

Open Science Community Starter Kit

*Set up and foster a local
Open Science Community*

By Coordinators of Open Science Communities

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FIRST DRAFT

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Index

1. **Why start an Open Science Community?** [WHY]
 - 1.1. **Open Science: from Pioneers to Common Practice**
 - 1.2. **The Role of Open Science Communities**
 - 1.3. **Call-to-action: Start a Local Open Science Community**
2. **The Design of an Open Science Community** [WHAT]
 - 2.1. **Mission, Aims and Strategies**
 - 2.2. **Governance and Funding**
 - 2.3. **Criteria for Success**
3. **How to start and foster an Open Science Community** [HOW]
 - 3.1. **Stage 1: Prepare**
 - 3.2. **Stage 2: Launch**
 - 3.3. **Stage 3: Grow and Inspire**
 - 3.4. **Stage 4: Foster and Sustain**
 - 3.5. **Stage 5: Dream and Scheme**
4. **Resources / appendix**
5. **Contributions and acknowledgements**

Abstract

Open Science improves the quality, accessibility, and efficiency of science, but is not yet the norm in academia. Progressive policies and available infrastructure alone are insufficient to instigate a cultural change. While pioneering academics are developing and embracing Open Science practices, the majority sticks to the status quo: unsure of the benefits, worried by the time investment, or overwhelmed by the sheer number of available tools. To move from pioneers to common practice, we need to engage a critical proportion of the academic community. This is where the Open Science Communities come into play.

An Open Science Community is a place where newcomers to Open Science can learn from their colleagues, and, together, identify opportunities and pitfalls. By the same token, Open Science Communities are a breeding place for initiatives that promote Open Science, such as workshops, training programs, journals clubs, and mentorship programs. Open Science Communities have shown to attract large numbers of academics, from all disciplines, career stages, and levels of expertise. Because of the diversity of their membership, Open Science Communities provide valuable input to refine policy and research infrastructure.

Both the size and number of Open Science Communities continues to grow. By creating momentum and critical mass, Open Science Communities usher in a cultural change towards Open Science. You can be part of this!

This Starter Kit provides you the rationale, design, and guidelines to start your local Open Science Community. So jump right in and connect with us. Together, we make Open Science the norm in academia!

I.

I. Why start an Open Science Community?

I.I Open Science: from pioneers to common practice

Open Science encompasses a large and ever growing set of practices that make academic research and the corresponding scholarly output more accessible, transparent, reliable, and inclusive (REF Foster). The rationale beyond any of these practices is that openness increases the quality, efficiency, and impact of science (REF). While some of these practices are starting to become common practice (e.g., Open Access publishing), others are far from being mainstream (e.g., preregistration and preprints). If you are reading this Starter Kit, you are probably aware of many of such practices and are convinced that Open Science is beneficial to science and society. So are we!

At first glance, the transition to Open Science may seem rather easy to accomplish. Why would people not embrace this great new set of practices? In reality, it requires nothing less than a profound cultural shift in academia. As articulated in [this blog post by Brian Nosek](#), a culture change needs a set of key ingredients that can be represented as a pyramid (Figure X). At the top of this pyramid sits **Policy**, needed to promote Open Science and to assure that institutional incentives are aligned accordingly (e.g. XXX). At the bottom we find the required **infrastructure**. Having a reliable, flexible, and user-friendly infrastructure is essential, particularly online platforms for collaborative workflows (e.g., Open Science Framework; <https://cos.io/>) that allow to store and share materials, data, code, and other output (see also the European Open Science Cloud; <https://www.eosc-portal.eu/>). However, in spite of recent Open Science policies and available infrastructure, Open Science is far from being the norm (REF?). At the heart of this problem lies the fact that the middle layer of the pyramid, that is, the **communities** that make Open Science normative, consist of a relatively small proportion of the scholarly community. Also these communities mainly consist of people who are often already experienced with Open Science and, as pioneers tend to be, quite vocal about Open Science. Community members often play an advisory role in policy and infrastructure. While this input is of course extremely valuable, it may lead to overlooking the obstacles and concerns experienced by newcomers to Open Science and may even alienate newcomers from Open Science altogether. Without engaging a larger community, Open Science runs the risk of becoming 'just another box to tick' instead of an enrichment of everyone's workflow. Wide-scale adoption of Open Science therefore hinges on moving from Open Science pioneers to the early and late majority (include figure). Summarizing, any cultural change needs critical mass to challenge and change the status quo, and the input of newcomers is essential to refine the necessary policy and infrastructure to reach a wide adoption of Open Science. The main challenge in the transition to open science is therefore social: how to engage the necessary critical mass of the scholarly community? While many experience the transition to openness liberating and more in line with intrinsic motivations, others do not see the added benefits, do not consider it worth the investment, or become overwhelmed and frustrated by the

sheer overload of new information and the lack of standardized practices and institutional recognition. It is therefore crucial to increase awareness of Open Science and promote knowledge exchange amongst peers to see which Open Science practices are most relevant and how they can be best implemented.

This is where the Open Science Communities come in. These communities are bottom up platforms designed to appeal to a large proportion of the scholarly community. We do this by making Open Science more **visible**, more **accessible**, and to explore the **obstacles and requirements** for newcomers to make their workflows more open. To instantiate a global change towards Open Science, we need as many local Open Science Communities as possible, all around the globe. It is with this in mind that we have created this Starter Kit, to inspire and enable you to create a local Open Science Community. The key to accelerate Open Science may be, quite literally, in your hands.

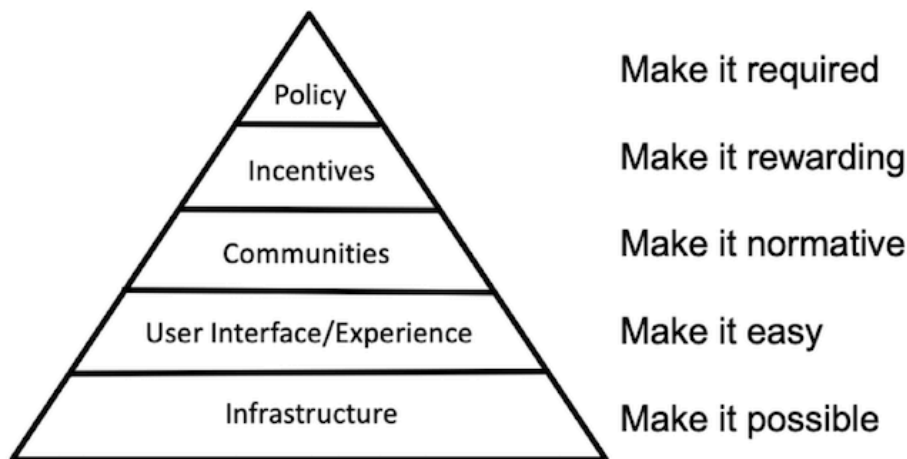


Figure X. The pyramid of culture change. Image by Brian Nosek (licensed under [CC BY-ND 4.0](#)), reproduced from the blog post [Strategy for Culture Change](#).

I.II The role of Open Science Communities

Open Science Communities play a pivotal role in accelerating the transition to Open Science and even to make this transition possible. The format of Open Science Communities that we introduce in this Starter Kit is a **bottom-up** learning community of academics with members of various scientific disciplines and career stages. The community must be **independent** of institutional policies and joining the community should be easy and **low threshold**. Members do not need any Open Science expertise to join the community, nor are they required to commit to certain practices upon joining. What unites them is their interest in Open Science, publicly displayed by being listed as a member on the website of the respective community. The success of an Open Science Community relies on the **number and diversity** of its members, as well as the number and quality of meaningful **interactions**. Members vary in their expertise with Open Science. While many have little to no experience but are eager to learn more, others already have practical experience with certain Open Science practices and would like to share it with others, either to inspire newcomers or refine their knowledge. This bidirectional exchange of information shows that Open Science Communities are not ‘expert clubs’, but a place where we learn from our colleagues within and across disciplines and faculties. This makes Open Science Communities attractive and open to a large proportion of the scholarly community, making it possible to gain **momentum and critical mass** to change research culture. A more elaborate description of the design of an Open Science Community is provided in *Section II*.

Open Science Communities in Practice

To get a taste of what an Open Science Community can do, let’s have a look at how the Open Science Communities in the Netherlands have advanced. The first Open Science Community was the one in Utrecht ([OSCU](#)), started in 2018 at Utrecht University by two researchers with a passion for Open Science. They started to recruit members, mostly by word of mouth, who either had Open Science related expertise that they were willing to share, or were eager to learn more about a particular aspect of Open Science. Both the ‘providers’ and ‘seekers’ of Open Science knowledge were listed on the OSCU website, creating a marketplace for Open Science knowledge and know-how. Moreover, OSCU members received a weekly newsletter and the founders started to showcase the community around campus and on social media. Over time, the number of members increased and OSCU started organizing a series of workshops whose topics were based on a survey amongst its members. After a year, OSCU secured a budget from Utrecht University to further develop and sustain its activities, which led to the appointment of Faculty Ambassadors to promote the community in their respective faculties. In addition, the founders created a [step-by-step tutorial](#) describing how they started OSCU, to help colleagues at other universities start a similar initiative at their university. Within a year, colleagues from several Dutch universities (Figure X) started similar initiatives, operating under a similar acronym and logo and sharing a

set of Guiding Principles and a Code of Conduct¹. In less than two years, the communities have rapidly expanded and organised many Open Science workshops and events (see below for an overview of achievements). As local community leaders, we are very happy and proud of what we have achieved so far, but we want more²! That is why we have written this Starter Kit to encourage colleagues around the globe to start local Open Science Communities at their universities or research centres, to create momentum for a global culture change in academia towards Open Science.

Achievements of the Open Science Communities since 2018:

- Open Science Communities at ten Dutch Universities, totalling more than 700 members (and growing!)
- Two Open Science Communities outside of the Netherlands, in Sweden and Galway, Ireland
- [NUMBER] of Open Science workshops and events, with up to 75 attendees
- Frequent requests for Community Coordinators to provide sessions at national and international Open Science events
- Frequent requests to advise local policy makers
- Received recognition locally from [Rectors](#) and Deans, and internationally from the [Center for Open Science](#) and the [Society for the Improvement of Psychological Science](#).

¹ It is interesting to note here that, while OSCs are open to members of all disciplines, the founders of these communities are often researchers in the field of Social Sciences. This is likely because the discourse around Open Science is very lively in this discipline, but also because most OSC coordinators attend the same Open Science events. One of the most influential in this respect is the annual meeting of the Society for the Improvement of Psychological Sciences ([SIPS](#)), where the format of the Open Science Community was actively promoted by the founders of the first OSCs.

² [We have only just begun!](#)



Figure X. All Open Science Communities in The Netherlands. Image by [Anita Eerland](#) licensed under [CC BY-ND 3.0](#).

I.III Call-to-action: Start a Local Open Science Community!

That is why we call upon you, dear reader, to start a local Open Science Community. Please connect with us so that you can start from a worked out example and make use of our active network of Community Leaders to exchange experiences and ideas. In addition, as the network expands, we are in a better position to collectively apply for (inter)national funding, e.g., to set up a central training program for Community Leaders. You adhere to our collective Guiding Principles and Code of Conduct, but design and manage your community as you see fit, and in full consideration of your local context. Together, we make Open Science the norm in academia, for the benefit of science and society!

We divide the remainder of this section into information geared at **researchers that want to start an Open Science Community** and **colleagues in leadership positions** that can promote and facilitate Open Science Communities.

For researchers: How to start an Open Science Community

The very first thing you need for an OSC is a person (or more than one) who takes the initiative to start an OSC at their university. We call that person the Community

Leader. Looking at the people that have started local OSCs so far, we can distill the following profile of a community leader:

- Passionate about Open Science (of course!)
- Early to mid-career researcher (PhD student / Associate professor)
- Enthusiastic
- Outgoing
- Optimistic
- Enable to inspire others
- Inclusive
- Innovative
- Team player
- Well connected within the university and/or able to establish new connections (e.g., with deans, librarians, research support offices, various councils, etc.)
- Willing to try and fail (and try again)

This is not to say that *only* people with the aforementioned characteristics are suitable to become Community Leaders; we only highlight that these traits, common among the people who have stepped up for the challenge so far, have been beneficial in setting up their community. If you recognize yourself in the description above, you are much encouraged to set up a local OSC. In our experience, it is more sustainable (and much more fun!) to start with two or three Community Leaders. So, as a first step, you can look for like-minded colleagues who want to co-create and co-lead the OSC with you. Bear in mind that setting up an OSC requires substantial commitment and time investment. However, in our experience, it has been very rewarding. As Community Leaders, we have greatly extended our professional networks across all layers of the university, including rectors, deans, support offices, and librarians, and increased our influence on policy and infrastructure. On a personal level, we have acquired very useful transferable skills, such as project management, community management, and leadership. Most importantly, it is extremely rewarding to co-create large-scale solutions with inspiring and like-minded colleagues. Be part of something bigger than yourself, with the potential to benefit science and society.

For colleagues in leadership positions: How to facilitate an Open Science Community

We have been approached by people in leadership positions, for instance involved in Open Science Programmes at their University, who also want to start a local Open Science Community. When considering this, it is important to keep in mind the key elements for a successful open science community: a bottom-up approach and an independent nature. People in leadership positions may see themselves in a better

position to *facilitate* and *support* the initiation of an Open Science Community rather than coordinate it themselves. For instance, they can actively search for people within their university that fit the Community Leader profile described above. They can do so by putting out a vacancy for a (paid) position as Community Leaders. We recommend two Community Leaders for 0.2fte each, in accordance with our experiences so far.

It is also possible for an Open Science Community to be initiated and facilitated by people who are not active researchers, e.g., research support staff or librarians. This has been the case for example with the Open Scholarship Community Galway³. In those cases, it is crucial to warrant the independence of the community and include active researchers in strategic decisions and prioritization of activities (or budget) of the community. Let's not forget that OSCs are **for researchers by researchers** and that it is crucial that the community remains independent of local policies (see *Section II* for more details on this).

In the remainder of this Starter Kit, we will focus on how to design an Open Science community (*Section II*) and the different stages of starting and fostering an Open Science Community (*Section III*).

II.

³ Note that OSCG chose to use 'Open Scholarship' instead of 'Open Science' in their name to appear more to colleagues who do not identify with the term 'Science'. In the Netherlands, Community Leaders have stuck to 'Open Science', as this term is more mainstream. The term 'science' is used here in its broadest sense and includes humanities, social sciences and engineering; that is. It more suitably refers to any form of scholarship.

II. Community Design

II.I Mission, aims and strategies

A first sight, an Open Science Community may seem simple. A group of people with a shared interest in Open Science get together, organize a website, list all the community members and start organising some meetings and workshops on Open Science topics and practices. Right? This is in fact how many of the current Dutch Open Science Communities have started. But while this approach is fast, fun, and effective in the short run, it lacks an overarching goal or strategy. Decisions are typically made ad-hoc (should we organise another workshop? Or start a blog? Or... Or...) and, like this, it is hard to assess how successful a community is. Therefore, we decided to take a step back and reflect on our goals, strategies and tools⁴. The premise is that these elements should reflect the mission of the community. We have formulated our mission as follows:

Vision and Mission

Open Science improves the quality, accessibility, and efficiency of science, but is **not yet the norm** in academia. While pioneering scholars are developing and embracing Open Science practices, the majority sticks to the status quo. To **move from pioneers to common practice**, we need to engage a critical proportion of the academic community. This is where Open Science Communities come in. Open Science Communities provide a place where **newcomers and pioneers** interact and **inspire each other to embed** Open Science practices in their workflows. Together, we make Open Science the norm in academia.

The above mission can be broken down into practical aims:

Aims

- Reach out and introduce newcomers to Open Science
- Increase scholars' engagement in Open Science practices
- Serve as a breeding ground for Open Science initiatives
- Collaborate with institutional stakeholders to shape policy, incentives and infrastructure

Aim #1 - Reach out and introduce newcomers to Open Science

The core aim of an Open Science Community is to welcome newcomers to Open Science, and to provide them a platform where they can learn from their peers and

⁴ In the case of Loek B and Antonio S, this process of reflection was inspired by the [eLife Innovation Leaders](#) program, which itself was inspired by [Mozilla Open Leaders](#).

identify ways to overcome bottlenecks when transitioning to (more) open workflows. The very first requirement to interact with newcomers is that they know of the **existence of the community**. This is mainly achieved by word of mouth, so do not let an opportunity go past where you can talk with your colleagues about your Open Science Community. Moreover, always have a set of flyers and stickers with you and distribute them across your workplace (Appendix XXX contains templates for flyers and stickers). Presence on Social Media, also helps to make the community more visible. We elaborate on how to attract more members in Section III part XXX.

The second requirement is to **increase the visibility** of Open Science. One way to do so is to showcase members on the website of the Open Science Community, and to include a list of their Open Science practices for which they can be contacted. Members with no experience with Open Science practices (yet) are also displayed on the website, to show that they are 'open' to learning more about Open Science. By demonstrating the prevalence of experience and interest in Open Science practices, we explicitly communicate to newcomers that Open Science is the way forward.

The third requirement is to devise a **communication strategy**. Here, it is key to understand your target audience. They are not you! While Open Science may be high on *your* agenda, for newcomers it often has less priority⁵. Newcomers are more likely to join a community where they can explore and formulate their opinions on Open Science, as opposed to an 'Open Science expert club' that is normative on the workflows of others. It is therefore critical to strike the right **tone of voice**. Make sure that in all your communication you are inclusive, humble, and respectful. Stress that the Open Science Community is a learning community and that communication is bidirectional: newcomers and experienced peers learn from each other and identify bottlenecks and boundary conditions to make the transition to Open Science more fluent. We are in this together! This also means that you need to make the **threshold for events as low as possible** and make sure that they appeal to newcomers. For example, make sure people don't have to travel a lot to attend events, e.g., by organising multiple events at different locations across campus. Having to leave the building can literally make a difference for people to attend or not. Make sure that newcomers can identify and relate to events that you are organising. Consider whether or not they will think: "Hey! This is for me!". For example, a workshop on "Open Data" may be less appealing than a workshop "Open Data for Economists". Try to do everything within your limits to bring your events to the people, both in terms of **logistics and topics**. If your budget allows, free drinks, snacks, and swag are often appreciated.

⁵ It is crucial to not be condescending about this. People who are particularly passionate about Open Science might consider their workflows superior to those of others and express such feelings. Being exposed to such perspectives can alienate newcomers and lead to unnecessary resistance to Open Science by creating a counterproductive "us versus them" distinction. While you might be an 'activist' that wants to promote Open Science, the community as such should be associated not only with activism, but especially with learning.

Aim #2 - Increase engagement and commitment with Open Science practices

This aim is central to our mission is to promote Open Science practices among peers. This includes inspiring newcomers to take their first steps, but also consolidating current Open Science practices amongst colleagues that have already made their workflows more Open. The strategy we choose for this is to facilitate knowledge exchange amongst peers.

A first example of this is the **Open Science Marketplace** on the OSC website. When new members register on the OSC website, they indicate the Open Science practices they would like to *learn* and the practices they have *experience with*. This information is publicly shown on the OSC website. When other members want to learn more about a particular Open Science practice, they can browse the website to locate an expert colleague who can be contacted for possible collaborations. In addition, community leaders can do 'match-making', to suggest who can reach out to whom.

A second example is to **organise events** where a particular Open Science practice is covered. This can be an **in-depth workshop or tutorial** or a set of brief (10-15 minute) **lightning talks** where colleagues share their practical experience with Open Science practices. Speakers do not need to be experts, just one step ahead of their colleagues on a particular Open Science practice and willing to share their experience. Lightning talks sessions can be centered around one specific practice, e.g., preregistration or targeted at a particular audience (e.g., PhD candidates) or discipline (e.g., behavioral economics). While lightning talks effectively inform and inspire newcomers to Open Science, in-depth workshops are essential to instigate behavioural change. Other useful initiatives are Open Science study groups or **mentorship programs**, where a group of peers work on how to implement a particular Open Science practice over a period of time, under the supervision of an experienced mentor. A more elaborate description of these and other knowledge exchange formats are included in Appendix X. Here we note that such initiatives not only provide members with a good knowledge basis, but also allow them to connect with colleagues dealing with similar issues, thereby facilitating the quick development of shared solutions and a stronger sense of community.

For the initiatives described above to work, the community needs both newcomers and colleagues who already have experience with one or more Open Science practices. The advantages for newcomers to Open Science to join the community should be pretty clear by now. But what's in it for the latter group? Pioneers and early adopters, generally proud of their open workflow, often work in environments where their efforts might not be appreciated because it is not common practice. OSCs welcome, validate, and reward their expertise by showing that more people care about improving scholarly practices, thus creating a sense of belonging which can be a strong motivator to stay committed to Open Science. Besides meeting like-minded colleagues and inspiring new generations, OSCs also provide

opportunities for leadership roles in setting up local initiatives, thereby increasing impact and visibility within the local academic environment.

	Lightning talk	Workshop	Mentorship program
Goal	Inspire	Engage	Commit
Audience	Open	Interested	Invested
Speaker	Beginner	Expert	Expert

Table X:

Aim #3: Serve as a breeding ground for Open Science initiatives

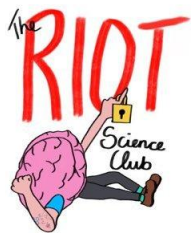
The strength of a community depends on the contributions of its members. It is therefore important to **facilitate that members setup their own initiatives** within the OSC, e.g., by providing guidelines, featuring member initiatives on the website, newsletter, and social media, and, if possible, allocating budget to such projects. While members are free to develop their own initiatives, it can be even more effective to promote existing formats that have proven successful in other institutions, for instance ReproducibiliTea journal clubs, R.I.O.T. Science Clubs, Data Champions, and The Carpentries (see Box X). These initiatives can find a place under the umbrella of the local OSC, making use of the community network to reach and interact with each other, while benefiting from the experience of those who developed the formats and not having to set up everything from scratch. Colleagues from institutions that already have such initiatives in place can be invited to share their experience or be interviewed at events or in newsletters, to motivate local members to kickstart local instances. Regardless of whether members devise their own initiatives or start from existing examples they have the opportunity to gain organizational and leadership experience, which is increasingly relevant for career development in academia.

ReproducibiliTea



The [ReproducibiliTea journal clubs](#) help early-career researchers establish local Open Science journal clubs at their universities. Topics of discussions range from ways to improve science (e.g., by means of statistical reforms) to social implications of the Open Science movement.

R.I.O.T. Science Club



The [R.I.O.T. Science Club](#) organizes seminars where researchers can learn about Open Science reforms and practices. Speakers give talks, discuss papers, provide insights into software and tools, and recommend (new) statistical techniques, with the main goal to encourage **R**eproducible, **I**nterpretable, **O**pen, and **T**ransparent Science.

Data Champions

[Data Champions](#) are volunteers who promote good research data management (RDM) and support Findable, Accessible, Interoperable, and Re-usable (FAIR) research principles.

The Carpentries



[The Carpentries](#) teach basic computational and data science skills to researchers. The project comprises the [Software Carpentry](#), [Data Carpentry](#), and [Library Carpentry](#) communities.

SIOS



The [Student Initiative for Open Science](#) (SIOS) spreads the message and practices of Open Science within the student community by organizing lectures, debates, and workshops. In addition, SIOS promotes the implementation of open practices in university programs, e.g., open access to all articles and preregistration of thesis projects.

Box X: Examples of successful initiatives and formats to promote Open Science that can be rolled out locally in an Open Science Community.

Aim #4: Collaborate with institutional stakeholders

One of the key features of an OSC is that it operates **independently** from institutional policy. That means that the community is a self-steering organisation that does not receive instructions, targets, or tasks other than the ones that are self-imposed. However, OSCs should not operate in isolation. As discussed in Section I, OSCs are well placed between policy and infrastructure. Policy describes what is required or desired, infrastructure determines what is possible, but the community determines how things are done in practice. To facilitate a smooth transition to OS, all stakeholders need to collaborate. Community Leader(s) strive to increase connections with colleagues at leadership positions, in particular those involved in **institutional policies, infrastructure, and support**. Explore how you can mutually benefit from each other. Organise meetings where people responsible for policy and infrastructure can interact with community members. Use the newsletter to inform community members of new policies and services, and provide channels for feedback. Such communication channels empower community members to shape policy and services for their own benefit. There are, of course, many policies and infrastructures that are not determined locally, but rather at national or international level. It is worthwhile to invest time in interacting with relevant stakeholders at broader levels as well.

A partnership that has proved to be beneficial is with colleagues from the **university library**. Librarians are often very progressive when it comes to Open Science and many have been supporting it for many years, in particular regarding Open Access and open data. However, our experience shows that their knowledge and potential is seldom tapped by researchers. One effective way to foster collaboration with librarians is to organise a back-to-back workshop with two speakers: one librarian and one researcher. In our experience, combining the expertise of a librarian with the practical experience of a researcher can be very insightful to both newcomers and expert Open Science practitioners.

Aims	Audience	Strategy/formats
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Reach out and include newcomers to Open Science	Newcomers	Website, newsletter, flyers, swag, social media, tone of voice
Increase engagement and commitment to Open Science practices	Newcomers & experienced colleagues	lightning talks, workshops, symposia, mentorship programs
Be a breeding place for Open Science initiatives	(pro)active members	Member initiatives, collection of proven concepts
Provide input to policy, infrastructure and support	Rector, board, deans, librarians, IT specialists	Consultancy

Table X: Aims

	Give	Take
Newcomers	Feedback on bottlenecks and boundary conditions	Learn Open Science skills, shape policy and infrastructure (influence)
Experienced colleagues	Share experience	Being able to inspire others (influence), platform to start initiatives (leadership), consolidate Open Science skills (sense of belonging)
Makers of policy and infrastructure	Being open to input (influence)	Well-tested ideas and experiences that help to re-shape or transform ways of working and institutional cultures.
Librarians and support staff	Open Science training	Reach an audience interested in Open Science

Table X: The give and take of target audiences and stakeholders

II.II Governance and funding

There are various possible governance structures for an OSC, and different models can flexibly be adopted over time. Central to all governance structures is the fact that the community operates independently from institutional policies and that the community is led by researchers, to warrant the bottom-up nature of the community: a community for and by researchers and scholars. In section I.III (call-to-action) we already mentioned two different roles in the governance of a community: Community Leaders and Community Managers. A community can be led by one or more Community Leaders, who fulfil this role next to their research and teaching. It is possible that these Community Leaders are assisted by a Community Manager, who is appointed as a librarian of research support staff. In addition, OSCs can appoint Faculty Ambassadors, active researchers who operate as Community Leaders for their faculty. Until now, the Community Coordinators have been self-proclaimed and, where applicable, Faculty Ambassadors were appointed by the Community Coordinators (e.g., in Utrecht, vacancies were announced via community newsletters and social media). However, it is also possible for Community Coordinators and Faculty Ambassadors to be selected based on an election process amongst the community members or, alternatively, be hired by the local institution as part of a broader strategy. Descriptions of these roles and template vacancy texts are provided in the appendix.

Most OSCs start with one or more researchers initiating and managing a community on a voluntary basis, apart from their regular job. We cannot stress enough that, while a lot can be accomplished thanks to the passion and commitment of voluntary Community Coordinators, funding is required to sustain and foster the community. OSCs can grow very fast and, without the resources to maintain this momentum, a community can just as well fade out as quickly as it started. It is therefore crucial for those involved in leading the community to discuss with their supervisors how they can fit in their efforts for the community in their other obligation, for example by reducing teaching load or hiring a research assistant. This, obviously, requires funding. Utrecht University, Erasmus University Rotterdam, and University of Twente have recognized the importance of OSCs and have allocated substantial budgets to sustain them. In Appendix XXX, we include a template budget for a community with two Coordinators (2x 0.4 fte) and seven Faculty Ambassadors (7x 0.1 fte), which corresponds to the current staffing situation of the OSC Utrecht. .

II.III Criteria for success

How to assess the added value and impact of your community? That is a tough question. One possible approach is to conduct university-wide surveys and interviews at regular intervals, to monitor behaviours regarding the adoption of OS practices and evaluate whether being an OSC member facilitates this transition to openness. Surveys allow to have a general overview of the type and scope of OS

practices within your organization and provide a better picture of the differences among disciplines. However, surveys can be time-consuming, require specialized knowledge, and causal inferences are difficult to draw (e.g., responses might be influenced by social desirability, or other organisational initiatives may have played a role), all caveats that should be taken into account in the planning stage.

Alternatively, you can use a set of proxies to assess the success of a community. Proxies, however, only offer a partial view of the work within a community and should not substitute a careful qualitative assessment, e.g., by talking regularly with community members to understand their needs and provide relevant offers with respects to events and communication strategy. Understanding how proxies relate to behavioural change requires additional qualitative investigation to highlight which interactions are most effective. Nevertheless, when used with care, the following proxies can help assess successful community outreach.

Proxy for success #1: number and characteristics of members

The most obvious proxy for success is the number of members and its increase over time. Make sure to dive into the characteristics of your membership to see whether they adhere to your intentions and strategies. For instance, what is the ratio of newcomers to experienced colleagues in your community? . How are your members distributed amongst different faculties? What is the representation across work positions, e.g., PhD candidates, (full) professors, librarians, and so on? While there is no objective target to reach, ask yourself what you consider upper and lower bounds for your community to be self-sustained and achieve its general aims (being a link between OS experts and novices).

Proxy for success #2: Number and type of community interactions

The chance of inspiring engagement to Open Science practices is likely correlated to the number and type of interactions within your community. For example, how many people attend OSC events? Does attendance vary as a function of the type of event, e.g., more people follow workshops rather than talks? Activity within member initiatives is also very relevant in this regard, therefore it is important to be in constant communication with all the organizers.

It is also informative to consider analytics of newsletter interactions, for example how many people have opened the newsletters and clicked on particular links.

An additional proxy is social media presence. Many OSCs have substantial numbers of followers and traction on Twitter. Activity and interaction on social media facilitates interactions among OSCs and between OSCs and other stakeholders all around the world. However, it is important to consider how much of that information actually ends up at your local target audience. Check the profiles of your followers and those of the people that like and retweet your tweets, to make sure you are not only 'preaching to the choir'.

Finally, it would be informative to track how many people reached out to members via the website for questions regarding Open Science practices. We do not yet have procedures in place to systematically investigate the number of professional collaborations born within the community... if you have some ideas let us know! .

Proxy for success #3: Number and type of interactions with stakeholders

Keep track of the formal and informal interactions that you have with local managers, policy makers and providers of infrastructure and services. Wherever possible, make your role and input explicit and keep track of how much of your input actually gets implemented. This also holds for interactions with stakeholders outside your university, for example at the national and international level. In addition, you can track the number of collaborations you have with the university library and how beneficial they were in motivating scholars to implement OS practices in their workflow.

III. How to Start and Foster an Open Science Community

Stage I: Prepare

The first thing you need in order to get a local Open Science Community off the ground is a **Community Coordinator** (see Section II part X). This could be you! In our experience, it is useful (and more fun!) to start with two or three Community Coordinators. We therefore recommend seeking out like-minded colleagues who want to start this adventure with you. Next, make sure to **connect with the network of Open Science Community Coordinators!** We have a Slack [link] channel with the coordinators of all Open Science Communities and we are willing and able to help you get started. It is also highly recommended to **connect with local ongoing projects and people** involved in Open Science, for examples in University Libraries.

The next things you need are a **website** and a **logo**. You are free to create your website in any way your like although to be part of the network it is required to include the following three elements:

- A section with profile page of community members community
- The OSC Guiding Principles (see Appendix X)
- The OSC Code of Conduct (see Appendix X)

The **Guiding Principles** and **Code of Conduct** represent the common ground of all OSCs and should not be modified. If you feel that certain aspects of these documents do not suit your community, please share your thoughts in the Slack channel of the Community Coordinators. Regarding the logo, you can customise the OSC logo for your community, following the instructions in the Style Guide (Appendix X). Please note that while you are allowed to alter certain aspects of the logo (e.g. the last letter and its color) other aspects should not be altered (e.g. font and shapes) for the sake of uniformity and legal reasons⁶.

The next step is **recruiting members**. Recruitment in this stage is more effective by word of mouth: talk to colleagues who are interested in Open Science and/or already have experience with Open Science practices, and ask them if they are willing to join the community. Note that *it matters a lot who your initial members*

⁶ The OSC logo bears similarity with the Ubuntu logo. We have agreed with Ubuntu to set-up guidelines to prevent any confusion regarding our respective logo, for example that the OSCs will not use the same color scheme as Ubuntu. Please see the Style Guide (Appendix X) for more information.

are. If all your initial members are from one faculty, it will be more difficult to attract members from other faculties at a later stage, because they will think that this community is not for them. The same goes for Open Science expertise. If you only have Open Science experts as members, newcomers will be more reluctant to join. Thus, make sure that your initial members are as heterogeneous as possible. When you have a group of around 15-25 initial members, it is time to start increasing the visibility of your community. Get ready for the launch!

Stage II: Launch

Now it's time to make your community official! A great way of doing this is by organising a **kick-off event**. A kick-off event can, for example, consist of a couple of short talks by your founding members on why they are enthusiastic about Open Science and the community. Make sure that the event is festive and celebratory, e.g., by decorating the room and offering drinks and snacks. It is also worthwhile to invite someone to take pictures of the event, which can later be showcased in newsletters, social media, and on the community website.

Stage III: Grow and Inspire

In the next stage, the challenges are two-fold: (1) **attract more members**; (2) **inspire members to make their workflows more open**. Formats and means for both these challenges have been addressed in Section II. Here we address the aspects that are most relevant at this stage. First off, you need to invest a lot in the **visibility of your community**. Start spreading the word, by word of mouth, in meetings and in newsletters of faculties or departments. You can also print some flyers or stickers (see Style Guide for example). It can be very useful to ask your initial members to help out with the promotion. Newcomers are more inclined to join the community if they hear about it from colleagues from within their own discipline or department. In our experience, the most effective way to attract new members is when current members, preferably at a leadership position, send out an email to their research group, department, or faculty, stating that they joined the community and suggesting their colleagues to join as well. It is also worthwhile to be visible at local events with many newcomers to Open Science. Note that these events are most often *not about* Open Science. See if you can get a slot to talk about Open Science and your community, even if it is just a 1 minute pitch. Another option, often easier to accomplish, is to have an information stand at an event, where you can interact with potential new members. It also helps to have a 'SIGN UP HERE' desk present at events where newcomers can sign-up on the spot. And yes, swag and gadgets such as stickers, keycards, and water bottles with the community logo are quite effective (if your budget allows).

The second challenge in this stage is to organise events or other forms of interaction that **inspire members to make their workflows more open**. For example, you can organise workshops on particular Open Science practices (see

Appendix X/OSF page for examples). Many of the workshops organized by Open Science Communities are documented on the Open Science Framework and are open for reuse. In these workshops, we often complement practical experience from peers with in-depth knowledge from librarians. In order to attract newcomers, it is beneficial to narrow the scope of a workshop to a particular audience. For instance, newcomers to Open Science may be more inclined to join a workshop “Open and FAIR data for [include your discipline here]” than a workshop on Open and FAIR data in general. This of course comes with the drawback that you would need to organise many different workshops for different disciplines. If that is not feasible, you can also stick to workshops targeted at the whole university. These also have the added benefit that they may inspire interdisciplinary insights when people from different disciplines interact with one another⁷.

A **newsletter** is also an efficient way to reach a large number of people. For many newcomers, attending a workshop or event may be too effortful due to lack of time or resources, but reading a newsletter can be a low-threshold investment they are willing to make. Our newsletters are typically well read, with about 50% of the subscribers opening the newsletter and 10% clicking on items in the newsletters⁸. Make sure to keep your newsletters short and appealing and don't send them more often than once a month.

Stage IV: Foster and Sustain

At this stage, your community has become more mature and you may want to invest in effectiveness and sustainability.

You might want to critically analyze the **diversity of your membership**. Are you happy with the proportion of newcomers and experienced members? Do you have members in all faculties? Who are you missing? To optimize the diversity of your membership, you may consider reaching out to new target audiences, such as students, colleagues at Universities of Applied Sciences, or members without a university affiliation, such as citizens, private companies, or members of civil societies.

This is also a good stage to critically reflect on the events and community interactions you are organising and facilitating. Are they effectively inspiring members to adopt Open Science practices? Do the proposed formats (e.g., workshops and journal clubs) complement each other? **Keep your target audience engaged and increase their commitment step-by-step**. You need a diverse set of activities, ranging from low-threshold lightweight events to in-depth workshops and

⁷ At the time of this writing, we are over two months in the corona crisis. This has urged us to move all of our events and workshops online. In our experience, it has been particularly challenging to attract newcomers to Open Science to attend online workshops. Whether this is because of the format of online workshops or the different priorities our members currently have (or both!) remains to be seen.

⁸ These numbers are based on the newsletter of the Open Science Community Utrecht. If this seems low to you, bear in mind that the benchmark for newsletters for Social Networks and Online Communities is below 30% for open-rates and 5% for click-rates (source: [Mailchimp](#)).

study groups, to suit each step of their paths towards openness. It may even be worthwhile to track and analyse what kind of community interactions members subsequently engage in and how that corresponds to whether and how they open up their workflows.

A community flourishes thanks to the **contributions of its members** which should be actively encouraged: they can increase the magnitude and diversity of the activities organised within the community while simultaneously easing the organisational burden on the shoulders of the community coordinators. Consider having procedures in place for members to start their own **Member Initiatives**. Member Initiatives can be any format for interaction within the scope of the community, for example workshops or local study groups on a particular Open Science practice. They are typically tailored for a smaller subsection of the community. The community can be the platform where members can showcase and recruit collaborators for their initiatives and, if you have available funding, you can also provide them with a modest budget (typically to cover refreshments and logistics). These initiatives could be designed from scratch, or could be reusing existing formats that have successfully been adopted at other universities to promote the uptake of Open Science practices. More information about member initiatives, including examples of successful existing formats that can be reused are discussed in Section II.X.

Last but not least, at this stage it is critical to invest in the **sustainability** of the community, particularly focussing on **maintaining and expanding capacity**, which is closely connected to **acquiring funding**. Communities are sometimes started by PhD students: their energy and enthusiasm can propel the success of the community, but their temporary contracts leave the community vulnerable. It is recommended to either include colleagues with a permanent contract in the core organizational group or include new PhD students that are likely to be around for a longer timespan than the founders. Also, consider **expanding your core team**. For example, promote Faculty Ambassadors who focus on activities and engagement in their respective Faculties. You may also want to involve support staff that could support you with organisational tasks, e.g., from the University Library or Research Support Offices.

At this stage, it is also critical to **acquire funding**. Of course, it would make your life much easier if you were able to acquire funding from the very beginning (and we wholeheartedly recommend you to investigate available options at your local institution). However, acquiring funding is often more effective if you already have a success story to show. It often requires extensive lobbying to convince colleagues who can allocate budget. In this regard, it helps if you can make a clear case for how your community makes institutional policy and projects more effective. The *source* of the message is also important, so make sure to include members at leadership positions in your requests. Your chances of acquiring funding will depend on the urgency of local Open Science policies and how well you are able to connect with

them. Unfortunately there is no one-size-fits-all solution or strategy, as these circumstances will differ from one University to another. And when you are able to acquire funding, it is important that you are able to warrant the independence of the community. The community should always be able to set its own course without being part of institutional policies. In the Slack channel of the Community Leaders, we have a separate channel to discuss funding-related issues.

Stage V: Dream and Scheme

What happens next? That's up to you! This is our experience so far with the Open Science Communities. We hope that, some day, Open Science will become such a common practice that Open Science Communities will become obsolete or continue as platforms for collaborative and innovative science. Until that day, we will continue to explore ways to attract newcomers to Open Science, assist them in opening up their workflows, and interact with makers of policy and infrastructure to shape the transition to Open Science. This transition is an ongoing process, with local national and international stakeholders, each moving at their own pace. This is bound to be a bumpy ride. So we need to be agile: willing and able to adjust our ways to meet unforeseen challenges. At times it will be smooth sailing, other times we'll be in for stormy weather. But together, our fleet of Open Science Communities can navigate hell or high water. And one day, we will look back and see that science has become more open, more effective, more fun and that we have paved the way for generations to come.

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Acknowledgements and contributions

[State that this is just the first version of the Starter Kit and that new insights are bound to arise based on the experience of current and new community leaders. We will take stock of relevant experiences during the recurring meetings of the community leaders (and are open to offline comments/contributions) and will revise the Starter Kit on a yearly(?) basis.

Procedure: asking for input on the Starter Kit from all community leaders - can be done via Github.

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Endorsed by: