O futuro da ciência cidadã

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Encontro Nacional da Ciência Cidadã

· U C ·
Universidade de Coimbra
CIBIO

O futuro da ciência cidadã

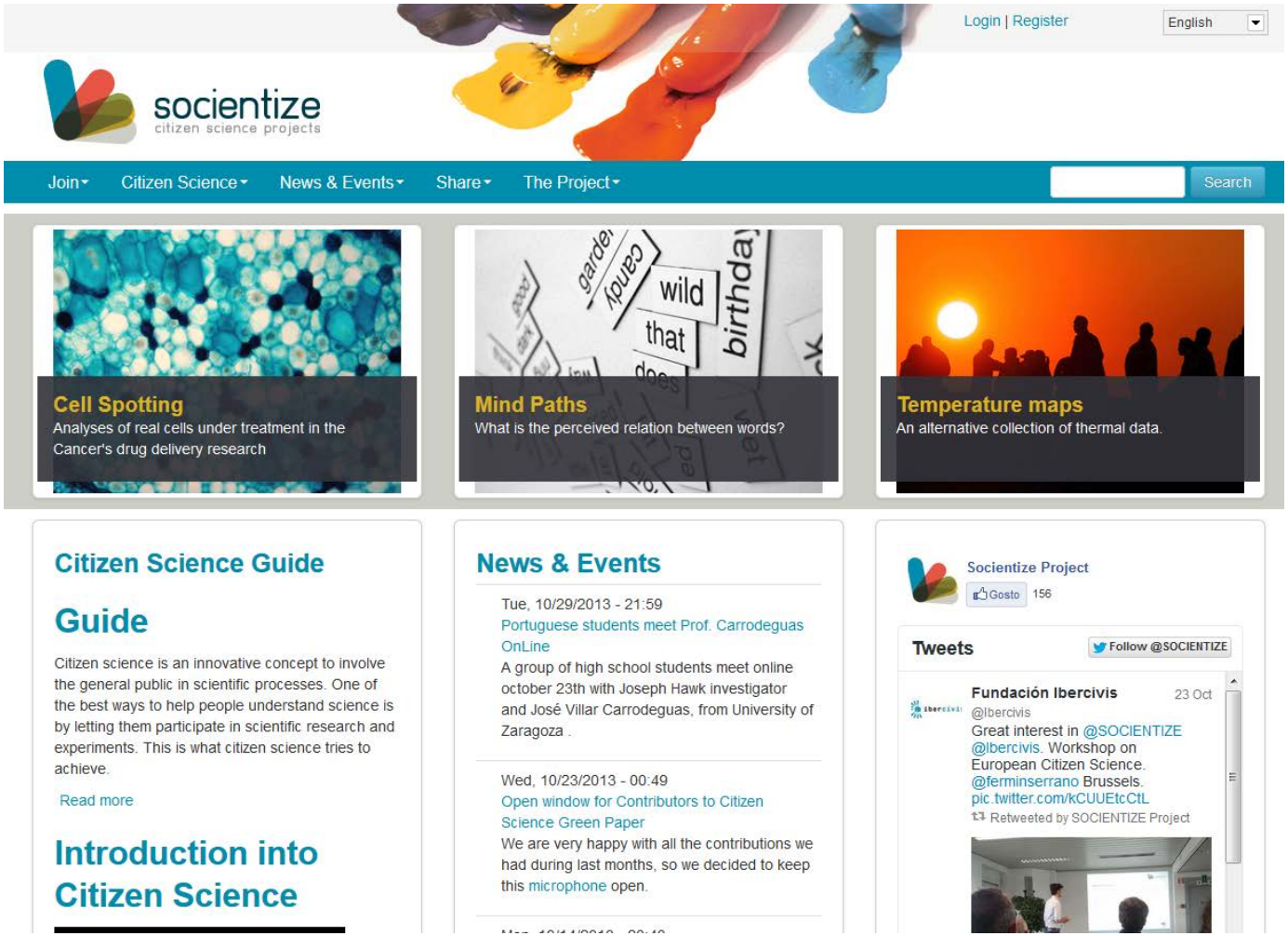
WHITE PAPER

ON CITIZEN SCIENCE FOR EUROPE

European Commission

Uma definição para ciência cidadã (Livro branco da ciência cidadã)

Socientize – Um projecto de ciência cidadã



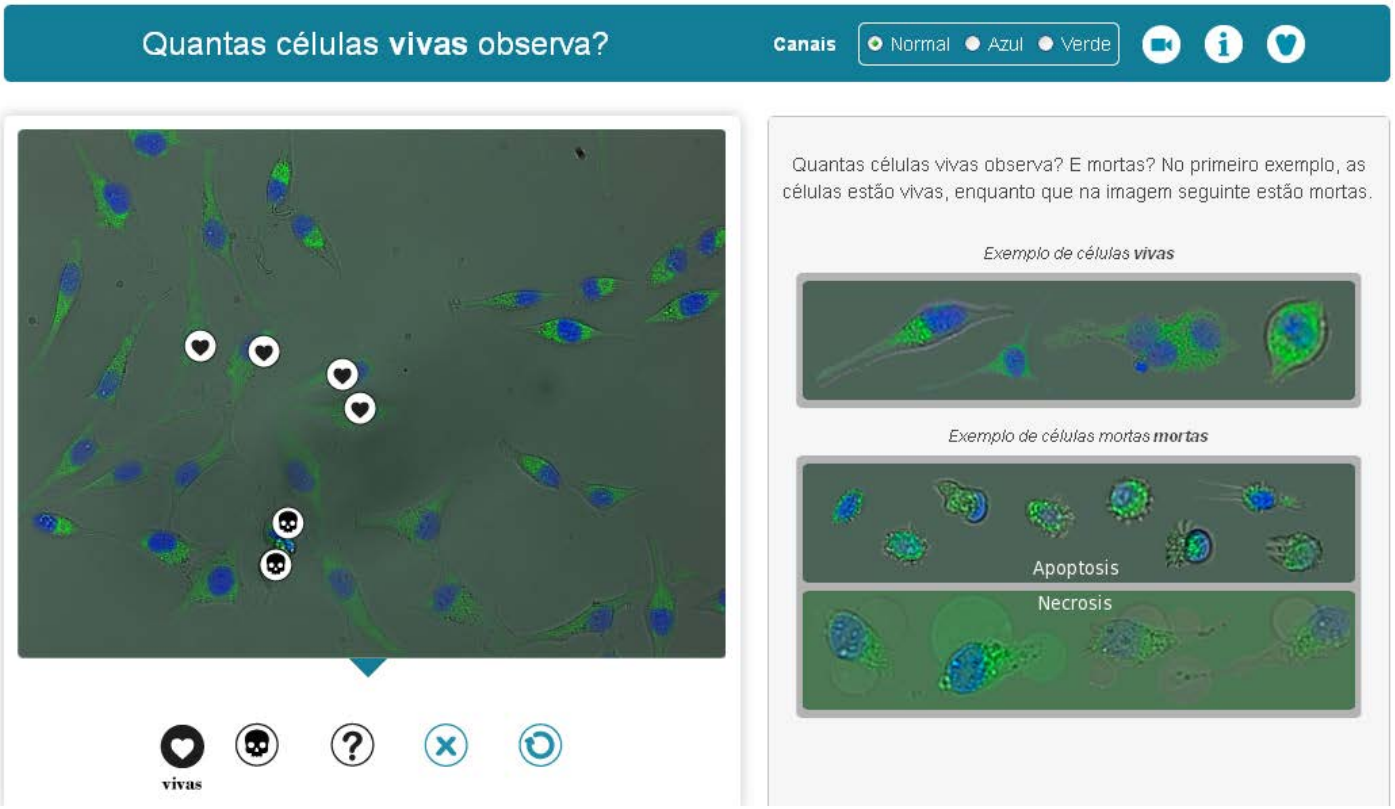
Parceiros do projecto

Universidad Zaragoza	Universidade de Saragoça - BIFI, UNIZAR	Saragoça	Espanha
MUSEU DA CIÊNCIA	Museu da Ciência-Coimbra, MUSC	Coimbra	Portugal
UNIVERSIDADE DE COIMBRA	Universidade de Coimbra	Coimbra	Portugal
UFCG Universidade Federal de Campina Grande	Universidade Federal de Campina Grande, UFCG.	Campina Grande	Brazil
tecnara	Tecnologias da Informação, Electrónica e Telecomunicações de Aragón	Saragoça	Espanha
ZENTRUM FÜR SOZIALE INNOVATION CENTRE FOR SOCIAL INNOVATION ZSI	Centro de Inovação Social	Viena	Áustria

O futuro da ciência cidadã

Cell Spotting

Análise de dados de combate a células cancerígenas, concebido em U. Saragoça. Uma base de dados de mais de 100 000 imagens para analisar.



Cell Spotting

Escolas secundárias

Concurso com formação em escolas dePortugal e Espanha com:

- 2030 participantes de 50 escolas, realizaram 59653 tarefas.
- 81% imagens analisadas.
- Avaliação

Cell Spotting

Escolas secundárias

Teachers' comments in focus group evaluation:

"This project allowed the contact with different realities and also opened students' horizons to the world. This is a singular opportunity to involve students with the reality of Research in Science."

"This project allowed the contact with a reality that we, as teachers, can try to explain but have not lived."

Cell Spotting

Com universidades seniores

Trabalhámos com 3 academias seniores, que estiveram envolvidas nos projectos Cell spotting e Sun4all.

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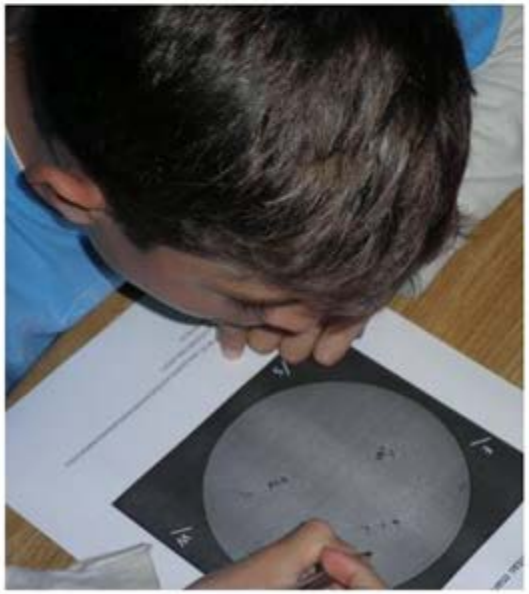
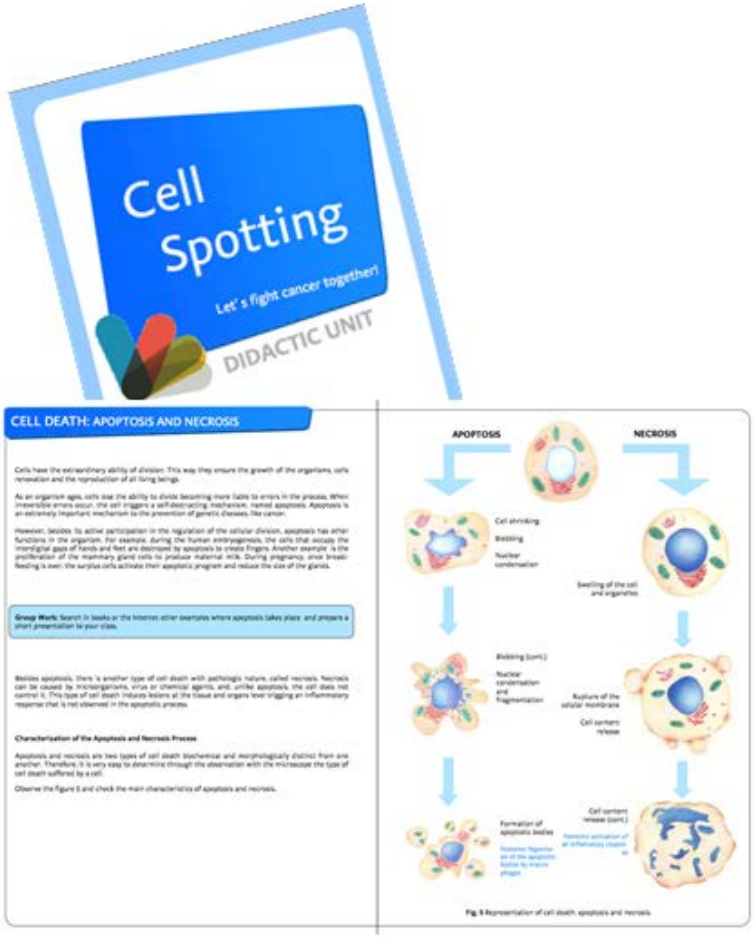


Foram produzidas unidades didácticas

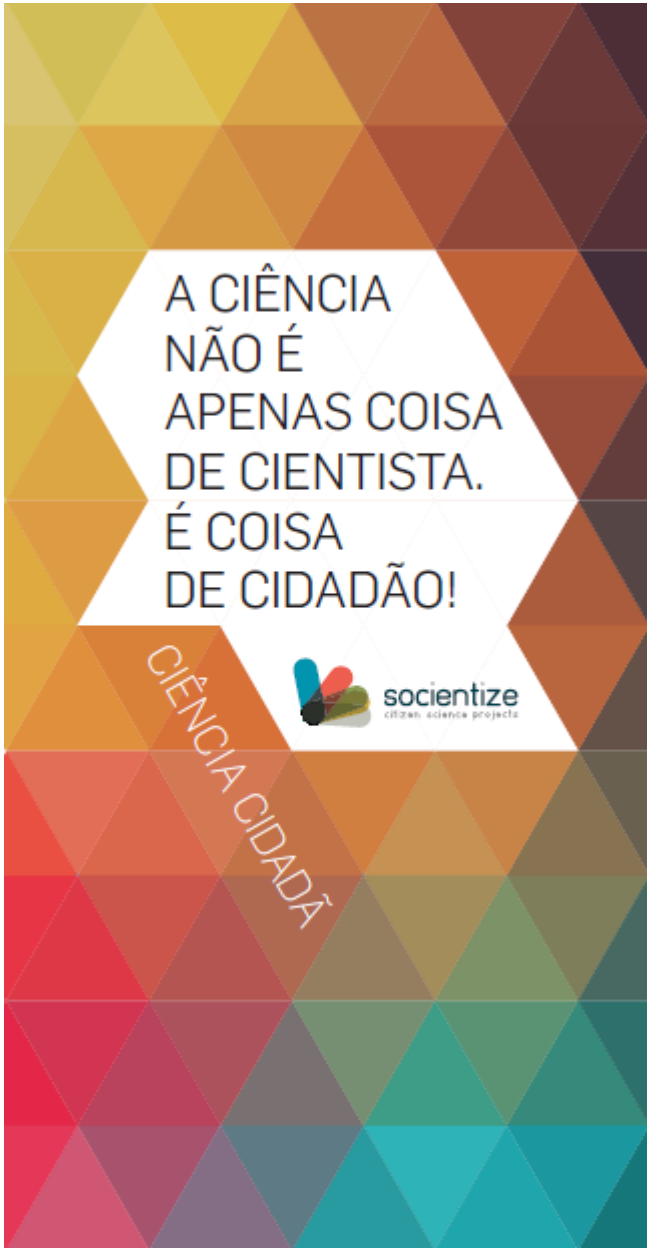


casa das ciências
PORTAL GULBENKIAN PARA PROFESSORES

SCIENCE in SCHOOL
Highlighting the best in science teaching and research

SOCIENTIZE em números

- 36 000 voluntários
- > 20 projectos científicos apoiados
- 15 artigos científicos
- 2 teses de doutoramento



Fenómenos à escala global e participação dos cidadãos

- Alterações climáticas
- Biodiversidade
  - Extinções
  - Invasões
  - Destruição de habitats
- Qualidade ambiental
- Saúde

Trata-se de abordar grandes problemas societais e de interesse científico, ou em que a ciência pode ter um contributo decisivo.

Potencial de dar poder aos cidadãos para resolverem os seus problemas.

Projectos

CIBIO – Biodiversity: collaborative research and educational projects

Darwin sparrows – Cape Verde

Lichens in the Northern style (Iberian Red list of Lichens)

Serralves Bioblitz

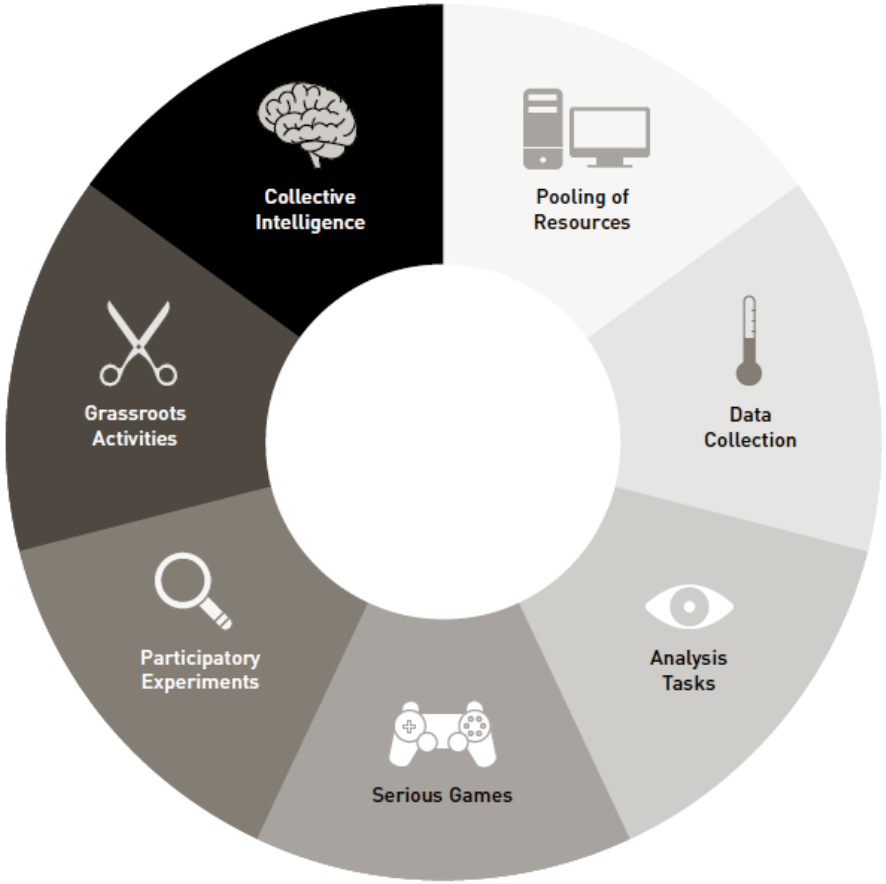
White paper and recommendations

WHITE PAPER
ON CITIZEN SCIENCE FOR EUROPE

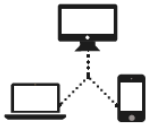
Uma definição para ciência cidadã (Livro branco da ciência cidadã)

WHITE PAPER
ON CITIZEN SCIENCE FOR EUROPE

MODELS OF CITIZEN ENGAGEMENT IN SCIENCE



O futuro da ciência cidadã

VALUES	ATTRIBUTES		
 **Open** (culture)	◆ Trusted ◆ Transparent ◆ Global	◆ Engaging ◆ Self-learning ◆ Accessible	◆ Reusable ◆ Participatory ◆ Collaborative
 **Social** (by all/for all)	◆ Co-created ◆ Amateur ◆ Scattered	◆ Collective ◆ Democratic active ◆ Public assessment	◆ Creative ◆ Inclusive
 **Digital** (infrastructure)	◆ Powerful ◆ Ubiquitous ◆ Pervasive ◆ Massive	◆ Immediate ◆ Traceable interactions ◆ Networks	◆ Devices ◆ Empowerment ◆ Effective
 **Research** (innovative)	◆ Unexplored ◆ Inspiration for innovations ◆ Transdisciplinary	◆ Innovative ◆ Educational ◆ Common ◆ Responsible	◆ Sustainable ◆ Skilled ◆ Experimental

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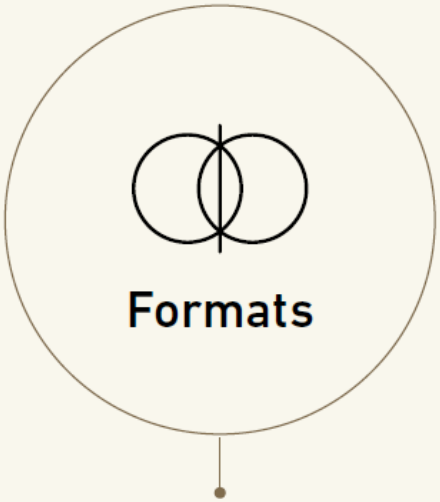


Research driven / socially driven

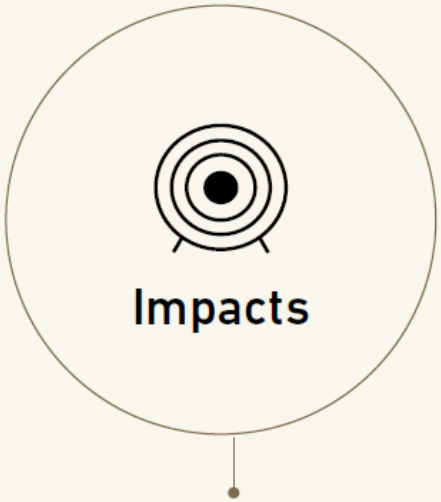
Online / offline

Amateur / Professional

Formal / Informal

One-day / permanent

Local / global



Scientific

Inspirational

Educational

Social

Economic

Environmental

Political

Elementos-chave:

Envolvimento público, confiança e educação

Proposed Action 1: *Targeted Programming*

Designing funding schemes and launching programmes specific to Citizen Science. Targeted calls will achieve a broader uptake and will keep already-established networks and systems going. Programmes should contribute to a deeper analysis of Citizen Science practices and outcomes. Fostering co-production of knowledge will bring science into new scenarios with an even greater diversity of actors in the field of research to achieve higher creativity. The challenge lies in the design of these programmes which should allow for participation of grassroots initiatives driven by either civil society organisations or independent citizen scientists. Broad dissemination and support activities will be needed as well as minimal bureaucracy. The creation of a committee of researchers and citizens involved in the decision-making process regarding such funding programmes is recommended.

Proposed Action 2: *Mainstreaming Citizen Science*

Embedding Citizen Science into existing funding schemes. Just as science communication, Citizen Science should become an integral part of ongoing scientific activities. Research should be given greater credit for the inclusion of Citizen Science strands covering multiple disciplines, addressing the public's needs and concerns.

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Support Measure 1: *Education*

Updating educational programmes in order to promote and to recognise new forms of community engagement and digital skills in the curriculum. New tools and educational materials should foster citizens' autonomy and responsibility for change at an early age (encouraging curiosity, criticism, self-learning, self-expression) through lifelong learning. Educational programmes should stress collaboration between schools and scientific institutions, which needs to be reflected in scientific and educational value systems.

Support Measure 2: *Evaluation and Assessment*

Expanding current academic reputation systems and evaluation criteria to account for social impact and engagement. Finding alternative metrics and incentives for scientific curricula that recognise social engagement. Potential social impact and citizen involvement should become selection and evaluation criteria in both existing and future funding schemes. Consequently, citizens and amateurs should take part in the evaluation and selection process.

Support Measure 3: *Access to Technology*

Broadening access to technology and improving the systems required to make the most of the power of networked communities, paying special attention to the digital divide in Europe. Encouraging citizens to be actively involved in the development and deployment of technologies and educational materials.

Support Measure 4: *Data Policy*

Clear ethical guidelines are needed for EU-wide data policy. We support a culture of openness for data and access to data. We ask stakeholders to extensively share public datasets collected and research data infrastructures (quality, reliability, interoperability) as well as data handling tools and methods (algorithms, descriptive, predictive, visualization, decision-making.) This implies handling data in a very sensible way, taking into account intellectual property rights, fundamental personal data protection rights, ethical standards, legal requirements and scientific data quality.

Support Measure 5: *Dissemination and Support*

All strategies and policy actions must be communicated by providing appropriate knowledge-based guidance. Citizen Science communication, dialogue and training programmes (actors: public officials, researchers, journalists....) should aim at achieving broad dissemination and support activities that are consistently applied and communicated throughout EU science and innovation policies; and demonstrating the usefulness of and the need for new knowledge generation and application in Europe.

Some conclusions

- Our society requires a *paradigm shift*, a new contract between all societal actors in order to address global challenges with a **stronger focus on scientific and social values, and not only economic ones**.

- New politics are needed that prioritize science-society-policy **interactions fostering knowledge-based, intelligent and responsible selection of choices**.

- We need **structural reforms** to increase the openness and the diversity of actors, narratives and scenarios in order to **encourage creativity opening new opportunities for all and new joint solutions**.

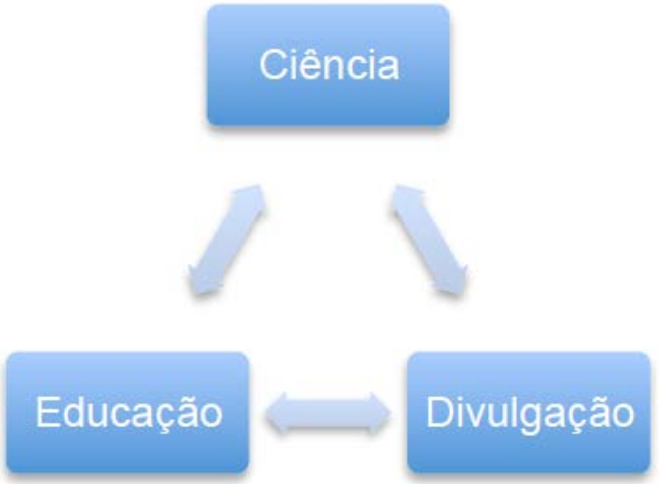
Um Observatório da Ciência Cidadã

Observatório da Ciência Cidadã

1. Identificação, catalogação e mapeamento das iniciativas de Ciência Cidadã em Portugal

Observatório da Ciência Cidadã

2. Registo e repositório e divulgação das iniciativas de Ciência Cidadã para escolas e outras entidades



Observatório da Ciência Cidadã

3. Monitorização e avaliação do impacto científico, educacional e social das iniciativas de Ciência Cidadã.

Observatório da Ciência Cidadã

4. Participação em actividades transnacionais e internacionais para a implementação e divulgação de iniciativas de Ciência Cidadã.

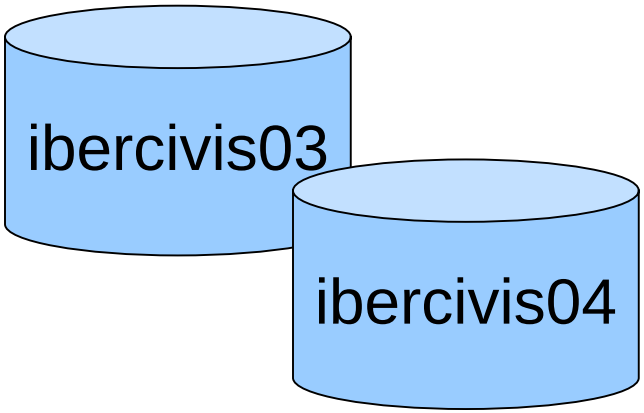
EUROPEAN
CITIZEN SCIENCE
ASSOCIATION

ecsite
EUROPEAN NETWORK
SCIENCE CENTRES & MUSEUMS

ibercivis

Infrastructura em Portugal

FCCN
Fundação para a Computação Científica Nacional
Foundation for National Scientific Computing



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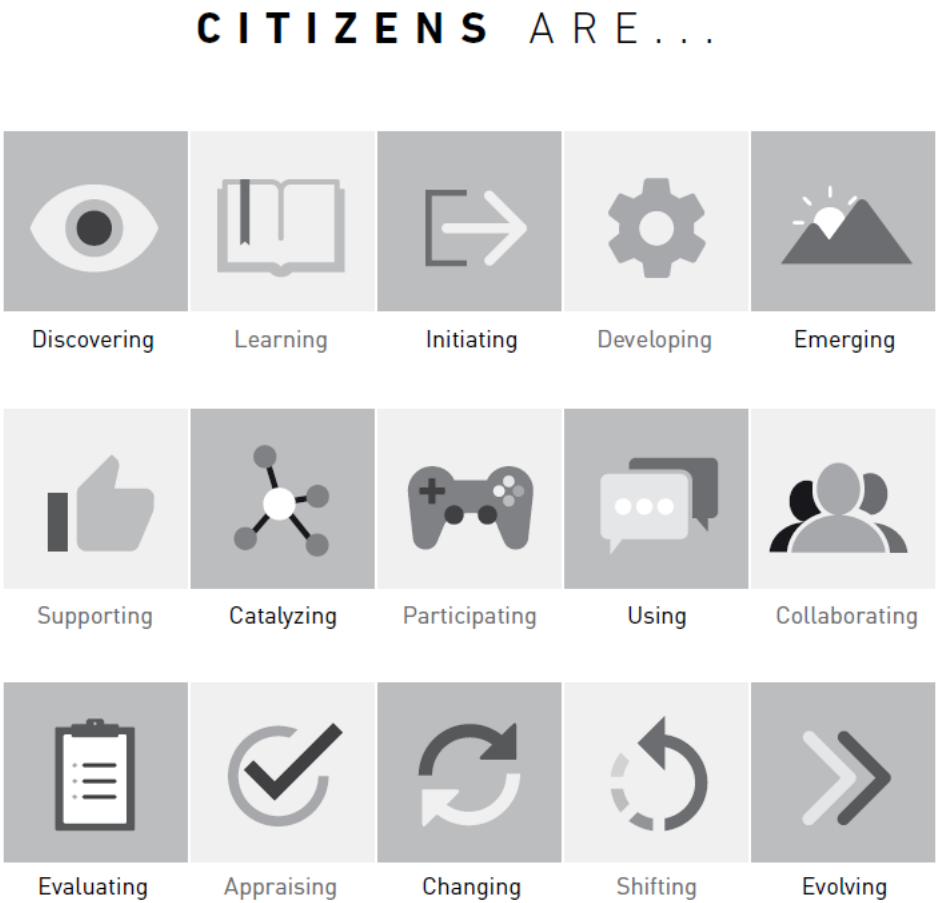

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