

Skills 4 eosc

D6.2 Starter kits for professional networks: data steward

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Deliverable Abstract

This deliverable is a Data Steward Network starter kit. It is developed to provide support for the creation of new professional and sustainable communities. Professional networks play a key role in the context of Skills4EOSC Competence Centre network as they are seen as a tool for lifelong learning through peers.



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Starter kits for professional networks

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TERMINOLOGY

<https://eosc-portal.eu/glossary>

Terminology/Acronym	Definition
Community	A mutually supportive, self-perpetuating group with purpose and structure.
Community Canvas	A framework designed to help build and run a new community, or analyse and improve an existing one by identifying fundamental themes of identity, experience, and structure.
Community of Practice	A group who shares a common concern, set of problems, or interest in a topic and who come together to fulfil individual and group goals.
CSCCE	Centre for Scientific Collaboration and Community Engagement
CSCCE Community Participation Model	A framework for modes of member engagement occurring in a community: convey/consume, collaborate, co-create, and outside of it: champion.
Data Steward	Data stewards cover expertise in managing research objects for sharing with the scientific community and the public.
DSIG	Data Stewards Interest Group

EOSC	European Open Science Cloud
FAIR	Findable, Accessible, Interoperable, Reusable
ICDI	Italian Computing and Data Infrastructure
INOSC	International Network of Open Science and Scholarship Communities
MVS	Minimum Viable Skillsets
Network	Expansive open chains of connections, without having a concept of membership, and little expectation of mutually supportive interaction
Onboarding	Process of inviting and welcoming people, including information about expectations and norms around participation.
RDA	Research Data Alliance
RDM	Research Data Management
Scaffolding	Supportive information, activities, and processes that address barriers to participation and ensure all can access and engage.

Contents

1	Summary for starting and sustaining a community.	8
2	Introduction	12
2.1	Skills4EOSC deliverable 2.1: Data Stewards Minimum Viable Skillset 12	
2.2	Executive summary.....	13
3	Getting started	17
3.1	Practical actions section summary: What to think and do before starting.	17
3.2	Starter kit.....	18
3.3	Communities	19
3.4	Benefits of Communities.....	19
3.5	Community and networks	20
3.6	Introduction to Communities of Practice.....	21
3.7	Membership and Responsibilities	23
4	Launch.....	25
4.1	Practical actions section summary: Launching	25
4.2	Getting going.....	26
4.3	Planning and preparation	26
4.4	Positionality and Code of Conduct	31
4.5	Leads.....	37
4.6	Champions	40
4.7	Kick-off.....	42
5	Sustain	47
5.1	Practical actions section summary: Sustain.	47
5.2	Membership	48

Starter kits for professional networks

5.3	Success	51
5.4	Participation	51
5.5	Team roles.....	55
5.6	“Onboarding”, or saying hello.	56
5.7	“Offboarding”, or saying goodbye.	56
5.8	Case studies	57
5.9	Preliminary results within Skills4EOSC Competence Centre Network. 59	
6	References	62

1 Summary for starting and sustaining a community.

Theme	Actions
Aim:	Help create or sustain communities in data stewardship for researchers and research support staff.
Pillars:	<p>Interaction: through communication or collaborative activity building relationships between participants.</p> <p>Common domain of interest to define identity: Data stewardship, or elements of data stewardship practice.</p> <p>Domains best suited are “problematic”. Things attracting discussion:</p> <ul style="list-style-type: none"> • Might not have consensus. • Contain dilemmas. • Have no idea on how to address. <p>Identity implies commitment and shared competence. Formal or informal identity defines entry to domain:</p> <ul style="list-style-type: none"> • Common location • Professional qualification or job titles? • Interest <p>Shared experience: Members as practitioners directly sharing experiences, or using common tools, facing similar challenges, can all be part of this element.</p> <p>Support for in-person activities and for time leaders and/or champions spend on it.</p>

	<p>Aims and objectives of a community can shift and evolve in time depending on the membership.</p>
<i>Benefits:</i>	<p>Amplifying concerns: “We are worried about...”</p> <p>Building arguments: “How can we push back against the argument that...”</p> <p>Documenting: “How did we manage (or here is how others managed) to do something...”</p> <p>Identifying gaps: “There is no community that brings together data stewards and repository managers.”</p> <p>Problem solving: “How do we get researchers to share data?”</p> <p>Requesting information: “What kind of journal policies on data sharing are in place?”</p> <p>Reusing assets: “This is a great tool for making data FAIR...”</p> <p>Seeking experience: “This person has managed to do...”</p> <p>Shaping roles: “What does it mean to be a...”</p> <p>Sharing opportunities: “Here is a job at...”</p> <p>Visits: Going to learn from others.</p>
<i>Responsibilities:</i>	<p>Some level of coordination and decision making is needed, even if small and voluntary, to guide and focus on tasks and organisation:</p> <p>Manage Information and knowledge about the community and ensuring people can access it or information referenced by the community.</p>

	<p>Facilitate meetings: making sure meetings remain focused, setting agenda, ensuring participants can contribute.</p> <p>Manage relationships: strengthening and building relationships within the community, identifying, and recruiting new members, and helping them move to more active roles.</p> <p>Organise subject matter experts with knowledge relevant to the field or topic.</p> <p>Find, manage, and maintain access to technology platforms to manage information and allow people to participate.</p> <p>Help maintain and grow/evolve through crafting strategic plans.</p> <p>Be open to discuss redefining the scope of the community when or if needed.</p>
<p><i>Practical actions:</i></p>	<p>Define why the community should exist and who it is for.</p> <p>Think about models and theory in the context of need and who would be involved.</p> <ul style="list-style-type: none"> • Community of Practice • CCSE • Community Canvas <p>Identify interaction processes: what are common interest(s)? What can participants share?</p> <p>What benefits result for participants, community, and wider domain?</p> <p>Scope roles for managing and championing.</p> <p>Positionality, Charter, and Code of Conduct: Short, simple, should help shape and direction. Address:</p>

- Purpose
- Eligibility
- Objectives and targets
- Expectations on behaviour, like commitment to collaboration, expectations on privacy and confidentiality.

Time (funding) needed for leads and champions.

“Skills wheel” to identify skills required, assist professional development, or allocate skills effectively. At an organisational level, it supports gap analyses of the skills across the group.

Launch: to start meeting regularly and help forge an identity. Consider choice: in-person, online, or both.

Promotion to target communities:

- Discussion channels (email, slack, discord)
- Materials: can range from promotional to research articles.
- Newsletter
- Social media
- Conferences: Targeting to present or organising own.

Think about “on” and “offboarding”: How people join and leave the community.

2 Introduction

2.1 Skills4EOSC deliverable 2.1: Data Stewards Minimum Viable Skillset

The Skills4EOSC [Minimum Viable Skillset](#) (MVS) for Data Stewards (Whyte et al., 2023, pp. 9-15) is a good starting place to identify elements of data stewardship that could be usefully supported by a community.

The MVS includes two data steward profiles, one for a coordinator and another for embedded roles. The former refers to a role across an organisation, and the latter as part of a research team with domain-specific focus. These roles could be used to identify any needs.

Data steward skills cover expertise in managing digital research objects for sharing with the scientific community and the public. Elements of managing research objects in cooperation with other Research Data Infrastructures can also provide focus for a data steward community. These include: protecting the rights and legitimate interests of all other stakeholders, working with data subjects (including any sensitive data groups or communities), work within or across organisations that produce data, and focusing on relationships with research funders, scientific journals, and repositories.

Data stewardship expertise is typically distributed across a team, so there are other actors to work with like data librarians, archivists, data protection officers, information security experts, copyright specialists, research ethics managers, who could all be potential members of a data steward focused community, depending on its focus.

Data stewards perform key roles in Open Science. They are likely to be both consumers and providers of services or resources: as practitioners and champions of Open Science, and as trainers and enablers of others in their organisation (researchers especially).

2.2 Executive summary

The growth of Open Science initiatives in research, allied to the expansion of Open Data initiatives, requires considered management of research and research data.

Data stewardship has emerged as a professional identity to help this. It does so by linking research and research support in collecting, documenting, sharing, publishing, and preserving research data for responsible and efficient sharing and research transparency.

But as a new professional identity, defined responsibilities, roles, perceived organisational value of data stewards, as well as required knowledge and skills, can vary.

One way to help this professional identity, and develop skills and knowledge is to build communities of data stewards that share experiences, collaborates on problems, and co-creates solutions.

This starter kit is designed to help. It borrows from three models of community organisation to help with the identification of a need for a data steward community, or community focusing on an aspect of data stewardship, then the practical steps and conceptual thinking needed to launch and sustain a community. Kits also build upon the existing International Network of Open Science and Scholarship Communities (INOSC) [Open Science Community Starter Kit](#) (Brinkman and Eerland, 2022). Reference is also made to approaches from social psychology and management theory on group dynamics and effective team building.

The starter kit is not intended to be too proscriptive. It acknowledges there is variation in the size, scope, and geographical spread of potential communities and this means variation in elements of organisation of those communities. But it does ask for thinking critically about some of those aspects to help ensure they are appropriate to the needs of a community and facilitate its aims and objectives.

By helping facilitate establishment and sustaining of communities this toolkit contributes to professionalisation of data stewardship.

It also contributes to the Skills4EOSC aim to develop common activities and training resources for collaborative and reliable support to the European Open Science Cloud aim of providing reliable research data. Moreover, professional networks play a key role in the Skills4EOSC Competence Centre Network. Professional networks are linked to the Skills4EOSC Competence Centres as they include professionals who share interests, goals, and values related to OS principles and practices and they can be seen as a key tool to implement lifelong learning through peer support.

In the broader European Open Science and EOSC context, some networks are pre-existing to the Skills4EOSC activities, while the project intends to support building new ones via its Competence Centre Network.

It provides a link in Skills4EOSC Work Package 6 between tasks to identify existing professional communities and networks (T6.1) and instigate and sustain ones for data stewards, researchers, and thematic experts.

It also paves the way for Skills4EOSC Work Package 7 activities that will shape the relationship between Competence Centres and Professional Networks and Communities and their respective roles in the training and support context.

The community approach allows learning to be embedded and sustained within the daily workflows of data stewards, researchers based at institutions, and within thematic networks identified by Skills4EOSC (T6.3.1, T6.3.2), as well as other professionals such as museum curators (T6.3.3).

2.2.1 How to use this data steward network starter kit

If you are looking to set up a new one...

Section 3 is the place to start.

Section 3 can help you conceptualise what a community is, using existing models of community organisation, and how they can help individual and collective professional development.

Section 3 also helps identify responsibility roles within the community.

Section 4 will look at the work you should do leading up to that first meeting of the group, including planning and organisational tasks.

If you are looking to sustain or grow an existing community...

Section 5 can help.

This looks at sustaining a community, including growing membership, encouraging participation, welcoming new members, and saying goodbye to others.

At the start of each section is a set of summary practical actions.

You can refer to them to either get an overview of what is in that section, or look at them to identify and reinforce practical steps outlined in the section.

Section 1 provides a two page overview of all the practical actions in this starter kit.

In this starter kit you will find guidance on establishing and sustaining professional communities for data stewards.

In summary, it:

- Elaborates on benefits, including sharing expertise, solving common problems, advancing the profession, building tools, and collaborating.
- Borrows from [Communities of Practice](#), the [CSCCE Community Participation Model](#), and the [Community Canvas](#) approach.
- Discusses leadership responsibilities, including managing information and relationships, facilitating discussions, organising subject matter experts, and finding/managing platforms.
- Presents practical actions to consider, like defining purpose and audience, considering models and approaches (community or networks), writing a charter and code of conduct, identifying leaders and champions, launching with a kick-off event, and promoting the community.
- Looks at sustaining actions including welcoming new members, enabling participation through “scaffolding”, and planning for members leaving the community.
- Discusses various levels of participation, from core to peripheral. In sum, a mix is healthy, but imbalance can create problems.

Starter kits for professional networks

- Presents case studies as examples of existing data steward communities like the [ELIXIR-UK Data Management Working Group](#) and the [Data Stewards Interest Group](#) and work done in Italy establishing a data steward community as part of Skills4EOSC Competence Centre Network.

3 Getting started

Key actions: determine purpose and approach, identify benefits and responsibilities, use existing models/tools to help plan and organise launch.

3.1 Practical actions section summary: What to think and do before starting.

- **Identify benefits** for leads, members, and wider community, such as problem solving, knowledge sharing, identifying gaps, amplifying concerns, etc.
- **Understand potential members.** Carry out membership research - who are your target members? Get to know them and what they are prepared to contribute, and how. Online survey, interviews, group discussions, in-person meetings can be ways to do this.
- **Community or network?** Understand differences between them on level of connection and purpose. Communities have stronger bonds and shared purpose; networks are looser connections for sharing information.
- **Refer to models** such as [Community of Practice](#), [Community Participation Model](#), and [Community Canvas](#) to help focus planning on launch, growth, and sustainability of a community.
- **For a small community**, draw on Communities of Practice to guide planning and organizing. Key elements are interaction, shared domain of interest, and shared experiences.
- **Scope key roles** like leads and champions. Leads guide and support, champions promote and recruit.
- **Consider responsibilities** needed for success like facilitating meetings, managing information and relationships, providing subject expertise, and managing technology platforms.

3.2 Starter kit

On the one hand, communities help to develop data stewardship through mutual learning, shared expertise, and working together to try and solve common problems. On the other, through collaboration and sharing, communities are emerging, and growing. These communities include data stewards (embracing data curators, data librarians and other data professionals) at institutional, regional, cross-national, and European levels, as well as thematic communities, like, for example, AI research, health and technology data, and museum curators.

They can be open to anyone working in, or interested in, its domain bringing like-minded and non-like-minded people together in terms of their beliefs, experiences, and professional roles.

However, some communities might have barriers based on specific or relevant criteria - like working in a country or region, or expertise and experience with a particular topic - which may also include professional qualifications and/or job titles. In any event, participation - and the level of that participation - is a choice rather than obligation.

Communities shape the priorities of infrastructure, policy, and support, but also in developing data stewardship. They can also foster a more radical approach to create connections with people who share a common interest, but with different views, to try to identify and fill undiscovered gaps in knowledge or expertise.

This kit draws from approaches in sociology, social psychology, and management theory on group dynamics and teamwork to focus on building communities.

In terms of models, it borrows from the concept of a [Community of Practice](#) for smaller, looser, freer types of association, and the [Community Participation Model](#) provided by the Centre for Scientific Collaboration and Community Engagement (CSCCE) for more formally organised ones.

Starter kits for professional networks

We also reference guidance provided by [Community Canvas](#), who have produced useful templates with questions intended to help focus planning, launching, and sustaining groups.

In a review of the literature on Communities of Practice, [Schulte](#) (2021, pp. 48-49) concludes they are understood as either theoretical lenses that explain a learning process, or organisational concepts providing a place for education, innovation, and adaptability.

Our focus in this tool kit is with the organisational approach - avoiding explanations of how people learn, and instead conceptualising the construction of an effective community.

3.3 Communities

This starter kit is intended to provide potential and current data stewards with information about approaches to community development, from planning and setting up, through to sustainability and expansion.

It does not focus on step-by-step instruction, nor prescriptive or proscriptive “rules of success” although an element of that is inescapable. But it does ask you to think critically at points about what the community is for and what it wants to achieve.

Professional communities aim to strengthen data steward practices as members learn, share expertise, experiences, and work together to advance the profession, build tools, collaborate in projects, and act together to solve problems.

As [Armeni](#) et al. (2021) argues, initiatives and growth of Open Science - of which data stewardship is a part - is often built on small groups of innovators or early adopters coming together to do one or more of developing software, change behaviours (like data sharing), promote knowledge, or provide training and support.

3.4 Benefits of Communities

These include:

Starter kits for professional networks

- Amplifying concerns: “We are worried about...”
- Building an argument: “How can we push back against the argument that...”
- Documenting: “How did we manage (or here are how others managed) to do something...”
- Identifying gaps: “There is no community that brings together data stewards and repository managers.”
- Problem solving: “How do we get researchers to share data?”
- Requesting information: “What kind of journal policies on data sharing are in place?”
- Reusing assets: “This is a great tool for making data FAIR...”
- Seeking experience: “This person has managed to do...”
- Shaping own role: “What does it mean to be a data steward?”
- Sharing opportunities: “Here is a job at...”
- Visits: Going to learn from others.

Communities are not entirely self-organising, nor are they always collegial. Some may be more organic in coming together, but most need some level of coordination and direction, and decision making.

Just being a good facilitator is not enough, you will also need to think about - or recognise - things that give value. That could just be knowledge sharing, but it can also be a range of activities like creating, developing, and organising.

3.5 Community and networks

A good place to start thinking is to look at some of the theory and models for establishing a community or network. This will help shape your concept effectively, by thinking about why you feel a community or network is needed, who would be involved, and how to organise one in such a way as to establish it and grow.

Are you interested in a community or network? Despite being closely related, they are not synonyms; the difference lies in how people in these spaces connect. [Edersheim](#) (2021) makes the distinction based on chains of connection. Networks have loose, limited bonds between people. You may

be connected to someone in a network but have little to do with someone else who is also connected to that person. Communities however, are mutually supportive and based on a purpose and intentioned to connect everyone in that community. In its basic distillation: “Networks connect; communities care.”

Table 1 - Community v. Network

Community	Network
Exist for mutual support, cooperation, and accomplishing a goal	Primary uses are for finding a resource, learning, and disseminating information
Shared interest, values, goals, or mission	Open, no defining shared purpose necessary
Creates and perpetuates strong bonds	Consists of loose or bridging bonds
Has membership boundaries/Limited	Open/unlimited
Provide trust and support	Encourage cross-pollination of ideas
Characterized by shared purpose/ideas	Platform for new opportunities

Source: Edersheim (2021).

3.6 Introduction to Communities of Practice

The [Community of Practice](#) is a concept identified by Trayner and Trayner (2015) who propose that complex learning occurs through social relationships. The community is where people “engage in a process of collective learning in a shared endeavour”. This can arise from intention, you aim to engage with others; or unintentionally, you may find you are engaging with others just by being part of the community.

A Community of Practice is a group “of people who share a concern or a passion for something they do and learn how to do it better as they interact regularly” (Trayner and Trayner, 2015, p. 2).

3.6.1 Elements of a Community of Practice

Three elements produce and sustain a Community of Practice:

1. Interaction: through building existing or new relationships between participants through communication or collaborative activity.
2. Common domain of interest: data stewardship or elements of it, for example, data sharing, data protection, information security, Open Access publishing, programming languages, digital preservation, metadata.
3. Shared experience: Directly sharing, using common tools, identifying similar challenges.

You may already be part of a community without you, or the community, realising it. This may be through profession, location, or educational affiliation. It could also be through occasional participation for example through mailing lists or voting in an election, or active membership in others, where you may hold an elected position, serve on committees, or work in advocacy.

3.6.2 Characteristics of a Community of Practice

For Trayner and Trayner (2015), a Community of Practice has three characteristics:

1. Domain: An identity defined by shared interest. This implies commitment and shared competence and can be informal in terms of entry to that domain. For example, you do not need a PhD to enter a data stewardship community.
2. Community: Somewhere people build relationships enabling learning with, and from, each other. Participants should have some investment as to their standing in that community, for example, wanting to learn how to apply stewardship practices in their own work, and being able to demonstrate that learning.
3. Practice: Members as practitioners. They have a shared repertoire of resources, experiences, stories, tools, and ways of addressing problems. For data stewardship, a community can include practitioners like data stewards, but also those who do research or provide research support

applying stewardship actions in their work or develop and sustain infrastructure and resources that help this support.

Communities of Practice can be a retrospective term applied to existing communities, rather than a purposive one for establishing new ones. They are not task groups, though they may involve tasks. They are not groups of people with a common interest, for example, not all data stewards are in a data steward Community of Practice unless those data stewards interact with shared experience, problem solving and learning.

3.6.3 Communities of Practice as informal and non-hierarchical spaces

Communities of Practice need not be limited by formal structures, organisations, or geography. They might have an institutional or location defined aspect. They are, however, “organic” - there may be some organisation and leadership positions, but it is not a formal, assigned, and hierarchical group organised for the purposes of completing a task.

[Mercieca](#) (2017, p. 5) argues that professional development, especially in a university setting has traditionally been “top-down” in delivery, through avenues like seminars and conferences, which, by their nature, tend towards passive engagement, offering limited avenues for commitment or ongoing discussion with experts. A Community of Practice is a different means of manufacturing learning and change, with active participation to share experiences, and space to develop practice. The results are institutional memory creation and helping overcome barriers of isolation, especially for less senior members (Mercieca, 2017, p. 23).

3.7 Membership and Responsibilities

Membership is often voluntary, but there are responsibilities necessary for success.

Two primary roles are leads and champion(s).

Starter kits for professional networks

Leads guide and focus champions, internally and externally. As suggested, these roles may be filled by more than one person, working together as a team.

What are some of these responsibilities ([Woodley et al., 2021](#))?

- Information and knowledge management: Managing and organising information about the community, and ensuring people can access it.
- Facilitating meetings: making sure they remain focused and participants get to contribute.
- Managing relationships: strengthening and building relationships within the communities, identifying, and recruiting new members, and helping them move to more active roles.
- Subject matter expertise: knowledge relevant to the field or topic to approaching a professionally recognised standard, like a postgraduate or doctorate degree or gained through equivalent work experience.
- Information and communication technologies: finding, managing, and maintaining access to platforms to manage information and allow people to participate.

The starter kit expands on these roles in [section 4](#) (launch) and [section 5](#) (sustain).

4 Launch

Key actions: cover planning purpose and structure, establishing leadership/coordination, communication systems and ground rules, promoting the community, hosting a kick-off, and maintaining engagement.

4.1 Practical actions section summary: Launching

- **Review existing communities** to avoid duplication or identify potential partners. Would an existing forum be complimented by a community?
- **Identify a clear purpose and “domain of interest”**. Consider gap(s) to fill or need(s) to meet. What is likely to realistically attract interest in terms of topic and form? How will the world be worse off if this community does not exist?”
- **Use planning models** like [Community Canvas](#) to define identity, values, goals, metrics, roles, decision-making processes.
- **Define membership criteria**, a code of conduct, and core values like diversity and inclusion - what is inclusive and exclusionary, and how to create and maintain a safe environment.
- **Identify lead(s) and champion(s)** to provide direction and advocate for the community. The CSCCE [Community Participation Model](#) can help identify skill competences and gaps in leadership.
- **Establish communication channels** and information management systems and procedures, including document repository.
- **Plan regular interactions** to facilitate discussions and manage relationships.
- **Host a kick-off** meeting to agree on aims, elect leaders, set ground rules, and facilitate discussions.
- **Promote** through internal and external participation, materials, newsletter, social media, attending or organising conferences.
- **Recruit** members, enable contributions, and share opportunities to sustain engagement to maintain, grow, and evolve.

4.2 Getting going

You might already have an idea of what communities or gaps currently exist in the data steward domain of interest.

The [Community Canvas](#) model states: “a confident sense of identity builds the very core of a successful community and informs all other elements around it” (2017a, p. 6). You do need a common interest - something that will define the identity of the group.

To build identity, the Community Canvas model asks why a community exists, and who it is for. We will look at this in section [4.3](#).

Its focus could be broad or niche: from data stewardship in general, through to a single aspect of stewardship like licensing of data sets.

It could be institutional, for example, data stewardship at a specific research performing organisation, or cross-institutional; localised, as a city; regional, national community; or international - like the [Research Data Alliance Professionalising Data Stewardship Interest Group](#).

It could be disciplinary or inter-disciplinary, and it could be something already exists, or does not need to exist. If so, the decision not to start a competing community can be just as valuable. Indeed, the Community Canvas directly asks: “How will the world be worse off if this community does not exist/ceases to exist?” (2017c, p. 3).

Alternatively, what exists might be a gathering in a different form like an email list, discussion forum, informal social gathering, or social media hash tag (for example, #datalibs or #medlibs). In which case, a network might be an attractive, and complementary, alternative.

4.3 Planning and preparation

Approaches to building, sustaining, and developing, like Community of Practice, identify the need to have a domain of interest, and common experiences. Finding something that could potentially satisfy all these is foundational to building a community.

Starter kits for professional networks

As mentioned, you may have already experience of being part of something you feel fills a gap in terms of knowledge, or would provide a benefit if in a different form of organisation.

Who would your potential community members be? If it is not immediately apparent (for example, data stewards at a specific university), then do you need to do some research to get to know who they are, what their interest is, and what they are prepared to contribute?

A set of closed category online survey questions might be useful to gauge interest. A question on interest in involvement: “Are you interested in joining a data steward community?” Followed-up by a question on the nature of that involvement around types and frequency of contributions. An example here is provided by Italian Computing and Data Infrastructure (ICDI, 2023), who conducted an [online survey](#) of data stewards in Italy to identify their presence and activities in Italian universities and research organisations.

These kind of questions can also be explored in other settings, depending on the nature and size of the group. For example, if it is possible to have online focus groups, or in-person discussions, either taking place specifically for gauging interest, or taking place in a context in which a group is likely to gather, say as part of a conference.

The Community Canvas model (2017b) provides a set of nine “[minimal viability](#)” questions to help identify your community and how to approach its values, aim(s), and management.

It ranges from the broad (“Why does the community exist?”) through to some specifics (“In the next 12 months, what are three metrics that will define success for us?”) and organisational questions on identifiable roles, selection, decision making, and communication channels.

A [more rigorous set of questions](#) provided by the Canvas (2017c) can be used to follow-up on these initial ones.

One thing to remember is that a community need not be fixed.

Over time, and as membership (hopefully) grows, aims and objectives can shift and evolve, or can dissolve if it feels work needed has been done.

Topics best suited will be “problematic” ones. These are the type of things attracting discussion, might not have consensus, not easily solvable, or beyond that, have no clear starting point on how to address something.

If there is no current satisfactory way to share ideas, practices, discuss problems, or collaborate on addressing them, then there is probably space for a community. One on routine practice or settled knowledge is unlikely to attract interest.

4.3.1 Skills4EOSC Deliverable 6.1: Mapping of existing professional networks

[Skills4EOSC Deliverable 6.1](#) (Buss et al., 2023a) mapped existing Open Science professional academic networks and communities including data stewardship networks, across Europe, to provide the first overview of what networks or communities already exist. This might be a good place from which to begin identifying a topic of interest related to data stewardship.

Deliverable 6.1 mapped existing Open Science professional networks in 24 European countries.

There were some boundaries to what was examined. The survey considered only academic and research networks, although “citizen science” was excluded as a search term. Hobby or commercial networks were not included. The task also did not attempt to include any group that might be organised within projects, but did not identify as a community. Finally, its scope was outside of communities or networks within individual institutions, focusing only on collaborative ones. Yours need not be bounded this way.

The task found there was no existing register of professional Open Science networks. Of those networks the task identified, life sciences dominated in disciplinary focus, and that, intuitively, nations with a small national number of communities or networks have a less diverse range.

Further findings were that most groups are relatively new. Furthermore, Open Science focused ones tended to be “bottom up” communities - starting at the lowest levels it is often the activity of a few individuals deciding to do something and create a group to address some issue.

In essence, they were established to refine practices, develop expertise, and disseminate Open Science messages and training, particularly FAIR data.

Data underpinning the deliverable is [available](#), and can help identify networks or communities on a country or topic basis. Data also include descriptions of their purpose and activities (Buss et al., 2023b).

4.3.2 Knowledge in organisations

Not all kinds of knowledge are the same. Knowledge is acquired, transferred, and put into practice in different ways - written, spoken, observed - depending on the type of knowledge and audience. So, thinking about the kinds of knowledge in your communities is also useful.

Communities of Practice can be beneficial where there is tacit knowledge, but what is tacit knowledge? [Choo](#) (2002, pp. 79-80) talks of tacit kinds of knowledge in organisations.

Tacit knowledge is a concept to explain that which is derived from practice and experience. It is the kind of knowledge that is hard to express and verbalise as it is practised through actions like intuition, hunches, heuristics, or workarounds, as ways of thinking about a problem.

A community needs membership. And to get one up and running you need other people interested in helping to start it; not just from an administrative, but also a mission perspective to help refine its scope, determine which issues to address, and find suitable leads and members to get involved.

Part of that discussion should be about what is likely to attract interest. This can include considering a requirement for a certain level of participation to become or remain a member, and what is realistic. The two might not always be the same.

In section [2.1](#), which summarises the work of Skills4EOSC task 2.1 on defining minimum viable skills for data stewards, are another set of aspects around data stewardship that could be purposed into useful domains.

4.3.3 Documents repository

Establishing a repository for documents can help efficient information sharing, resource discovery, and collaboration.

Choices about what kind of technology to use are dependent to an extent on what is available, popular, accessible, and desirable. But it is worth thinking critically about how you want and need your repository to function. Two things to think about are your “information ecology” (Davenport and Prusak, 1997) and “information use environment” (Taylor, 1991, pp. 217-255).

Information Ecology

Work towards an understanding of how information will contribute to the community's success.

Encourage and support the types of information behaviour you want, like interactive (sharing and collaboration) or passive information presentation (policies, guidance).

Think about ways to manage stakeholder complexity where information is created and owned by multiple people.

How will information make a strategic contribution to the community?

Who has control over creation, ownership, and distribution of information?

What are the attitudes towards, and norms around, sharing and using information in the community? For example, a commitment to openness, or a desire for anonymity?

Processes for collecting, organising, preserving, and protecting information. What internal and/or external platforms and processes are of use?

“Information Architecture”: Formal definitions and rules for information entities and data properties - like types, version control, and access permissions.

Information Use Environment:

Who are the users?

Is it a professional group (for example, data scientists)?

Is it for education, for training, or both?

For specific organisational roles? Like an executive committee.

Demographic group

Social group

Information preferences:

Formal or informal style

Asynchronous collaborations or virtual meeting

Email or messaging

4.4 Positionality and Code of Conduct

Working on a core set of documents establishing what the community is for, who is eligible for involvement, as well as some objectives and targets, is not intended to be too proscriptive or ambitious, but should help give the community shape and direction. This will help you, as well as helping potential members understand what the community is about and if it would be of interest to them.

4.4.1 Positionality

Acknowledging that we see and experience in different ways is also something to consider.

This “positionality” approach ([Cousin](#), 2010, pp. 9-18) or how our experiences and identity influence our world view, is important. Being aware of, listening, and communicating to others how our multiple positions relate to structures or systems of power should be an ongoing practice. It helps us understand colleagues and communities.

Thinking about positionality is to practice an empathic skill on a personal level, like being able to anticipate someone else's response, such as happiness or discomfort, but also our place and impact.

Starter kits for professional networks

Some questions to consider if trying to write this into a charter: how do our personal, professional, and intellectual positionality (the identities we are, contexts in which we live, the experiences we have, and perspectives we hold) inform, relate to, or diverge from others in our profession?

It might be worth taking time to reflect on your own positions, like, for example this statement in 4.4.2 from [Gaynor](#) et al. (2022, p. 2).

4.4.2 Example positionality statement.

Positionality and process statement

We are a team of researchers and data scientists across career stages based at the National Center for Ecological Analysis and Synthesis (NCEAS), an independent research affiliate of the University of California, Santa Barbara (UCSB). Our group includes Masters of Environmental Data Science (MEDS) students, members of the NCEAS executive team, postdoctoral researchers, science communicators, and staff scientists. To develop these rules, we drew on our collective experiences conducting team-based data-intensive science. Individually and collectively, we reflected on when we have and have not felt a sense of belonging, and what actions have, and have not, fostered that feeling. Throughout the manuscript, we cite many actions that we have found to be impactful at NCEAS, and while our examples draw heavily from our own experiences, the general rules apply across research environments.

Our perspectives and senses of belonging are shaped, in large part, by our individual experiences. We all have access to higher education and research opportunities and are based at UCSB, a space that is exclusive and privileged. While we represent a diversity of backgrounds and identities, including some that have been largely excluded from science, our authorship team of course does not reflect the full diversity of human experiences.

How can we bring these positionalities together?

According to [Darwin Holmes](#) (2020, pp. 4-5) a positionality statement takes time, thought, and requires reflection, not only on yourself, but how others view you, and your impact on data stewardship as a profession. In 4.4.3 are

some personal characteristics and experiences to consider in getting started on a positionality statement.

4.4.3 Writing a positionality statement.

Things to consider...

Beliefs

Philosophical

Personal

Theoretical

Influences

Age

Class

Race

Ethnicity

Gender identity

Religious beliefs

Previous career experience

Position

“Insider” or “Outsider” relationship to data stewardship. For example, not everyone in a data steward community need be a data steward.

Adopted from Darwin Holmes (2020, pp. 4-5).

4.4.4 Code of Conduct

Related to this is thinking about a charter or code of conduct. A code is there to optimise participant involvement by creating a safe environment based on mutual respect.

The code can be founded in values like equality, diversity, inclusion, and recognising our experiences are influenced by multitude of intersectional factors ([D'Ignazio and Klein, 2020, pp. 3-4](#)), for example:

- Gender
- Ethnicity and race
- Class
- Appearance
- Age
- National origin
- Religion
- Sexual orientation
- Differently abled

A code can raise awareness in a way that helps members behave responsibly by setting boundaries, for example, a commitment to collaboration, expectations on privacy and confidentiality, like open (public) or closed (private) discussion.

A code can particularly help with guidance on behaviour that might be unconsciously or unintentionally aggressive or hostile (Sue and Spanierman, 2020, pp. 7-9); but also with members who are explicitly rude, aggressive, intimidating, or exhibit a combination of unacceptable behaviours, by including procedures and sanctions for dealing with discriminatory or threatening behaviour.

Two examples to illustrate: 4.4.5 is from the [Research Data Access and Preservation Association](#) (2021), for their community of a few hundred research data related people, which meets and works remotely.

4.4.5 Extract from RDAP Code of Conduct (Research Data Access and Preservation Association, 2021).

CODE OF CONDUCT

updated: 2021-11-22.

The Research Data Access and Preservation (RDAP) Association is committed to providing an inclusive environment where all people can participate fully in all activities without fear of harassment or discriminatory behavior. To this end, the below code of conduct seeks to provide examples of what this looks like in practice, as well as describe what actions the organization will take when behaviors do not meet this standard.

This Code of Conduct applies to all spaces, both physical and virtual, managed by the RDAP Association, including but not limited to the Summit, workshops, social media, and community forums such as the email list. This Code of Conduct applies to all who attend and participate in an RDAP event, including RDAP members, non-members, and guests. Participation in any RDAP activity in any capacity is a privilege and indicates assent to this Code of Conduct.

Small actions you can take will help us meet this goal. With special thanks to the Digital Library Federation for this wording, we suggest the following actions:

- * listening as much as you speak, and remembering that colleagues may have expertise you are unaware of;
- * encouraging and yielding the floor to those whose viewpoints may be under-represented in a group;
- * using welcoming language, for instance by using an individual's stated pronouns and favoring gender-neutral collective nouns ("people," not "guys");
- * accepting critique graciously and offering it constructively;
- * giving credit where it is due;
- * seeking concrete ways to make physical spaces and online resources more universally accessible; and

* staying alert, as Active Bystanders, to the welfare of those around you.

The other (4.4.6) is for a smaller group of research scientists located in a single institution ([Stier](#), 2019)

4.4.6 Extract from Stier Lab Code of Conduct (Stier, 2019).

Code of Conduct

We seek an energetic community that fosters a diverse and inclusive environment that promotes participation from all members of our community. We value each member of our community and seek an environment where all members of our community experience a positive education experience where members are unaffected by non-inclusive behavior. Everyone who participates in our lab is expected to show respect, kindness, and patience with all other members within the lab at all times.

Adrian Stier, as the head of the lab, and all members within the lab are dedicated to a harassment and discrimination-free experience for everyone. Discrimination or harassment based on racial or ethnic background, citizenship status, religion (or lack thereof), political affiliation, gender identity/expression, sexual orientation, dis/ability status, appearance or body size will not be tolerated. We do not tolerate harassment or discrimination by and/or of members of our community in any form.

We are particularly motivated to support new and/or anxious collaborators, people who are looking to learn and develop their skills, and anyone who has experienced discrimination in the past.

To make clear what is expected, we ask all members of the community to conform to the following Code of Conduct.

All communication - online and in person - should be appropriate for a professional audience including people of many different backgrounds. Sexual or discriminatory language and imagery is not appropriate at any time.

Be kind to others. Do not insult or put down other contributors.

Behave professionally. Remember that harassment and sexist, racist, or exclusionary jokes are not appropriate.

Please make an effort to make an inclusive environment for everyone. Give everyone a chance to talk and an opportunity to contribute.

Bullying or cruelty of any kind will not be tolerated.

Watch out for microaggressions. Be aware that your actions can be hurtful to others or contribute to a negative environment even if you had no intent of harm. Listen. Offer a genuine apology. Commit to learning and doing better.

A SPECIAL NOTE: Your work in this lab will be publicly available and recorded permanently on github. Please conduct yourself accordingly.

One other point about 4.4.6 is it cites and acknowledges how it builds on work and examples of others, which is an approach that can be adopted. See what others have done: take what you need, adopt what you like, disregard what you do not, and give credit where it is due.

4.5 Leads

At a minimum both leads and champion are needed. Leads and champions do not need to be roles undertaken by the same person, or persons, but in some cases where groups are small and participants are enthusiastic, they can be.

Even in small and informal cases, managerial leadership, or coordination will help provide focus on task engagement and organisational aspects.

CSCCE does not use the term “leader”, but focuses on the role and profile of the [“scientific community manager”](#), which is more a facilitator than a leader - and in their conception, often a formal paid role - which may often not be the case in your community (Woodley et al., 2021, p. 4). In their model, there is no lead in the sense of instructing a group, but effective management by enabling the community to reach the goals the group itself identifies. The CSCCE conceives this role as changeable as the community evolves and grows, the manager role becomes less of a leading one, because the community leads itself.

Starter kits for professional networks

Thinking about team design, training, and leadership that shapes processes to enhance performance, is central to a well performing group. Summarising research on small group and team effectiveness, [Kozlowski and Ilgen \(2006\)](#), identify alignment of team processes with environmentally driven task demands as critical to effective working together.

Their definition of teams - individuals interacting towards a common goal based on relevant, interdependent, tasks, roles, and responsibilities in a bounded and linked system that is part of a wider environment, is comparable with the term we are using of “Community”.

The focus of behaviour in initial stages is more on individual dynamics, dominated by role defining behaviour. In later stages, often once members have been socialised, team dynamics emerge as tasks are more focused and deadlines (potentially) loom.

Kozlowski and Ilgen's (2006) synthesis find leadership is important, but how importance manifests itself varies.

Direction in interdependent tasks is critical; but less so for independent tasks. But within that are different types of leadership:

- Transactional - focused on goals, rewards, connection to effort.
- Transformational - team effectiveness and building belief in their collective efficacy.

Whatever the style, investing in managerial training is of benefit to all kinds of teams.

Managerial roles provide opportunity to set the agenda, so there is the chance to not only benefit from participation but also gain competitive advantage from influencing goals, aims, and objectives.

From a practical stance, the CSCCE [Community Participation Model](#) (Woodley and Pratt, 2020) intends to help managers develop through the “Skills Wheel” (Fig 1.).

2.4.1 Skills Wheel

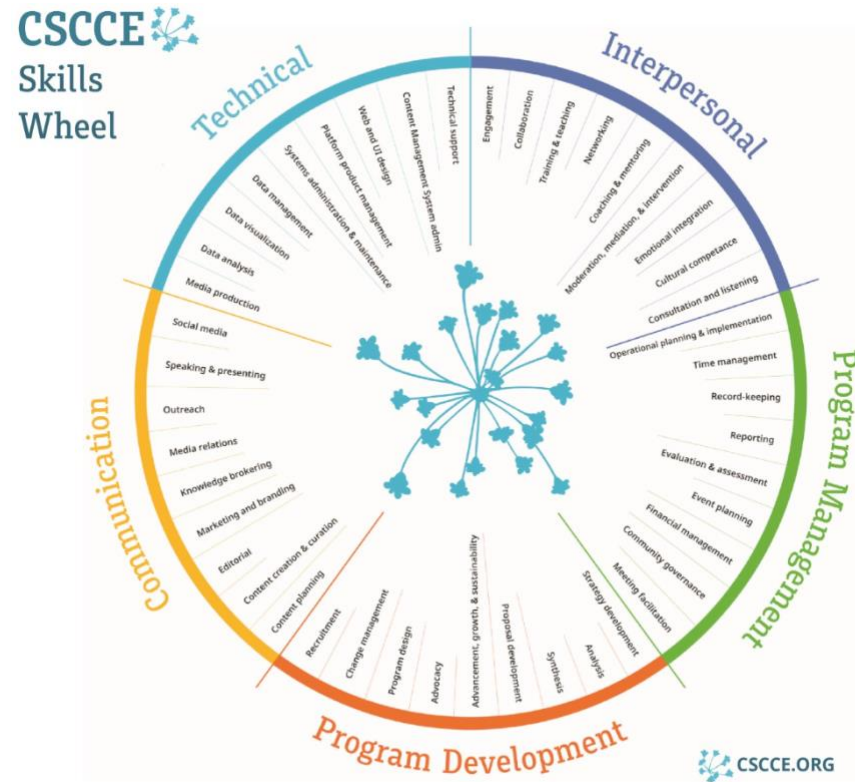


Fig.1 - CSCCE Skills Wheel



Skills4EOSC has received funding from the European Union's Horizon Europe research and innovation Programme under Grant Agreement No. 101058527 and from UK Research and Innovation (UKRI) under the UK government's Horizon Europe funding guarantee [grant number 10040140]

Skills are things which can develop by training (Woodley et al., 2021, p. 8). A skills wheel helps recognise what is required for professional development or allocate existing skills elsewhere, and, at a higher level, support gap analyses of the skills across a community.

The skills wheel has five core competences:

- Interpersonal
- Programme management
- Programme development
- Communication
- Technical

The emphasis on some skills over others depends on the context. If we are talking about data stewardship with a disciplinary focus, technical skills like a familiarity with that discipline would be useful; for smaller groups - say institutional level data stewardship, the experience may emphasise interpersonal skills.

Critically, competences may be prominent at different stages of its life - from a likely initial emphasis on programme development, content creation and technical, through to communication, management, and then interpersonal in more established groupings.

Finally, it is not expected that any one person be a master of (or enjoy) all skills and competences. Look to share the burden internally or externally.

4.6 Champions

Within the Community Participation Model is a role of "[Champions](#)" (Woodley and Pratt, 2021) where a member, or members, campaign on behalf of the group or advocate for its objectives.

Champions can help with:



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1. Maintaining: Activities that keep things running. From welcoming new members and helping make connections to working on internal administration.
2. Grow: Helping craft messages and identify mediums for expanding awareness and membership.
3. Evolve: Helping move to the next stage. For example, craft strategic plans, review aims and objectives, serve in executive roles.

All three types of champion role are significant in helping with the burden of managing, giving it a legitimacy within a wider group, and helping it connect with local levels or future practitioners.

4.6.1 Membership Rewards

There are some things to think about when it comes to champions, and in fact any form of participation in a community.

In a field like academic research and research support where problems of “vocational awe” ([Ettarh](#), 2018) are real, like oppression and exploitation, people should be rewarded in some form for their labour. “Reward” does not necessarily mean financial - often it is not - but a form of individual and/or collective benefit derived from participation.

Likewise, recognising positionality of members of the wider community is an issue. Participation can be exploitative, but it can also be a privilege, particularly when voluntary activities are used to enhance résumés and professional standing. Not everyone can provide the time to participate outside of core work. There are a range of reasons why - family responsibilities, geography and time zones, ability to work at home. So, keep in mind who is participating, but also who is not, and why that may be.

Assuming there is money in the first place, financial aspects can bring additional complications, aside from sustainability, and burdens when it comes to administration.

Trying to pay people outside of an organisation can be a nuisance, especially if resident in another tax jurisdiction. And if there is a legal dimension to a

champion's work - and in the days of GDPR and Codes of Conduct there often is, that would also need to be considered.

The [Community Participation Model](#) (Woodley and Pratt, 2021, pp. 10-11). conceives of stages in supporting champions.

They begin with a focus on scoping and recruiting, starting with making a case involving defining a need, goals, and programming, and if there is scope, resource implications.

Then, think about who you would need as champions. Can the needs be met in the community, or is reaching out beyond familiar faces needed? Related is the question of requirements, are there barriers to participation, would a selection process be needed and how can that be transparent and inclusive?

4.7 Kick-off

So, you have an area of interest and identified some leads and champions. It is time to get started.

4.7.1 First meeting

A launch meeting, or "kick-off", is the chance to start gathering regularly to help forge an identity.

Choices about in person or online meetings are to be considered in the context of the nature of the group - for example, a geographically wide dispersal would be more attractive to host online; if your community happens to be more concentrated, in-person meetings might be better. Remember again to consider other peoples' circumstances. Are time-zones an issue? How about duplicating meetings? Is after work attractive for an in-person, accept not everyone is able to meet outside work hours.

If you are meeting online, make sure to test the hosting set-up so that it works.

What should you cover in that first meeting?

Ideally, focus on aims and objectives. You will have an idea of what they are, that is why you are launching a community, but some refinement and

discussion, as well as what objectives might look like, is useful. This can take the form of discussion on the charter.

If there are things that you want people to read, make sure they have them in advance and can access them (for example, is an article paywalled?)

If there are topics you want to address, or questions you want to discuss, again, give notice so people can prepare and think about them.

4.7.2 Example kick-off meeting agenda

1. Welcome participants [Short period – a few minutes]

Objectives of meeting

Expectations around behaviour and conduct

2. Participant introductions [Short to medium period – 5 to 10 minutes, or longer]

3. Introduction to community and why it is needed. [Medium period – over 10 minutes]

Common domain

Introduction to theories and models

4. Aims and objectives: What do we want to achieve? [Long period – around the 30 minute mark]

Learn from each other?

Solve a problem?

5. How do we organise ourselves? [Long]

Identifying leadership and champions

Methods of communication and working

6. Summary of meeting: [Short]

Reiterate actions and next steps.

Timings depend on the size and nature of the group, but short items should be a few minutes long, medium around ten-fifteen minutes, and longer around thirty minutes plus.

Depending on the size and nature of the group, one important aim of a kick-off meeting is getting members to know each other better and build trust in one another to help cohesion and productivity. The “depending” aspect of this, and the reason it is tagged short to medium in terms of time allotted in the example presented in 4.7.2, is due to the size and existing familiarity of the group. It may be small and members already know each other, or it may be large and require more introductory time.

Another kick-off topic is identifying leadership within the group, if there is no paid manager position, and possibly incentives and mechanisms for attracting and selecting them - do you need to run elections if there is competition, for example?

Think also about facilitating discussions.

The [Community Canvas](#) (2017d, p. 6) have found communities to work best “when they have clear rules set in advance, so people know what their rights and expected responsibilities are.” It goes on to warn that “Decision making is best clarified in advance and helps avoid and address conflicts, a surprisingly common sight within many communities.”

Again, context matters. Online meetings can be partly moderated using tools, whereas in-person relies on stronger interpersonal skills.

The ability to do things like keep a focus on the objectives of the meeting, remind people of code of conduct requirements and expectations, help everyone who wants to contribute, and be able to sum up a discussion and identify any action points, are the facilitation skills needed whatever the format of the meeting. One useful question from the [Community Canvas](#) to consider in this respect is: “What is the existing digital behaviour of the members and how can the community integrate into that?” (2017c, p. 24). It might be that your core already has adopted channels, for example, Slack, that can be utilised by the community without much disruption or providing barriers to entry.

Some ways you can help facilitate a meeting:

4.7.3 Basic meeting facilitator responsibilities

1. Prepare in advance.

Advance preparation is a pre-requisite to effective facilitation of meetings. Think about who is attending (audience), what ideal outcomes are (reach a decision, solve a problem, learn something), why the meeting is happening (purpose), when it is happening (time and date), and where (physical location, online, or hybrid).

2. Plan an agenda and distribute it.

This helps prime attendees on the content and structure of meetings, and helps participants focus during meetings. Give people time to read the agenda and prepare.

3. State objectives at the start.

Again, this will create a focus around what needs to be accomplished by the meeting. What is the intended outcome(s)? Even if the content of those outcomes is something to be determined by the meeting.

4. State, refer, or remind people of behaviour expectations.

Whether to state, refer, or remind depends on an assessment of the size, nature, and familiarity within the group. But doing one of these at the start to remind participants there is a code of conduct and expectations around interactions within the meeting helps reinforce respect and helps collaboration.

5. Guide inclusivity.

Again, how this is done can vary, and an appropriate way depends on the nature of the meeting, but good facilitation should make all feel included. Not everyone needs to speak, but no one should feel they cannot.

6. Provide closure and reiterate action items.

Be prepared to sum up the meeting, especially any action points or follow-up items, and who has responsibility for them.

4.7.4 Promotion

The other kick-off task is to consider promotion in target communities. How can you get the message about your work to the people that would be interested? The case studies in [5.8.1](#) and [5.8.2](#) respectively can give you some ideas of how ELIXIR-UK and DTL Data Stewards Interest Group manage this.

- Discussion forums (email, slack, discord).
- Producing material, which can range from promotional to research articles.
- Newsletter.
- Word of mouth: online through social media, offline through verbal communication.
- Targeting conferences at which to present, or even organising your own.

5 Sustain

Key actions: facilitating participation, incentivised engagement, adjusting programming, managing transitions, ensuring sustainability, and addressing group behaviour pitfalls.

5.1 Practical actions section summary: Sustain.

- Anticipate group development stages like convey/consume, contribute, collaborate, co-create. Roles and dynamics will evolve.
- “Success” can be difficult to quantify, but in the absence of specific targets (like outputs) there are “soft” criteria around the level and nature of engagement.
- Think of member engagement in terms of levels, like core, active, occasional, and peripheral. Ensure balance and movement between levels.
- Address participation barriers with “scaffolding” activities like onboarding, surveys, technical support, templates.
- Consider team roles and behaviours. Frameworks like Belbin help identify useful personality mixes.
- Maintain enthusiasm and commitment through learning, profile building, member incentives, and rewards.
- Reflect on aims, satisfaction, obstacles and adjust programming and engagement approaches as needed.
- Manage transitions like members joining, moving on and departing through onboarding and offboarding processes.
- Plan sustainability through succession processes for leads and champions, knowledge transfer, and ongoing recruitment.
- Be aware of potential group dynamic problems like social loafing, groupthink, free riders, and ways to prevent or address them.

In this section we look at sustaining a membership for, and building relationships to help move a community to its next stages.

Starter kits for professional networks

Having launched, it is important to think about sustaining and growing membership to help achieve aims and objectives. As the [Community Canvas](#) cautions, “Visionary communities will put structures in place that will optimize for long-term stability” (2017d, p.6).

Of course, this is not a corporate hierarchy. Membership is most likely voluntary, so activity is based on goodwill, enthusiasm, and passion.

This section uses the [Community Participation Model](#) (Woodley and Pratt, 2020) to try and understand what might need to happen as it matures.

5.2 Membership

The nature of the group will likely change over time, which is a finding borne out in knowledge management research. For example, as long ago as the 1960s, [Tuckman](#) (1965) reviewed the existent leadership on teamwork, and as a result, talked about a set of sequential stages of group development.

It starts with:

- **Forming:** Participants get to know each other and find out acceptable behaviours. This stage is characterised by high uncertainty, politeness, and low levels of commitment. An “authority” figure is critical to helping define boundaries and behaviours.
- **Storming:** Cliques start to form with some jostling for position as roles clarify. It is a stage characterized by intra-group conflict.
- **Norming:** Group norms emerge, divergent views are addressed. Trust and cohesion start to surface.
- **Performing:** People work together as a coordinated, mature group. Characterized by flexible and functional interactions and actively producing work.

A contemporary take on this, and from a community perspective, is in the CSCCE [Community Participation Model](#) (Woodley and Pratt, 2020). We can take their levels of modes and “slogan” to introduce this point.

The model has four kinds of mode with an associated slogan, and we can apply them to hypothetical examples as illustrations of various stages.

Starter kits for professional networks

- Convey/Consume: “Here is something interesting”.

Is there a need to tell people something? Are you thinking your community will focus on people who need information imparted to them, often from a small number of leads. For example, this will allow us to tell people who know nothing or little about data stewardship what it is and what are the benefits. In which case, do you imagine people will be able to passively receive information by listening, reading, or watching, while you or your colleagues, as the experts, are, hopefully, informing and inspiring the next generation of data stewards?

Given the nature of this mode, broadcast tools would be an appropriate medium for transmitting information, preferably low barrier ones with an emphasis less on interaction, and more on projecting. Mediums like social media, a blog, or even email work in this context.

- Contribute: “Give us some feedback”.

Is there a need for people to tell you? This focuses on people who have information contributing. This could, for example, be useful in a policy related exercise. So, how do we get researchers to deposit data in a repository or archive? Then researchers might comment based on experience, citing obstacles like “data sensitivity”, “fear of being scooped”, “time”, “too difficult to do”, “do not believe in it”, and so on. They might be survey participants selecting predefined categories on obstacles to data sharing in repositories, so you may find that 20 percent of respondents believe “data sensitivity” is an obstacle to sharing. Other times this approach might be useful to identify participants. Who do you know that is a data steward or an institution that has data stewards? Let us in the community know, we might be able to facilitate connections.

You or your colleagues, are managing feedback, skills, insights, and information. Communication infrastructure in this mode can be like those in the “Convey/Consume” mode, but with the direction of communication switched from transmit to receive.

- Collaborate: “How can we work together?”

Starter kits for professional networks

Is there a need for us to learn together? This is a cooperative type with information flowing from leaders to members, but also flowing to members and to community leaders.

The “hands on” attitude in the preceding slogans are becoming more “hands off”. For example, learning about data stewards or an aspect of stewardship, like metadata standards for research data evaluation. Sharing information on licence templates, discussing their appropriateness in different contexts, maybe working together to produce guidance shared on that exchange of knowledge, helping participants to overcome barriers to cooperation.

Additional features that facilitate collaboration are needed Given this mode breaks from the one-to-one nature outlined in the conveying and contributing modes. Google docs, Slack, Teams, Zoom could all be useful tools.

- Co-Create: “What shall we do next”?

This slogan suggests information can be used in a transformational form, not hierarchical, as the other slogans suggest to varying extents, but a convergent type, working together to share information and create something on a basis of informed understanding that they would not have been able to do previously. That may be an article, a teaching resource, it may be a policy, it may be a conference or other kind of event.

The highly interactive nature of this mode requires the same type of tools as collaborating, but possibly on a bigger scale - especially if working groups and training is involved. We may also be at the stage of formally organised events like workshops, training sessions, networking, and social events. These can all animate the community and strengthen its connections, but the logistical and financial resources required to organise and host them need consideration.

It is not the case that these slogans signify mutually exclusive stages or types. Groups might progress through modes, but they could even be two, three or four types at once. It is more likely a community starts off saying “here is something interesting”.

Furthermore, the authors of the CSCCE model state that Co-creating are not an end goal for all.

5.3 Success

For CSCCE, “Success” is dependent on goals and satisfaction of its participants, not metrics on outputs or engagement (Woodley and Pratt, 2020, p. 9).

The [Community Canvas](#) (2017a, pp. 17-18) expands on this, but does so by noting that there are some ways to gauge if the community is a “success”, stating that “communities with a clear external purpose might be tied to a measurable form of 'impact'.”

So, for example, a community targeted on a specific output, like analysing data steward job advertisements in a particular country, can define success by publishing that output.

But the Canvas goes on, “Communities with internal purposes often have very soft success criteria”. As an example, an ongoing Community of Practice for data stewards might not have targeted outputs to measure “success”, but look to other things.

The Canvas presents a few “soft” criteria which you can use:

- Activity and retention - who joins, shows up, who engages, who visits, who opens emails.
- Experience: Responsiveness to other members - how do members respond to others, and the generosity of support - providing extensive help, celebrating successes, and building personal relationships.

How to encourage this through participation is something we cover in section 5.4.

5.4 Participation

The other component of the CSCCE model is “[Scaffolding](#)”. This is “Supportive information, activities, and processes that address barriers to member

Starter kits for professional networks

participation” (Woodley et al., 2022, p. 6). Some barriers can be due to the structure of the community, others due to individual behaviours.

The CSCCE model identifies lack of information, technical support, and sense of belonging as barriers which can be overcome by scaffolding. It is effective in the contribute mode, which itself is built around participation and engagement, and critical to collaborative and creative work. So, what kinds of activities are scaffolding activities?

- Welcoming new members with concise information points about the community.
- Surveying members to keep in touch of needs and contribution preferences.
- Social events, either one-to-one or small group: These need not be in person.
- Technical support. A guide to using communication platforms in the community. How do you get started with Slack, Discord etc. if you have never used them before?
- Templates for slides, note taking, and organisation groups: Ways to set up clear and consistent documentation, branding, as well as reinforcing community norms.
- Promotional material: to attract new members, for example, postcards that can be handed out at conferences.

Keep in mind participation is often voluntary. People will be providing time and effort because they want to - and there may be different motivations for that, like idealism, passion, or career advancement. Consequently there is a bit of a balancing requirement between harnessing commitment to participate, with providing value in return.

This can cover different aspects:

- Enhancing profile: networking and connecting with experts.
- Learning and training: using connections and exposure to enhance skills and experiences.

Starter kits for professional networks

Remember, this can apply to participants, but equally to employers who may want a return on time spent, or membership fees, required to be part of a community.

These may not always be obvious, and it can be to the group's advantage to highlight these points and assist current or potential members in making a case for participating.

The Communities of Practice model ([Wegner-Trayner, 2015](#)) accounts for different levels of participation, identifying five categories of participation.

1. Core group: leadership.
2. Active: practitioners who define the community.
3. Occasional: contribute when they have, or feel they have, something specific to contribute.
4. Peripheral: less engaged, either new, or unable to provide stronger commitment.
5. Transactional: individuals outside the group, who might interact on occasion either to provide a contribution or derive benefit from the group's work.

There is no homogeneous state of membership. Members will fall into different categories, and, what is more, will move between categories.

Indeed, it is healthy and essential that members move, either naturally or through an invitation. A static community is likely to stagnate.

Although, this does not mean all members. For example, a records manager being involved in a data stewardship group to provide insight into retention schedules can be seen as a transactional participant - and they would not want or expect to be anything more.

Furthermore, having members on the periphery is, again, not a bad thing. Indeed, the [Community Canvas](#) (2017c, p. 18) asks: "How does the community deal with inactive members?" which can be answered with a neutral response: It does not.

Starter kits for professional networks

A large periphery, leaving the burden of effort at the core, is not desirable. But marginalising the periphery is a problem, especially where intersectional barriers prevent greater activity.

There are other kinds of personality obstacles and problems, depending on size, nature, and task goals of the group.

Some identified by social psychology and management theory to consider, include:

- “Social loafing”: Where individuals work less hard in a group by relying on the efforts of others, than they would do as individuals ([Karau and Williams, 1993, p. 681](#)). Partly addressed through emphasising the importance of individual efforts to outcomes, and communication, particularly from leading members of the group, that enhances perceptions of importance and responsibility.
- “Free riding”: This is the problem of rationally motivated individuals not paying the cost of contributing to a group yet deriving benefits from its work (Olsen, 1971, p. 11). Olsen argues that the consequences of this are the level of collective benefit is likely to be suboptimal, unless special conditions exist, like a motivated interest or group enthusiasm. Groups with “large” members are more likely to have a greater level of prestige and status than groups with “small members”; yet groups with few members are likely to avoid the phenomenon of “free riding” to secure collective goods than groups with many members.
- “Groupthink”: Where group pressures and a desire for collegiality result in “a deterioration of mental efficiency, reality testing, and moral judgement” (Janis, 1982, p. 12). Community leaders should be wary of using power or prestige to influence groups instead of encouraging open enquiry and critical evaluation (Janis, 1982, p. 176), particularly when a group is of similar age, background, ideology, and outlook (Janis, 1982, p. 244).
- “Group polarisation”: A consensus towards attitudes more extreme than those of its members as individuals - either as result of the discussion itself, or out of a desire for consensus or favourable evaluation (Turner et al., 1993).

Starter kits for professional networks

- “Common knowledge effect”: A tendency that information common to a group prior to a discussion will more strongly influence the group’s subsequent discussion and judgement than new information ([Gigone and Hastie](#), 1993, p. 160).

We have talked about roles, but we have not said much about the type of people involved in a successful community and the roles they play.

5.5 Team roles

In management the Belbin Team Role theory identified a balance of eight behaviours as critical to success or failure (Belbin, 2010, pp. 43-46, pp. 65-74).

This was based on formal teams working in private companies, but it is worth being aware of the different types of people in your community and finding ways to facilitate the best from them.

In the Belbin schema, people can represent more than one role, and they may have roles they prefer (“I am happy to...”), ones they can manage (“well, if no one else wants to...”), and those they do not want (“I am not comfortable...”).

Those eight behaviours are:

- “Plant”: A creative and unconventional problem solver.
- Monitor Evaluator: Logical eye, capable of impartial judgements, good at identifying options.
- Co-ordinators: Help focus on objectives, they are inclusive team members, good at delegating.
- Resource Investigators: Have inside knowledge, well connected to wider networks.
- Implementers: Help plan and deliver practical, workable strategies.
- Completer Finishers: Good at quality control.
- Team workers: Supportive and sociable members.
- Shapers: Provide drive, keep things moving, provide focus and momentum.

It is not essential to have every role represented, as there is scope for “allowable weakness” where absence is ideally covered by another role.

Again, not all of these may be necessary, but working out what is necessary is partly a reflection of asking which activity or behaviour you are most interested in supporting.

For starting new communities, welcoming new members, and identifying and setting up platforms are likely essential. But there is also an iterative aspect, what are members saying or asking for? Do consistent problems arise? What are the obstacles that require scaffolding to overcome?

There is then the “Onboarding” stage of welcoming, integrating, and engaging.

5.6 “Onboarding”, or saying hello.

[Community Canvas](#) (2017a, p. 25) highlight how important the welcoming of new members is to a successful community, and provide some elements to help with an effective onboarding. Their main lesson: “as personal as possible: A call or face-to-face” over just an email.

Other stages Community Canvas suggest relating to some of the things we have looked at already in this toolkit. This includes, creating a welcoming and safe environment, which in practice includes familiarising them with the community's purpose (why it exists), and culture around rules and expectations (organisation, charter, conduct, positionality). This includes levels of expectation around their involvement (what expectations of them are in terms of contributions), allied to ways to facilitate that involvement (what steps they can take to become involved and contribute). A “buddy” or “mentor” where a new member is paired with an existing one can help for larger communities.

5.7 “Offboarding”, or saying goodbye.

Then, there is an end. All things end, and at some point, champions will move on, either voluntarily, or limited by terms. Therefore, the final stages include “offboarding” to recognise contributions and exchange knowledge, through

an evaluation stage, and possibly to keep a level of involvement for the future.

The [Community Canvas worksheet](#) (2017c, p.12) is useful in the questions it asks to help address this stage. Is there an exit process? Either a formal resignation path, or a lapse in subscriptions, or a period of inactivity? Is there a separate structure or experience for people who have left, like an alumni community or honorary titles (for example, past president).

Consider also that there may be an end point for the community. Remember, we talked about identifying a need, and specifying some aims and objectives. If that need is felt to be no longer relevant, either through explicit statements to that effect, or by indirect signs like low attendance, a lack of interest in participating; or if those aims and objectives have been satisfied, then that might be an end.

5.8 Case studies

Finally, to tie what we have looked at together, and illustrate how it can be applied in practice, 5.8.1 and 5.8.2 present case studies of data steward communities. Remember though, these are just examples to illustrate how the things outlined in this document can be found in an existing group, not something you feel yours should aspire towards or be compared against.

5.8.1 Case study: ELIXIR-UK Data Management Working Group

[This group](#), established in 2020, is part of the ELIXIR-UK network which has a disciplinary focus on Life Sciences research.

The community welcomes Data stewards as participants in Research Data Management activities in UK universities.

Meetings of the group are virtual, and take place at a regular slot every month with a transmissive element of review work on RDM, and a transactional one in providing a point of contact with existing expertise (ELIXIR-UK, n.d.a).

The group does have a data steward specific element in its Data Steward Fellowship programme (ELIXIR-UK, n.d.b).

These funded fellowships intend to build capacity, embed knowledge, and professionalise data stewardship through existing resources. In this respect, the programme provides a transformational information flow to the community.

The fellowship programme illustrates CCSE concepts of convey/consume, contribute, collaborate, and co-create modes of community participation with an ambassador fellowship programme. Its activities include training, content creation, contribution to the wider community, and encouraging RDM Communities of Practice at local levels.

5.8.2 Case study: DTL Data Stewards Interest Group, Netherlands

[DTL Data Stewards Interest Group](#) (DSIG) (Jetten and Schoots, 2023) is an “informal and inclusive” community for data stewards and related roles, aiming to support data stewards and contribute to capacity building, as well as help career development and professionalisation of stewardship. It is bottom-up in terms of organisation and outreach.

DSIG began in 2017, in Life Sciences and Health at universities in Leiden and Utrecht. Initially alternating monthly virtual meetings with in-person ones, it switched to bi-monthly virtual meetings during the COVID-19 pandemic.

A decision was made to open the community, so DSIG welcomes anyone interested in data stewardship - attracting between 50-75 participants in meetings.

Although Netherlands based, and focused on Dutch concerns, DSIG is not Netherlands exclusive. Anyone can join and contribute to the community.

DSIG see the community as complementary to initiatives at international (RDA), regional (ELIXIR), national (Dutch National Coordination Point Research Data Management), and institutional levels (Leiden University Data Management Network) in supporting data stewardship.

There are a set of recurring agenda items in meetings, including informal spaces for discussion and introductions to facilitate connection and networking. A “New and Newsworthy section” shares information and

questions on data-related events, projects, and activities and “In Case You Missed It” provides information on “data-related things or events”.

Preliminary agendas are shared ahead, with community authored notes available after meetings. A feedback request from participants, including a “Keep, Add, Less and More” section helps refine meeting structures. To keep them fresh and engaging, chairing is shared between organisations, with organisation and preparation support coming from the community manager.

By building-up templates and best practices, such as recurring agenda items and shared notes, DSIG leadership make it easier and efficient to convene, chair and attend meetings as well as contribute to other community initiatives by making these openly licenced for others to adopt.

To sustain engagement between meetings, the community utilises a range of communication and discussion channels, including an email list and slack community, as well as social media accounts.

5.9 Preliminary results within Skills4EOsc Competence Centre Network.

This section reports on activities related to building a data steward network within the Italian Skills4EOsc Competence Centre node (ICDI Competence Centre).

While this starter kit was being created in 2023, steps were being taken to establish the first Italian community of data stewards within the Skills4EOsc Competence Centre Network.

This starter kit will be used to help realise an Italian data steward community, following completion of the first phase in August 2023, which aims to map the current national status of data stewardship, and collect expression of interests to participate.

5.9.1 Background

ICDI was established in 2018 as a collaboration between Italian research organisations to coordinate participation in EOsc projects. ICDI was one of

the four founding members of the EOSC Association when it was established as a legal entity. Currently, 24 Italian organisations are part of the EOSC Association, with most being members of ICDI. In 2019 ICDI created the first Competence Centre for Open Science, FAIR principles and EOSC in the country. ICDI-CC was the first national competence centre, joining the Skills4EOSC network in 2023. The ICDI-CC currently comprises more than 60 experts in various Open Science and EOSC related fields linked to about 30 different Italian organisations.

5.9.2 Data Steward Network within the ICDI CC

The ICDI-CC is the main point of reference for Open Science, FAIR training and skills development in Italy and has supported data steward programmes at a national level. It is involved in the activities related to institutional data stewardship strategy design and implementation, including the training of new data stewards.

To facilitate lifelong learning and peer support, the ICDI-CC launched the community of data stewards in Italy.

A survey, described in [section 4.3](#), was designed by a task force composed of ICDI-CC members and the Skills4EOSC consortium (IIT, University of Bologna, and GARR) and launched in April 2023.

The survey was designed to map the presence of professionals who support the management of research data and who can be identified by the professional title of "data steward" within Italian universities and research institutions.

The team used the EUSurvey tool to design the survey in collaboration with Skills4EOSC WP6, so the survey was published both in Italian and English to enable reuse. The survey (ICDI, 2023) is linked to a dedicated and separated model to collect interest from people to participate in activities related to data stewardship, driven by Skills4EOSC and ICDI.

The survey launched in April 2023 and closed on 31 May 2023. Preliminary results were presented at the [GARR Conference](#) in Florence and at the [ITA-](#)

Starter kits for professional networks

[EOSC tripartite event](#) in Rome, in June 2023, before representatives of the Italian Ministry of University and Research, and Italian research community.

Following presentation of preliminary results, the survey re-opened to allow other organisations to participate, and closed again in August 2023. So far, 70 responses have been collected, with 38 contacts interested in joining.

Results from the survey will feed into work of the Expert Group Italian Ministry of University and Research's expert group to draft an implementation agenda for the National Open Science Plan (Ministero dell'Università e della Ricerca, 2023).

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No	Description/Link
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