process 2021-2027

The process that led to the updating of the Veneto S3 smart specialisation strategy entailed a series of activities implemented by the Region, with the ultimate aim of arriving at the identification and/or updating of priority areas and regional technological trajectories on which to focus the impact of policies and resources for innovation.

Smart Specialization Strategy



Traiettorie Strategia S3 – Cultura e Creatività



BIO
ECONOMY



SPACE
ECONOMY



TRASFORMAZIONE
DIGITALE



TRANSIZIONE
VERDE



CAPITALE
UMANO



SERVIZI D'INNOVAZIONE
E MODELLI DI BUSINESS

RICONOSCIBILITÀ E COMUNICABILITÀ DEL PRODOTTO

TECNOLOGIE PER IL CULTURAL HERITAGE

INNOVAZIONE E DIGITALIZZAZIONE NEI PROCESSI
DEL "MADE IN"

MODELLI DI BUSINESS E SERVIZI A VALORE AGGIUNTO

TECNOLOGIE PER IL DESIGN E LA PROTOTIPAZIONE
DEI PRODOTTI CREATIVI

TECNOLOGIE DIGITALI AVANZATE PER IL MERCATO
CREATIVO E CULTURALE

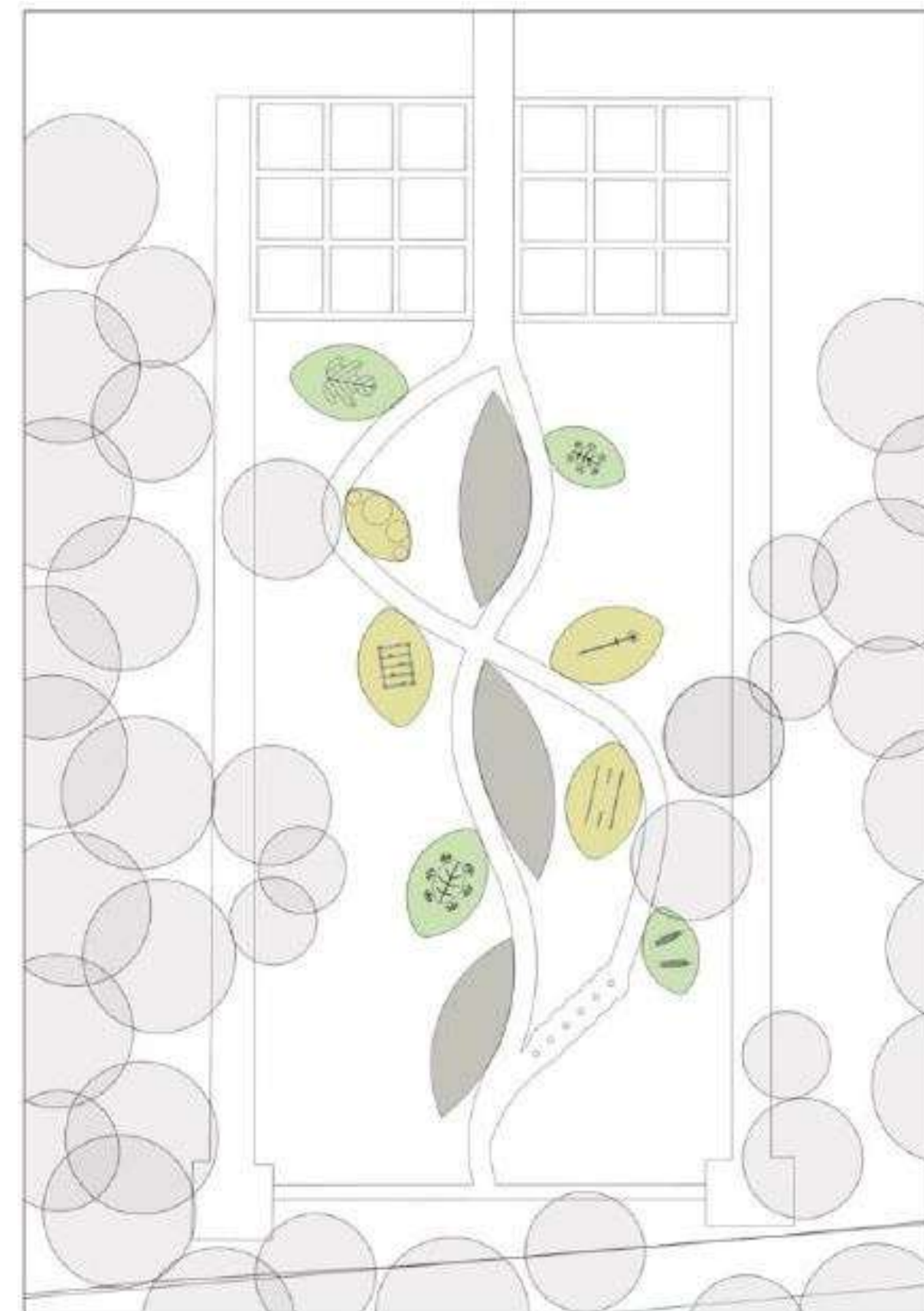
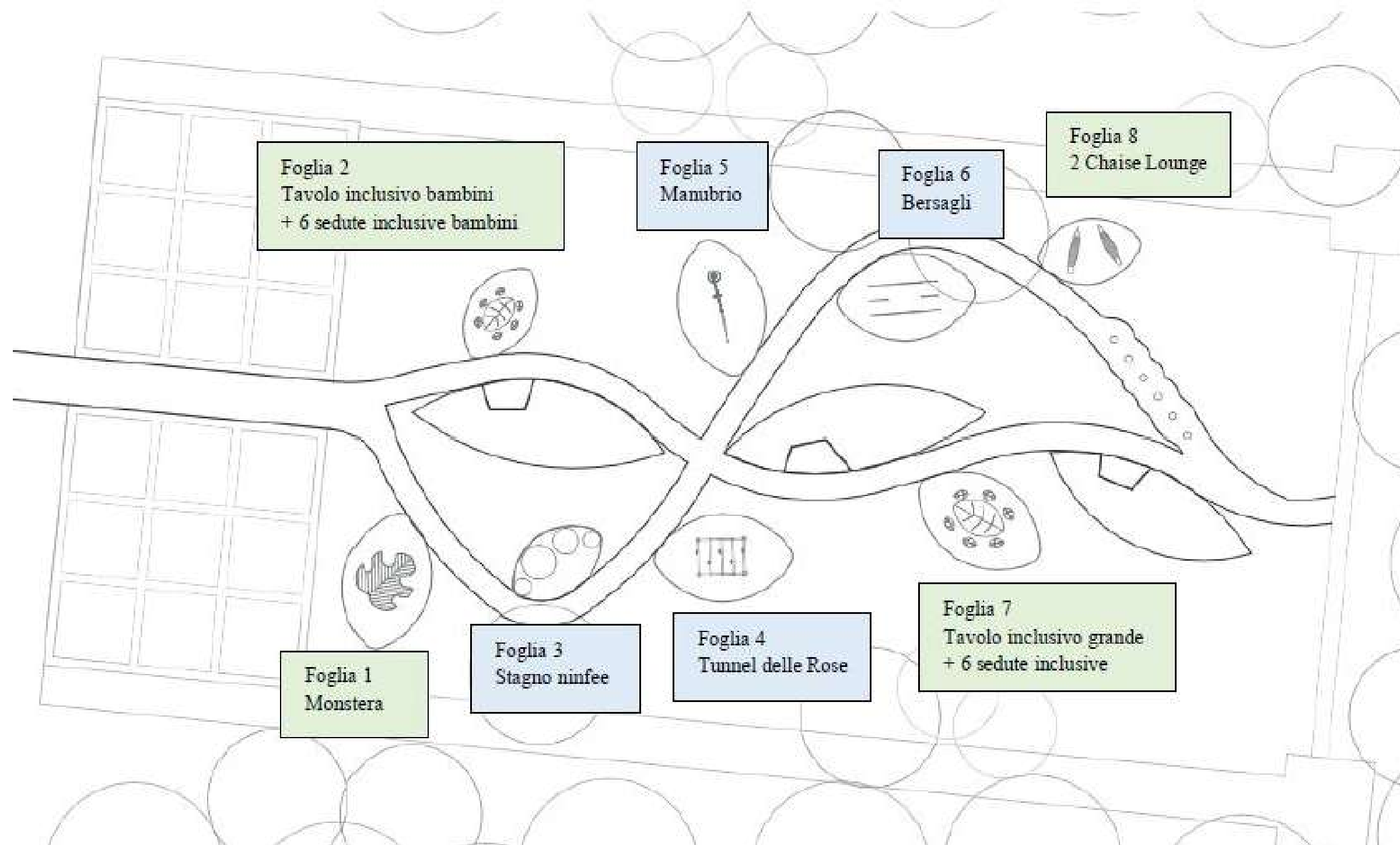
SVILUPPO DI STRUMENTI DIGITALI PER LA VALORIZZAZIONE,
FRUIZIONE E PROMOZIONE DEL SISTEMA CULTURALE
E CREATIVO





SHIP - Sustainable, Healthy and Inclusive furniture and games for Parks

ACTION 1.1.4 'Support to collaborative R&D activities for the development of new sustainable technologies, products and services' DGR n. 711 of 28 May 2019. The aim of the 'SHIP' project was to develop equipment and technologies for parks to encourage the implementation of actions and practices of environmental, social and cultural sustainability, considering the park no longer as a mere place for purely aesthetic and passive use, but as a space to build new educational models and actions aimed at the psychophysical and social wellbeing of citizens. Through participatory design, end users and stakeholders were involved in the design of the devices, the contextualisation and realisation of the project in the green zone, and the evaluation of the prototypes developed. The design of the pathway and the equipment were realised with the collaboration of the Interdepartmental **Research Centre HIT** '*Human Inspired Technology Research Centre*' of the **University of Padua** and the furniture manufacturer **MyWood Srl** (both partners of EUTEKNOS) and the **Municipality of Padua**.









D3Vero project



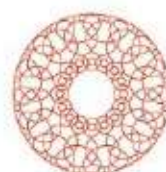
POR FESR 2014-2020, Asse 1. Azione 1.1.4

D3Vero: 3D printing in the artistic glass sector to relaunch and innovate

Project duration: 30 months

Start of the project: 09/09/2020

End of the project: 28/02/2023



eutekno



FOSCARINI



UNIVERSITÀ
DEGLI STUDI
DI PADOVA



Università
Ca' Foscari
Venezia



UNIVERSITÀ
di **VERONA**



D3vero project goals



- ❖ Relaunch and strengthen the competitive capacity of the artistic glass supply chain of Murano (Venezia) - *Regional excellence*
- ❖ Expand the commercial capabilities of Murano Glass brand and companies

WP – RI 1

Introduced AM molds into the production processes of Artistic Glass
Integrate, in a single process, glass and minerals

WP – RI 2

Design digital operating environment (System) to promote creativity, Creatives/Specialist interaction, feasibility checks, communication and marketing.

WP – SS 1

Implementation and tuning of the System through its use by experimental production
Use of the system for automatic profiling and self-learning.

D3vero - WP – RI1 goals

❖ Development of 3D printed geopolymer-based molds

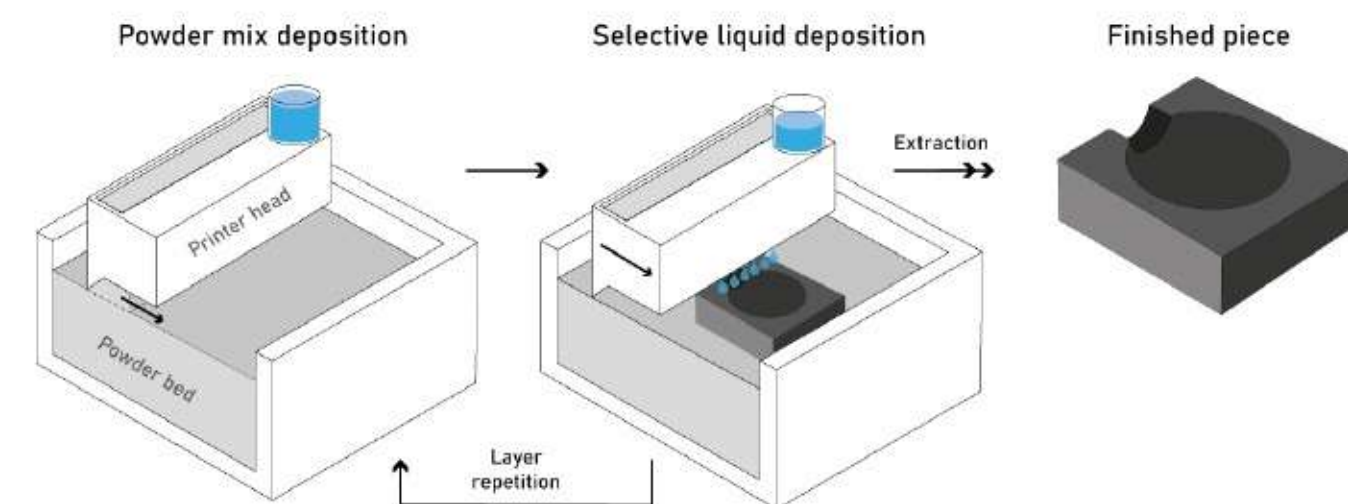
Pear wood mold

Over 50 uses
Medium cost

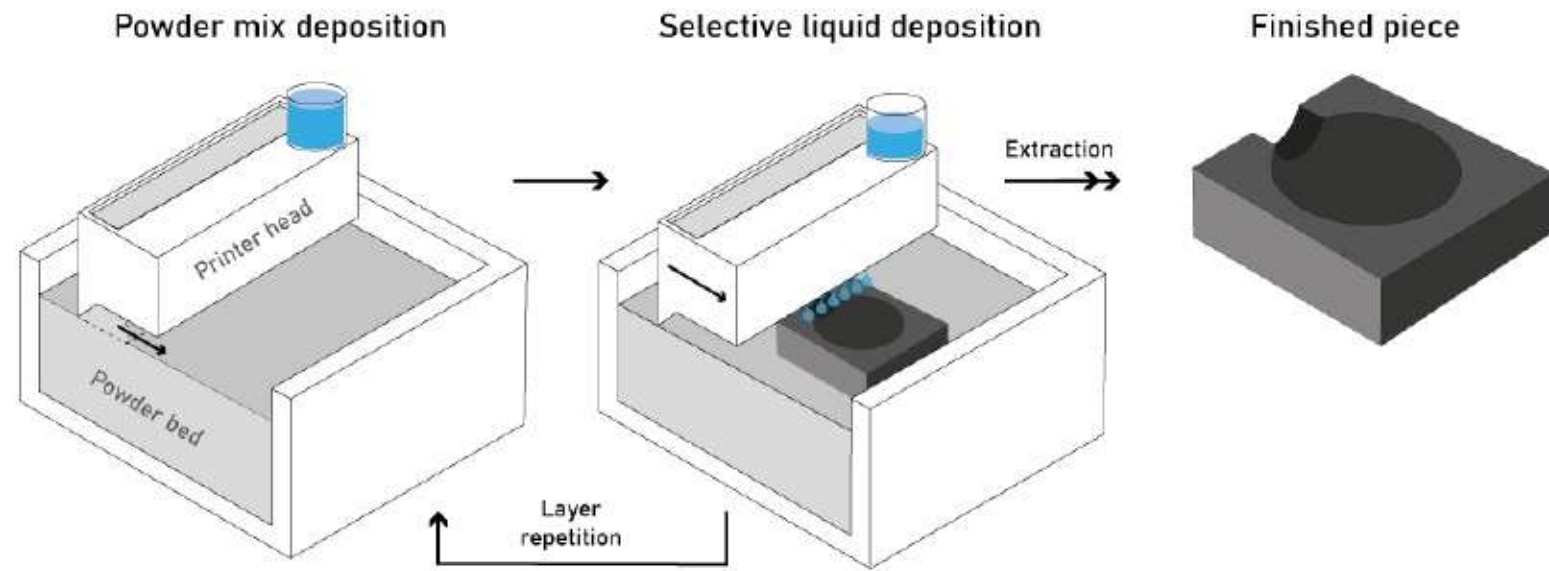


Metal mold

Over 500 uses
Very high cost



Large scale Binder Jetting



The fundamental process steps are:

1. Creation of the powder bed and the first layer
2. Selective deposition of the activation liquid
+ Immediate recoating of the printed layer
3. Recreation of the new layer of powder
4. Repetition of the cycle till the end of the part
5. Extraction and cleaning of the part



D3Vero formulations

Powder bed formulation

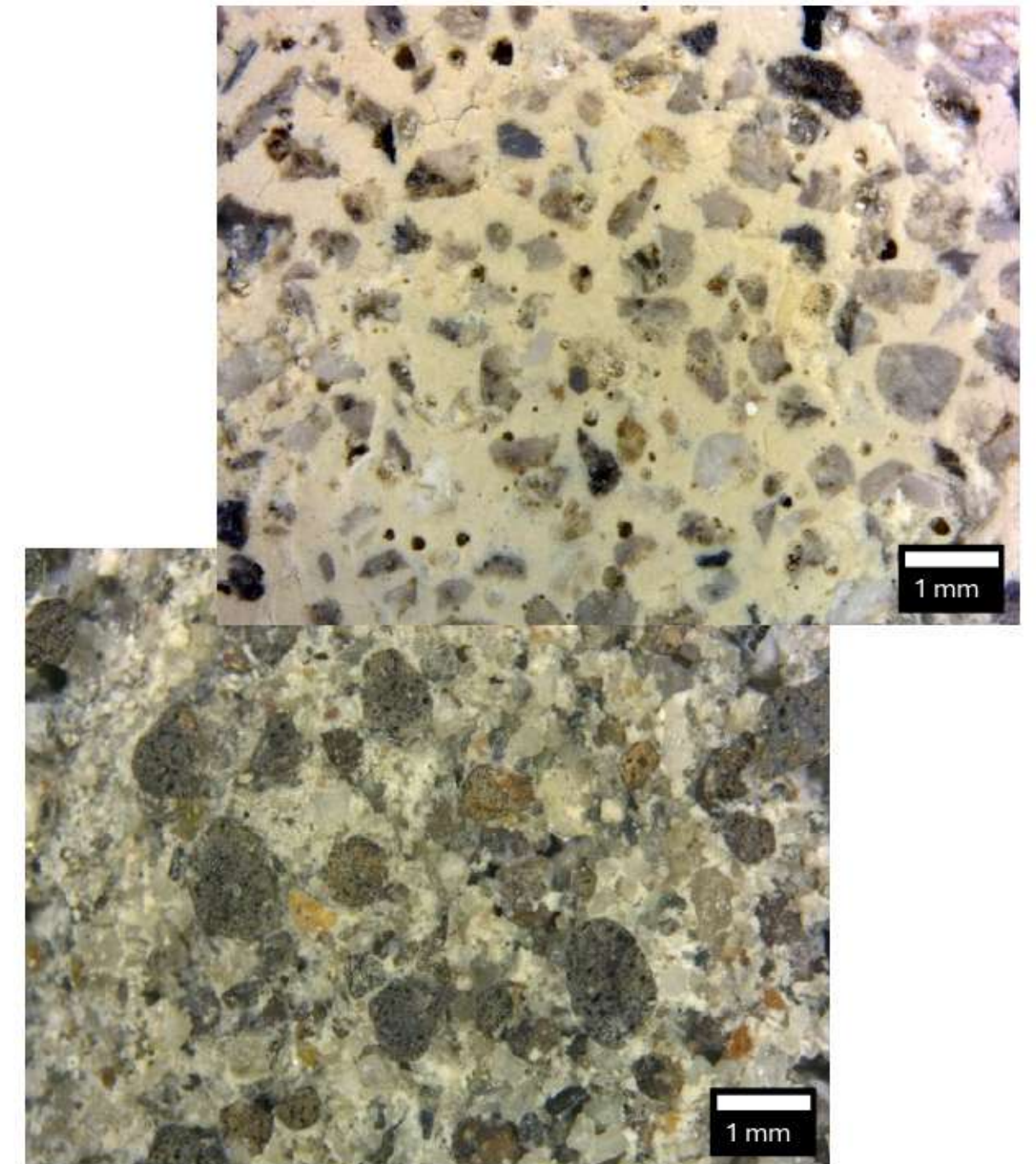
23 wt% -> reactive fine powder ($d_{50}=4\mu\text{m}$), *Metakaolin*

77 wt% -> coarse aggregates (100-600 μm), *chamotte and expanded clay*

Liquid binder selection

Commercial *Potassium silicate solutions* (MR1.6STD)

	Compressive strength [MPa]	Flexural strength [Mpa]	Geometric density [g/cc]	Total porosity [%]
K-23%	12.3 ± 0.73	3.8 ± 0.3	1.78 ± 0.05	25 ± 2
K-light	4.5 ± 0.6	1.7 ± 0.5	1.23 ± 0.01	48 ± 1



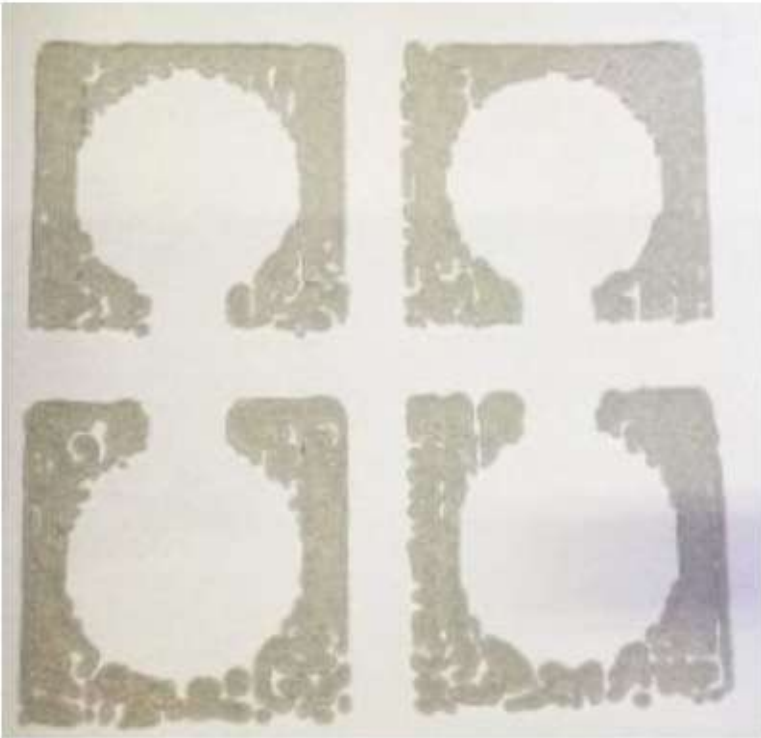
3D printing of molds

3D printing

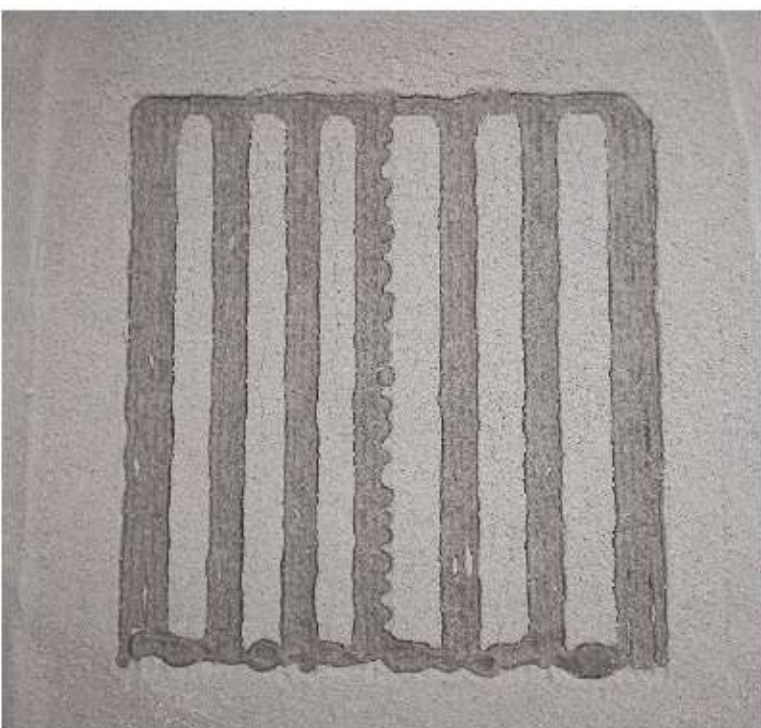


Post processing

Coating



**water-based
graphite
coating**



already used in the
glass factory

D3vero - WP – RI1 applications

❖ Type of production in artistic glassmaking factory

Blown glass

Lower temperature
Worked before insert into mold



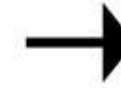
Suitable application

Cast glass

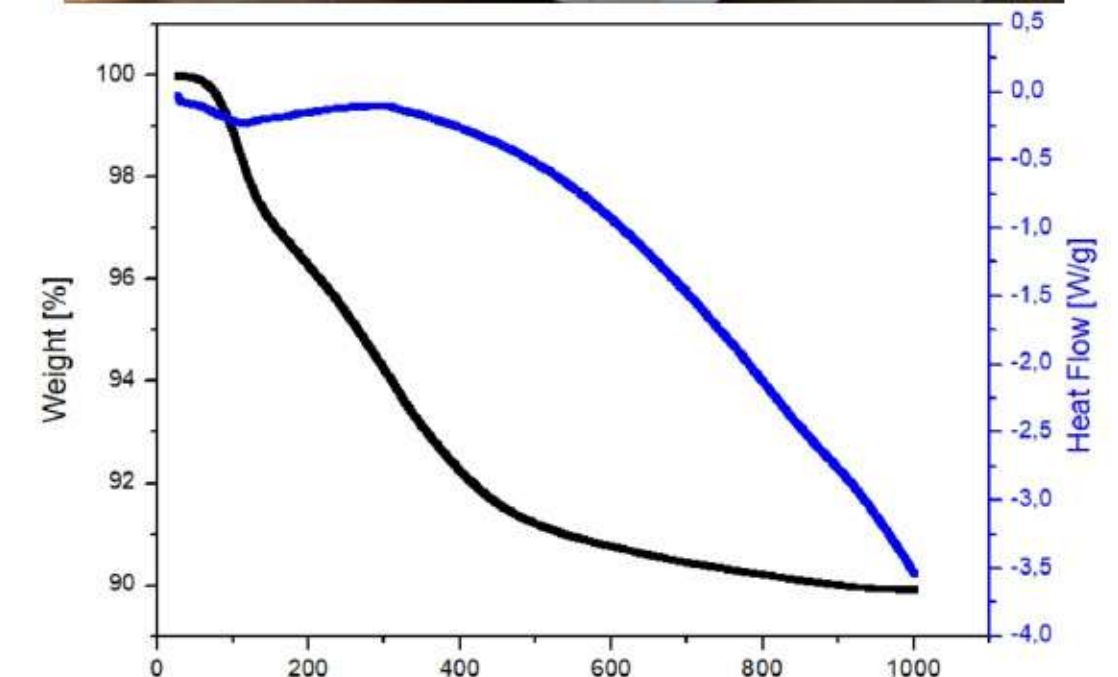
Very high temperature
Directly from the molten glass bath



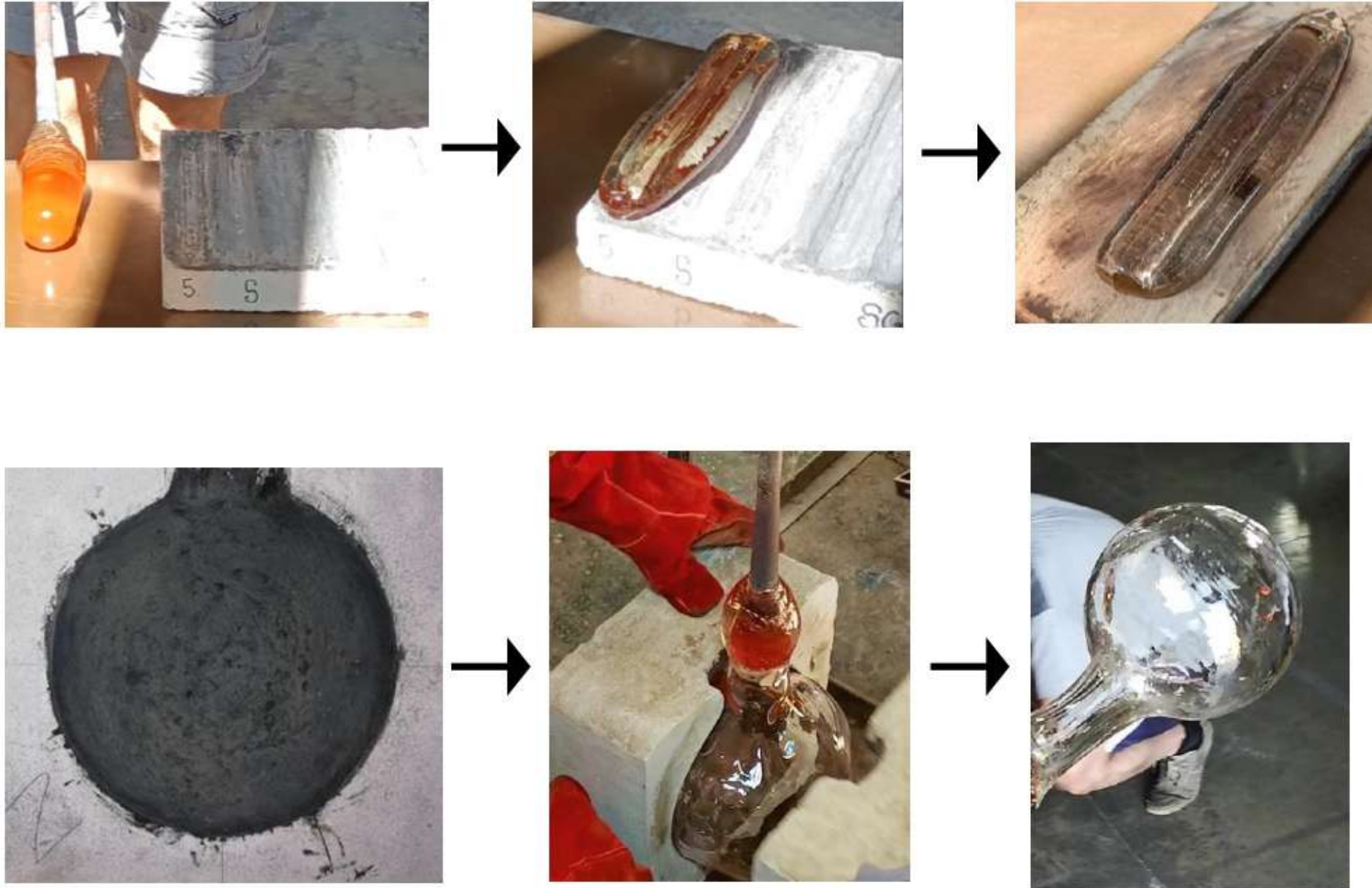
Critical application



High temperature generate too fast
release of water vapor → bubbles



Molten glass testing on 3DP molds



- ❖ Good formability of the blown glass with no adhesion
- ❖ Production repetition up to **10 times** with no critical problem (adhesion of glass, degradation of edge)

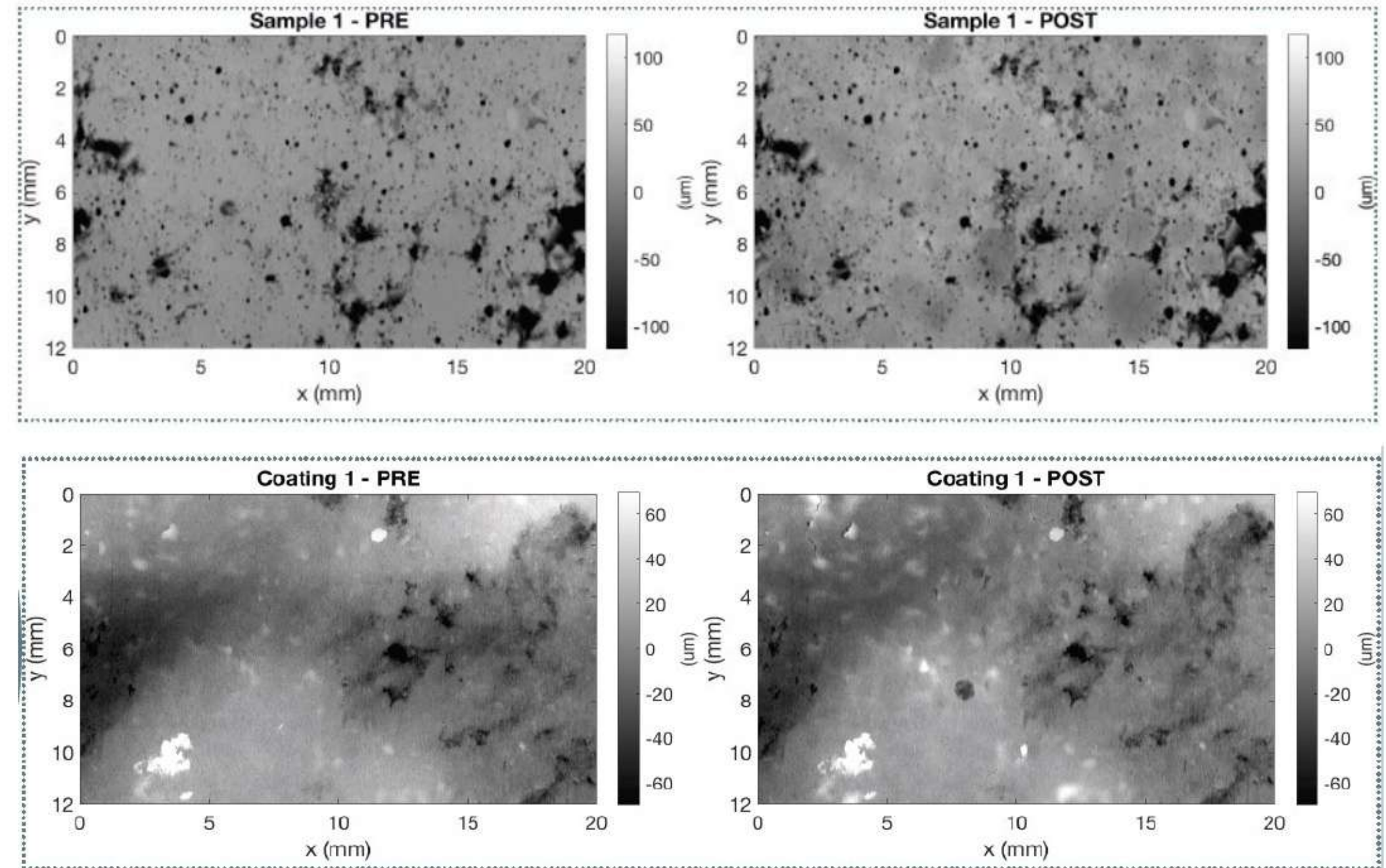
Mold surface analysis



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**CERAM
GLASS**
RESEARCH GROUP

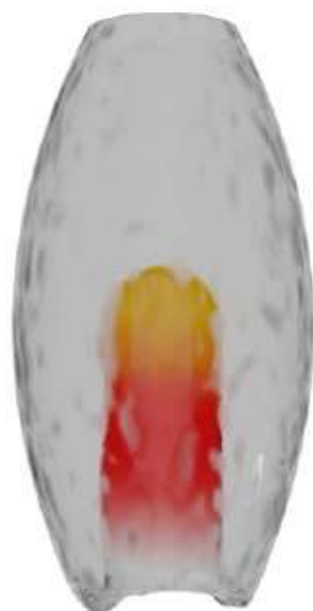
- ❖ University of Verona optimized an *ad hoc* microprofilometer using single-point, interferometric depth-sensors based on conoscopic holography and micrometric scanning method



Prototypes by fine art academia of Verona

- ❖ The creative group of the fine art academia of Verona, designed and developed 4 artistic works
- ❖ The artworks are produced inside the glassmaking factories: *Barovier&Toso* and *Lavai*

Pipiotto
Alessandro
Galletti



L: 20 cm
W: 20 cm
H: 40 cm

Spreciso
Marco
Chemello



L: 50 cm
W: 35 cm
H: 20 cm

Nereide
Giulia
Zampieri



L: 36 cm
W: 35 cm
H: 13 cm

Bosa
Benedetta
Corporente



L: 23 cm
W: 18 cm
H: 45 cm

Prototypes by fine art academia of Verona

Idea

3DP mold

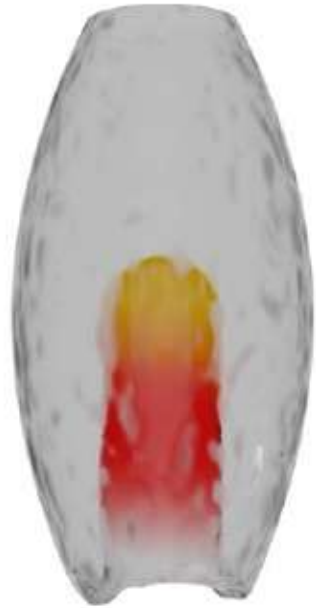
Production

Final piece

Pipiotto

Alessandro
Galletti

Vetreria Lavai



Bosa

Benedetta
Corporente

Vetreria
Barovier&Toso



Prototypes by fine art academia of Verona

Idea

3DP mold

Production

Final piece

Spreciso

Marco
Chemello
Vetreria Lavai



Nereide

Giulia
Zampieri
Vetreria
Barovier&Toso



Outlook and next step

For **artisan glass making sector**

- ❖ Geopolymeric 3DP molds can be produced
- ❖ Mold can be used for blown glass; cast glass is more challenging
- ❖ Nice artistic pieces are produced with the 3DP molds

- ⌚ Optimization of matrix compositions for thermal stability
- ⌚ Pre-treatment of mold for cast glass use
- ⌚ Durability have to be studied and improved, up to 50 uses (only 10 verified for now)
- ⌚ Evaluation of techno-economic impact and advantages

Export eCommerce Artistic Manufacturing



SMARTLAND - Smart Destinations in the Land of Venice



Export promotion projects for companies and their aggregated forms identified on a territorial or sectorial basis DGR n. 1779 of 29/11/2019. The eCAM project introduces a new internationalisation experience for R.I.R. members through national and international trade fair events.

OBJECTIVES: The project, through coordinated activities, proposes to:

- Plan initiatives to consolidate and create new relations in target areas for the companies and the R.I.R.
- Participate in international fairs in Italy (Milan) and abroad, which are essential for international recognition and to interact with global contractors and architects.
- Realise an incoming experience focused on the companies involved, promoting the value of a territorial brand in various spheres (entrepreneurial, cultural, educational, technological, etc.).

ACTION 1.1.4 'Support for collaborative R&D activities for the development of sustainable technologies, new products and services' DGR. 822 of 23 June 2020.

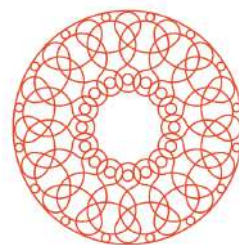
EUTKNOS participates with artisan workshops, addressing the challenge of technological transformation in tourism. Technological advances have changed the way people travel, pushing companies to innovate their business models and the experiences they offer. The project focuses on the creation of new value chains between different actors in the tourism sector, involving activities such as accommodation, catering, art, culture, manufacturing, food, services and more. Artisan workshops offer unique experiences related to the knowledge of Veneto's master craftsmen. The project also involves the Universities of Venice (Cà Foscari lead partner), Padua and Verona.

<https://venetianmade.com/>



Key ongoing projects

- **SUNRISE** – Unified System for the Narration, Representation, Innovation, Style, and Expression of Artistic Manufacturing: A research and development project (PR Veneto FESR 2021-2027) led by Coop.Services. SUNRISE aims to introduce a new paradigm combining artificial intelligence and craftsmanship by creating a virtual assistant to support the stylistic definition of products.
- **MURANO 3D** – Innovation and Sustainability for Artistic Glass: A project (PR Veneto FSE+ 2021/2027) that expands the results of the D3VeRo project, aiming to train Murano glassworks staff in 3D printing for innovative molds and promote innovation in the sector.
- **ARTEUTECH**: The Hub of Veneto's Artistic Manufacturing: A physical and digital space where businesses and creatives can find the resources necessary to develop new ideas and innovative research projects, enhancing the shared cultural and creative tradition. Additionally, the HUB offers a range of research and innovation support services



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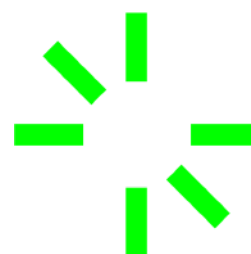


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