An holistic view of

CITIZEN SCIENCE INFRASTRUCTURES

Civic Epistemologies – workshop on user requirements
25 November 2014

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University Zaragoza – Foundation Ibercivis

Fundación ibercivis

Instituto Universitario de Investigación de Biocomputación y Física de Sistemas Complejos
Universidad Zaragoza

socientize
citizen science projects

European Commission

SOCIENTIZE

www.socientize.eu
EU FP7 funded CSA-SA
Start date: 1/10/2012. 24 Months
Total budget: 709.999,86

Consortium:
Univ. Zaragoza, Tecnara (ES)
Univ. Coimbra - Museu Ciencia Coimbra (PT)
Univ. Fed. Campina Grande (BR)
Zentrum fur Soziale Innovation (AU)

External Advisory Board:
David Anderson (US)
Drew Hemment (UK)
Steven Bamford (UK)
Subcontractors: UB, CERN

Tasks: coordination, outreach, experiments, deployment and support, policy recommendations

Ibercivis Foundation

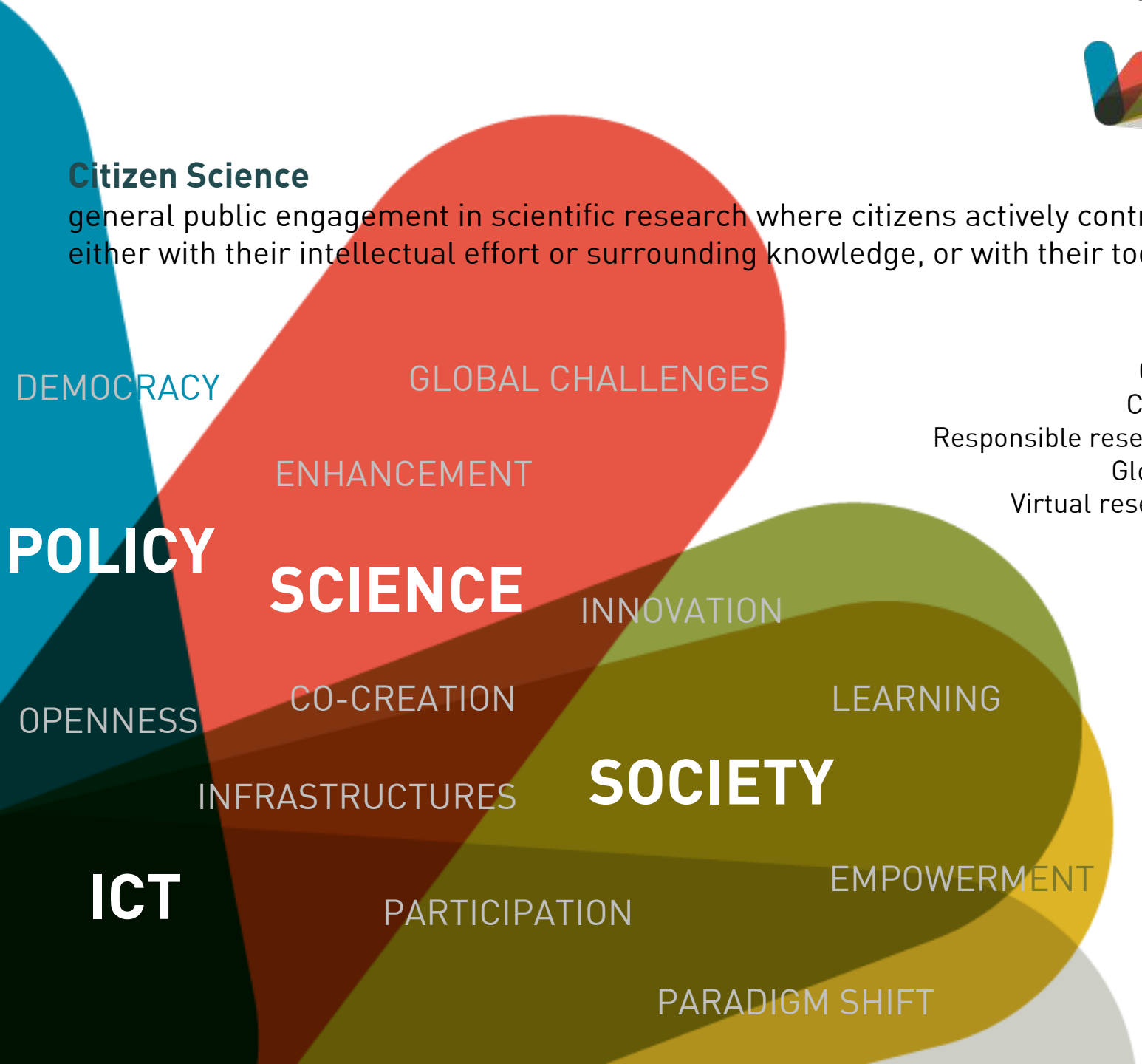
www.ibercivis.eu
Started in 2007 in Spain, formalised in 2012
Upscaled in 2009 to Portugal

Consortium:
National-regional-local policy institutions (MINECO, Gobierno Aragón, Ikerbasque, FZC)
National-regional research institutions and academia (CSIC, CIEMAT, Univ. Zaragoza)

Services:
Research, deployment, infrastructure, porting
Coordination, support, communication, events
Supporting other countries

socientize
citizen science projects

Citizen Science
general public engagement in scientific research where citizens actively contribute to science either with their intellectual effort or surrounding knowledge, or with their tools or resources.



Open digital science
Citizen observatories
Responsible research and innovation
Global system science
Virtual research environments
Science 2.0
Smart citizens
...

FORMATS

Online - Offline
Amateur - Professionals
Formal - Informal
Ad-hoc- Regular - Permanent
Local - Regional – National – European - Global

MODELS

Data analysis
Experimental Data
Data collection
Human Sensing
Pooling of resources
Collective intelligence
Grassroots activities

STAKEHOLDERS

Society
General public, local communities, CSOs, students, risk-of-exclusion groups, teachers, educators, artists, journalists, communicators, companies

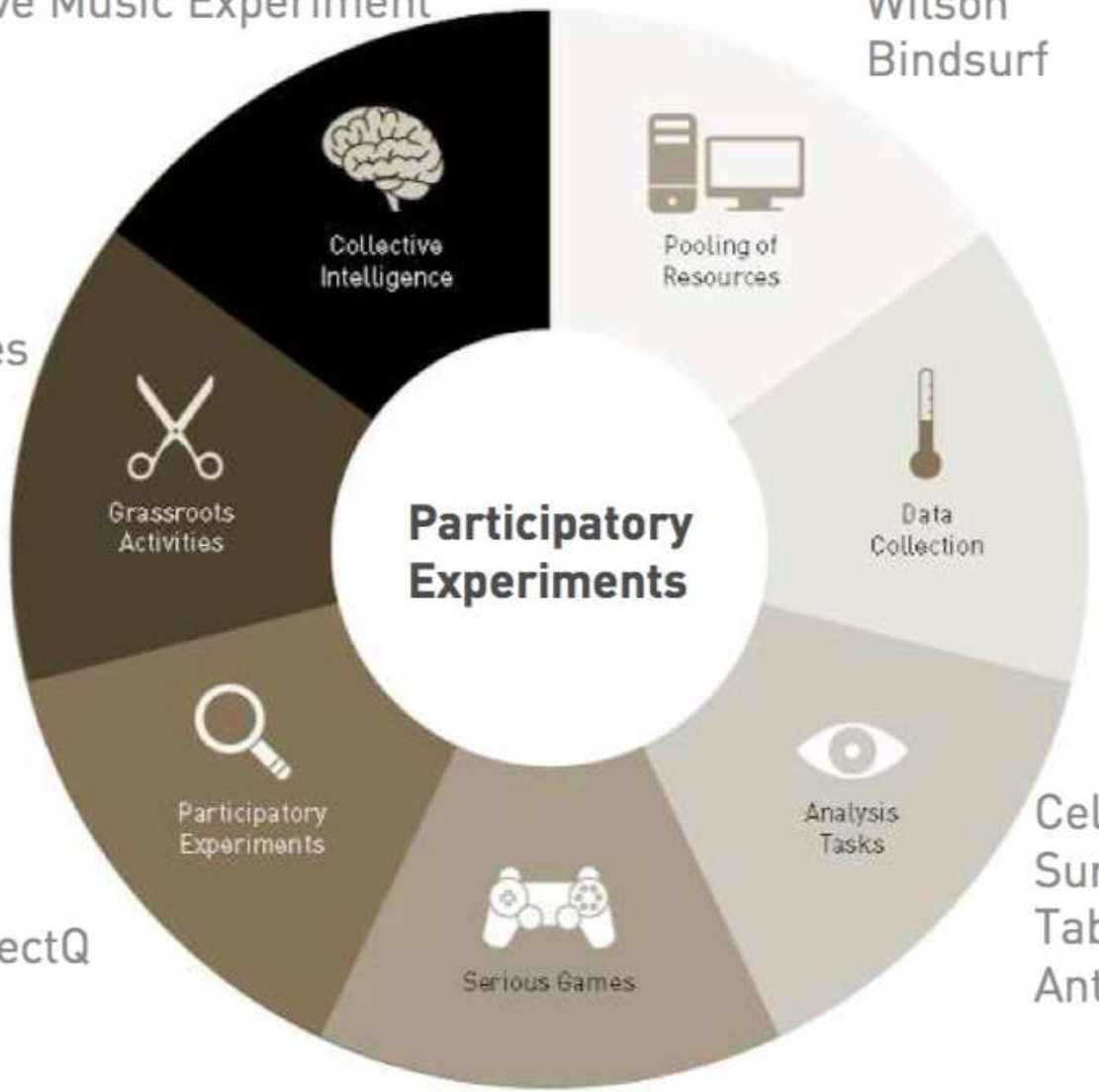
Science, culture and technology
researchers, developers, makers, infrastructure providers, museums, living labs, digital communities, data archives, libraries

Policy
policy makers, funders, research agencies

IMPACTS

Scientific
Educational
Economic
Environmental
Inspirational
Social
Politic

Participatory experiments



Collective Music Experiment

Wilson
Bindsurf

+20000 users BOINC
+15000 users web
+13000 user PyBossa
+800 users ProjectQ
+200 users CME

UrbanBees

HappyUp
Energy @ home*
Aqua

Cell Spotting
Sun4all
Table transcriber
Antimatter*

ProjectQ

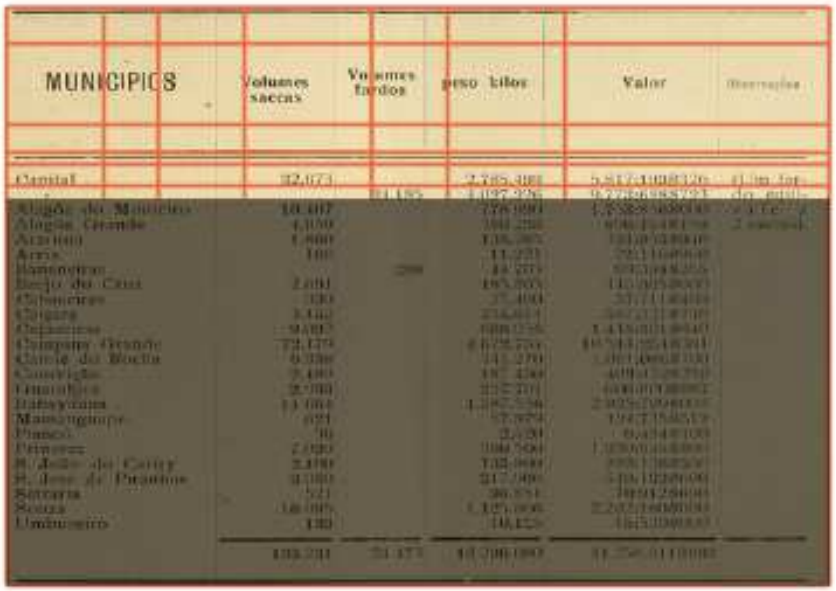
Mind Paths

Table transcriber

Annuario Estatistico da Parahyba do Norte 1916 Estrutura: Contribute

Please. Fix the lines and columns from the focused area in table.

You have completed: 9 tasks from 12



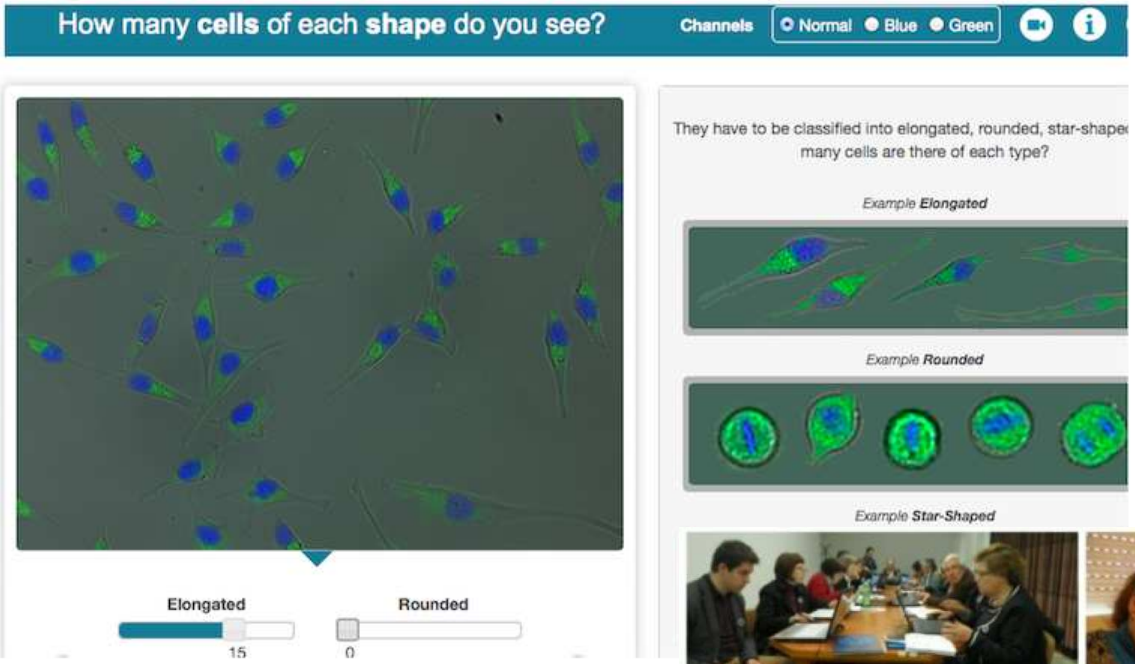
Instruções básicas

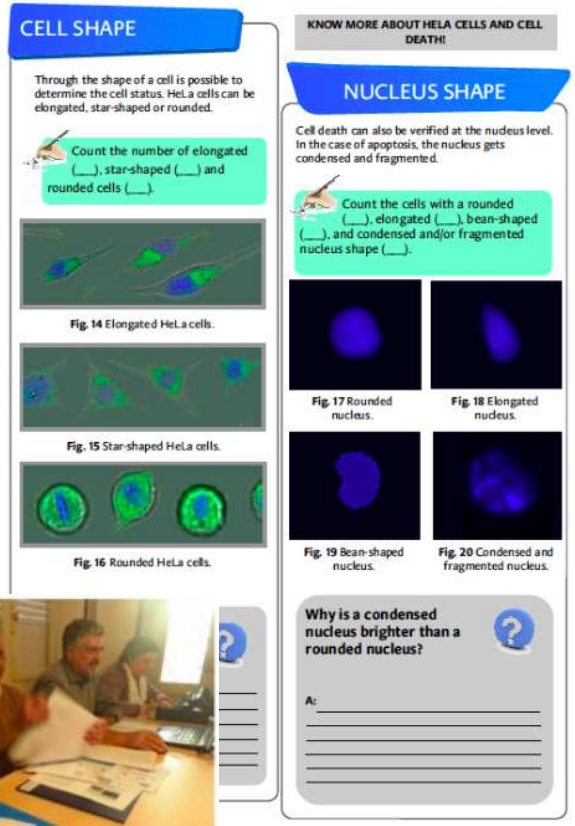
- Use a ferramenta para selecionar e ajustar a posição de um segmento;
- Use a ferramenta para selecionar os segmentos de uma área;
- Clique na lixeira ou use a tecla DEL para remover os segmentos selecionados;
- Com a ferramenta , clique e arraste o mouse para adicionar um segmento;
- Use a ferramenta para dividir o segmento na intersecção mais próxima;
- Clique em para soluções de dúvidas e atalhos avançados.

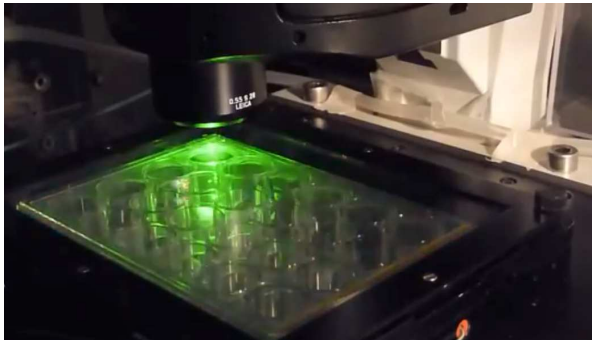
Save fixes

Selection of pages containing tables
Marking of the table region and the transcription of the header
Correction of the table cells previously identified by a computer vision software
Correction of the content of the cells previously identified by an OCR software

CellSpotting.socientize.eu







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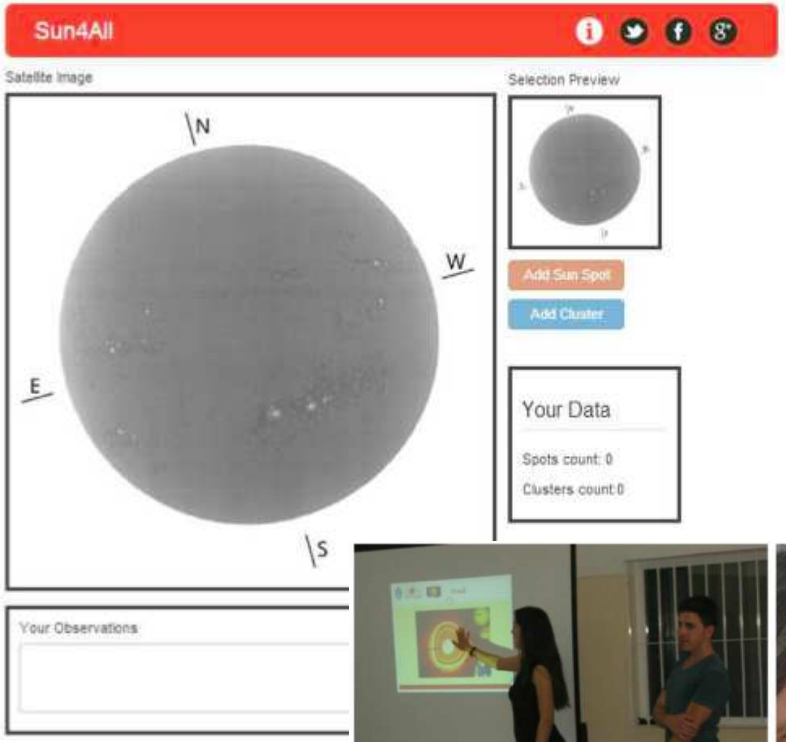
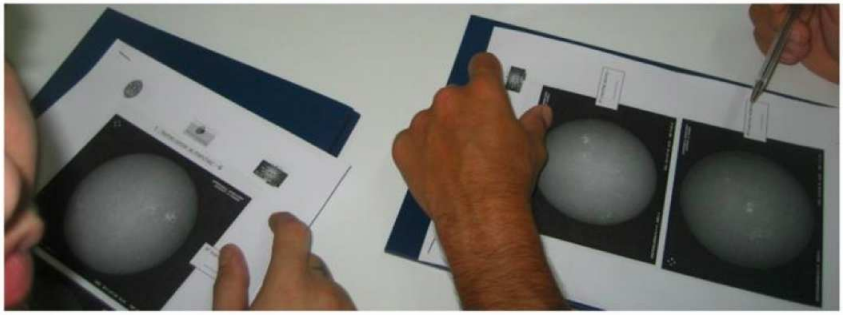
Sun4all.socientize.eu





CiênciaHoje®
Sexta-feira, 07 de Novembro de 2014

Jornal de Ciência, Tecnologia e Empreendedorismo
Diretor: Jorge Massada
Subdiretores: Raquel Soares e Tiago Fleming Outeiro

Home | Ciências | Revista | Dossiers | Colunistas | Encartes | Utilidades

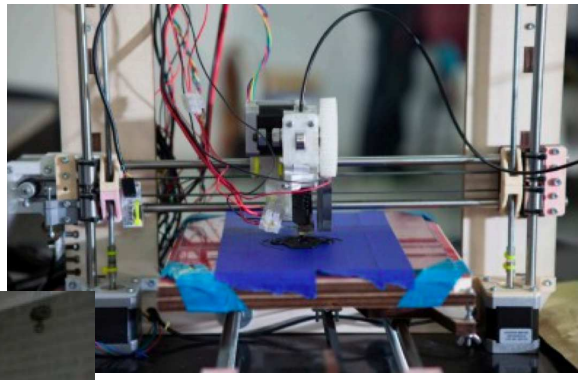
Reclusos de Castelo Branco vão ver o sol (não aos quadradinhos)

SOCIENTIZE promove acção no estabelecimento prisional

2014-07-21

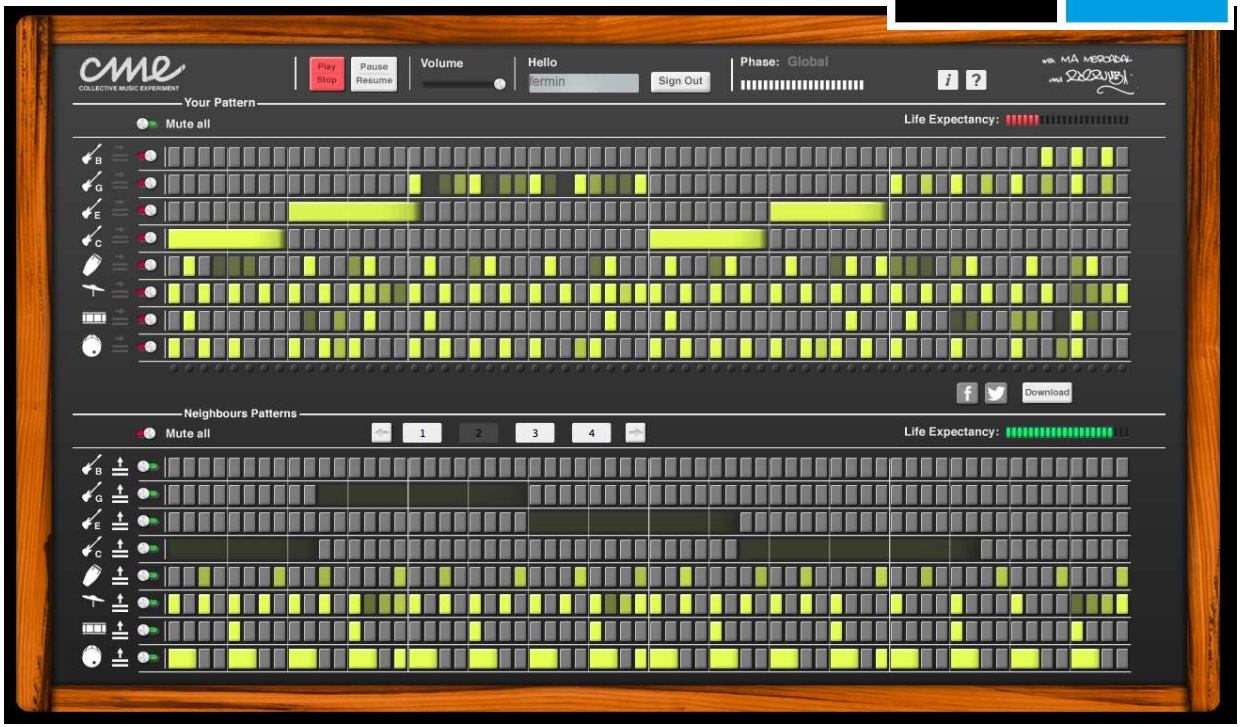
Quinta-feira, 24 de Julho, vai ser um dia muito especial para os reclusos albicasstrenses. Pelas 14h00, o SOCIENTIZE promove, no Estabelecimento Prisional de Castelo Branco, um evento de apresentação do Sun4All. Trata-se de um projecto de Ciência Cidadã que pretende envolver os cidadãos no estudo do Sol e da actividade solar através da análise de imagens do Sol provenientes do Observatório Astronómico da Universidade de Coimbra (UC), um dos maiores acervos mundiais de espectroheliogramas (imagens

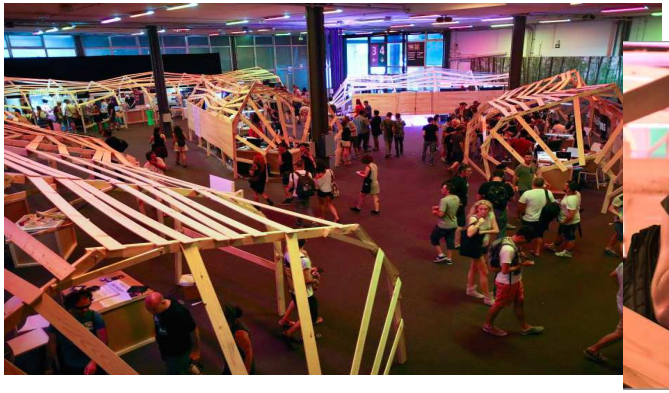
Urban Bees



CollectiveMusicExperiment.eu

sónar 2014 +D





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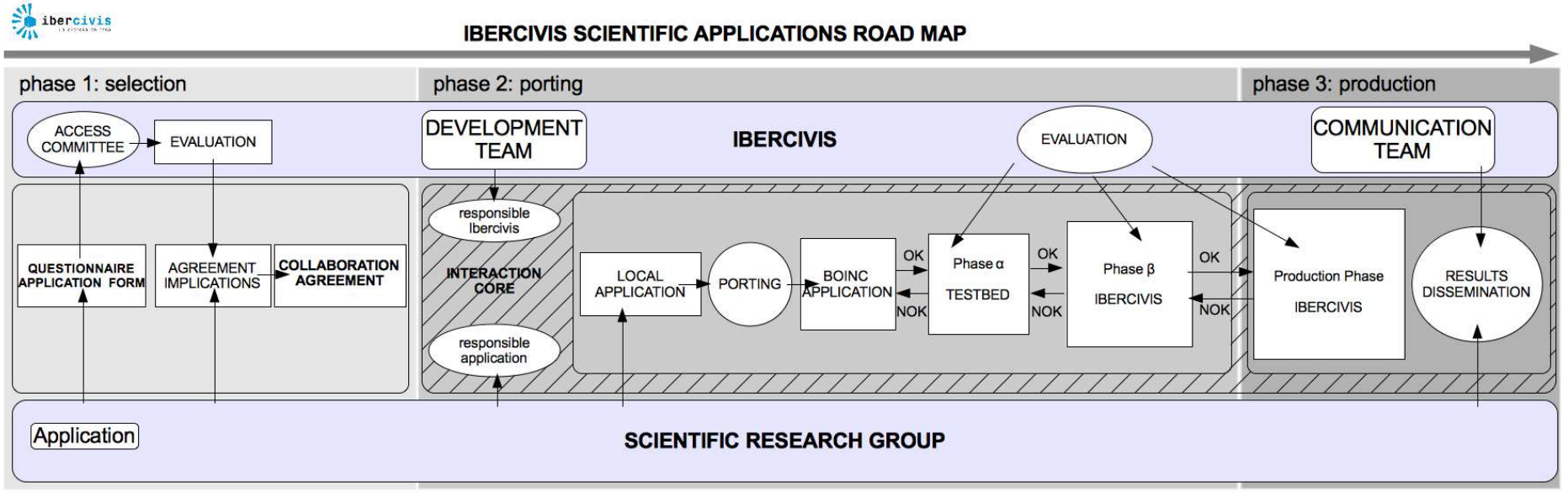
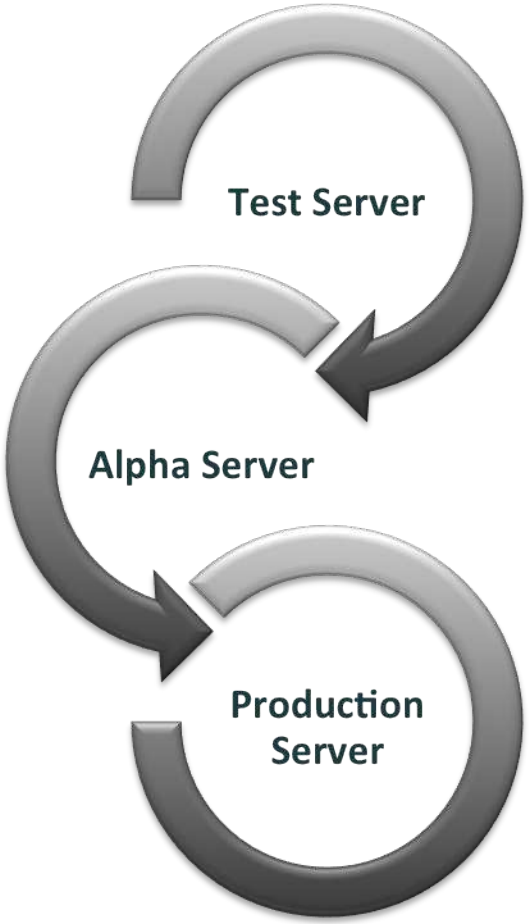

ibercivis
IBERCIVIS SCIENTIFIC APPLICATIONS ROAD MAP
phase 1: selection
phase 2: porting
phase 3: production
ACCESS COMMITTEE
EVALUATION
DEVELOPMENT TEAM
IBERCIVIS
EVALUATION
COMMUNICATION TEAM
QUESTIONNAIRE APPLICATION FORM
AGREEMENT IMPLICATIONS
COLLABORATION AGREEMENT
responsible Ibercivis
INTERACTION CORE
responsible application
LOCAL APPLICATION
PORTING
BOINC APPLICATION
OK
NOK
Phase α
TESTBED
OK
NOK
Phase β
IBERCIVIS
OK
NOK
Production Phase
IBERCIVIS
RESULTS DISSEMINATION
Application
SCIENTIFIC RESEARCH GROUP

Maintenance and Application Porting Policies

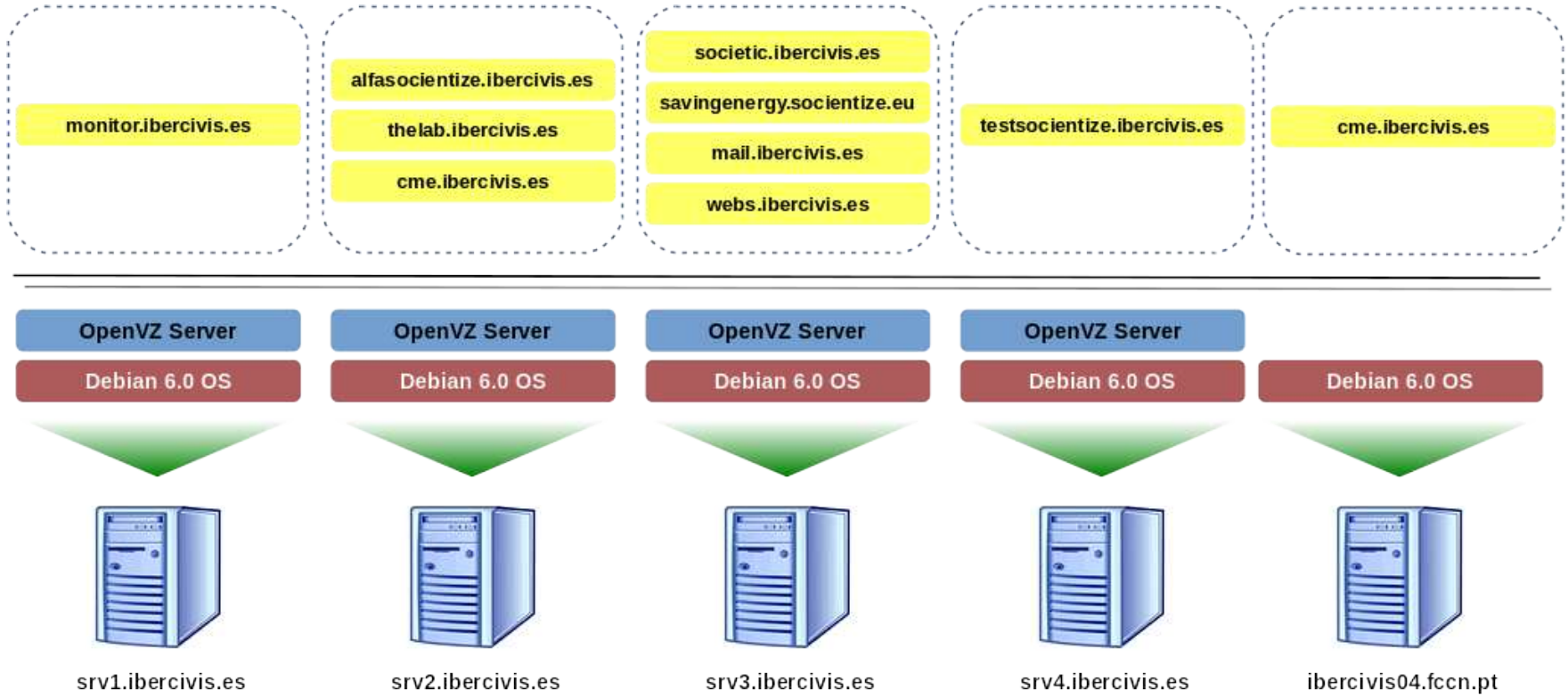


- Middleware test server
- Middleware development

- Application development server

- Production Server

Infrastructure Description



srv1.ibercivis.es

Daily incremental backups

Weekly full backups

srv2.ibercivis.es

App development

Project servers

srv3.ibercivis.es

Project servers

Mail server

Web server

srv4.ibercivis.es

Middleware test and development

ibercivis04.fccn.pt

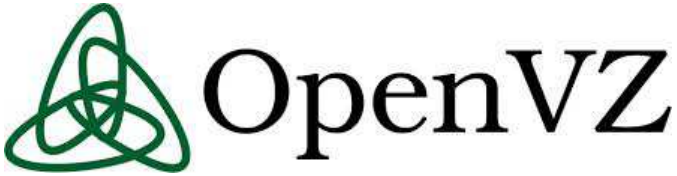
Project server

Physical Hosts

Name	CPU	Mem	HD	OS
srv1.ibercivis.es	Intel(R) Xeon(R) CPU E5520 @ 2.27GHz (x16)	24GB	1TB (Raid 1)	Debian 6.0
srv2.ibercivis.es	Intel(R) Xeon(R) CPU E5520 @ 2.27GHz (x16)	48GB	1TB (Raid 1)	Debian 6.0
srv3.ibercivis.es	Intel(R) Xeon(R) CPU E5520 @ 2.27GHz (x16)	48GB	1TB (Raid 1)	Debian 6.0
srv4.ibercivis.es	Intel(R) Xeon(R) CPU E5520 @ 2.27GHz (x16)	24GB	1TB (Raid 1)	Debian 6.0
ibercivis04.fcc.pt	Intel(R) Xeon(R) CPU E7430 @ 2.13GHz (x16)	16GB	5.2TB(LVM)	Debian 6.0

Software Components

Management Support



- Container-based virtualization for Linux
- Creates multiple secure, isolated Linux containers on a single physical
- Each container performance and execution is exactly like a stand-alone server

- High-performance, enterprise-like system for backing up
- Highly configurable
- Easy to install and maintain

Software Components

Web Servers & Development Frameworks

Software Components

Web Content Management System

- Free and open-source content management system (CMS) written in PHP
- Serves the project webpage http://www.socientize.eu

Communication Tools

- Management of mailing lists and e-newsletters
- Secure mail transfer agent

Software Components

Database Management Systems

- Open-source Relational Database Management System
- Supports Drupal CMS content
- Supports applications content: Mind Paths, HappyUp, CME

- Open-source Object-Relational Database Management System
- Supports PyBossa and Epiwork content

- Open-source transactional SQL database engine
- Supports ProjectQ application content

Software Components

Citizen Science Applications Middleware

- Human cognition, knowledge or intelligence projects
- Provides the mechanisms to distributed task application

- Mobile data collection projects
- Provides a web application for the generation of forms and freely hosted project websites
- Create Android and iOS form-like apps

Software Components

System Monitoring and Stats

- Web-based network monitoring and graphing tool designed as a front-end application
- Metrics such as CPU load and network bandwidth usage

Nagios®

- Monitoring and alerting services for servers, switches, applications and services.

Google Analytics

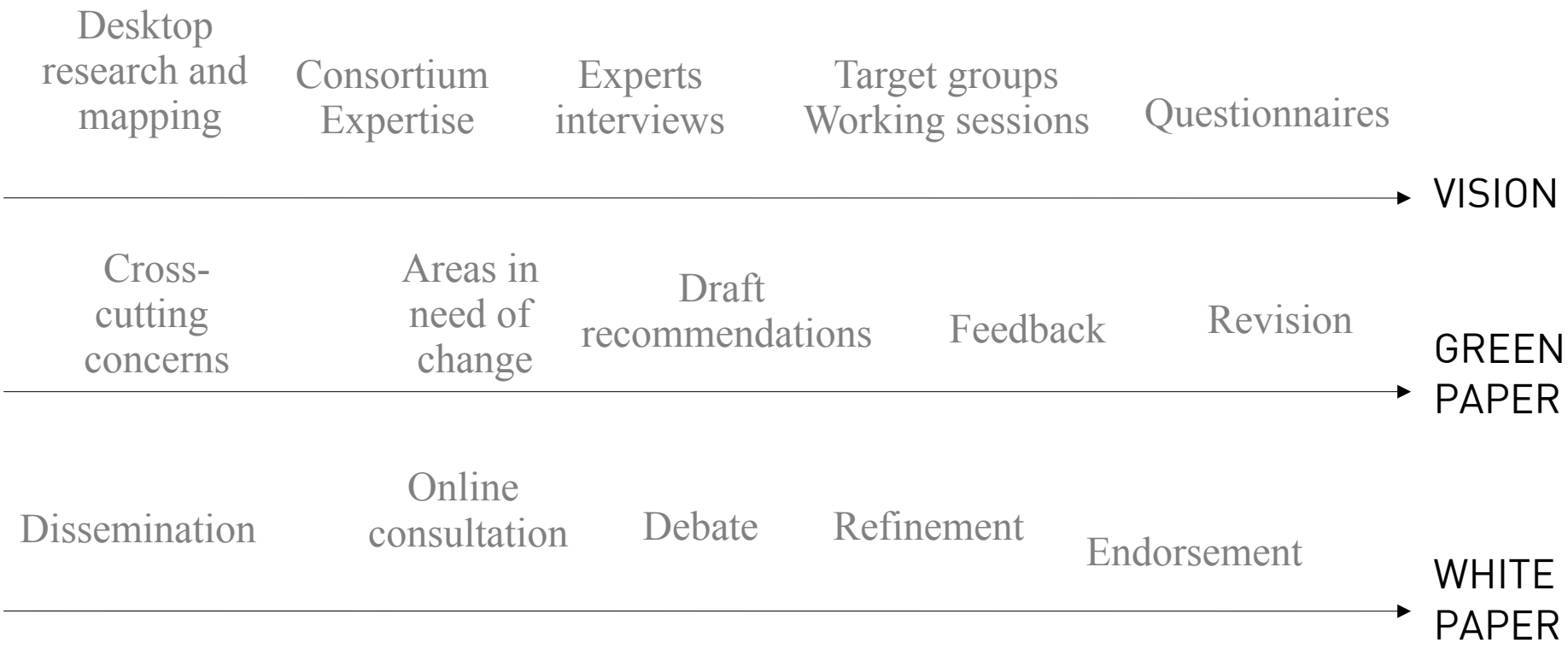
- Capture traffic data on websites

socientize

Deployment and support

Infrastructure fully operational

Policy recommendations



Green Paper on Citizen Science.

+200 contributors
Complementary approach
Issues consolidated with stakeholders

Under revision

Available in www.socientize.eu

Civic Epistemologies Workshop 2014

Macro level (EU-national policy makers)

To overcome domestic barriers with coordinated plans, programmes and investments
→ **targeted programming**
→ **mainstreaming citizen science**

Support measures
- Updating educational and researcher programmes, evaluation criteria and curricula
  - Including citizens in decision-making process
- Broadening access to technology
- Promoting EU-wide data policy (ownership, ethics, legal requirement, quality)

Recommendation
Citizen Science Think Tank
for promotion, coordination, monitoring, evaluation, collaboration

Meso level (professional scafolding infrastructures, initiatives and institutions)

To identify, coordinate and support
- Crowdmapping. Guidelines. Customized assistance

To build inclusive communities and new interaction channels
- Engage general public in decision-making processes

To recognise ongoing outsider research initiatives
- Alternative funding mechanisms and spaces for bottom-up efforts

Recommendation

Citizen Science Do Tank

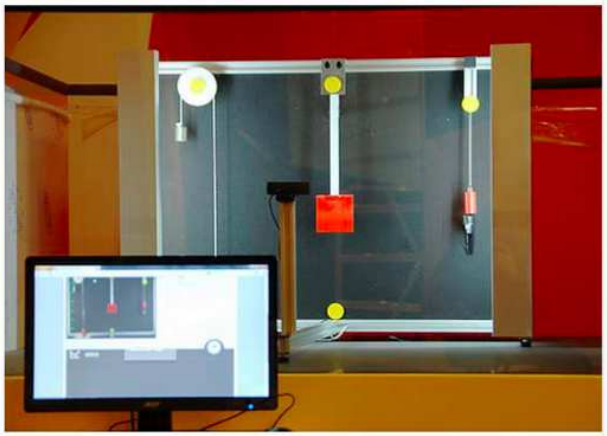
with specific/adaptable/dynamic guidelines

Funding opportunities
Shared technologies, hardware, middleware, software, repositories
Engagement strategies and actions, communication, outreach, inreach
Education and learning materials
Metrics, monitoring, collective and dynamic evaluation
Shared data repositories, quality guidelines, standardization

Better society
Empowered citizens
Enhanced research

Thanks

Ciencia Remix: Citizen Science lab/exhibition/space www.cienciaremix.es



cienciaREMiX

eTOPIA_
center for art
& technology