SciShops

ENHANCING THE RESPONSIBLE AND SUSTAINABLE EXPANSION OF THE SCIENCE SHOPS ECOSYSTEM IN EUROPE

# D2.2

# Existing RRI tools and successful participatory community-based research case studies report

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# Executive summary

In order to be able to develop new science shops, it is important to learn from existing models and practices in community-based participatory research. At the core of this report are fifteen case studies undertaken as part of the SciShops.eu Horizon 2020 project. The fifteen case studies represent a broad range of different models of community-based participatory research. The selection includes different types of organisations (non-profit, university-based, research institutes) from different parts of Europe and beyond at different stages of establishment (from young, new initiatives to well-established ones). Some feature traditional science shops, others work with innovative formats such as a pop-up model and an e-science shop based at an online university. Some organisations do not call themselves science shops but undertake community-based participatory research too.

The case studies investigate aspects such as business models, how the organisations undertake community-based participatory research, examples of research projects, relationships with community organisations and other stakeholders, how work and impact is monitored and evaluated, as well as Responsible Research and Innovation (RRI) practices. Most importantly, the interviews explore factors that determine the success of community-based participatory research as well as challenges faced by the organisations. The case studies are based on one-hour interviews undertaken with representatives of the fifteen organisations. An interview guide was used to guide the conversations.

Sustainability remains the greatest challenge science shops face, mainly due to funding insecurity and changing circumstances. Science shops need to be prepared to adapt and find new funding sources and partners if required. The case studies demonstrate a wide range of research interests, business models, regions and practices that reflect the variety of work undertaken by science shops in Europe and beyond. A key learning from this is that there is no single model a science shop must adopt in order to operate successfully but science shops should build on their own strengths and existing resources.

The report also contains a set of RRI (Responsible Research and Innovation) tools of relevance to science shops and provides context to the RRI agenda in relation to science shops. The tools are categorised according to key dimensions of RRI (such as ethics, gender equality, open access, public engagement, science education and governance) as well as the various activities undertaken by science shops as part of community-based participatory research, including project definition and implementation, evaluation and dissemination. A core source of tools has been the RRI Toolkit, developed as part of the EU RRI Tools FP7-project.

By investigating the current RRI practices of science shops through the case studies as well as the diverse range of RRI resources and tools available, it is clear that there are opportunities for science shops to embrace more RRI methodologies and practices to make their community-based participatory research even more participatory and responsible.

# Table of Content

# 1 Introduction

SciShops.eu (Enhancing the Responsible and Sustainable Expansion of the Science Shops Ecosystem in Europe)[1] is a Horizon 2020 project involving 18 partners in 13 European countries aimed at promoting the growth of socially responsible community-based research in Europe. The project explores how different types of research organisations, such as SMEs, research institutes, large enterprises, NGOs and universities can develop sustainable science shops with the ambition of establishing ten new science shops during the course of the 30-month project.

In order to be able to develop new science shops, it is important to learn from existing models and practices in community-based research. This report is a result of interviews undertaken with fifteen organisations conducting community-based participatory research. It contains a set of good practice case studies to inform the future development of the SciShops project as well as serve as inspiration to others setting up new science shops. The case studies investigate a number of aspects about the organisations themselves, such as their business models, how they are funded and managed. They also contain examples of community-based participatory research projects and look at how the organisations undertake these research projects, their relationships with community organisations and other stakeholders, how work and impact is monitored and evaluated, as well as Responsible Research and Innovation (RRI) practices. Most importantly, the interviews explored success factors that determine the success of participatory research as well as challenges faced by the organisations. The case studies also address the organisations' future development plans.

A second part of this deliverable is an RRI (Responsible Research and Innovation) tools set, again included to inform the future development of the SciShops project as well as for use by new and existing science shops. Section 5 provides context to the RRI agenda in relation to science shops and how the RRI tools have been organised, whereas section 6 contains the RRI tools set itself.

[1] https://www.scishops.eu

# 2 Approach and methodology for case studies

The fifteen case studies found in this report are the result of interviews undertaken with organisations conducting community-based participatory research. The organisations were selected in consultation with members of the Living Knowledge network, an international network of science shops and community-based research institutions. The selection represents a range of different types of organisations (non-profit, university-based, research institutes) from different parts of Europe and beyond with different lifespans (from new and young community-based participatory research initiatives to well-established ones). The majority of the case studies feature science shops, as it is the focus of this project, as well as a number that do not call themselves science shops, but undertake community-based participatory research of some kind. Innovative formats, such as a pop-up science shop and an e-science shop based at an online university are also included. Further, one of the case studies is a citizen science organisation to explore the potential of citizen science as a participatory methodology for conducting research in science shops.

An overview of the case study organisations can be seen in the table below:

| | YOUNG<br>1–5 years after establishment | MATURE<br>6-10 years after establishment | ESTABLISHED<br>> 10 years |
|---|---|---|---|
| UNIVERSITY & RESEARCH INSTITUTE | Malmö University's Pop-up Science Shop, Malmö, Sweden, **Northern Europe** | Science Shop European University Cyprus, Nicosia, Cyprus, **Southern Europe** | Science Shop Language, Culture, Communication, University of Groningen, Netherlands, **Western Europe** |
| | Barcelona UOC, Spain, E-science shop, **Southern Europe** | Living Lab for Health, Barcelona, Spain, **Southern Europe** | InterMEDIU, Bucharest, Romania, **Central-Eastern-Europe** |
| | Adam Mickiewicz University's Science Shop, Pozna, Poland, **Central-Eastern-Europe** | Research Shop at the University of Guelph, Canada, **Non-European** | UTS Shopfront Community Program, University of Technology Sydney, Australia, **Non-European** |
| NGO & NON-PROFIT | Social Innovation Institute Science Shop, Vilnius, Lithuania, **Central-Eastern-Europe** | Interchange Liverpool, UK, **Western Europe** | Bonn Science Shop, Germany, **Western Europe** |
| | | Wissenschaftsladen Potsdam, Germany, **Western Europe** | FBI: Institut für gesellschafts-wissenschaftliche Forschung, Bildung und Information, Innsbruck, Austria, **Western Europe** |
| | | | Ibercivis Foundation, Zaragoza, Spain, **Southern Europe** |

**Table 1: Sampling scheme of science shops and community-based participatory research initiatives featured in the case studies.**

One-hour Skype interviews were conducted with one or more representatives from each organisation during November and December 2017. Informed consent was obtained for each of the interviews. An interview guide and case study template had been developed before to serve as a guide during the conversations. The interview guide can be found in the Appendix in section 9 (9.1).

The case studies can be found in section 3. The intention is for these case studies to be made available on the SciShops.eu website and subsequently the SciShops web platform, over the course of the project lifetime, in order to provide inspiration to others setting up or running science shops.

# 3 Case Studies

## 3.1. Science Shop Language, Culture, Communication, University of Groningen, the Netherlands

**Overview**

The **Science Shop Language, Culture and Communication** is part of the Faculty of Arts, **University of Groningen**, Netherlands. It was set up in **1986**, so it is **well-established** and reflects a long-lasting tradition of science shops in the Netherlands. The science shop mediates in questions from non-profit organisations to create knowledge in **arts disciplines** and research projects are undertaken by students at the university.

**Background**

The Science Shop Languages (as it was called in the beginning) was set up in 1986 by the board of the Faculty of Arts at the University of Groningen. There were already a number of other science shops at this university at the time and the board felt a need to have an open and democratic service for research in art disciplines as well. Nowadays, the University of Groningen has six science shops based in different faculties.

Due to the support of the Faculty Board, setting up the science shop was a straightforward process. The new science shop worked closely with another focusing on History & Languages on a variety of societal issues. At the end of the nineties, the Science Shop Languages went through a difficult period and was not operational for a few years. These difficulties were partly due to the success of the Science Shop History that split from the Faculty and moved to a business-like model. This was possible due to a very high demand for paid research from organisations. This departure resulted in a lack of funding and human resources for the Science Shop Languages.

Nevertheless, in 1998 the Science Shop Languages started up again in a different environment. A new centre of expertise with staff employed to work on paid contract research was established and the science shop was restarted within the centre to work on connecting non-profit organisations to student research. The combination of professionals and students, of paid-for bigger projects and smaller non-profit projects worked well. Initially, one member of staff was responsible for coordinating the science shop on a part-time basis but in 2002 a new coordinator was hired to focus on the science shop projects and develop the non-profit activities. Once again, the science shop became part of a bigger organisation and started flourishing. In 2004, the Science Shop was renamed to Language, Culture and Communication to attract a greater breadth of work and to avoid confusion with the university's Language Centre.

Today, the science shop is embedded in a new organisational unit, the Department of Communication, Career and Society, as the Centre of Expertise didn't survive the economic crisis in 2008. The science shop now mediates in questions from non-profit organisations to knowledge in all arts disciplines (languages, history, literature, communication, archaeology, media, art and international organisations).

**Business model and organisation**

The science shop is fully integrated into the structure of the university. Most staff and other direct costs are funded by the university itself. The university covers the salary of two part-time (2 days a week) coordinators and provides the science shop with an office and resources, such as computers. Depending on the type of organisation they conduct research for, occasionally the science shop asks for a small financial contribution to ensure the students do not have to cover any costs themselves. Fees charged by the science shop's coordinator for giving external lectures provides a small amount of additional funding, too.

The science shop has no advisory board, although it used to when it was embedded in the centre of expertise. The science shop considers itself too small to have its own advisory board, preferring to informally consult members of the Faculty when required, although several of the other science shops at the university do have advisory boards. Research projects are usually performed by BA or MA students under the guidance of academic supervisors and take the form of theses, internships or smaller assignments within courses. Sometimes, graduate students also participate in projects to gain extra experience.

**The research process and relationship with stakeholders**

The science shop works with a wide range of stakeholders, including public libraries, museums, local governments, foundations, welfare organisations, schools and other educational organisations, and communities such as neighbourhood groups or groups of parents. Local authorities sometimes provide research questions too, but more frequently they are involved as secondary parties providing access to archives or organisational or financial support.

The science shop occasionally works with for-profit businesses if these companies have a question with wider societal relevance. Companies need to agree for the results to be to published openly and usually pay a small fee for the research, depending on the nature of the company and question to be investigated. One example was a project to investigate how diverse teams work, carried out for a consultancy company. The company was very willing to share the results and paid to hire a student to work as an intern to perform the research.

Because the science shop is small, it can only manage a maximum of ten projects a year. Usually around 25-30 questions are received a year, some of which can be answered without the need for a research project. Every question receives a response, which may consist of advice or suggestions for websites or articles. Although they receive sufficient research questions, sometimes the coordinators themselves identify organisations with interesting problems to research.

All stakeholders are involved throughout the research process. The starting point is the problem to be solved and, at the beginning, the science shop coordinators have a lot of initial contact with the stakeholders to gain a good understanding of the issue, how it can be shaped into a research project fit for students to undertake, as well as to agree the nature of the final output, what the organisation can contribute themselves and to manage the organisation's expectations.

When the research project starts, there is a meeting at which the stakeholders, students and supervisors are brought together. Depending on the nature of the question, organisations may be involved in the research process themselves, providing information, collecting data or sometimes allowing students to work at their organisation. Normally, it takes about 3-4 weeks to formulate the

research question and there may be a delay before the start of a semester and the student can start work on the project.

Half way through every project, students present their work to the organisations, which provides an opportunity to discuss the research process and clarify any issues. At the end of the project, the students present the results, and ways in which these can be implemented or communicated to a broader public are discussed.

Occasionally, the process involves some participatory methodology, but this is something that the science shop would like to develop further.

The science shop recognises the importance of communicating its work on issues of societal relevance to the broader public via its website, social media (Twitter), classical media as well as public lectures, workshops, open access reports and sometimes popular science articles. They have some media partners and news is spread nationally, regionally or locally, depending on the subject.

**Examples of research projects**

The science shop has conducted numerous research projects on different topics and also works with thematic research lines of societal relevance in which a number of researchers are involved, for example on the theme of effective language learning.

A few years ago, the science shop conducted a project for a high school on a radically new method of teaching French that the school was experimenting with. Both teachers and parents were having some concerns about its effectiveness and whether it was preparing pupils properly for exams. As a result of an article in a local newspaper about these concerns, the science shop got in contact and offered to carry out some research. The project had good continuity. Firstly, three students of applied linguistics did the testing with the pupils and followed them for half a year and later, one of the students turned the project into a PhD project involving more schools and following the language acquisition of pupils over three years. Her results inspired a website to improve French teaching methods and numerous workshops, and has reached many teachers.

Another example of a successful theme is multilingualism. This started with a project in 2005 and is still continuing. The original question came from a group of mothers that were raising bilingual children and were coming across a lot of misconceptions about the subject, such as advice that their mother tongue was harming the acquisition of Dutch. Together with the mothers and a school advisory service, the science shop researched the knowledge and guidance provided by kindergarten teachers, which revealed that a lot of uninformed advice was being given. Further projects investigated ways to communicate the correct information. These projects have helped to put the issue on the agenda in the Netherlands. Now, there is a website for parents and teachers, a yearly festival and even a study programme on Minorities & Multilingualism.

**Impact and evaluation**

Coordinators carry out an evaluation with students and the organisations to assess their satisfaction with the project process and the results and if their expectations have been met. The evaluation consists of a standard questionnaire that is completed face to face together with the students and organisations to allow other observations to be discussed as well.

The quality of the research results is assessed by the academic supervisors as part of course requirements because all the students undertake the projects for credits. Sometimes, if a thesis is too

complicated for the organisation to use practically, the students may be asked by the science shop coordinators to produce additional materials e.g. a presentation, brochure, educational material or a digital resource.

At the start of the project, objectives in terms of impact for the organisation requesting the research are clearly defined to ensure that the results can be used by the organisation at the end of the project. Due to the thematic approach, certain projects (such as the multilingual project described above) can result in considerable societal impact over time.

**Responsible Research and Innovation (RRI)**

The coordinators are aware of the concept of Responsible Research and Innovation (RRI), and undertake a number of RRI practices, such as working together with societal partners throughout the process, making results available via open access and taking into account ethics and diversity. Responsible research is what the science shop is constantly aiming to achieve.

**Professional development and training**

The coordinators occasionally attend national or regional workshops for professional development purposes as well as the annual Living Knowledge Conference, although much knowledge is gained through practice. The coordinators try to pass relevant knowledge onto students working on projects and involve them in science shop and Living Knowledge meetings, when applicable.

In 2017, the senior coordinator took part in an online course on knowledge mobilization run by the University of Guelph, Canada, which they found useful. The junior coordinator, who started in 2017, is planning to participate in a summer school to be held at the Living Knowledge Conference in 2018.

**Challenges**

Problems are occasionally encountered with research projects. For example, projects might not be completed due to students' personal problems, miscommunication or a supervisor who does not judge the research results or report to be of the necessary quality. These types of issues can result in delays and demotivated stakeholders and students. The science shop always tries to find solutions to enable projects to be successfully completed and offers mediation, but sometimes it is out of their hands.

In some fields, it can be difficult to find students to work on the projects, due to very tight curricula or competitive development opportunities. Sometimes, the science shop has to decline questions because there are no supervisors or students with such expertise, the questions are too big or too complicated for a student to answer, or the problems does not lend themselves to being solved by research. Challenges sometimes also occur when working with certain types of community organisations. For example, organisations may not have sufficient capacity (such as those working with volunteers), knowledge or time to contribute to the process.

**Success factors**

The success of the science shop is dependent on effective collaboration between many different stakeholders, which involves considerable investment in human relationships and communication to get all partners committed to a project. The societal organisation also needs to be committed to changing something, interested in new insights and willing to assist the students. Expectations must also be managed. Students also need to be motivated to put effort into trying to help, listening to the

organisations' needs and acting accordingly. Supervisors must also appreciate the relevance of the projects. The science shop acts as the 'glue' in the project. Senior management support is also needed to guarantee funding and the sustainability of the science shop.

The Science Shop Language, Culture and Communication rarely encounters problems with student motivation. Many arts students are keen to add something to society, to see their research being used outside of academia, and they also value the experience for their professional career.

**Future development**

The science shops at Groningen are keen to develop their knowledge and use of participatory action research (in which organisations, not just students, take the role of researchers) and to look for new methods to co-create knowledge with organisations. The science shop is also hoping to ensure the sustainability of its activities as a result of change to the curriculum that is planned for September 2018, namely the implementation of a career minor (a programme designed to prepare students for the labour market). All students in the faculty will be able to opt to do a project for an external organisation as part of an interdisciplinary team. The science shop's role will be to provide suggestions of projects. As a result, projects will be less dependent on individual supervisors and students. It is estimated that a potential 200 students a year will select this career minor.

**Contact details**

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## 3.2. European University Cyprus Science Shop

**Overview**

**European University Cyprus (EUC) Science Shop** is a science shop based at the European University Cyprus, a small independent **university**. It is the first science shop in Cyprus. It was founded in **2011** and had implemented 20 successful projects by the end of 2017, carried out by students across a range of fields as part of their academic courses.

**Background**

EUC Science Shop was founded in 2011 by the EUC Business School. It started as a pilot initiative under the PERARES (Public Engagement with Research and Research Engagement with Society) FP7 project (2010-2014)[2]. The science shop was set up with the aim of creating an information bridge between society and academia in Cyprus.

After the PERARES project, meetings were held with faculty members and councils of various departments in order to spread the concept and gain acceptance from other parts of the university. The model of operation for the science shop was passed through the Senate of the university and made an integral part of the study process and quality assurance system of the university. Currently, the

[2] http://www.livingknowledge.org/projects/perares/

science shop implements projects from all fields of science and research represented at EUC. It runs about 4-5 projects every year.

**Business model and organisation**

The science shop is fully integrated into the structure of the university. There is a commitment from the university's senior management, which is a crucial factor for the successful running of the science shop. Following completion of the PERARES project, the EUC Science Shop no longer receives any dedicated funding. Occasional funding might come from larger projects on science shops or community-based participatory research, in which science shop staff are individually involved or receive funding to support some of the science shop's activities, such as information events. Costs related to the implementation of projects (travel, data collection, etc.) are sometimes covered by the organisations that they work with (particularly if they are for-profit organisations, such as companies), or other parts of the University's budget.

Science shop projects are carried out by students taking research methods courses as part of their degrees. Participation of the faculty members and everyone involved is on a voluntary basis, as part of their everyday obligations and due to the mutual benefits of participating in work of this nature; the science shop projects provide faculty members with real-life topics of research for their students to work on; students learn valuable research skills; and for the university management it is a way of demonstrating social responsibility and developing links with civil society.

The management structure of the science shop consists of a Director and an Administrator (contact officer) based within the Business School, an Advisory Board, and a Scientific Committee. The Advisory Board represents all stakeholders and includes the science shop's Director, Vice Director for research at the university, Deans of the six of the university's schools, three representatives of community organisations, and one representative of the science shop's Scientific Committee. The Advisory Board has an advisory role only. The Scientific Committee consists of faculty members from each department of the university and is the main governing body of the science shop. The Committee meets twice per semester to discuss the projects and other issues related to the running of the science shop.

**The research process and relationship with stakeholders**

The science shop receives research requests primarily from local civil society organisations such as NGOs and other non-profit organisations. They also accept research requests from for-profit companies, as well as municipalities and even individual citizens, if the research question or problem they provide is considered to be of interest to the wider society. The science shop has also worked with embassies of other countries based in Cyprus, for example on projects investigating business and trade opportunities in Cyprus.

The science shop works as an intermediary between civil society organisations (or other organisations) and professors in the various schools of the university, who manage teams of students to conduct the research. Organisations contact the science shop describing the problem that they face by filling in an application form either electronically via the science shop's web platform or on paper. The science shop administrator forwards the application to the Scientific Committee. At a meeting, the Scientific Committee decides whether the problem can be tackled through a research project. If not, the request is declined. If it can, the Scientific Committee further develops the research question and forwards it to the relevant school(s) of the university. It subsequently reaches the most relevant department and

faculty member that is in charge of a research methods course. The project is then assigned to a student or a team of students.

During a project, the faculty members leading the project maintain contact with the civil society organisation (or other organisation) that provided the question. On-going dialogue with the organisation helps to ensure that the project remains on track at every stage and the objectives are met. Once the project has been completed, the science shop receives a copy of the report or results for its records. Results are presented by the students who carried out the research work in the presence of the supervisor and a representative of the civil society organisation.

**Examples of research projects**

The EUC Science Shop implements projects in the whole range of science/research fields represented at the University. The work mostly involves surveys, interviews and other social research methods. However, projects in natural and other sciences also involve laboratory research and other methods.

Examples of social sciences projects include an evaluation of current management practices in farms for the development of a sustainable and competitive management information system and a project on the development of an IT administration system for speech clinic supervisors.

An example from health science is a project that investigated the effect of natural anti-microbial substances (such as lemon acid or vinegar) on the reduction of the microbial population on freshly prepared salads.

**Impact and evaluation**

The EUC Science Shop does not undertake formal evaluation. Through informal contacts with the civil society organisations after the end of the project, the science shop learns if the organisation is satisfied with the results. The science shop believes that the impact that they have in society is demonstrated by the good levels of awareness of the science shop in Cypriot society and the positive image that EUC has gained as a university with a science shop.

Impact is anecdotal and the EUC Science Shop has concrete examples of the impact of its projects and how its work is contributing to the development of Cypriot society. For example, one project requested by professional unions dealt with diversity management approaches in Cypriot companies. It is known that the unions used the project results to promote diversity management within the companies and help managers to understand better the concept.

**Responsible Research and Innovation (RRI)**

The EUC Science Shop applies RRI principles in a number of ways. Research ethics are followed according to the policies of the university as a general practice. Gender balance is sought in the projects with the aim of encouraging different approaches and opinions. Research results are made publicly available. The projects also involve some participatory methodologies such as expert focus groups. Public involvement or dissemination to the general public is not a part of their standard process, but is implemented occasionally, depending on the project and preferences of the civil society organisation behind the project.

**Professional development and training**

The EUC Science Shop is part of the Living Knowledge network and takes part in international projects related to community-based participatory research, for example, the Horizon 2020 Sparks project (2015-2018)[3], dedicated to engaging citizens in health research. The Director and the Administrator of the science shop also participated in a number of training courses run as part of the PERARES project.

**Challenges**

The main challenge for the EUC Science Shop is to generate research questions from civil society organisations and other organisations. It is a difficult process and is mostly dependent on direct contacts with potential partner organisations. For example, information meetings are held with civil society organisations during which science shop staff explain the benefits of working with the science shop to address certain types of issues. They also utilise the networks of members of the Advisory Board, which involves representatives of NGOs and other organisations. Finally, communication activities, such as TV and radio interviews help to raise awareness of the science shop and can result in research questions.

**Success factors**

The main success factor for the EUC Science Shop is that it has successfully integrated the science shop's projects into university practices and as a result has achieved sustainability. Under the current model, science shop projects are run as a part of the everyday job of the involved participants (faculty members) and by students as part of existing university courses.

Another achievement is that the EUC Science Shop has built a good level of awareness and reputation among civil society organisations and other organisations. It still takes a lot of effort to get concrete research requests, but awareness of the science shop is growing.

**Future development**

The current Director of the EUC Science Shop is very positive about the future sustainability of the science shop, as well-established and approved procedures make it less dependent on individual people.

**Contact details**

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Contact: Mrs Victoria Makri, Administrator
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[3] http://www.sparksproject.eu/

## 3.3. Universitat Oberta de Catalunya (UOC) Science Shop, Spain

**Overview**

The **UOC Science Shop is an e-science shop** based in **Barcelona, Spain**, at the **Universitat Oberta de Catalunya**, an online university. The process of setting the science shop up began in January **2017** and it is currently piloting an initiative whereby students develop their dissertations on topics proposed by civil society organisations.

**Background**

UOC, the Open University of Catalonia is an open online-university based in Barcelona offering graduate and postgraduate programmes in fields such as psychology, computer science, sciences of education, information and knowledge society and economics. It is a completely online university that supports people in lifelong learning and societal advancement while carrying out research on the knowledge society. Its educational model is based on a personalised learning experience using e-learning activities.

The idea of creating a science shop stems from the UOC's commitment to the UN 2030 Agenda for Sustainable Development and the EU's promotion of RRI in its research and innovation framework, which fosters the participation of society throughout the research and innovation process to better align its results with the values of society. The aim of the UOC Science Shop is to carry out community-based research and bring academia and civil society organisations more closely together. The science shop is one of the pilot activities in the university's line of action on "Open knowledge for and with everyone" aimed at strengthening the relevance and societal impact of research and its relationship to the specific needs of societal actors.

The process of creating the science shop has involved a number of activities:

- A conference on "Get to know the international movement of Science Shops" with international guest speakers including Emma McKenna (Queen's University Belfast) and Jozefien de Marrée (Free University of Brussels).
- A study of the international science shop landscape.
- An Erasmus+ scholarship to spend four days at Queen's University Belfast's Science Shop learning about all aspects of how a science shop operates.
- An in-house analysis of state-of-the-art participatory research and a review of internal staff's support and views on the idea.
- The development of a Participatory Final Dissertation pilot in which students develop their Masters or Degree research dissertations on topics proposed by civil society organisations.

**Business model and organisation**

The UOC Science Shop has a multidisciplinary collaborative approach that encompasses both teaching and research, connecting all departments and areas of the university as well as students and management staff. Currently, the university completely finances the science shop. The science shop is run by two people, who are responsible for coordinating this phase of internal change and managing the development of the Participatory Final Dissertation pilot. As the science shop is in a pilot phase, it does not have an official advisory board, but there are plans to create a committee on which all involved parties will be represented (representatives of the university, civil society organisations and

students) to horizontally manage decision-making related to the science shop. A web platform will also be created and embedded in the UOC's website to act as a meeting point for everyone involved.

**The research process and relationship with stakeholders**

In the Participatory Final Dissertation pilot, research projects will be undertaken by students working on their Masters or Degree courses, providing them with practical experience of conducting a research project. Supported by a research project supervisor, students will decide what topics to work on, meet with the civil society organisations, formulate the research questions as well as design and carry out the research.

Periodic meetings with the civil society organisations will be held online and, except in those cases where the methodology of the research and associated process of data collection requires face-to-face collaboration, the whole process will be exclusively online. Although the online dimension may make it more complicated to develop close relationships and connections with the wider community, UOC believes it is attainable given the strong ICT environment in which we live our daily lives. Once the research projects have been completed, students will present their results in an open discussion session involving all of the relevant parties.

**Examples of Research Projects**

The Participatory Final Dissertation pilot is being developed during the 2017-2018 academic year. Currently, local civil society organisations are being contacted with the aim of identifying suitable topics for collaborative research projects. During this first year, the UOC's focus is on approaching civil society organisations directly, which also allows them to evaluate the general level of interest in the initiative and need for this type of work. In future years, once a certain level awareness about the initiative has been achieved, regular open calls for proposals will be also launched.

A couple of topics that have been identified to date are:

- The student movement and feminism through social networks.
- Housing: principle of inclusion.

**Impact and Evaluation**

An evaluation process is planned that will have three stages (at the start, in the middle and at the end of the project) to monitor and gain insights into the development of the projects. The data will be collected mainly through questionnaires completed by all stakeholders involved in the project.

The science shop also intends to ask some of the professors involved in the science shop's research projects to carry out a comparison between the students that conducted a science shop project together with a civil society organisation and those that have prepared their Master thesis themselves. The aim is to identify any new competencies that students may have obtained as the result of working on community-based research projects.

**Responsible Research and Innovation (RRI)**

The university is currently working on implementing an internal policy for open and responsible research and innovation (2018-2020). The strategy focuses on developing the global and social competences of UOC's staff in relation to the RRI and thus achieving a solid community of practice and responsible research within the UOC.

The first step is the development of a course on "Responsible Research and Innovation (RRI) for Researchers - An Introduction". The course will allow UOC's researchers to relate the theoretical concept of responsible research to their daily practices. A second course on gender issues is also planned.

**Challenges**

The main challenge is how to make the science shop concept interesting to both students and the participating civil society organisations to achieve a maximum level of engagement from both sides.

**Success factors**

The university's support of the science shop at a strategic level and its overall commitment to engaging with society by fostering activities that respond to the needs of the societal third sector and involve the whole of the university community in pursuing solutions to major global challenges. There is also a high level of enthusiasm and commitment amongst UOC staff throughout the university.

**Future development**

Once the Participatory Final Dissertation pilot is fully underway, the Science Shop will be officially launched. In addition, more complex societal topics that could form the basis of PhD theses or research projects will be investigated.

New training for researchers on community-based research skills will also be developed within the framework of the Knowledge for Change (K4C) Global Consortium[4], an initiative of the UNESCO Chair in Community-Based Research and Social Responsibility in Higher Education.

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## 3.4. InterMEDIU Bucharest, Romania

**Overview**

**InterMEDIU Bucharest** is a **university-based** science shop at the **University Politehnica of Bucharest** in **Romania**. Founded in **2002**, it has been steadily running for 15 years, carrying out between three to four projects a year. InterMEDIU has a focus on **environmental** issues.

**Background**

InterMEDIU Bucharest was founded in 2002, as part of a MATRA project (2002-2005) funded by the Dutch Ministry of Foreign Affairs. Three other Romanian science shops were set up at the same time in addition to four others that had been established in a previous MATRA project. The science shops

[4] http://unescochair-cbrsr.org/

received mentoring from the University of Groningen as part of the project. Subsequently, a network for Romanian science shops was set up called INRO consisting of around 12 members. The network is still active although several of the science shops are no longer operational. InterMEDIU has been involved in a number of EU-funded projects relating to research on science shops including EFSUPS and PERARES. Currently, InterMEDIU is a partner in SciShops.

**Business model and organisation**

InterMEDIU is run by staff in the Department of Analytical Chemistry and Environmental Engineering at the Faculty of Applied Chemistry and Material Science and acts as an interface between the university and society. Each year, the science shop handles three to four projects. Between six and eight staff employed by the university are involved in the science shop on a voluntary basis, managing and supervising the research projects undertaken by students. They conduct the research projects as part of their graduate theses (undergraduate, masters or PhD), which provides them with an opportunity to work on subjects related to local and national environmental issues. Many of the research projects undertaken by the science shop last around six months, some longer.

InterMEDIU does not receive any direct funding from the university but is self-financed by means of project grants and external sponsorship. Sponsors for projects are actively sought to either contribute financially or to provide resources e.g. analytical kits. Being based within the Faculty of Applied Chemistry and Material Science, the science shop also has access to laboratory equipment. Financial constraints as well as the interests of the students limit the number of research projects that can be undertaken.

Public awareness and understanding of environmental issues in Romania is relatively low and InterMEDIU also has an awareness-raising and educational role. For example, it organises environmental education programmes for schools and teachers. Its annual symposium on *Education for a Clean Environment* is a project that has been running for 13 years involving students and teachers in posters, presentations and school projects.

**The research process and relationship with stakeholders**

In some cases, the science shop works proactively to identify research issues to be investigated. This happens, for example, when they identify environmental issues in the media or in reports that require further investigation and action. Examples of this type of proactive research work are a project to investigate the quality of underground water in a village close to Bucharest, which contained high levels of nitrates, and a report on the environmental impact of fracking, which was a concern at a national level.

Some research questions come directly from NGOs, although the science shop has struggled to get NGOs interested in working collaboratively. If the science shop is unable to fulfil a research request, they often find that the NGO does not return with further questions. Many of the science shop's projects involve analyses using some type of equipment, either carried out in the Faculty's laboratory or using kits or smaller laboratory equipment provided via partners or sponsors.

**Examples of research projects**

The main focus of InterMEDIU's research projects is environmental issues, such as water quality and waste management.

InterMEDIU's first science shop project was on waste management in Bucharest and involved a visiting student from the Netherlands who developed a waste management plan for the City of Bucharest, including waste incineration as waste disposal option, as part of their Master's thesis.

Another project focused on analysing soil heavily polluted by the metallurgical industry. This project was started by a student in the last year of her undergraduate course, continued throughout her Masters and finally resulted in a PhD thesis.

In response to reports that many infants were falling sick in a village close to Bucharest, due to suspected exposure to high levels of nitrates, a designated science shop project was initiated that involved visiting around 100 households in order to test their drinking water. High levels of nitrates were detected and reported to the relevant authorities. The research results were included in a Master thesis.

**Impact and evaluation**

InterMEDIU does not evaluate its research projects. Success is viewed in terms of whether the research projects are successfully completed and the results published. In terms of societal impact, the lack of interest and awareness in environmental issues by policy makers and the media in Romania means that scientific evidence is often not taken notice of, nor used to inform policy making. For example, in the case of a waste management plan for Bucharest, despite a robust report, the city council showed no interest in utilising the results. In the drinking water project, the results and the project did raise additional awareness about the issue among the citizens living there and via the media. However, although the authorities did extend the water supply network (which happened in parallel to the research project), there are still vulnerable people that are not connected to safe drinking water. InterMEDIU is aware of impact in terms of its educational awareness programmes, although this has not been formally evaluated. For example, over time, they have noticed an increase in teachers' confidence and engagement as well as pupils' knowledge of environmental issues.

**Success factors**

Despite many resource challenges, InterMEDIU has survived for 15 years, which is due to the commitment of those involved in the science shop as well as flexibility to adapt to circumstances and identify different sources of funding. Although the number of projects undertaken is relatively low, the science shop has managed to engage students in the projects that they have taken on board.

**Challenges**

A major challenge is to communicate the concept of community-based research and what the science shop is trying to achieve, both within the university and to NGOs. The science shop is not viewed as a priority by senior management at the university and therefore does not receive any direct funding.

Working with Romanian civil society remains a challenge. NGOs often see the science shop as competitors and are not keen to share funding due to their own resourcing issues. Many NGOs are also very politically focused and do not understand the value of scientific evidence to inform their work. As a consequence, they sometimes rely on misleading or erroneous statistics. Within Romanian society, there is a general lack of awareness and interest in environmental issues at different levels e.g. among the media, politicians, and ordinary citizens.

Also, they sometimes struggle to match project requests with resources. NGOs often want quick responses and it can take several months to find the right student and coordinator and put the resources into place. One of the reasons that several other Romanian science shops did not survive was due to their reliance on individual people within the university. When these people moved on to other positions or retired, the driving force behind the science shop disintegrated. There is also a lack of rewards and incentives to get involved in this type of work. Funding of science shops in Romania remains a challenge. Some are only active when they get funded via EU projects.

**Future development**

InterMEDIU has recently been extended to include another faculty and its long-term ambition is to involve more staff from across the whole of the university in the science shop's work. This will expand what the science shop can offer to NGOs. More work needs to be done to raise the profile of the science shop within the university, too.

To date, the focus has been on publishing scientific papers and there is an opportunity to publish more popular science papers with the aim of raising awareness more broadly, both of environmental issues and the work of the science shop. The science shop would also like to develop closer relationships with NGOs and do more work to identify ones that would be willing to collaborate and benefit from this type of research.

A new website for InterMEDIU is also under construction.

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## 3.5. UTS Shopfront Community Program, Australia

**Overview**

**UTS Shopfront Community Program** is a science shop based at the **University of Technology Sydney, Australia**. Since it was set up in **1996**, UTS Shopfront has facilitated more than **1000 successful projects** completed by UTS students as part of their **disciplinary coursework** for more than 800 non-profit organisations.

**Background**

UTS, University of Technology Sydney, is a young university that was founded in its current form - as a result of the amalgamation of several higher education institutions - in 1988. With total enrolments of over 35,000 students, UTS has historically been characterised by strong engagement with industry. However, an independent audit by the Australian universities quality agency in the mid-nineties identified community engagement as an area for improvement. With initial seed funding for three years, UTS Shopfront was set up in 1996 as a "community research and advocacy centre", partly influenced by the European science shop movement. Its aim was to extend the corporate citizenship and civic responsibilities of the university by providing services on a pro bono basis to community organisations with identified needs.

UTS Shopfront was the first cross-faculty community programme of its kind at an Australian university. It has built up a strong reputation and established relationships with hundreds of local and national community organisations. Being situated in central Sydney, some of these organisations have a national remit. At the end of 2017, 1078 community research projects have been completed via its student community coursework programme.

In 2013, Shopfront launched a new programme, UTS SOUL Award, an extra-curricular volunteering programme for students who complete 100 hours of volunteering and training during the course of their degrees.

Shopfront also jointly runs a peer-reviewed e-journal *Gateways: International Journal of Community Research and Engagement* concerned with the practice and processes of community engagement.

**Business model and organisation**

UTS Shopfront receives core funding from the University and has done so for its entire 21 years. Following its initial three-year establishment grant, the intention had been for Shopfront to operate by sourcing external funding but following consultation with stakeholders, the decision was taken at a senior management level to continue to core fund its work. This was partly influenced by the political climate at the time, where there was uncertainty and significant cuts to funding in the non-profit sector, and a belief that Shopfront's purpose should be to support the community, not to compete for funding or ask NGOs to use their limited resources or project grants to pay for this type of work.

During its first decade, Shopfront was staffed by 1.8 positions, but now – because of the growth in its portfolio and the SOUL Award - employs the full-time equivalent of four staff.

UTS is located in the inner-city suburb of Pyrmont-Ultimo, the most densely populated suburb in Australia. The Shopfront staff are located in an office suite in one of the main university buildings, with close access to meeting rooms and training rooms.

**The research process and relationship with stakeholders**

At the heart of Shopfront's activities is its cross-university Community Projects programme that connects community-based organisations with students to work on a wide variety of community-led projects. These projects are run as disciplinary coursework by final year or postgraduate students and are usually undertaken in small project teams. Students come from wide range of faculties, such as architecture, built environment, business, communication, design, education, engineering, information technology, law, and science.

A Shopfront project coordinator is assigned to individual projects to act as a relationship manager and provide continuity with the community organisations. Each project is also supervised by an academic researcher. Community need and community initiation are central to the way Shopfront works. Projects are undertaken in response to a need identified by a community organisation (or group of community organisations), who then approach the Shopfront. The core aim of each project is to produce useful outcomes for the organisation. The students and academic supervisors determine which projects they want to get involved in, and certain types of projects may be turned down that do not fit the disciplinary skills set of the university. On average, between 60 to 70% of proposed projects do go ahead.

Often, community organisations tend to view Shopfront as a form of consultancy service to fill their own skills gaps, for example in research, design and user experience, business planning and

governance. All project work is pro bono, so there is no cost for the community organisations. The project coordinator leads on the initial project scoping assisting organisations to focus the project and clarify goals. Project selection is undertaken together with the academic supervisors according to defined criteria, including the students' interest in the projects. Therefore, not all projects get selected and, as projects are undertaken by students as part of their course work, Shopfront makes it clear that they cannot guarantee an outcome. However, Shopfront's success rate, viewed as a project that gets used by the community organisation at the end of the project, is over 93%. On the rare occasion a project fails, it is mainly due either to a lack of student commitment or lack of depth in understanding and analysing the social issue. Until recently, UTS' academic year consisted of two semesters of 14 weeks during which students undertook the project. A recent move to three semesters means that projects can now be conducted all year round, which has also meant a reduction in the scope of the projects to suit the shorter semesters.

When Shopfront was first set up, a lot of time was spent communicating the concept to community organisations. However, for many years, Shopfront has not needed to advertise externally and evaluation shows that 85% of its project requests are a result of word of mouth or having previously worked with Shopfront. Prior to each semester, a call for applications from local NGOs to submit projects is launched via the UTS website, networks and social-media channels. Shopfront has a robust project initiation and management process, which includes project scoping, brief development, project management timeline, planning, project monitoring and formal evaluation and feedback, as well as quality management processes and failure procedures.

Intellectual property rights are owned by the community organisation and the organisation retains control over the outcomes. Project delivery consists of a professional presentation to the community organisation at the university and handover of report or another project collateral. The community organisation may also host a launch to which they invite relevant stakeholders, such as politicians, or occasionally ask Shopfront to help with dissemination. Some outcomes, e.g. feasibility reports, remain confidential. For larger, more complex research or research requiring lengthy ethics approval, Shopfront has a brokerage role and puts the community organisation in touch with an appropriate researcher, which may lead to a paid consultancy agreement for the university.

**Examples of research projects**

Shopfront students undertake a range of projects, including research (e.g. desk research, literature surveys, feasibility studies), design (e.g. user prototyping, visual identity, animations, films), business planning, financial management, governance, and sustainability. There is a growing demand for projects involving the development of new technological infrastructure and digital platforms. The focus of many projects is emerging social issues. Often, projects fill gaps that arise between government provision of services and community need, and result in increased visibility for these kinds of issues.

For example, during 2017, Shopfront undertook a project for the Gender Centre, a small non-profit organisation working on transgender issues. People who are transgender often have poor health outcomes as they do not access health services due to not being treated in a suitable and respective manner. The project investigated ways to improve this, researching the experiences of transgender people, developing case studies and looking at how to visually represent and communicate issues relating to the transgender community. The project also investigated how educational modules could be designed to assist health workers. As a result, a prototype for a training package has been

developed, which the Gender Centre is hoping will be funded and rolled out as part of staff induction programmes for health services.

Shopfront often works with organisations working with Australia's indigenous population. In another project in 2017, a UTS student undertook a collections audit and developed a public access policy for a nationally significant archive that traces Indigenous education and the Indigenous rights movement over 60 years at Tranby National Indigenous Adult Education and Training Centre, Australia's oldest not-for-profit independent indigenous education provider. Following a successful collaboration, the student is continuing working with the organisation on a voluntary basis.

Other examples of Shopfront's projects can be found on their website http://cfsites1.uts.edu.au/find/shopfront/projects/index.html

**Responsible Research and Innovation (RRI)**

Whenever possible, Shopfront works in an interdisciplinary way, involving different stakeholders to provide different perspectives and expertise. Some projects involve coalitions between community organisations and Shopfront acts as a facilitator, bringing organisations together to explore shared issues and identify aspects to be researched. Design thinking and design led innovation is a core strength of UTS. Over the past year, Shopfront has been experimenting with using design thinking as a participatory methodology for its community-engaged research to better understand community needs through numerous iterations of the problem.

Shopfront has an umbrella ethics framework. Due to time constraints, primary research as part of coursework projects can only be undertaken if they have a straightforward process for achieving informed consent. All of Shopfront's publications are open access and they ensure that they are written in an accessible way. UTS has its own publishing house and all of Shopfront's books and research papers are available free of charge. Shopfront also jointly runs an open access e-journal, *Gateways.*

**Impact and evaluation**

Shopfront has a formal evaluation process that takes place at the end of each semester. Customised online surveys are completed by both the students and community organisations to evaluate the quality and significance of their experiences. Shopfront also gets face-to-face or telephone feedback from the community organisations at the end of each project.

Each year, Shopfront produces an impact report (e.g. UTS Shopfront Impact Report 2016[5]) and also provides information to inform the university's quality reporting. In addition, the academic supervisors are invited to meet at the end of each semester to share experiences and identify any improvements that are required. Shopfront views a project as successful if it results in an outcome that is used by the community organisation. Many projects also result in follow-on projects in a different disciplinary area (for example a community consultation may lead to a funded project, or a feasibility study may lead to a new programme design).

A paper on *'Useful, usable and used': Sustaining an Australian model of cross-faculty service learning by concentrating on shared value creation*[6] by Lisa Andersen, the Programme Manager of Shopfront,

[5] https://issuu.com/utsshopfront/docs/shf057_fa1_impact_brochure_a4
[6] http://epress.lib.uts.edu.au/journals/index.php/ijcre/article/view/5574

analyses 10 years of evaluation data, to define the value that is created for community partners and students through the project work. Project outcomes (reports, designs, plans etc.) form part of the student's coursework assessment and are evaluated by the relevant faculty.

Many projects have resulted in long-term impacts, such as changes in public policy, law reform and new community services. However, evidence of longer-term impact is anecdotal based on on-going relationships with the community organisations, rather than being formally monitored, due to time and money limitations. One of the aims of Shopfront is to produce 'work-ready' graduates with an understanding of socially responsible professional practice. Evaluation shows that student participation in the projects contributes to both professional and personal development in terms of skills, experiences and relationships gained. Many students also go on to volunteer or even become board members with the community organisations.

**Success factors**

Relationships with community organisations are based on trust that has been built up over time due to positive experiences. Community organisations feel they have control over the outcomes and process. Working on projects in teams often leads to better outcomes as the teams support and motivate each other. Each year, insights and lessons learned are used to develop further improvements to the programme. Quality and risk management procedures assist relationship management, ensuring that problems can be addressed as soon as they arise. Shopfront staff also actively keep an eye on new methods of community engagement.

**Main challenges**

Achieving transdisciplinarity i.e. working across entrenched faculty silos, encouraging the cross-disciplinary use of different models and methodologies, and ensuring input into projects from multiple disciplines. Shopfront often facilitates face-to-face meetings between faculties to try to overcome this. In recent years, there has been a growing interest in work-integrated learning in Australia, and other nearby universities are starting to introduce community engagement and placement programmes. Although this will provide greater opportunities for community organisations, a more crowded marketplace may impact Shopfront.

**Future development**

UTS is currently considering setting up a Community Engagement Capability Hub, in which academic and professional staff currently working on coursework community projects would play a role in developing peer capabilities around community engagement and exploring how these capabilities can contribute to career progression. Shopfront also offers a Community Fellowship, an internal award for academics who are doing community engagement to either assist the development of a research project or publishing their research outcomes, and the Shopfront Research Series: peer-reviewed, open access books for UTS research with high social impact. This research programme was developed ten years ago as a result of observations that, while there is a high level of interest amongst early to mid-career academics in doing community-engaged research with social impact, more needed to be done to support them in scholarly publishing and career progression. Shopfront will shortly be moving to the newly-established Centre for Social Justice and Inclusion. Social justice is stated as a 'core value' of UTS and the university has developed a Social Justice Framework to measure impact and guide strategic efforts. This strategic move may present opportunities for Shopfront to expand its programme.

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## 3.6. Interchange, Liverpool, UK

**Overview**

**Interchange** is a registered **charity** based at one of its partner organisations, the **University of Liverpool** in the UK. Interchange acts as a **broker** between Voluntary Community Organisations (VCOs) who have research and/or work project needs, and students at the University of Liverpool, who wish to conduct **applied social research** as part of their degrees. It is a **well-established** science shop, which has been running since **1993**, and undertakes around 25 projects a year.

**Background**

The concept behind Interchange was originally conceived in 1993 by two academics, David and Irene Hall, working at the University of Liverpool and Liverpool Hope University, respectively. They were interested in the potential of community-based learning that would both provide students with a learning experience as well as offer community organisations something in return. Based on the science shop model, Interchange initially engaged a small number of Masters students to undertake collaborative projects for a number of local community organisations. Interchange was set up as charity in 1994 and over the years, it has developed extensive relationships with many different community organisations across the Greater Merseyside area.

The charity now primarily works with undergraduate students undertaking social science degrees, providing them with the opportunity to conduct applied social research as part of their degrees. Modules are undertaken as part of the University of Liverpool's courses but it also has close links with Liverpool John Moores University and is discussing the possibility of setting up a module with them. Its relationship with Liverpool Hope University is currently less active.

**Business model and organisation**

Interchange is registered as a charity (No. 1038129). Over the years, Interchange's funding has come from a variety of sources, including one-off project grants from community bodies, involvement in two EU-funded projects (INTERACTS 2001 – 2003 and TRAMS 2005 - 2008), the John Moores Foundation, the Higher Education Innovation Fund (HEIF) and one-off grants from the University of Liverpool. In 2017, it secured permanent funding for two posts from the University of Liverpool.

Interchange has offices at the University of Liverpool within the School of Law and Social Justice and the university provides them with facilities, including office space, as part of their funding agreement. Additional external funding is sought for other events and activities, such as an annual Community Symposium and its 21st anniversary celebrations. There is no cost to community organisations participating in the programme. The two members of staff, who work at Interchange, are the Project Coordinator and Project Administrator. Interchange also has a Management Committee consisting of academics from the University of Liverpool and Liverpool John Moores University, representatives

from community organisations, as well as student alumni. The Management Committee acts as a legal and advisory board. The chair of Interchange also acts as academic coordinator for the modules.

**The research process and relationship with stakeholders**

Projects are embedded in the undergraduate curriculum of the University of Liverpool in the form of community-based learning modules undertaken during the third year of studies, which are assessed for academic credit. Each module involves double credits and lasts one academic year, starting in September and ending in May. Each year, during January and February, Interchange invites local voluntary community organisations (VCOs) to submit proposals for projects. This is done through their own mailing list and the networks of other community organisations. Interchange usually receives interest from between 50 to 60 VCOs and contacts them individually to help them shape a research idea into a suitable project proposal and to ensure that they understand the process. The summer term is spent identifying around 25 students who want to undertake the modules during the subsequent academic year. Students are briefed to ensure that they are fully committed and informed about what the modules entail. Students are welcome from a range of disciplines but must have previously completed a module on quantitative and qualitative research methodologies. All the project proposals (around 40) are compiled and students are invited to select the project they wish to undertake.

Each student is allocated an academic supervisor at the university as well as a Link Worker, who is the main contact for the student at the community organisation. The Interchange coordinator also provides support to both the student and community organisation for the duration of the project and manages any problems that may occur. A drop-in facility is also provided, where students and VCOs are welcome to come to the Interchange office to discuss any issues or concerns.

Students undertake two different types of projects. Either a research project that results in a 6000 word Client Report, in which they present and analyse their findings for the VCO, or a work project, which involves different types of outcomes and for which students are expected to write an accompanying policy analysis or reflective analysis for academic assessment. Learning agreements are set up at the start of the project with the community organisations, which outline requirements, such as acknowledging the student's contribution in published reports. Once the report has been handed over, further dissemination may be carried out by the VCO, if applicable, and students are sometimes invited to present their research at conferences on the VCO's behalf. Following a pilot in 2013, a short one-term module is also on offer to a small number of postgraduate students.

**Examples of research projects**

Students work on a wide range of different subjects, including domestic violence, homelessness, mental health and dementia. Projects take the form of evaluation reports and studies, documentaries and oral histories, feasibility studies, case studies and other community activities. Due to positive experiences, many VCOs return in subsequent years with new projects and some submit proposals to update data and information gathered in previous years, which they use to inform funding proposals.

A few examples of projects:
In 2014, Merseyside launched a partnership strategy for tackling hate crime involving a wide range of public, third sector and private organisations. On behalf of a local charity dedicated to tackling hate crime, an Interchange student undertook an evaluation of the impact of the strategy. The student

found that the strategy was working but also identified a number of areas for improvement. Their recommendations were subsequently taken on board and the student was invited to join the Committee. Other students had worked with the charity in the past undertaking projects such as an evaluation of the sustainability of their hate crime hotline in order to secure additional funding.

As part of a work-based project, an Interchange student was asked to help raise the profile of a small non-profit organisation, which provides wellbeing activities to adults with special needs living in Merseyside. The student collaborated with the organisation to produce a promotional video to showcase its activities via social media.

**Responsible Research and Innovation (RRI)**

Interchange supports a collaborative process between students and the community organisations throughout the research process built on mutual benefit, openness and on-going communication.

Given the nature of many of the topics covered by the projects and the people that the community organisations work with, all projects must go through a thorough ethical review process. Issues relating to ethics and safeguarding are discussed with community organisations at the initial proposal stage. An ethical review process has been developed specifically for Interchange, involving an initial collective application for the whole programme followed by individual reviews of each project.

**Impact and evaluation**

Evaluation is conducted at the end of the academic year. Both the VCOs and the students are asked about their experiences via questionnaires. In addition, the Interchange Coordinator has on-going contact with the VCOs throughout the year, through which they get verbal feedback.

In 2015, a Social Return on Investment Report was undertaken for free by a then trustee working at a partner organisation. The report followed three cohorts of students and found that 70% of students went on to further study e.g. a PhD or graduate position following participation in an Interchange project. No formal evaluation is undertaken to assess the long-term impact of the work undertaken, however, due to on-going relationships with many of the VCOs, Interchange knows that in the majority of cases, the reports are used by the VCOs to inform their work.

**Success factors**

Thorough preparation with the community organisations is key. The Project Coordinator spends a lot of time working with the VCOs to develop good research proposals and formulate expected outcomes that meet both the needs of the VCOs and the students. On-going communication and support provided by Project Coordinator throughout the process to everyone involved in the research process ensures that any issues are dealt with immediately.

**Challenges**

Balancing the expectations of the community organisations, who rely on the project results, with course work requirements is a key challenge. Projects are being undertaken for free by students as part of their course and there is no guarantee that the end piece of work will completely meet the VCO's needs. Merseyside has been particularly hit by austerity and welfare cuts over the past few years, which has directly impacted the funding and capacity of VCOs. Many VCOs use the evidence

produced by the student reports for securing funding or the future sustainability of their organisations, which in turn can put huge pressure on the students. Funding is an on-going challenge for Interchange. Their funding is currently reliant on one partner and they are keen to diversify their funding sources to provide more security for the organisation in the long term. A growth in student numbers at the university also means there is increased pressure to involve more students and undertake more projects. This would greatly increase the workload of the current staff and would most likely require additional resources.

**Future development**

In response to demand from the universities and the community organisations to undertake more projects, Interchange considers introducing a lighter (one term) version of the module. This would enable smaller projects, such as policy analyses and literature reviews to be completed within shorter timescales. Interchange organised a Community Consultation in January 2018 to seek the community organisations' feedback on this proposal.

**Contact details**

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## 3.7. Adam Mickiewicz University's Science Shop Poznań, Poland

**Overview**

The first Polish science shop is based at the Faculty of Political Studies & Journalism at **Adam Mickiewicz University (AMU) in Poznań, Poland**. It is a **new** science shop, currently in the process of being set up as part of a project financed by the Polish Ministry of Development and EU structural funds, starting in September 2017. Research projects will be undertaken by **BA and MA students as part of their theses** with a focus on the **social sciences and humanities.**

This case study illustrates some of the experiences and challenges of setting up a new science shop.

**Background**

Adam Mickiewicz University is the major academic institution in Poznań and one of the top universities in Poland. The Faculty of Political Science and Journalism (FPSJ) is one of the youngest of the 15 faculties at AMU. At present, the Faculty has more than 4,200 students divided between four majors: Political Science, International Relations, Journalism and Social Communication, and National Security. The Faculty employs more than 80 researchers and lecturers. Many specialist classes are run by people outside of the university, such as members of editorial offices, representatives of government authorities and employees of public institutions.

The AMU science shop is being set up as part of a POWER project financed by EU structural funds planned from September 2017 until September 2019. Its aim is to support collaboration between the university, businesses, policy makers and NGOs, with a specific focus on the latter. The main focus of the science shop is research projects undertaken by BA and MA students in interdisciplinary teams, in

response to concrete needs and problems identified by local civil society organisations. The team that initiated the science shop is keen to develop the third mission of university to address growing societal and economic challenges, so the science shop was a natural consequence of this interest and involvement.

In response to a call for social innovation projects issued by the Polish Ministry of Development, AMU submitted a proposal in 2017 and was awarded funding to establish the science shop. The project has a number of objectives, including equipping students in the social sciences and humanities with skills and competences needed for their future professional lives, providing students with real-life projects for theses, and developing a socially-engaged university.

**Business model and organisation**

The science shop has been established on a project basis, thus all staff costs and activities are covered by the project budget, financed by Polish Ministry of Development. The science shop has funding from the Polish Ministry of Development for two years. After this, funding will be provided by the university.

There are two people coordinating the science shop at the AMU. They are responsible for organising the work and negotiating with the relevant people in order to ensure they work together effectively. There is also a project leader, the Dean of the Faculty, who supports the science shop. Administrative staff carry out organisational tasks. During the establishment of the science shop, a team of supervisors was identified along with co-supervisors in all of AMU's faculties. The role of the supervisors is to support the student recruitment process, to encourage students to work on societally relevant and useful theses, and to help to transform the questions submitted by the NGOs into research topics that are suitable subjects for student theses. Teams of two to three students work together to produce each thesis.

The ambition is for the research projects to become an important part of a student's educational experience. Students involved with science shop research will gain valuable insights into the subject of their thesis, gained from active participation in addressing real societal issues. Students will also be given an insight into the culture of scientific research and a scientist's work.

**The research process and relationship with stakeholders**

As part of setting up the science shop, a lot of thought has gone into how the science shop will operate. Research requests will be generated through direct contact and on-going conversations with NGOs, who show an initial interest in the science shop's work. Part of the role of the science shop coordinators is to develop these relationships by holding meetings with non-profit organisations to promote the science shop concept.

To start with, it was decided to gather research questions from a "known and safe environment", so direct contacts have been made with people and organisations that the university is already familiar with from other projects and initiatives. The first few research questions were gathered during joint workshops involving AMU academic staff and NGO representatives. In addition, the science shop coordinators will build a platform called *MatchtheThesis*, which will be integrated into the science shop's website, and through which organisations can submit their research requests. There are also plans to set up an advisory board, whose role will be to evaluate submitted requests and convert them into research questions together with the team of supervisors. The next step is to recruit students to

work on the research requests as the subject of their theses. Subsequently, routines and procedures will be further developed.

Open access to the research results is considered to be very important. When the projects have been completed, the results will be published on the science shop's website, allowing society and other communities to use and benefit from the results. Members of the Faculty of Political Studies & Journalism also have strong, collaborative relationships with local government. During the preparatory stage of the project, several workshops were organised at which the science shop concept was presented to local government representatives.

**Examples of research projects**

The science shop is in the process of setting up its first research projects, however, during meetings and workshops held with NGOs, some directions for future research topics have already been generated:

- Various types of analyses for NGOs, e.g. how they collaborate with other sectors; how they work with local communities; how they conduct their activities; how their activities are viewed by society; and what their main needs are at a local level.
- Promotional and educational initiatives for an NGO active in a small village.
- Promotion of the university's students' office for the disabled.
- A promotional campaign for psychological support for students, especially those with special educational needs.
- A fundraising campaign for an NGO.
- A regional map of social innovations for an NGO.

**Impact and evaluation**

Impact and evaluation methods are at an early stage of development. Quantitative and qualitative data will be gathered during every research project, but the science shop's coordinators still have to develop measures to evaluate the outputs of the research activities in relation to the NGO's objectives.

**Professional development and training**

The first two months of the project were dedicated to preparatory workshops, study visits to other well-established science shops (in Berlin (Germany), Cork (Ireland), and Budapest, (Hungary)), and meetings with experts and representatives of local NGOs, communities and government officials. One of the main objectives of these activities was to prepare the academic staff that will be supporting students who will be undertaking the science shop projects. The science shop's coordinators also participate in a number of other EU-funded projects, which provides access to training, new ideas and contacts.

**Challenges**

The greatest challenge is keeping all of the stakeholders engaged and motivated. During the workshops and meetings with NGOs, some representatives expressed concern about the time that they will need to dedicate to the research projects. The organisations are willing to commit to working together on a project for six months, but it is difficult to say at this stage whether they will be able to find the time and resources for long-term involvement.

The second challenge is intellectual property rights. Open access implies that the results of the research projects will be free of all restrictions on access. Since intellectual property rights are generally designed to exclude others from using an organisation's ideas, the two concepts (open access and intellectual property rights protection) seem irreconcilable. For this reason, the stakeholders have to be prepared to accept that the results of their research projects will be published under open access. The science shop currently has external funding for two years. In 2019, when the project comes to an end, it may be a challenge to find funding to support the science shop's activities, despite initial commitment from the university. The conditions of the call is that the science shop has to remain active for at least five years.

**Success factors**

External funding from the Polish Ministry of Development and partly by EU structural funds, has enabled activities to be set up relatively easily. Support from senior management of the university has been an important pillar. The science shop concept is now embedded in Adam Mickiewicz University's strategic plan. Members of the university's management team are keen to promote the science shop concept to other faculties within the university.

**Future development**

Creating a *MatchtheThesis* platform as a contact mechanism for civil society organisations and tool to assist with the management of research requests is complex. Developing a Code of Ethics. Since research at the science shop involves a great deal of cooperation and coordination among many different people in different disciplines and organisations, ethical standards will help to promote the values that are essential to collaborative work.

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## 3.8. Malmö University's Pop-Up Science Shop, Sweden

**Overview**

**University in Sweden** has set up a **pop-up science shop** to connect civil society organisations with researchers to tackle societal challenges. The concept was **piloted** twice during **2017** as part of a regional social innovation project and will now be developed further.

**Background**

The coordinator behind the pop-up science shop, a lecturer at Malmö University, became interested in the science shop concept a number of years ago. Following numerous discussions with stakeholders outside of the university in 2014, he gained personal funding from the regional government and some

CSOs to conduct a study trip to the Research Shop at the University of Guelph, Canada to learn more about their community-based participatory research work. These experiences helped to inform the development of the Malmö science shop and subsequently, an opportunity arose to pilot the concept as part of a regional social innovation project.

The project "Social Innovation Skåne" began in 2015 and will continue until early Autumn 2018. Its objective is to develop a sustainable innovation infrastructure and other support facilities for promoting social innovation and social entrepreneurship in the region of Skåne in the south of Sweden. Activities are aimed at increasing collaboration between government, academia, industry, social entrepreneurs and civil society organisations.

Malmö University has a strong focus on the large societal challenges as well as collaborative research together with stakeholders outside of the university, particularly civil society and the public sector. However, these collaborations often take place between individual researchers and organisations and the research outcomes rarely reach far beyond the immediate beneficiaries. The science shop concept would not only help the university to fulfil its societal engagement goals but also help to spread research results much more widely.

A pop-up model was chosen for a number of reasons. The first was due to limited resources. The science shop did not have any permanent source of funding nor administrative resources to support the structure of a more traditional type of science shop. Secondly, those involved in the project saw potential benefits in the science shop being less connected to a physical space or one institution. The idea was to prototype a flexible and open approach that could easily be taken out into society to the civil society organisations themselves.

The pop-up pilot approach would also provide useful evidence to inform the future development of the science shop. Two pop-up science shop pilots were trialled during 2017. One aimed at civil society organisations and the second aimed at SMEs. The objective of both was to bring these organisations together with researchers at the university to identify and pursue research projects relating to challenges of wider societal relevance.

**Business model and organisation**

Four members of staff at Malmö University from different departments and faculties have been involved in driving the project forward. They do not have formal roles but function more as an informal network of people facilitating the initiative. STORM, a new innovation hub that has recently been opened at Malmö University, provides a physical space where the staff can meet and the science shop can also utilise some of the innovation hub's resources and expertise.

Funding for the pop-up science shop's pilot activities is provided via the Social Innovation Skåne project, which in turn is funded by European regional development funds. The project involves four main organisations: The Centre for Public Entrepreneurship: Coompanion Skåne (a business advisor for democratically owned enterprises), Meetingplace Social Innovation (a national platform for social innovation at Malmö University) and NETWORK-Idéburen sektor Skåne. The latter is the Social Economy Network in Skåne, an independent lobby organisation for CSOs within the region. It currently has 50-member organisations, representing a wide range of different NGOs, including humanitarian organisations, the disability movement, sports, culture, children and youth, human rights, cooperative and rural development, faith communities and adult education. The project partners act as brokers to connect the science shop with relevant CSO stakeholders.

**The research process and relationship with stakeholders**

The pop-up science shop pilot began in Spring 2017. Invitations to a meeting were sent out to civil society organisations in the region via partner organisations. Material was also sent out to participants in advance to help CSOs prepare challenges to bring to the meeting.

The first CSO meeting attracted 25 participants from 15 CSOs. The objective of this first meeting was to harvest ideas and to turn the CSO's challenges into research questions. No researchers (apart from the academic staff organising the meeting) were present so the focus could be on the CSOs. Discussions were held in small groups in which the CSOs were encouraged to interact with each other. The meeting resulted in 17 challenges being identified. Prior to the next meeting, the organisers used their networks to find out what existing research was being undertaken at the university that related to these challenges and to identify researchers that would be potentially interested in pursuing these types of collaborations with CSOs.

The CSOs were then invited to a second meeting along with a number of researchers to provide context and inspiration to the themes in relation to research being undertaken at the university. The aim of the second meeting was to explore the issues in more depth in order to be able to narrow them down and identify opportunities for concrete projects. The meeting resulted in eight possible directions being identified, which were investigated further after the meeting and narrowed down to four concrete project ideas.

At the third meeting, the four project ideas were explored in a lot more depth and possible funding sources for research projects were also identified. The science shop will now continue to facilitate the process to develop the project ideas into concrete funded research projects. The science shop primarily focuses on researchers (not students) to undertake the projects and has particularly had positive support from researchers who have recently completed their PhDs and are now looking for topics to form the focus of postgraduate studies.

The SME pop-up shop started in the autumn and followed a similar format. Two meetings of two hours each were held to which SMEs from the region were invited. The background was the overall theme of green business. The first meeting was to identify challenges, the second to present existing research and discuss possible collaboration opportunities. Throughout the process, the focus has been on collaboration with partners, with all stakeholders fully involved in co-creating the process and developing the activities together.

**Examples of research projects**

The four project themes that have emerged from the CSO pop-up shop are the circular economy, social impact, gaming addiction, culture and communication. Two of these are progressing into concrete collaborations and potential funding sources have been identified. A third shows a lot of promise and the fourth is being explored further. Themes emerging from discussions with SMEs are sustainability innovation and green innovation in urban settings.

**Impact and evaluation**

The project does not have a rigid set of success indicators as part of the pilot process was also to explore ways to evaluate this type of process. The experiences and learning gained from the pilot will

be used to set indicators for subsequent years. The overall goal of the pilot science shop was for the process to result in one new collaboration so this target has been exceeded.

**Responsible Research and Innovation (RRI)**

RRI lies at the heart of the pop-up science shop's collaborative approach and practices. However, the university does not work with RRI as a specific concept as RRI practices are seen a part of Malmö University's everyday practices. The coordinator is currently collaborating on an RRI project with Adam Mickiewicz University in Poznań, Poland.

**Professional development and training**

In 2014, the coordinator undertook a study visit to the University of Guelph in Canada to learn more about their Research Shop and community-based participatory research in general. He regularly participates in relevant conferences and has established a good network of contacts with other science shops, too.

**Challenges**

One challenge has been educating CSOs about what makes a good research question. Many of the CSOs do not have a clear understanding of the research process or how research can be used to inform their work and address their challenges. A lot of time at the first meeting was spent explaining what research is, what the research process involves and how a research problem can be identified. Several CSOs that are no longer involved in the process have since said that they now have a much better understanding of how research may be able to inform their work and would be interested in participating in the future.

There is also the question of funding, once the project comes to an end. Finding project funding is a lot easier than gaining permanent funding. However, becoming a perpetual project is not optimal for the science shop in terms of stability. Generally, the coordinator is very positive about the future of the pop-up science shop due to the number of stakeholders, both within and outside of the university, that have shown support and enthusiasm for the concept. The way that infrastructure around social innovation will be organised in the region once the social innovation project is completed will also impact the future of the science shop and its role within the social innovation agenda.

The pop-up science shop aimed at SMEs was less successful, mainly because many of them struggled to understand their role and how community-based research relates to their businesses. The focus of the science shop process is not about helping businesses become more innovative but the contribution they can make to wider societal issues. The university also has less experience of working with SMEs. The science shop coordinators aim to revisit the SME format in due course.

**Success factors**

The science shop concept sits well within the university's overall strategy and there is strong support for working with this type of approach throughout the university right through to the top. The first step of the process in which CSOs were brought together to talk about research in the context of their work proved to be a good way to create mutual understanding between the participants. The participating CSOs now have a better understanding of what research involves and how it might be used to inform their work.

Representatives from 15 CSOs attended the first meeting, which exceeded expectations. However, the coordinator stresses that it important not to focus on quantity in science shops as the challenges need to be explored in depth. Given that four people from the university are involved in leading the process, he believes that the optimal number of CSOs to work with is around five to six organisations.

**Future development**

Meetings will take place in the coming months between the various stakeholders to discuss the direction in which to take the science shop once the project comes to end and to develop a longer-term strategy. The flexible nature of the pop-up model presents a range of opportunities. For example, pop-up science shops could be held in different parts of the city or even the countryside, to tackle challenges that are rarely addressed. Decisions also need to be taken on whether to start with a broad approach again or just focus on a smaller number of CSOs. The ambition is not to turn the science shop into a formal permanent body but continue to develop a flexible way of working that engages a wide range of researchers in the process. The coordinator is particularly interested in exploring ways to involve several universities and encourage researchers across the region to work more closely together e.g. to develop a type of regional science shop. Opportunities to involve students in research projects with CSOs will also be pursued, e.g. through matchmaking events.

A key question relates to sustainability in the long term and finding the science shop's role in the wider regional agenda. There is a lot of support for the concept from many stakeholders including the regional government. Meetings with decision makers are planned to discuss how the region could potentially benefit from this type of resource. A formal partnership already exists between the regional administration and CSOs through which funding and networking opportunities are delivered. One aspect that the partnership currently finds difficult to fulfil relates to research, a gap that science shop could potentially fulfil. So future paths need to be explored with regional partners and other decision makers as well as the university itself.

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## 3.9. The Research Shop, University of Guelph, Canada

**Overview**

The **Research Shop** is based at the **University of Guelph** in **Canada**. Running since **2008**, it is a **well-established** science shop with close relationships with many local community organisations. Community research projects are undertaken via an **Intern Programme**. The Research Shop is managed by the **Community Engaged Scholarship Institute** (CESI) which acts as an intermediary organisation to foster collaborative and mutually beneficial community-university partnerships.

**Background**

Known as the Research Shop, the science shop was started at the University of Guelph in 2008, following the success of two large projects on families, work and well-being funded through university

alliance grants. Its goal was to focus on community-engaged research which addressed community research needs rather than those of the university. Subsequently, the Community Engaged Scholarship Institute (CESI) was set up through which the Research Shop could receive direct institutional funding.

CESI is based within the College of Social and Applied Human Sciences, with research strengths in community and families, environment, food and health thus giving the Research Shop mainly a social science focus. CESI runs a number of programmes in addition to the Research Shop, including a community-engaged teaching and learning programme (supporting the design of university courses), a programme on knowledge mobilisation (to support campus-identified dissemination needs), and more recently, has set up the Guelph Lab.

The Guelph Lab[7] is a different type of collaborative initiative. Co-directed and jointly funded by CESI and the City of Guelph, it is aimed at exploring solutions to either shared or city-based policy or implementation challenges. It provides an innovation environment in which new ideas can be designed, developed and tested using more exploratory and creative methodologies and interdisciplinary teams.

**Business model and organisation**

As part of the Community Engaged Scholarship Institute, the Research Shop receives core funding from the University of Guelph. It is well resourced, employing one full-time staff member and an average of 14 student interns and four student project managers per year. CESI has an additional three permanent members of staff, three full-time members of staff on limited contracts and a further three part-time staff. Research projects are undertaken via an Intern Programme designed to give participants training in community engaged research methods as well as other project management skills. The Research Shop reliably completes an average of 10 projects per year.

Graduate students are invited to apply for a number of intern positions at the Research Shop, committing to two semesters (or more) of work of five hours per week. Each year, between 30 to 50 students are engaged across CESI's programmes, including an average of 18 at the Research Shop. In the past, Research Shop interns have received a nominal honorarium, however, from 2018, all CESI students will be paid on an hourly basis. This change has already had a positive effect on the quality and diversity of the applicants applying. Students do not gain any recognition in the form of course credits. The interns are supported throughout the programme by staff and project managers. Project Managers are former interns who act as mentors to interns and manage one to two projects per semester. The Research Shop does not charge any fees, however, occasionally if a community partner has received a project grant, it may contribute a nominal amount to cover some of the research costs. The Community Engaged Scholarship Institute is currently in the project of rejuvenating a Community Advisory Board, which will consist of senior representatives of NGOs, community groups, and other community stakeholders, in order to provide strategic guidance and mentorship as well as a level of accountability across CESI's programmes.

[7] http://www.guelphlab.ca/

**The research process and relationship with stakeholders**

The Research Shop does not need to advertise but receives research requests directly from community organisations, including NGOs and social service providers as well as other grassroots organisations. In some cases, this involves a group of community organisations coming together with a shared identified need. Relationships with community organisations are often developed via personal contacts. For example, many of the students and CESI staff members sit on the boards of various community initiatives, task forces and community health centres, giving them in-depth insights into community needs.

CESI also organises an annual engagement event aimed at bringing together representatives of community organisations to explore ways of enhancing their community-university partnerships as well as showcasing existing research projects. Held in public spaces, such as shopping centres, they provide an opportunity to raise awareness of their activities. This process has previously resulted in new enquiries.

Projects in the Research Shop are undertaken by a small team of intern students, supervised and mentored by Project Managers, all under the supervision of the Research Shop Coordinator. The Intern Programme has developed over time into a robust model with clear project planning structures and methodologies for scoping projects. For each project, a work plan is developed involving the community partner, students and Research Shop Coordinator, to agree the timeline, deliverables and responsibilities.

Research projects must be based on engagement and reciprocity. CESI stresses that they do not offer a service and they will turn projects down if they do not meet these two key principles.

**Examples of research projects**

The Research Shop's main focus is on social science methodology and issues around the environment, poverty alleviation, food security, social justice and inclusion. However, the topics of research are diverse and reflect the applied research and knowledge needs of all their partners.

When the Research Shop began, the majority of its projects consisted of "rapid response" research that required a quick turnaround of two to six weeks and often consisted of literature reviews, reports and environmental scans. Rapid response projects are now very limited, often seeing only two per year. Now that relationships with community organisations have matured, the Research Shop is often involved in longer-term multi stage research that spans several projects over a number of years. For example, doing scoping work for a project, then running a feasibility study and finally being involved in the evaluation of the project over a period of time.

Two examples of projects are:
Towards Common Ground[8] is a partnership of 14 social and health service organisations working together to create a sustainable collective planning model for Guelph and Wellington through the development of a local open data portal. The Research Shop has been involved in conducting a number of research projects to inform the development of the initiative, including qualitative and quantitative baseline evaluations, and visual representations of wellbeing indicators.

[8] http://www.towardcommonground.ca/en/index.aspx

The SEED[9] is a small grassroots organisation working to improve food health and increase access to healthy food for Guelph's low-income community members. The Research Shop has been involved in four projects for the SEED, including a scoping study and feasibility study for a mobile food market, involving interviews with residents.

**Responsible Research and Innovation (RRI)**

CESI practices community-engaged scholarship and has clear guidelines for community-engaged scholars to support responsible research practices, relating to aspects such ethical behaviour, effective dissemination etc. (See Characteristics of Quality Community-Engaged Scholarship)[10].

Research projects are carried out as mutually beneficial partnerships and community organisations are fully involved in all stages of the research process to ensure the co-creation of new knowledge. In addition, students are encouraged to be responsive, reflective, and to learn from their mistakes in their relationships with community partners. A key part of the agreement with the community organisations is that all of the results must be open access and publicly available. Outputs are delivered to partners for dissemination and also published on the Community Engaged Scholarship Institute website and in the university library using a common report template.

**Impact and evaluation**

Although CESI documents its projects well, it does not currently have an internal evaluation process. This is something they plan to develop as part of their internal strategic work with a focus on evaluating communication, collaboration, and methodologies within the projects. Longer-term impact of the Research Shop's work is not formally monitored or evaluated, although this would be desirable if the resources were available; CESI is currently undertaking research on the methodologies, relationships, and impacts of the Research Shop as it approaches its 10th Anniversary. Evidence about impact is often anecdotal and learnt about through on-going contacts with the community organisations. Sometimes, the Research Shop is involved in the evaluation of a community initiative that has come about as a result of earlier work undertaken. For example, scoping and feasibility work undertaken by the Research Shop often results in the implementation of the actual project.

Longer-term impacts are project-dependent but include informing or changes to policy, the establishment of new initiatives, and changes to way services are delivered. A further impact of the Research Shop's work can be seen in the opportunities that it creates for students working on the research projects. Many students develop strong networks and contacts through their engagement with the community organisations. In some cases, this leads to employment opportunities and a number of students have subsequently set up non-profit organisations of their own.

**Success factors**

- Consistent high-level support within the University as well as effective leadership within CESI.

[9] https://www.theseedguelph.ca/about

[10] http://www.cesinstitute.ca/content/characteristics-quality-ces#Clear-Goals

- Having a strong vision, clarity of purpose and demonstrable impact. CESI has a clear mandate, vision statement and strategic plan. Having a clear mandate empowers staff to take on the right projects and know when to say no, thus avoiding mission drift and overwork.
- Commitment to building strong partnerships with community organisations over a long period of time. Through good communication, listening, humility, learning from mistakes and a willingness to learn, CESI has built up a good reputation and relationships built on trust.

**Challenges**

A central challenge is trying to balance its responsibilities towards the campus community (that funds CESI) and delivering its mandate of serving its off-campus community. The more high-profile CESI gets, the more demands and requests they receive from the university. However, CESI's mandate is to service the community's research needs and not be solely a service organisation. Institutional challenges include finding ways to gain more recognition for their type of work.

Some research results are not peer reviewed or recognised in the same way and the work can be time-consuming. The University of Guelph has been looking at ways to address university culture, policies and practices to recognise and reward community-engaged scholarship and has made some progress in this area. For CESI staff, the main challenges relate to institutional constraints around time and workload. The key principles of success (trust, collaboration, communication) take a long time to nurture. The NGOs that they work with often suffer from capacity issues, poor job security and workload issues, particularly if they work in frontline services.

**Future development**

Ambitions outlined in its strategic plan include:

- Raising the profile of CESI and its work at a regional and national level through participation in relevant networks, increased scholarly contributions, and better communication of activities and outputs.
- Becoming a more active intellectual centre for community engaged scholarship and recognised as scholarly practitioners by generating scholarship about community engagement. CESI has an opportunity to become more of a recognised expert in this field. One possibility would be for CESI to host postdoctoral research fellows to conduct research into its practices and CES processes, to share with colleagues in the field and inform the advancement of CES.
- Integrating more arts-based methodologies into the research projects.
- Diversifying its people and practices and ensuring that CESI is genuinely serving the community in its full diversity. This will involve reviewing the diversity of the NGOs that they work with to engage new partners as well as ways to attract different types of students, which has already begun.

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## 3.10. Living Lab for Health, Spain

**Overview**

The **Living Lab for Health** at the **IrsiCaixa AIDS Research Institute** in **Spain** carries out multi-stakeholder engagement processes such as **community-based participatory research** and educational programmes for health promotion and transformative change of the R&I system. All projects are co-developed with a wide range of different stakeholders. Established in **2012**, it applies **RRI** (responsible research and innovation) methodologies to all its work.

**Background**

The IrsiCaixa AIDS Research Institute was created as a private non-profit foundation in 1995 with the support of two founding partners, the La Caixa Foundation and the Department of Health of the Generalitat of Catalonia. It is a leading centre for research into the eradication of HIV/AIDS and related diseases. In 2009, the institute set up a Community Advisory Committee, consisting of representatives from NGOs, research institutes, public institutions, hospitals as well as clinical trial participants and people living with HIV. The Committee's role is to "provide scientific researchers with a broader and complementary perspective on the impact, consequences and feasibility of their research".
Since its foundation, the research institute has conducted public engagement and education activities with the overall aim of increasing the social impact of their research. In 2012, the Living Lab was set up to develop these programmes and through subsequent involvement in the EU-funded RRI Tools project (2014-2016), the institute saw huge potential in adopting an RRI approach to bridge the gap between its research and implementation work and involve stakeholders in its agenda setting.

Taking inspiration from the RRI Toolkit as well as the Living Knowledge science shop and Living Labs models, which apply methodologies such as community-based participatory research, open innovation and participatory governance, the Living Lab for Health model was further developed.

Its first project, Xplore Health[11], involved more than 1000 high school students in Catalonia in developing a collective agenda of health needs. These were prioritised by participants and participatory projects have subsequently been developed around two of the topics that were ranked the highest: mental health and HIV. The focus of Living Lab's work is educational programmes and participatory programmes related to research and innovation, carried out with and for the community and with the aim of transformative change. It also regularly conducts training on RRI for external organisations and offers other consultancy services, such as workshops and courses.

**Business model and organisation**

The research institute receives funding from the La Caixa Foundation and from the local government, private companies and competitive funds. The Living Lab is partly funded by the institute but its projects and part of its personnel rely on project grants. To date, this has mainly been in the form of EU-funded projects (such as Xplore Health, EnRRICH, RRI Tools and InSPIRES). Since European Commission funding of Xplore Health expired, this project has been funded by La Caixa Foundation. Three members of staff have been working for the Living Lab for Health and a fourth joined the team

[11] http://www.irsicaixa.es/en/living-lab-health/collective-health-agenda-needs and

in January 2018. One member of staff is fully funded by the research institute and has responsibility for scientific and media communication for the whole institute, not just the Living Lab.

Each year, the Living Lab employs around six Masters students as interns to work on its programmes, each supervised by a senior researcher. The Living Lab staff coordinate the overall programmes, facilitate workshops, and are responsible for communication activities and training. Experts in different fields are also involved in the projects, which include researchers from within the institute as well as external participants from stakeholder organisations, including NGOs, policy makers and schools.

**The research process and relationship with stakeholders**

The Living Lab for Health has adopted a whole RRI approach to its work, involving stakeholders in both agenda setting and implementation. Firstly, research and innovation (R&I) agendas are developed through consultation with a wide range of stakeholders. Then, community-based participatory research projects, based on these agendas, are subsequently developed. The participatory and RRI methodology used partly depends on the nature of the project, its topic and timescale. Its focus is on co-creation and the development of a community of practice, in which all stakeholders are represented.

The RRI approach for an agenda-setting project usually involves the following processes:

- Stakeholder analysis to identify who needs to be involved.
- Development of a work plan and consensus with stakeholders.
- Exploration of needs, through workshops with different stakeholders to analyse the problems and discuss possible solutions.
- Development of a draft agenda based on input provided during the workshops.
- Draft agenda shared amongst stakeholders so they can see input of other stakeholders.
- Priorities set according to the agenda.
- Dialogue meeting with representatives of different communities to discuss the priorities.

Identified priorities are then used to develop implementation projects. This involves identifying Masters students to respond to the priorities, working closely with relevant experts and stakeholders, as well as their supervisors, in order to develop the projects. The Living Lab for Health works with a wide range of stakeholders, including NGOs, research centres, hospitals, government and public health bodies, higher education institutions and secondary schools.

Dissemination and communication are a central part of the Living Lab for Health's work and communication is a key competence for those facilitating the participatory work. Each project has a team member responsible for communication, who provides updates at stakeholder meetings on communication activities. Videos and graphical material are also produced for projects for dissemination purposes. Each year, the Living Lab for Health also organises a big congress, where project results are shared. The congress acts as a key dissemination event and is usually attended by around 450 people such as students, policy makers, NGOs, researchers and healthcare providers.

**Examples of research projects**

**Co-ResponsHIVility**[12] is a research agenda-setting project on the prevention of HIV/AIDS, which was carried out during the academic year 2016-2017 in the framework of two European projects, Xplore Health and EnRRICH. More than 660 stakeholders have been involved in developing the research agenda. As a result of initial stakeholder discussions, a decision was made to work with stakeholders that are traditionally not involved in the R&I process, in this case, secondary school pupils.

The Living Lab for Health developed a programme of learning and empowerment for the schools, in which pupils had to analyse existing literature on HIV prevention, produce reports and interview experts. Results were shared between the schools and then pupils were invited to participate in the agenda-setting process in the same way as other stakeholder experts. Workshops were held with the various stakeholder groups to explore their specific needs and provide input into the agenda, followed by dialogue activities to elaborate the final agenda on priority lines of research.

Stakeholders engaged in the project include health care professionals, researchers, government policy makers, representatives of the HIV/AIDS community as well as the education community (over 650 secondary school students and teachers). Masters students in Communication and Teacher Training have been involved in the participation processes collaborating directly with all of the stakeholders. Priorities have now been identified and a range of community-based participatory research projects started in January 2018, led by Masters students.

**The Healthy Minds (Sana Ment) project**[13] (2015 – 2016) was the Living Lab for Health's first implementation project on the topic of mental health, run as part of the EU EnRRICH project. Its aim was to design and implement health interventions for, and with students, involving them in research and innovation projects. The project was run as a pilot involving 15 schools and was a collaboration between educators, pupils, researchers, patients associations and policy makers.

Stages of the project included:

- Selection of the theme from a list of health topics – the pupils chose stress and depression.
- Collective needs agenda – pupils prioritised their needs and interest in the subject.
- Co-design and implementation of community research projects together with researchers, NGOs, pupils and teachers.
- Final recommendations on promoting emotional wellbeing developed with public health experts and patient associations.
- Presentation of results through dissemination activities, such as the Caixa Congress.

**Responsible Research and Innovation (RRI)**

The Living Lab for Health applies RRI methodologies, using deliberative reflection with and for the community, such as community-based participatory methodologies, systems analysis, participatory research agenda setting, open innovation and participatory governance.

Co-creation is at the heart of their programmes, which aim to create shared responsibility of the issues. They apply an iterative process, involving active participation of different stakeholders throughout all

[12] http://www.irsicaixa.es/en/living-lab-health/co-responsavihlitat

[13] http://www.irsicaixa.es/en/living-lab-health/sana-ment-project

the stages and processes that follow RRI quality criteria[14]. Projects are interdisciplinary and they are particularly keen to work with stakeholders that are not traditionally involved in the research and innovation process, such as young people and citizens.

Educational programmes are designed to foster scientific knowledge and competencies, such as scientific reasoning and critical thinking. Science communication and creating dialogue with citizens is also a core part of their work. Living Lab for Health also promotes RRI and Open Science through its training and outreach work at local, national and European levels. All reports and outcomes produced by the Living Lab for Health are open access and freely available.

**Impact and evaluation**

The Living Lab for Health actively evaluates its work on an on-going basis in order to analyse the effectiveness of the programmes, particularly in terms of the learning process and quality of the outputs. Evaluation is conducted each year by an intern from the University of Amsterdam. For example, during the Health Minds project, a Masters student was responsible for evaluating the effectiveness of the learning and the empowerment stage of the project. This partly involved undertaking interviews with stakeholders. As part of the evaluation of the learning process, they were particularly keen to identify the competencies that the pupils gained from participation in the process, such as scientific reasoning, critical thinking, communication, collaboration, and reflection skills. Living Lab has subsequently developed an instrument to measure competences, which will be published in 2018. They are also interested in understanding the transformative change that results from the project, which includes analysing the characteristics of the process, the learning and changes implemented in the participating institutions.

**Success factors**

Adopting an RRI approach and associated methodologies has radically changed the way they have worked, allowing them to analyse and tackle complex problems. This holistic and interdisciplinary approach often produces results that could not be achieved using traditional methodologies. Further, it allows needs to be identified and new solutions to be developed that would otherwise not have been if the research had been undertaken in a linear way. By involving the community in the creation of solutions, the likelihood of these being successfully adopted significantly increases.

The use of innovative participatory methodologies has led to increased engagement from policy makers. For example, in the Healthy Minds project, one high-level policy maker decided to participate in the whole of the congress, appreciating the opportunity to listen to young people's views on mental health issues. The results of the Healthy Minds project also came to the attention of the Head of Health in Catalonia due to its innovative approach. The project process is designed not just to involve academic supervisors, but also to be a learning process that provides them (and the Masters students) with experience and skills in community-based research and RRI methodologies that they will hopefully use in the future. Thus, the approach contributes to capacity building. The Living Lab for Health invests a lot of time in delivering training on RRI and participatory research methodologies and tries to fulfil

[14] http://www.rri-tools.eu/documents/10184/107098/D1.3_QualityCriteriaGoodPracticeStandards.pdf/ca4efe26-6fb2-4990-8dde-fe3b4aed1676

every request it receives from external organisations. They have seen a steady growth in demand for training from a wide range of organisations, including universities, hospitals and research institutes.

**Challenges**

One of the main challenges is the sustainability of the Living Lab under its current funding model as it is heavily reliant on EU project grants. They are currently exploring new business models, such as finding a partner (e.g. a public institution) to work with and provide support to the structure.

Identifying appropriate Masters students to be involved can be a challenge and the Living Lab is keen to build a bigger platform of Master students that can be involved in their work. It can also be difficult to find appropriate academic supervisors for the students that have the right expertise, particularly as some research institutes require that the supervisor comes from the same institute.

Communication challenges can also arise when working with certain communities. For example, due to the stigma associated with the HIV community, it is important to tackle the issues in a way that does not exacerbate this stigma. In addition, different stakeholders talk about issues using different language and facilitators need to ensure that no one gets affronted during discussions. Not much evidence currently exists on the value and effectiveness of these new types of approaches and it can sometimes be difficult to convince people to participate in a new project without this type of evidence. This is something that the Living Lab plans to research further with the help of an intern.

**Future development**

Living Lab is due to start work on a new EU-funded project on the theme of food. Despite being a research institute on HIV/AIDS, the sustainability of the Living Lab is dependent on extending its own remit to have a much broader health focus. Work will continue on the HIV agenda and the implementation stage of the Co-ResponsHIVility project, which will engage Masters students in implementation projects at community level. Living Lab for Health plans to publish a number of scientific papers during 2018 relating to its methodologies.

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## 3.11. Bonn Science Shop, Germany

**Overview**

**Bonn Science Shop** is a science shop based in **Bonn, Germany.** It was founded in **1984** as an independent **non-profit** organisation and is active in applied research in several topics. It is one of the longest-running German science shops and, with more than 35 employees, is one of the **biggest** science shops in the world.

**Background**

Bonn Science Shop (Wissenschaftsladen Bonn) was founded in 1984 as a volunteer student initiative, inspired by the Dutch science shop model, with the aim of bridging the gap between science and society. The initiative was led by Theo Bühler, who worked for a non-university research institute at that time (and subsequently was the manager of the Bonn Science Shop for around 30 years until his retirement in 2013), together with other people from the University of Bonn, other institutes and the municipality. The initial focus of the science shop was research on environmental issues with a participatory angle. A proposal to establish the science shop within the University of Bonn was rejected so it was decided to set the science shop up as an independent, non-profit organisation. In its first years, the science shop was supported by the General Students' Committee at the University of Bonn. This included a room as well as some financial and organisational support.

In 1987, Bonn Science Shop received its first externally-funded research project, enabling it to employ its first two full-time employees and to move into its own offices. The offices were located in the premises of an organisation for the support of drug addicts, and provided an important central contact point for the science shop's work. The science shop's first project, a study on the education of environmental advisors, was partly funded by the German employment agency to support unemployed academics in finding jobs in environmental-related jobs. As a spin-off to this project, they started to collate job ads in newspapers that the project participants might be interested in. Demand for this service grew and subsequently, a weekly magazine of job ads for graduates of humanities and social services was published. Later, a further publication for jobs in education, culture and social services was launched.

Over the years, the science shop has gradually grown in size and undertakes a wide range of national, regional and international projects. It is also a state accredited provider of adult education and runs an Educational Centre offering courses, seminars and training relating to developing employment competencies. Other educational offers include work with pupils to raise awareness of environmental issues and the provision of teaching materials for kindergarten and primary school teachers. In 2003, it set up the Living Knowledge network for people involved in the work of science shops, which it continues to co-ordinate.

**Business model and organisation**

With more than 35 employees and a turnover of around three million Euros, Bonn Science Shop is one of the biggest science shops in the world. It is an independent organisation without organisational or financial ties to a mother organisation and does not receive any official funding besides a minor annual funding of 30,000 Euros for the support of the Education Centre.

Their work is financed in several ways on a cost recovery basis. A central backbone of the science shop's financing is revenue from the publishing of the two weekly print magazines (soon also available in electronic format), which are distributed using a paid subscription model and make up to 50% of the science shop's turnover. In the early 2000s, when unemployment in Germany was at a record high, the magazines had around 11,500 subscribers. Revenue from publishing enabled Bonn Science Shop to acquire its own building in 2012 and also allows them to pay their employees' salaries in between projects. The second main source of funding is externally-funded research projects. The science shop either applies in response to project calls (top-down), for example, for EU projects, or actively approaches potential national and regional funders directly with project ideas (bottom-up). Funders

include the European Commission, German Federal and State Ministries, Federal Offices as well as foundations and single local authorities.

From the beginning, the science shop has been run as a democratic organisation, similar to a collective, in which the whole team is consulted and encouraged to contribute ideas. Research requests are discussed, processed and shared amongst the team. Even today, despite having more than 35 employees, a participatory and democratic approach is still central to the operation of the organisation. In 2013, Bonn Science Shop also set up an Advisory Board that includes members from national and international universities, stakeholders from politics and non-governmental organisations. The Advisory Board meets twice a year and its role is to audit and advise the Management Board.

**The research process and relationship with stakeholders**

Bonn Science Shop is an independent organisation without formal ties to a university and therefore does not have direct access to students that can work on the science shop's research projects as part of their studies. In cooperation projects, joint work is undertaken with the project partners. Besides such joint projects, all of the work of the science shop is carried out by its members of staff, many of whom have expertise in research relating to a range of fields, focused around environmental, education and social sciences.

All of their projects are externally financed, which they apply for either in response to project calls or by actively approaching potential funders with project ideas. This includes EU-funded projects as well as national and regional ones. Over time, Bonn Science Shop has built up a considerable reputation and large networks of both funding bodies and potential collaboration partners. They are often approached to join consortia and work on projects that require the active engagement of civil society. Their close ties with civil society allow them to get continuous insights into the interests and research requests of different parts of society.

While it is generally possible to answer research requests from members of society that do not have the means to fund the research process, such an approach is not actively promoted as they can only cross-finance a limited number of such requests. The science shop works in a transdisciplinary way, involving scientists from various disciplines, both within the science shop and externally, as well as all types of stakeholders with interests in the issues being addressed from citizens to policy makers.

**Examples of research projects**

The main focus of the science shop's work are social challenges, mainly relating to environmental and sustainability issues, such as biodiversity, renewable energies and health. In addition, they are involved in research relating to the development of science shops internationally.

A couple of examples of recent projects:
In the project "Green instead of Gray – Industrial Parks in Transition"[15], they are working on the greening and long-term sustainable development of industrial parks. The project includes consultation and involvement of a wide range of stakeholders, such as experts, businesses, government and citizens and looks at aspects such as the design of parking spaces, the use of building materials and planting of

[15] https://www.wilabonn.de/projekte/786-gewerbegebiete.html

vegetation. Three pilot cities, Frankfurt (Main), Marl and Remscheid will serve as best-practice models for further developments in other business parks.

Bonn Science Shop also runs a range of educational projects. One example is Serena "Serious Game about renewable energy technologies for girls"[16], a computer game aimed at informing girls aged 12 to 16 about career opportunities in this field in an entertaining way. A further one is "Nachhaltige KiTa – Mit Kindern aktiv für die Welt"[17], a project on education for sustainable development in nursery schools in the German state of North Rhine-Westphalia. The 3-year project is funded by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety and involves developing environmental education on topics such as recycling, energy efficiency and nutrition.

Bonn Science Shop is also engaged in a number of international projects, mostly funded by the European Commission. For example, it was a partner in the EU RRI Tools project to develop an RRI Toolkit and RRI hubs around Europe and is currently involved in EnRRICH looking at ways to embed RRI in the curricula of universities.

**Impact and evaluation**

Impact plays an important role in the work of the Bonn Science Shop. All of their educational activities (e.g. workshops, trainings) are formally evaluated via surveys among the participants to constantly improve their offer. For bigger actions, longer interviews with participants are used to support the results of the structured surveys and offer more in-depth insights.

In some projects, evaluations are undertaken with project partners, funding bodies and stakeholders about the success of the implementation or potential continuation actions. For educational materials developed for schools or other educational bodies, they also seek feedback from teachers and pupils. The impact of their projects is measured indirectly by the number of further research requests they receive. For example, the project on the sustainable development of business parks has led to further requests for support. Similar developments have been observed in other projects.

In general, they have witnessed a significant growth in their impact in recent years. Citizen science, participatory research and RRI are becoming increasingly popular in Germany as well as in an international context. As one of the prominent stakeholders in this field, Bonn Science Shop is confronted with a growing number of project and consultancy requests by different organisations, including universities and other public organisations, either to collaborate or to assist with establishing similar structures on their own.

**Responsible Research and Innovation (RRI)**

RRI is a central tool in the work of the Bonn Science Shop. Key aspects of RRI, such as a participatory approach, the involvement of stakeholders throughout the research process, ethics and gender equality, open access and public engagement have been natural parts of the work of the Bonn Science Shop since its foundation, long before RRI became a prominent concept in research. Through its involvement in a number of EU projects on RRI, Bonn Science Shop has also been able to further develop its expertise in this area.

[16] https://www.wilabonn.de/en/projects/750-serena-game.html

[17] https://www.wilabonn.de/projekte/811-nachhaltige-kita.html

**Challenges**

As for most science shops, financing and the long-term sustainability of their work are the main issues for the Bonn Science Shop. Funding was a particular challenge in the early days of the science shop. When they moved into their own offices in 1987, their initial funding was not sufficient to cover the cost and some of the employees donated part of their wages to subsidise the cost of the rooms.

Also, when they acquired their first externally funded research project in 1987, it was an 18-month project with 1 million DM (around 500,000 Euros) of funding. It was a highly complicated process for a young science shop to receive such a relatively large amount of public financing and required long negotiations with the funding body (employment agency) and local and federal authorities. Being an independent non-profit science shop reliant on external funding does limit their capacity and the number of project requests they can work on. Unlike science shops based at universities, Bonn Science Shop does not have direct access to students to work on projects. They also do not have any on-going institutional funding they can use to subsidise projects that are not covered entirely by external project grants.

**Success factors**

Key success factors for the successful implementation of a science shop are the use of its own resources and strengths rather than strictly following an external best-practice example. By fully understanding its stakeholders, research interests, potential cooperation partners and long-term goals, Bonn Science Shop has been able to find its own development path. Having a long-term strategy for the financing of the science shop, in Bonn Science Shop's case through its publications, has provided stability and financial independence, particularly in between projects. Bonn Science Shop also has very close links to civil society, which gives them insight into relevant issues and helps them to develop questions and projects before they become popular in the general research community.

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## 3.12. Wissenschaftsladen Potsdam, Germany

**Overview**

**Wissenschaftsladen Potsdam e.V.** is a science shop based in **Potsdam, Germany.** It was founded in **2011** as an independent **non-profit** organisation and is active in applied research in natural sciences, engineering and science with and for society. The science shop is run by **volunteers** and also provides a **physical space** where citizens can collaborate on science-related projects.

**Background**

In 2011, the Freiland e.V. cultural centre was established in Potsdam, Germany. In the same year, the science shop Wissenschaftsladen Potsdam e.V. was founded by a group of volunteers from the local community in 2011 and was provided with rooms in the premises of the newly established cultural

centre. Wissenschaftsladen Potsdam started with a focus on the natural sciences, engineering, science with and for society and well as ecological research. Ecological research lost importance over time as interest and funding possibilities in this field decreased. Its early tasks included transforming the rooms and workshops into a FabLab ("MachBar"), which provides citizens with access to a variety of equipment.

Early projects included partnerships with local schools as well as the local library. The library purchased a 3D printer as part of a collaboration on engineering and its digital transformation. Although Wissenschaftsladen Potsdam was not established according to a specific model, it did profit from learning from best practice examples, such as the Bonn Science Shop, and inclusion in international networks, such as the Living Knowledge Network, the International FabLab Association and Fablearn. Furthermore, being located in the Freiland cultural centre has meant that they have become part of a much broader public community.

**Business model and organisation**

Wissenschaftsladen Potsdam is an independent non-profit organisation without structural bonds to any other organisation or institutions, such as universities. The Freiland cultural centre is regarded as their sister project. As an independent organisation, Wissenschaftsladen Potsdam does not receive any constant core funding. Notably, the science shop receives no direct public funding, which is important to the organisers as it grants them with complete freedom to pursue research topics and projects of their choice. Nevertheless, it is funded from a variety of different sources.

The Freiland cultural centre, which is publicly funded, gives them free use of the premises. Some materials and rooms can also be used for free. Hence, one pillar is indirect public funding. Another source of funding comes directly from the community through membership fees as well as donations (general or for specific projects). For certain projects, they also make use of other funding possibilities, like grants available to support youth activities. In addition, some of their research projects are conducted as externally funded third party research.

This variety of funding sources allows the science shop to remain active while retaining its independence. However, this also makes it complicated from an organisational point of view. One of the main problems relates to requirements regarding how the funding can be used. For example, project funding can be used to cover personnel and direct project costs, including hardware, but not spent on facilities and utilities such as water and heating. This is because many funding structures are set up for organisations, such as universities or companies, which already have core funding in place to cover these types of costs.

**The research process and relationship with stakeholders**

As an independent science shop, Wissenschaftsladen Potsdam does not have to fulfil external research demands but can follow their own agenda and interests. The participation of interested stakeholders works over different channels, depending on the kind of project. In repair cafes, for example, people can just walk in with gadgets they want to fix. Events like conferences and workshops are open to everyone.

Their approach is to include stakeholders in all stages of the research process. Hence, research questions, as well as methodologies and all other aspects related to the research process are carried out in consultation with all stakeholders. The aim is to develop a culture of equal participation instead

of a hierarchical process (whereby research questions are formulated solely by scientists and further stakeholders only involved at later stages of the process). Generally, their approach makes them open to collaborations of any kind. They have close links to schools, libraries and universities and collaborate with citizens of any age, gender or educational background. They also work on projects run for public ministries and are sometimes approached by small companies that need to test devices or methodologies before making investments on their own.

**Examples of research projects**

Wissenschaftsladen Potsdam covers a wide field of different research areas. Their core focus is engineering, natural sciences and science with and for society and they organise their work around several different research fields.

**Repair cafes:** People can bring broken gadgets to the workshops to repair them. The science shop does not offer a repair service but helps people to repair their gadgets themselves. The science shop regards itself as a capacity builder, not a service provider.

Further, they cooperate with **satellite labs** located at external institutions and premises, including schools, a university and a company with the focus on the integration of people with disabilities. To enable them to take science out into society, they also have a mobile FabLab that can be taken anywhere.

The **FabLab** consists of four main parts: They have a permanent seminar room within the Freiland cultural centre, a workshop for 'cleaner' work using advanced machinery such as a 3D printer, a milling machine and laser devices. They also have an outside workshop for work involving wood or metal. There is also a bio-lab, where research in the field of biology can be undertaken, offering a wide range of new potential applications, including genome research and astrobiology. Their **premises** are also **used** by other loosely **associated groups,** including a youth group, a group establishing a free radio network that is given access to digital infrastructure, an OK-lab and a group of beekeepers establishing a database.

They also organise **seminars, workshops and conferences,** which enables them to involve a larger number of people. In doing so, they strongly benefit from their location and being part of the wider community of the Freiland cultural centre. This gives them access to necessary services for the organisation of events as well as enough space to host events of different sizes.

**Impact and evaluation**

The science shop does not formally evaluate the impact of its activities, partly due to limited time and resources and the difficulty of defining what "successful impact" actually means. Besides the obvious success metric of remaining active, the inclusion of stakeholders from different societal groups and being established in the public community is what is most important to them. Success is also viewed in terms of new ideas that spring from the collaboration of people with different backgrounds. Besides the creation of new research questions and projects, this can ultimately also lead to the creation of new business ideas and jobs, as they have previously experienced.

**Professional development and training**

The Living Knowledge Network supported Wissenschaftsladen Potsdam whilst it was being set up. Through the science shop's wide network of stakeholders from different backgrounds, they have access to people with a broad range of skills and interests who contribute to the science shop activities in different ways.

**Responsible Research and Innovation (RRI)**

RRI is a topic of central importance to Wissenschaftsladen Potsdam. One researcher from the core team has a background in citizen science and they see the RRI approach as central to their work. This includes involving and collaborating with people from all fields of society and of different ages, sex, race and educational background. This type of collaboration enables them not only to learn from each other but also inspires completely new ideas.

A community engagement and a fully democratic approach is central to their work. There are no top-down approaches; all of the science shop stakeholders are invited to participate in all processes and decisions. Both minor as well as structural decisions relating to their overall work are made in consultation with the community.The science shop is also regularly involved in discussions concerning research ethics, e.g. on sensitive fields like privacy vs. open data or genetics research. Science education basically underpins all of their work, which is aimed at capacity building (rather than service provision) and equipping the community with skills and knowledge.

**Challenges**

A central challenge is the sustainability and financing of their work. The science shop wants to maintain its independence and not be embedded in the structures of a fixed network or a mother organisation. Funding to keep their work going comes from many different sources, which presents challenges in terms of time and management. Their capacity is also limited due to being an organisation run by volunteers. There is the possibility to pay people to work on funded research projects or to pay instructors to run courses and workshops but otherwise there are no paid employees to manage the overall organisation. In this respect, Wissenschaftsladen Potsdam is haunted by its own success: They have reached a critical threshold where they have so many projects and activities that it is becoming difficult to manage them purely by volunteers. Further, they have limited capacities (time; people; budget) for any public relations activities. Therefore, they primarily rely on word of mouth marketing via their networks and the community at the culture centre. For the future, they would like to increase their public relations activities.

**Success factors**

An active and highly enthusiastic core team of people support the work of the science shop, manage the core operations, and drive its further development. Being located at the Freiland cultural centre gives them access to a broad community and helps them to fulfil their main task of being a mediator between science and the general public. It also provides the science shop with rooms and infrastructure for events that would be difficult to get otherwise, allowing them to engage with more people. They also see the physical existence of rooms designated to the science shop as a critical success factor. Having a physical space which is designed according to the science shop's needs, where ideas can grow, and not having to pack away equipment after every meeting is very important to them.

**Future development**

To continue to build upon their ideas and look for ways to strengthen their public relations and communications activities to reach and engage wider audiences.

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## 3.13. Institut für gesellschaftswissenschaftliche Forschung, Bildung & Information (FBI), Austria

**Overview**

The **Institut für gesellschaftswissenschaftliche Forschung, Bildung & Information (FBI)** is a **non-profit** association located in **Innsbruck, Austria**. It is a small organisation, influenced by the science shop model, which has been active for over **25 years**, conducting research with and for society.

**Background**

In the early 1990s, there was a movement towards founding science shops in the Dutch spirit in Austria. The nucleus of FBI was founded as a development project at the University of Innsbruck as part of the pedagogical faculty. The university provided them with offices and infrastructure with the remit of undertaking community-based research. In 1993, universities in Austria became autonomous and the University of Innsbruck decided against financing the science shop without the support of public money. The same has happened to four of the five other science shops that were founded in Austria in the early 1990s. As the science shop in Innsbruck had previously worked on a number of third-party funded research projects, they decided to found an independent non-profit organisation based on this model in order to keep the science shop in operation.

In 1994, they undertook a study trip through Germany and the Netherlands to meet local science shops and learn from their experiences. In the following year, they organised an international science shop conference in Innsbruck with the focus on European collaboration. Following this conference, several projects about science shops gained European funding to support the research, including SCIPAS, INTERACTS, ISSNET and TRAMS. In 1997, the name FBI (Institut für gesellschaftswissenschaftliche **F**orschung, **B**ildung & **I**nformation) was established.

**Business model and organisation**

FBI is an independent non-profit organisation without structural bonds to any other organisation or institution. It is led by Mag. Dr. Gabriela Schroffenegger, who has been Director of the institution since 1993. Since the mid-1990s, FBI has solely conducted third-party financed research projects to finance its activities. Therefore, they no longer call themselves a science shop but an institute working in the spirit of a science shop on projects that involve a range of societal actors.

In the early years of the FBI, they rented office space but later moved to the private premises of one of the FBI members to save costs on rent and infrastructure. Today, they have even gone one step further and no longer use any central premises: All FBI members work in home offices, using private equipment. Without a mother organisation or a constant sponsor, it is not possible for them to finance a central office. While FBI has conducted research for national public institutions, they feel that science shops have a rather negative reputation in Tirol, their home region. Therefore, currently, they are almost exclusively working on projects funded by the European Commission with only a small share of nationally-funded projects. Having worked on European research projects for some time now, they have built a large European-wide network that provides them with on-going new project opportunities. Besides Dr. Schroffenegger, there is one other permanent member of FBI; further employees are employed on a project basis and therefore on time-limited contracts. Due to funding challenges, the employees often have to invest their private assets to keep FBI running in between projects. Besides the research, the two staff at FBI are also responsible for the operational management of the organisation, such as human resource management and accounting. Much of this has to be done on a voluntary basis. Therefore, Dr. Schroffenegger, who is approaching retirement age, is rather pessimistic about whether FBI can remain operational once she retires. So far, she has not been able to find a successor who is willing to invest this effort.

**The research process and relationship with stakeholders**

While FBI no longer considers itself a science shop, it still works in the fashion of a science shop and stakeholder involvement is a key feature of its research. Projects are mainly designed in a participatory way, including relevant stakeholders in different phases of the research process. This mainly means the inclusion of the groups of people they are conducting their research on. In a project on the transition to adequate employment possibilities, affected youth were included in their stakeholder interviews as well as in a national research project on youth employment. A scenario workshop conducted at the beginning of research project is used to define the exact research question(s) to be further investigated and specific topics to be focused on in a project. A further round of such stakeholder involvement is conducted once when the first results have been gathered. They are then discussed with relevant stakeholders to develop conclusions and political guidance.

**Examples of research projects**

All of their research projects are in field of science with and for society/social sciences. Their work mainly involves studies and analyses as well as conducting workshops and seminars. Core topics include gender research, including living and working conditions, gender pedagogy, discrimination, migration and aging societies. On the European research level, examples of their projects are “Women in Europe – New Yields of Employment in Rural Areas” (2015 - 2017). The project aims to provide employment possibilities for women living in rural areas. A further European project is “Case - Career Assistance and Spirit of Enterprise” (2013 - 2015). Nine partners from different European countries have worked on this to support young adults during the transition phase from school or inadequate employment to adequate employment possibilities.

**Impact and evaluation**

As they mainly work in EU-funded projects, all of their projects are evaluated according to European Commission requirements. Monitoring and feedback occur at each project step, in addition to a mid-

term and final review. Some of their work also has a longer-term political impact. For example, one study conducted for a national governmental organisation in the field of gender research was particularly politically relevant and, although the project finished some time ago, they are still in contact with the organisation about the political impact and relevance of their results. Stakeholders are also asked to evaluate their methods and results and give them feedback at different stages of the research process.

**Professional development and training**

An important step in the early phase of FBI was travelling through Germany and the Netherlands to meet local science shops and learn from their background and experience. FBI staff also regularly participate in training and conferences to stay up to date with the latest developments.

**Responsible Research and Innovation (RRI)**

FBI became aware of RRI tools a few years ago at an international conference on the topic. Prior to this, they were implicitly conducting their research in the spirit of RRI.

**Challenges**

The central challenge for an independent science shop is to achieve sustainability. Without a mother organisation/sponsor providing them with core funding, it is extremely difficult to achieve secure funding. To remain operational, they work in home offices with private equipment on a part-time base. A lot of organisational and operational issues (such as human resources and accounting) have to be conducted on a voluntary basis as they fall outside the remit of the actual research work.

**Success factors**

The success of FBI is mainly due to the enthusiasm and engagement of the staff. Without such motivation to conduct participatory research, it would not have been possible for them to be active for over 25 years. They also consider the quality of their research as an important asset that helps them to remain active, especially in EU-funded research projects.

**Future development**

For the future, Dr. Schroffenegger is not overly optimistic that FBI can remain active once she retires as the institute's director as she cannot find a successor willing to invest as much effort. One potential way to remain active without a large investment in time and money is via a social media project that they have very recently set up on Facebook under the title Open Social Science – Creative Lab[18]. The aim is to create a space where the members of community can post questions as well as help to answer the questions themselves, essentially becoming an exchange platform for questions, ideas and CBPR research. FBI's role will be to moderate the platform rather than conduct research on the issues raised.

[18] https://www.facebook.com/Open-Social-Science-Creative-Lab-309101826126483/

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## 3.14. Institute of Social Innovations Science Shop, Lithuania

**Overview**

The **Institute of Social Innovations Science Shop** is based in Vilnius, Lithuania at the Institute of Social Innovations (SII)**.** It is a relatively young science shop (the first in Lithuania), set up in **2013** as a **non-profit organisation** to provide a research service for Lithuanian NGO's and communities with a **focus on social sciences**. To date, it has conducted four science shop projects and is currently on its fifth.

**Background**

The Institute of Social Innovations is a non-profit organisation established in 2006. SII strives to create, promote and implement social innovations and to research and propose new responses and solutions to contemporary social and economic challenges. It unifies a group of excellence-driven researchers and scientists working in policy research, applied social and interdisciplinary research and various policy development projects. The Institute

- conducts scientific research;
- develops and implements projects;
- carries out studies and expert evaluations; and
- provides consultations for civil servants involved in policy development processes as well as for NGOs and business companies.

The institute currently employs a permanent staff of four and, depending on the project, engages up to 20 other people on a part time and voluntary basis. The team that set up the science shop were introduced to the science shop concept in 2009 at a training session given by Norbert Steinhaus from Bonn Science Shop, delivered as part of a project on popular science. The decision to establish the science shop was made in 2013, following participation in a two-day seminar on the practicalities of establishing and operating science shops in Budapest, Hungary. The inspiration from examples of science shops in other countries and motivation to follow these examples was so strong that the team started working at establishing a science shop without conducting a feasibility study. The first half year was spent setting up a website and information about the science shop. Despite a communication campaign involving the internet site and a wide dissemination of messages to NGO's by emails, its first project came about as a result of a presentation on science shops given at a congress of NGOs. One of the NGOs was interested in the concept and the first research request was elaborated together.

**Business model and organisation**

Within the Institute of Social Innovations, there is one person responsible for the science shop, supported by an assistant, who helps with communication and publicity. The science shop has no core funding and costs are subsumed in the overall running and staff costs of the SII. The issue of funding is addressed directly with the NGO during the research definition phase. In some cases, NGOs can

reallocate small amounts of money to contribute to the project. Any money that is provided by the NGO is used to cover expenses and as small remuneration for participating researchers.

The structure of the science shop is relatively light and flexible as it only deals with a couple of research projects a year. A project manager from within SII manages the process in terms of allocating responsibilities, setting deadlines and reporting. The science shop acts as an intermediary finding appropriate student researchers to undertake the research, or the staff undertake the research themselves.

Research projects are often undertaken by intern students from various universities. These are usually fourth year students in sociology or communication looking to gain practical experience. SII has close informal contacts with Vilnius University (many of the staff at SII have previously taught at the University) through which they are able to access resources. They also use contacts from Socforumas (a semi-formal network of researchers in social sciences). The first science shop project (a literature review and interviews with foreign publishers of books for sight-impaired children) involved a number of volunteers.

**The research process and relationship with stakeholders**

Research requests are generated by on-going conversations and direct contact with NGOs, through which they are made aware about the work of the science shop. Information campaigns have proven unsuccessful in the past but the science shop does raise awareness of its work and the benefits of undertaking this type of research through articles and interviews in the media.

In response to an approach from an NGO, the science shop works together with them to formulate the research question. The NGO is also fully consulted during the design of research tools, the definition of target groups etc. Between two and four meetings are held with the NGO to formulate the question, usually depending on the sensitivity of the topic. The intern students are involved in all aspects of the research process, from question formulation to data analysis. In some cases, the NGO will also provide access to research respondents (e.g. doctors).

Research results are presented to the NGO in the form of a research report with further discussions on how they can be implemented. An important focus is on translating the research into concrete results and discussing possible future directions and activities. It is up to the NGO to decide what to do with the results in the project. In the majority of cases, the results are not disseminated to a wider public audience. In the case of the project with the publisher, SII participated in a presentation to a wider audience.

**Examples of research projects**

The first project undertaken was for a Lithuanian non-profit publisher of books for sight-impaired children that was interested in learning from practices in other countries but had no capacity or ability to do this. The science shop conducted a literature analysis to identify other publishers of interest and benefit that could inform their work.

Another project was conducted for Baltic Environmental Forum Lithuania[19] and involved a study to investigate the mismatch between personal attitudes regarding environment and actual behaviour.

[19] http://www.bef.lt/index.php?id=1&L=0

The science shop developed recommendations to inform the organisation's publicity material and educational activities. The focus of their latest project is the relationship between enthusiasm for healthy eating and eating disorders among young women, being undertaken for the non-profit organisation "Innovation Office". The aim is to propose innovative measures for improving support, to increase visibility of the problem, and to educate society.

**Impact and evaluation**

SII do not undertake any formal evaluation at the end of their projects. In SII's view, the success of a project is clearly linked to whether the results are used by their clients, if it has improved the work of the organisation and had a direct influence on their target groups. This is not formally evaluated but by maintaining their relationship with the NGOs, they are able to learn about how the project results have been used.

**Professional development and training**

Prior to establishing the science shop, in 2013 four members of its staff participated in a self-funded two-day Science Shop Summer School on the practicalities of establishing and operating science shops in Budapest, Hungary. It was organised as part of the EU PERARES project and Henk A.J. Mulder, Coordinator of this project and Director of the Science Shop at the University of Groningen, was the main lecturer. Being part of the Living Knowledge network gives the SII access to other training and networking opportunities. SII also participates in a number of EU-funded projects (European Researchers' Night, SPARKS, as well as SciShops), which provides access to training, new ideas and contacts.

**Challenges**

The main challenge is getting research requests and convincing NGOs in Lithuania of the benefits of undertaking research. When the science shop was first set up, they sent letters to over 1,000 NGOs and received just one response. This is partly due to civil society being relatively underdeveloped in Lithuania. In addition, the public is not particularly interested in research and NGOs do not understand its use in their own work and activities. At government level, knowledge-based decision-making is acknowledged in declarations but there is a lack of understanding on the ground about what this means in practice. The identification of research requests relies on the enthusiasm and persistence of the science shop's staff in following up potential avenues.

A further challenge relates to the timescale in terms of when the research is conducted and matching the expectations of the NGOs with practicalities. NGOs want quick results. But if the topic were to be proposed for a BA or MA thesis at the university, it would take too much time to find a student who is interested in that particular research topic and for the thesis to be completed. Therefore, the science shop currently works only with intern students, because the internship lasts up to three months and the process is a lot faster. Funding is also a challenge. SII chooses not to actively seek public funding for individual research projects as competition for funding is high and the application process is often long and does not coincide with the NGO's timescales.

**Success factors**

SII's focus is on the social sciences and they regard it as highly important to be clear with NGOs right from the start about what the science shop can and can't do in terms of areas of expertise and the cost of undertaking the research activity. If a potential client has financial resources for certain types of research, SII has the capacity outside of the science shop to fulfil these requests, too. Maintaining contact with their clients to see how the results are used is important to the science shop as is the use of the results.

Further, they have a clear process that focuses on quality assurance. In the science shop's first project, SII acted as an intermediary, managed by an internal project manager, who identified external volunteers to conduct the research, which raised questions about who was responsible for the quality of the research. Subsequently, they moved to a different model in which projects are managed and conducted using internal resources. This means that they are better equipped to ensure the quality of the research.

**Future development**

The science shop is relatively young and still relies on the enthusiasm of one person. To become more established, a more defined structure will be required in the future. SII is interested in exploring more innovative ways of involving citizens in projects, for example using citizen science. The number and diversity of NGOs and communities in Lithuania is growing, which presents further opportunities for the science shop's work. The presence of a second science shop in Lithuania (with a focus on interior and industrial design) is now helping to raise awareness and understanding about science shops in society.

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## 3.15. Ibercivis Foundation, Spain

**Overview**

The **Ibercivis Foundation** is a **non-profit organisation** based in the city of Zaragoza in **Spain**. Formally established in 2008, it has developed expertise in **citizen science** running numerous projects involving participatory methodologies in collaboration with a variety of stakeholders.

**Background**

Ibercivis evolved out of a pilot initiative in 2005 to create a volunteer computing platform run by the Institute for Biocomputation and Physics of Complex Systems, Zaragoza Town Hall and the Fusion National Laboratory at CIEMAT. The initiative became national and, following agreements with a number of partners, was formalised as a national Foundation in 2008. Its founders include the University of Zaragoza, CSIS, CIEMAT, the Ministry of Economy and Competitiveness and local governments.

Although its background has been in e-science, involving supercomputing and high-level infrastructure, it quickly broadened its focus to wider participatory engagement and citizen science. It is a very practice-orientated organisation and has no specific disciplinary focus but tries to balance a holistic vision with different models. In 2016, Ibercivis set up the Observatory of Citizen Science in Spain[20], co-funded by the Spanish Foundation for Science and Technology. Its aim is to monitor and map the growth of citizen science initiatives in Spain.

**Business model and organisation**

The number of staff employed by Ibercivis fluctuates between 1.5 and 5, depending on available resources. These staff are responsible for the operational management of the organisation, including coordination, finance, dissemination, engagement, events, software development, infrastructure maintenance as well as data and web services. Staff are based in offices at the University of Zaragoza.

The Foundation has a legal Board that approves the budget and programme of activities, consisting of public administrations, including regional and city governmental representatives, as well as the University of Zaragoza and the two largest research institutions in Spain, CSIS (the Spanish National Research Council) and CIEMAT (Centro de Investigaciones Energéticas, Medioambientales y Tecnológicas). This provides Ibercivis with a large network of collaborators and as result close relationships with policy makers, researchers and community organisations. Working with large research institutions also gives Ibercivis access to thousands of researchers and both CSIS and CIEMA are closely involved in dissemination work. Many of the researchers that are involved in Ibercivis' projects work as volunteers or are employed at organisations they collaborate with. They also have a number of volunteers, including teachers, and other active supporters, that are very engaged in their work.

Ibercivis receives an annual fixed budget of 60,000 Euros from the Spanish Ministry for Innovation, Competitiveness and Industry. Additional funding comes from providing citizen science consultancy services as well as actively applying for funding through competitive European national and regional project calls. Occasionally, funding is applied for under the umbrella of collaborating partners such as the University of Zaragoza. Further, there is a donations page on the website and they have tested crowd funding in the past with limited success. Ibercivis also has a Scientific Advisory Board consisting of external advisors from scientific and community organisations as well as a Citizen Advisory Board. Both boards have not been so active over the past couple of years and they are hoping to revitalise them.

**The research process and relationship with stakeholders**

Part of Ibercivis' role is staying at the forefront of citizen science, investigating new areas, and testing new methodologies and models. For example, current topics include biotechnology, bio hacking (hacking the human body's biology) and do-it-yourself-science (making the tools of science available to everyone). Some of the research projects are ideas that Ibercivis develops itself and then finds appropriate partners to collaborate with.

[20] http://www.ciencia-ciudadana.es

Other projects are initiated by external researchers that come to them with ideas and Ibercivis helps to formulate these ideas into projects. This process is open to both professional and amateur scientists. Many of the professional researchers have access to project funding, however, in the case of citizens, Ibercivis helps to put together the necessary funding. Partnerships are key to the success of the projects. Engagement with community organisations provides access to citizens to participate in the projects. Citizens are mainly motivated to participate in a project for educational purposes, to be part of something, and to contribute to the common good. In addition, dissemination is viewed as very important and media partners are actively sought to support dissemination activities and communicate participation opportunities to citizens. For example, the Observatory currently has an agreement with an online newspaper to publish news, calls for action, discussions about ethics etc.

**Examples of research projects**

OdourCollect[21] is a project that enables citizens suffering from regular odour nuisance to report their complaints to relevant stakeholders using an app. The idea came from a government researcher (not in academia) and received European Commission funding following a successful pilot.

Ibercivis has also set up ten open citizen science labs, public spaces where anyone with an interest in science can develop their own scientific projects together with support from transdisciplinary teams within the scientific community. The project received a two million Euro grant from the University of Zaragoza. Three quarters of the grant was spent on super computers, and for the remaining quarter, Ibercivis sought the views of citizens, such as members of hacker and maker communities and researchers to identify what was required. Each of the laboratories has a different focus, such as robotics, multimedia, computing, photonics.

Aqua[22] is a project that is investigating the quality of drinking water. An experiment involved a network of 100 schools across the whole of Spain. 10,000 analysis kits were distributed to pupils to enable them to measure the water quality in their own homes in terms of e.g. chlorine, pHm, flavour and smell. The data is openly available and presented in the form of map.

**Responsible Research and Innovation (RRI)**

Ibercivis embraces RRI principles in its daily work. Some examples include:

- **Open access** is mandatory, wherever possible, and Ibercivis publishes everything, such as data, methodologies and results with the aim of making it accessible and for open use.
- There is a strong focus on **dissemination to all stakeholders**, including the general public, often using media partners to share information as well as create debate about issues relating to citizen science.
- **Public engagement** and involvement is also key to their activities. Their approach is to bring science to the people and incorporate it into their daily lives. They continually test new and innovative formats, which have previously included activities at musical festivals and in the city streets.

[21] https://odourcollect.socientize.eu/

[22] https://aqua.ibercivis.es/#!/

- In the governance of its projects, they often include **citizen boards** for consultation and evaluation purposes.

Ibercivis' Executive Director, Fermín Serrano, was also coordinator of a working group for the European Citizen Science Association investigating the links between RRI and citizen science. This involved investigating how responsible citizen science is and how citizen science practitioners can make their activities more responsible.

**Impact and evaluation**

Ibercivis is very practice-orientated and often does not have time to fully evaluate its projects. Evaluation is carried out if required, for example as part of EU-funded projects. Questionnaires are also distributed before or after certain events or to teachers to complete with their pupils before, during, and after projects. Analyses of the economic impact of citizen science have also been carried out to use as evidence for the National Ministry of Science. These types of analyses, which have been done for a number of projects, are very complicated and time-consuming and include evaluating the value of media coverage. For example, a 3000 Euro project that involved distributing 1000 strawberry plants to households in Zaragoza to investigate air quality, resulted in around 80,000 Euros worth of media coverage, during a period of six months.

**Success factors**

Having the support of a wide range of stakeholders, including national and local policy makers as well as large research institutes is very important. Being a small organisation gives Ibercivis a large degree of freedom. This allows them to be agile and makes them accessible to everyone. Having a broad focus also gives them a lot of flexibility in the type of work that they undertake. Ibercivis tries to be as innovative as possible and they are constantly testing new ideas, working with unexpected people in unexpected places, and investigating new areas.

Ibercivis has built up a good reputation based on trust. The Foundation now has a lot of experience in citizen science, has run many successful projects and also tries to learn from failures. This makes the process of setting up new partnerships and recruiting volunteers a lot easier for them. They manage to successfully balance top down and bottom up approaches, for example balancing European needs with those of local government, and carrying out grass roots activity alongside scientific policy making.

**Challenges**

An overall challenge is to make citizen science more global and engage more people and researchers in citizen science. Operationally, they would like to improve the quality of data through the projects but are currently limited due to staff resources. Sometimes they encounter legal vagaries, for example in law relating to crowd computing and the storage of private data.

**Future development**

- Ibercivis hopes to work more directly with citizens (rather than using intermediaries) and is currently seeking funding for a new project that will work directly with community neighbourhoods on real problems. Patients are also a group that they have not had much engagement with yet.

- They will continue to take advantage of new technologies, explore new models as well as continue working with holistic vision.
- They want citizen science expertise to be better coordinated at a national level and seek ways to coordinate different players, resources and services.
- They continue to work towards the vision of having citizen science labs in every city, where citizens can access scientific equipment and work together.
- Forthcoming international projects include a H2020 project to create the International Odour Observatory, which Ibercivis Foundation is coordinating. They will also participate in the EC tender to monitor environmental citizen science projects.
- Ibercivis will also create a local observatory of citizen science in Zaragoza, Spain.

**Citizen science and science shops**

Opportunities identified by Ibercivis for science shops include:

- Using citizen science as a methodology for conducting research in science shops.
- Utilising the power of social media and online platforms to engage wider audiences.
- Developing partnerships with e.g. citizen science and maker labs to take research out of universities more into the community, and allow citizens to get more involved.

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# 4 Conclusions from case studies

In this section, we summarise and highlight the main observations from the 15 case studies with regard to business models, the research process and the relationships with stakeholders as well as success factors and challenges. Impact, evaluation and RRI practices are addressed in section 5.

## 4.1. Business models

The science shop/community-based participatory research organisations featured in the case studies represent a diverse range of business models and include university-based and research institute-based science shops, as well as non-profit organisations i.e. NGOs and charities. Some are relatively newly established organisations and others have been operational for a much longer time. University-based science shops represent the most traditional type of science shops and many of the well-established ones were originally inspired by the Dutch science shops set up in the 1970s.

Some science shops/CBPR organisations have a particular focus, such as environmental science, the arts, humanities or social sciences due to access to expertise in certain fields or being established within a certain faculty e.g. Groningen (the Netherlands), AMU (Poland) and InterMEDIU (Romania). Others have a broader, multidisciplinary remit, mainly achieved by having access to students from a range of different disciplines and working across the university, e.g. EUC (Cyprus) and UTS Shopfront (Australia).

Having the support of a mother organisation, such as a university, helps to provide stability, particularly in terms of funding and resources. However, being independent from a mother organisation of some kind can also give the organisation greater freedom and flexibility, highlighted by the Ibercivis Foundation (Spain), and the Wissenschaftsladen Potsdam (Germany), as something that they particularly value. Organisations, such as the Ibercivis Foundation and the Research Shop at the University Guelph (Canada), also stress the importance of finding a balance between meeting the requirements of their funders, particularly those that are large institutions, and ensuring that they are fully able to respond to and meet the needs of community organisations and citizens that they aim to serve. Malmö University's pop-up model also provides it with flexibility and allows it to operate with limited resources.

New science shops, especially those run as non-profit organisations, are often started by individuals, working on a voluntary basis, such as the Bonn Science Shop, Wissenschaftsladen Potsdam (Germany), and the Institute of Social Innovations' Science Shop (Lithuania). The Potsdam science shop is run entirely by volunteers, whereas the Ibercivis Foundation has a small team of paid core staff and relies on volunteers to carry out much of the research activity. Many of the smaller science shops employ (often part-time) staff working as coordinators and managers. Larger, well-established science shops are usually well resourced (such as Bonn Science Shop, (Germany), UTS Shopfront (Australia) and employ a larger body of full-time staff.

Funding models differ greatly between science shops/community-based participatory research organisations. Some university-based science shops get core funding to employ staff and run activities [e.g. the Research Shop at the University of Guelph (Canada) and Groningen Science Shop Languages (the Netherlands)]. Others are reliant on staff working for the science shop in addition to other employment duties such as the Institute of Social Innovations' Science Shop (Lithuania) and InterMEDIU (Romania), and may only receive what may be viewed as 'in kind' funding in the form of access to room and equipment (e.g. office space and laboratories).

University-based science shops are more likely to have a cost-free model for undertaking project requests for civil society organisations [e.g. UTS Shopfront (Australia), Groningen Science Shop (the Netherlands)], with research projects being undertaken for free by students as part of courses or theses. Even Liverpool Interchange (UK), despite being a charity, does not charge for its services as research is carried out by students as part of community-based learning modules. Sometimes, civil society organisations are asked to cover small costs, such as travel and equipment. Malmö University's Pop-Up Science Shop covers the costs of its project definition activities through a project grant but then pursues external funding to support the implementation of research projects.

Science shops/community-based participatory research organisations operating as NGOs are much more reliant on externally funded projects and grants. Some science shops actively seek funding to be able to respond to questions [e.g. FBI (Austria) and Bonn Science Shop (Germany)]. Bonn Science Shop, one of the largest science shops in the world, also has income from its publishing activities, which provides stability in between projects. Some science shops also offer paid consultancy services, lectures, etc. in order to increase their budget.

**Key challenges**

- **Funding and achieving sustainability** is the greatest challenge facing science shops. Even science shops that have core funding partners, such as Liverpool Interchange, UK, feel that diversification of funding sources is important so they do not become reliant on one source of funding. As some of the case studies demonstrate, circumstances affecting funding can easily change from year to year.
- **Reliance on external project funding** can present challenges in terms of paying staff in between projects as well as paying for costs, such as office space and utilities that may not be eligible costs for grants. The majority of funding structures are set up for organisations, which already have core funding in place to cover these types of costs.
- **Applying for funding** is resource and time intensive and can put great pressure on science shop managers.
- **Rapid growth** can also present challenges to science shops, particularly young ones. Organisations reliant on volunteers, such as Wissenschaftsladen Potsdam, Germany, may reach a critical threshold in terms of the number of projects and activities they undertake where it starts to become difficult to manage them purely by volunteers. Bonn Science Shop also had a similar experience in its early days when it suddenly had to deal with a large project budget, which caused a number of complications and negotiations.
- Many science shops are driven by highly committed and enthusiastic individuals. The sustainability of small science shops can suffer if these **key people leave or retire** from the organisations. FBI, Austria and InterMEDIU, Romania are particularly concerned about this.

**Key success factors**

- "One size does not fit all" in terms of business models. The key is for science shops to **build on their strengths and existing resources**, rather than strictly adopting a best-practice model, as stressed by the Bonn Science Shop.
- For university-based science shops, **senior management support** is key. Science shops that have leaders that recognise the value of science shops and are embedded in universities at a strategic level benefit from this support, as demonstrated in the case studies on EUC (Cyprus),

UOC (Spain), Groningen (the Netherlands), UTS Shopfront (Australia) and the Research Shop (Canada).

- Some science shops/CPBR have **advisory boards**, on which main stakeholders are represented, which provide strategic guidance, project governance, and even mentoring. As a registered charity, Liverpool Interchange's board also has a legal role.

## 4.2. Research process and relationship with stakeholders

Science shop projects at university-based science shops are mostly carried out by students under the supervision of academic staff as part of their academic curricula. The science shop project may form the subject of a research thesis (BSc, MSc and PhD). Others incorporate research projects into existing courses that require research experience (such as EUC, Cyprus) or create specific modules for science shop projects (e.g. Liverpool Interchange, UK and UTS Shopfront, Australia). The University of Guelph is unique in employing paid interns to work on projects. Malmö University currently focuses on setting up collaborations between researchers (rather than students) and CSOs, although it plans to explore ways to engage with students too. Malmö University may also seek to work with researchers at other universities and to develop a more regional approach.

Most NGOs (e.g. Bonn Science Shop, Germany) do not have direct access to students so conduct most of the research themselves. Others, e.g. SSI, Lithuania, also work directly on research projects but mainly engage intern students from the various universities. The main focus of a science shop is responding to problems and issues identified by civil society. These include a wide range of non-profit organisations, community organisations, and occasionally individual citizens, or groups of citizens. Some science shops also work with teachers and pupils on projects that have an educational focus.

Some science shops carry out research for for-profit organisations, such as companies, too (e.g. EUC Cyprus and Groningen, the Netherlands) but only if they have a research request that is of relevance to the wider society. In this case, there is an expectation that the company partly covers the costs of the project, for example, in form of a student internship or paying for travel costs.

Science shop coordinators play an important role in advertising the services of the science shops, managing research requests, identifying and bringing the right stakeholders together (e.g. civil society organisations, researchers and supervisors) and acting as relationship managers throughout the process. They are also responsible for any evaluation and follow-up that takes place. Running a science shop and engaging stakeholders involves a lot of direct communication.

Raising awareness of the work of a science shop in order to attract research requests is also a task that takes time and resources. Some well-established science shops e.g. UTS Shopfront, Australia and Liverpool Interchange, UK even reach the stage that they no longer need to actively seek project requests. Community organisations hear about the work of the science shops by word of mouth or return year-on-year with new requests based on positive previous experience. A proactive strategy, sometimes carried out by Groningen, the Netherlands and InterMEDIU, Romania is to identify societal issues raised by civil society organisations in the media and to contact them with an offer to conduct research on their behalf. Science shops carry out different types of research, depending on the nature of the issue being addressed and the requirements of the civil society organisation. Examples of research projects include surveys, feasibility studies, desk research, literature reviews, design projects, laboratory research, IT and other technical solutions.

Methodologies differ according to the nature of the research (more about participatory methodologies and RRI practices as well as Impact and Evaluation can be found in section 5).

Interesting differences in the motivations of students can also been seen in the case studies. In some countries, such as the Netherlands or Australia, student participation is particularly driven by the desire to contribute something to society. Whereas in Lithuania, for example, it is undertaken more as an obligation e.g. as part of an internship, as part of a course, or there is an expectation that they will be paid.

**Key success factors**

- **Integrating science shop projects into existing activities** such as academic curricula has a number of benefits. Students get to work on real-life issues that benefit society as well as gain experience and skills for their future professional lives. This approach also addresses funding and sustainability issues as it engages staff that are already employed by the mother organisation and incorporates this type of work into their everyday work. For example, this can be seen in the case of EUC, Cyprus.
- **Relationships with community organisations** take time to build up and are dependent on trust and proven experience. As highlighted in the case study on the Research Shop at the University of Guelph, Canada, the key to developing long-term relationships is good communication, listening, humility, learning from mistakes and a willingness to learn. Community organisations need to feel that the relationships are built upon mutual trust and that they have control and an opportunity to fully participate in the process.
- **Having a clear mandate and strategic plan** to guide what the science shop/CBPR organisation undertakes, helps staff to decide which projects and requests to undertake, and which to decline. As pointed out by the Research Shop at the University of Guelph, Canada, this also helps to avoid mission drift and overwork.
- **Having robust project initiation and management processes in place** supports the smooth running of science shop projects. Active monitoring and quality assurance processes also help projects to remain on track and for issues to be dealt with as soon as they arise. Having clear procedures in place can also help the sustainability of smaller science shops as there is less dependence on the knowledge and experience of individuals who started the science shop.

**Key challenges**

- **Matching research requests with resources** is a highly relevant factor. Some science shops struggle to find enough students with the right knowledge and motivation to fulfil certain research requests. Also, it can be difficult to balance the civil society organisations' timescales for when they need the research with constrictions such as academic terms (semesters).
- **Balancing the expectations** of the community organisations, who rely on the project results, with course work requirements can also be a challenge as highlighted by Liverpool Interchange, UK. This is particularly the case for projects undertaken by students as part of coursework as the science shop cannot guarantee a high quality or completed outcome.
- **Working with a diverse range of stakeholders** e.g. funders, policy makers, the grassroots community also brings challenges due to their different requirements, approaches and ways of communicating.

- In countries in Eastern Europe such as Romania and Lithuania where civil society is comparably underdeveloped, it can be particularly difficult to get requests from civil society organisations. Civil society organisations in these types of countries often have a **lack of understanding of the benefits of community-based research** and can even view science shops as competitors. This does not mean that in other countries this aspect does not require effort. In all countries, there is a lot of initial work needed to make community organisations aware of the science shop and to see value in its services.

## 4.3. Future developments

Some science shops/CBPR organisations, such as the Research Shop at the University of Guelph, Canada and the Living Lab for Health, Spain are keen to share their participatory research methodologies and community engagement practices through academic publications and become more recognised as intellectual centres for this type of work. Many also wish to diversify the NGOs they work with or work more closely with certain groups. The Ibercivis Foundation, for example, would like to work more directly with citizens such as patients.

Raising recognition and awareness of science shops and CBPR work is a central challenge for the upcoming years. While considerable progress has been made over the last years and the recognition of such organisations has greatly increased, as observed by Bonn Science Shop, Germany, there is more to be done to make further use of the potential this kind of work offers. Some science shops/CBPR organisations are looking at ways to address this e.g. the Community Fellowship and peer reviewed, open access books developed by UTS Shopfront for research with high social impact.

# 5 RRI and SciShops.eu

Responsible research and innovation (RRI) is about conducting research and innovation in a way that takes into account societal needs and challenges and involves key stakeholders throughout the research process. The SciShops.eu project is committed to implementing RRI principles into its science shop ecosystem. By their participatory nature and role in bridging the gap between science and society, science shops embody many aspects of RRI. However, there are also opportunities offered by adopting a more conscious approach to RRI, which are explored in this report.

A second part of the deliverable for task 2.2 was to develop a set of RRI tools of particular relevance to science shops, for use both during the SciShops.eu project as well as to serve as a resource for science shops in general. Tools have been categorised according to key dimensions of RRI (such as ethics, gender equality and open access etc.) as well as the various activities undertaken by science shops as part of community-based participatory research, including project definition, project implementation, evaluation and dissemination.

It should be stressed that there is not a rigid set of guidelines for implementing RRI. RRI is more a holistic approach that requires active reflection to identify ways in which RRI can help to improve relevant aspects of your own research practices. In this section, we provide some brief context to the RRI agenda and the categories in the tools set. A concrete set of tools can be found in section 6.

## 5.1. What is RRI?

RRI (Responsible Research and Innovation) has gained recognition in the last few years as a guiding principle and policy concept primarily formulated and promoted by the European Commission. It is now a cross-cutting theme in Horizon 2020, driven by a desire to bridge the gap between the scientific community and society at large and tackle the grand societal challenges.

According to the European Commission *"Responsible Research and Innovation (RRI) implies that societal actors (researchers, citizens, policy makers, business, third sector organisations, etc.) work together during the whole research and innovation process in order to better align both the process and its outcomes with the values, needs and expectations of society"*[23]. RRI is an umbrella term that incorporates a number of key dimensions, such as gender, open access, science education, public engagement, governance and ethics, known as key dimensions (described in more detail in relation to science shops below).

During the FP7-project "RRI Tools"[24] (2014-2016) that developed a training and dissemination toolkit for fostering RRI, a number of process requirements for achieving RRI were elaborated. These include *Diversity and Inclusion* (such as involving a wider range of stakeholders for both democratic reasons and ensuring a diversification of perspectives and expertise); *Openness and Transparency* (important for establishing public trust allowing everyone's views to be taken into consideration); *Anticipation and Reflexivity* (for understanding the potential impacts of research and uncertainties); and *Responsiveness and Adaptive Change* (taking society's needs into account and responding to new

[23] https://ec.europa.eu/programmes/horizon2020/en/h2020-section/responsible-research-innovation

[24] https://www.rri-tools.eu/

insights) (RRI Tools 2016). The first part of the RRI tools set "Introduction to RRI" (found in section 6) contains links to resources for those new to the concept.

## 5.2. The relevance of RRI to science shops and community-based participatory research

By the nature of the activities undertaken in terms of community-based participatory research, the science shop model can be viewed as an example of RRI in practice. It is a collaborative, demand-driven, bottom-up approach to research that is undertaken in response to an identified societal issue or problem on behalf of and together with the community. Research processes are often interdisciplinary and involve key stakeholders affected by the issue being addressed in the research process.

As shown in the case studies, science shops demonstrate a whole range of RRI practices but there is also potential for them to incorporate further RRI-inspired methodologies into their work. Participatory methodologies can provide opportunities for relevant stakeholders to share perspectives and knowledge to inform the project definition stage. For example, scenario workshops (developed and tested as part of the EU PERARES project)[25] are a methodology that can be used as a participatory planning tool for science shops. Inclusive and participatory RRI methodologies can also be used to gather potential research questions and develop collaborative research agendas, as demonstrated in the case studies on the Living Lab for Health and Malmö University's pop-up model.

There are also opportunities for science shops to work with a broader range of stakeholders as part of research projects. In addition to community and civil society organisations, there are many benefits to be gained from involving other stakeholders that may not normally interact with each other, such as policy makers, business and industry and the education community throughout the research process. Not only does the research process benefit from broader perspectives, it can also lead to increased take-up of research outcomes. In the case study interviews, some science shops reported a desire to broaden the range of civil society organisations that they work with and engage more directly with citizens, particularly those that are underrepresented. An RRI approach can help them achieve this.

The RRI tools set contains a wide range of resources to help science shops undertake RRI-inspired community-based participatory research. Tools that are particularly useful for particular stages of the research process, such as *agenda setting, project definition* and *project implementation*, as well as for specifically conducting *citizen science* are highlighted.

## 5.3. Public engagement

*Public Engagement,* one of the RRI key dimensions, is central to how science shops operate and implies a two-way, inclusive and participatory process. Science shops respond to issues directly identified by community organisations or citizens themselves, who then are also involved in the research process. The public can be involved in a range of ways, from being consulted about their opinions on certain issues, to helping researchers gather data (e.g. citizen science) or involved in the co-creation of new knowledge together with experts. Many science shops in the case study interviews stressed the importance of the process being mutually beneficial to everyone involved. Science shops are an

[25] http://www.livingknowledge.org/projects/perares/

excellent way of empowering the public to participate in the co-creation of research, ultimately contributing to a more scientifically literate society.

It is also important that the public is made aware of and has an opportunity to discuss the results of research undertaken, through two-way communication with researchers and other types of public engagement activities, which also leads to wider acceptance of research outcomes (also see 5.9 on the communication of results). The RRI tool set contains a wide range of tools to help science shops undertake participatory public engagement.

## 5.4. Science education and governance

*Science education* in RRI relates to both informal and formal education and good *governance* of science requires institutions to take into account the principles and requirements of RRI. There are a number of EU-funded projects e.g. NUCLEUS[26] and HEIRRI[27] exploring ways to integrate RRI into universities and research institutions. In particular, the EU EnRRICH[28] project looks at how the concept of RRI can be embedded in academic curricula in order to equip students with the competences to respond to societal research needs and become more responsible researchers in the future.

Science shops based within HEIs engage students to conduct research projects for civil society organisations, often as part of their academic curricula, either by incorporating science shops projects in existing courses, by creating specific modules for science shop projects, or by using the science shop project as the subject of a research thesis (BSc, MSc and PhD). In addition to gaining research experience and using their disciplinary knowledge, science shop projects give students a wide range of additional skills, such as stakeholder engagement, communication with non-experts and societal problem-solving (Fokkink and Mulder, 2014).

Science shops can also help Higher Education Institutions (HEIs) achieve their own priorities and strategies relating to teaching and learning, research and engagement, something that the EU PERARES project (2010-2014) has particularly explored in the context of policy and curriculum development issues within university-based science shops (Martin and McKenna, 2013). Science shops are one way in which HEIs can organise and formalise their engagement with society and accomplish RRI. Research and teaching both benefit from stakeholder involvement and addressing issues in a real-world context, and knowledge and experiences gained by academic staff, who act as supervisors for science shop projects, can also help to inform institutional development relating to the RRI agenda. Resources relating to how RRI can be embedded in higher education via science shops can be found in the RRI tools set.

## 5.5. Ethics

Ethics in RRI relates to:

- Ethical research conducting and applying fundamental ethical principles and relevant national, EU and international legislation to scientific research. This includes privacy and data protection

[26] http://www.nucleus-project.eu/

[27] http://heirri.eu/about/

[28] http://www.livingknowledge.org/projects/enrrich/

issues and taking special consideration of children, patients and other vulnerable people with regards to informed consent and protection from harm.

- Research integrity to ensure the reliability and independence of the research and preventing misconduct or negligence calling research results into question.
- Societal acceptability: Research should respond to actual societal needs and reflect the basic values of society, as expressed, for example, in the Charter of Fundamental Rights of the European Union[29] and the European Convention on Human Rights[30]. In addition to ensuring increased societal relevance, it also relates to the ethical acceptability of scientific developments. By addressing diversity and inclusion requirements, 'silent voices', i.e. stakeholder groups that are often overlooked, can also be taken into consideration.

Good ethical practice is a way of ensuring high quality results and ethics is given the highest priority in EU-funded research. As demonstrated in the case studies, ethical considerations are taken seriously by science shops. Some science shops have specific ethical frameworks and review processes for their community research projects. For example, in order to deal with the large number of research projects being undertaken at the same time, an ethical review process has been developed by the University of Liverpool specifically for the Liverpool Interchange science shop, involving an initial collective application for the whole programme followed by individual reviews of each project. UTS Shopfront also has a customised umbrella ethics framework, however, due to time constraints relating to course work, projects can only be undertaken if they have a straightforward process for achieving informed consent. The RRI tools set contains a number of guides on ethical principles and practices, including the European Code of Conduct for Research Integrity.[31]

## 5.6. Gender equality

The European Commission is committed to promoting gender equality in research and innovation and gender is a cross-cutting issue in Horizon 2020. Gender equality in RRI is about ensuring gender-balance in teams and decision-making bodies, as well as equal opportunities for men and women (a requirement introduced by the Treaty of Amsterdam in 1997)[32]. Another aspect is taking the gender dimension in research and innovation into consideration to improve the quality and social relevance of the results. If relevant gender issues are poorly addressed, research results could potentially be biased.

For science shops, this means considering the gender balance of research teams, advisory boards and participatory activities, as well as taking the gender dimension into consideration in the research projects that are undertaken. The RRI tools set contains resources and guidance on how to put gender equality into practice in research.

## 5.7. Open access

Over the past few years, there has been a global movement towards making research findings available free of charge and openly accessible to the whole of society. Open access is also a core strategy of the

[29] https://ec.europa.eu/info/aid-development-cooperation-fundamental-rights/your-rights-eu_en

[30] European Court of Human Rights: www.echr.coe.int/Documents/Convention_ENG.pdf

[31] ALLEA (2017): http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf

[32] European Communities (1997): www.europarl.europa.eu/topics/treaty/pdf/amst-en.pdf

European Commission, aimed at giving citizens access to scientific knowledge, as well as improving and facilitating future research both within and outside of academia. A range of guidelines and standards for open access to research results now exist at national, European and international levels. There are also a plethora of open access journals, which provide free access to research findings for everyone in contrast to traditional subscription-based, closed journals. Open access and open science principles are fundamental to the science shop approach as it aims to make scientific research, data and dissemination accessible to all parts of society. The case studies show that the majority of science shops/CBPR organisations support open access policies and have agreements in place with community organisations, which stipulate that the research findings will be published with open access. Some science shops, such as UTS Shopfront, also run their own open access journal.

## 5.8. Monitoring and evaluation

As described in section 5.1, conducting responsible research and innovation involves being reflective, responsive and adaptive to change. Monitoring and evaluation is important for assessing whether you have achieved your intended outcomes, for highlighting areas for improvement and for identifying issues that need to be addressed during the process. In RRI, reflection and evaluation is ideally performed as an iterative process throughout the research process, in dialogue with relevant stakeholders, in which changes are made in response to new knowledge and perspectives.

As illustrated in the case studies, many community-based participatory research organisations undertake evaluation of some kind, although there are some (particularly those that rely on volunteers) that just do not have the resources to evaluate their work. Many evaluate specific activities, such as workshops, events or training, which they undertake through the use of participant questionnaires. Some (such as UTS Shopfront, Australia and Liverpool Interchange, UK), evaluate the research process themselves, for example, the quality of the collaboration between the science shop and CSOs and the satisfaction of the CSOs with the research outputs. Insights and lessons gained from questionnaires and feedback with all participants can be used to improve and further develop programmes. The Living Lab for Health also evaluates the learning process and skills gained by those involved in the research projects to demonstrate impact. Some science shops (e.g. Liverpool Interchange, UK and UTS Shopfront, Australia) also have formal quality monitoring procedures in place to enable any issues to be quickly identified and resolved throughout the process. Research projects undertaken by science shops as part of EU-funded projects are further subject to European Commission evaluation and monitoring requirements.

Success is viewed in different ways by science shops. In addition to the evaluation mentioned above, this may include whether the outcome of a project is used by the organisation (e.g. UTS Shopfront, Australia), whether the collaboration leads to new projects (e.g. Bonn Science Shop, Germany) or simply whether the project is completed successfully by the researcher (InterMEDIU, Romania).

Longer-term impact is generally much more difficult to measure and restricted by time and money limitations. In the case studies, science shops report that longer-term impact is often based on anecdotal evidence obtained through on-going relationships with CSOs. For example, whether the research findings have contributed to changes to public policy, law reform or the development of new community services and initiatives. Most outcome/impact evaluation is generally conducted upon completion of the project and is therefore limited to what has been achieved during the project, rather than afterwards.

Two other types of evaluation conducted by community-based research organisations identified in the case studies include an *evaluation of economic impact* (by the Ibercivis Foundation) and a *social return on investment evaluation* (by Liverpool Interchange). Both were relatively complicated to conduct, resource-intensive and carried out with the help of external support.

The RRI tools set contains a number of resources that can be used to evaluate science shops including a toolkit[33] developed by the EU PERARES project that provides a checklist and survey forms to assess the performance of science shop projects at various stages of the project process. The toolkit includes suggestions for post-project evaluation conducted a year after delivery of project outputs in order to assess longer-term impact of the outcomes. A further aspect of Monitoring and Evaluation relates to a science shop's own RRI practices. Here, the EU RRI Tools project's RRI self-assessment tool[34] and European Commission's RRI indicators[35] can be particularly valuable.

## 5.9. Communication of results

In the RRI spirit of *openness* and *transparency*, it is important that research results are disseminated widely. As illustrated in the case studies, many science shops undertake a range of communication activities. In addition to making research available through *open access* (see 5.7), communication of results can include media relations, social media, targeted communication to policy makers, as well as public engagement and science communication activities designed to engage the wider public in a two-way dialogue about societal issues. Many science shops also ensure that research reports are written in an accessible way that is appropriate for the intended audience, or that summaries are published in plain and simple language so that non-academic audiences can understand and use them (such as UTS Shopfront). The RRI tools set includes resources that contain advice on developing strategies to communicate science and research findings to different stakeholders.

[33] http://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Library/Project_reports/PERARES_Evaluation_toolkit_with_checklist_and_evaluation_form_2012.pdf
[34] https://www.rri-tools.eu/self-reflection-tool
[35] http://ec.europa.eu/research/swafs/pdf/pub_rri/rri_indicators_final_version.pdf

# 6 RRI tools set

The set of RRI tools of relevance to science shops is found below. The main starting point and core source of tools has been the RRI Toolkit[36], developed as part of the EU RRI Tools FP7-project (2014-2016), which contains a diverse collection of tools, documents, inspiring practices and reports. Wherever possible, links have been provided to entries in the RRI Toolkit, which contain direct links to the relevant resources. Additional sources of tools are other EU-funded RRI-related projects, a literature search undertaken as part of SciShop's WP2 task 2.1 (Kontic and Kontic 2018), and the case study interviews, in which organisations were asked about their RRI practices.

The tools set is by no means exhaustive. The intention is to convert the tools set into a web-based resource on the SciShops.eu website, and subsequently the SciShops web platform, once developed, allowing it to evolve over time as further resources become available and identified.

**Introduction to RRI (Responsible Research and Innovation)**

| **… to understand what RRI is all about** |
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| The **RRI Tools website** https://www.rri-tools.eu/ is the main resource for RRI. It contains an **introduction to the concept of RRI** https://www.rri-tools.eu/about-rri including a short video on RRI in a nutshell, *why RRI?*, insights from experts and explains what you do when you do RRI. |
| The four-page **RRI Tools project briefing sheet** https://www.rri-tools.eu/-/rri-tools-project-briefing-sheet also outlines the different components of RRI and why RRI is important. |
| The two-page document **Responsible Research and Innovation: Europe´s ability to respond to societal challenges** (Gheogegan-Quinn, 2012) https://ec.europa.eu/research/swafs/pdf/pub_rri/KI0214595ENC.pdf provides a brief introduction to the European Commission's RRI agenda and framework, including the six RRI dimensions (Public Engagement, Gender Equality, Science Education, Ethics, Open access/open science, Governance). |
| Two **RRI training modules** on Explaining the RRI concept and Why is RRI important? https://www.rri-tools.eu/training/resources with guidance on how to use them. |
| Ecsite's **Responsible Research and Innovation: A quick start guide for science engagement organisations** https://www.rri-tools.eu/-/quick-start-guide-in-rri-for-science-engagement-organisations is a useful guide to RRI, why, what and how, including inspiring examples of RRI. |
| **How the science shop model contributes to RRI** https://www.euroscientist.com/how-the-science-shop-model-contributes-to-rri/ is an article by Norbert Steinhaus (2014) describing this. |

[36] www.rri-tools.eu

**RRI tools for conducting Community-Based Participatory Research**

| **… to carry out community-based research** |
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| **The Living Knowledge toolbox** https://www.rri-tools.eu/-/science_shop_tools contains resources on science shop procedures, processes and guidelines and designed to help science shops and people working in community-based research to develop professional standards and improve their practices. Living Knowledge http://www.livingknowledge.org/ is an international network for those active in science shops and community-based research. |
| **How to co-create community-based participatory research** https://www.rri-tools.eu/how-to-stk-csos-co-create-community-based-participatory-research<br>provides an introduction to RRI in relation to community-based participatory research with links to examples of projects as well as resources and toolkits. |
| **Community-based participatory research**<br>http://actioncatalogue.eu/method/7421<br>provides an overview of community-based participatory research with links to examples. |
| **The community-based participatory toolkit** (Foundation for Sustainable Development (2017))<br>**https://www.fsd.org/wp-content/uploads/2017/05/Research-Toolkit.pdf,**<br>provides guidelines on how to create research proposals, develop research plans and project designs, and carry out the full scope of a research project. Produced by the Foundation for Sustainable Development. |
| The **Community-Campus Partnerships for Health's (CCPH) toolkits and databases**<br>https://www.rri-tools.eu/-/community_campus_tools includes a number of tools and databases that help advance community-academic partnerships and address common barriers and challenges. |
| **Participatory Action Research toolkit: An introduction to using PAR as an approach to learning, research and action** (Pain, Whitman and Trust)<br>https://www.dur.ac.uk/resources/beacon/PARtoolkit.pdf is a toolkit produced by Durham University to provide guidance on what a PAR project commonly looks like, how to work together and some questions to ask as you go. PAR is an *approach* to research. It is a set of principles and practices for originating, designing, conducting, analysing and acting on a piece of research. |
| **Community research toolbox**<br>http://www.healthycity.org/cbpar-toolbox/ is a toolbox containing research concepts, methods, and tools through topical guides and toolkits such as Community Research, Participatory Asset mapping and a short guide to Community-Based Participatory Research. Produced by Advancement Project California. |
| **… to identify and define problems together with local stakeholders using participatory engagement techniques** |
| **How to set up a participatory research agenda**<br>https://www.rri-tools.eu/how-to-pa-public-engagement#menu-anchor-id2-content provides an overview and links to examples of initiatives that have used participatory methodologies to define research agendas. |
| **The Engage Action Catalogue of engagement** http://actioncatalogue.eu/ is a compendium of engagement methods and tools to help those wanting to conduct inclusive research.<br>Examples of participatory methodologies that are particularly of relevance to science shops to use during the project definition stage are:<br>**Charrette** (to generate consensus among diverse groups of people and form an action plan).<br>http://actioncatalogue.eu/method/7420<br>**Deliberative Polling®,** (a multiple iteration survey method that enables anonymous, systematic refinement of expert opinion with the aim of arriving at a combined or consensual position)<br>http://actioncatalogue.eu/method/7399 |

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| **The World Café** (a method for generating and sharing ideas by engaging groups, both within organisations and in the public sphere) http://actioncatalogue.eu/method/7402<br>**Participatory Design** (Co-design and practice-based research that can be done together with citizens concerned about a certain issue e.g. the environment) http://actioncatalogue.eu/met<br>**Intake Question** (the Intake (a structured conversation) of a Question from a CSO transfers it into a research question) http://actioncatalogue.eu/method/7423<br>**Future workshop** (a method for planning and forming a vision of the future in a specific geographical area. Can be used to define aims and identify problems by local stakeholders) http://actioncatalogue.eu/method/7391<br>**Focus groups** http://actioncatalogue.eu/method/7425 (a qualitative method that is used to determine the preferences of people or to evaluate strategies and concepts). http://actioncatalogue.eu/method/7409<br>**Needs Surveys among CSOs** (e.g. a survey could be sent to all CSOs/NGOs in a region) |
| **Guide to organizing scenario workshops to develop partnerships between researchers and civil society organisations** https://www.rri-tools.eu/-/guide_workshops_tools<br>produced by the EU PERARES project (2013). The guide describes how to plan, organise, run and report scenario workshops as a way to co-construct strategies and research plans, using and adapting scenario workshop methods developed in previous EU science shop consortium projects. |
| **Handbook for participatory activities**<br>http://www.ecsite.eu/activities-and-services/projects/sparks produced by the EU Sparks project contains guidelines on how to run innovative participatory activities with examples of RRI in action, including Science Espressos, Reverse Science Cafés, Pop-Up Science Shops, Scenario and Incubation Workshops. |
| **Open science cafés manual** https://www.fosteropenscience.eu/node/2074 produced by the EU FOSTER project (2017) for facilitating roundtable discussions between different stakeholders. |
| **The co-creation menu**<br>http://www.orion-openscience.eu/activities/co-creation/201711/menu-co-creation-tools is produced by the EU ORION project (2017) contains 31 methods to engage different audiences with science research using bidirectional participation. The menu builds on Engage2020's Action Catalogue (see above). |
| **Participation compass** https://www.rri-tools.eu/-/participation_compass_tools is a practical tool for people who are directly involved in planning, running or commissioning participation activities. It contains information, advice and case studies. Produced in 2005 by Involve, a UK think tank and charity. |
| **Participatory methods toolkit – a practitioners' manual** (Vlaams Instituut voor Wetenschappelijk en Technologisch Aspectenonderzoek (2005))<br>https://www.kbs-frb.be/en/Virtual-Library/2006/294864 is a hands-on toolkit for starting up and managing participatory projects with an overview of over 50 methods and 13 in depth descriptions of participatory techniques. Produced by the King Baudouin Foundation and the Flemish Institute for Science and Technology Assessment (viWTA), both based in Brussels. |
| **… to run a citizen science project** |
| The Engage catalogue contains an **overview on citizen science**<br>http://actioncatalogue.eu/method/7431 and examples of projects. |
| **A blog on How responsible is citizen science?**<br>https://ecsa.citizen-science.net/blog/how-responsible-citizen-science explains how adopting citizen science methodologies can help align research with RRI principles. |
| **A collection of citizen science guidelines and publications**<br>http://ecsa.citizen-science.net/blog/collection-citizen-science-guidelines-and-publications<br>produced by the "Doing It Together Science" (DITOs) project signposts guidelines and scientific publications on citizen science, particularly highlighting their relevance to aspects of RRI. |
| **Citizen science for all - A guide for citizen science practitioners**<br>https://www.rri-tools.eu/-/citizen-science-for-all-a-guide-for-citizen-science-practitione-1 |

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| contains many practical hints, including a checklist. Published by the GEWISS Programme, Germany. |
| **Citizen science toolkit** (Cornell Laboratory of Ornithology (2015)) https://www.rri-tools.eu/-/citizen_science_tools is a compilation of resources and ideas for the development of citizen science projects produced by the Cornell Lab of Ornithology. |
| **Citizen science at universities: trends, guidelines and recommendations** http://www.leru.org/index.php/public/news/citizen-science-at-universities-trends-guidelines-and-recommendations/ includes guidelines for scientists engaging in citizen science, recommendations for institutions and examples of citizen science initiatives. The report is produced by the League of European Research Universities. |

**RRI tools for science shops linked to higher education institutions**

| **… to develop policy and strategy to support RRI and science shops in HEIs** |
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| **How to incorporate RRI in higher education institutions** https://www.rri-tools.eu/how-to-stk-pm-incorporate-rri-in-higher-education-institutions provides an overview of how RRI can be embedded into HE institutions with links to further resources. |
| **Sustainability for science shops. A practical guide to developing policy and strategy** https://www.rri-tools.eu/-/sustainability_tools is a practical handbook produced by the EU PERARES project for Science Shops linked to higher education institutions. It will help users develop policies and strategies supporting the sustainability of such Science Shops by linking to HEI policy priorities and ensuring that policymakers such as funders, political representatives and senior university managers understand and appreciate how Science Shops can help them deliver on their own relevant priorities.<br>Also, see the PERARES **Handbook of models of community engagement strategies in higher education institutions: policy and curriculum development** http://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Library/Project_reports/PERARES_Handbook_of_Models_of_Community_Engagement_Strategies_in_Higher_Education_Institutions_-_Policy_and_Curriculum_Development_D.7.1_2013.pdf (2013). |
| **The EDGE Tool for institutional reflection on public engagement** http://www.publicengagement.ac.uk/support-it/self-assessment/edge-tool is a self-assessment questionnaire for universities to help them evaluate their current support for public engagement and identify where they might most effectively target their culture change efforts. Produced by the UK National Coordinating Centre for Public Engagement (NCCPE), the EDGE Tool aims to trigger discussion and reflection regarding public engagement at the institutional, department, or faculty level. |
| **… to implement RRI in academic curricula** |
| **Summary report on policy for rewarding responsible research and innovation through academic curricula in higher education** (McKenna (2016)) http://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Dokumente_Dateien/EnRRICH/Deliverable_5.1_final.pdf by the EU EnRRICH project on how people working in higher education might, at a policy level, be encouraged to implement Responsible Research and Innovation (RRI) in their curricula through science shops. |
| **Resources for enhancing RRI understanding and prompting debate on societal issues in the curriculum for early stage students Hally (**O'Mahony and Burns (2017)) http://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Dokumente_Dateien/EnRRICH/D3.1_Resources_for_enhancing_RRI_understanding_and_prompting_debate_on_societal_issues_in_the_curriculum_for_early_stage_students.pdf is a 2017 report by the EU EnRRICH project containing case studies to help students reflexively engage |

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| with RRI, and on how research and practice within their discipline could incorporate openness and transparency, anticipation and reflection with the research design and innovations processes. |

**RRI tools relating to Ethics**

| **… to promote research integrity** |
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| The RRI Tools project guide on **How to promote research integrity** https://www.rri-tools.eu/how-to-pa-ethics#menu-anchor-id1-content contains links to further information and best practice examples. |
| **The European Code of Conduct for Research Integrity** http://ec.europa.eu/research/participants/data/ref/h2020/other/hi/h2020-ethics_code-of-conduct_en.pdf, is a Europe-wide code of conduct to guide researchers in their work as well as in their engagement with the practical, ethical and intellectual challenges inherent in research. The code complements existing codes of ethics and complies with national and European legislative frameworks. It is not intended to replace existing national or academic guidelines, but represents agreement across 30 countries on a set of principles and priorities for self-regulation of the research community. An updated 2017 version takes into account of developments in Open Science, including the growing importance of data quality and management. |
| **… to learn about ethical issues in community-based research** |
| **Community-based participatory research - A guide to ethical principles and practice** Centre for Social Justice and Community Action (Durham University (2012)) https://www.dur.ac.uk/resources/beacon/CBPREthicsGuidewebNovember20121.pdf is produced by the Centre for Social Justice and Community Action at Durham University and the UK National Coordinating Centre for Public Engagement. |
| The **European textbook on ethics in research** (European Commission (2010)) https://ec.europa.eu/research/swafs/pdf/pub_governance/textbook-on-ethics-report_en.pdf#view=fit&pagemode=none is designed for use in the training of science students, researchers and research ethics committee members throughout Europe and beyond. |

**RRI tools relating to Gender Equality**

| **… to understand gender equality in RRI** |
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| **Gender equality in RRI terms?** https://www.rri-tools.eu/gender-equality is an introduction to gender equality in RRI with links to further resources and guidance on how to put gender equality into practice including How to promote gender balance in decision making and How to ensure gender balance in R&I teams. |
| **… to learn how to take the gender dimension into consideration in a research project** |
| **Gender in EU-funded research toolkit** http://www.yellowwindow.be/genderinresearch/downloads/YW2009_GenderToolKit_Module1.pdf produced by the European Commission is a practical toolkit providing an overview of how the gender dimension can be integrated into a research project. It includes a checklist for gender in research. Also, contains real-life examples in nine specific research fields on how planned research can be made gender sensitive. |

**RRI tools relating to Open Access**

| … to understand what open access in RRI means |
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| **What does Open Access in RRI mean?** https://www.rri-tools.eu/open-access is an introduction to open access in RRI with links to resources and guidance on how open access can be practically integrated into research. |
| **… to understand the EC's policy on open science** |
| **Open Innovation, Open Science, Open to the World - a vision for Europe** https://www.rri-tools.eu/-/open-innovation-open-science-open-to-the-world-a-vision-for-europe is a book explaining the EC strategy on Open Science and actions that are already taking place or are being prepared. |
| **… to find out more about relevant open access journals** |
| Three journals of particular relevance to the work of Science Shops and community-based participatory research are:<br><br>**Journal of Science Communication, SISSA Medialab.** https://www.rri-tools.eu/-/journal_science_library_elemt_is an online quarterly open access journal on science communication.<br><br>**Research for All** https://www.rri-tools.eu/-/research-for-all is an open-access peer-reviewed journal focusing on research that involves universities and communities, services or industries working together. With contributors and readers from both inside and outside of higher education. Sponsored by the UCL Institute of Education and the National Co-ordinating Centre for Public Engagement, UK.<br><br>**Gateways: International Journal of Community Research and Engagement** http://epress.lib.uts.edu.au/journals/index.php/ijcre concerned with the practice and processes of community engagement. It is jointly edited and managed by UTS Shopfront at the University of Technology, Sydney, and Center for Urban Research and Learning at Loyola University, Chicago. |

**RRI tools for Monitoring and Evaluation**

| … to assess how RRI are my own practices |
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| The **RRI Tools self-reflection tool** https://www.rri-tools.eu/self-reflection-tool is designed to help organisations and individuals reflect on RRI principles that can improve their research and innovation practices. It will guide your reflection by providing questions organised according to the RRI Policy Agendas: Ethics, Gender Equality, Governance, Open Access, Public Engagement and Science Education and will help you consider all relevant stakeholder groups. |
| **Indicators for promoting and monitoring responsible research and evaluation** (European Commission (2015)) http://ec.europa.eu/research/swafs/pdf/pub_rri/rri_indicators_final_version.pdf is a 2015 report from the EC's Expert Group on Policy Indicators for RRI describing a set of indicators that can be tailored to your needs based on the RRI areas (Governance, Public engagement, Gender equality, Science education, Open access/open science, Ethics, Sustainability, Social justice/inclusion). |
| **… to evaluate a science shop project** |
| The **Evaluating a science shop project** toolkit http://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Library/Project_reports/PERARES_Evaluation_toolkit_with_checklist_and_evaluation_form_2012.pdf by the PERARES project (2012) is designed to help in assessing the performance of projects focused on research for social purposes and improving their quality and to help in |

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| assessing the influences of such projects on the development of scientific knowledge. It contains checklist and survey forms to evaluate four stages of project process. |
| **A cost-benefit analysis and evaluation of science shops** **(**Boere and Heijman (2011)) http://www.livingknowledge.org/fileadmin/Dateien-Living-Knowledge/Dokumente_Dateien/PERARES_M9.3_A_Cost-Benefit_Analysis_and_Evaluation_of_Science_Shops.pdf produced as part of the PERARES project in 2011 describes how the economic evaluation of science shops can be assessed with the help of a Cost-Benefit Analysis (CBA). |
| **… to evaluate a public engagement activity** |
| **Evaluation: practical guidelines. A guide for evaluating public engagement activities** (Research Council UK, 2011) https://www.rri-tools.eu/-/evaluation_practical_tools for research performing organisations and researchers seeking to engage general audiences with their subject to evaluate public engagement activities, regardless of prior experience of either public engagement or evaluation and regardless of discipline. Contains guidance on how to build an evaluation strategy, data collection, data analysis and drafting reports. Produced by the UK National Coordinating Centre for Public Engagement (NCCPE), Department for Business, Innovation and Skills (BIS), and Research Councils UK. |
| **… to evaluate a citizen science project** |
| **User's guide for evaluating learning outcomes from citizen science** (Philipps, T. and Ferguson, M (2014)) https://www.rri-tools.eu/-/users_guide_tools is designed for use by citizen science practitioners who want to evaluate project outcomes with techniques, tips and best practices for conducting evaluations and well as templates to help with evaluation planning and implementation. Produced by Citizen Science Central and Cornell Lab of Ornithology. |

| **RRI tools for Communication of Results** |
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| **… to communicate research findings to different stakeholders** |
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| The **DESIRE Reach Out toolkit** (Desire Project, 2013) https://www.rri-tools.eu/-/desire_tools can be used for planning and implementing dissemination activities of science education projects. Includes advice on what content or information should be disseminated to different stakeholders, including policy makers. |
| **Public engagement - a practical guide** http://senseaboutscience.org/activities/public-engagement-guide/ is a five-step approach for researchers on how to involve the public in deciding how to research is communicated - from the earliest stages of projects, and on the most challenging of subjects. Produced by the independent UK campaigning charity Sense about Science. |
| **The Impact Toolkit** http://www.esrc.ac.uk/research/impact-toolkit/ produced by the Economic and Social Research Council contains resources to help researchers generate impact, including tools and tips for communicating research effectively. Topics include developing a communications and impact strategy, media relations, influencing policy makers, social media best practice and public engagement guidance. |
| **The EU guide to science communication** **https://www.youtube.com/playlist?list=PLvpwIjZTs-Lhe0wu6uy8gr7JFfmv8EZuH** is a digital resource consisting of short video clips and case studies on how to engage in communicating science and research to wider audiences. |
| **Science communication toolbox** https://scicommtoolbox.se/ containing inspiration and suggestions of science communication activities. Produced by the Swedish non-profit organisation VA (Public & Science) in collaboration with the Swedish Research Council. |

# 7 Final conclusions

The fifteen case studies in this report represent a broad range of different models of community-based participatory research. Each has been established based on the organisation's own strengths, networks and resources. Sustainability remains the greatest challenge facing science shops, mainly due to funding insecurity and changing circumstances. Science shops need to be prepared to adapt and find new funding sources and partners, if required. The case studies demonstrate a wide range of research interests, business models, regions and practices that reflect the variety of work undertaken by science shops in Europe and beyond. They have explicitly been chosen to offer readers a broad perspective of how science shops can operate. The key learning from this is that there is no single model a science shop has to use in order to operate successfully but there is a wide range of possible directions to go.

By investigating the current RRI practices of science shops as well as the diverse range of RRI resources and tools available, it is also clear that there are opportunities for science shops to embrace more RRI methodologies and practices to make their community-based participatory research even more participatory and responsible. Particularly, in terms of the stakeholders that they engage and their level of engagement throughout the research process. Opportunities also exist for science shops to incorporate citizen science methodologies into their work.

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# 9 Appendix

## Interview guide

The aim of the interviews is to collect good practices and challenges of existing science shops, which will be used to write case studies and guides (scenarios, roadmaps, etc.) for establishing new science shops. The list of questions is not a strict questionnaire but a guide and a checklist that has to be tailored for each case study. The interviewer can skip some questions, if they were already covered in other parts of the interview, or modify the course of the interview slightly, depending on the situation.

**Structure of the interview:**

- History of the science shop
- Relationship with mother organisation
- Business model
- Other stakeholders
- Relationship with clients
- Implementation of the projects
- Responsible research and innovation
- Reflection on success factors
- Final questions

**History:**

*Note*: Some questions might be not asked talking to well-established shops, since the people that work there now might not have that information (about the first project, the obstacles in the process of starting it). Please take into account the context.

- What is the history of your science shop: when did it start, who had the idea to start it/where did it come from? What was the process of establishing the shop?
- What were the problems/obstacles/challenges that you had to solve when starting the science shop?
- *If not yet mentioned*: Was there a feasibility study/needs analysis/other research done before starting the shop?
- How did you get your first request/project?
- Do you consider yourself a strong and established science shop, or still a young science shop?
- What support or encouragement did you receive when starting the shop, from where? Did you have or still have mentors that help you?

*Not to ask if we already know*: What organisation do you belong to, or is your science shop independent?

**Relationship with the [mother organisation]:**

- What is its place in the organisational structure?
- Do you get funding from the [mother organisation]? What persons/activities does it cover?
- Do you use other resources from the [mother organisation] (rooms, computers, paper, communication channels, etc.).
- What is the attitude of the [mother organisation] towards the science shop: do you get support? E.g. if it's university, does it encourage researchers/teachers to participate? Do

students get bonus for participating? Does the administration/management provide support in solving problems? Etc.

**Business model:**

- What is the structure of your science shop: how big is it and how is it managed?
- *If not yet mentioned*: Does your science shop have an advisory board? If yes, who is part of it? What are the benefits of having an advisory board?
- How is it funded? Who are the funders/donors? What persons/activities does the funding cover? *If it was mentioned that it gets funding from mother organisation*: Do you have other sources of funding?
- Did you try to look for funding?
- Do your clients sometimes cover part of the research costs?
- Are the science shop manager(s)/coordinator(s) positions payed? Where does the salary come from? Is it full time? *If there is no salary and the position is part time*: what is the motivation to do it?
- Is funding a challenging factor for the sustainability of your science shop?
- *If not yet clear*: Does your science shop have a dedicated physical place, e.g. a separate room? If yes: how do you think, is it important to have this space?

**Other stakeholders:**

- What are other stakeholders/organisations that you involve?
- How much do you involve them in the process and in what stages?
- How do you take into consideration their needs, concerns and perspectives?
- Do you have any relationship with local authorities, what kind of?

**Relationship with clients:**

- Who, what kind of organisations are your clients?
- *If not yet mentioned*: do you also work with companies?
- How do you get/collect research requests?
- Do you translate all the questions you received from the community into research questions?
- Are there any barriers to involving certain types of community organisations? How do you try to overcome them?
- How do you communicate about your science shop to potential clients? Do you undertake other general communication activities, e.g. in the local or national media?
- *If there are problems getting research requests*: why?
- What is the process of working with the client: how much is the client involved in formulating the research question? How much involvement is in implementing the research, e.g. getting contacts, gathering data, analysing data, formulating conclusions and recommendations?
- How much time does it usually take until you have a formulated research question?
- Do you have cases of involving citizens into gathering data? (*Citizen science*)
- Do you use any kind of participatory methodologies in your projects, e.g. scenario building, expert panels?

**Implementation of the projects:**

- What research/science fields do you cover in the projects?
- Could you give us some examples of the types of projects you undertake and methodologies you use (e.g. feasibility studies, social research that results in a report)
- Do you work as intermediaries between clients and researchers? Or do your staff implement the research/are involved?
- Who implements the research? (*Researchers, students, intern students?*)
- In your opinion, what is the motivation of researchers and students to take part? Do you have problems with their motivation? How do you try to motivate them?
- Can you tell about the most successful project you had? Why do you consider it the most successful (*e.g. impact, satisfaction of the client, etc.*)? Why it was successful in terms of implementation (*e.g. good client involvement, strong researchers, etc.*)
- Can you tell about the most struggling project you had? Why was it challenging? What were the problems?
- Do you assess the quality of the projects? If yes, how?
- Do you evaluate the satisfaction of the client? If yes, how?

**Responsible research and innovation (RRI):**

1) Are you aware of the concept of RRI (responsible research and innovation)?

*If yes,* in what ways does your organisation actively demonstrate RRI practices and promote RRI? *They may refer to aspects such as ethics, gender, open science, public engagement, or ways in which they do research e.g. participatory methodologies, how they involve different societal stakeholders throughout the process, transdisciplinary approach*.

*2) If no*, RRI is an open and participatory way of doing research in which the needs of different stakeholders (including end users) are taken into consideration. The Science Shops model is a form of RRI in itself. In what ways would you say your research process is open, inclusive or participatory? Do you particularly take ethics, gender, open access into account, for example?

*More detailed questions if required:*

- Ethics - e.g. how do you take care of research ethics in your projects, are there ethical frameworks for research, how do you ensure research integrity?
- Is gender equality addressed in your practices - e.g. do you try to build gender-balanced teams, do you consider sex and gender in methodology, data, dissemination activities?
- Open Access / Open science - do you have open access policies? which parts of your work are open access? how do you handle the collected research data, who can use the results (strict rules or open access), how do you make research results available?
- Public engagement - do you conduct outreach/public engagement activities, how do you communicate with different stakeholders, how do you disseminate research results to the wider public, is the research report made public?
- Science education - are there any science education (formal or informal) elements to your activities?

**Impact:**

- In your opinion, what impact do your projects have? On what levels? (*e.g. local, societal change*)

- Do you evaluate the impact of the projects? If yes, how? If no, do you follow/come back later to the client to find out, how the results of the study were used, if they made any change?
- Do you conduct knowledge transfer activities to encourage the use of research results in policy and practice?

**Reflection on success factors:**

*These questions are intended to make the respondent to think more deeply about the success factors of the science shop. In our experience, when asked such questions, respondents sometimes provide more comprehensive and insightful answers. But, if there is no time left and the questions were pretty well covered before, they might be skipped.*

- Perhaps we have discussed it already, but we would like to ask you to reflect again and to summarise success factors and challenges of your science shop. In your opinion, what are the critical factors that influenced the success of your science shop? *If not yet clear from the whole interview, we can ask about success factors relating to different aspects*: in terms of finding research requests; project implementation; impact.
- *If the respondents talk more about internal factors, we should also ask about external factors, and vice versa:* You talked about internal factors (related with running the science shop), could you also comment about external factors?
- What are the challenges you face in running the science shop? *If the science shop has suspended activities, not carrying out projects*: in your opinion, what where the critical factors or obstacles for your science shop?
- *Perhaps already mentioned, but we need to emphasise*: What were the challenges in the beginning? What were they later?
- What are the challenges to the sustainability (future) of your science shop? How do you (try to) ensure the sustainability of the science shop? What would help to ensure the future of the science shop?

**Final questions:**

- Thank you a lot for the interview! Are there any reports on your projects that could give us better insights into your activity? Could you send us a link?
- Would you like to be mentioned (your name and position in the science shop) in the publicly available report? (*If wasn't resolved when signing the consent form yet*).

Would you like to be added to the SciShops mailing list? Do you mind if we would contact again on aspects related to other tasks in the SciShops project?