

Centre for functional and surface functionalized glass (FunGlass)

H2020-Widespread-739566



Background

TnUAD:

- National Centre of excellence for ceramics, glass and silicate materials (CEKSiM)
- Internationally recognized research in ceramics and glass

Strong:

- Excellent research infrastructure built from OP R&D (> 6 M€ invested)
- Good qualification and age structure of research personnel (22 + 8 PhD students)
- Strong cooperation with local industry
- International recognition



Weak:

- Limits of personal capacity
- No cooperation with EU or global industrial partners
- Limited opportunities for further growth

Opportunity:

- Call H2020-WIDESPREAD-2014-1 (Teaming)
- Increase of scientific performance in “low-performing EU countries”

Tool:

- Establishment of excellent, internationally recognized research centers in low performing countries through teaming with technology leaders in high performing EU countries
- Funding up to 15 M€ from H2020

Condition:

- Co-funding from national sources
- Research infrastructure

Infrastructure



Invested ~ 6M€ from the ESIF (OP R&D) in the last 6 years

Basic information

Project title: Centre for functional and surface-functionalized glass
Acronym: FunGlass
Call identifier: H2020-WIDESPREAD-01-2016-2017-TeamingPhase2
Project No: 739566
Duration: 84 months
Starting date: 1 March 2017
End date: 31 December 2023
Funding: 15 M€
Commitment: Complementary funding from national sources 10 M€
Source: OP R&I, call identifier OPVal-VA/DP/2017/1.1.3-03
Risk: Suspension of H2020 grant if complementary
funding not secured



Partners



- ✓ **Alexander Dubček University of Trenčín, Slovakia**
Prof. Dušan Galusek - coordinator



- ✓ **Instituto de Ceramica y Vidrio, Madrid, Spain**
Prof. Alicia Durán - coatings



- ✓ **Friedrich Schiller Universität Jena, Germany**
Prof. Lothar Wondraczek – functional glass



- ✓ **Friedrich Alexander Universität Erlangen-Nürnberg, Germany**
Prof. Aldo Boccaccini - bioglass



- ✓ **Università degli Studi di Padova, Italy**
Prof. Enrico Bernardo – glass processing



Scope and objectives

Upgrade the existing
Centre of excellence for ceramics, glass and silicate Materials (CEKSiM)
to an internationally recognized
Centre for functional and surface-functionalized glass (FunGlass)

Objectives (institutional)

- Scientific excellence and international recognition
- Financial self-sufficiency
- Long-term sustainability
- Academic autonomy
- Autonomy in decision making

Objectives (scientific)

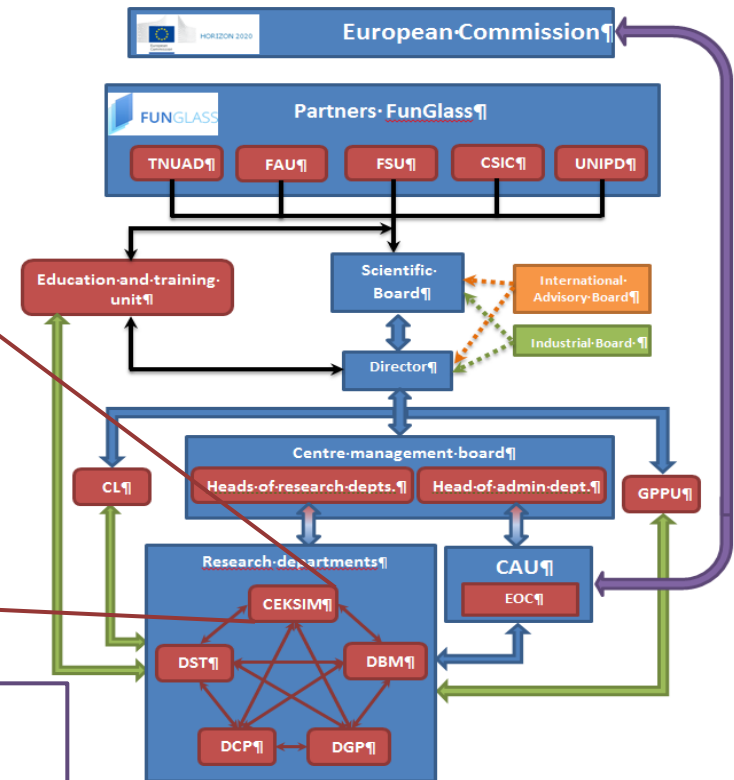
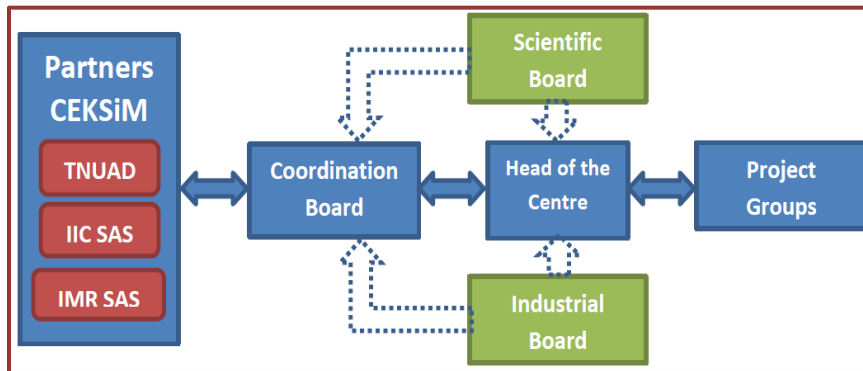
- Cutting edge research of glass with special functional properties (luminescence, electric, sorption)
- Surface functionalization of conventional glass, modification of their properties, adding new functionalities



Roadmap

Gradual

- Incorporation of CEKSiM into FunGlass
- Decrease of CEKSiM significance with time



- Nucleus of FunGlass:
 - Premises
 - Infrastructure
 - Staff
 - Local contacts
- Guarantees MSc and PhD study programmes for FunGlass
- Employs new staff

- Departments established
- Infrastructure upgrade
- Staff transfer to new departments
- FunGlass a faculty of TNUAD
- Training and study rights transferred to FunGlass

- CEKSiM one of the 5 research departments of FunGlass
- Own research programme
- No special status within FunGlass.

2017

2018

2019

2020

2021

2022

2023

Sources of funding

- ✓ Project H2020 15 M€
- ✓ Project for infrastructure upgrade ESIF OP Val 10 M€
- ✓ Direct funding ME SR 300 – 500 k€ annually
- ✓ Research grants 300 – 500 k€ annually
- ✓ Industrial cooperation 100 – 200 k€ annually

Final goals:

- ✓ Scientific excellence and international recognition
- ✓ Long term sustainability
- ✓ Academic autonomy

Evaluation results

3 main evaluation criteria:

Excellence

- identified a number of solid, clear and well-thought out objectives and a number of measurable and realistic KPIs
- coherent list of relevant research areas and topics consistent with specific manufacturing expertise
- clearly outlined plan for long-term self-sustainability of the Centre

Impact

- required increase of the scientific capabilities is well described
- clear potential for the advanced partners to contribute

Quality and efficiency of the implementation

- work plan is reasonable with clearly defined tasks and scheduling
- deliverables and milestones for each WP are specified and sound
- proposal includes an adequate risk/mitigation analysis
- partner institutions are quite complementary based on the R&D themes



Impact: Centre establishment

- Establishment of glass research centre with European dimension
- Creation of 45+ new workplaces:
 - ✓ Highly skilled and qualified research staff
 - ✓ Auxiliary and administrative staff
- Achievement of scientific excellence
- Achievement of financial self-sufficiency



Establishment of glass research centre

Planned

- ✓ formal establishment
- ✓ upgrade of research infrastructure,
- ✓ involvement in cutting edge R&I activities,
- ✓ introduction of state-of-the-art management practices
- ✓ creating professional environment for employees,
- ✓ improvement of research and innovation culture.

Done

- ✓ Approved by the management
- ✓ Appointed management and advisory boards
- ✓ Appointed ethical committee
- ✓ Created central administration including Office of Research
- ✓ Specifications of research infrastructure
- ✓ Project of building and building permit

To go

- ✓ Reconstruction of premises
- ✓ Procurement and installation of new research infrastructure
- ✓ Fine tuning of management practices
- ✓ Creation and implementation of training and career plans for trainees
- ✓ Training in ethical issues and implementation of best practices in research and innovation
- ✓ Direct involvement in cutting edge R&I activities



Creation of 45+ new workplaces

Planned

- ✓ Hiring highly qualified research, administrative and auxiliary personnel
- ✓ Creation of mechanical and financial conditions
 - young researchers start of their careers
- ✓ Intensive training and exchange programs at partners' research facilities

Done

- ✓ Hired:
 - Central administration
 - 3 heads of departments
 - 13 trainees
 - 2 technicians
 - 4 PhD students
- ✓ Part of the training programmes completed

To go

- ✓ Completion of hiring procedure
 - 2 heads of departments
 - trainees
- ✓ Failing to hire the very best
 - Financial conditions
- ✓ Completion of training programmes
- ✓ "Training by doing":
 - Training stays at partners' research facilities
 - Short term stays at specialized research facilities

Achievement of scientific excellence

Planned

- ✓ Involvement in cutting-edge R&I activities, with partners
- ✓ Increase in quantity and quality of scientific publications
- ✓ Increase of funding through international schemes,
- ✓ Increase the number of patents

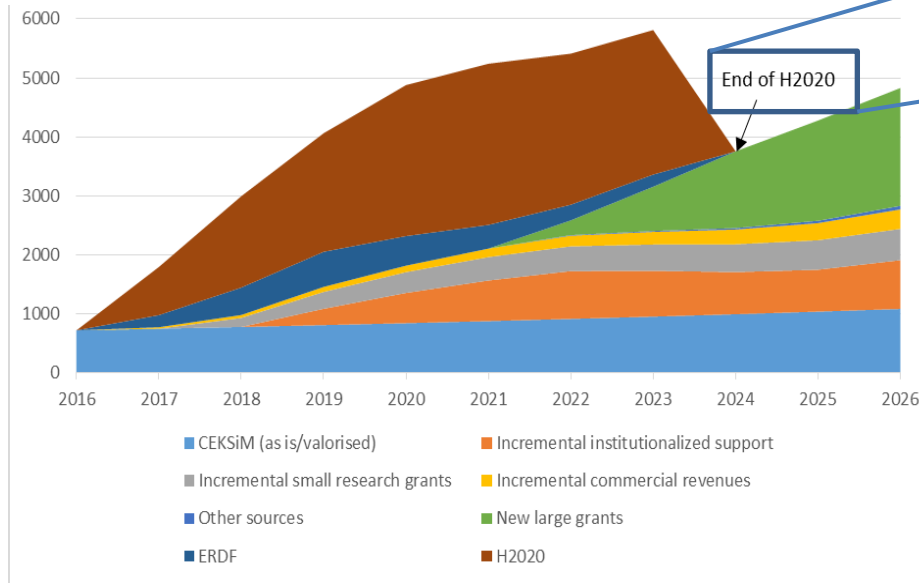
Done

- ✓ Critical topics identified for collaboration with partners
- ✓ Mapping of suitable grant schemes

To go

- ✓ Just about everything!

Achievement of financial self-sufficiency

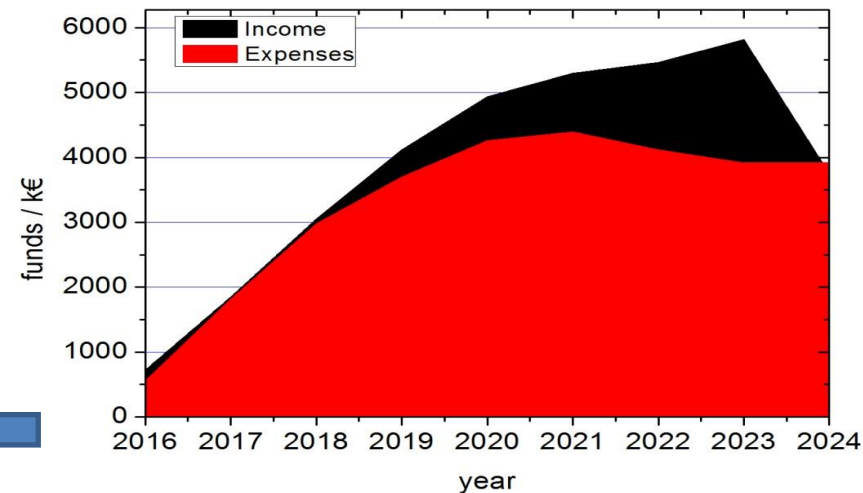


Funding:

From 719 k€ in 2016 to ~ 5 M€ in 2023

- Accumulation of capital for the period 2023-2026 and behind
- Projected cumulative operational surplus 2017-2023: 5533 k€
- Conservative estimate 40 % = 2213 k€
- Ensures sustainability of work positions after termination of H2020 funding

Important:
Planned income vs planned expenses
↓
Projected operational surplus



Impact: Broader context

- ✓ **Development of innovative products and technologies:**
 - creating new jobs,
 - facilitating sustainable economic growth,
 - strengthen the EU's global position in R&I,
 - create a smart, sustainable and inclusive growth.
- ✓ **Networking of technological leaders in low performing countries → completion of ERA as a single market for knowledge.**
- ✓ **Targeted R&I activities with strong industrial potential → products and services.**
- ✓ **Industrial leadership:**
 - materials with added functionalities,
 - nanotechnologies,
- ✓ **Societal challenges:**
 - population health (new materials for personalized health care),
 - energy-related issues (solar energy harvesting, energy saving lighting).





The project obtained funding from the European Union programme for research and innovation Horizon 2020 based on the grant agreement No 739566



FunGlass

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Thank you for your attention