

Verona, 2nd October 2019



From No(A)W to the Future

Insights from the Young Researchers Group



This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 688338

NoAW Story through 7 (+1) steps:

1. Environmental and societal long-term challenges targeted by the NoAW Project
2. Stakeholders, citizens, the industry: what they need to respond to the sustainability challenges
3. Answering the needs through NoAW products
4. For which markets and business
5. Pathway from agricultural residues to NoAW products: conversion and biorefinery technologies
6. NoAW's answers to circular economy principles
7. How to quantify NoAW's economic and ecological benefits



And after NoAW ??
How will this story continue??
By who ??

NoAW's Young Researchers (YRs) Group



➔ **Aim:** This group was formed in order to create links between young stakeholders to ensure continuing actions in the future.

1. What has been done so far?
2. Reflections from Young Researchers
3. Hints for the future?



1. What has been done so far?

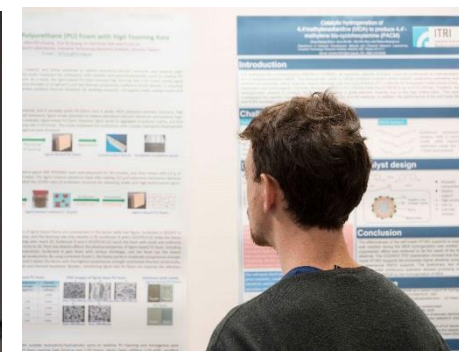
1st NoAW Annual Meeting Estoril, Portugal (November 2017)

First contact
Getting to know each other
Brainstorming with senior researchers



2nd NoAW Annual Meeting Hsinchu, Taiwan (October 2018)

Poster Session
Connection with Young Researchers
from ITRI



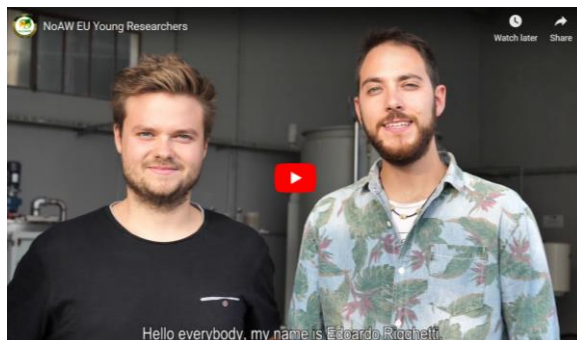
1. What has been done so far?

NoAW – AgroCycle Joint Stakeholder Event Beijing, China (October 2018)

- Long-term collaboration for the organization of the session
- Collaboration between Chinese and European YR
- Collaboration between NoAW and AgroCycle YR
- ~50 YRs participants (20 EU/30 China) plus ~20 senior/external



I. Short videos presentations from Europe, Taiwan and China YRs



<https://youtu.be/7KAoVHwHYSE>



https://youtu.be/7hn7kg_93Xg



https://youtu.be/DxHYn6E_2Yo

<http://noaw2020.eu/noaw-young-researchers-group/>



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1. What has been done so far?



II. Speed-networking



III. Mini-Project Competition

Mixed groups of Young Stakeholders from Europe and China (assembled *in loco*) worked together on a mini-proposal for «**the next Euro-Chinese project on Agro-Waste Management**» and presented a pitch to the jury

Ex: *The new SILK road: Sustainable and Innovative LinK between China and Europe*

GREEN LIFE - Sweet potato leaves fermentation for the production of ethanol

Production of nanomaterials to use as a catalyzer in biogas production

ADVP – Anaerobic Digestion Valorization Project: Agricultural wastes where you want them, when you want them



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1. What has been done so far?

7th International Conference on Sustainable Solid Waste Management Heraklion, Greece (June 2019)

- Collaboration with other YR attending the conference, external to NoAW

Mini-Project Competition

Call ID: H2020-SFS-2018-2020

Integrated system innovation in valorising urban biowaste

Focus area: Connecting economic and environmental gains – the Circular Economy

Example:

“Ferti-go” (urban waste treatment to produce fertilizers immobilized in mulching cloth/pot)



1. What has been done so far?

Short-term Missions within NoAW consortium

- Gregoire DAVID (PhD student, UM)
DTU (1 week) and RISE (1 week)
(linking WP4 to WP2)
- Giovanna CROXATTO-VEGA (PhD student, DTU)
INNOVEN (5 months) and UNIBO (2 days)
(linking WP2 to WP3&4)
- Joshua SOHN (PhD student, DTU)
INRA (2 weeks)
(within WP2)
- Greta GIACOBACCI (PhD student, UNIBO)
INRA/UM (6 months)
(within WP4)





2. Reflections from YRs

Life after NoAW... insights from fo



Joana DOMINGOS
Post-Doc at UNIBO
(Italy)



Florian PAILLET
Ex-INRA
Research Engine
at SUEZ
(France)



Gloria TROMBIN
Ex-IBBK
Technical/Commercial
Assistant at BTS Biogas
Srl/GmbH
(Italy)

What was your role in NoAW?

I worked in a 2-step process to produce a mixture of H₂ and CH₄ at pilot scale using winery residue (vinasse) as substrate

Where (and what) are you currently working

Currently, I'm project manager in SUEZ company dealing with organic waste recovery and wastewater treatment plants.

How NoAW might (or not) have impacted your professional career?

It helped me a lot to improve my skills on pilot scale and the problematics related to up-scaling. On the CV is a real advantage to have worked on a big project such NoAW which tries to solve industrial problematics and in line with Europe ambitions on circular economy strategy. Finally, I get the chance to help the management team of YRS in China last year which allowed me to meet amazing people.

Positive aspects from your experience in NoAW?

we are in line with the worldwide problematics and try in our scale to improve the knowledge around our thematics which is rewarding and very concrete.

What was your role in NoAW?

I did some research looking at the European legislation regarding byproducts and bio waste streams in our region in south of Germany.

How NoAW might (or not) have impacted your professional career?

I don't think it has. I think it would have, if I were a real researcher.

Positive aspects from your experience in NoAW?

It was a great opportunity to get to know new realities.

Negative aspects from your experience in NoAW?

Before the meeting in Portugal, our tasks and how we were supposed to collaborate between partners were not so clear.

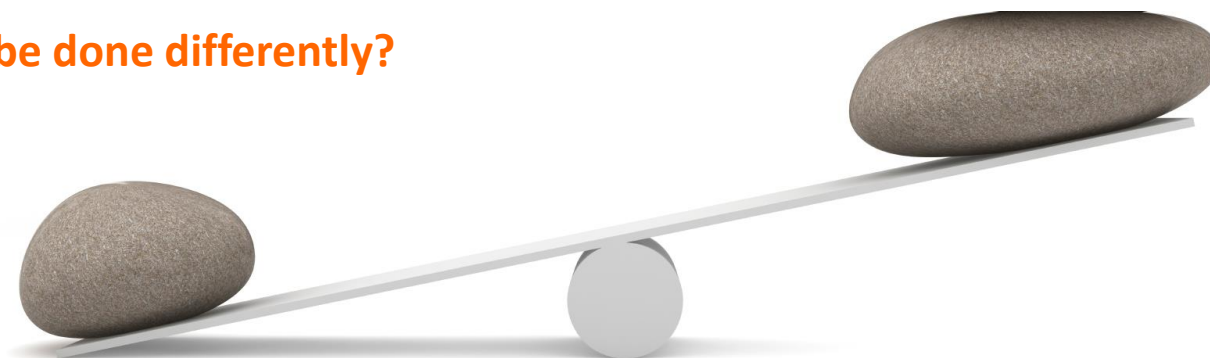


2. Reflections from YRs

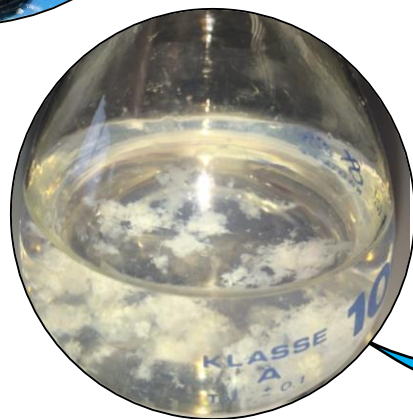
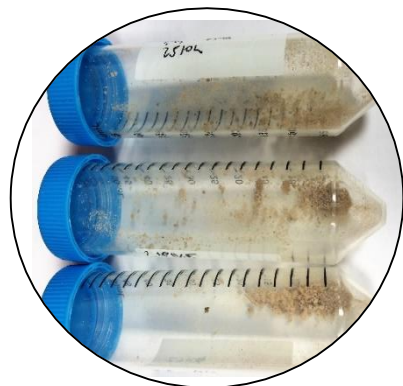
From YRs experience and perspective, in NoAW project:

What are the positive highlights?

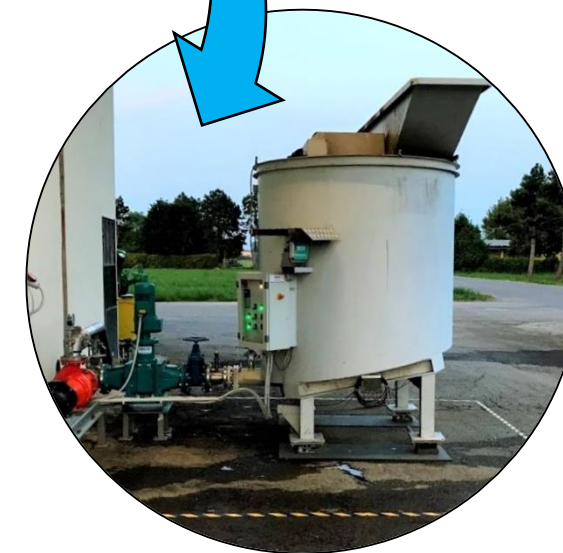
What could be done differently?



Lab facilities

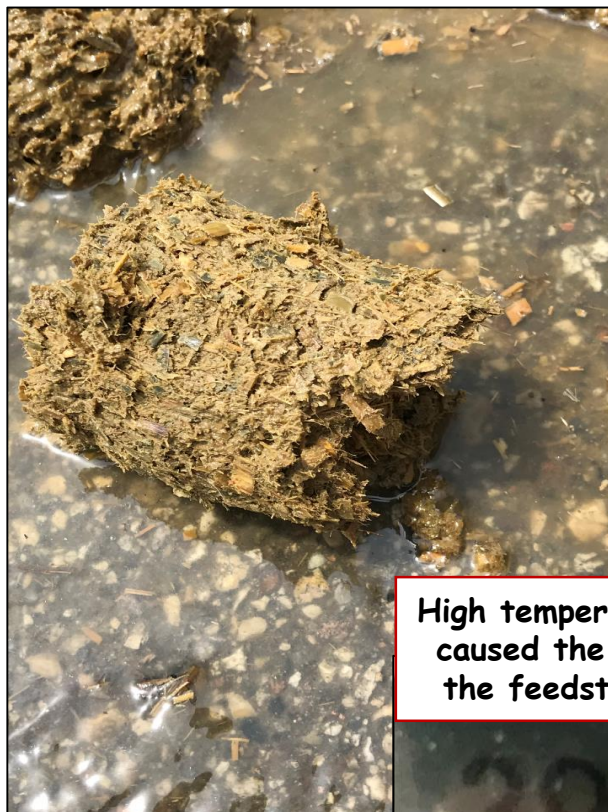


**SCALE
UP!!!!**

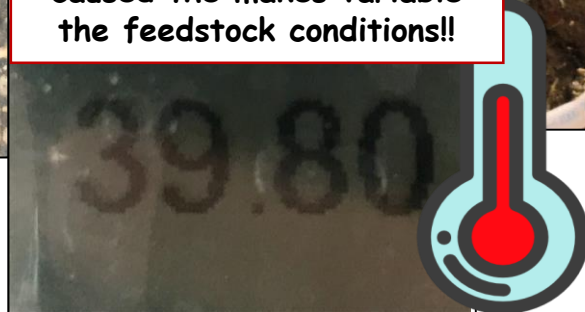


Pilot scale facilities

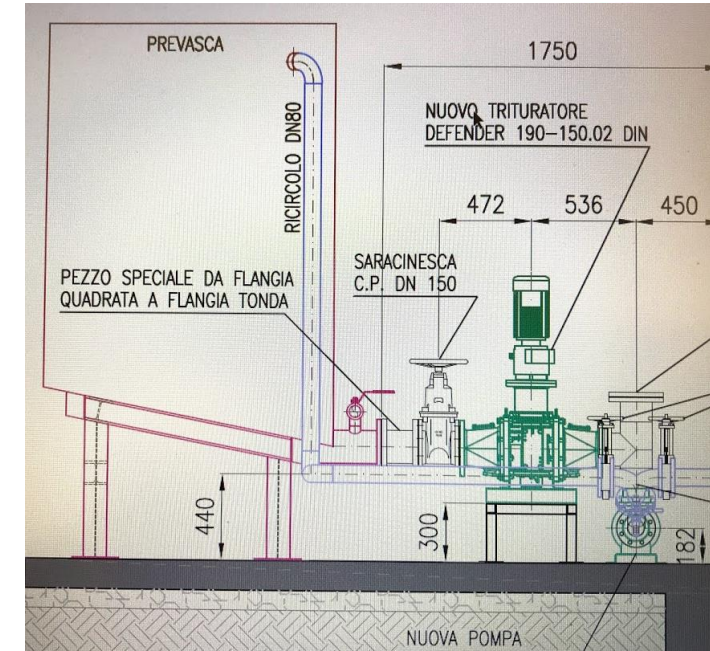
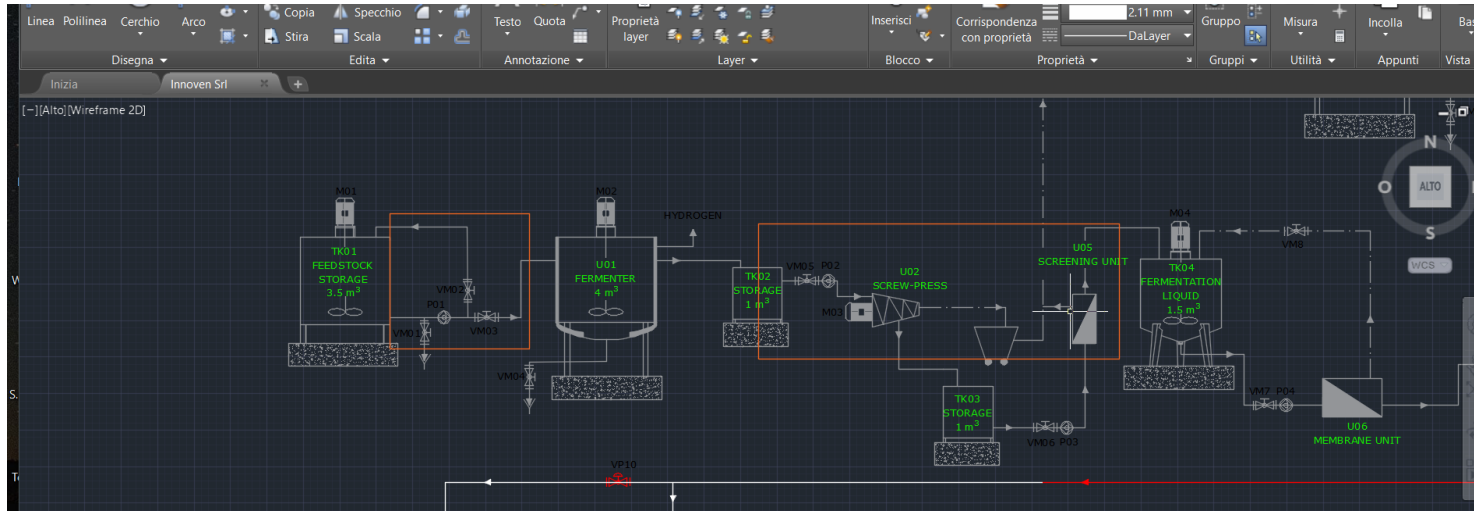
Many **REAL**-issues discovered during the NoAW experience!!!



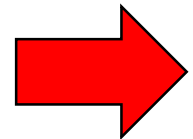
High temperature in Summer
caused the makes variable
the feedstock conditions!!



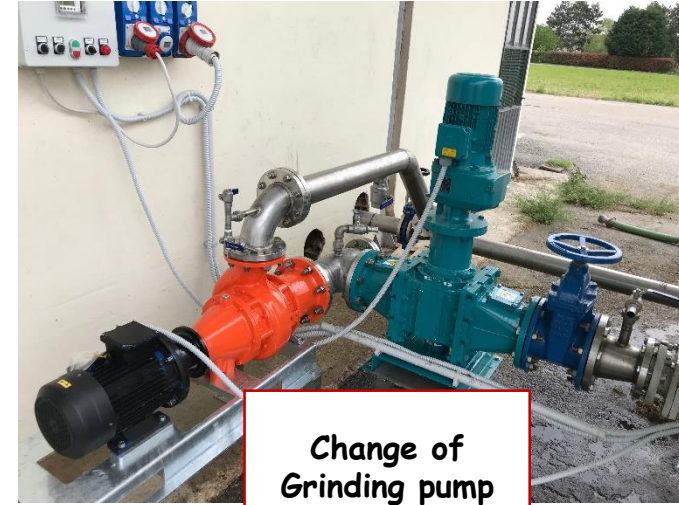
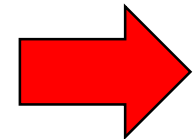
Possibility to learn and apply for the realization of the pilot plant configuration and possible modifications for the future layout!!



Original agrowaste substrate feeding system



Change of piping system

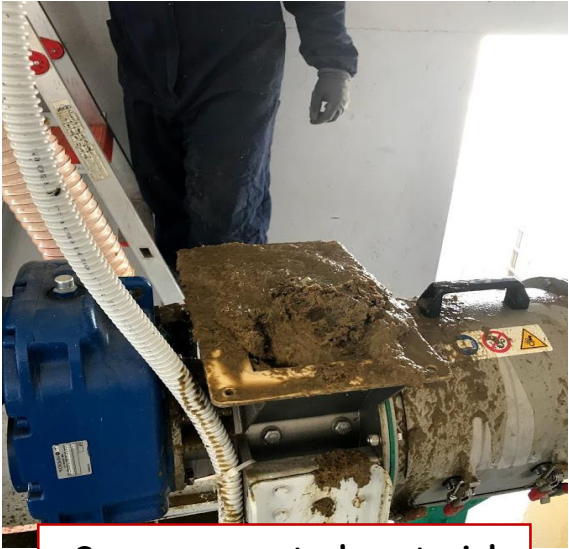


Change of Grinding pump



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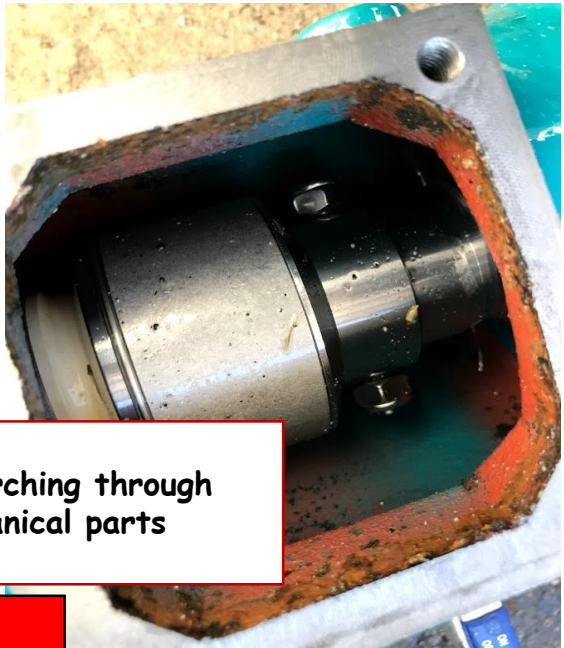
Facing the reality makes you learning the process not only at the THEORETICAL way



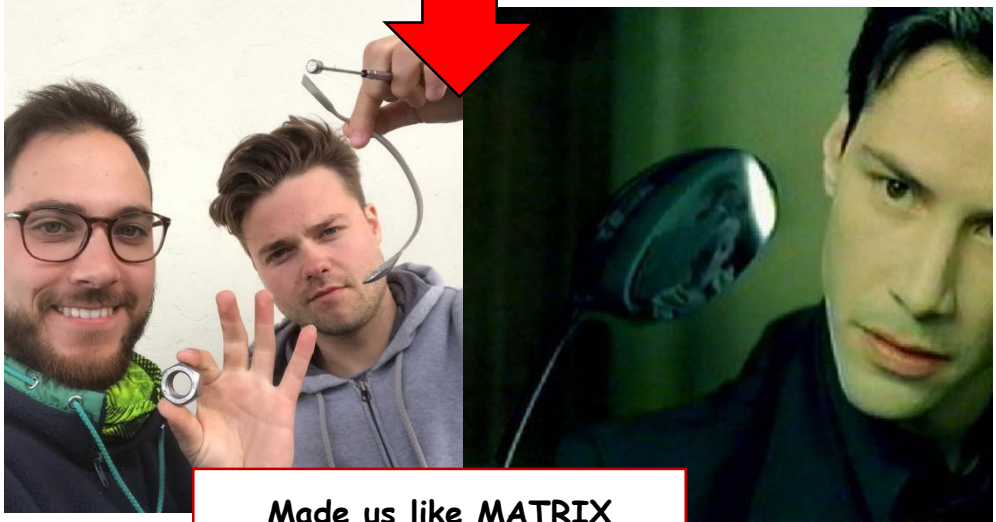
Screw press stuck material caused by fibers contained into the feedstock



Grinding pump repairing



Bolt searching through mechanical parts



Made us like MATRIX



Appreciate all of the funny things of a Job !!



3. Hints for the future?

What happens after the project finishes?

How can we keep this collaboration beyond NoAW?

Particularly among YRs? How can we combine our skills and research objectives?



Global YRs Curriculum Vitae

COMPETENCES

- ✓ **Geographical Information System (GIS), Strategic environmental assessment (SEA),** Spatial/territorial analyses
- ✓ **Life cycle assessment,** sustainability assessment, decision support, biotechnology understanding of process design
- ✓ **Instrumental:** GC, HPLC, NMR, UV&FTIR spectroscopy, GPC, TGA, DSC, XRD
- ✓ **Anaerobic Digestion**
- ✓ **Bioelectrochemical systems**
- ✓ **Process and technology development**
- ✓ **Process Scale-Up**
- ✓ **Design of new materials,** mainly for packaging field; Composites and nanocomposites preparation;
- ✓ Laboratory management
- ✓ Supervising MSc and PhD students
- ✓ Data reporting & results communication
- ✓ Project proposal and management



RESEARCH INTERESTS

- ✓ Spatial planning, spatial analyses
- ✓ Environmental and industrial biotechnology
- ✓ Biopolymers
- ✓ Bioelectrochemical systems
- ✓ Biotechnology, bioenergy, production systems, circular economy, microplastics, biodegradability
- ✓ Photosynthetic organisms, bio-polymers production, wastes valorisation, carbon fixation
- ✓ Waste management, plastic pollution, plastic degradation
- ✓ Chemical engineering, Bioelectrochemistry, Biogas
- ✓ Synthesis and characterization of new polymers from renewable sources.
- ✓ Preparation and characterization of composites with natural fibers or clays
- ✓ Phenols, polyamines, enzymatic and solvent extractions

LANGUAGE SKILLS

English	Spanish
French	Danish
Italian	Serbian
Portuguese	Chinese

3. Hints for the future

Research ideas/themes to explore after NoAW??

- Most YR work in the experimental part of the NoAW project, and most of them are involved in other projects devoted to the **exploitation of several type of residues** or in the field of the environmental conservation and preservation. Collaborations among the partners can be consolidated by maintaining similar approaches developed in the frame of NoAW to explore other **scenarios out** of the agricultural waste.
- Explore **other kind** of industrial **waste** to reuse
- Extrapolation of **spatial data** to different territorial levels
- **Biomass** for a bioeconomy (**is there enough?**) focus on efficiency, utilization, and logistics, competition
- Wastes valorisation/conversion into **bio-products**
- Development of **novel polymers** by exploiting new molecules deriving from biomass. Which molecules are **currently available** from bio-refinery processes? The optimisation of that processes could provide **new chemicals**, not yet completely investigated...



3. Hints for the future

Which financial instruments should YRs use??

Example: COST Actions



<https://www.cost.eu/>

COST Action is a **network dedicated to scientific collaboration**, complementing national research funds.

A COST Action is **open to all**:

- **science and technology fields** (including trans-, and interdisciplinary, new and emerging fields);
- **institutions** (academia, public institutions, SME/industry, NGO, European/international organisations, etc.);
- **career stages (both young and experienced)**

Strategy: Empowering and retaining young researchers and innovators

Through networking COST also connects complementary funding schemes ranging from Erasmus+ all the way up to ERC Grants, facilitating entry of promising young talents into these schemes.

COST Actions can pave the way to or establish synergies with EU-funded research projects.

Collaboration within research projects often lead to new Actions, thus enhancing the networking potential of research consortia.



3. Hints for the future?

Funding of Networking tools within a joint research programme:

- Meetings, conferences, workshops, short-term scientific missions, training schools, publications and dissemination activities.
- EUR 130,000 per annum, 4 years
- Participation by at least 7 and typically 20-25 COST Members, amongst which a minimum number shall be from COST Inclusiveness Target Countries (*Albania, Bosnia-Herzegovina, Bulgaria, Croatia, Cyprus, Czech Republic, Estonia, Hungary, Latvia, Lithuania, Luxemburg, Malta, Moldova, Montenegro, North Macedonia, Poland, Portugal, Romania, Serbia, Slovakia, Slovenia, Turkey*).

How to Apply

- COST Open Call Online submission, two collection dates per year – the next is envisaged for **April 2020**
- Scientific dossier of max. 15 pages maximum, **entirely anonymous**
- Evaluation by at least three independent external experts followed by an internal Review Panel



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3. Hints for the future?

Other???

EIT Food – Andras Sebok



Thank you for your attention!



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