



SIGMA CRIS

An implementation of VIVO in Spain



What we will see...

1. Why we need to improve the institutions visibility?
 2. How to select the best tools? Analyzing the national scenario
 3. How to select the best tools? Analyzing the international scenario
 4. SIGMA's experience with VIVO
 5. The CERIF2VIVO project
 6. Conclusions
-

Introduction

Introducing us...

SIGMA is a nonprofit organization of Spanish public universities where we develop and maintain their scholarly information systems. In this way, SIGMA is owned by the universities that compose it.



Focusing on the Institutional Visibility

Introduction

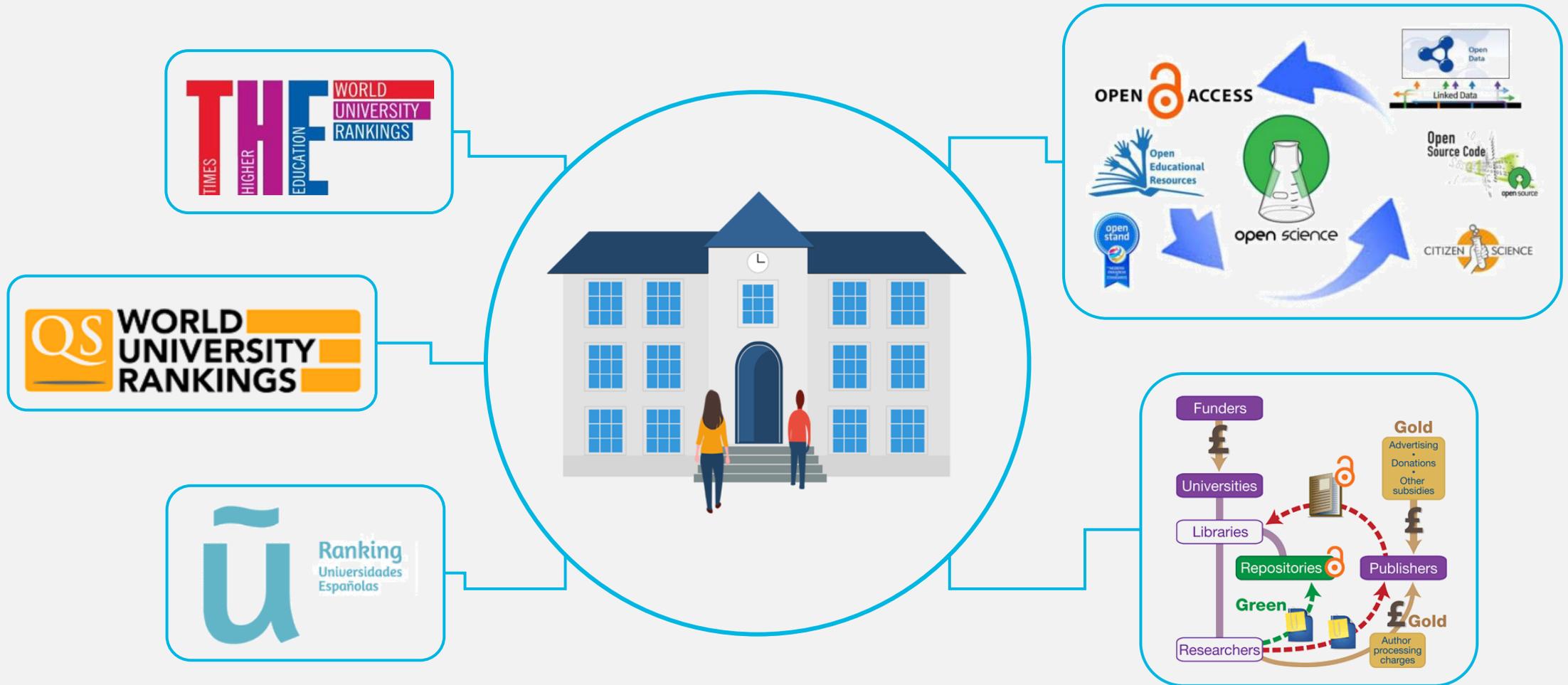
Focus on the institutional visibility: dissemination of research information



“A Current Research Information System commonly known as “CRIS”, is any information tool dedicated to provide access to and **disseminate research information**”

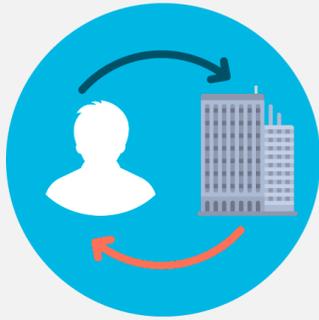


Institutional Visibility

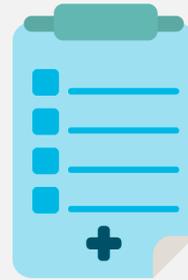


Institutional Visibility

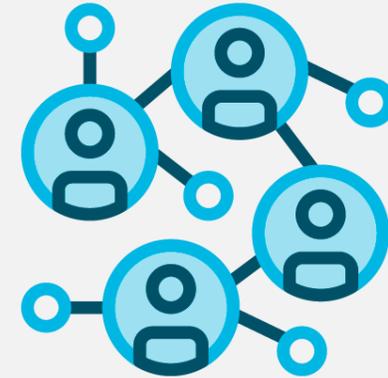
The main goals for the institutions visibility are, among others:



Transfer the Research results to the business sector and to the society in general.



Reporting to the rankings providers, for evaluation, reuse...



Access to the media and other colleagues to public profiles: discoverability

To do this better, the institution needs to easy the public access to their results.

One of the SIGMA strategic goals: The semantic approach

The goal was defined as:

*“We must improve the visibility of the SIGMA’s institutions providing them scientific output Portals and experts’ guides with **semantic approach**, easing the search and discovering of the information.*

*This information must be **linked with the OpenAccess repository** of the institution and the tools must be **provided in the Cloud.**”*

One of the SIGMA strategic goals: The semantic approach



How to select the best tool?: Analyzing the Spanish scenario

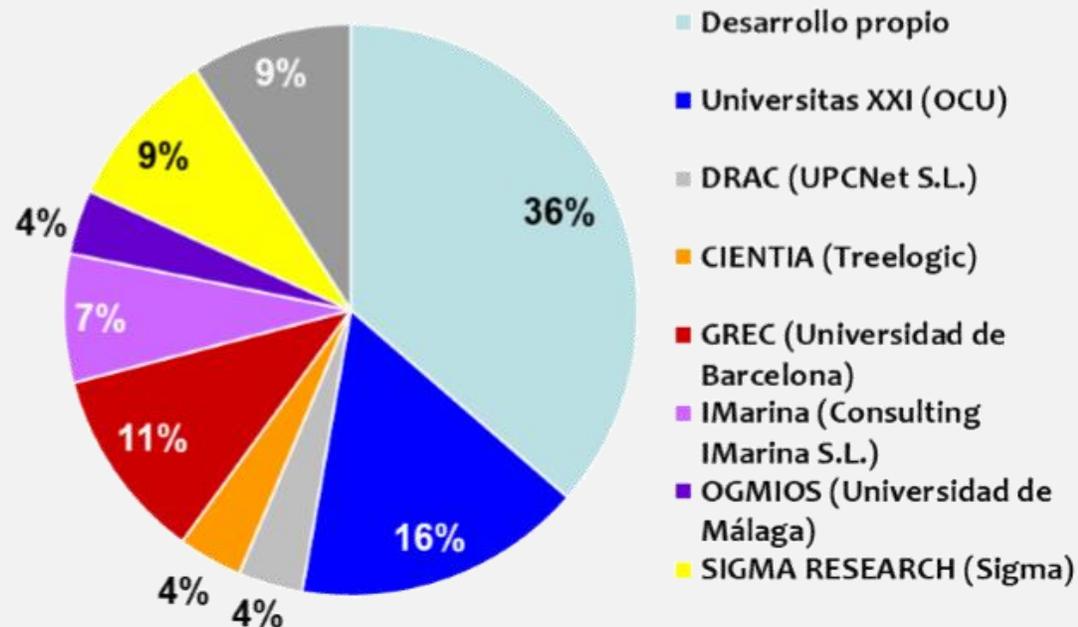
Spanish Scenario

2018 CRUE survey answered by 62 of 76 Spanish universities

81,57%
responses

1

There is no homogeneity in the use of solutions and universities already rely on own solutions.



- **The most used option is the development of own applications.**
- It is worth highlighting the presence of the Universitas XXI application in its research and / or economic modules, GREC and SIGMA Research.
- In the section of others, Fundanet (Semicroll), DspaceCRIS (Dspace), Widi and Open Vivo are cited, in general, open source solutions.

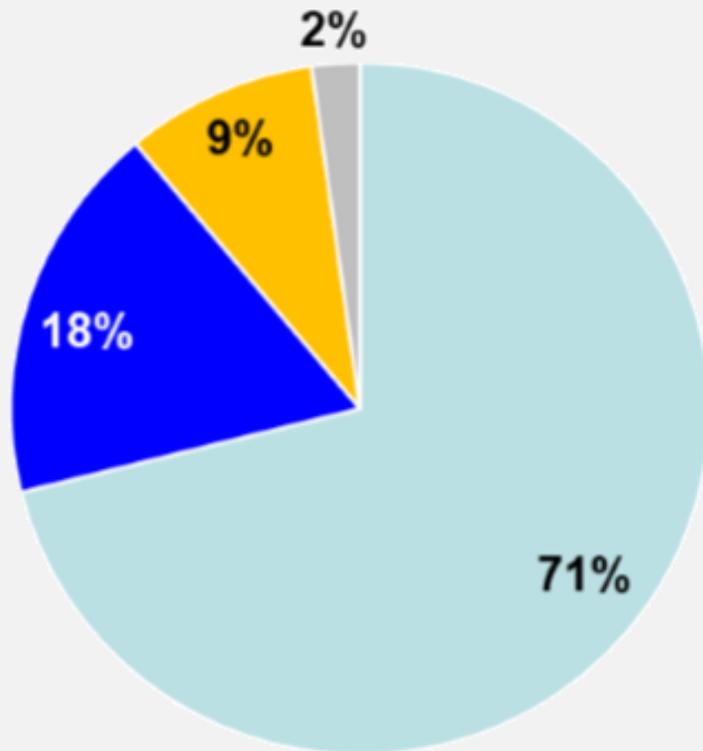
CRUE survey October 2018: [ESTADO DE LA CUESTIÓN DE LOS CRIS EN LAS UNIVERSIDADES ESPAÑOLAS \(REBUIN\)](#)

Spanish Scenario

2018 CRUE survey answered by 62 of 76 Spanish universities

2

Most of the solutions are not in the Cloud (SaaS model), that is the second part of the SIGMAs goal.



- Only 18% are housed outside the university in a **SaaS system or similar**.
- 71% of the solutions are hosted in the campus
- 9% of mixed solutions (SaaS/no SaaS)
- 2% don't know

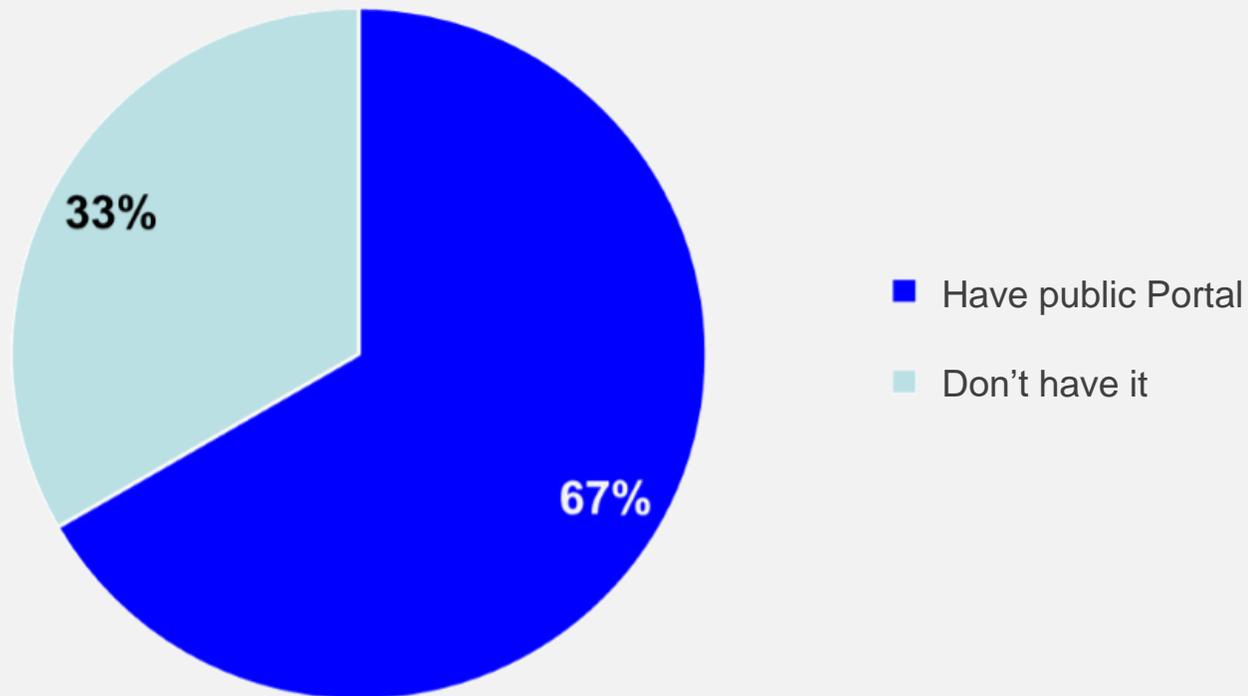
CRUE survey October 2018: [ESTADO DE LA CUESTIÓN DE LOS CRIS EN LAS UNIVERSIDADES ESPAÑOLAS \(REBUIN\)](#)

Spanish Scenario

2018 CRUE survey answered by 62 of 76 Spanish universities

3

Some solutions still don't provide Public Portals.



- **33% don't have a Public Portal** for the Research.

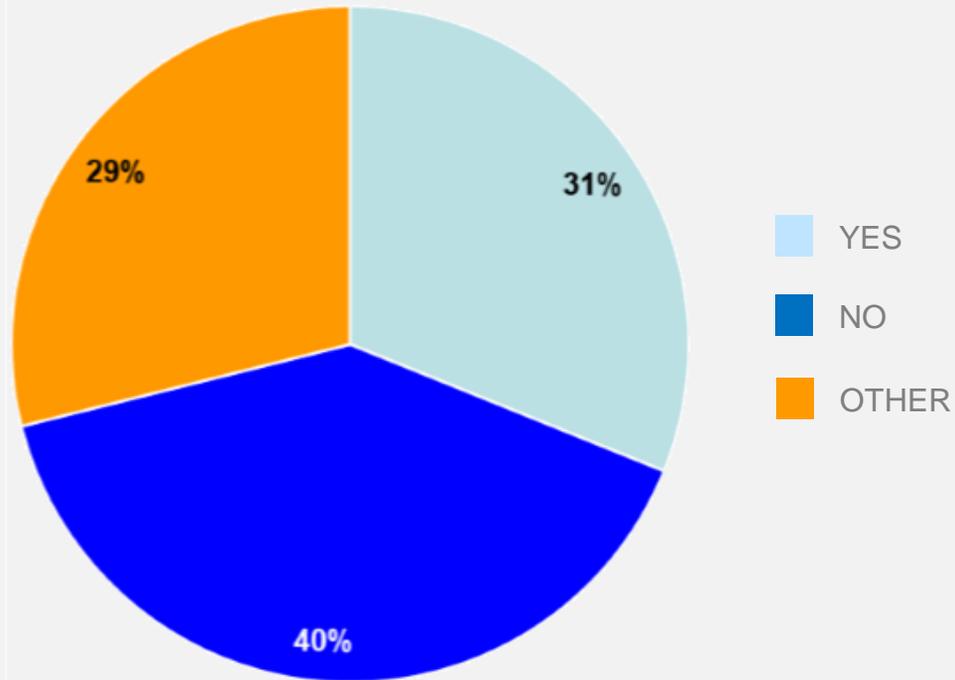
CRUE survey October 2018: [ESTADO DE LA CUESTIÓN DE LOS CRIS EN LAS UNIVERSIDADES ESPAÑOLAS \(REBUIN\)](#)

Spanish Scenario

2018 CRUE survey answered by 62 of 76 Spanish universities

4

Almost half of the CRIS systems are not linked with the openAccess Institutional repositories.



- Another surprising finding was **that 40% don't have the CRIS** linked with the IR.

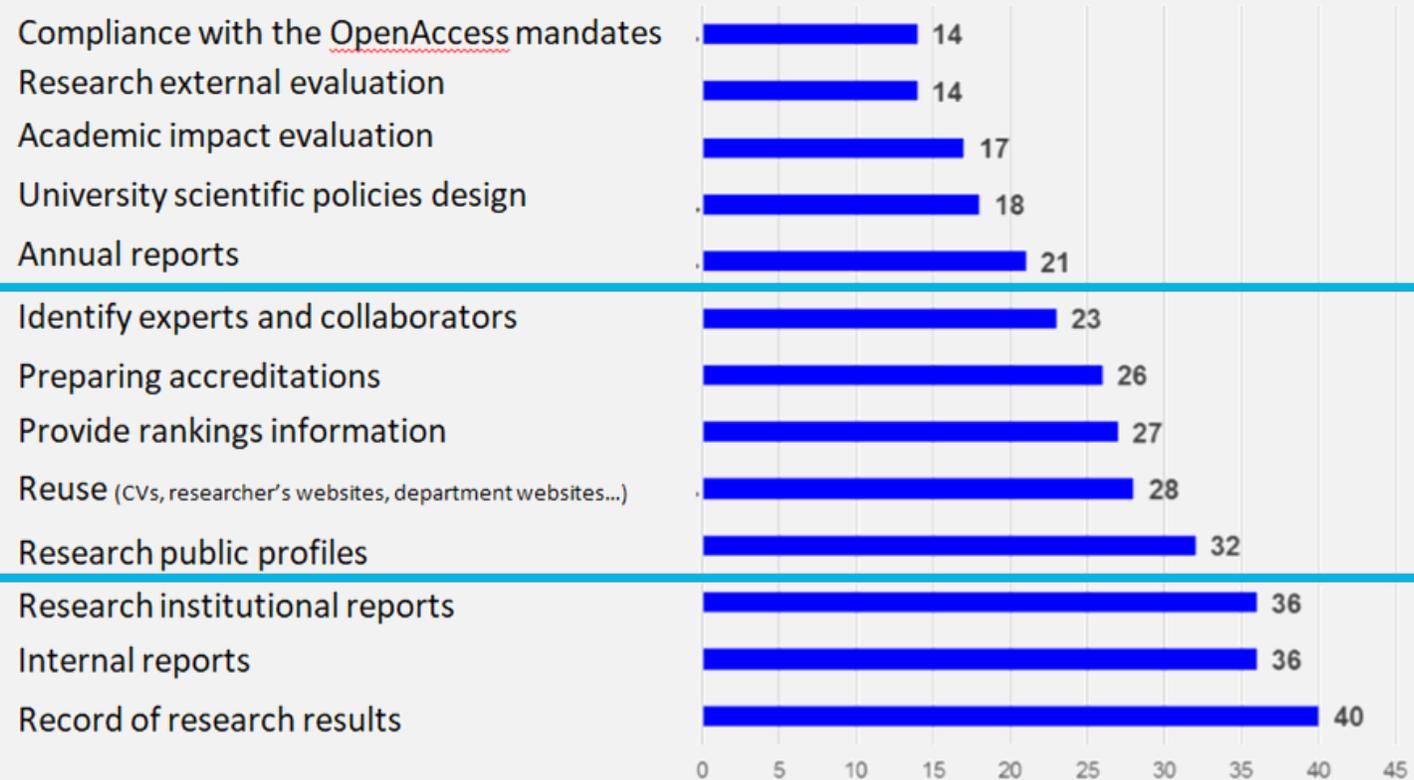
CRUE survey October 2018: [ESTADO DE LA CUESTIÓN DE LOS CRIS EN LAS UNIVERSIDADES ESPAÑOLAS \(REBUIN\)](#)

Spanish Scenario

2018 CRUE survey answered by 62 of 76 Spanish universities

5

It's correct to assess that the information of the CRIS are used in a relevant way for the institutional visibility



- Another finding was the certainty that the CRIS information is used to **improve the research visibility.**

Spanish Scenario. Findings



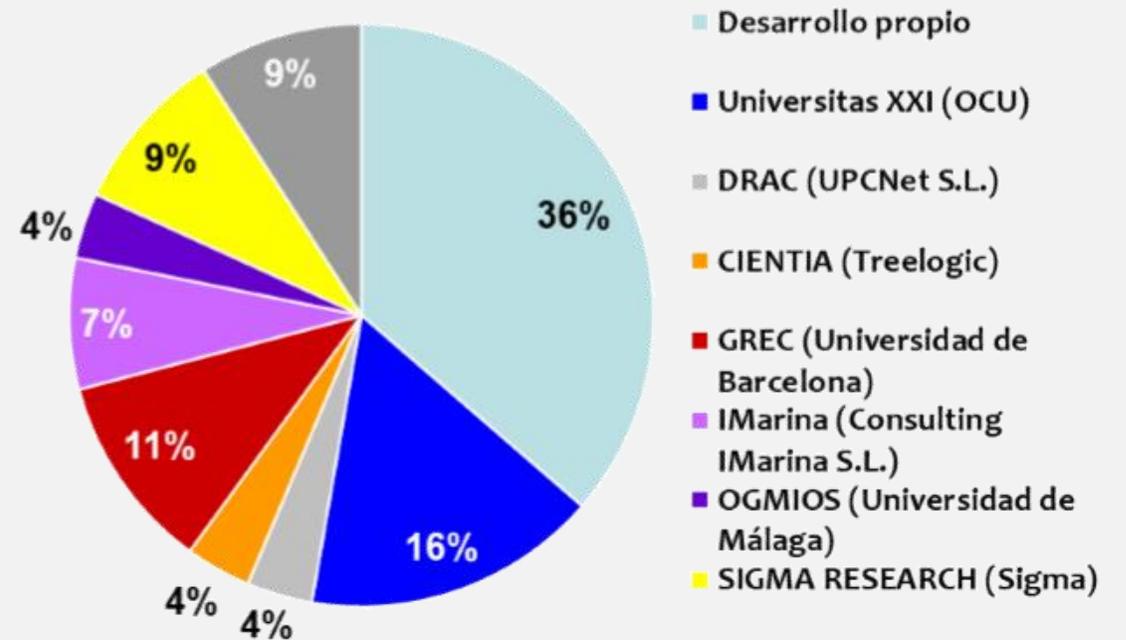
There is no homogeneity in the use of solutions, great percentage of them are own developments, mainly hosted in the university, not connected with the IR, and some not provide public portals.

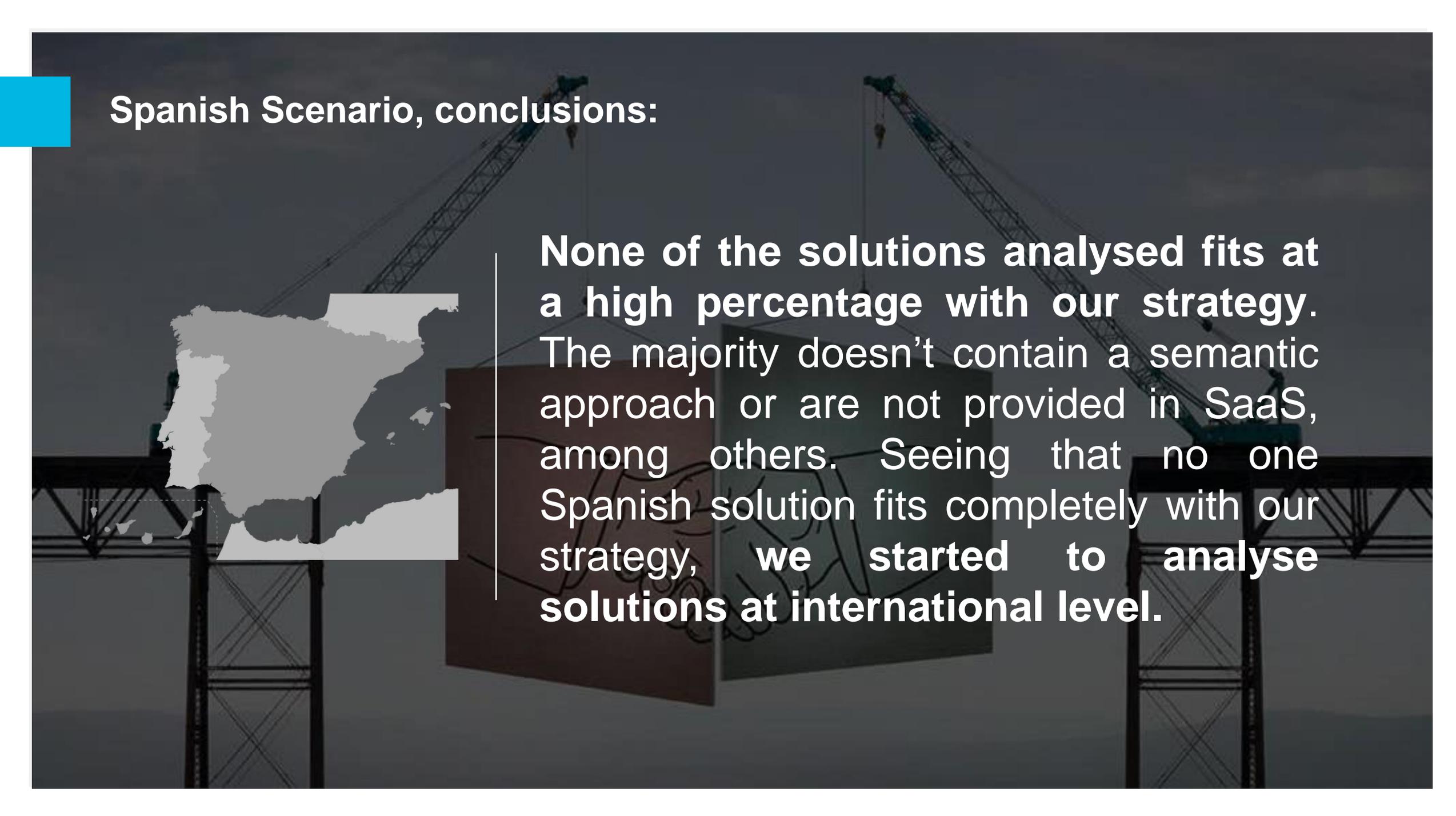
Spanish Scenario

We analysed the tools showed in the first graphic:

- Drac
- Universitas XXI
- Cientia
- Grec
- We also analyse the PRC (Scientific Output Portal for Catalan universities)

In order to define possible collaborations.



The background of the slide is a dark, grayscale image of a construction site. Two large cranes are visible, their lattice structures extending across the frame. In the lower-left quadrant, there is a white map of Spain with a torn-paper edge effect. The text is overlaid on this background in white, with some words in bold. A blue rectangular bar is located in the top-left corner.

Spanish Scenario, conclusions:

None of the solutions analysed fits at a high percentage with our strategy. The majority doesn't contain a semantic approach or are not provided in SaaS, among others. Seeing that no one Spanish solution fits completely with our strategy, **we started to analyse solutions at international level.**

How to select the best tool?: Analyzing the International scenario

International Scenario

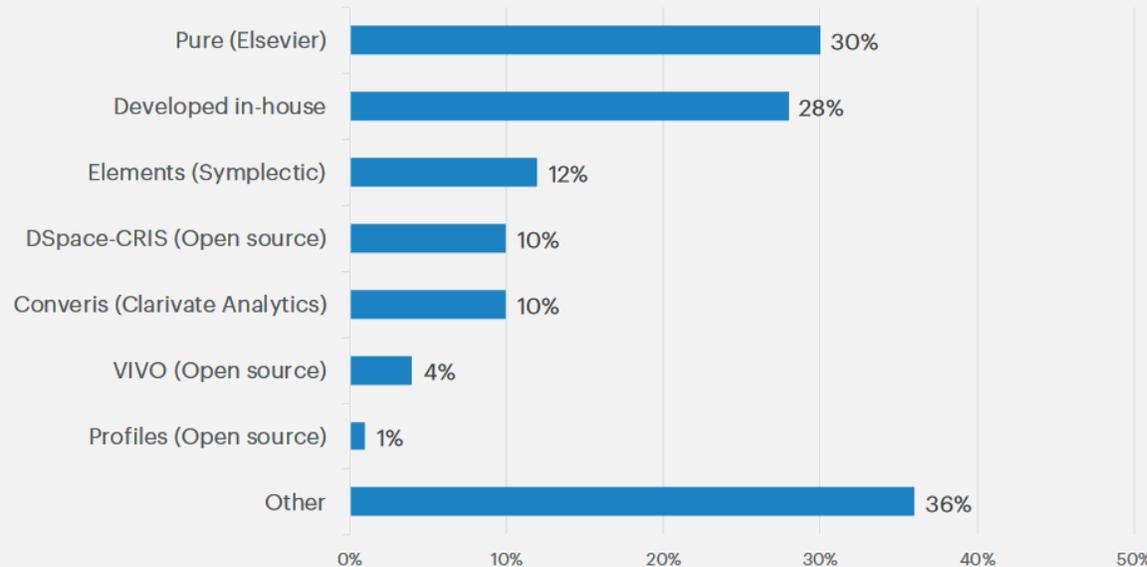
2017/18 OCLC / euroCRIS survey Practices and Patterns in Research Information Management (381 responses from 44 countries)

1

There is no homogeneity in the use of solutions

RIM Systems in Use by Survey Respondents (n=193)

Note: 29 respondents did not provide their RIM system



- Almost the most used option is the development of own applications.
- Pure(Elsevier) it's widely use specially in the UK, US and Australia.
- The rest use heterogeneous solutions

OCLC/euroCRIS survey :

[Practices and Patterns in Research Information Management: Findings from a Global Survey.](#)

International Scenario

2017/18 OCLC / euroCRIS survey Practices and Patterns in Research Information Management

2

Most of the solutions are not in the Cloud (SaaS model), that is the second part of the SIGMAs goal.

Hosting Location of Current Live RIM System

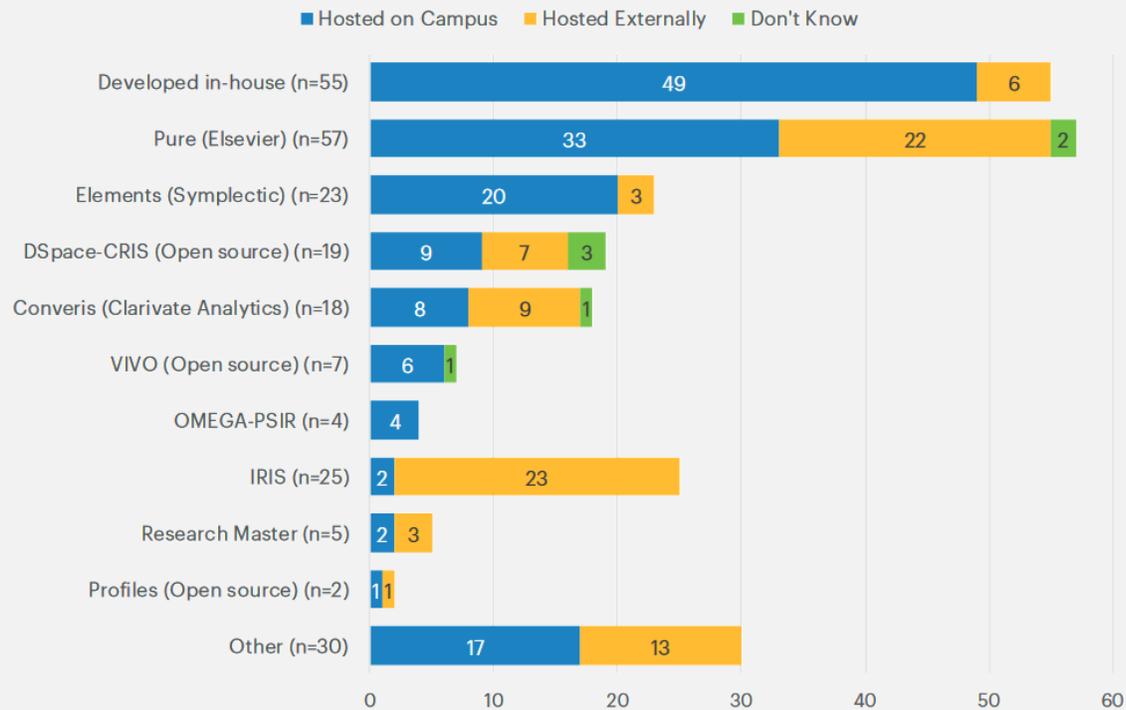


FIGURE 6. Hosting location of current live RIM system, per system used.

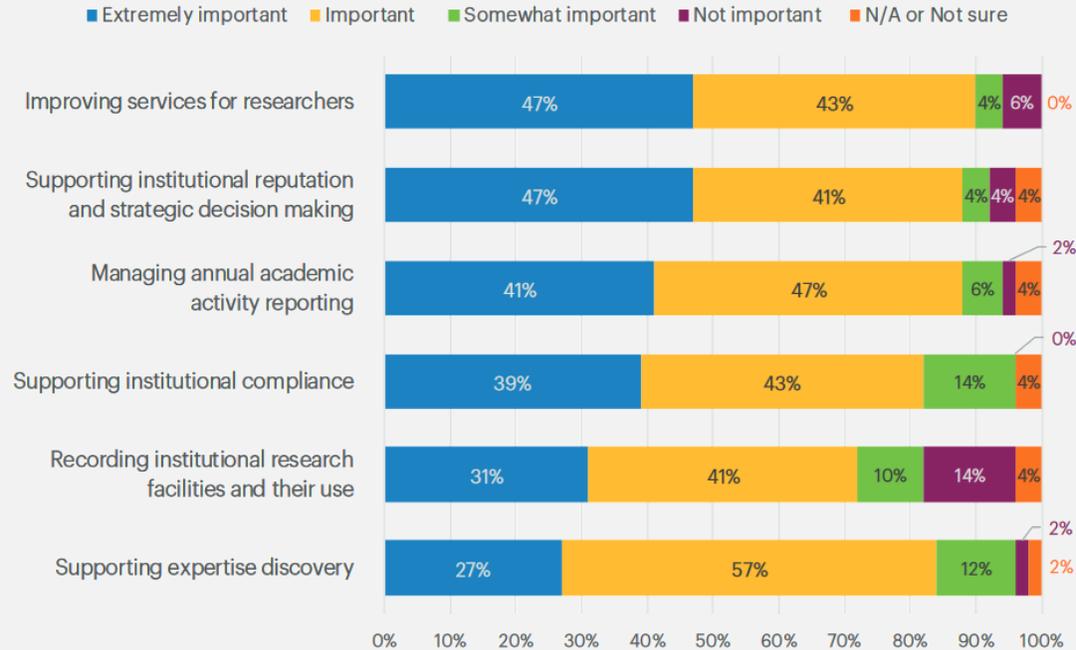
- A wide range of installations are hosted in campus infrastructures

International Scenario

2017/18 OCLC / euroCRIS survey Practices and Patterns in Research Information Management

3 The information of the CRIS are used in a relevant way for the institutional visibility

Activities for Institutions Implementing RIM Systems (n=51)



- Most of the activities are very similar of the Spanish scenario

FIGURE 12. Importance of reasons for pursuing RIM activities for institutions implementing RIM systems

International Scenario. Findings



There is no homogeneity in the use of solutions and great percentage of them there are also own developments, mainly hosted in the university.

International Scenario

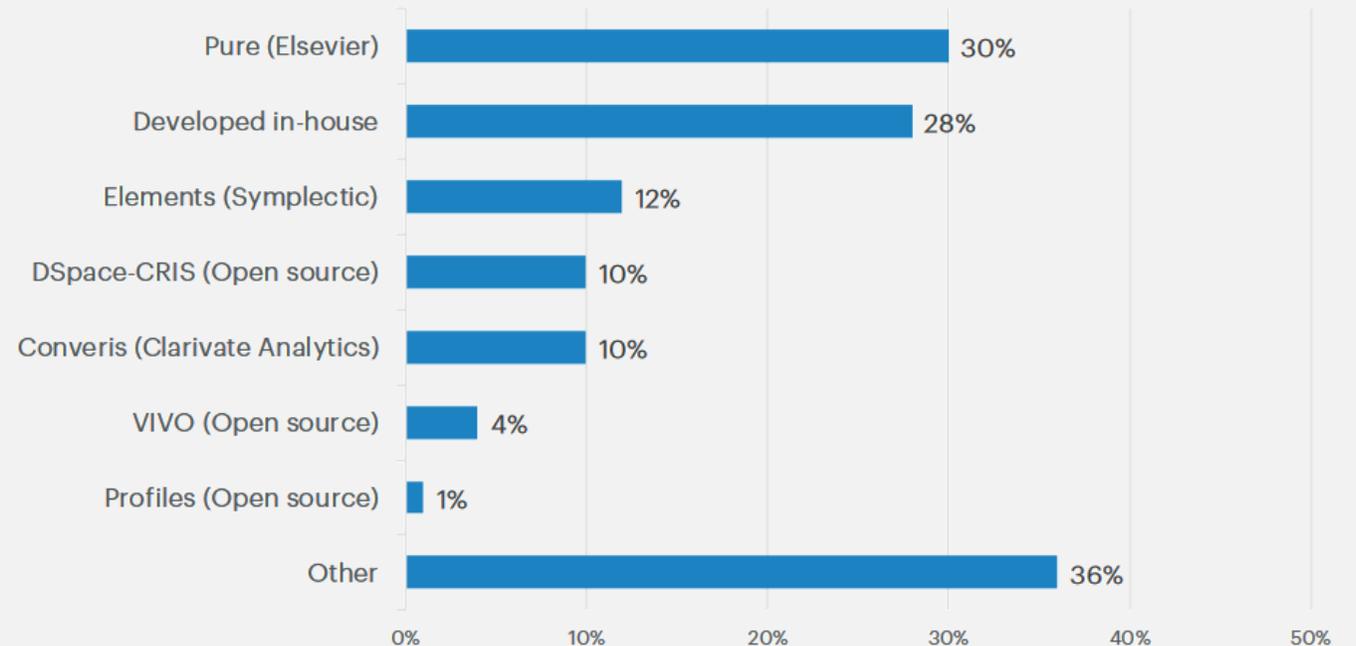
We analysed the tools showed in the first graphic:

- Pure
- Symplectic
- DSpace-CRIS
- Converis
- VIVO

We decided to focus on Dspace-CRIS and VIVO, for their OpenSource approach.

RIM Systems in Use by Survey Respondents (n=193)

Note: 29 respondents did not provide their RIM system



Spanish Scenario, conclusions:



One of the solutions analysed fits at about 80% with our strategy. The semantic approach, the ontology, the functionalities and the possibility to install in the cloud made that we choose VIVO. VIVO is member-supported, open source software and an ontology for representing scholarly

SIGMA's experience with VIVO



VIVO test

The screenshot shows the VIVO search interface. At the top, the VIVO logo is followed by the tagline "connect • share • discover". A search bar contains the word "cell" and a green "Search" button. Below the search bar, there are navigation tabs for "Home", "People", "Organizations", "Research", "Events", and "Capability Map". The main content area displays "Search results for 'cell'" with a download icon. To the right, there is a link "Not the results you expected?". Below this, a "Display Only" dropdown menu is open, showing "people (16)" and "organizations (6)". The search results list several entries, including "Grup de Recerca Human Natural Killer Cell Biology" (Research Organization), "JOAQUIN CAUDET, MANUEL" (Faculty Member), "FORNAS CARREÑO, OSCAR" (Faculty Member), "PERDIGUERO SANTAMARIA, EUSEBIO" (Faculty Member), "PESSINA ., PATRIZIA" (Faculty Member), "PUJADAS CORBI, CRISTINA" (Faculty Member), and "Grup de Recerca en Biologia Cel·lular" (Research Organization).

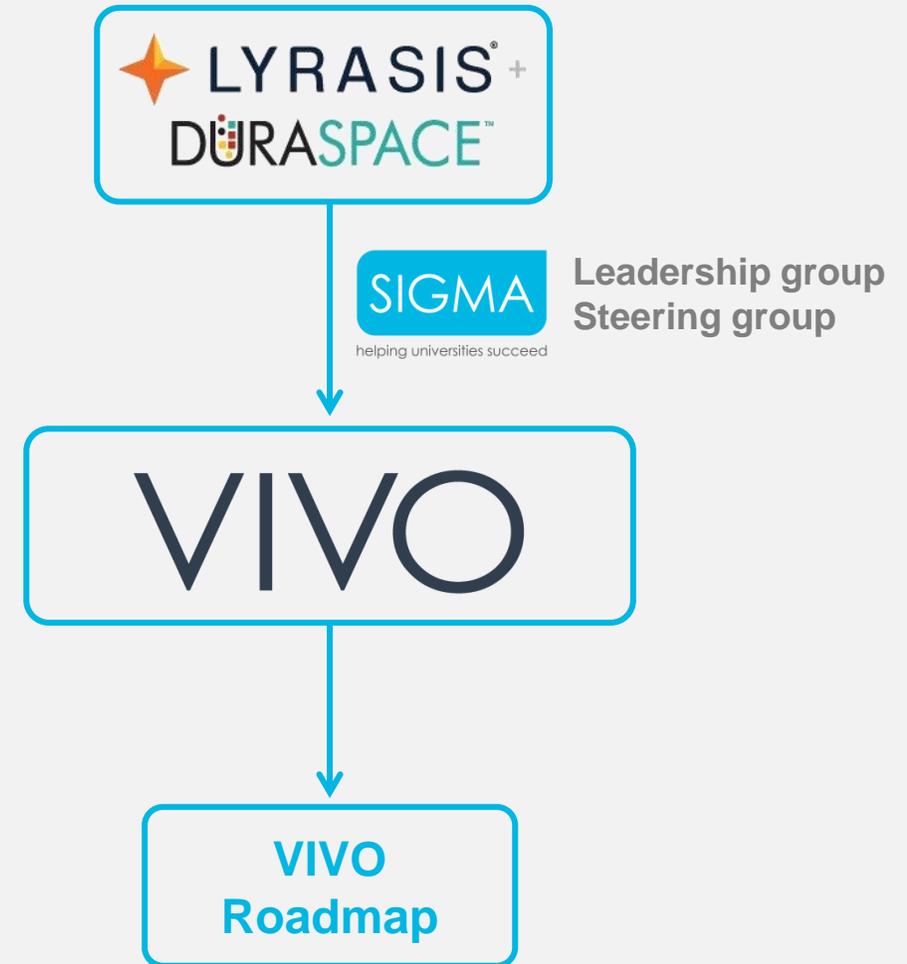
- We found that VIVO semantic model and functionalities fits almost 80% with the Spanish model for research, and is evolving and adapting to the new trends and have a great community behind.
- We start doing a test uploading information to an installation of VIVO (download from GitHub), and see how the information looks like.
- We could upload a lot of information in the ontology. This test satisfied us and finally we decided to use VIVO.

VIVO Community Collaboration

The next step was to collaborate with the VIVO community, so since March of 2018 SIGMA participates in the Leadership group. This group establishes priorities and is responsible for making strategic decisions.

During 2018 in VIVO we collaborate in the roadmap of the product definition. It was a great opportunity for SIGMA to align their strategy and goals with the advance of the VIVO product.

We also collaborate in the creation of the Steering group, a group that will bring issues to the Leadership Group for decisions, in which SIGMA is also involved.



Creating a New Experts Guide

To implement a new Experts guide, we followed the next steps:



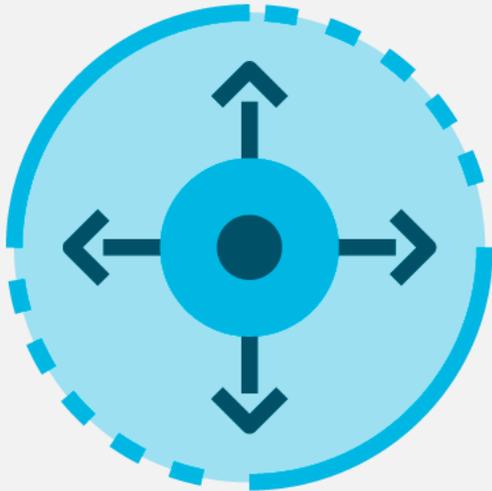
1. **Study and analyse** the VIVO ontology.



2. **Compare the SIGMA CRIS model with the VIVO ontology.** Entities and relations that exist in the SIGMA CRIS and not in the VIVO model. The VIVO ontologies gives answer to the US scholarly model that is slightly different from the European model. We found that VIVO ontology fits almost 80% with the European model for research (and therefore, the Spanish model).

Creating a New Experts Guide

To implement a new Experts guide, we followed the next steps:



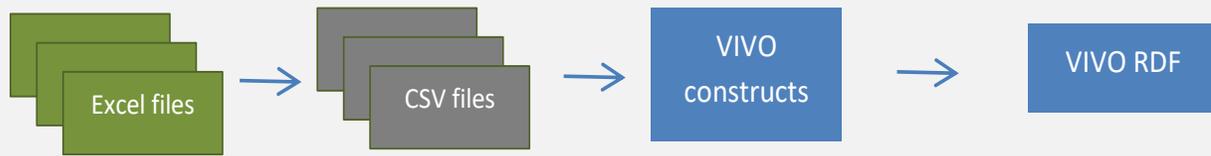
-
- 3. **Extend the VIVO ontology** with the properties and entities for the Spanish model that are not in VIVO. The result was 10 entities and more or less 50 properties that are not in the VIVO ontology. I.e:

Example:

VIVO	Extended Property
Researcher - people	vivo-local#personID vivo-local#universityPPC vivo-local#urlPPC vivo-local#namePPC vivo-local#urlPhotoPPC vivo-local#expertGroupPPC vivo-local#mainResearchPPC vivo-local#departmentPPC vivo-local#surnamePPC vivo-local#rankingPPC vivo-local#expertisePPC
Estate - Organisation	vivo-local#orgID vivo-local#tipoEstamento
Journal articles	vivo-local#resPublID
Book chapters	vivo-local#resPublID
Books	vivo-local#resPublID
Thesis	vivo-local#resPublID

Creating a New Experts Guide

To implement a new Experts guide, we followed the next steps:



4. Develop a process to upload the information in VIVO in one step. We automatize the manual process, filling the information of the 2 forms (csv2rdf and rdfto ontology)



5. Develop a new frontend angular for the Experts guide that aligns the visual requirements of the current Experts guide of the SIGMA universities, so the process to implement VIVO will be do it as an improve of the current tools. This frontend uses the search engine of VIVO and its ontology.

Creating a New Experts Guide

- The guide is **Multilanguage**
- We can use some **topics to search** (Boolean connectors, literal words or phrases, approximated words, etc...)
- The search is in all the scientific information upload in VIVO ontology (scientific production of researchers)
- The experts are sorted by their surname. It could be sorted by relevance (not implemented yet)
- **Shows the same style** as the institutional web of the university
- Shows the institutional photo only if the researcher gives his consent.
- **Very fast searches**
- Link to the researcher profile though name of button '+'

upf. Universitat Pompeu Fabra Barcelona

Experts Guide (UP)

tribute SEARCH

Found 6 results

ALBO PEREZ, LAIA
Department: Department of Information and Communication Technologies
Expertise: MOOC. Blended Learning. ICT. TEL

CASAL RIBAS, ELBA PAULA
Department: Department of Law
Expertise: Political Philosophy. Moral philosophy

HERNANDEZ LEO, DAVINIA
Department: Department of Information and Communication Technologies
Expertise: Learning Technologies. ICT for Education, eLearning. Tecnologies per a l'aprenentatge. TICs i

AMARASINGHE ., PATHINARAGE ISHARI UTHPALA
Department: Department of Information and Communication Technologies

FREIRE VEIGA, ANA MARIA
Department: Department of Information and Communication Technologies
Expertise: Information Retrieval. Web Search. Distributed Systems. Power Consumption. Bioinformatics. Recuperació de Informació. Búsqueda Web. Sistemas Distribuidos. Consumo Energético. Bioinformática.

PINEDA I CIRERA, ANNA
Department: Department of Translation and Language Sciences
Expertise: Syntactic Variation, Syntax of Romance Languages, Argument Structure, Syntax-Semantics Interface, Romance Languages, Germanic Languages

New Experts Guide

The screenshot shows a researcher profile for Davinia Hernández-Leo. At the top, there are logos for 'PPC SCIENTIFIC OUTPUT' and 'upf.' along with navigation links for 'cat', 'esp', 'eng', 'Help', 'Contact', 'UPF website', and 'Intranet'. Below the navigation is a breadcrumb trail: 'Home > HERNÁNDEZ-LEO, DAVINIA'. The main header features the name 'HERNÁNDEZ-LEO, DAVINIA' in a red bar. The profile includes a photo of a woman with glasses, her title 'Senior lecturer', department 'Department of Information and Communication Technologies', and affiliation 'Interactive and Distributed Technologies for Education Research Group (TIDE)'. Her email is 'davinia.hernandez@upf.edu' and her phone number is '93 542 2500'. There are social media icons for ORCID, LinkedIn, Twitter, Scopus, and ResearchGate. An 'Expertise' box lists: 'Learning Technologies, ICT for Education, eLearning, Tecnologies per a l'aprenentatge, TICs i Educació, eLearning, Tecnolgies para el aprendizaje, TICs y Educación, eLearning'. Below the profile are three tabs: 'PUBLICATIONS', 'CONTRACTS & GRANTS', and 'OTHERS'. The 'PUBLICATIONS' tab is active, showing a list of categories and counts: Journal articles (96), Books (6), Book chapters (20), Conference proceedings (110), and Manuals and other publications (5). The 'CONTRACTS & GRANTS' tab shows Projects (33) and Other grants (8). The 'OTHERS' tab shows a list of activities: Doctoral thesis (7), Conferences (69), Event organisation (8), Awards (29), Patents (1), Research stays (2), Courses and seminars given (10), Editorial collaborations (7), Participation on committees (18), Research lines (1), and Other activities (14). At the bottom, a 'PUBLICATIONS' section is expanded to show 'Journal articles (96)'. A specific publication is highlighted: 'Hernández D, Martínez R, Pardo A, Muñoz JA, Rodríguez MJ. Analytics for learning design: a layered framework and tools. British journal of educational technology 2019; 51(1): 139-152.' with links for 'Publication link' and 'Full text'.

- Access to the complete researcher profile from the CRIS system.

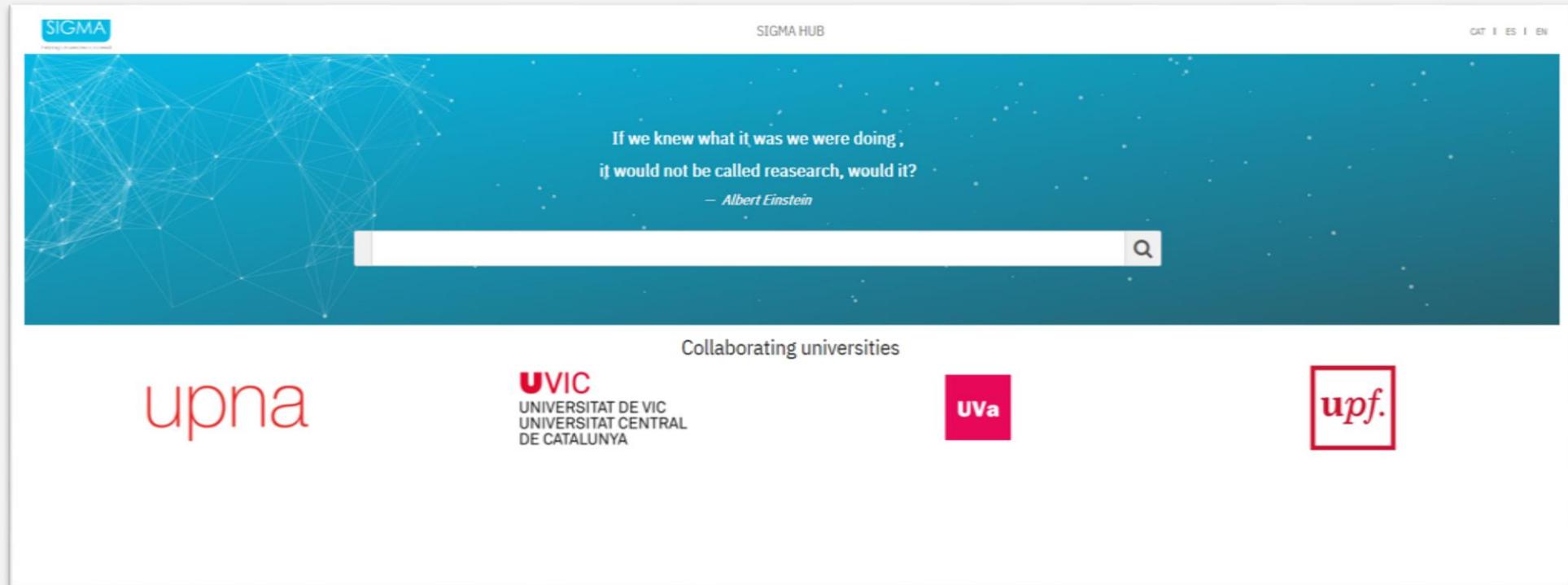
New Experts Guide

The new Expert guide improvements over the current SIGMA Expert guide are:

- More powerful model (ontology) that provides scalability and more easy improvements of the tool. Some that VIVO already provide and some that could be new (due the openSource model)
- More powerful search engine
 - Search in all the researchers information, easing the discoverability
 - More possibilities for the search (booleans, literal and approximated words...)
 - Very fast and efficient searches
- More sorting possibilities for the results: for relevance, citation, impact... of the researchers

New SIGMA Hub

On the other hand, we have implemented an Experts Guide that can upload information aggregated from many universities, we called 'The SIGMA hub'. This tool enables the showcasing of a group of universities or from the university and their related research centres.



New SIGMA Hub

It stores and show the results displaying the researchers of all the universities that matches the search.

The screenshot shows a search results page for the query "ordenador". At the top, a quote by Albert Einstein reads: "If we knew what it was we were doing, it would not be called reasearch, would it? — Albert Einstein". Below the quote, a search bar contains the text "ordenador" and a magnifying glass icon. The results are displayed in a grid of six cards, each representing a researcher and their university. Each card includes the researcher's name, a list of their research interests, a university logo, and a "Ver Mas" button with a right-pointing arrow.

Se han encontrado 8 resultados :

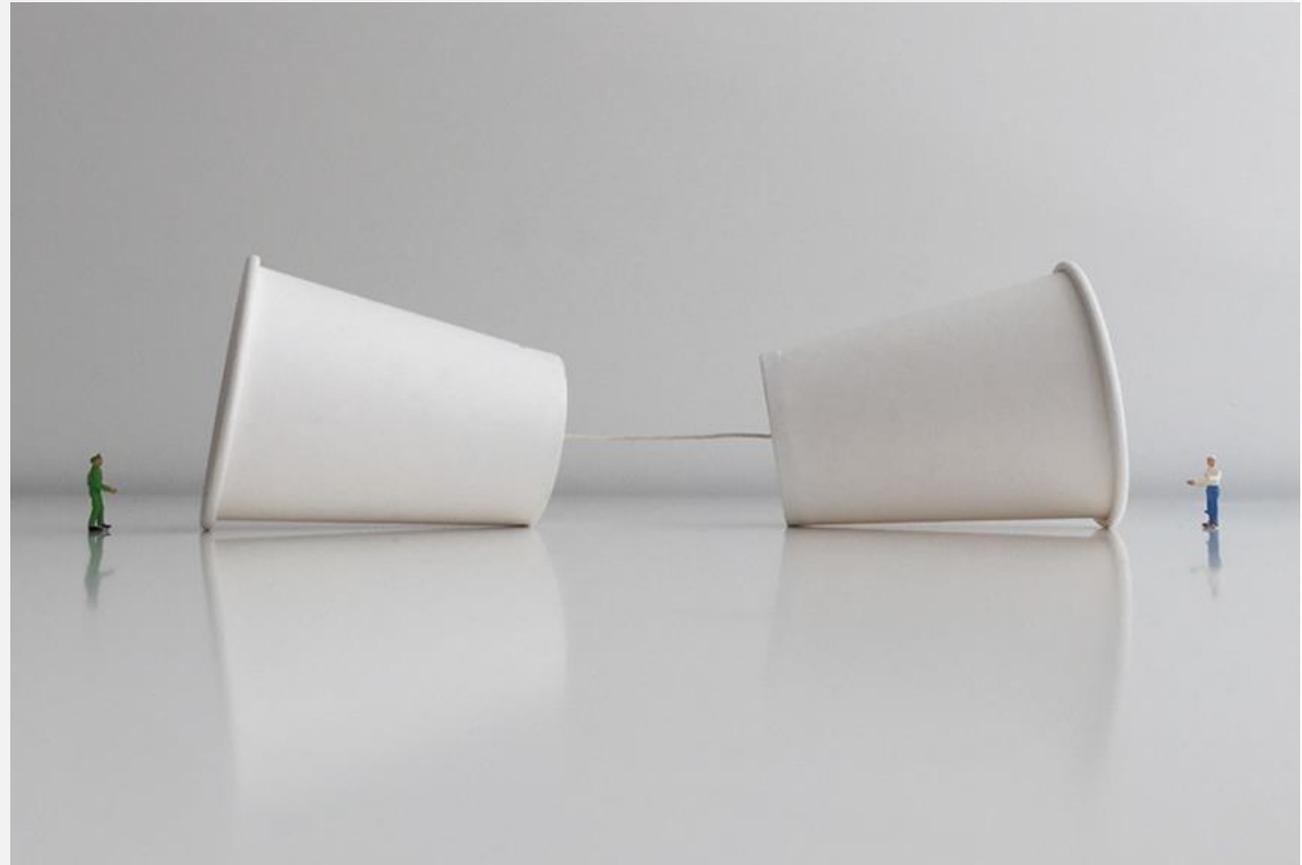
Researcher	University	Research Interests
BLAT GIMENO, JOSE ANGEL	upf.	Cooperative environments. Intelligent web portals. Educational telematics. Multimedia and GIS. Computational educational toys. Modelling and mathematical analysis of images. Advanced 3D graphics. Human modelling and animation
MAGDALENO MARTÍN, JESÚS	UVa	Análisis por elementos finitos; Didáctica de las ciencias experimentales; Diseño asistido por ordenador (CAE); Diseño, desarrollo y evaluación curricular; Estructuras metálicas; Ingeniería mecánica; Ingeniería civil y arquitectura; Recursos y tecnologías en educación
MARCOS MORA, MARIA CARMEN	upf.	Interacción Persona-Ordenador (IPO). Experiencia Buscadores. Eye tracking. Interacció Persona-On d'usuariis. Cerdadors. Eye tracking. Human-Comp. User studies. Search Engines. Eye tracking
MARTINEZ MONES, ALEJANDRA	UVa	Aprendizaje apoyado por ordenador
PARES BURGUES, NARCIS	upf.	Full-Body Interaction. Embodied Cognition. Learning. Play. Special Needs. Autism. Interaction Design. Children. HCI. Exergames. Virtual Reality. VR. Interacció de Cos Sensor. Cognició Corpòria. Aprenentatge. Joc. Necessitats Especiales. Autisme. Disseny d'Interacció. Infants. IPO. Realitat Virtual. Interacció de Cuerpo Entero. Cognición Corpórea. Aprendizaje. Juego. Necesidades Especiales. Autismo. Diseño de Interacción. Niños. Realidad Virtual.
RIBAS TORRABADELLA, JOAN IGNASI	UVIC UNIVERSITAT DE VIC UNIVERSITAT CENTRAL DE CATALUNYA	
RODRIGUEZ CASO, CARLOS FRANCISCO		Cancer. Complex networks. Complex systems. Synthetic biology. Systems biology. Tissue organisation
SANZ CARRERAS, FERRAN		Informàtica biomèdica. Disseny de fàrmacs assistit per ordinador. Modelització molecular. Bioestadística. Informàtica biomèdica. Diseño de fármacos asistido por ordenador. Modelización molecular.

Conclusions and next steps

This is our first pilot and we start the implementation in one of our universities and parallel to this, evolving the tools until have the complete research output Portal with VIVO.

To do this step, we will wait until we have results in the VIVO Scholar project.

This tools are only for the reuse, visibility and dissemination of scientific information, so the maintenance of the CRIS is made by other products. **VIVO will be, for us, read-only.**



By the way....

We have other examples in Spain using VIVO, in this case, the UC3M, Carlos tercero university of Madrid. That since 2016 is using an implementation of VIVO with successful results.

They have also a CRIS from which they upload information to VIVO once a month.

The screenshot shows the profile page for Pablo Angel Garcia Salaberry on the Universidad Carlos III de Madrid Research Portal. The page includes a search bar, navigation tabs for Home, Researchers, Organizations, and Outputs, and social media icons. The profile information includes the name, category (Teaching Assistant with PhD), and ORCID ID. It also lists positions at the Thermal and Fluids Engineering department, Fluid Mechanics Group, and Gregorio Millán Barbany University Institute. Contact information is provided, along with tabs for Publications, Projects, and Other. A sample of publications is shown, including articles and conference contributions.

uc3m | Universidad Carlos III de Madrid
RESEARCH PORTAL

Home Researchers Organizations Outputs

GARCIA SALABERRI, PABLO ANGEL

category: Teaching Assistant with PhD
 <https://orcid.org/0000-0002-3918-5415>

Positions

- Academic Department : [Thermal and Fluids Engineering](#)
- Research Group : [Fluid Mechanics Group](#)
- Institute : [Gregorio Millán Barbany University Institute for Modelling and Simulation in Fluidynamics, nanoscience and industrial mathematics](#)

Contact Info

pagsalab@ing.uc3m.es >> [Other Contact Information](#)

Publications Projects Other

sample of publications

articles

- [The Impact of Reaction on the Effective Properties of Multiscale Catalytic Porous Media: A Case of Polymer Electrolyte Fuel Cells.](#) *TRANSPORT IN POROUS MEDIA*. 128:363-384. 2019
- [Through-the-Membrane Transient Phenomena in PEM Fuel Cells: A Modeling Study.](#) *JOURNAL OF THE ELECTROCHEMICAL SOCIETY*. 166:F3154-F3179. 2019
- [Implications of inherent inhomogeneities in thin carbon fiber-based gas diffusion layers: A comparative modeling study.](#) *ELECTROCHIMICA ACTA*. 295:861-874. 2019
- [A 1D+1D Model of Direct Ethanol Fuel Cells Based on an Optimized Kinetic Mechanism for Ethanol Electro-Oxidation Involving Free and Adsorbed Intermediate Species.](#) *Electrochemical Society Transactions*. 80:95-104. 2017
- [On the Limitations of Volume-Averaged Descriptions of Gas Diffusion Layers in the Modeling of Polymer Electrolyte Fuel Cells.](#) *Electrochemical Society Transactions*. 80:133-143. 2017

[... more](#)

conference contributions

- [Exploring the limits of macro-homogeneous models of carbon fiber papers.](#) 195-197. 2018

The CERIF2VIVO project

The CERIF2VIVO Project

SIGMA is involved in the [definition of the CERIF2VIVO](#) project.

[This project will be a collaboration](#) between: euroCRIS, VIVO and SIGMA and open to other collaborations.

The goal of this project is to [define an interface to upload information to VIVO](#) always the same way independent of the source, so, the standard CERIF, seems the best option.

We have had a first experience with CERIF in the collaboration with CSUC to upload information in the PRC (Research Portal of Catalan Universities). Even though PRC only uploads a subset of the information that is stored in a CRIS (articles, books, book chapters, projects and thesis), it was a good experience.



helping universities succeed

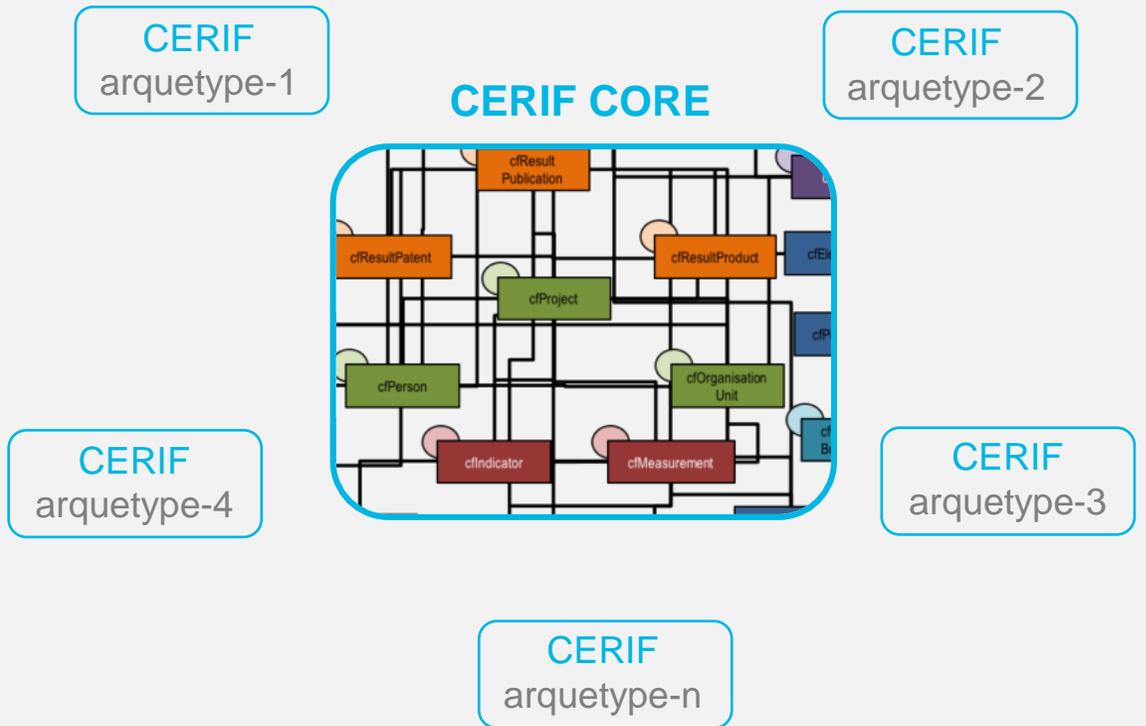


The CERIF2VIVO Project

To do this project, we must avoid one of the current drawbacks of CERIF, that is its complexity. The CERIF model is big and complex, so, in parallel, it's planned also the refactoring of the CERIF model.

This refactoring proposes to divide the CERIF model in a CORE model that will contain the essential entities, and then the definition of specific areas of entities that completes the model and that should be defined by experts in the area.

At the same time to do the refactoring, the mapping to VIVO will be defined.





Conclusions

VIVO

Some conclusions ...

- Our participation in the VIVO community it has been a great experience and an opportunity to **evolve and be able to provide to our universities solutions align with the ones used by world-class universities** (that leads the international rankings), that are also in the VIVO community, using and adopting their **best practices** at some levels.
- We can use VIVO as a **scholarly showcasing tool** (read-only), uploading the information from the CRIS to one university or more than one. Ideally we could use the CERIF model as the exchange format.
- euroCRIS will work in the **refactoring of the CERIF** model to simplify its use.
- In parallel, euroCRIS, VIVO and SIGMA will work in the **mapping of CERIF to VIVO ontologies**
- Five universities in the U.S. are working on **VIVO Scholar**, a modernized, read-only front-end for VIVO (for using as a showcasing tool)
- With these projects **we will be able to upload information from any CRIS to VIVO** in a consistent way (using the standard CERIF). To provide public portals and experts guides to our universities.

Thank you!!



helping universities succeed

Anna.guillaumet@sigmaaie.org | @annaguillaumet

[ORCID.ORG/0000-0002-1944-5259](https://orcid.org/0000-0002-1944-5259)