



SciShops

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

D3.6

Knowledge exchange roadmap 1



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Executive summary

SciShops.eu aims at building on and expanding the capacity of the Science Shops ecosystem in Europe and beyond. In the framework of the project, ten new university- and non-university-based Science Shops will be established in Europe by the partners involved. The non-university Science Shops are affiliated to different types of organizations: small and medium enterprises (SME), large enterprises, non-governmental, non-profit organizations and research institutes. One of the aims of the project is to demonstrate the benefits of starting a Science Shop for various types of organizations, as well as to show how civil society gains from collaborating with Science Shops in community-based participatory research.

WP3, which is called 'Engage: Stakeholder Analysis, Involvement, Knowledge Exchange Roadmap' is related with two objectives of the project. First of all, objective 2 which is 'To identify and engage relevant community and research stakeholders through the organization of participatory events' and, secondly, objective 5 'To conceptualize and organize summer schools and knowledge cafés with students and trainers from the same field but from different regions.

More precisely, Task 3.6 aims to elaborate a Scishops.eu Knowledge Exchange Roadmap based on the findings from initial stakeholder involvement process undertaken in the project. In WP3, two previous deliverables are related to this one: Events Roadmap 1 (Task 3.4) and Events Status report 1 (Task 3.5). For this deliverable all insights gained until this point have been used to create a roadmap for further development of the knowledge exchange between science shops and community. In addition, this deliverable includes lessons learned and challenges faced in the second year of the project.

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1 Introduction

In WP3, according to the project work plan, different events are conceptualized and organized in two iterations in order to bring together communities with Science Shops but also to exchange knowledge between experienced and new Science Shops or to receive inputs from research organizations. Participatory methodologies are crucial in Science Shops in order to interact with the different stakeholders, define the problem/need and the viability of the research process and work together in order to find a solution. The typology of events being organised in this project is the following: summer schools, co-creation events, and knowledge cafés. Different typologies of these events (e.g. with different duration, purpose or stakeholder involvement, etc.) have been carried out during the framework of the project. Furthermore, these participatory methodologies will not be the only ones used in the framework of the project; other methodologies have also been used in order to engage the community, to identify needs/issues or to promote dialogue with stakeholders. The aim of this deliverable is to provide a roadmap for Science Shops on the development of knowledge exchange between Science Shops and the community.

In the first part of the deliverable, general considerations of planning knowledge exchange activities between science shops and the community are described. General steps are provided for implementing knowledge exchange activities of Science Shops: Clarify the objectives and examine the context; Determine who should be involved and select the right participants; Selecting the right tools; Plan the timeline and implement participation activities.

In the second part of the deliverable, the activities linked to the SciShops framework, which were held during the first half of the project, are detailed. This deliverable includes a brief description of the events that have already taken place in the framework of the project (more details are available at Zübert 2018a and 2018b). This also offers information about the objectives defined in the project and the most suitable methodologies, as well as the audiences for these types of knowledge exchange activities. Information about the different activities is also differentiated by purpose and methodology. Then, based on collected insights from these events, guidelines with recommendations on how best to organize these different types of events are presented. This includes advice about the objectives, participants, methodology, organization, communication, and evaluation, all based on the lessons learned during the project.

The activities have been mapped against to reach 3 main objectives of the project: 1) To identify issues/needs suitable for further investigation using CBPR; 2) To define problems together with local stakeholders and gain more detailed insights into a problem; 3) To share knowledge about how to establish and run a Science Shop. In addition, according to the activities developed in the framework of the project, a fourth objective has been included: to solve challenges with quick or preliminary results or recommendations for further steps. Objectives 1 and 2 focus on co-creation events and knowledge cafés; the third objective on summer schools, training, workshop and twinning (exchange of staff) and the fourth objective on co-creation events.

This project deliverable aims not only to map the different activities carried out during the first half of the project (September 2017 - December 2018) against the main objectives but also to identify the key learnings so that they can be used to inform and improve the second round of events to be held during the second half of the project (January 2019 - February 2020). The information gathered during this process will be of future benefit not only to SciShops partners but also to both new and established

Science Shops interesting in carrying out these types of activities, and will help to inform them which activities are suitable for their objectives or how to improve their future activities. Indirectly, all the participants of the different activities will also benefit from attending well-organized events that meet the proposed objectives. A second iteration of this document will be produced at the end of the project, further defined by events held in the second half of the project.

2 Events roadmap

2.1. General considerations when planning knowledge exchange activities between Science Shops and the community

Stakeholder involvement is one of the essential components of Science Shops. The planning and implementation of Science Shop projects should as a minimum involve community organisations that are the main providers of research requests, but might also involve other stakeholders (e.g. other research institutions, government agencies and non-governmental organisations) and the general public. Their participation is important to increase the Science Shop's impact, e.g. by collecting more relevant research requests; by involving relevant stakeholders who might influence the exploitation of the project's results; by collecting more diverse ideas and views on the issues the Science Shop is addressing; or by involving members of civic society whose knowledge, attitudes or habits are important for a wider impact on society.

This section presents important steps and general considerations for planning and implementing knowledge exchange activities conducted by a Science Shop¹. In further sections these will be exemplified and supplemented by insights from events organised within the SciShops project.

Step 1. Clarify the objectives and examine the context. The first thing to do when starting a knowledge exchange activity is to consider the goals, objectives and the desired impact, or outcomes of the activity. Through defining the goal, it should become clear why the involvement is needed and who should be involved. This step is vitally important and must be done carefully, as it will determine the selection of methods of involvement, types of participants, guide all involvement activities, and define criteria for evaluation.

At this stage, it is also necessary to analyse the context in which the initiative will occur. This will provide better understanding of what can be reasonably achieved and, therefore, influence the definition of the goals of participation, as well as further steps. The context is both internal and external to the institutional context. The internal context includes the internal conditions of the institution organising the event, the geographical scope of its operation, the time frame available, the availability of funding and required expertise, and possibly other considerations. The external context includes the social, cultural, political situation and environment, e.g. the opinion or controversies surrounding the topic of the event in the society, the culture of participation in the country, etc.

Step 2. Determine who should be involved and select participants. The aims and objectives of engagement should determine who should be involved and what are the roles of the involved groups. Most of the events will include relevant stakeholders from civil society, research institutions, government institutions, and other experts. Members of the civic society can also be involved as participants in discussions (e.g. in World Café activities) to provide a fresh view on the issues being discussed.

¹ This section is based on D4.2 "Practitioner roadmap and methodology toolkit" of SciShops project, which can be assessed for more details and links to additional resources (Russo et al. 2018). The two most important sources that were used to prepare the respective section of that deliverable were "Toolkit on public engagement with science", prepared by European Union's FP7 project PE2020 (<https://toolkit.pe2020.eu/>), and "Participatory Methods Toolkit. A practitioner's manual" (2003) by Niki Slocum, prepared for King Baudouin Foundation & Flemish Institute for Science and Technology Assessment.

The definition of who should be involved also has to take into account the geographical scope. On the one hand, the activity could strive for maximum inclusion in the geographical sense, as this can affect the diversity of opinions and understandings. On the other hand, the planning of this aspect should take into consideration budgetary and logistical challenges, as well as the cultural context in the case of a large country. Online engagement activities (e.g. video conferences, online workshops, focus groups, etc.) can help to overcome physical constraints.

After deciding which groups will be involved in the engagement activity, participants should be selected and recruited. The selection of participants might follow different strategies that, again, depend on the aims of engagement and the context, e.g. random, purposive, or open methods of selection.

Step 3. Select the right tools. The next step is the selection of participation methods, or tools of engagement. There are many tools and approaches, ranging from conventional social science methods such as qualitative interviews and focus groups, to more specific tools such as scenario workshop or citizen panels. For example, the Action Catalogue (for more information see: <http://actioncatalogue.eu/>) includes 57 methods focusing on research driven by involvement and inclusion. Some are used more widely than others. Some of the tools have different names but differ only in marginal aspects. Better known and more often used methods are focus groups, world cafés, science cafés, and co-creation workshops. Some engagement events may take a less structured form of discussion and do not be 'labelled' with a specific methodology, which does not make them any less valuable. However, quality assured forms of engagement are beneficial as they help to ensure that all participants are equally involved and heard.

The decision, which method(s) to employ, must take into account at least the following criteria:

- Objectives: reasons for involvement and expected outcomes;
- Topic, e.g. the nature and scope of the issue;
- Contextual situation, e.g. available time;
- The available resources, e.g. funding and facilitation competencies;
- Nature of participants, e.g. their knowledge of the topic or interest in the issue.

Step 4. Plan the timeline. The planning of engagement activities should identify the phases and timeline of implementation. The phases include necessary steps such as the identification of prospective participants, development of an invitation list, development and distribution of invitations, preparation of guidelines of the event, preparation of written materials (if needed), and others. One must note that although the engagement event itself might take only a couple of hours, it will require much more time for planning and preparation.

Step 5. Implement participation activities. During the implementation phase, the previously designed plan for the engagement activity is put into action: the work to organise the event is performed and the actual event takes place. The implementation phase encompasses several critical aspects that have to be taken care of:

- Guidelines/scenario/programme of the event;
- Invitations to participants;
- Logistics (date and location), materials and supply;
- Accommodation, meals and travel expense reimbursement (if applicable);
- Event promotion and registration (if applicable);
- Facilitation/moderation;
- Evaluation.

Finally, the implementation of participatory activities should include a follow-up phase. As a minimum, follow-up means providing feedback to the participants of the event by telling them how their input is appreciated and letting them know how their input was/will be used. This is important as it helps to create a trustful and valued relationship with participants, who may be invited to participate in future initiatives. It also can provide information about whether the initiative was successful or not.

2.2. Activities linked to SciShops' framework objectives

In contrast to many other knowledge transfer mechanisms, Science Shops have a bottom-up approach and are built on active participation of all societal actors (European Commission, 2003). This fact implies that participatory research methodologies are crucial in order to accomplish the objectives of a Science Shop.

The SciShops project identifies four main objectives related to the participatory research in Science Shops: a) to identify issues suitable for further investigation using community-based participatory research (CBPR): b) to define problems together with local stakeholders and gain more insights into a problem; c) to share knowledge about how to establish and run a Science Shop and d) to solve challenges with quick or preliminary results or recommendations for further steps. Table 1 shows the project objectives in relation to the different activities that have been undertaken to accomplish them and the potential audiences that have been involved in these activities.

| Objectives | Activities | Audiences |
|---|-----------------------------|--|
| 1.1 IDENTIFY issues/needs suitable for further investigation using CBPR | - Co-creation events | - NGOs - Policy-makers - Researchers - Citizens - Industry (SME, LE) |
| | - World café/Knowledge café | - NGOs - Policy-makers - Researchers - Citizens - Industry (SME, LE) |
| 1.2. DEFINE problems together with local stakeholders and gain more detailed insights into a problem | - Co-creation events | - NGOs - Policy-makers - Researchers - Citizens - Industry (SME, LE) |
| | - World café/Knowledge café | - NGOs - Policy-makers - Researchers - Citizens - Industry (SME, LE) |
| 1.3. SHARE knowledge about how to establish and run a Science Shop | - Summer school | - SciShops partners - Staff of existing SS. - Researchers/NGOs/Citizens working with CBPR. |
| | - Training/workshops | - NGOs - Policy-makers - Researchers - Citizens |

| | | |
|--|-------------------------------|--|
| | | <ul style="list-style-type: none"> - Industry (SME, LE) - SciShops partners - Staff of existing SS. |
| | -Twinning (exchange of staff) | <ul style="list-style-type: none"> - NGOs - Policy-makers - Researchers - Citizens - Industry (SME, LE) - SciShops partners - Staff of existing SS. |
| 1.4. SOLVE with quick/preliminary solutions to challenges and recommendations for further steps | - Co-creation event | <ul style="list-style-type: none"> - NGOs - Policy-makers - Researchers - Citizens - Industry (SME, LE) |

Table 1. Activities of the project in relation to the objectives

Within the framework of SciShops project, methodologies have been selected to meet certain identified objectives. Regarding objective **1 IDENTIFY**, in this project knowledge cafés and co-creation events are used to develop research questions based on the different communities' needs and challenges with universities, NGOs, SMEs, research institutes, etc. This objective is crucial for a Science Shop because it allows problems and the viability of the research process to be defined.

Knowledge Cafés or World Cafés are a participatory methodology whereby individuals with similar interests discuss a certain problem/topic with others in separate groups and then all come together for a broader discussion about the issue. Often the topic is introduced by an expert in the topic, who gives a short presentation that is designed to inform as well as to stimulate further discussion. A moderator facilitates the discussion and the sharing of a wide range of views on a determined topic. This enables a conversation with the wide audience and, at the same time, it maintains a personal, intimate level of conversation (Levin-Sagi et al., 2006). Furthermore, this method allows a variety of applications of the method such as policy formulation, programme development, project definition, research activity or others such as political empowerment of people (Action Catalogue, 2018).

Furthermore, co-creation events as participatory method was used in the SciShops project. Ostrom (1996) defines co-creation as a process in which the inputs used (e.g. for producing a good or service) are contributed not only with the individuals from the same organization. In the RICHES project it is defined as follows: 'Co-creation describes joint or partnership-oriented creative approaches between two or more parties, especially between an institution and its stakeholders, towards achieving a desired outcome' (van Westen and Van Dijk, 2015). On that line, co-creation spaces or events are defined a way to facilitate the development of new knowledge and practice both within and across the boundaries of state, market and civil society (Jørgensen, 2018). In addition, it contributes to the empowerment of the participants by creating a 'shadow provision systems, enhanced knowledge resources, and civil society participation in new governance structures' (Jørgensen, 2018). This implies a willingness to engage each participant and incorporate his or her contribution for the benefit of the process. Much of this process have been conducted with consumers or marketers (Ind and Coates, 2013). A co-creation event is a method used to develop research questions based on the community needs and challenges together with the different actors. This ensures and establishes structures of participation between different stakeholders. It is an event in which all participants are involved and

to empower and engage them actively. Different methodologies are arisen (conversation starters, a brainstorm, role-plays, etc.) in order to identify and problem/ needs of the community.

Both methodologies are used in order to identify topics that are of concern to the public and to identify needs that can be transformed into research questions to be addressed in a Science Shop project. The participatory nature of a co-creation event encourages contributions from individuals and new ways of thinking. In addition, this method can be used to gauge the level of interest in an issue and to initiate participation in the research process. The method particularly supports an RRI (Responsible Research and Innovation) approach by being collaborative and inclusive, and involving all societal actors in the research process.

For the objective **2 DEFINE** problems, co-creation events and knowledge cafés are also suitable methodologies. The interaction with the different stakeholders enables, the identification of the problem and the engagement with different stakeholders. In order for the research to be viable and as useful as possible, it is important that the problem is mapped together with the stakeholders and the background, vision and cause-effect relationships are analysed (Mulder and De Bok, 2006). In addition, this objective is important for building alliances and establishing lasting ties with other organisations. Both methodologies allow having different perspectives on the needs/problems to be gathered, as well as a clearer definition of the problem and how it should be tackled.

Regarding objective **3 SHARE**, this can mainly be achieved by summer schools, training/workshops and twinning (exchange of staff). The main aim of the summer school in the SciShop project is to transfer existing knowledge about the successful running of a Science Shop from experienced Science Shop owners and co-ordinators to co-ordinators of new or young Science Shops. The summer schools being run as part of the SciShops project are crucial to support the success of the new Science Shops being set up as part of the project and to create synergies with other projects. Summer schools also allow experiences to be shared between participants and to learn new skills/methodologies and to improve their own Science Shop activity. In other methodologies such as training/workshops or twinning this objective can also be accomplished.

For the objective **4 SOLVE**, this can be achieved by co-creation events which are going beyond the 'identify' stage to 'to solve challenges with quick or preliminary results or recommendations for further steps. This is based on a successful format called "European Study Groups with Industry"-ESGIs (where "industry" means business and society)- almost 150 ESGIs have been organized in Europe by now. This is a new type of co-creation event that science shops could adopt with the aim to get quick answers to pressing challenges posed by society. This goes in line with the Key Performance Indicators (KPI) established in the project, in order to identify and solve challenges.

2.3. Knowledge exchange activities within SciShops project

Table 2 summarizes the events that have been conducted within the framework of the SciShops project during the first 14 months of the project, mapped against the four objectives. There are some events that have achieved more than one objective.

| Round | Event | Objective | Location | Date | Responsible partner |
|-----------|---------------------|---------------------|------------------------|---------------|---------------------|
| 1st round | Co-Creation Event 1 | IDENTIFY/ DEFINE | Vilnius (Lithuania) | 22 March 2018 | SII |

| | | | | | |
|--|--------------------------------------|-----------------------|-----------------------|--------------------|---|
| | Co-Creation Event 2 | IDENTIFY/DEFINE | Wuppertal (Germany) | 26th October 2018 | WUPPERTAL |
| | Co-Creation Event 3 | IDENTIFY/DEFINE | Nicosia (Cyprus) | 29th October 2018 | SciCo Cyprus |
| | Co-Creation Event 4 | IDENTIFY/DEFINE | Ljubljana (Slovenia) | 29th November 2018 | Institute Jožef Stefan (JSI) |
| | Co-Creation Event 5 | IDENTIFY/DEFINE/SHARE | Nicosia (Cyprus) | 3-7 December 2018 | SciCo Cyprus |
| | Focus group discussions ² | IDENTIFY/DEFINE | KU Leuven (Belgium) | September 2018 | KU Leuven |
| | Knowledge Café 1 | DEFINE | Stuttgart (Germany) | 6 July 2018 | UHOH |
| | Knowledge Café 2 | IDENTIFY | Vilnius (Lithuania) | 28 September 2018 | SII |
| | 1st Summer School | SHARE | Castelldefels (Spain) | 16- 20 July 2018 | All partners (organisation: CIMNE, UC3M-INAECU) |

Table 2. Summary of the events carried out in the framework of the SciShops project between March 2018 and December 2019).

a) 1st Round of events

‘Science for Community and with Community’ was the title of a **co-creation event** held in Vilnius, **Lithuania**, organised by the Institute of Social Innovations (SII) in March 2018. The objective of the event was to build bridges between different stakeholders and explore new ways to make research more participatory and responsible in Lithuania. The event had over 40 participants, including representatives from universities, research institutes, CSOs/NGOs and community members. The event lasted four hours and consisted of introductory presentations about the SciShops project; CBPR experiences in Lithuania and Germany; followed by a co-creation discussion during which representatives of NGOs and community members presented issues they are facing which potentially could be solved with the help of researchers. For each issue, the following questions were discussed: whether it could be reformulated into a research question, what kind of research would be required, who could carry out such research, how potential research participants could be reached, what might be the outcomes of such research, how to initiative the collaboration process etc.

A **knowledge café** on **‘Strengthening Farm Direct Marketing - From Farmer to Consumer’** in July 2018 in Stuttgart, **Germany**, was organised by the University of Hohenheim (UHOH). The four-hour event consisted of short presentations given by experts to introduce a range of perspectives followed by small group discussions around a number of questions raised by the presentations. The 16 participants consisted of regional stakeholders involved in the short food supply chain domain representing researchers, students, farmers and advisors. The workshop aimed at discussing trends in farm direct

²The format and aim of this activity are related to co-creation event format.

sales and identifying challenges. The overall objective was to strengthen regional collaborative short food supply chains.

'Science as a game' was the focus of a knowledge café held in Vilnius, Lithuania, in September 2018, which was organised by the Institute of Social Innovations (SII). The café took as its theme citizen science as an approach to fight Alzheimer's. The event was organized as a Knowledge café and was open to the general public. At the beginning of the event, there was a short presentation on the SciShops project. It was followed by an introductory presentation to the issue given by an expert on the topic. The presentation was followed by discussion, questions and answers. The event had over 20 participants.

Two **co-creation events** were organised during 2018 in **Cyprus, in collaboration with other local and EU organisations and networks, under the framework of the SciShops project**. The first, held in October 2018, was on **'Breaking Barriers for Women in Science'**, which involved a diverse group of 35 stakeholders, from academia, business, non-profit organisations and government. The workshop used a structured participatory co-creation process with the objective to identify gender barriers faced by Cypriot women in science. One of these barriers was subsequently converted into a quantitative challenge and was addressed at a second co-creation event held in December.

The second Cypriot **co-creation event** was held at the University of Cyprus 3-7 December 2018 and was entitled **'146th European Study Group with Industry/Co-Creation Event with Society'**. The event was run as a collaboration between the SciShops project, the EU [Mathematics for Industry Network](#) (MI-NET, COST Action TD1409), Cardiff University (School of Mathematics), and the [University of Cyprus](#). The objective of this intensive, week-long co-creation workshop was to bring together researchers and non-academic organisations (companies, NPOs) to work together in teams to explore three identified societal challenges and develop preliminary solutions. The three challenges addressed were: (i) "Optimizing the performance of a conical ceramic membrane" (SME Smart Separations which has been funded with 2.5 million euros by an EU SME Instrument grant) for their novel filters that purify air (ii) "Breaking barriers for women in science" (NPO), and (iii) "Fuel saving strategies for tugboats" (SME).

The workshop lasted five days and followed the well-known format of the 'European Study Groups with Industry' which originated in Oxford University in 1968 and has since spread to over 25 countries. The first half day consisted of introductory presentations about the challenges given by representatives of the non-academic organisations. The challenges were identified prior to the event through collaboration between the researchers or the organising team with the non-academic organisations. The presentations were followed by 4 days in which teams of researchers with advanced mathematical skills and community representatives worked together (in 3 different rooms) to refine the challenge formulation and to develop preliminary solutions and recommendations for creating long-term collaborations. On the fifth day, the teams presented their findings to a broad gathering of stakeholders, including policymakers, local administrations, community members, SME representatives and other academics. In total, over 100 people participated in the event, with a core of 37 people working on the challenges throughout the week. A distinguishing feature of this type of co-creation event is that **it also provides quick solutions to societal challenges after their identification and refinement**.

As **co-creation event and pilot project within the planned Science Shop in Wuppertal** the Wuppertal Institute for Climate, Environment and Energy has contributed to the first **Climathon in Wuppertal**

that has taken place on October 26th 2018. The event was organized and hosted by Neue Effizienz (local NPO), University of Wuppertal (Bergische Universität Wuppertal), Climate KIC (EU climate innovation initiative) and the Wuppertal Institute. **“Climathon” is a global movement dedicated to solving city climate challenges.** Originally conceptualised as a 24-hour hackathon by Climate-KIC, Climathon has since taken off as a global movement, engaging citizens on climate action and providing cities with continued support on the unique challenges they face. The Wuppertal Institute also organised three follow up events of the Climathon in Wuppertal on November 15th 2018, on January 8th, and on January 16th 2019.

A **co-creation event** was held on 29th October at the Institute Jožef Stefan, Ljubljana. The objective of the event was to inform the general public about the establishment of the Centre of participatory research at the Institute Jožef Stefan (CPR-IJS). The event lasted 3 hours: the first hour was dedicated to general information about the CPR-IJS, reasons and background of its establishment, goals, organisation, funding, and mode of operation. The second hour was dedicated to the presentation of issues related to the transmission line corridor Beričevo-Divača and reasons for activities performed by civil initiatives. The event involved researchers at the IJS, representatives of civil initiatives, representatives of the municipality of Ljubljana and journalists.

As part of a pilot project being run by the newly-established Science Shop at KU Leuven, the Centre for Research on Peace and Development (CRPD) organized **two focus-group discussions** on the role of teachers in creating a positive and inclusive school climate. The project is investigating how teachers in Flanders deal with controversial topics and challenges related to religious and cultural diversity in the classroom (integration, racism, polarization, etc.). Stakeholders were invited to identify the potential contributions of the research project and to discuss the survey instrument that is being developed for the purpose of the study. The first focus group discussion was held on 3 September and involved representatives from VVSG and representatives from ‘Bijzonder Comité voor Herinneringseducatie’ (BCH). VVSG is a civil society organization representing local governments in Flanders. BCH is a committee that focuses on how teachers should deal with sensitive, controversial, and historical topics in the classroom. The second focus group discussion was held on the 7th September and involved policy makers, CSO’s and school representatives.

The first SciShops summer school, organised by the project partners for the project partners, was held in July 2018 in Castelldefels, Spain. The five-day event was attended by all partners in the SciShops project and was primarily aimed at supporting partners setting up new Science Shops. The programme consisted of presentations from both SciShops partners and external experts as well as interactive working sessions with the aim of providing participants with detailed knowledge about how to establish and run a Science Shop. In addition, there were two field visits to two Science Shops (Living Lab for Health and UOC Science Shop). The programme included theoretical and practical sessions that served as an introduction to the work of Science Shops, along with sessions on operational models, dissemination strategies and stakeholder involvement. In total, 35 participants from universities, research institutes, NGO/CSO and Large Enterprises (LEs) attended the event. The objective was to transfer existing knowledge about the successful running of a Science Shop from experienced Science Shop owners and co-ordinators to the coordinators of the new Science Shops being set up as part of the SciShops project. In addition, the information served as a basis for developing the training modules of WP4. Some of these training modules will be tested at the second summer school to be held in Limassol in July 2019 (Zübert, 2018a).

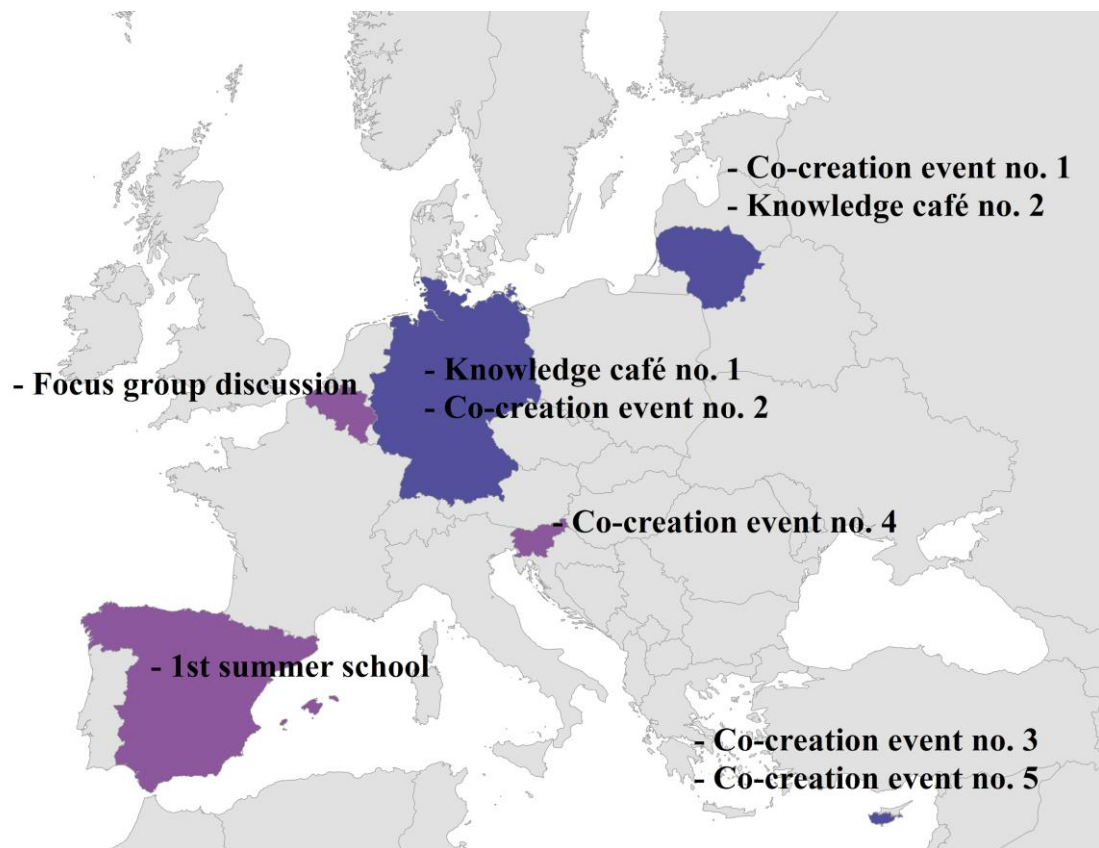


Figure 1. Distribution of events in SciShops.eu project in the first round (September 2018 - December 2019)

3 Knowledge exchange activities: Lessons learned and challenges

All events carried out as part of the SciShops project were evaluated using common evaluation questionnaires developed by the project partners, which were distributed to participants to be completed after each event. All event organisers (project partners) have also been asked to share their experiences, challenges and learnings. All this knowledge has been used to develop the following recommendations:

KNOWLEDGE CAFÉS

| RECOMMENDATIONS |
|--|
| <p>Objectives:</p> <ul style="list-style-type: none"> • Have a clear objective(s) for the event which is shared with all participants both prior and at the start of the event. • Ensure a clear focus i.e. topic for the event. • Ensure that the role and expected contribution of participants is clearly communicated both in the invitation and at the start of the event. |
| <p>Participants:</p> <ul style="list-style-type: none"> • Identify all sectors that you wish to be represented at the event and send personalised invitations to key contacts. • To encourage diversity, advertise the event as widely as you can in order to motivate participation and state clearly in the invitations why the event may be of benefit to the participants. |
| <p>Methodology:</p> <ul style="list-style-type: none"> • Limit introductory presentations to 5-10 minutes to keep the attention of the participants and allow sufficient time for discussion. • Allow enough time to establish a discussion between participants. • Try to ensure a mix of stakeholders at each table to encourage more multi-sector debate. • Having smaller discussion groups encourages everyone to participate. • Maintain a good atmosphere, where all opinions are accepted and discussed. • Ensure each of tables have a facilitator and a note taker. During general feedback at the end, the note takers are responsible for explaining the insights of their groups to the other participants (in the room). • To find out who the other participants of the event or in the room are, either ask people to briefly introduce themselves to those on their table, and/or the moderator could ask people to put their hands up according to which stakeholder group they represent. (If the group of participants is large, avoid asking everyone in the room to introduce themselves to the whole group as it takes too long). |
| <p>Organisation:</p> <ul style="list-style-type: none"> • Use a free online form for registration. • Invite participants to register their attendance to ensure that you know approximately how many people will be attending. Ask them to identify their area of interest/type of |

organisation so that you have an overview of who will be attending and you can try to fill any gaps of the competencies needed for the event.

- Organise the activity in a place with enough space that is comfortable for discussion.
- Preferably, use roundtables to encourage discussion on each table.
- Invite a good moderator to facilitate the overall event who has a good overview of the subject as well as good facilitation skills. Fully brief them about the objectives, format etc. prior to the event.
- Have a participant list and give name badges to participants in order to encourage interaction with each other.
- For events longer than 2 hours take a short break (of 20-30 minutes) after every 1.5-2 hours and offer refreshments. This allows participants to interact more freely with each other and network.

Communication:

- Utilise different networks to promote the event to potential participants: social media, print media (e.g. distribute a press release), established networks, word of mouth, direct email invitations, radio/TV (if you have access) etc.
- Social media such as Facebook and Twitter can be good for reaching wider audiences: encourage participants to follow you on these channels and keep them updated about all these activities.
- Take some photos at the event for post-event communication purposes.
- If possible, issue a press release after the event presenting the results and send again to the media.
- When advertising the event, think about “what is in it for them” to participate. Often participants appreciate this type of forum to share the challenges they are facing in their field and meet people from different types of organisations so that the topic needs to appeal. Consider including some questions in the description about the event to stimulate interest.

Evaluation:

- Hand-out evaluation questionnaires at the end of the event and allow 5 minutes for participants to complete them. This method is much better than sending an e-mail, which has a low return rate.

CO-CREATION EVENTS

RECOMMENDATIONS

Objectives:

- Have a clear and specific objective for the event before and at the event. This must be shared with all the participants.
- Ensure the role and the contribution of all participants involved are clearly communicated when sending the invitations and at the start of the event.

Participants:

- Ensure that the event is as inclusive as possible. Some events can have an open call (in addition to sending invitations to people you know) or target specific groups.
- 30-40 participants is an ideal number to ensure that the event is manageable, but includes a good range of expertise and backgrounds.
- Ensure a good mix of participants from different stakeholder groups and expertise.
- Invite decision-makers/policy-makers and others stakeholders who have the potential to utilise/ benefit from the results to increase the likelihood of impact.
- Having prestigious speakers will help to attract participants.

Methodology:

- For co-creation events of 2-3 hours limit introductory presentations to 5-10 minutes to keep the attention of the participants and allow sufficient time for discussion.
- For co-creation events of longer duration, such as the week-long event which took place in Cyprus in December 2018 (see above), the initial presentations of the identified challenges can be longer (30 minutes).
- Have a mix of stakeholders at each table/room in order to encourage more multi-sector debate.
- Having smaller discussion groups encourages everyone to participate.
- Try not to be too ambitious with regard to what issues and questions are discussed.
- Allow sufficient time for people to discuss a particular issue.
- Consider asking different groups to discuss different issues or two groups to address one issue.
- To find out who is in the room, either ask people to briefly introduce themselves to those on their table, and/or the overall moderator could ask people to put their hands up according to which stakeholder group they represent. Alternatively, participants could be asked to provide short paragraph biographies with a photo to be printed in the programme. (Avoid asking everyone in the room to introduce themselves to the whole group, as it takes too long).
- In order to capture all the insights of the groups, a facilitator should be supported by a note taker. The note taker should feedback the key points to the wider group during the last part of the event.
- Allow time for discussion about the next steps (e.g. to develop an initial agreement for further cooperation or the co-creation of concrete projects).
- For collaboration and partnership planning a stepwise approach is recommended.

Organisation:

- Depending on the format of the event (open or targeted) use different registration forms: online, etc.
- Invite participants to register in order to confirm their attendance. You can ask them their area of interest/type of organisation in order to monitor the range of participants attending and try to fill any gaps of the competencies needed for the event.
- Provide a participant list with email addresses so that people can communicate easily with each other after the event if they want. You need to ask permission to include their email on the list and ensure compliance with GDPR.
- Preferably, use roundtables to encourage discussion between participants.
- A good moderator to facilitate the overall event, who has experience and specialised skills is crucial. Brief him/her before the event about the objectives, format, etc.
- Name badges should be provided that include the organisation of the person (or the organisation type, e.g. “SME”/“Non-Profit”/“Researcher” etc.)
- For events longer than 2 hours take a short break (of 20-30 minutes) after every 1.5-2 hours and offer refreshments. This allows participants to interact more freely with each other and network.

Communication:

- Use as many channels as possible to advertise the event - social media, networks, direct email invitations.
- When advertising the event, think about the messages for potential participants. Think about “what is in it for them” to participate and consider formulating some questions in the description to stimulate their interest.
- Invite media representatives to participate, if appropriate, but encourage them to participate in the discussions rather than just observe. Be mindful that some people may feel uncomfortable talking about certain issues in front of journalists.
- Carry out media relations (e.g. distribute a press release), if appropriate, both prior and after the event with the aim of getting articles, interviews in the media about the issues being addressed. Ensure you have a spokesperson on hand to carry out out any interviews.
- Promote social media such as Facebook and Twitter for reaching wider audiences as well as inform about the different activities that you are organising.
- Take photos at the event for post-event communication purposes.

Evaluation:

- Distribute evaluation questionnaires at the end of the event and allow 5 minutes for people to complete them. Alternatively send an email with a link to an online evaluation form after the event with a thank you.
- Evaluate the event: answer the questions yourself too – did this event achieve its objectives, what did you all co-create (ideas, research questions, solutions etc.) and how will the outcomes be used in the future?

Note:

- 1) for co-creation workshops that also aim to provide quick solutions to societal challenges, such as the one held in Cyprus, and which follow the format of the “European Study Groups with Industry” the booklet “How to run a sustainable ESGI” has recently been published by the EU Mathematics for Industry Network. This contains detailed recommendations on how to organise this type of workshop. See:
(https://minetworkdotorg.files.wordpress.com/2018/04/esgi_handbook_minet20184.pdf)
- 2) A stepwise approach is a work methodology: first, you get an agreement with the members; approbation of roles; agreement on roles of each partner; specification of concrete work; monitoring and compilation of results.

SUMMER SCHOOL

| RECOMMENDATIONS |
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| <p>Objectives:</p> <ul style="list-style-type: none"> • Have clear objectives for the summer school and the participants that you wish to attract. Those running established Science Shops will have different needs to those setting up a new Science Shop. • If the event is opened to participants outside of the consortium/pre-existing group, think which groups you want to engage and their roles in the event. |
| <p>Participants:</p> <ul style="list-style-type: none"> • Involve experienced participants with diverse profiles who can share their personal experiences and contribute with their knowledge. • Invite prestigious speakers: this will help to attract more participants to the event. |
| <p>Methodology:</p> <ul style="list-style-type: none"> • Ensure a good balance between presentations and more interactive sessions. • Consider having sessions with experienced Science Shop representatives to learn about their experiences and approaches. • Consider having interactive sessions with short introduction rounds to create a discussion-friendly atmosphere. • Smaller groups will encourage more discussion. • Concentration levels are higher in the morning. • In the different interactive sessions, try to ensure a mix of tables with different stakeholders to encourage debate and interaction. • Consider having sessions that are open to the public or other stakeholders. • Field visits to Science Shops allow participants to see a Science Shops in operation and learn about different models. |
| <p>Organisation:</p> <ul style="list-style-type: none"> • Allow sufficient number of days for the summer school (e.g. two days at least or a week if it is possible). • Consider having an online application form for participants in which you ask about their experience and reasons for attending to help with the selection of participants. |

- Ensure there is enough space (different rooms, etc.) in order to conduct interactive activities with the participants.
- Provide a participant list and name badges (with each participant's name and organisation) in order to stimulate interaction.
- Take a regular short break (of 20-30 minutes) after 1.5-2 hours and offer refreshments in an area where participants can informally interact.

Communication:

- If the summer school is to be advertised to external participants, utilise established networks to promote the event to potential participants, including social media.
- Actively utilise social media such as Twitter or Facebook in order to inform about the summer school (e.g. by creating a hashtag). This would allow the activity to be followed and attract potential participants.
- The description of the summer school must be attractive to potential participants (e.g. formulate phrases that fit the interests of the people you wish to attract).
- Take photos at the event for post-event communication purposes.
- Distribute a brief summary of the event via different channels (website of the institutions of the participants, networks, etc.). Inform if another one is planned.

Evaluation:

- Distribute evaluation questionnaires at the end of the summer school and allow them 10-15 minutes to complete them. These questionnaires do not need be very extensive.
- Identify strengths and weaknesses and use them to inform future events.

4 Conclusions

The engagement of stakeholders by Science Shops is crucial for identifying and developing research questions based on communities' needs and challenges and being able to define problems together with different stakeholders. As a result, participatory methodologies are a way to achieving these objectives as well as to share knowledge about how to establish and run a Science Shop. These also meet the main objectives of the SciShops project. More specifically, these participatory methodologies have been used by the SciShops project in the form of co-creation events, knowledge cafés, and a summer school. Different typologies have been employed in these events, in relation to the length of the activities (e.g. from events lasting for 4 hours to co-creation events lasting three days or more days). The type of stakeholders involved in the various events has also varied, from policymakers, SMEs, local community representatives to staff from other Science Shops. Furthermore, experience to date has shown the different methodologies can also be used flexibly for achieving different objectives.

In the third part of the deliverable, a list of recommendations is given for each of these activities. Regarding the objectives and participants, the objectives need to be clear to encourage a diverse range of stakeholders to participate and to stimulate the debates.

In the methodology part, each one has its specific recommendations. However, the importance of having time to establish a discussion/participatory part between participants is highlighted in all three of them. Regarding the organization, registration depends whether it is an open event and the target group: however, sharing information about the participants attending is important as it encourages networking and discussion between participants.

Having a communication strategy for events is crucial. It is important to advertise activities in different channels to attract a wide range of participants. With regard to evaluation, distributing evaluation questionnaires is another recommendation, which could support mutual satisfaction and the improvement of subsequent activities.

These recommendations on how to organize these three types of knowledge exchange activities will lead to an improvement of these activities for the second round of the events to be run in the framework of the SciShops project. In addition, this information could be useful for new or established science shops in order to inform the organization of their own events.

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