

JRC Scientific Development unit

Centre for Advanced Studies

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JRC: Opportunities for the Croatian researchers and organisations

25 Oct.: 2021, online

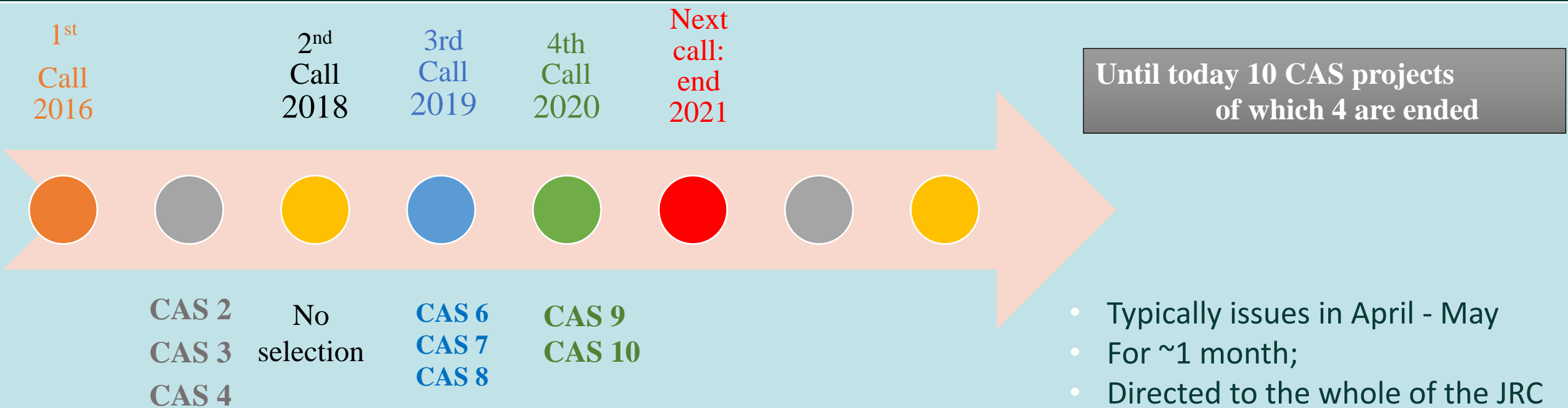
JRC Centre for Advanced Studies (CAS)

Mission:

- to provide a stimulating, trans-disciplinary space within the JRC, where colleagues can work with external scientists to explore new ideas outside the normal policy support activities undertaken by the JRC.

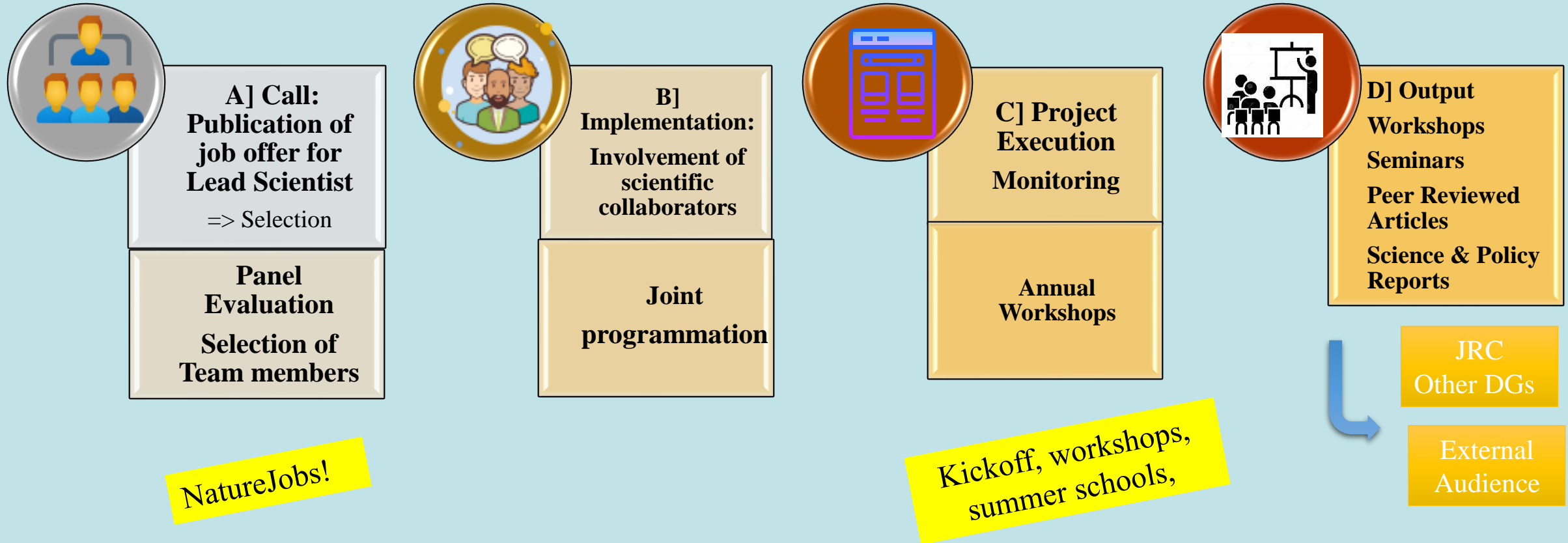
- Promote and develop increased multi-disciplinarity and cross collaboration within the JRC;
- Articulate the reach and strengths of the JRC in areas outside its traditional Work Programme;
- Position the JRC to work with external organisations (universities and other research institutions);
- Consolidate the JRC's position as a meaningful research organisation.

The Call for Proposals



Values the presentation of topics that focus on future societal or environmental challenges

Implementation: General Picture



A] Proposals and their evaluation

Proposals template based

on EUSurvey

=> should include:

Title

- It can be working title

Abstract

- Rationale
- Motivation and goal of the research

Strategic
advantage

- Description of the advantage this NOVEL research will confer to the JRC

State of the art

- A summary of the SoA

Policy relevance

- Of the research in the next 5-10 years

A] Proposals and their evaluation

A two step procedure:

Preliminary evaluation

- Individual external experts (Data base) => advise

Final selection

- Senior Management => consolidated ranking of the proposals

PLEASE NOTE:

- The names of the topic proposers remains undisclosed.
- The names of the reviewers remain undisclosed.

The Projects



3 years max.



Run out of Ispra
and Seville offices



4 scientists
1 leader



Support and
enhance JRC

Projects study and analyse
how they can support and enhance the JRC's
capacity

to inform and influence policy and

ultimately the new regulatory frameworks

needed to address new and emerging

societal challenges across a wide variety of

fields

What does CAS offer

- Flexible organizational structure
 - Scientific Development Unit
 - Research Teams, PI led

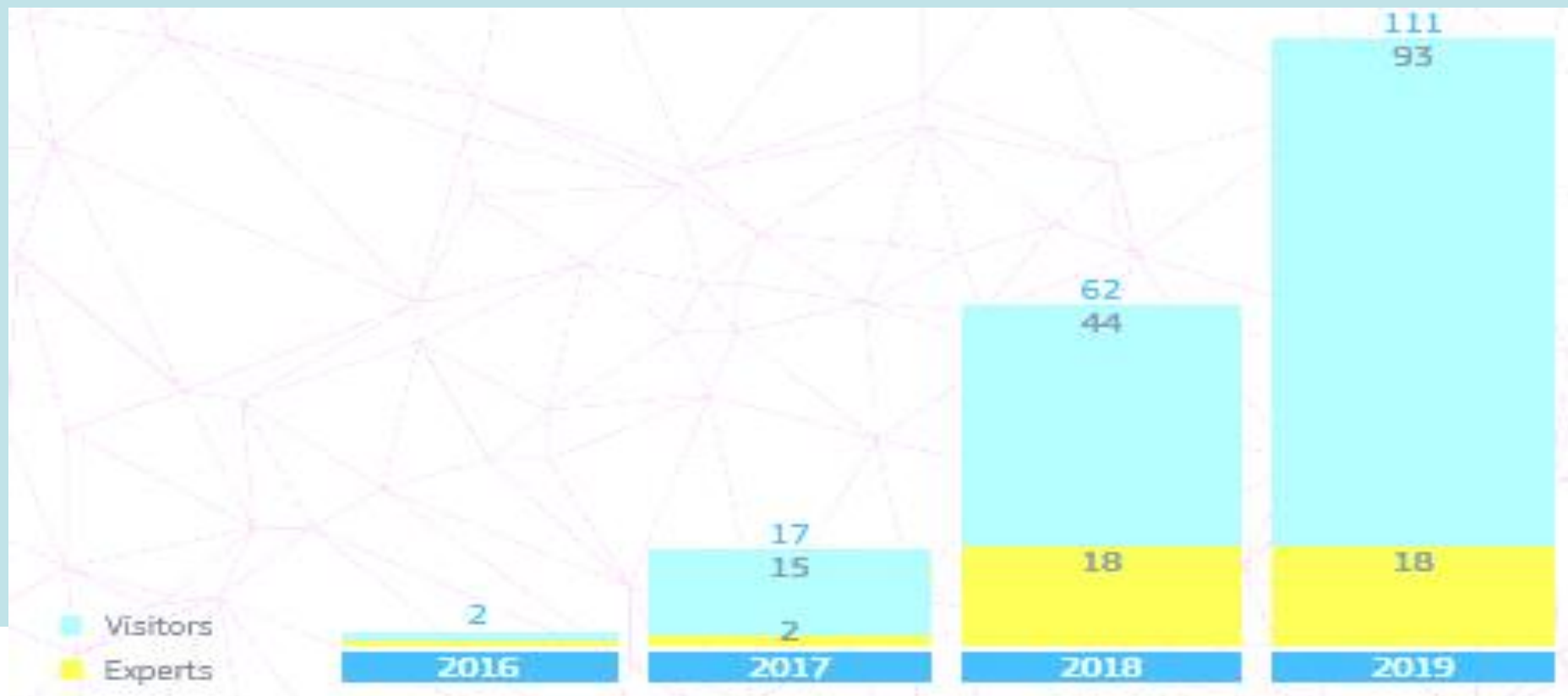
- Administrative & Management
 - reduced management hassle
 - expedited and streamlined decision implementation
 - low overheads

- Access to JRC
 - researchers and scientists
 - labs and infrastructure
 - policy and decision makers

- Mobility and International Collaboration

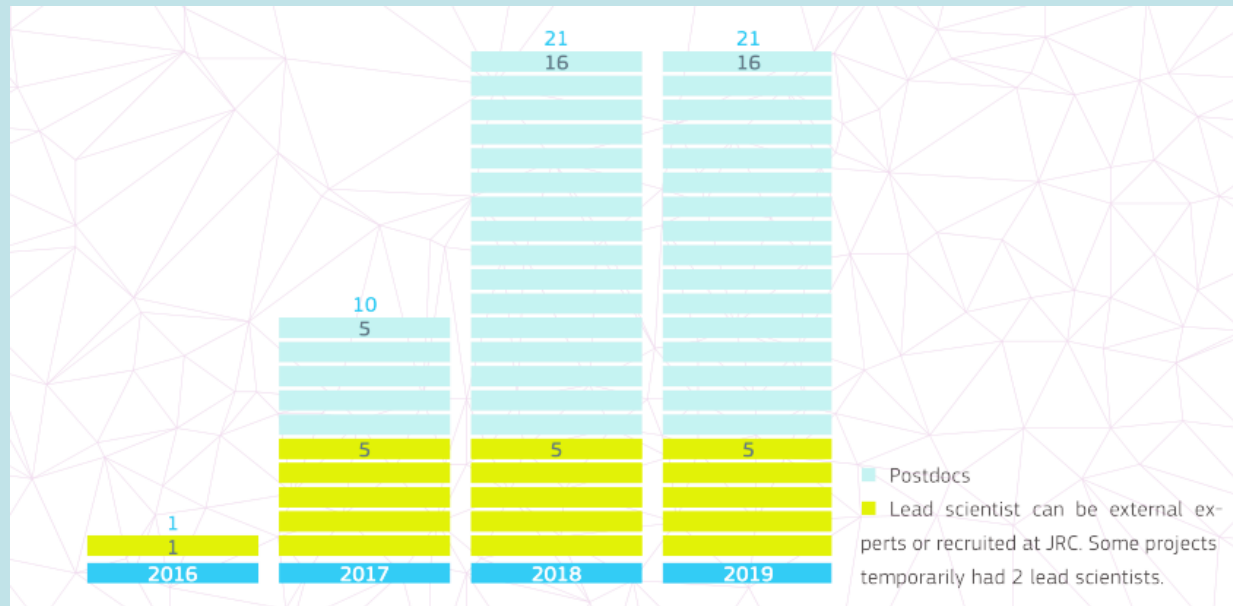
CAS in Figures, 2016 - 2019 (I)

No. of visitors and experts to CAS

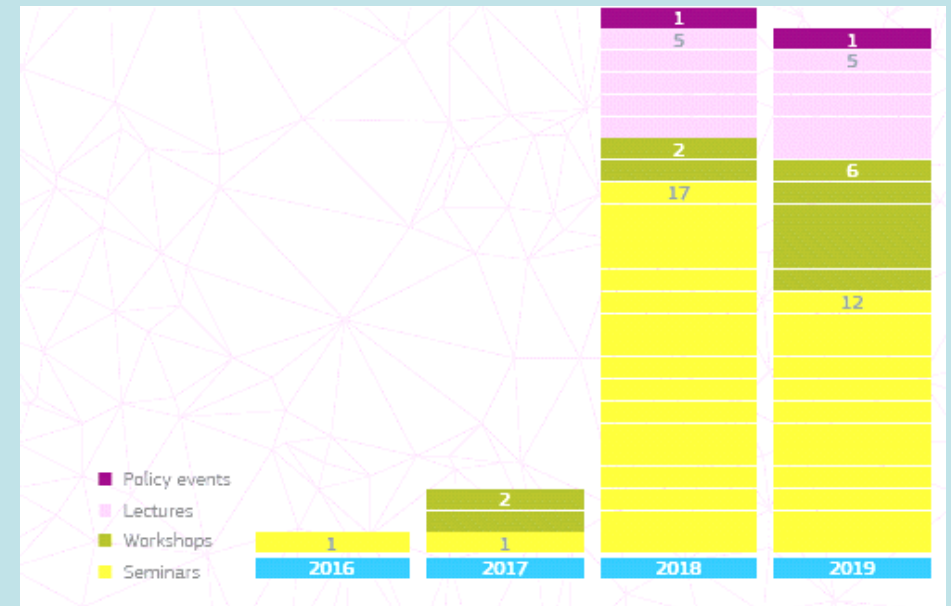


CAS in Figures, 2016 – 2019 (II)

Lead scientists and postdocs



No. of events and seminars



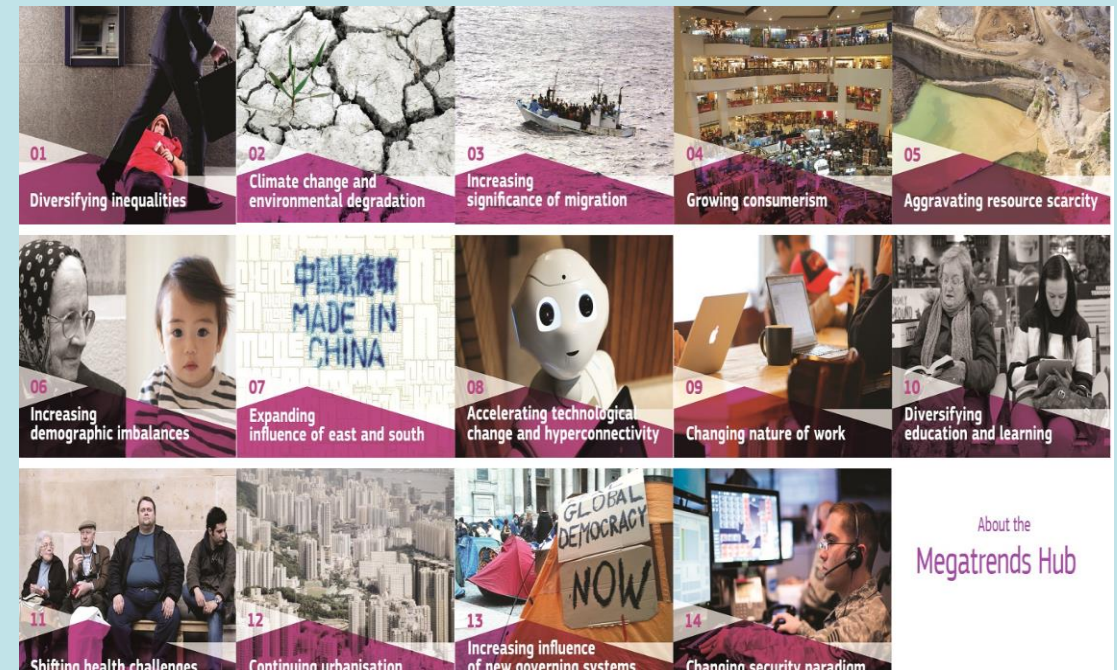
CAS Workshops

- Provide a forum and platform for discussions with stakeholders and policymakers about what we can use from current science, what are the remaining open scientific questions and where we go from here.
- Introduce new CAS projects and showcase the completed ones.
- Add variety of activities: Roadshow of CAS projects and fuller presentations, ePosters, panel sessions with policy makers (at MS and EU level).
- Virtual, ePosters, open to the public, discussion panels.
- Over 180 participants: JRC, DGs, EP, EU agencies, academia, research institutions, private sector, musicians.
- Over 1500 views of ePosters.

Megatrend series

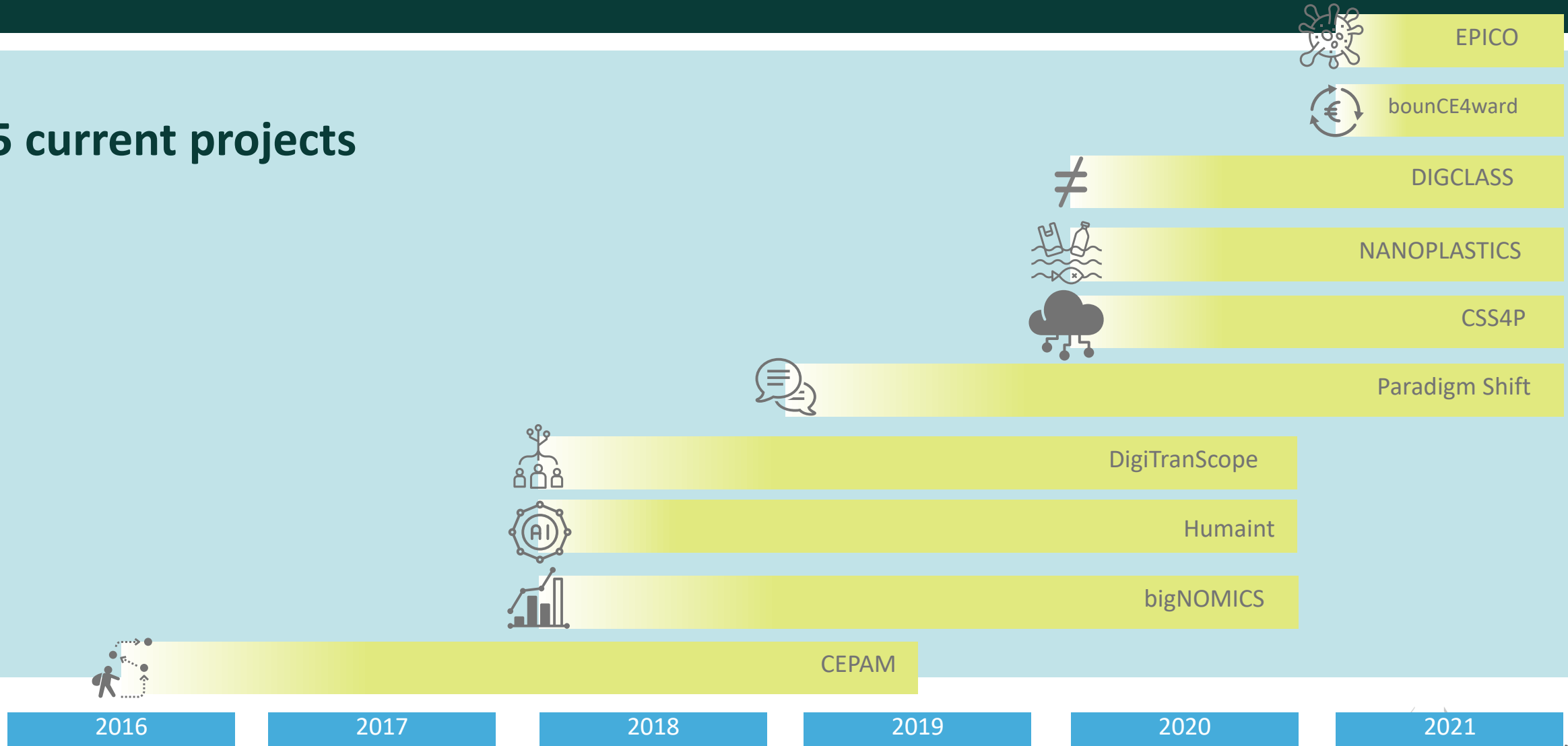
Megatrend lectures

- Professor Ian Goldin (Challenges facing EU 2030 and Beyond)
- Professor Saskia Sassen (Urbanisation)
- Mr Janez Potocnik (Resource Scarcity)
- Mr Ian Jindal (Growing Consumerism)
- Mr Michael O'Leary (Disruptive Innovation)
- Professor Wolfgang Lutz (Demography)
- Messrs Gregory Maniatis and Rainer Munz (Migration)
- Professor Dr. Gerhard Adrian (President of the World Meteorological Organisation)
- Professor Jana Koehler (Chair of Artificial Intelligence / Saarland University)
- Ms Renate Schroeder (Self-censorship in the media)



State of play (I)

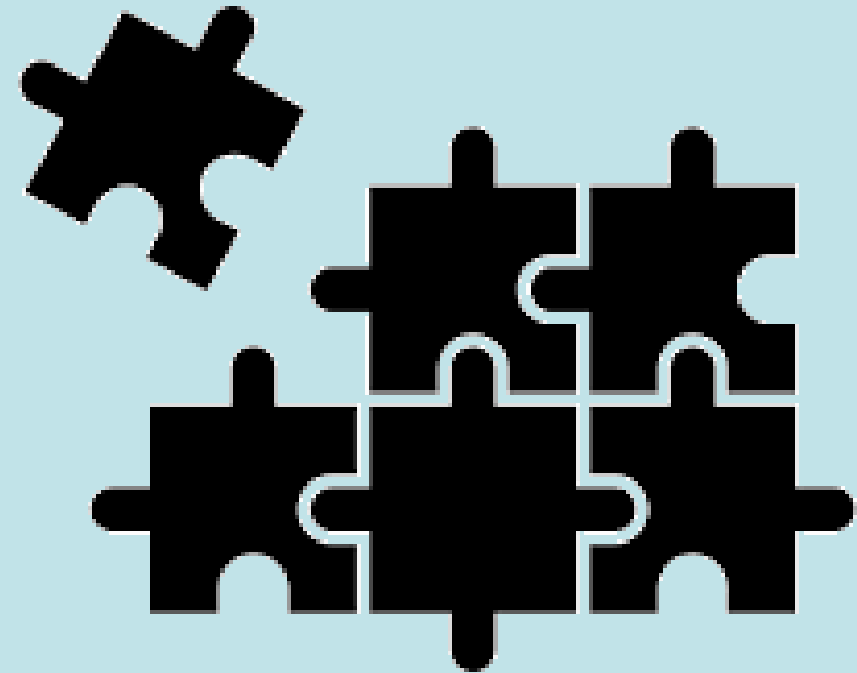
5 current projects



State of play (II)

5 current projects

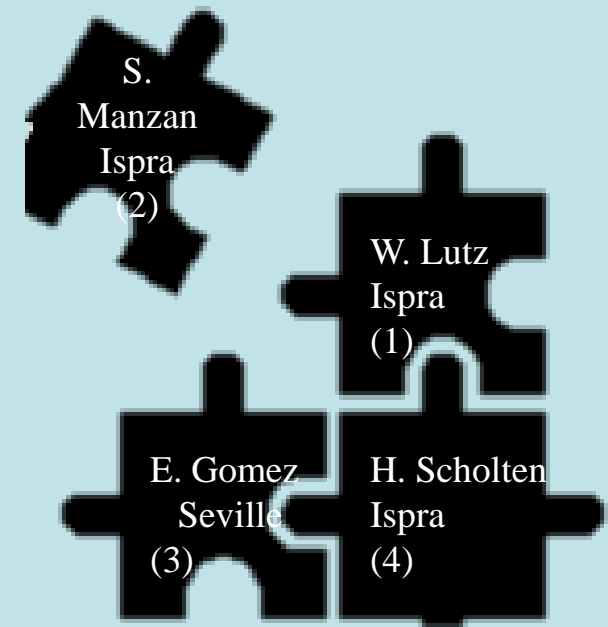
- ✓ Towards a Technological Platform for Nanoplastics (CAS 6 – 2020)
- ✓ Computational Social Science for Policy (CAS 7 - 2020)
- ✓ Social Classes in the Digital Age (CAS 8 - 2020)
- ✓ Circular Economy: a recipe for more strategic autonomy (CAS 9 – 2021)
- ✓ Epidemics: Dynamics and Control (CAS 10 - 2020)



State of play (III)

4 projects completed

- Centre of Expertise on Population and Migration (CAS 1 - 2017), ended mid-2019 and was mainstreamed into unit E.6
- Big data and forecasting of economic developments (CAS 2 – 2018) ended in 2020
- Digital Transformation – Machine Intelligence and Human Behaviour (CAS 3 - 2018), ended Dec 2020 and was mainstreamed into unit B.6
- Digital Transformation – Governance of Human Society (CAS 4 – 2018), ended Dec 2020 and was mainstreamed into unit B.6



To conclude

- Novel research topic to be incubated for 3 years
- Link with EC strategy (and JRC)
- Peer review process with external panel
- Selection by senior management
- High publication score expected
- Next call for proposal to come soon

More? Ingrid.puillat@ec.europa.eu, shane.sutherland@ec.europa.eu

Thank you!



Big Data and forecasting of Economic developments



Macro-economic variables are published with long delays, low frequency and subject to revisions:

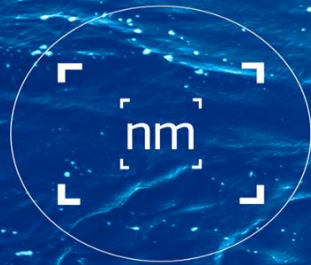
1. Can **Big Data** provide an alternative indicator to monitor the business cycle in *real-time*?
2. Can we enhance the forecasting performance using **machine learning**?

Some data examples are **loan-level** data, **news** data, **GDELT**, **seismic** data ...

Output:

- peer-reviewed publications
- international conferences
- **Nowcasting** team to support to DG ECFIN during the COVID-19 crisis
- Related to: **DG ECFIN**, **JRC-B1** Finance & Economy
- Team: S. Manzan (CUNY – project leader), L. Barbaglia (JRC A5-B1), S. Consoli (JRC I1), L. Tiozzo Pezzoli (JRC B1), E. Tosetti (Ca’ Foscari University of Venice), S. Wang (JRC A5).





Objective: The NANOPLASTICS project **primary goal** is to provide the scientific community with **novel, cost-effective analytical methods and strategies** for the **widespread detection and environmental monitoring of nanoplastic pollution**

Research team: **JRC Units** A.5 and F.2

External labs in Germany, France, Italy and Spain

Outputs: **New tools & methods** (analytical, biomonitoring, biotechnological)

Network of the best laboratories

Input to policy makers to define actions to protect the environment and human health



CSS4P Computational Social Science for Policy

This CAS project is about using Computational Social Science for EU policy support.

Computational Social Science has the potential to impact and transform all phases of the policy cycle, from improving the understanding of the problem to the better definition of policy options, their assessment, evaluation and monitoring.

There is unprecedented data and digital footprints being created everyday, however, these results are mostly confined to the realm of scientific publications because of the lack of systematic access to data beyond ad-hoc pilot studies.

The JRC can be better positioned to address pressing policy questions through a coordinated access to non-traditional data. It also has a significant quantitative analysis capacity, while it is also acquiring more qualitative analysis skills in the social sciences.

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CAS 8 – Social Classes in the Digital Age

- **Technological change:**
 - **Opportunities:** Improve learning environments and learning outcomes, create room at the top in the labour market, promote social mobility
 - **Challenges:** Increased socioeconomic inequality, job insecurity, weakening of the social contract
- **Research lines:** Technological change and its implications for social structure (especially relevant: middle class, social mobility)... And how changes in social structure affect:
 - Hiring processes in the labour market
 - Health inequalities
 - Educational outcomes and educational inequalities
 - Political attitudes
- **Work plan:**
 - 2021: Conceptual work on social classes; establish the facts; design pilot studies
 - 2022: Produce original data; generate evidence
 - 2023: Derive applications and policy implications



Background for the project: the COVID-19 crisis exposed the EU's vulnerability to sudden shocks in global supply chains, even for most basic goods

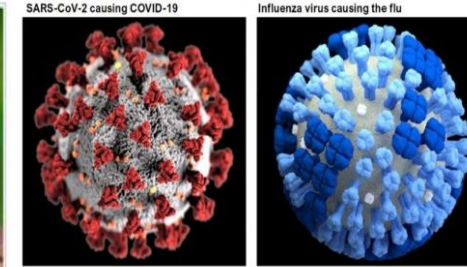
Rationale: a circular economy, with less waste and fewer resource use, might not only help achieve the EU's climate ambitions but can also make the EU more **resilient** against supply chain shocks. As such a circular economy can contribute to **open strategic autonomy** for the EU.

Objectives of the project:

1. Investigate **to what extent** the Circular Economy can **provide resilience** and **open strategic autonomy**, i.e. determine for which **sectors** a circular economy is most relevant
2. Determine **how circular** the EU economy already is and what the **potential** is **for more circularity**
3. Determine what **actions** are most urgently needed to achieve the goal of more resilience through circular economy

Timeline: Project launch webinar organised on 22/4/2021, Recruitment procedure started (lead scientist + 3 team members), Research start planned for end 2021

CAS 10



Epidemics: Dynamics and Control

To address fundamental issues in prevention, preparedness, and response

Focus on: 1) Vector-borne infectious diseases and 2) respiratory infectious diseases

To develop a framework based on epidemiological methods (mathematical/statistical), and on data derived from routine and modern surveillance systems.

To study:

- Environmental change-related alteration of disease risk, early warning, seasonality, One-Health.
- Transmission modes, waning immunity, immuno-epidemiology of the disease.
- Pharmaceutical interventions (vaccines, drug treatment).

Related to: WHO/UN, SDG3 and SDG13; EC, SANTE, CLIMA, ENV, ECHO, INTPA, HERA;

Leader: Nikolaos I. Stilianakis, (F7) and three external experts