



Guidelines for Sustainable Open Source Communities in the Public Sector

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1 Introduction

2 Open source software (OSS) can be highly beneficial to those who choose to harness it. One of the key
3 strengths of OSS is its adaptability: anyone can reuse or modify it to best suit their needs, and therefore,
4 its use is not restricted to any single domain or user group. Public administrations represent one such
5 user group which stands to gain from the use of OSS when developing and implementing IT solutions
6 for both internal processes and the delivery of digital public services.

7 Nevertheless, the adoption of OSS across public administrations has historically been a slow and often
8 unsustainable journey. There are many examples of public administrations at the national or local level
9 adopting OSS, only to switch back to a proprietary solution at a later stage. This happens for many
10 reasons, be it due to compatibility issues or a change of heart at the managerial level. However, across
11 public administrations of all sizes, there are many instances of flourishing OSS communities with diverse
12 user bases and a wide array of contributors. The varying levels of success among public administrations
13 in fostering OSS communities raises questions about the factors that determine their sustainability.

14 Recognising the different experiences of public administrations in adopting and maintaining OSS and
15 building on the belief that the sustainability of open source projects relies heavily on the communities
16 around them, the European Commission's Open Source Observatory (OSOR) has put together
17 dedicated Guidelines for Sustainable Open Source Communities in the Public Sector. The purpose of
18 the Guidelines is to debunk the myth that working with OSS is challenging, resource intense, and
19 requires domain-specific knowledge. They aim to demonstrate that there are different ways to launch
20 an OSS project and a community around it within a public administration and to guide readers through
21 this process. Whilst many guidelines on OSS community-building exist, such as the Linux¹ or GitHub²
22 Open Source Guides, there is a gap to fill when it comes to the sustainable OSS community-building
23 in the public sector.

24 The Guidelines for Sustainable Open Source Communities in the Public Sector are for civil servants at
25 all administrative levels, project managers, IT developers, and OSS enthusiasts looking to start or
26 participate in an OSS project or for individuals who are simply curious about what such an endeavour
27 might entail.

¹ Available at: <https://www.linuxfoundation.org/resources/open-source-guides/>

² Available at: <https://opensource.guide/>

28 The Guidelines are based on the assumption that public administrations should not merely reuse OSS
29 (i.e. be consumers) but rather be active members and contributors to the communities that exist around
30 this software.

31 The Guidelines were put together following research consisting of a literature review, a dedicated
32 survey, and five case studies on the following sustainable OSS communities in the public sector: the
33 **Integreat** software developed outside the public sector and used by German municipalities; the use of
34 the **CONSUL** platform by the Groningen municipality in the Netherlands; **Lutece** software developed
35 by the City of Paris; the **Developers Italia** community launched by the Italian government; and the
36 geospatial **OSKARI** software developed in Finland.

37 **Figure 1 – Case studies on the sustainability of open source communities**

Developers Italia	Integreat	Lutece	Oskari	Voice of Groningen
Launched in 2017 by the Agency for Digital Italy , Developers Italia is a vibrant community made up of citizens, civil servants, public administrations, and enterprises. Community members meet on this online platform and discuss ongoing or future projects, share ideas, and upload source code.	Launched in 2015 by a group of students, Integreat is an open source digital integration platform aiming to reduce information poverty for new arrivals in and within Germany. The Integreat platform is now used by over 60 German municipalities.	Lutece, launched in 2001, is an initiative of the City of Paris aiming to supply each Parisian district with a tailored Content Management System tool to manage their own website. It is a portal engine allowing users to create a dynamic website, which can be tailored to users' needs with additional modules and features.	Oskari is an open source software designed as a framework that can be used to easily build web mapping applications, showcase geospatial data, and analyse such data. Its distributed Spatial Data Infrastructures enable public administrations and other bodies to share their spatial data and work collaboratively	In 2019, the City of Groningen started a new participatory democracy project following the successful launch of the Voice of Groningen platform, based on the open source software CONSUL . The new project aims to give citizens more decision-making power in relation to their locality.

38

39 The research methods used to produce the Guidelines are briefly described in the Methodological Note
40 chapter and the research results are available in an analysis document, [Key Success Factors of](#)
41 [Sustainable Open Source Communities](#), published on the [OSOR Knowledge Centre](#).

42 There are two general approaches that public administrations can take to engage with OSS. They can
43 either join an existing OSS community or create one from scratch. In both cases, it is crucial for public
44 administrations to address some key questions internally before deciding on how to best engage in or
45 launch a public sector OSS community. Therefore, the Guidelines consist of the following three key
46 chapters:

- 47 1. Setting the foundation for sustainable open source engagements – detailing the type of
48 questions that should be addressed within public administrations before committing to an
49 OSS engagement and outlining the two main approaches one can take to achieve this goal.
- 50 2. Joining an existing community – describing the sustainable way to join an existing OSS
51 community and reuse its software if the software meets a public administration's needs.



52 3. Building your own public sector OSS community – a detailed breakdown of the steps that
53 should be taken and questions that need to be answered to build a sustainable OSS public
54 sector community.

55 The Guidelines have been designed with a user-centric approach so that readers can easily understand
56 the key aspects of engaging with OSS in public administrations, either by launching a new OSS
57 community or by joining an existing one. For this reason, the Guidelines follow a Q&A structure, posing
58 and answering the most pertinent questions associated with the sustainability of OSS in the public
59 sector.

60 The Guidelines are part of the European Commission's work – under the Sharing and Reuse Action³ –
61 to promote the sharing and reuse of IT solutions within public administrations.

³ The Sharing and Reuse Action is part of the European Commission's ISA² programme. More information is available at:
https://ec.europa.eu/isa2/actions/promoting-sharing-and-reuse-interoperability-solutions_en



Terms and Definitions

Term	Definition
Fork	Creating a “fork” is producing a personal copy of someone else’s project. Forks act as a bridge between the original repository and a personal copy ⁴ .
Open source community	A group of individuals who work together to develop, test, or modify open source software products ⁵ .
Open source engagement	An organisation’s commitment to engage with open source software either by launching an OSS community from scratch or joining an existing community and contributing to it instead.
Open source project	A specific project for which the source code is available to everyone to contribute to and reuse, as defined by the open license used for the project.
Open source software (OSS)	Software for which the original source code is made freely available and may be redistributed and modified ⁶ .
Proprietary software	Occasionally referred to as closed source software, proprietary software is software that legally remains the property of the organisation, group, or individual who created it. The organisation that owns the rights to the product usually does not release the source code and may insist that only those who have purchased a special licence key can use it ⁷ .
Software as a Service (SaaS)	A software licensing model in which access to the software is provided on a subscription basis, with the software being located on external servers rather than in-house servers. Software-as-a-Service is typically accessed through a web browser, with users logging into the system using a username and password. Instead of each user having to install the software on their computer, the user is able to access the program via the internet ⁸ .

⁴ GitHub, “Forking Projects”. More information:

<https://guides.github.com/activities/forking/#:~:text=After%20using%20GitHub%20by%20yourself,contribute%20to%20someone%20else's%20project.&text=Creating%20a%20%E2%80%9Cfork%E2%80%9D%20is%20producing,repository%20and%20your%20personal%20copy.>

⁵ IGI Global, “What is Open Source Community”. More information: <https://www.igi-global.com/dictionary/collaborative-development-environments/21213>

⁶ Opensource.com, “What is open source?”. More information: <https://opensource.com/resources/what-open-source> and <https://opensource.org/osd>

⁷ BBC, “Software concepts”. More information: <https://www.bbc.co.uk/bitesize/guides/z6r86sg/revision/4>

⁸ Investopedia, “Software-as-a-Service (SaaS)”. More information: <https://www.investopedia.com/terms/s/software-as-a-service-saas.asp>



Total cost of ownership (TCO)	A financial estimate aimed at calculating the short- and long-term costs of any product or service by taking into account the complete costs. For IT, TCO includes hardware and software acquisition, management and support, communications, end-user expenses and the opportunity cost of downtime, training and other productivity losses ⁹ .
Vendor lock-in	A situation whereby a customer becomes dependent on a product or service provided by a commercial supplier and cannot move to another vendor without substantial costs and/or inconvenience ¹⁰ .

⁹ Gartner Glossary, "Total Cost of Ownership". More information: <https://www.gartner.com/en/information-technology/glossary/total-cost-of-ownership-tco>

¹⁰ The LINUX information project, "Vendor Lock-In Definition". More information: http://www.linfo.org/vendor_lockin.html

63 1. Setting the foundation for sustainable open 64 source engagements

65 When considering starting an open source engagement, public
66 administrations are faced with two key choices: join an existing
67 community or create a new one. Before deciding, there are several
68 elements to consider. In this chapter, we review the criteria to help
69 guide you through making this choice. We also outline some crucial
70 elements that can help to ensure your engagement's long-term
71 sustainability such as well-defined funding and internal support.



72 1.1 Assess your needs & capabilities

73 Before you engage with a specific OSS community or embark upon building your own, there are several
74 aspects to consider. Firstly, you should carefully evaluate your software needs and identify whether
75 they are unique to the public administration alone or whether there are other potential software
76 partners with similar needs. Secondly, you should assess the IT capabilities of your public administration
77 and, in turn, scan the OSS market to see whether a solution that meets your needs already exists.

78 *What kind of software are we looking for?*

79 Organisations' software needs must be assessed prior to engaging with any OSS. Your public
80 administration might need various types of software, such as an operating system, word processors,
81 database management, an intranet portal, or a specific application, to cover different business
82 processes. Having a clear understanding of your software needs will make it easier to look for existing
83 solutions on the market.

84 Another key element to keep in mind is the interoperability of the software. Your new open source
85 engagement cannot inhibit the upgrade path for related legacy IT systems, and it needs to be
86 compatible with the infrastructure already in place within your public administration. That is why the
87 license of the open source software that you develop or decide to reuse has to be compatible with the
88 existing IT infrastructure at your administration. This will increase the sustainability of your OSS venture.

89 You should **assess the most important functional aspects that you are looking for in a solution.**
90 This will help you better understand the efforts required to maintain and develop the software. By
91 doing so, you will have a clear idea of the short-, mid-, and long-term goals you wish to achieve, and
92 you will be prepared for the agile needs of the public sector.

93 Finally, there are some **non-functional aspects** of the software to consider. You should take into
94 account the **security requirements** of the planned OSS engagement as this might potentially restrict
95 the range of software your administration can reuse. It is also beneficial to assess the software's
96 targeted user base, consider its scalability in the future, and understand the resources that need to be
97 allocated for software maintenance, among other things. Figure 2 below summarises these
98 considerations.

99 **Figure 2 How to assess your software needs?**

100



101

The European Commission, under the ISA² programme, has developed some tools that can support you in this process. For example, [OpenPM²](#) is a project management methodology designed specifically for managing projects in public administrations. Additionally, [Interoperability Maturity Assessment of a Public Service \(IMAPS\)](#) is a self-assessment tool aimed at helping public administrations to assess the interoperability of a new solution under development. Finally, [Common Assessment Method on Standards and Specifications \(CAMMS\)](#) helps public administrations to select appropriate standards and specifications for their solutions.

102 *What are the IT capabilities available at our public administration?*

103 The type of OSS engagement that your public administration will choose is largely dependent on its IT
104 capabilities. If there is a dedicated in-house developer team, then it is very likely that the public
105 administration will be in a good position to host existing OSS or even develop the software from
106 scratch. This is more likely to be the case in large, centralised administrations such as ministries or
107 agencies.



108 When it comes to smaller public administrations, there might not be an in-house developer team or
109 civil servants with a high level of IT knowledge. In this case, you might consider joining an existing OSS
110 community with vendors offering tailored versions of the software (i.e. vendors who provide Software
111 as a Service).

112 However, even if your public administration does not have in-house IT support, you could consider
113 developing such capabilities, be it on a small scale over time. This will give the public administration
114 more autonomy over the software development. Alternatively, you could procure civil society
115 organisations or SMEs to develop the open source solution while making sure that you also build the
116 community around it.

117 *Is there an existing open source solution that meets our needs?*

118 Having assessed the software needs of your public administration as well as your IT capabilities, you
119 should then conduct some in-depth research to analyse if any software that matches your needs
120 already exists. This can be done in several ways.

121 A good place to start is to check whether your central government has published a **dedicated**
122 **catalogue or repository of available solutions for reuse**. Alternatively, you can take a look at
123 catalogues or repositories produced by other governments. This way, you can save valuable public
124 resources and reuse software supported by public administrations.

[Joinup](#) is a repository of open reusable solutions developed by the European Commission and is home to the OSOR collection, which has a [page](#) listing open source repositories targeting public administrations. You should also browse through the main OSS development platforms such as [GitHub](#), [GitLab](#) or [Bitbucket](#). GitHub, for example, consists of over 100 million member-driven software repositories. It can be navigated by browsing a list of its [popular topics](#) or by [searching the platform](#). You can also browse through lists of [government organisations](#) on GitHub to learn more about projects launched by other public administrations.

125 Bear in mind that an open source solution existing on the market does not need to fully meet the
126 requirements of your public administration in order to be considered. If, having assessed the available
127 software, you believe that additional features that suit your needs could be developed as add-ons, then
128 the software could indeed be reused by your public administration.

129 However, if the core software itself must be modified, it is preferable to work with the OSS community
130 or a vendor that develops the solution in order to add your required features to the core. This is because
131 making local changes to any open source community-driven project brings its own risks. The adapted



132 fork¹¹ that you produce would have to be updated by your public administration alone as the
133 community surrounding the software will continue to work on the original branch rather than the fork
134 that you developed. Updates and maintenance needs must then be met in-house as any forked project
135 will need to be sustained over time. Working with the OSS community is generally a more sustainable
136 option than forking.

137 However, if having assessed the software landscape, you fail to identify a suitable solution, it is
138 worthwhile considering **launching your own OSS community and developing a new solution**.
139 Where possible, this should be done in collaboration with other public administrations. This will help
140 you to mitigate the risk of having a low number of contributions. As mentioned above, the
141 development of such a solution does not necessarily have to be done in-house. Together with other
142 public administrations, you could hire an IT company to develop the open source solution for you. Your
143 responsibility would then be to grow the community around the software within the public
144 administration.

145 *Could other public administrations partner with us for this project?*

146 Public administrations within a country tend to share the same culture and have similar government
147 institutions. Therefore, they are likely to have similar IT needs. Before you procure or develop software,
148 you should check whether other public administrations at the national, regional, or local levels might
149 want to collaborate. It may be helpful to reach out to public administrations of the same type – i.e.
150 another municipality, public institution, or a ministry.

151 Identifying potential synergies with other public administrations will facilitate the **pooling of resources**
152 **and exchanging lessons learnt and best practices** when it comes to working on the software
153 together. You can also look outside your own country for software that could be adapted to your needs.
154 Although pooling resources requires more coordination
155 efforts, the benefits of such collaboration will outweigh
156 the costs in the long run. Working with **universities** is
157 another great way to pool resources, generate ideas, and
158 gather OSS expertise.

The Groningen municipalities often work with the [Hanze University of Applied Sciences](#) and the [University of Groningen \(RUG\)](#) on the implementation of different projects, including that of [CONSUL](#).

¹¹ Please refer to Terms and Definitions section for a definition of this term.



159 1.2 Embed your community within the public administration – make 160 it 'official'

161 Once your team has selected the most suitable way to engage in a public sector OSS project, the next
162 key step is to formalise this engagement within your public administration.

163 *Which key public administration actors do we need to onboard to kick-start the*
164 *community?*

165 Political support is a strong enabler of sustainable OSS
166 communities in the public sector¹². One of the reasons
167 why political support is crucial is the hierarchical decision-
168 making structure found in public administrations. Even if
169 you have the IT personnel and mid-level management on
170 board, the initiative might struggle to take off without the
171 approval of the political layer. Open source efforts risk being abandoned if there is no true buy-in from
172 an organisation's political leadership¹³. Furthermore, the initial period of building a new OSS project
173 and community around it might bring its own challenges. Hence, having **political and managerial**
174 **support** might be helpful to keep the momentum going.

Between 2018 and 2019, the Dutch Ministry of Interior ran a [digital participatory democracy project](#), the basis of which was the use of OSS. Thanks to the leadership of the Ministry, several local municipalities used OSS to deliver participatory democracy platforms.

175 OSS community leaders and members play an important role as advocates of their project in the public
176 administration. They should invest resources in demonstrating the benefits of using OSS, which can
177 help them to gain political support within their public administration.

178 *How do we formalise our community within the public administration?*

179 In order to ensure the longevity of a public sector OSS
180 community, it is crucial to formalise the community within
181 the public administration rather than view it as an *ad hoc*
182 engagement. This means giving it status, a clear name,

[Developers Italia](#), a community launched by the [Agency for Digital Italy](#) and the [Digital Transformation Team](#), was promoted to be part of the Department of Digital Transformation within the [Ministry for Innovation and Technology](#).

¹² Our research shows that having political support for any type of OSS project is a pre-requisite for a sustainable public sector OSS project. More specifically, 62% of our survey respondents believe the support of the political level is a 'very important' factor in the sustainability of any community.

¹³ According to our survey respondents.



183 choosing a project manager and a dedicated team, and securing the budget (described in more details
184 below).

185

With the adoption of [Guidelines for Code Acquisition and Reuse of Software](#), which mandate that any software developed or owned by the Italian government must be released under an OSI approved license and made available on Developers Italia, the community has gained legal certainty.

191

This will make it easier to lock in dedicated resources. The time that community contributors spend fostering the community and/or working on the OSS project should be officially **recognised as part of their work duties** rather than as a voluntary engagement. Official recognition of the community improves its long-term

192 sustainability as the community becomes part of the administration's strategic planning. This protects
193 the community against any short-term shifts in public administration's political focus or priorities.

194 1.3 Secure community funding

195 The final crucial aspect of getting your community off the ground is securing funding. There are several
196 factors to consider when assessing your funding needs and securing resources for it.

197 *What elements should we consider when defining the budget for an OSS project and the*
198 *community around it?*

199 In order to secure a sufficient budget for the OSS project and the community around it, you should
200 evaluate the *ex-ante* costs associated with it. This involves considering the **Total Cost of Ownership**
201 (TCO) in order to help you better understand the project's long-term costs. Some of the costs to be
202 considered include:

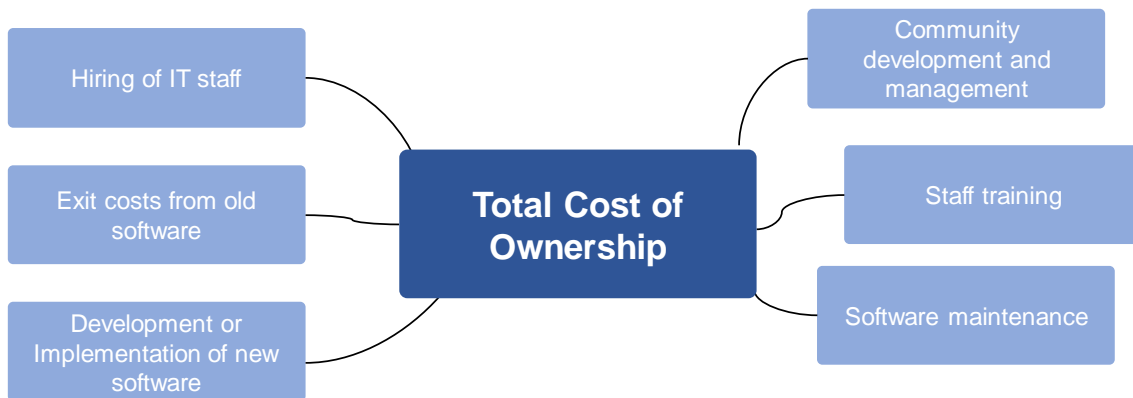
- 203 • initial hiring of IT staff;
- 204 • exit costs for existing software being used;
- 205 • development or implementation of the new software;
- 206 • staff training, if any, on working with the new software;
- 207 • maintaining the software;
- 208 • developing the community;
- 209 • managing the community.

210 In addition to assessing the TCO of your project, you could also develop a business case demonstrating
211 the long-term benefits of your OSS community to help secure managerial and political support for it.

212 Young public sector OSS communities sometimes underappreciate the importance of dedicating
213 resources to software maintenance and ensuring community vibrancy (community management). A
214 budget should be allocated in order to nurture the community itself (developing the community) by
215 investing in community events, such as hackathons, physical meetups, or online gatherings where
216 members can exchange feedback, lessons learnt, and future ideas.

217 **Figure 3 Key elements to consider when assessing Total Cost of Ownership**

218



219

220 *How do we secure project and community funding?*

221 A **clearly defined budget** is crucial for any public sector initiative¹⁴. Our research clearly shows the
222 importance of having sufficient funds to develop the core aspects of a community and its associated
223 software. Therefore, public administrations should
224 dedicate a portion of their annual budget to launch
225 their OSS project and maintain the associated
226 community. It can be complemented by additional
227 funds from other organisations interested in
228 participating.

The [CONSUL](#) digital participatory platform is funded through contributions from all participating municipalities across the world. Municipalities set a dedicated amount of their budget to invest in the platform – whether through contributing to code or community engagement.

229 For administrations with constrained budgets, there is an alternative option that they can consider: co-
230 funding. Co-funding refers to the involvement of one or
231 more organisations willing to contribute financial
232 support for software development to supplement
233 funding provided by the public administration. This

The nine main public administrations involved in the use and development of the Finnish [OSKARI](#) geospatial software each contribute a yearly fee of EUR 5 000 for the development of the platform.

¹⁴ 54% of our survey respondents consider a clearly defined budget as a 'very important' or an 'important' sustainability factor.



234 arrangement may also result in public-private partnerships.

235 If you decide to engage with OSS by joining an existing community, one way to support the community
236 is through crowdfunding. Crowdfunding refers to the raising of funds from a wide range of donors,
237 usually through a dedicated platform. Some communities choose this option to fund the development
238 of specific software components or to receive financial support for the growth of the community. If the
239 community of your choice is open for crowdfunding, there is a variety of platforms that it may have
240 selected for this purpose. To be sure that you contribute in a meaningful way, it is best to reach out to
241 the community to find out what their preferences and needs are.

242 *Should we consider hiring additional resources?*

243 Before diving into a new OSS project, you need to assess whether additional resources are required to
244 guarantee its smooth implementation. Whilst contributions to OSS are largely driven by members'
245 commitment to collaborative open source values, public sector OSS communities need certainty and
246 structure to ensure their longevity.

247 If there is a need for additional community contributors, it is worthwhile to **invest resources in hiring**
248 **developers** to implement, maintain, and provide support for your software. This will help to maintain
249 the project's quality and usefulness in the long run¹⁵. It is also a great opportunity to make skilled IT
250 professionals a part of your public administration, thus providing support and encouragement for new
251 community members and users with less IT knowledge.

252 Public administration community managers and members might have parallel commitments and hence
253 might not be available to focus on the OSS full-time. Hiring individual developers can help to ensure
254 that the software is regularly maintained. Nevertheless, this is not to say that the project management
255 should be outsourced to these contributors. Public administration community managers should be
256 empowered to dedicate time to the community and its growth even if they have parallel commitments.

257 Similarly, rather than hiring full-time developers, it
258 might be worth **launching a public tender calling for**
259 **developers** to work on certain aspects of the OSS
260 project. This will help to ensure continuous developer
261 commitment to the project, and it is also an effective
262 way to produce initial project output.

This is something that was done by the [Developers Italia](#) community, which, upon its inception, launched several public tenders to develop core products associated with the community.

¹⁵ Hiring developers was seen as a 'very important' factor by 47% and as an 'important' factor by 22% of our survey respondents.



263 *How should we approach private sector contributions?*

264 OSS communities often benefit from financial contributions from the private sector. However, when it
265 comes to private sector involvement, especially from large organisations, the support should not
266 manifest itself in indirect control of the community and its outputs. This also holds true for OSS
267 initiatives in the public sector.

268 The **public sector should retain the steering role** of
269 the community while private sector contributions should
270 take the form of providing additional support and
271 advice, when necessary. Generally, it is advisable to allow
272 private sector contributions when the community is
273 more mature. Particular attention should be paid to the transparency of the community's governance
274 model and to ensuring that engagement with the private sector does not compromise this model.

The French OSS community of [Lutece](#), founded by the City of Paris, received funding from the Bloomberg Philanthropies to re-design their website and launch an online training course for potential new community members.

275 2. Joining an existing community

276 After assessing your needs and IT capabilities and evaluating the
277 open source solution market, there are a few elements that you
278 will need to consider if you decide to join an existing open
279 source community. The list below will help to guide you and
280 ensure that, having selected the community you want to engage
281 with, you establish sustainable long-term collaboration.

282 2.1 Understand the community behind 283 the software

284 Before joining an existing open source community and reusing its software, there are several questions
285 that you should ask yourself in order to fully understand its nature and how you can best contribute.

286 *What is the setup of the community we are joining?*

287 To find a community that will match your organisation, you need to consider its **setup and**
288 **governance**. Identifying the governance model, the community's **communication** channels, its
289 manager, and consulting the code of conduct are good elements to start with, as outlined in Figure 5
290 below.

291 A clear understanding of the community's governance model is key to understanding your future
292 contribution to the community¹⁶. Put simply, the governance of the community should be compatible
293 with the processes in your public administration or at least compatible enough that your public
294 administration can adapt to the processes within the community and ensure its smooth cooperation.

295 Although each open source community is slightly different, the main types of governance models are
296 as follows¹⁷:

- 297 • **Founder-led:** a type of OSS community where a single person, normally the founder of the
298 community, is in charge of making all the key decisions with regard to the evolution of the
299 project. Such a governance type can often be found in smaller organisations and young OSS



How to join an open source community:

- 1 Understand the community behind the software
- 2 Facilitate sustainable collaboration
- 3 Contribute to the solution in the long run

¹⁶ Our survey highlighted the importance of having a clear governance structure. Indeed, survey respondents underlined the importance of having a clear leadership structure (74% of respondents) and clearly defined roles and responsibilities (76% of respondents).

¹⁷ Taken and adapted from: [Open Source Leadership and Governance Guide](#) and [Red Hat's Guide to open source project governance models](#).

300 communities with only a few contributors. As the project evolves, the single decision-maker
301 may be replaced by a steering committee.

302 • **Merit-based:** a community where responsibilities are assigned based on merit, i.e. developers'
303 commitment and contributions to the project. In such communities, decisions can also be
304 driven by voting to ensure member-driven project evolution.

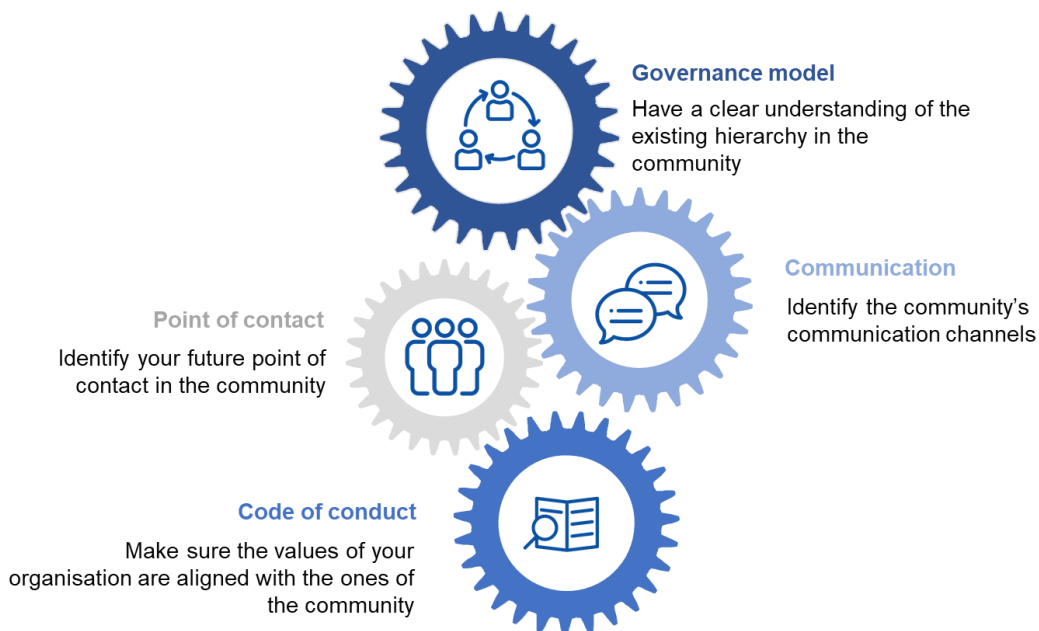
305 • **Member-driven:** a community without a strict or formal governance model, where
306 contributions are made by individual members, and the evolution of the project is driven by
307 consensus-building among community members with varying degrees of influence. Usually,
308 the governance of such projects is implicit, and it might be difficult for new joiners to grasp.

309 Each governance type comes with its own benefits and drawbacks, and it is not unusual for a
310 community to adapt its governance structure as it evolves.

311 You will need to identify a future **point of contact** in the community and assign a point of contact
312 within your own organisation. This will ease your onboarding in the community and allow you to get
313 more information on the project. Similarly, understanding the community's communication channels
314 will help your team to stay on top of any community updates and easily collaborate with key members.

315 You should also check the community's **code of conduct** to see if it is aligned with your own needs
316 and public administration's values.

317 **Figure 4 Understanding existing communities**



318



319 *How mature is the community we are joining?*

320 The maturity of the community will affect how you collaborate with it. The following criteria may help
321 you gauge the maturity of a particular community:

- 322 • size of its developer community
- 323 • size of its user base
- 324 • number of recent commits to the code
- 325 • sustainability and diversity of its funding model
- 326 • frequency of update releases
- 327 • date of last update.

328 If the community that you wish to join was only created recently, you will be in a better position to help
329 shape the functioning of the community and to establish yourself as a key player regarding decisions
330 about the core features of the solution. Smaller and newer communities also allow you more flexibility
331 when collaborating with other community members as rules and practices are typically quite new.
332 However, 'young' communities might require the mobilisation of more financial and human resources
333 in order to kick-start their growth.

334 If the community you join is large and mature, you will benefit from extensive existing content. Most
335 probably, the OSS will already be at a mature stage of code development and some contributors may
336 have developed substantial forks and plug-ins. The community might also offer capabilities to host the
337 software you need on their own platform. However, individuals involved in the community will have
338 reduced influence over the direction of the community and the OSS product itself.

339 To conclude, the choice of open source community depends on your financial and technical resources
340 as well as the type of software you are looking for. In both cases, you should pay attention to the
341 interoperability of this solution with the software already in use in your organisation.

342 *How can we make the most of the OSS community behind the software?*

343 If you have decided to use an open source solution, it is best to fully exploit its potential. Unlike
344 proprietary solutions, open source solutions benefit from a community of developers around them
345 who fix bugs, develop new features and plugins, and contribute to the code. Below are some tips on
346 how to make the most of the open source community behind your software.

- 347 • **Interact with the community** if you have questions about the installation or use of the
348 software.



- 349 • **Contribute** to the community by developing code, contributing to or creating documentation,
350 and resolving issues.
- 351 • **Have a look at other public organisations** using the same software. Their variation of the
352 software can provide inspiration for your own version.
- 353 • Make sure that citizens are aware that the software your organisation is using is open source.
354 Not only is it a guarantee of transparency, but it also **gives visibility** to the community and to
355 the open source solution. This way, your organisation is contributing to the sustainability of
356 the open source community.

357 In order to make the most of the open source solution, it is important to not only receive from the
358 community but also contribute to **the sustainability of the solution**. Should your organisation
359 develop plugins, write documentation, or create additional features around the software, these
360 elements should be published under an open source licence, preferably the same as the solution itself,
361 and shared with the upstream community.

362 2.2 Facilitate sustainable collaboration

363 There are several steps that you can take to ensure that your public administration will reap the full
364 benefits of collaborating with an OSS community.

365 *How can we adapt our procurement rules and processes to work with OSS communities?*

366 **Appropriate procurement procedures** and rules are a
367 prerequisite to healthy collaboration with OSS
368 communities. Public procurement templates should have
369 clear and permissive clauses on purchasing open source
370 solutions. The templates should also allow civil servants
371 to not only purchase OSS solutions but also engage with the community surrounding the software.
372 Public administrations are encouraged to maintain lists of compatible OSS licenses, and those should
373 also be specified in public procurement templates when purchasing software. Check whether your
374 country has guidelines on public procurement and open source solutions.

The Italian government has dedicated [Guidelines on the acquisition and reuse of software for public administrations](#), which are legally binding.

The Linux foundation has published a guide on [open source software for procurement officials](#) which addresses the key questions on this topic.



375 *How to best implement open source software?*

376 Once your organisation has chosen the open source solution, you need to decide whether you will be
377 running the software in your own premises, relying on the upstream community to host it for you, or
378 modifying the source code altogether and tailoring it to your own needs.

379 **Relying on an existing software version** is a good way to start your open source project while
380 minimising financial and technical outputs for your public administration. Hence, you might want to
381 choose this option if you have limited IT resources and the existing solution is strongly aligned to your
382 needs.

383 **Creating add-ons and plug-ins** is useful when you want to add tailored features to the existing
384 software. However, you should follow the open source industry best practices and share your changes
385 with the upstream community. If the changes are important and relevant to the broader community,
386 they can potentially be included in the upcoming software release. Contributing upstream is a crucial
387 aspect of giving back to the community as code-sharing is one of the key values of OSS.

The [Linux Guide](#) on Participation to Open Source Communities lists several best practices when it comes to contributing to the upstream community.

388 *What are the strengths that we can offer to the community?*

389 When choosing to join a community, you should assess what kind of contribution you are willing to
390 make. Potential resources you can mobilise include:

- 391 • financial resources;
- 392 • human resources, both in terms of technical human resources, such as developers, and
393 supporting human resources such as project managers, community managers, and
394 communication specialists;
- 395 • technical knowledge and resources, assuming that your organisation has the capacity to create
396 content for the open source solution that could be shared with the community;
- 397 • leverage of your public administration's involvement with the community so as to attract other
398 public administrations, thus helping the community to grow.

399 Contributing to the open source project helps your public administration to gain substantial respect
400 within the open source community, which in turn can expedite your transition from a minor community
401 player to a core decision-maker. Decision-making control is beneficial because it will allow your public
402 administration to direct the trajectory of the open source project in line with your own needs.



403 2.3 Contribute to the solution in the long run

404 Joining an OSS community is not a one-off engagement. For a more complete view of your potential
405 contribution, assess your capabilities and resources in the short-, medium-, and long-term. An honest
406 and representative assessment will prevent you from over-committing beyond your capabilities. Your
407 public administration will have to find ways to contribute, collaborate, and give back to the community
408 in the long run. Collaboration is one of the key principles behind the success of OSS.

409 *How can we promote the solution in other public administrations to help grow the*
410 *community?*

411 Growth is crucial to any community's sustainability¹⁸. Therefore, as a public sector community
412 representative, you can help to expand the community's user base. If you happen to know a public
413 administration like yours that could be interested in the open source solution, share your
414 documentation. You can also plan to **pool your resources** with several other public bodies to promote
415 a solution. This strategy is particularly useful for small public entities which, taken alone, often do not
416 have the financial or technical resources for a long-term involvement in an open source community.
417 This will allow you to build expertise across public administrations that can then train, implement, and
418 offer policy suggestions to other public bodies.

419 *How can we contribute to the visibility of the community?*

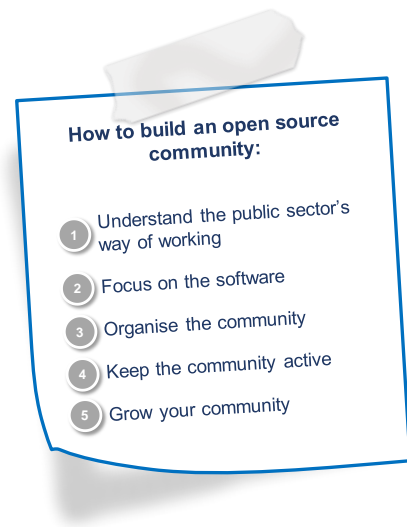
420 Contributing to the visibility of the OSS community is essential to its sustainability¹⁹. Without visibility,
421 the open source community is unlikely to attract new members, thus putting the long-term
422 maintenance of the solution at risk. Public organisations using open source solutions should therefore
423 market the community and the software behind it, allowing viewers to access the software's repository.
424 Your organisation can also **communicate actively** about the community. We encourage the
425 development of a dedicated online space for the solution that your organisation plans to use. It is
426 worth outlining the software's open source characteristics and providing a brief explanation about the
427 solution and the community behind it if the website is addressed to the wider public.

¹⁸ 45% of our survey respondents deem a community's capacity to attract new members as a 'very important' or 'important' sustainability factor.

¹⁹ 64% of our survey respondents highlighted the importance of communication in the sustainability of an open source project.

428 3. Building your own public sector OSS 429 community

430 If you have decided to create a new open source community,
431 this section will explore the key issues that you may
432 encounter and how to overcome them. In the first few
433 months, you will likely have to make several important
434 decisions that will impact the sustainability of your
435 community. Such decisions should be made with a long-
436 term perspective, all the while accounting for the future
437 maintenance of your software.



438 3.1 Operating within your public 439 administration

440 Given that the OSS community is to be launched within a public administration, the nature and
441 operation of the community will inherently be affected by the public administration's ways of working.
442 Therefore, to ensure that the community is well positioned and recognised within the public
443 administration, it is recommended that you promote the community and inform your colleagues about
444 the benefits of and ways of working with OSS.

445 *How to establish collaboration between an OSS community and the public administration*
446 *it is attached to?*

447 Building relationships outside your community will help to boost its recognition. Contributions and
448 resources dedicated to your OSS community have to be recognised and valued by the management
449 and employees. This can only happen if other civil servants outside the community understand what
450 working on an open source solution entails.

451 **The benefits of the new OSS community** should be
452 demonstrated to your peers, management, and the
453 decision-makers of your organisation as early as possible.
454 This could be done by sharing weekly or monthly reports
455 about the recent developments and code contributions

The [Developers Italia](#) community started by inviting civil servants from the Italian public administration to participate in the community's forums and events, thus helping them to get better acquainted with the working methods of OSS and to recognise the value of the community.



456 to the software. Another good way to showcase your project's growth over time is to define some
457 metrics against which you could assess your community.

For inspiration, you can consult the [CHAOSS Community Health Metrics](#).

458

459 It is also important that the hierarchy of your public administration understands the collaborative
460 nature of OSS communities. This will help safeguard the **horizontal and transparent ways of working**
461 **in the community**. Furthermore, public sector managers should appreciate the fact that software
462 development is a continuous process that might require several iterations, tests, and release cycles
463 before the final product is put together. Even then, software updates and new add-ons are regularly
464 released. OSS communities are not static and there is no end-goal per se. As long as the software is
465 used, the open source community behind it will be needed to publish updates and respond to user
466 requests.

467 To better position your OSS projects within the public administration, you may consider setting up an
468 Open Source Program Office (OSPO). OSPO's responsibilities will vary depending on the size of your
469 organisation and its OSS engagement scale. Its main mission is, however, to nurture and support the
470 open source approach to software development and engage with developer communities. The
471 European Commission, in its renewed open source software strategy, has established an OSPO and
472 tasked it with facilitating all activities outlined in the strategy.

Description of functions and tasks that can be carried out by the OSPO have been proposed by
[TODO Group](#).

473 *How can we ensure the community's growth within our public administration?*

474 As your community will be set up within a public administration, you should work to ensure that its
475 decision-making process does not slow down your community's growth. **Raising awareness of OSS**
476 **benefits** and your community among civil servants and the political hierarchy will encourage openness
477 in your public administration with regard to fostering the growth of an OSS community. You should
478 highlight the fact that OSS helps to prevent vendor lock-in and ensures your administration's digital
479 sovereignty. You could invite your colleagues to contribute to community forums, participate in any
480 online or physical events, and encourage them to meet community members to better understand the
481 nature of OSS communities.



482 Bearing in mind that public administrations are hierarchical, which stands in contrast to the horizontal,
483 communal nature of OSS projects, launching and growing your community may take patience and
484 determination. The decision-making process within public administrations depends on long-term
485 planning and budget cycles which in turn depend on the political priorities at the time. Nevertheless,
486 the OSS communities that we have studied all demonstrated **flexibility and agility** to work with and
487 within public administrations.

488 *Who can become our community's members?*

489 A public sector open source community should always
490 arise from the needs of the public administration.
491 However, just because the project is created and
492 funded by a public administration, it does not imply
493 that the community cannot evolve beyond the frame
494 of a single public organisation or branch out to other
495 users. In fact, our research shows that an increase in
496 the number of actors involved in the community as
497 **active contributors** strengthens its sustainability²⁰.

The open source community behind the [CONSUL](#) software have an active strategy of diversification of its contributors and users. This strategy prevents the development of an unbalanced dependency of the open source community on a single decision-making authority, in this case the City of Madrid which created the software.

498 **3.2 Focus on the software**

499 The maturity of the community's software is crucial for the community's sustainability as it is the
500 foundation on which the community is built. There are several elements that you need to consider
501 when releasing and maintaining the community's code.

502 *How can we choose the right license?*

503 Choosing the appropriate license allows the software to gain visibility. It is also a guarantee for all
504 actors involved in the project that the source code will benefit the open source community. It is good
505 practice to choose an open source license recognised by the [Open Source Initiative](#) (OSI). Furthermore,
506 it is recommended to choose a license commonly used in the programming language or framework
507 ecosystem that your project will build upon. This will ensure continued participation from outsiders
508 and lead to a more sustainable community.

²⁰ According to our survey respondents, the community's capacity to attract new members and retain current members are key sustainability factors, deemed as 'very important' by 46% and 53% of our survey respondents respectively.



Some tools that can help you in the process of identifying the right license [include the Joinup Licensing Assistant](#) and [Choose A License](#).

509 Additionally, open source communities need to check whether the country where the project is taking
510 place has **requirements** regarding the licensing of open source solutions by the public administrations.
511 For example, in France, public administrations are obligated to publish their source code under an open
512 license [listed by the Decree](#), and in Spain, public administrations should follow the [Guidelines on the](#)
513 [Publication and Licencing of Assets](#) that explain how to publish and distribute open source software.

514 *Which programming language should we choose?*

515 The choice of the programming language is another key
516 element of an open source project. It depends on the
517 nature of the software, but whenever possible, you
518 should choose a well-known language to allow more
519 developers to contribute to your solution and foster its
520 **reusability**.

City of Groningen's adoption of [CONSUL](#) was slightly slowed down by the software's programming language. As the software is written in [Ruby on Rails](#), the Groningen team found it difficult to find local developers proficient in this programming language as it is not widely used in the Netherlands.

521 *How should we approach software releases?*

522 Having an overview of your planned product releases, as is the case with proprietary software, helps to
523 add structure to your project. A **project roadmap** will be a helpful way for your team to plan the key
524 milestones associated with your software's development. When it comes to OSS, new software releases
525 often happen in 3- or 6-month cycles.

526 Additionally, **planned software releases** should be announced in advance. This will create anticipation,
527 boost your community's visibility, and help the community to prepare for the new release. More
528 specifically, having a clear idea of the next version release will allow community members to anticipate
529 potential new bug fixes, plan training sessions, and set expectations for their workflow.

530 *How should we ensure code quality?*

531 Prioritising **quality over quantity** with regard to the development of the source code is a key element
532 of an open source project's sustainability. To ensure that the source code meets high quality standards,
533 open source communities need to put **testability mechanisms** in place and foster **peer-review**



534 **processes.** Giving more responsibilities to individual members of the community can also motivate
535 them to keep the highest standard of code quality without relying too much on the community's code
536 testing capacities.

537 Furthermore, to maintain the long-term software quality, you need to carefully evaluate (and not
538 underestimate) the workload required to keep the software updated, fix bugs, and respond to users'
539 queries. In many cases, software maintenance is a full-time job.

540 *What should we do regarding software documentation?*

541 Well-documented software makes it easier to onboard new members and foster software reusability²¹.

For more information on how to write software documentation, you can consult advice published by the [Write the Docs](#) community. Additionally, the Foundation for Public Code has outlined suggested [requirements for documenting](#) software developed by public administrations.

542 *Does our software have to meet GDPR requirements?*

543 When building an open source solution for a public administration, keep in mind the specific
544 requirements that it entails. Lack of compliance with the requirements of the [General Data Protection](#)
545 [Regulation](#) (GDPR) is an obstacle to the use of some software. Open source communities need to make
546 sure that their software is **GDPR-compliant** and that information about its compliance is easily
547 accessible to external users. It is also worth checking whether the software that your public
548 administration is developing must meet any national requirements or regulations.

549 *How do we make the software accessible?*

550 It is equally important to ensure that your software meets the EU and international standards for
551 **accessibility**. The European Commission's [Web Accessibility Directive](#), in force since 22 December
552 2016, lays down the standards and procedures associated with ensuring the accessibility of European
553 websites and mobile apps of public services.

²¹ 61% of our survey respondents consider that documentation is an important element of the sustainability of the open source project. Some of our interviewees even believe that 50% of developers' time should be dedicated to documentation.



Additionally, the W3C has put together a [detailed guide on Accessibility](#), including international accessibility principles.

554 *When to make the source code available?*

555 It is good practice to make the code publicly available from the project's inception, starting with the
556 first line of code. This way, more developers are encouraged to **join the community**. Waiting too long
557 before publishing the source code not only results in fewer developers being involved but also
558 contradicts one of the core principles of open source – making the source code available.

The UK Government has put together a [dedicated guide](#) explaining the value and process of making source code open from the start.

559 In addition to publishing software, you should maintain and keep it up to date. Ideally, the public
560 software repository should be the main 'working' software repository used by the project team and the
561 community.

562 **3.3 Organise the community**

563 Organising OSS communities helps to guarantee their smooth operation. Given the hierarchical nature
564 of the public sector, organising the community becomes especially important in demonstrating a
565 project's success and sustainability. Clear governance and operational guidance should be agreed upon
566 with the community so it can operate and grow freely.

567 *How should the decision-making structure of the community be set up?*

568 The sustainability of any open source community depends on strong leadership and open
569 management. Community governance, set up transparently, should strike the right balance between
570 openness and the organisational structure of the public administration²².

- 571 • **Identifiable public sector manager:** The role of public sector manager(s) is to enable flexible
572 and transparent modes of operation for the community. Any decisions taken by public sector
573 management should be clearly reported back to the community along with justifications for
574 such decisions. Considering the openness of open source communities, public sector

²² Our research shows transparency of the decision-making hierarchy to be a factor strongly influencing OSS contributors' motivation.



575 manager(s) should consult with community members as frequently as possible to ensure that
576 the community is truly member-driven. This will also help to strengthen members' motivation
577 to contribute to the community and its project(s)²³.

578 • **Project manager / steering committee:** The project manager or steering committee should
579 demonstrate a strong understanding of OSS and the nature of the community as well as
580 knowledge of public sector operations. This will allow them to act as facilitators between the
581 community and the public administration within which it operates. Additionally, the project
582 management team should include the project's key developers as they have the most
583 specialised knowledge of the software²⁴.

584 For the sake of long-term sustainability, the community's management should also take into account
585 potential changes to the roles in the community. You should facilitate the **organic growth of the**
586 **community members' responsibilities** and envisage potential replacements of managers if they are
587 no longer available to steer the community. Resources should also be dedicated to training future
588 community leaders - a strong team behind the community is crucial for its sustainability.

589 A key part of your community is to have a core team.
590 These are members who make daily contributions to your
591 software, interact with the broader community, and are
592 responsible for making decisions for certain subsets of
593 your community. More often than not, some core team
594 members are also part of the project management team
595 as they tend to have the strongest knowledge of the long-
596 term evolution of the open source software and the community.

One of the factors behind the sustainability of the [Lutece software](#) is the role played by core developers in the project. While Lutece's inception stems from a political initiative, the developers' team in charge of its technical development has been driving the evolution of the software from the very beginning.

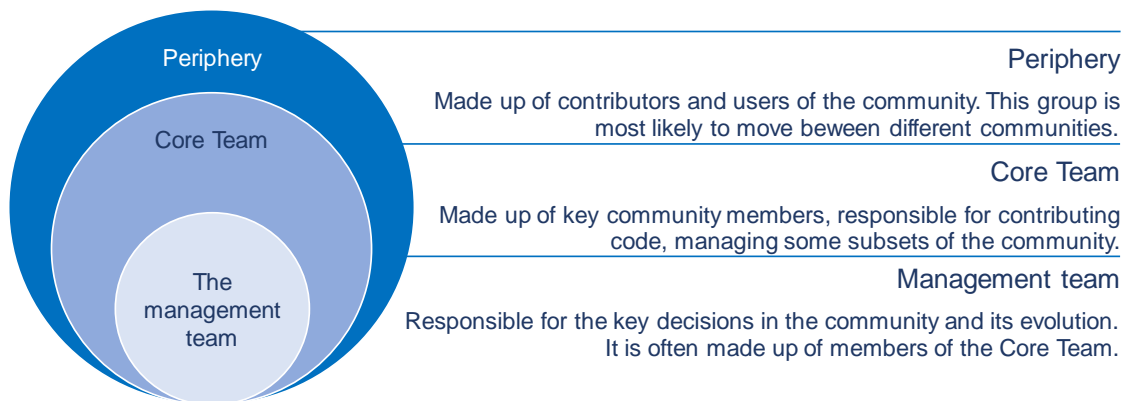
597 Finally, users of your open source solution are another key community group as they share valuable
598 feedback on the new releases. However, this group and the contributors can be viewed as being at the
599 periphery of your community. Unlike the core group, they are more likely to switch to other software
600 and be less committed to your project in the long run.

601 These key community layers are summarised in Figure 5 below.

²³ 43% of our survey respondents view the presence of coordination mechanisms among community members as a very important factor to its sustainability.

²⁴ Presence of OSS enthusiasts within public sector communities was seen as very important by 55% of our survey respondents.

602

Figure 5 High Level Organisation of OSS communities

603

604 *What are some key roles & responsibilities that should be fulfilled in the community?*

605 For your community to function smoothly, your core community members should fulfil several different
606 roles. Even though there are many types of open source communities, below are some of the key roles
607 that can be found in most communities, as additionally summarised in Figure 6.

- 608 • **Management** – the key person(s) responsible for the community and taking decisions on
609 features, releases, and other activities as well as acting as a bridge between the community
610 and the public administrations' political hierarchy.
- 611 • **Core Technical Committee** – a technical management team that is highly committed and
612 responsible for verifying and approving proposed changes to the code and making the final
613 decisions regarding the project's evolution together with the project leader(s).
- 614 • **Maintainers** – members of the community responsible for maintaining and managing certain
615 aspects of the project (e.g. security). Community members who have a strong sense of
616 responsibility and direction are best positioned to be community maintainers.
- 617 • **Committers** – community members who have demonstrated dedication to the community
618 and are regular contributors can, with time, be recognised as project committers. They can
619 also be responsible for reviewing new code contributions.
- 620 • **Contributors** – any members of the community who participate in forums, comment on
621 issues, organise events, and are active in any other way.

622 Additionally, some members of the core team should also be
623 responsible for **promoting the community** and be in charge
624 of communication, marketing, and social media management.

The team behind the [CONSUL](#) software exhibits a strong commitment to community building and outreach. Dedicated team members are tasked with finding new users of the solution.

625

Figure 6 Community roles & responsibilities

626



627

The [Linux foundation](#) and [GitHub Open Source Guides](#) both outline some of the most commonly found roles within OSS communities.

628 *What organisational information should be made available to the community members?*

629 A community operates best when there are clear roles and responsibilities as well as defined means of
630 operation. However, these aspects need to be agreed upon with and driven by the community.
631 Community members are also encouraged to take up roles and responsibilities voluntarily.

632 The governance structure of the community itself will largely depend on the type of community being
633 set up. A young community may be self-driven, thus allowing contributions to happen spontaneously.
634 However, setting up your community will require strong efforts in the beginning to structure the team,
635 set goals and milestones, and build coordination mechanisms.

636 *Clear Community Vision & Mission*

637 A community is more sustainable if it has a **common sense of purpose and a shared identity**. For
638 this reason, new and mature communities alike should have clear, publicly available Vision²⁵ and
639 Mission²⁶ statements, which will help foster a sense of a community working toward achieving a single

²⁵ Community's vision states what the community wants to achieve in the future.

²⁶ Community's mission states the purpose of the community.



640 goal. They will also help potential new community members to understand the community's purpose,
641 thus encouraging them to join.

642 *Community Guidelines*

643 The rules governing the community should be driven from the bottom up and agreed with community
644 members. Nevertheless, if you wish to have more formal internal control, the coordination mechanism
645 should not undermine the community's ability to freely evolve, innovate, and develop. A mature
646 community may, over time, become leaner and more informal.

647 The best way to set out the community's operational model is by putting forward Community
648 Guidelines²⁷. They should cover the key elements as follows:

- 649 • **Code of Conduct** – outlining the operating principles of the community and expectations for
650 how community members should behave.
- 651 • **Roles & Responsibilities** – detailing any specific roles & responsibilities that exist within the
652 community and how community members can get involved;
- 653 • **Community's ways of working and key procedures** – outlining the key processes within the
654 community such as becoming a community member, contributing code, reporting and fixing
655 bugs, and animating the community;
- 656 • **Resources** – detailing any supporting resources available to community members such as
657 online tutorials, documentation, and online forums.

Some useful examples of community Codes of Conduct are the [Contributor covenant](#), used by tens of thousands of open source projects, or the [Linux Kernel Foundation Code of Conduct](#).

658 *FAQ for community members and the general public to consult*

659 You can host a FAQ on your website or on the development platform that you use for your project.
660 This FAQ may also be divided into two parts: one for contributors and the other for the users of your
661 open source solution.

662 The FAQ can comprise **various sections** on general questions, definitions, rules, licencing,
663 documentation, and the communication channel.

²⁷ Overall, 41% of our survey respondents believed community guidelines to be very important and 41% an important factor for sustainability.



The City of Helsinki (Finland), for instance, uses [GitHub](#) to outline best practices for software development for the city. Developers Italia (Italy) hosts a [document website](#) of relevant manuals and documents. Tchap, an instant messaging service used by government officials in France, also hosts an [online FAQ](#).

664 *How inclusive can we afford to be at the start of the project without losing control of the*
665 *direction?*

666 Your community should be agile and understand that priorities may need to be redefined at times. The
667 outputs of your community will be based on the current needs of the public sector but may, in the
668 future, require changes and new input that will put other projects on hold. Changes may include adding
669 new features and reworking the code at hand to adapt to these new needs. Your community should
670 thus be prepared for **agile methods**, but you should define a short-, mid-, and long-term vision to
671 **achieve the set goals**.

672 Additionally, choosing a few key developers to start developing the software will be useful. You can
673 choose a well-respected figure from the open source world to join the project – even if only temporarily,
674 to help secure developers’ initial commitment and contribution to the code.

675 **3.4 Keep the community active**

676 An OSS community is driven by the dedication of its members. Thus, ensuring the community’s health
677 and vibrancy is vital to its longevity.

678 *How to best facilitate communication between community members?*

679 Rapid and transparent communication is key for open
680 source communities, and there are various ways to
681 facilitate it. For example, the community may establish a
682 place for both synchronised and unsynchronised
683 conversations in the form of **live chats and a forum**
684 respectively. In addition to informal chatting, a central information hub should also be set up. This can
685 be a wiki, a mailing list, [Discord](#), [Slack](#), [GitHub](#), or [GitLab](#). A single point containing all information will
686 ensure that no important information is lost or scattered across the various channels. Public sector

To ensure the smooth flow of information within the diverse [OSKAR!](#) community, the project team has hired a community manager responsible for handling internal and external communication flows.



687 open source projects are encouraged to choose OSS for their means of communication in order to
688 boost their credibility within the community.

689 Public progress reports highlighting weekly or monthly **contributions** are also very popular with
690 community members as a means of ensuring transparency within the community. These updates might
691 also be shared with the public administrations' hierarchy to demonstrate the project's evolution.

692 *How to sustain the motivation of community members?*

693 Motivation of the community members is a key aspect of the community's long-term growth and
694 sustainability²⁸. If community members do not feel motivated, they are more likely to leave.

695 There are several ways to maintain the motivation of your community's members: recognising
696 members' work, transparent decision-making, and organising meetups.

697 *Recognition of members' work*

698 Community members are more likely to be motivated and proactively participate in the community if
699 they feel that their contributions are **visible and recognised**²⁹. This, for example, can be facilitated by
700 having weekly overviews of the community's activities that are shared with the entire community.

701 Similarly, active community contributors can be rewarded by being assigned more formal and **official**
702 **roles with the community**. Such roles and duties include management positions, providing translation
703 services, managing documentation, acting as an organisational integrator, reviewing code, and tracking
704 progress. Allocation of these roles will help to ensure that the community's management is as
705 horizontal as possible within the framework of a public administration.

706 Another way to recognise members' contributions to the community is by introducing **gamification**
707 **elements**, such as badges or leader boards, to your community. These might be a fun way to give
708 recognition to and motivate community members. However, before introducing these concepts, assess
709 whether they would be welcome. Some community members might view these changes as fostering
710 competition, rather than collaboration, between members.

²⁸ 82% of our survey respondents considered motivation to be a 'very important factor' in ensuring the community's sustainability.

²⁹ 72% of our survey respondents deem the ability to get credit for one's contribution to an open source community as a 'very important' or 'important' sustainability factor.



711 *Transparent decision-making*

712 Transparent and non-hierarchical decision-making is imperative in ensuring that members feel valued
713 and motivated to participate in the community. Any decisions made regarding the community should
714 be clearly **logged and transparent**. Community members should also, to the extent possible, be
715 involved in planning the next steps and project releases. An organic community is defined by good
716 coordination and the members working together towards the same goal.

717 *Organising meetups*

The [Developers Italia](#) community decided to invest their resources in physical gatherings. Not only did this stimulate communication and more efficient collaboration, these gatherings also helped to put a face to the community.

As much as open source communities' members mostly interact online, physical community meetups are highly beneficial to the community. While physical meetups should not replace online interactions and hangouts of the community, they might help to add some vibrancy to it. If your **budget** allows for it, your project would

724 benefit from **regular meetups** as these are useful to maintain a sense of belonging and foster
725 information exchange. Furthermore, as your community grows, it might also be worthwhile to organise
726 location-specific meetups for, say, different municipalities using your software. If physical gatherings
727 are not possible, organised online meetups may bring similar benefits.

728 You should be aware that it is natural for community
729 members to leave. Departing members should be
730 quickly replaced with new members so your community
731 grows organically. In other words, a community with a
732 strong core of developers and a large body of peripheral
733 developers with a high turnover is a good indication that
734 your community is doing well.

The management team at the [Integreat](#) platform, recognising the importance of a vibrant community behind its solution, organises regular events where both the developers and users of the application can come together and share their experiences of using the software.

735 **3.5 Grow your community**

736 *How do we ensure the visibility of our community?*

737 As discussed in section 3.3, some community members need to be dedicated to increasing the visibility
738 of your community. One factor that might help your community be more visible to potential
739 contributors and users is having a dedicated website. It should be easy to access and navigate and
740 provide the most important information about your software. You should use the social media to raise



741 awareness about your software, find like-minded community members, and learn about other ongoing
742 projects.

743 Furthermore, you should list your software in an existing national catalogue and any other independent
744 catalogues.

745 *Are there other public administrations that could be interested in joining the community?*

746 Community growth is an important aspect of any community's sustainability. It is likely that there might
747 be other public administrations with similar needs that could also benefit from your software.

748 Therefore, your community should dedicate time and resources to **raising its visibility** across other
749 public administrations. Your software might be particularly useful to small public entities which, taken
750 alone, do not have the financial or technical resources for long-term involvement in an open source
751 community.

752 *How do we attract new contributors?*

753 There are a multitude of ways to attract new contributors
754 to your community. Most communities **collaborate** with
755 other public administrations, universities, private
756 developers, private companies, and citizens. Once
757 communities reach a mature stage, you should publish
758 clear mission statements and have easily accessible

Developers Italia organised a [48-hour code sprint](#) throughout Italy and even in San Francisco! They invited programmers, IT professionals, and students to develop functionalities for public administration projects hosted by the community.

759 documentation and code. You should also participate in any online or physical gatherings of open
760 source communities. There are many [OSS focused events](#) taking place across the globe every single
761 year. Your community could attend EU-funded workshops and conferences, such as the [Sharing &
762 Reuse Awards](#), where you could showcase your project and boost its visibility.

763 If you have resources to spare, you could take a more pro-active role in attracting new community
764 members. Hosting a hackathon is a great way to involve interested citizens and potential new
765 community members.

766



767 4. Long-term sustainability

768 If there is one thing that you should take away from these Guidelines, it is that the sustainability of OSS
769 communities is not a one-off investment. Once you either successfully join or launch an OSS
770 community, it is important for your public administration and your steering committee to keep
771 nurturing and growing the community behind your software.

772 In the long run, your community's sustainability will rely on the following key factors: a clear governance
773 structure, the vibrancy and health of the community, continuous commitment of the public
774 administration's political hierarchy to the project, sustainable funding, and the maturity of your
775 software.

776 As mentioned throughout the Guidelines, transparency is at the heart of successful open source
777 communities. For this reason, as your community evolves and grows over time, its governance should
778 remain clear and transparent. This will help you to attract new members, make it easier to promote
779 your software, and ensure the commitment of key community contributors.

780 Secondly, your community is only as strong as its members' commitment to it. Hence, it is imperative
781 that, over time, core team members remain committed to the software and continue contributing code,
782 fixing bugs, and ensuring new software releases. Similarly, it is important to invest resources in raising
783 the community's visibility so that it can grow over time.

784 Given that the Guidelines focus on open source communities in public administrations, you need to
785 invest time in guaranteeing the long-term commitment of the public administration to your
786 community. As detailed in the Guidelines, this can be achieved by demonstrating successful project
787 output and providing clear communication on how the community works.

788 Sustainable funding is essential the community's growth. It will attract new community developers, and
789 the funds can be invested in new features, used to organise events, and help to raise the community's
790 visibility.

791 Finally, at the core of OSS communities is the software itself. Your public administration should dedicate
792 resources to maintaining the software over time rather than just investing in its implementation at the
793 beginning.

794 It is our hope that, with the practical advice and scenarios laid out in the Guidelines, you will have more
795 confidence and a deeper understanding of what it takes to launch a public sector open source project.

796



797 5. Methodological Note

798 Several research methods were employed to produce the Guidelines for Sustainable Open Source
799 Communities in the Public Sector. More specifically, a three-step approach was taken consisting of a
800 literature review, a dedicated survey of public sector OSS community representatives, and the
801 development of five case studies illustrating sustainable public sector OSS communities. Each step was
802 built upon the main findings from the previous steps. This approach allowed us to put together
803 Guidelines based on both theoretical literature and practical findings from the survey and case studies.
804 The outcome of each step is described in more detail below.

805 *Step 1 – Literature Review*

806 The key objective of the literature review was to identify the most recurring success and failure factors
807 of sustainable open source communities. More than 30 information sources were consulted, including
808 academic papers and online resources. The literature review focused on the specificities of open source
809 communities in the public sector as this is the goal of the Guidelines. The outcome of the literature
810 review was a streamlined list of five key success factors that contribute to OSS communities'
811 sustainability: software maturity, sustainable finance, community vibrancy, community governance, and
812 public sector adoption incentives.

813 *Step 2 – Survey addressed to the open source community*

814 In order to validate and expand on the findings of the literature review, we launched an online survey
815 targeting members of public sector OSS communities. Between 16 January 2020 and 15 March 2020,
816 the survey gathered a total of 74 complete responses. In addition to gathering feedback on the success
817 factors behind sustainable public sector OSS communities, the survey also helped us to put together a
818 long list of existing communities in public administrations. A total of 46 examples of public sector OSS
819 communities were identified.

820 *Step 3 – Case Study Analysis*

821 To further explore what makes public sector OSS communities sustainable, we developed five case
822 studies. They were selected from the list of communities identified in our survey, taking into account
823 their geographical distribution, level of administration, and type of community together with its
824 sustainability. The resulting five case studies were: the [Developers Italia](#) community launched by the
825 Italian government; the implementation of participatory democracy through the [CONSUL](#) platform in



826 Groningen; the [Integreat](#) application, originally developed by German students and now used by over
827 60 municipalities across Germany to provide information to new arrivals; the [OSKARI](#) software in
828 Finland; and the [Lutece software](#) launched by the City of Paris and used across France. All five are
829 available on the [OSOR Knowledge Centre](#).

830 We had initially envisaged producing four case studies looking at sustainable public sector OSS projects
831 and one looking at an unsustainable project. However, it proved difficult to follow up with
832 representatives of case studies on unsustainable projects and to receive consent to publish their input.
833 For this reason, all five case studies focus on sustainable communities.

834 These case studies helped us to gather an in-depth understanding of the similarities and differences
835 across OSS communities in the public sector. They also helped us to better understand how the success
836 factors we identified through our research contribute to communities' sustainability in practice.

837 More information about the above methodology can be found in a supporting study on the [Success](#)
838 [Factors for Sustainable Open Source Communities](#) published on the [OSOR Knowledge Centre](#).

839 *Community feedback*

840 The three-step approach described above was only possible with the kind contribution of the vibrant
841 OSS community that shared their thoughts and experiences throughout the entire process.

842 Our team held a [workshop at the FOSDEM 2020](#) conference to validate the research on the five key
843 sustainability factors and to gather further input from the open source community. We also organised
844 a [community webinar](#) where we presented the draft on the Guidelines and gathered feedback from the
845 webinar participants on how the Guidelines could be further developed.

846 Finally, several community members (see Acknowledgements) provided feedback on the draft version
847 of the Guidelines.

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