TOPIC 4 - Enabling Environments for Supporting and Sustaining Citizen Science

MARGARET GOLD, Citizen Science Lab, Leiden University
<table>
<thead>
<tr>
<th>Time</th>
<th>Description</th>
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<tbody>
<tr>
<td>08.30</td>
<td>Bus pick up from Hotel President, travel to Veszprém site visit</td>
</tr>
<tr>
<td>10.30</td>
<td>Arrive in Veszprém, at University of Pannonia (coffee, tea, snacks)</td>
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<tr>
<td>10.30-10.40</td>
<td>Welcome from the chair and presentation of the agenda (Alan Irwin, 10 minutes)</td>
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<td>Welcome by Prof. András Gelencsér, rector of the university (10 minutes)</td>
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<tr>
<td>10.40-11.00</td>
<td>Interactive presentation on the Climate Change project (20 minutes)</td>
</tr>
<tr>
<td>11.00-12.30</td>
<td>Discussion, Feedback and Analysis on “Sustaining Citizen Science” by Margaret Gold (90 minutes)</td>
</tr>
<tr>
<td>12.30-13.00</td>
<td>Bus pick up from university to Lake Balaton, boarding on the boat at Balatonüred Port</td>
</tr>
<tr>
<td>13.00-14.00</td>
<td>Lunch on the boat</td>
</tr>
<tr>
<td>14.00-14.20</td>
<td>Short presentation on the Biodiversity project by prof. Gábor Földvári (20 minutes)</td>
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<tr>
<td>14.20-15.50</td>
<td>Discussion, Feedback and Analysis on “Sustaining Citizen Science” by Margaret Gold (90 minutes)</td>
</tr>
<tr>
<td>15.50-16.00</td>
<td>Wrap-up of day one and short insight on Day 2 agenda (Alan Irwin)</td>
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<tr>
<td>16.00</td>
<td>Bus pick up from the boat at Kenese, travel to Budapest Hotel President</td>
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</table>
Climate change educational quiz

- Launched on Earth’s Day 2021 through national media
- Completed by 5,656 people
- Those with university degree, PhD, STEM teachers were strongly overrepresented
- Short explanation followed each question
- Average score: 35 %
Mainstream facts – largely OK

By how much has carbon dioxide concentration increased in the atmosphere since 1750?

- +46%
- +15%
- +25%
Each year the 8 billion people living on Earth exhale about the same amount of carbon dioxide as emitted by the global fleet of automobiles. Does this fact mean that the world’s population has been directly (i.e. by respiration) contributing to the observ

b) No, because we humans are part of the natural carbon cycle that does not add carbon dioxide to the atmosphere  
a) Yes, proportionally as the Earth's population is increasing  
c) Yes, because carbon dioxide is carbon dioxide, regardless of its source
Basic knowledge of the climate system is missing

By how much does atmospheric greenhouse effect increase the average surface temperature of the Earth? (compared to the Earth with no atmosphere)

- +32 °C
- +2 °C
- +15 °C
By how much has the average surface temperature of the Earth changed since the end of the 19th century?

- b) About +1 °C
- a) About +0.5 °C
- c) About +2 °C
Which of the following statements is true?

- Recently the Arctic is warming four times faster than the Earth on average
- Since the atmospheric concentration of carbon dioxide is the same across the globe, the Earth is warming uniformly
- The increase in surface temperature over the Arctic is lower than elsewhere since part of the excess energy is being used to melt the ice
TOPIC 4 WORKSHOP PART II – DAY 1

11:00 – 11:15 Energizer – where in the world?
Where are you from, where do you live, where did you go on holiday?

11:15 – 11:30 Brief re-cap - the enabling factors

11:30 – 12:00 Bragging rights - what are your shining examples?
Share your prepared example of an enabling factor in your country

12:20 – 12:30 Paired interviews – how did you do that?
What example would you like to learn more about?
Who haven’t you spoken with yet?

---------------------------------------- lunch on the boat ----------------------------------------
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*lunch on the boat*
What is an Enabling Environment?

the factors that enable Citizen Science initiatives to be launched, sustained, grow and thrive – and ultimately achieve their aimed-for impacts and outcomes
1. Supportive legal and policy frameworks

- Legislation aimed at sustaining or scaling-up current CS projects across various sectors,
- National research funding strategies to explicitly encourage and support citizen engagement in research and innovation,
- National directives to incorporate CS generated data in policy making and local governance, and
- Strengthened connections between national policy and European policy and directives.
2. **Institutional policy frameworks, operational structures, and management cultures**

- Institutional policies within research performing organisations (RPOs) and research funding organisations (RFOs) to promote and recognise CS research practices, for example within the context of Open Science or Responsible Research & Innovation (RRI),

- Support for CS practices embedded in operational structures,

- Career-path recognition for the value and importance of such practices, with matching rewards and incentives

- Local coalitions of RPOs, public authorities, businesses and Civil Society Organisations (CSOs) on topics being addressed by CS research or COs,

- Non-governmental Organisation (NGO) support of longer-term CS initiatives and COs,

- Internal communication structures and dedicated role descriptions for multi-stakeholder engagement within local authorities, national governance bodies, and non-governmental actors,

- Operational support of multi-stakeholder coordination across institutional boundaries, and

- Creation of an organisation function (e.g. “office of CS”) which provides support, promotion, and management capacity.
3. **Capacity building activities**

- Integration of skills training for CS as a practice within academic, professional, and life-long educational offerings,

- Dedicated roles within institutions for engaging with the public and CSOs, supporting CS research practices, and/or developing pathways for citizen-generated data, and

- National and regional-level CS platforms and associations for knowledge exchange, training, and development of best practice.
4. Supportive technological and data infrastructure

- Technological tools and platforms for data gathering and analysis, and data infrastructures for data aggregation and data sharing, that are findable, accessible, interoperable, and reusable (FAIR),
- Integration with official data systems and frameworks,
- Integration of CS infrastructure within national data systems, and
- Funding support for ongoing development of technological tools and platforms for CS and COs.
5. Societal dialogue and public fora promoting participation of public and private stakeholders

- National research agenda setting in collaboration with the public and CSOs,
- Impactful alliances between CSOs, NGOs and community-based organisations to promote dialogue and knowledge exchange, and
- Supportive infrastructure for public-private collaborations.
Citizen science helps to prepare for emerging infectious diseases

Gábor Földvári

Institute of Evolution
Centre for Ecological Research
Budapest, Hungary
Thanks to:

Éva Szabó  Gábor Kemenesi, Gábor Endre Tóth  Daniel R. Brooks

- National Laboratory for Health Security
- PRAGMATICK COST Action
  “Prevention, anticipation and mitigation of tick-borne disease risk applying the DAMA protocol

cost.eu  FoldvariGabor@gmx.de
CO₂ concentration

Sea level rise

Arctic sea ice area

Glaciers retreat

Highest in at least 2 million years

Fastest rates in at least 3000 years

Lowest level in at least 1000 years

Unprecedented in at least 2000 years
The Parasite Paradox

Pathogens are ecological specialists strongly co-adapted to their hosts

Emerging diseases occur rapidly, shifts to relatively unrelated hosts are common

BUT
Classical co-evolutionary model

- “Parasites become more specialized to their hosts with time”
- “Host switches are rare”
- “A genetic change of the parasite is needed to new host colonization”

[stamp] WRONG!
Ecological fitting (Janzen, 1985) ensures that there is no need for mutations for host colonization.

Climate change and habitat loss will increase migration in vectors, hosts and pathogens.

This leads to new contacts and new EIDs.

Emerging Infectious Diseases will be the rule and not the exception during episodes of climate change.
Low probability, high impact EIDs

- These frighten us the most, but they are not the major concern and expense
- Most international initiatives (e.g. One Health) target these, usually viral diseases
High probability, low impact EIDs: cause Pathogen pollution

NEW HOST-PATHOGEN ASSOCIATION

ACUTE INFECTION

SELECTION FOR RESISTENCE

CHRONIC INFECTION, RETAINING THE POTENTIAL FOR NEW ACUTE OUTBREAKES

Once established, they never disappear
Urban and rural population projected to 2050, World

Total urban and rural population, given as estimates to 2016, and UN projections to 2050. Projections are based on the UN World Urbanization Prospects and its median fertility scenario.

Source: OWID based on UN World Urbanization Prospects 2018 and historical sources (see Sources)
Ordered by scheduled international passenger kilometres flown in 2010 (source Wikipedia). Only routes in the OpenFlights database are plotted.

Map: James Cheshire, spatialanalysis.co.uk
Flights Data: openflights.org
Basemap Data: naturalearthdata.com
We live in a minefield of evolutionary accidents waiting to happen
The money spent yearly for EIDs:

appr. 1.3 trillion (1,300,000,000,000) USD per year before COVID-19
Costs of *responding* to a single EID (COVID-19) has been several 10 trillion USD...
What can we do?
We can be proactive about coping with emerging diseases based on the Stockholm paradigm

✓ Host changes leading to EID can largely be predicted because pre-existing capacities for colonizing new hosts are highly specific and phylogenetically conservative
Assess the risk
ASSESS (the threat): phylogenetic triage

Is this a known pathogen?
Is this closely related to a known pathogen?

If NO to both, ignore but archive

If YES to either, gather or infer information about its transmission dynamics, microhabitat preferences and natural history
I can't do it
ACT: Coping and Cooperating

- Teach citizen scientists how to reduce chances of establishment
- Reduce risk of exposure, recognize new arrivals rapidly
- Mobilize universities, governmental agencies and NGOs
- Provide proactive suggestions to decision makers

INTERNATIONAL SCIENTIFIC COOPERATION
Citizen

Science

"Need a hand?"
Crimean-Congo Haemorrhagic Fever Virus (CCHFV)
Hyalomma marginatum is a two-host tick.
Hyalomma marginatum and *Hy. rufipes* adults observed in Germany

Chitimia-Dobler et al. 2019
Hyalomma marginatum and *Hy. rufipes* adults observed in Sweden
Hogyan tud Ön is segíteni a két faj elterjedésének magyarországi feltérképezésében?

Elsősorban fotók beküldésével. Amennyiben úgy gondolja, hogy Hyalomma fajt talált, kérjük, készítsen róla minél jobb minőségű fényképet. Fontos, hogy az állat háti és hasi oldaláról is készüljön felvétel.

Különösen nagy segítség számunkra, ha még életben lévő példányt tudunk megvizsgálni, ezért ha az elsípett állatot életben hagya, kérjük, hogy a fényképek elkészülte után helyezze egy jól záró tárolóedénybe (pl. befőttesüveg, gyógyszeres tégely) és lépjen velünk kapcsolatba.

A képek beküldésekor kérjük, csatolja a következő információkat:

- A beküldő nevét és email címét
- A pontos dátumot, amikor az állatot találta
- Az észlelés helyszínét – településnév, földrajzi terület
- Hol találta a kullancsot? például: talajon, valamilyen állaton, emberen
- Mászkált a testfelületen vagy már elkezdett táplálkozni a kullancs?
Veszélyes afrikai kullancs jelent meg az országban: durva betegséget terjeszt

infostart.hu 2019.08.02. 09:30

Egy eddig hazánkban ismeretlen, afrikai eredetű kullancsfaj egyetlen példányát találtak meg a Margitszigeten, a parazita akár a vesezyles, vérzékes krími-kongói lázat is terjesztheti – tudta meg az InfoRádió Földvári Gáborról, az MTA Ökológiai Kutatóközpontjának főmunkatársától.

<table>
<thead>
<tr>
<th>Size</th>
<th>USA</th>
<th>UK</th>
<th>EUR</th>
<th>CM</th>
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<tbody>
<tr>
<td></td>
<td>16</td>
<td>15</td>
<td>51</td>
<td>34</td>
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</table>
Hyalomma rufipes
adult from a cattle
*Hyalomma marginatum*

adult from a dog
Földvári et al. 2022 *Transboundary and Emerging Diseases*
CCHFV isolation in 1972 from two *I. ricinus*

CCHFV seropositive cattle and sheep in 1973

CCHFV antibody in 17 human sera in 1976

Human CCHF infection, unknown source 2004

CCHFV seropositive brown hares 2008-2009

An engorged *Hy. marginatum* nymph on a hedgehog in 2009

Two *Hy. rufipes* males on cows in 2011

CCHFV seropositive wild rodents 2011-2013

Three *Hy. marginatum* (two larvae and a nymph) from a European robin in 2011 and three *Hy. rufipes* nymphs from a common whitethroat (*Sylvia communis*) in 2014

Red crosses indicate origin of CCHFV seropositive blood donors collected between 2008-2017

Földvári et al. 2022 *Transboundary and Emerging Diseases*
Földvári et al. *in prep.*
Figure A) ii)

Földvári et al. in prep.
✓ Over 31,000 site visits in 7 months

✓ Several hundred photos and 137 ticks submitted

✓ 6 tick species, 2 Hyalomma adults (both negative for CCHFV RT qPCR)

✓ Broad citizen involvement

✓ Documentation of Volzhskoe virus with metagenomics

✓ 2022: 6 Hyalomma so far
Transformative change needed

- Filling critical knowledge gaps ("Pathogen X")
- Intergovernmental panel for pandemic preparedness (like IPCC, IPBES)
- Economic incentives
- Stopping habitat destruction
- Reducing wildlife trade
- Broad societal involvement
CHANGE
TOPIC 4 WORKSHOP PART II – DAY 1

-----------------lunch on the boat-----------------

14:30 – 14:50  Brief re-cap - ‘Project Journey’ mapping of the enabling factors
14:50 – 15:10  Building a national roadmap – How should it be structured?
15:10 – 15:40  Break-out discussions
15:40 – 15:50  Group summary discussion
TOPIC 4 WORKSHOP PART II – DAY 1

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Lunch on the boat
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15:40 – 15:50  Group summary discussion
Workshop Part I
Vienna

June 7th - 8th
2022
FUNDING

Legal & Policy Frameworks

Societal Dialogue

Internal Policies & Culture

Supporting (Data) Infrastructure

Capacity Building & Networks
Initiating

Recruiting

Maintaining

Outcomes

ENABLING FACTOR

Institutional Policy / Culture

Capacity Building & Networks
ENABLING FACTORS

PROJECT LIFECYCLE

Initiating

Recruiting

Maintaining

Outcomes

Societal Dialogue
TOPIC 4 WORKSHOP PART II – DAY 1

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lunch on the boat------------------------------------------

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15:10 – 15:40  Break-out discussions

15:40 – 15:50  Group summary discussion
UNESCO Priority Areas

1. Promote a **common understanding** of CS benefits and challenges, and range of diverse paths.

2. Develop an enabling **policy environment** for CS.

3. Invest in CS **infrastructures** and services.

4. Invest in **human resources, training, education, and capacity building**.

5. Foster a **culture** of Open Science & CS with aligned incentives.

6. Promote **innovative CS approaches** at different stages of the scientific process, and

7. Promote international and multi-stakeholder **cooperation and knowledge exchange**...
The Workshop I Action Lines

RFO POLICY: Create a Working Group with the Research Funding Organisations, the Ministry & CS practitioners: (1) set funding strategy, (2) knowledge exchange

RFO POLICY: Create a dedicated function within the RFO to (1) bring different internal departments together for knowledge exchange and (2) interface with CS practice

CAPACITY BUILDING: Create a Citizen Science Hubs network that supports the CS practitioners community, based in Universities, and collaborating with RFOs and Ministries
The Workshop I Action Lines

**RFO POLICY:** Create dedicated funding schemes & CFPs for Citizen Science, with specific evaluation criteria related to public engagement in science.

**CAPACITY BUILDING:**
- Create a dedicated knowledge hub within the research performing organisation so that colleagues interested in CS practices can be supported.
- Create an education lobby network within and between Universities at the Deans level to embed CS within the Curricula.
Set up and run an annual Citizen Science Conference

Establish a Coordination Centre for National CS Initiatives

Embed a centralised CS Coordinator within my institution to facilitate inter-department coordination

Create a Landscape Report of current CS projects, describe their potential impacts and results, & share these to raise awareness

Determine whether there is resistance or support among Academia

Establish a knowledge exchange event between CS Practitioners and Policy Makers

Collect information on who is engaging in CS within my institution and form a WG

Develop a Funding Framework
Level 1 = Awareness
Activities are started to set a strategic ambition towards a point in the future.
Tools include gap analysis and Balanced Scorecard
Stakeholders are identified
There is a shared vision

Level 2 = Repeatable
The strategic intentions have been defined and set, and there is pathway defined to monitor these and iterate.
Governance agreements are made
Stakeholders are engaged
Standards are set

Level 3 = Defined
An Action Plan has been defined, with specific tasks and task-owners.
Stakeholders are empowered and enabled
Supporting resources are identified
KSFs are defined

Level 4 = Managed
The Action Plan is activated, supported, and monitored. Operational structures are in place.
Capacity is embedded
Funding is secured
Monitoring networks are active

Level 5 = Optimised
Interim outcomes are assessed, plans are iteratively developed and updated. There is attention to quality and the capacity to achieve the strategy.
Progress is monitored
New stakeholders, actors, capacity and funding were needed

...our horizontal axis?....
# AGENDA DAY 2

<table>
<thead>
<tr>
<th>Time</th>
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<tbody>
<tr>
<td>08.30</td>
<td>Meeting up at Hotel President to go to the ELTE Campus together</td>
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<tr>
<td>08.30-09.00</td>
<td>Go together to the ELTE Campus, Science Faculty</td>
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<tr>
<td>09.00-09.30</td>
<td>Registration, coffee/tea</td>
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<tr>
<td>09.30-09.40</td>
<td>Welcome from the Hosts (5 minutes)</td>
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<td>09.40-10.00</td>
<td>Funding Open Science and Citizen Science in Hungary. Presentation by dr. István Szabó, Vice President of NRDIO (20 minutes)</td>
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<tr>
<td>10.00-11.00</td>
<td>Presentation on ELTE family dog project (with participation of citizens and their dogs)</td>
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<td>11.00-12.00</td>
<td>Discussion, Feedback and Analysis on &quot;Sustaining Citizen Science&quot; by Margaret Gold (60 minutes)</td>
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<td>12.00-13.00</td>
<td>Lunch offered by ELTE University and exhibition viewing (posters on Hungarian CS projects)</td>
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<td>14.00-14.20</td>
<td>Coffee break</td>
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<td>Closing and next meeting (Alan Irwin, 10 minutes)</td>
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FUNDING OPEN SCIENCE AND CITIZEN SCIENCE IN HUNGARY

István SZABÓ PhD

vice president for science and international affairs
National Research, Development and Innovation Office
1 RDI IN HUNGARY
CURRENT STATE OF PLAY
The main competitors of Europe are strong in innovation and have a good position in global competition, while most European countries perform better in R&D.
Compared to their R+D output, the innovation performance of Hungary and other countries in the CEE region is weak.
HUNGARY’S GERD/GDP RATIO (%)

Strategic aim: 3% GERD/GDP in 2030
RANKING OF EU MEMBERS - EUROPEAN INNOVATION SCOREBOARD, 2021

Emerging innovators
Moderate innovators
Strong innovators
Innovation leaders
Performance gap between EU15 and EU13 countries in Horizon 2020
2 RDI PROGRAMME FRAMEWORK IN HUNGARY

CHALLENGES & ANSWERS
SMART SPECIALIZATION STRATEGY 2021-2027
AND SECTORAL STRATEGIES

National Digitalization Strategy
- Digital skills development of SMEs
- Development of integration of digital technologies in the whole economy
- Development of the ICT sector as a priority

National RDI Strategy
1. Knowledge production
2. Knowledge transfer
3. Knowledge exploitation

National SME Strategy
1. Strengthening the value-creating capacity of companies of high growth potential
2. Provide a predictable framework for the entire SME sector

Special Ministerial Order: NRDI Office is responsible for planning and implementation of S3
S3 PRIORITIES

- Agriculture, food industry
- Health
- Digital economy
- Creative industry
- Resource-efficient economy
- Energy, climate
- Services
- Cutting-edge technologies
- Public sector and university innovation
- Training, education

Gov. decree 428/2021. (VII. 2.) on National Smart Specialization Strategy 2021-2027
RENEWED FINANCING SCHEME OF NRDI FUND 2021

**Individual excellence**

**Horizontal programmes**

**Thematic programmes**
- National security and defense
- Health
- National challenges: Secure society and environment, Industry and digitization, Culture and family

**Business innovation**

**Horizontal programmes**

NRDI Fund Research sub-fund: HUF 105.762 billion

Research data management plan
Dedicated OA budget

Gov. Decree 1077/2021. (II. 27.) on 2021 Programme Strategy of NRDI Fund

NRDI Fund Innovation sub-fund: 76.53 billion
SYSTEM OF RDI PROGRAMMES OF NRDIO

Researchers

Businesses

HEIs and Research institutions

International and domestic research and technological infrastructures

New National Excellence Programme

National Conference of Student Research

Cooperative Doctoral Programme

Calls for business enterprises (NRDI Fund and operational programmes)

Science Parks

Competence Centres

Thematic Excellence Programme

Basic research ("OTKA")

Forefront Research Excellence Programme

Horizon Europe

International calls

National Laboratories

University Innovation Ecosystem
SCIENCE PARKS

University of Pécs:
- Specialized engineering
- Green economy
- Health economy
- Food industry

ZalaZONE:
- Automotive industry
- Industry 4.0, AI

Széchenyi University
- IoT, Industry 4.0, AI, automotive industry

Óbuda University (Zsámbék):
- Future Industry

Óbuda University (Székesfehérvár):
- Mechatronics

Óbudai University (Kaposvár):
- Smart industry

Nagykanizsa (PE):
- Recycling economy, renewable energy, waste management, water management

University of Miskolc:
- Material science, geoscience, sustainable development, environment, waste management, logistics

TE TSTI:
- Sports science

BME:
- IoT, Industry 4.0, 5G

SE/NKE/PPKE:
- Health

TE (Mogyoród):
- Motor sport

University of Debrecen:
- Health & food industry, automotive industry

University of Szeged:
- Physical sciences, laser technology, biotechnology, IT

University of Pécs:
- Specialized engineering, green economy, health economy, food industry
3 OPEN SCIENCE IN NATIONAL CONTEXT

NRDIO GOALS, ACTIVITIES & PRACTICES
OS GOALS OF NRDIO

• Establishment of a National Open Science Advisory Board
• Formulation of a national resolution ("Open Science White Paper")
• Join the EOSC Association
• Enforcement of Open Science principles in research and innovation applications
The statement has been published with the aim of expressing a common position on Open Science, based on professional consensus, summarizes the principles and the fields of activity of Open Science that best serve the interests and development of Hungarian science.

The statement reflects on the key pillars of the Open Science ecosystem:

- open access to research outputs;
- FAIR and CARE research data management;
- research integrity;
- next generation metrics in research assessment;
- new types of rewards and initiatives;
- international cooperation networks;
- Citizen Science;
- education and skills.
**ADVISORY BOARD TO THE POSITION PAPER**

**Funding organizations**

- Association of Hungarian PhD and DLA Candidates (DOSZ)
- College of University Library Directors (EKK)
- Eötvös Loránd Research Network (ELKH)
- Ministry for Innovation and Technology (ITM)
- Governmental Agency for IT Development (KIFÜ)
- Hungarian Accreditation Committee (MAB)
- Hungarian Rectors’ Conference (MRK)
- Library and Information Centre of the Hungarian Academy of Sciences (MTA KIK)
- Hungarian Doctoral Council (ODT)
- National Scientific Student Council (OTDT)
RELEVANCE OF CITIZEN SCIENCE IN THE NATIONAL RDI STRATEGY

• Hungary’s RDI strategy for 2021-2030 stresses the importance of increasing the public awareness of the value of science and innovation and highlighted that it is necessary to promote the accessibility of scientific results and innovation methods not only for universities, research institutes and businesses, but also for society in general.
The programme provides funding for

- **participation** in international scientific and innovation events and **conferences held abroad**
- **organizing** international scientific and innovation events and **conferences in Hungary** (with special regard to events related to international research infrastructure memberships)
- social promotion of the results of science and innovation, and **support of Citizen Science**
- **supporting the publication of scientific books** in paper-based and at the same time **open-access** electronic format.

648 applications    270 awarded grants
Hungary is committed to actively take part in ERA Action 14 Bring science closer to citizens under the ERA Policy Agenda and priority is given to the following activities:

**Plastic Pirates Initiative**

- **Hungary has joined the Plastic Pirates** citizen science initiative and participates in the “Europeanisation of the Plastic Pirates Citizen Science Campaign” action coordinated by DLR-PT and will contribute to further development of the initiative by fine tuning the citizen science approach and methodology and by organizing local sampling campaign and communication activities.

**Mutual Learning Exercise**

- **Hungary participates** in the Mutual Learning Exercise “Citizen Science Initiatives – Policy and Practice” launched under the PSF in 2022.
- Hungary is committed to get engaged in the continuation of the MLE on Citizen Science and prepare the ground for a policy coordination mechanism on public engagement practices and a network of exchange among responsible national organizations.
FURTHER PLANS BASED ON INSTITUTIONAL LEVEL INITIATIVES

Although several citizen science activities are implemented at institutional level at Hungarian universities or research organizations but no dedicated platform or network has been established to monitor or link these initiatives.

• developing a monitoring system for the ongoing CS projects,
• a national Citizen Science network/hub will be established to create a common platform for those organizations which have already been implementing citizen science actions or express their commitment to promote public engagement in RDI
THANK YOU FOR YOUR ATTENTION!
Citizen science in ethology:
Comparative studies

Fanni Lehoczki, PhD
Postdoctoral Researcher
Neuroethology of Communication Group
Department of Ethology, ELTE

Paula Perez Fraga, VMD
PhD student

MLE on Citizen Science Initiatives
Budapest
13.09.2022
Why do we need citizen science approach in ethology?

- More owner can be reached
- Animals are tested in their natural environment
- Data collection during pandemic
- Data collection during swine-fever
Our studies

Subjects wanted!

Researchers of the Department of Ethology, ELTE aim to compare whether family pigs and dogs react similarly when hearing different human vocalizations.

DIY at your home
Only a few technical devices are needed
Get to know a new side of your 4-legged friend!
Get researcher experience!

Do you live with a food motivated...

minipig? or dog?

Researchers of Department of Ethology, ELTE aim to compare how pigs and dogs behave when facing an unsolvable test situation.

More information & application at the link in the post
In case of any questions contact Fanni Lehoczki at onlinepigdogstudy.elte@gmail.com
Preparation

1. Writing a protocol for owners
2. Making a demo video
3. Preparing application form + video accepting form
4. Preparing online storage system
5. Preparing certificate/gift
6. Making a database for the applicants
7. Advertising the test
8. Writing emails to applicants
Steps for the applicants

1. Application
2. Getting the test material
3. Room setup
4. Online live discussion with experimenter/
   Conduct the test in the online presence of the experimenter
5. Sending the video file
6. Certificate & gift
Most frequent issues

- Not appropriate room setup
- Owner has no technical skills/motivation
- Owner does not follow the steps of the protocol
- Lack of or problem with technical devices
- Owner’s behaviour interferes the subject
- Disturbances during the test
Pig specific issues

- Hard to adjust the protocols for the pigs
- Fewer available companion pigs
- Pig owners are less motivated
- Pigs are hardly controllable
Pig test... that went wrong.
Pig test... that went right.
Results

Subjects

30/52 🐶  22/ 34 🐷
### Discussion of the citizen science approach in ethology

<table>
<thead>
<tr>
<th><strong>Pros</strong></th>
<th><strong>Cons</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>It works 😊</td>
<td>Extra work (e.g. testing at nighttime)</td>
</tr>
<tr>
<td>Possible during lockdown</td>
<td>Simple setup and protocol</td>
</tr>
<tr>
<td>More owners, from all over the world</td>
<td>Lot of useless data</td>
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NPOS Ambition 2030

2013 - 2021

2018
Launch EOSC
The symbolic launch of the European Open Science Cloud, a trusted, virtual, federated environment for sharing research data.

2022
Launch NPOS 2030 Programme
The NPOS2030 Programme marks a new phase in the transition to Open Science in the Netherlands.

2017
National Plan Open Science
The presentation of the National Plan Open Science marks the launch of the NPOS.

2021
UNESCO Recommendation on Open Science
UNESCO published their global Recommendation on Open Science to be adopted by the 193 Member States.

2030

key lines of action

Towards societal engagement and participation
Towards inclusive and transparent scientific processes
Towards open scholarly communication
Towards FAIR and open research outputs

strategic goals

Close collaboration between knowledge institutions, government, industry, and citizens to strengthen science and optimise the processes of creating, sharing, and communicating knowledge for the benefit of society.

Inclusive, efficient, and transparent processes of scientific innovation, evaluation, quality assurance and communication.

Removal of barriers to reading and reusing all scientific output, so everyone can access scientific knowledge in a sustainable way and benefit from it.

Products of and for knowledge creation, like data and software, being findable, accessible, interoperable, and reusable (FAIR), and open in as far as regulations allow.
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The Dutch government
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should be freely
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Kennis en krachten gebundeld –
citizen science in Nederland
Wetenschap en samenleving in co-creatie
Eindverslag van de werkgroep Citizen Science
26 oktober 2020

NPOS (2020) Kennis en krachten gebundeld – citizen science in Nederland

NPOS Steering Group
Secretariat
NCOS
Open Access programme
FAIR Data programme
Citizen Science programme
Open Science Community
Advisory group

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Open Infrastructures  Support & Training  Community Engagement  Recognition & Rewards  Policies & Regulations
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Open Infrastructures
Support & Training
Community Engagement
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Content of the FINAL REPORT

The Final Report will draw on the lessons derived from the main topics discussed during the country visit meetings and identify practices (both successful and unsuccessful), include sets of operational recommendations, lessons learned, success factors and enabling conditions. It will contain a solid set of concrete operational recommendations which will be backed up by evidence, best practice and analyses of approaches introduced in the Member States. It will also include a solid policy-oriented executive summary presenting these recommendations in the European R&I policy context.
Thank you!

RTD-PSF@ec.europa.eu