3Os and IP Awareness raising for collaborative ecosystems

Grant Agreement No. 101007385

Needs and requirements for tools and training modules

Deliverable D3.1

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Table of Content

Table of Content 3
List of Abbreviations 5
List of Figures 6
List of Tables 7
List of Annexes 8
Executive Summary 9
1. The ZOOOM Toolkit 10
1.1. Training Modules 11
1.2. ZOOOM Architecture to Distribute Toolkit and Training Modules 12
2. Methodological Approach 13
2.1. Service Design 13
2.2. Participatory Design 13
2.3. Methods Used for This Deliverable 14
3. Target Groups and Their Needs 15
3.1. Initial Brainstorming Workshop 16
3.2. Semi-structured Interviews 17
3.2.1. Interview Participants and Interview Questions 18
3.2.2. Description of Tools for Data Collection and Analysis 22
3.2.3. Preliminary Insights from the Interviews 24
3.3. Personas 26
3.3.1. Knowledge Generators 27
3.3.2. Supporting Organisations 31
4. Service Safari to Analyse Existing Tools and Platforms 35
4.1. Overview 35
4.2. Inspirational Material Coming from Other Platforms/Tools 40
5. Needs and Requirements for Toolkit and Training Modules 43

5.1. Toolkit 43
5.2. Training Modules 46
6. Conclusions 48
References 49
Annex 1. Visual Representation of the Insights from Miro Board 50
Annex 1.1. Toolkit 50
Annex 1.2. Training Modules 56

List of Abbreviations

Acronym	Explanation
3Os Ecosystem	Ecosystem of Open Data, Open Software, and Open Hardware
AI	Artificial Intelligence
B2B	Business-to-business
CC	Creative commons
DIHs	Digital Innovation Hubs
EDIHs	European Digital Innovation Hubs
EU	European Union
FAQ	Frequently asked question
FSFE	Free Software Foundation Europe
GDPR	General Data Protection Regulation
ICT	Information and communication technology
IP	Intellectual Property
IPRs	Intellectual Property Rights
MOOC	Massive Open Online Course
SMEs	Small and Medium Enterprises
PATLIBs	Patent Information Centres
R2B	Research-to-business
ZOOOM	'3Os and IP awareness raising for collaborative ecosystems' (ZOOOM) Project, Grant Agreement No. 101007385

List of Figures

Figure 1 Spreadsheet Document Utilised to Record Relevant Quotes and Highlights Emerging from the Interview Process 23

Figure 2 Preliminary Clusters of Valuable Data Emerging from the Semi-structured Interviews 25

Figure 3 The Miro Board Activity that Facilitates the Identification of Existing Tools 36

Figure 4 Insight 1: Process as a Service 50

Figure 5 Insight 2: Stories of Success 51

Figure 6 Insight 3: The Network Effect 52

Figure 7 Insight 4: Operational Literacy 53

Figure 8 Insight 5: Unravel the licence 54

Figure 9 Insight 6: Resources & Validation 55

Figure 10 Insight 7: Awareness is Key 56

Figure 11 Insight 8: IP by Design 57

List of Tables

Table 1 Methods Utilised in the Deliverable with the Corresponding Approach 14

Table 2 Key Stakeholders Interviewed in the Initial Research 15

Table 3 Interviews Conducted, with the Type of Stakeholder, Country, and Interview Length 18

Table 4 List of Questions for Knowledge Creators 19

Table 5 List of Questions for Supporting Organisations 21

Table 6 Different tools and platforms utilised during the semi-structured interviews and qualitative data collection 22

Table 7 Relevant steps leading to the generation of valuable insights emerging from the different methods and approaches for data collection 24

Table 8 Persona 'Startup Founder' 27

Table 9 Persona 'Academic Researcher' 28

Table 10 Persona 'Small Medium Enterprise Owner' 29

Table 11 Persona 'Larger Company Manager' 30

Table 12 Persona 'Technology Transfer Office Manager' 31

Table 13 Persona 'PATLIB Representative' 32

Table 14 Persona 'Innovation Agency Consultant' 33

Table 15 Persona 'DIH Regional Hub Manager' 34

Table 16 List of Tools Emerging from the Exploration of Already Existing Tools, Following the Support and Contribution of the ZOOOM Consortium 37

Table 17 List of Components Emerging from the Exploration of Already Existing Tools, Following the Support and Contribution of the ZOOOM Consortium. 40

Table 18 Summary of the Insight Concerning the ZOOOM Toolkit 43

Table 19 Summary of the Insights Concerning the ZOOOM Training Modules 46

List of Annexes

Annex 1. Visual Representation of the Insights from Miro Board

Annex 1.1. Toolkit

Annex 1.2. Training Modules

Executive Summary

Deliverable D3.1 ‘Needs and requirements for tools and training modules’ presents the results of the preliminary activities of scoping, collecting, and analysing various needs and requirements for the creation of the ZOOOM Toolkit and consequent training modules, that took place in December 2022 – March 2023 period of the ZOOOM Project implementation.

The report marks the first step in ZOOOM Work Package 3 ‘Capacity building tools’ (WP3), which aims to enhance open licences for innovation ecosystems' capacity for generating, managing, and valorising intellectual property. The deliverable is grounded into Task 3.1 ‘Collection of needs and requirements for tools and training materials’, whose objectives are the initiation of activities to assist the development of the ZOOOM Toolkit and corresponding training modules.

The various activities described in this deliverable rely on design-driven methods to analyse needs and requirements across a complex network of values and stakeholders. Service Design approaches have served as methodological guidelines and will continue to do so in the following months of the project. They help us understand, frame, and contextualize various ways to enhance the valorisation of open collaborative and open-source modes of innovation across the 3Os. Compared to the initial assumptions in the ZOOOM scope, the insights emerging from this deliverable showcase a more granular understanding of the needs and requirements for creating the ZOOOM Toolkit and its associated training modules.

Along with mapping existing tools and platforms within the legal and business frameworks of the 3Os, various qualitative data collection activities were conducted to ensure a thorough analysis of the toolkit's needs and requirements. These activities involved engaging with a diverse group of stakeholders who became key components of the larger ZOOOM network. As such, the deliverable aims at becoming the foundational work to further expand the ZOOOM outreach to its wider network and potentially, after the toolkit development (by Month 18 of the project), to test out various types of tools developed within the work package tasks.

1. Introduction

This deliverable presents the sum of the preliminary activities of scoping, collecting, and analysing various needs and requirements for the creation of the ZOOOM Toolkit and consequent training modules, that occurred in December 2022 – March 2023 period of the ZOOOM Project implementation.

This report marks the first step in ZOOOM Work Package 3 ‘Capacity building tools’ (WP3), which aims to enhance open licences for innovation ecosystems' capacity for generating, managing, and valorising intellectual property (IP). The deliverable is grounded into Task 3.1 ‘Collection of needs and requirements for tools and training materials’ (T3.1), whose objectives are the initiation of activities to assist the development of the ZOOOM Toolkit and corresponding training modules.

Along with mapping existing tools and platforms within the legal and business frameworks of the 3Os, various qualitative data collection activities were conducted to ensure a thorough analysis of the toolkit's needs and requirements. These activities involved engaging with a diverse group of stakeholders who became key components of the larger ZOOOM network. As such, the deliverable aims at becoming the foundational work to further expand the ZOOOM outreach to its wider network and potentially, after the toolkit development (by Month 18 of the project), to test out various types of tools developed within the work package tasks.

The success of WP3 relies on the groundwork laid by ZOOOM Work Package 1 ‘IP legal framework for open source software, hardware and data’ (WP1) and Work Package ‘Business framework for open source software, hardware and data’ (WP2), which respectively cover the legal and business frameworks. Although this deliverable may appear to be independent of the initial efforts in WP1 and WP2, it aligns with the parallel activities of identifying legal and business cases within the 3Os ecosystem, by identifying target groups, needs, requirements, and existing tools.

1.1. The ZOOOM Toolkit

Considering the ZOOOM Project foundations, open software, open hardware, and open data (herein, ‘the 3Os’) may be crucial in disrupting innovation-driven value chains by taking advantage of the significance of licencing software, hardware, and

data. ZOOOM aims to form a community of practice and wishes to create a toolkit through real-world examples in IP management with open licences for innovation environments in support of several target groups, among which there are *knowledge creators* (SMEs, start-ups, researchers, and academics) and *supporting organisations* (innovation agencies, technology transfer offices, DIHs, EDIHs, PATLIBs).

The tools and methods emerging from the toolkit creation aim to enhance the stakeholders' legal and business competencies and support knowledge creators to become autonomous while selecting the correct licencing strategy for their business model involving open IP licences. From an IP management perspective, the toolkit leverages three types of collaboration: R2B, B2B and Open Innovation.

The toolkit creation is part of the overall WP3, which is built on the shoulders of WP1 and WP2, aiming respectively at organising a legal and business framework to contextualise open licence based innovation following the 3Os. The toolkit will be designed to include various materials that are summarised in 4 main categories: digital material (training material, interactive tools, informative material), specialist material (publications, policy outlook, orientations), training material (training modules and online courses), and software material (licence management tools, cooperation dashboards).

1.2. Training Modules

Considering the various categories of materials that will be developed in the ZOOOM Toolkit, the training modules are a key pillar that ensures the project's overall scope. This deliverable also intends to gather relevant material concerning the development of the content of the modules that will be used for the ZOOOM training, targeting the same user types, and covering the same topics of the toolkit. The training modules will be developed in parallel with the toolkit in Deliverable D3.2 ‘Training modules and capacity building toolkit’ (to be implemented in Month 6 – Month 15 period) of the project and will address the challenges in line with the toolkit design that emerged from the analyses carried out in WP1 and WP2. The training modules will become an additional integral component of the toolkit, where they will be showcased in various formats (print, audio, video, software) and will represent an ever-growing source of information.

1.3. ZOOOM Architecture to Distribute Toolkit and Training Modules

The ZOOOM Project envisions several distribution channels for the toolkit and training modules, which are crucial for the awareness campaign activities within the scope of ZOOOM Work Package 4 ‘Dissemination, communication and awareness raising campaign’ (WP4).

The toolkit will be hosted on the IDEA Platform, which is strictly connected to the main project’s website. The Platform will be gradually developed to facilitate interactive visualisation, validation, and exploitation of the capacity-building toolkit created in WP3.

Other venues for dissemination take place within the AGORA Platform, which operates as a pan-European social network that connects industry players and promotes innovative strategies for a more sustainable industry. The platform is hosted by EIT Manufacturing, a key partner of the project’s consortium. The plan is to integrate the training resources and the toolkit into their educational, innovation and business creation programmes, thereby expanding their services to the 3Os community.

ZOOOM will also seek to publish key content and material on existing websites hosted by the European Commission. This will enable ZOOOM to reach high-level stakeholders, such as policymakers, investors, and other entities interested in IP valorisation within the broader European context.

2. Methodological Approach

To generate and collect the information and insights presented in this deliverable, we mostly relied on integrating two fields: service design and participatory design.

2.1. Service Design

Service Design is a design practice that aims to optimise and improve the experience of service users. It concerns understanding users' needs and goals, mapping out possible journeys representing users engaged in various service touchpoints, and prototyping and testing various solutions in an iterative way following a design process. Service Design brings together cross-functional teams from design, business, and technology to create user-centred services that address business and customer needs. Differently from other design practices, Service Design considers the value created within the entire ecosystem composing the service (Patricio et al., 2011), ensuring that the service is not only functional for the end user but also promoting value exchange (information, money, general resources) throughout a wider ecosystem of service stakeholders. Considering the implementation of the toolkit within a complex ecosystem of stakeholders involved in various technologies and values exchange, a service design approach is meant to facilitate the co-creation process by leveraging various needs and requirements nested within the 3Os, to create a user-centred approach that identifies a coherent constellation of service solutions.

2.2. Participatory Design

When considering the principle of user-centeredness adopted while designing services, it is relevant to mention Participatory Design as a key practice that Service Design considers. Within the ZOOOM Project, participatory design principles have been taken into consideration to nurture a co-creation attitude that - within the scope of this deliverable - resulted in a brainstorming workshop. This participatory attitude is crucial in Service Design (Polaine et al., 2013) and will be nurtured in parallel with all the critical activities of WP3. It ensures that the resulting service is centred towards users' needs and expectations by democratising the design activity to all relevant stakeholders involved in the service.

Participatory design involves many activities to engage users and stakeholders in the design process, recognising their contribution and valuable insights as fuel for creatively developing service features and requirements. By placing both end-users and designers as equal contributors to service solutions, it will be possible to leverage various points of view and efficiently create relevant solutions.

2.3. Methods Used for This Deliverable

T3.1 Team used several methods to gather insights from various stakeholders, partly online and partly in person. *Table 1* provides some details in relation to the methods used. The team engaged around 20+ stakeholders throughout a 3-months process in 2023. More information on each method is provided in the next sections.

Table 1 Methods Utilised in the Deliverable with the Corresponding Approach

Method	Approach
Brainstorming workshop	Participatory Design
Semi-structured interviews	Service Design
Personas	Service Design / Participatory Design
Service safari	Service Design

3. Target Groups and Their Needs

This section reports on the empirical material collected through the methods above-mentioned and highlights some insights that help flesh out the target group for both the toolkit and training modules.

Specifically, the ZOOOM Project aims at targeting various types of stakeholders emerging from the 3Os ecosystem. These stakeholders are divided into 3 categories:

- *Knowledge creators* – comprising IP generators and IP users, companies of various sizes as well as employees of R&D departments and groups of professionals potentially interested in open-source as an IP management and valorisation strategy.
- *Supporting organisations* – comprising innovation advisors, consultants or trainers that support the valorisation of IP, innovation agencies as well, as Technology Transfer Offices (TTOs), European and national Digital Innovation Hubs as well as European Patent Office with the relative PATLIB network.
- *Other relevant stakeholders* – comprising policymakers, professionals, investors, venture capitals, as well as other stakeholders interested in the exploitation of IP.

As an approach to outlining the parameters of the research, a narrower focus on the target group has been adopted. In this initial research key stakeholders bound to specific categories (as shown in the table below) have been interviewed. The outcome of this research will be used to engage with the third category of stakeholders through testing activities in a second research iteration.

Table 2 Key Stakeholders Interviewed in the Initial Research

Knowledge Creators	Small-Medium Enterprises (SMEs), large companies, and start-ups
Supporting Organisations	TTOs, Innovation Agencies, PATLIB, (E)DIHs.

In the project's scope, various needs and requirements for supporting the aforementioned target groups were already outlined. Before choosing the methods for data collection, the ZOOOM Project had identified essential needs and potential challenges that the target groups might encounter while defining valorisation

strategies based on open licences of innovative products or marketable research results. These challenges, needs and requirements comprise – but are not limited to:

- Resources, competencies, and awareness on the role of IP management, where business models need to consider and adopt specific legal frameworks for innovation. This is connected to increasing the understanding of open licences requirements, constraints, advantages, and implications of open licences that could contribute to diffuse innovation and facilitate industrial sovereignty in new and future technologies.
- Approaches to avoid open licence proliferation and address the adequate balance between open innovation and new business creation with open licencing strategies by creating educational materials that can contribute to better IP management strategies also giving space for competitiveness on the market and the awareness on open licencing approaches and their exploitation strategies.
- Increase awareness in the role of data openness via adequate open license to enable radically new data-based services and products at benefit of the same data providers and to foster innovation in relevant sectors. This could be a possible driver for a future data economy perspective. Open data is already the basis for advanced services and products from public administration that from some years now are publishing open data, but this is still not a reality for private organisations.
- Increase awareness on the open hardware perspective that is at the moment of writing less developed, less common, and therefore also less supported if confronted with open software. Considering the rarity of real open hardware cases that can leverage the open licensing for business creation it is necessary to raise the topic and propose viable solutions to the stakeholders.

The aforementioned list is outlined within the project's proposal, and it is the scope of this deliverable to expand such a list by taking a design-driven approach to identifying and exploring users' perspectives, pain points and opportunities within the 3Os ecosystem.

3.1. Initial Brainstorming Workshop

During the initial activities for the identification of needs and requirements for the toolkit and the training modules, we had the chance to engage with a group of researchers of various higher education institutions (Denmark, Ireland, Estonia)

representing different degrees of experience and coming from different research areas, such as design, computer science and environmental sustainability. The collaborative session aimed at having different researchers think about possible scenarios to explore and licence the creation of Massive Open Online Courses (MOOC).

The researchers found themselves in front of a dilemma. They faced the open question:

> "*What approach can we employ to license and disseminate Massive Open Online Course (MOOC) materials that can be shared freely while safeguarding confidential information related to the assessment and analysis of the knowledge generated?*"

As soon as the team addressed such a question, it immediately became apparent that there was a lack of understanding and planning strategies for open licensing. Furthermore, despite being the safest option for promoting content and gaining visibility, multiple MOOC hosting platforms presented measures for GDPR compliance that collided with the requirements for disseminating those Open Courses, especially regarding managing student data for evaluation and assessment of knowledge.

What eventually emerged is that researchers lack literacy in terms of open licensing valorisation modes for innovation, especially concerning IPRs and data protection for innovation. Additionally, it emerged that a deeper understanding of how to deal with strategies for data management is needed when approaching private platforms that do not always reflect the GDPR required for that specific project.

3.2. Semi-structured Interviews

As a follow-up activity of the initial brainstorming, T3.1 Team has utilised semi-structured interviews that have been conducted together with 12 individuals among knowledge creators and supporting organisations within the 3Os ecosystem.

While T3.1 Team recognises the importance of these initial interviews, they also understand that the latter may have some limitations. These limitations are constrained by the territorial and professional boundaries of the organisations. In fact, during the interviews, it became apparent that open licensing is circumscribed within particular sectors and regions while remaining relatively uncharted in some others. Additionally, the small sample gathered throughout one single round of interviews might not be sufficient to provide a full picture of the different pathways that knowledge creators have in the innovation and commercialisation processes, and it might only

scratch the surface of the various challenges that these stakeholders face when undertaking open licensing pursuits. As such, T3.1 Team plans to expand the research in the second deliverable of the WP3 (namely, Deliverable D3.2 “Training modules and capacity building toolkit”), to gather more feedback from a larger and more diverse group of stakeholders.

3.2.1. Interview Participants and Interview Questions

As introduced in the previous section, the interviewees were selected by looking at those stakeholders relevant to the ZOOOM Project. Engaging with various stakeholders through interviews allowed the team to leverage many partnerships and expand the ZOOOM network.

The table below illustrates key details connected to the different interviews.

Table 3 Interviews Conducted, with the Type of Stakeholder, Country, and Interview Length

Nr	Stakeholder	Country	Type	Interview Length (hh:mm)
1	Post-doc researcher from Politecnico di Torino (Italy)	Italy	Knowledge Creator	01:00
2	Innovation consultant within the UK’s healthcare industry (Denmark)	Denmark	Knowledge Creator	01:00
3	SME – design for industrial automation (Italy)	Italy	Knowledge Creator	01:00
4	SME – manufacturer of automotive and mechanical engineering industry (Slovenia)	Slovenia	Knowledge Creator	01:00
5	Start-up – design of software solutions for mechanical engineering industry (Italy)	Italy	Knowledge Creator	00:45
6	Manager IPR at University Technology Transfer Office (Finland)	Finland	Supporting Organisation	00:45
7	Manager at University Technology Transfer Office (Denmark)	Denmark	Supporting Organisation	00:45

8	University Innovation Hub Manager (Denmark)	Denmark	Supporting Organisation	00:30
9	Representant from Regional Innovation support organisation (Italy)	Italy	Supporting Organisation	00:45
10	Legal Consultant on IP law (Italy)	Italy	Supporting Organisation	00:30
11	Representant from Regional Digital Innovation Hub – DIH (Italy)	Italy	Supporting Organisation	00:30
12	Representant from the PATLIB network (Italy)	Italy	Supporting Organisation	00:30

Semi-structured interviews can be considered a first step towards gathering qualitative data from a pool of participants (Muratovski, 2015). As suggested by Muratovski (2015), the adoption of semi-structured interviews allows both to explore answers in a close-ended fashion and to build a space for open-ended reflection and further discussion on a specific topic. This method perfectly suits the need to initially explore the topic and evaluate potential needs and requirements for the ZOOOM Project. The semi-structured interviews have been built upon exploring different needs and requirements regarding the management, support and commercialisation of intellectual property and overall knowledge of open licensing strategies for IP valorisation. Within the consortium, there has been a chance to reflect upon the questions, define the flow of the interviews, and the various topics that need to be addressed. As shown in *Table 3*, the interviews targeted two groups of potential users of the ZOOOM Toolkit. Therefore, developing different – although parallel – streams of questions was necessary. To account for the potential variety in the interviewees' understanding of open-source innovation, the questions were tailored to assess the interviewees' competencies and awareness of the topic.

Table 4 List of Questions for Knowledge Creators

Questions		Theme
Q1.	Can you describe your experience developing and commercialising open data, software, and hardware related innovation?	**Innovation type and background experience**

Q2.	What challenges have you faced in commercialising these innovations?	**Common challenges**
Q3.	How did you manage the legal and business aspects of open data, software, and hardware?	**Existing ways for addressing the challenges**
Q4.	What support would have been helpful for you during the development and commercialisation process? Be specific and make examples.	**Support type**
Q5.	Have you ever used any tools or resources to support the management of legal and business aspects related to open data, software, and hardware?	**Relevant resources**
Q6.	What tools or resources would you like to see in a toolkit to support the development and commercialisation of innovation related to open data, software, and hardware?	**Relevant tools within a potential toolkit**
Q7.	How important is it for you to have access to training and resources to better understand the legal and business aspects of open data, software, and hardware? And how should this training happen?	**Relevancy of training materials – how should training happen**
Q8.	Let's jump 30 years in the future; how do you see a potential toolkit facilitating this innovation being helpful for SMEs, start-ups, researchers, and academics? Let's be speculative here and make examples and scenarios.	**The speculative question, the future of IP management and innovation**
Q9.	What is missing in the current ecosystem to support the commercialisation of open data, software, and hardware innovation?	**Gaps in the current ecosystem**
Q10.	Can you provide examples of successful use cases in commercialising open data, software, and hardware innovations?	**Case studies exploration**

While running the interviews, it was clear how some of the questions were more relevant than others. For example, when discussing potential case studies (Q10), not

all of the knowledge creators interviewed could provide success stories around the topic of open-source innovation; this is because not all of them had experience with it. Nevertheless, this structure allowed the T3.1 Team to evaluate the awareness level of the interviewees in relation to IPRs, IP management and overall open modes of innovating.

Table 5 List of Questions for Supporting Organisations

Questions		Theme
Q1.	Can you describe your experience in supporting knowledge creators' innovations related to open data, software, and hardware? What types of innovators have you worked with?	**Innovation type (software, hardware, data)**
Q2.	What common challenges do knowledge creators face when commercialising their innovations? *Be specific; make examples.*	**Common challenges**
Q3.	How do you support knowledge creators regarding IP management and business model development?	**Support type**
Q4.	What resources (e.g., training, mentorship, tools) do you find most valuable for knowledge creators? (tools, materials, etc.) do you have some that fit a specific type of client or innovation in mind?	**Relevant resources**
Q5.	How significant do you think it is to empower knowledge creators by giving them access to training and resources to understand legal and business aspects concerning Open (source) Innovation? *follow up:* ... and how do you think this training should happen? when considering the need to decentralise this empowerment process?	**Relevance of training materials – how should training happen**
Q6.	How can knowledge creators – in your view – overcome specific legal or regulatory issues encountered when commercialising innovations?	**Legal challenges**
Q7.	Let's jump 30 years in the future; how do you imagine innovators dealing with regulatory and business-related issues regarding the commercialisation of their innovation? How do you imagine supporting them?	**The future of supporting organisations**

Q8.	What key elements/components should be included in a potential toolkit that supports knowledge creators and organisations in commercialising open-source innovations?	**Relevant tools within a potential toolkit**
Q9.	What is missing in the current ecosystem to support the commercialisation of open data, software, and hardware innovation?	**Gaps in the current ecosystem**
Q10	Can you provide examples of successful use cases in commercialising open data, software, and hardware innovations?	**Case studies exploration**

Similar to the prior instance, the questions' relevance towards supporting organisations varied depending on the type of organisation interviewed. Take (Q6) for instance: since many supporting organisations may lack specific legal knowledge, they may only offer assistance related to business matters for innovators facing obstacles in their business models and commercialisation processes.

3.2.2. Description of Tools for Data Collection and Analysis

All the ZOOOM Consortium members had the chance to see the questions and tweak them; they subsequently reached out to knowledge creators and supporting organisations to conduct the interviews and gather pertinent data.

Different tools have been used to facilitate data collection, analysis, interpretation, and visualisation. The table below provides an overview.

Table 6 Different Tools and Platforms Utilised during the Semi-structured Interviews and Qualitative Data Collection

Tool	Function
Online conference cloud systems	Running the interview online
Otter / Dovetail	Record and transcribe the interviews
Spreadsheet	Keeping track of interviewees and jot down quotes and highlights during the interview process
Miro	To perform a thematic analysis of the data collection and interpretation of data by creating insights

Most of the interviews took place online, where tools such as online call platforms for online collaboration were used to engage with relevant target groups. In order to gather the data collected, different tools such as Otter.ai and Dovetail were used to keep track of the transcription of the online interviews and eventually go back to it to perform a thematic analysis of the qualitative data collected. Dovetail helps researchers organise, analyse, and visualise their data, while Otter uses AI to generate accurate transcripts automatically. Furthermore, to keep track of the answers during the interviews, a Google Spreadsheet document was used to jot down key quotes or highlights emerging from the interview process. As shown in *Figure 1*, the spreadsheet was designed to ease the interaction between partners performing the interview and AAU (leading Task 3.1), which was in charge of organising the data collection coherently. The document was structured as a "diary" where different tabs represent the target groups. Using these tools, we have efficiently collected and analysed data and identified key themes, insights and patterns emerging from the transcriptions.

While working on the interview outputs, the names, and the institutions that partners engaged with have been anonymised. Consent has been asked according to the project's Data Management Plan methodology for the GDPR relevant data (see ZOOOM Deliverable D5.3 'Data management plan').

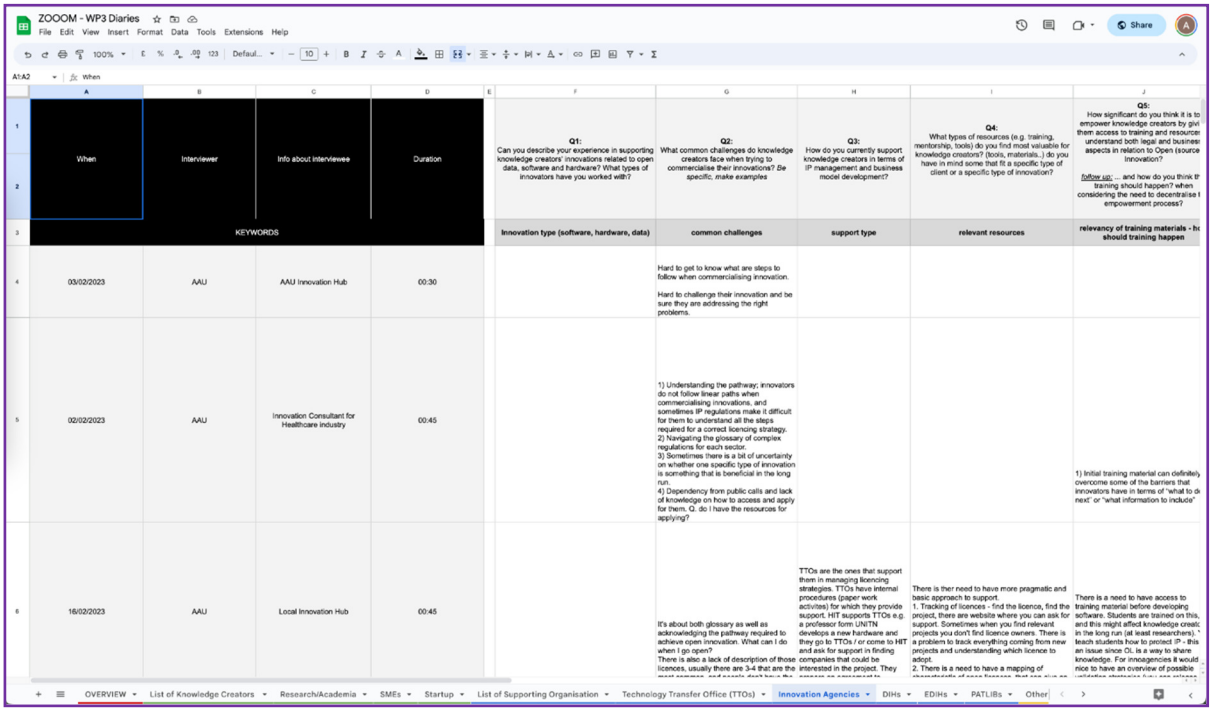


Figure 1 Spreadsheet Document Utilised to Record Relevant Quotes and Highlights Emerging from the Interview Process

In the following section, a preliminary analysis of the data from the interviews is presented. The final insights generation is presented in *Section 7* of this deliverable.

3.2.3. Preliminary Insights from the Interviews

The analysis of qualitative data that emerged from the interview process followed a three-step process as outlined in the following table.

Table 7 Relevant steps leading to the generation of valuable insights emerging from the different methods and approaches for data collection

Steps	Approach
1st step: Google Spreadsheet	While performing the semi-structured interviews, it was possible to write down highlights and key quotes that could be inspirational for the data analysis.
2nd step: Miro board preliminary analysis	After processing the data from the Spreadsheet and matching it with the transcript of records available, it was possible to create a preparatory list of "needs and requirements" and "potential supporting tools" for each target group category.
3rd step: Triangulation and correlation with other data sources (e.g., service safari, described in section 6)	The possibility to evaluate needs and requirements further, as well as possible tools contributed to the creation of insights that have been linked with already existing tools (explored during the Service Safari in section 6 of the deliverable).

The preliminary analysis of the qualitative data collected from the semi-structured interviews produced several valuable notes. The preliminary analysis has been gathered in a Miro board (see *Figure 2*), where the target groups have been displayed in two main categories, *knowledge creators* and *supporting organisations*; and for each of the categories, two columns have been used to cluster relevant notes, "*needs & requirements"* and *"supporting tools/materials"*.

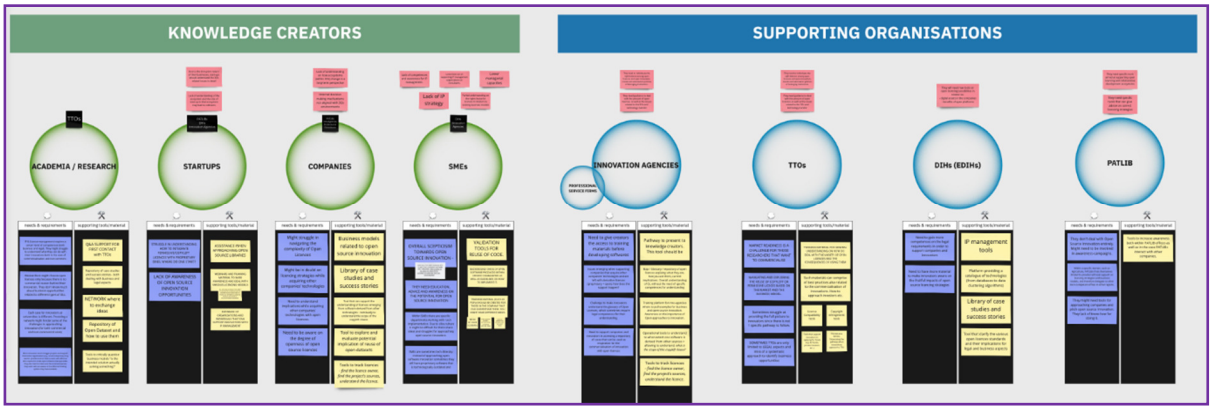


Figure 2 Preliminary Clusters of Valuable Data Emerging from the Semi-structured Interviews

Overall, when looking at the entry points, it is visible how knowledge creators and some of the supporting organisations lack awareness of the potential for adopting open-source strategies for innovation. The reasoning behind the lack of awareness stems from the apparent lack of resources that supporting organisations can provide to knowledge creators regarding the impact and implications of open licencing strategies.

Another relevant reflection point is the diversity of support that some organisations provide to knowledge creators; specific innovator types are redirected to specific supporting organisations (e.g., academic researchers are usually matched with Technology Transfer Offices). However, TTOs may lack the resources necessary to aid in commercialising intellectual property with open licenses. Specifically, in the relationship between researchers and TTOs, the latter's legal expertise may not be supplemented with sufficient financial and business knowledge, limiting their ability to guide innovators in novel business and licensing strategies.

Another relevant point concerning many knowledge creators is that the knowledge delivered with open-source licence is not evenly distributed across the 3Os and various technological domains. Many innovators lack a supportive network that can facilitate the exchange of ideas beyond geographical boundaries. For instance, companies in the agricultural technologies innovation sector may not fully appreciate the value of open-source models of creation. To address this, it may be useful for companies to network with other innovators, such as researchers experienced in open-source innovation or other companies that have adopted open-source licensing strategies, to share ideas and best practices.

Another argument is the necessity to qualify the open IP for a specific use or to be fit for a specific application. Often, in particular for software, the liability for misbehave, errors or wrong performances in specific use cases is not clearly identifiable and the

intermediary company could be held accountable for the problems or even damages caused by the software/hardware. From the industrial sector many cases of the correct process of validation of the technologies licences with open licences are available, also in fault sensitive and highly normed sectors such as avionics and aerospace. In this case the companies have established methodologies and strategies to test and validate the IP for the purpose.

Additionally, to the aforementioned themes, those knowledge creators and supporting organisations that have been using open source licencing strategies or at least dealing with cases of acquisition of copyleft licences for commercialisation purposes lack a general set of tools to manage and deal with the complex of licences (this occurs especially in the case of open software, considering how open software licences are bigger in number in comparison to open data or hardware).

Throughout the various interviews, participants often emphasised the importance of streamlining the innovation process by creating something often defined as “process as a service”. Doing so would give innovators greater clarity regarding the required timings and resources for commercialisation, giving them confidence around the various steps required in the innovation process. Additionally, this would equip supporting organisations with the right tools to engage with innovators more effectively, guiding innovators to find the necessary support where it is lacking (e.g., a TTO might want to provide a researcher with various contacts or resources to address business and commercialisation challenges).

While these findings are subject to further analysis and triangulation with other data sources, they provide an initial glimpse into the potential patterns and trends in the data. Further insights emerging from the data will be presented in *Section 7*. The exercise of interviewing allowed the consortium to approach various types of innovators and organisations that provided contextual data of their corresponding users (or supporters); as mentioned before, these interviews allowed to trace an archetypical profile of the ZOOOM’s target groups by analysing their experiences with various actors within the 3Os ecosystem.

3.3. Personas

Personas aim to provide a synthetic representation of a particular individual within a target group belonging to the system in analysis (Stickdorn et al., 2018). Personas are a powerful tool employed when designing services and experiences because they provide designers with an archetypical representation that acts as a framework to identify common behaviours, pain points, needs and motivations. Personas are

fictional characters; their contextual information helps build empathy with the target group in a way that can generate user-centred approaches to address real problems and implement relevant opportunities (Stickdorn et al., 2018).

The identification of various archetypes of users for the creation of the toolkit is a necessary step with a twofold purpose. The first is the need to adopt a user-centred approach by contextualising and empathising with various needs while understanding how they change based on various variables (background of knowledge creators, involvement within the 3Os, location, etc.). At the same time, there is the need to create identifiable users that will eventually be used as artefacts for co-creation within various consortium activities, even beyond the purposes of this deliverable.

Despite this being just the first iteration of archetypical target groups – therefore lacking more solid foundations that a more thorough data collection could have provided – the following personas represent an important output of this deliverable as well as a step forward within the process of design of a toolkit with various training modules.

3.3.1. Knowledge Generators

Table 8 Persona 'Start-up Founder'

Type	Start-up Founder
Name	Claudio Forlani
Age	30
Field	Innovative software solutions for the agriculture industry
Location	Italy
Background	Agriculture Industry
Involvement with the ecosystem	Within the ecosystem, start-ups interact with a wide range of actors throughout the innovation process. When coming from research institutions, they initially engage with TTOs and incubators that can support them in providing resources such as mentorship, access to funding, and legal support for licencing strategies. They also engage with various types of investors and investment funds (both private and public). Eventually, start-ups might collaborate with other universities (to increase their

	innovation outcomes) or even with other companies to investigate the potential for acquisitions or other forms of licencing agreements.
Requirements & Needs	Claudio considers its start-up's various struggles in open-source innovation. He thinks that - within the start-up, they need more to train their literacy on both business and legal aspects of innovation to navigate the complexity of licence management and IPRs, especially when integrating permissive/copyleft licenses with proprietary ones. For this start-up, the lack of awareness of open-source innovation opportunities is a precondition for a guidance strategy on approaching the legal and business aspects of the innovation process. This start-up, like many others, lacks a granular overview of the innovation process, including how to approach funding strategies and legal/business support at different stages of innovation. The process is not straightforward, and the lack of understanding of the entire ecosystem for innovation may lead to collisions and overall uncertainty.

Table 9 Persona 'Academic Researcher'

Type	Academic Researcher
Name	Linda Stewart
Age	38
Field	Artificial intelligence
Location	Germany
Background	PhD in Computer Science, exploring the role of AI in developing open software solutions
Involvement with the ecosystem.	Researchers are usually aware of the potential of open-source innovation. In this case, the persona is highly engaged with the 3Os ecosystem considering how she has been studying the subject in parallel with her research for a few years. Together with other researchers, Linda is working on a platform that uses open data to analyse the demographics and needs of individuals while combining them with software-based solutions to connect them with service providers that can give tailored support. In this regard, she is supported by the university's TTO on legal aspects of open-

	source innovation, particularly within the aspect of the reuse of open datasets and innovation with open software licences.
Requirements & Needs	She is interested in understanding how to interpret different licencing agreements that emerge when including external open datasets with the creation of open-software solutions. Furthermore, she might be interested in understanding how the organisations she works with within her projects might benefit from understanding the necessary resources specific organisations need to take ownership of the solutions created. Her first interaction within the innovation ecosystem is through the university's TTO, which exclusively provides legal support. Thus, one key requirement for her is to access to a network of other relevant supporting organisations (also involved within business aspects of innovation), as well as other researchers' case studies of innovation, and eventually to have access to an overall repository of success stories where scientific research often resulted in sustainable business solutions.

Table 10 Persona 'Small Medium Enterprise Owner'

Type	Small Medium Enterprise Owner
Name	Olga Garcia
Age	42
Location	Spain
Background	Robotics and software innovation for the agriculture industry
Involvement with the ecosystem	The involvement of this SME in innovation occurs by engaging with different supporting players within the 3Os ecosystem. SMEs might benefit from the support of PATLIBs that guide them into patenting strategies for their innovation, while at the same time, might benefit from the support of Innovation Agencies with whom they can explore innovative ways to stay competitive and challenge their business models towards – for example – open-source innovation. As in the case of start-ups, also SMEs can collaborate with various organisations, such as research institutions and larger companies to expand their innovations and even explore the potential of acquisitions.

Requirements & Needs	The SMEs that Olga represents might face challenges with open-source innovation due to overall scepticism and concerns around liability for any issues arising from software integration with hardware. Education around IP management, advice, and awareness is crucial for them to explore the potential of open-source innovation. Additionally, the siloed culture within SMEs can make it difficult for departments to share ideas and struggle to approach open-source innovation. SMEs might still use outdated proprietary software instead of embracing open software innovation, limiting their chances to stay competitive in future innovation processes.

Table 11 Persona 'Larger Company Manager'

Type	Larger Company Manager
Name	Lukas Schmidt
Age	45
Location	Germany
Background	Business Management - Miscellaneous Manufacturing
Involvement with the ecosystem	The manager of a manufacturing company is looking forward to acquiring another company's technology that may include open source and proprietary components. The manager may need support from innovation agencies and regulatory bodies on how this acquisition may impact the manufacturing company's regulated activity and compliance obligations. Large companies could be involved in the 3Os ecosystem with various players: from smaller enterprises and start-ups (to understand potential pathways for technology acquisition), to supporting organisations (such as DIH or Innovation Agencies) that can help them make sense of the licencing strategies when improving their innovation. The type of support they seek is not limited to operational capabilities on licence management but also concerns various types of training around IPRs, open data, hardware, and software innovation.
Requirements & Needs	The company that Lukas manages may face challenges navigating the complexity of open licenses, particularly with open software solutions. His company's internal legal department or

	legal counsel may not have the necessary experience on open-source licencing. Integrating hybrid or pure open-source technologies in legacy business processes can bring uncertainty. To avoid potential legal issues within a *due diligence* phase, they need to understand the implications of acquiring technologies with open licenses and the degree of openness of their outbound licencing strategy. Therefore, this manager needs support and legal advice on managing and tracking the complexity of those licences (*finding the licence owner, finding the project's sources, and understanding the licence and its implications)*. They might also benefit from various training materials that create awareness and eventually open their business models to open-source innovation.

3.3.2. Supporting Organisations

Table 12 Persona 'Technology Transfer Office Manager'

Type	Technology Transfer Office Manager
Name	Karin Plečnik
Age	35
Location	Slovenia
Involvement with the ecosystem	The Technology Transfer Office, where Karin works as a manager, plays a key role in supporting universities, research institutions and other organisations in identifying, protecting and licence innovations, technologies, and inventions. Besides engaging daily with research institutions and innovators, they are also in contact with entrepreneurs, investors, and industry partners, as they serve as a bridge between research and the market.
Requirements & Needs	Karin might need support in providing a more systematic approach to identify business opportunities for innovators and sometimes struggles in providing a clear picture of what the pathway for innovators could look like (*how long will it take between research and commercialisation?*)

	In addition, TTOs are mostly trained in legal aspects of IP valorisation. They might also struggle with the market readiness of academic researchers who want to commercialise their work and need guidance on navigating and exploring the reuse of copyleft or permissive licenses based on their business model. Additionally, TTOs might need help dealing with many open licences, and sometimes they feel like innovators are poorly equipped with legal training when discussing themes of open-source innovation.

Table 13 Persona 'PATLIB Representative'

Type	PATLIB Representative
Name	Jean Beaufort
Age	47
Location	France
Involvement with the ecosystem	The PATLIB, where Jean works, represents the Chamber of Commerce of Grenoble, France. The PATLIB is a network component that disseminates awareness for industrial patents and provides information regarding EU patent regulations and licencing strategies. PATLIBs have strong business and financial experience and support start-ups and SMEs in understanding various sectors' technological states of the art. Besides acknowledging open license innovation, they interact with innovators in various technological fields. They might still rely too much on open innovation and lack general knowledge about the impact of open licences as a way to improve technological sustainability.
Requirements & Needs	PATLIBs can be limited in open licences based IP management, considering their main focus is built around the technical support for patents and trademarks. Jean thinks that they may not have the expertise or resources to provide in-depth guidance on open-source licensing and collaborative development ecosystems. Additionally, innovation based on open-source licences is rapidly evolving, and PATLIBs may struggle to keep up with the latest developments and trends. However, they can still manage open-source IP by raising awareness and providing basic guidance to

	companies and innovators. Jean believes they may benefit from training and tools specifically aimed at open-source innovation and partnerships with other organisations with expertise in this area. In addition, considering their role in supporting the standardisation of innovations, they may benefit from the exploration of tools they can use to guide companies and organisations towards a more collaborative approach to innovation.

Table 14 Persona 'Innovation Agency Consultant'

Type	Innovation Agency Consultant
Name	Annelies Van der Meer
Age	34
Location	Netherlands
Involvement with the ecosystem	This Innovation agency is a hybrid type of supporting organisation; it is involved with both the public sector, such as supporting scientific-technological research activities of various universities and research institutes, as well as with the private sector – supporting the acquisition and joint venture processes that are affected by legal processes within various business aspects. They act as a critical intermediary for both public and private entities and facilitate the transfer of technology and knowledge dealing with legal and business aspects of innovation, such as IPRs, regulatory compliance and societal impact.
Requirements & Needs	Considering their innovation support to research institutions and companies, the needs are multifaceted. They might require access to training materials that can be given to creators before software development, as well as tools that can provide solutions to issues that arise when companies acquire technologies with derivative licences (e.g. tools that can support them in answering the question "*what is the scope of a specific copyleft clause?*"). Among several tools, they might require various ones such as compatibility tools, licence choosers and tools to assist with reusing software code or data structures. The agency also faces the challenge of educating innovators about the intricacies of open licenses, which often require legal competencies and might require a map or repository of open licences that do not require any legal

	competence to understand. Finally, they need to provide companies and innovators with access to a repository of case studies that can inspire the commercialisation of innovation with open licenses.

Table 15 Persona 'DIH Regional Hub Manager'

Type	DIH Regional Hub Manager
Name	Martina Bianchi
Age	52
Location	Milan (Italy)
Involvement with the ecosystem	The Digital Innovation Hub in the region aims to assist businesses of various sizes to benefit from digital opportunities. By offering training on adopting digital technologies and guidance on investment sources, the Hub supports local companies in becoming more competitive. They also advise on licensing strategies from a business perspective and may have some expertise in technological aspects. However, they may not have the sufficient legal expertise to comprehend the implications of specific licensing strategies fully.
Requirements & Needs	The regional Digital Innovation Hub requires new tools and competencies to support companies and innovators in open licensing strategies effectively. They must understand the legal requirements and guide licensing strategies, especially with open software licenses. In this case, they would need to access a catalogue of open licences and the cases they use (considering legal and business implications). Additionally, they need to create awareness of the benefits of open platforms and open licensing possibilities related to digital assets in companies. This can be done by providing them with libraries of case studies and success stories they can present to companies and innovators. DIH often assesses technological components of innovation and could benefit from various tools that support innovators in creating standardised approaches to open licensing strategies and services (e.g., by exploring tools for reusing data, software and code).

4. Service Safari to Analyse Existing Tools and Platforms

To comprehend and assess diverse available open-source tools, we leveraged the consortium's expertise to identify pre-existing tools and platforms that can aid knowledge creators and supporting organisations in navigating the intricate obstacles of open-source innovation.

4.1. Overview

To map existing platforms and tools, we used the method of service safari (Stickdorn et al., 2018). Service safari is an approach where designers, organisations or end users immerse themselves in different services to identify and learn from inspiring and innovative service experiences to co-create new and improved solutions. It can be applied to various domains, both digital as well as physical experiences. In the case of ZOOOM, this method has been used within several tools proposed by the project consortium; it involves different types of tools that can be used by different users and for different purposes. It considers the perspective of 3 main groups of users:

Knowledge generators who need:

- Tools specifically designed to aid learning and everyday development
- Enhancing knowledge of open license strategies for Intellectual Property (IP) management
- Streamlining IP management by creating, identifying, and recommending feasible business models through open license strategies.

Supporting organisations who need:

- Tools to enhance internal knowledge and offer support to clients
- Identifying resources and services that can broaden understanding of IP management with a focus on open licensing and business growth
- A database of case studies analysed with the perspective of open licensing and business development.

Other relevant stakeholders who need:

– A comprehensive guide that discusses the European Union's approach to open licensing for software, hardware, and data as integral parts of innovation policy. The guide will serve as a foundation for further research on open licensing from legal and business perspectives. It will also include guidelines for incorporating IP management and monetisation into key collaborative development platforms like GitHub.

To gather initial material that we could work with, a Miro board has been set up to facilitate the collection of open-access tools – potentially useful for the toolkit and the training modules (see *Figure 3*).

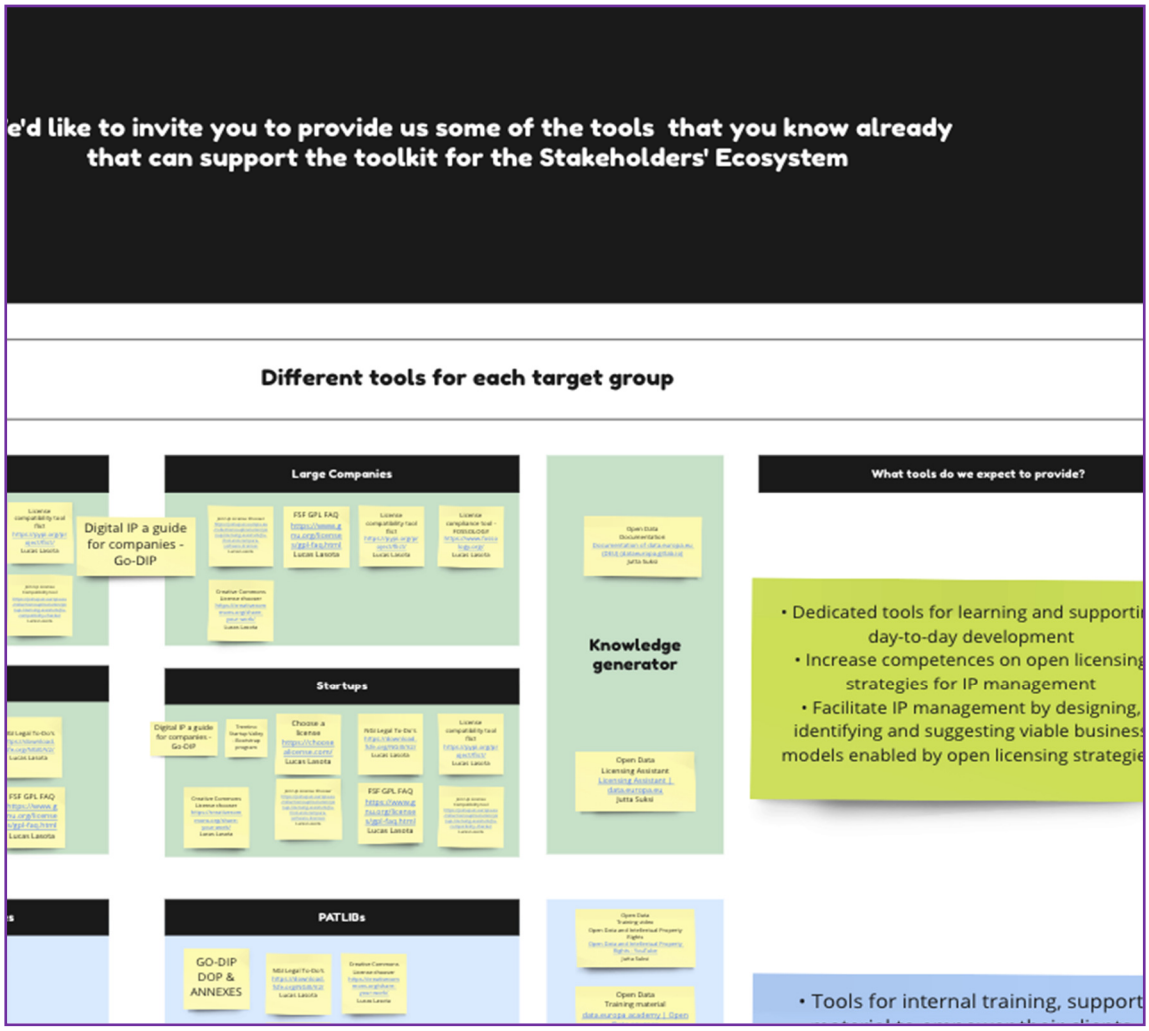


Figure 3 The Miro Board Activity that Facilitates the Identification of Existing Tools

The Miro board has been filled with relevant resources, materials, and tools, presenting an open-access format. Partners within the ZOOOM Consortium were to

place them in different boxes representing different categories per each one of the target groups.

Table 16 List of Tools Emerging from the Exploration of Already Existing Tools, Following the Support and Contribution of the ZOOOM Consortium

Name of the Platform/Tool	Core Features	What Could Be Inspiring for ZOOOM?	URL
FSFE[1] User Manual	A (pdf) list of different guidelines, e.g., – Best practices for software licencing – Free and Open-Source compliance processes – REUSE initiative tutorial – General FAQs	Support for innovators providing standards and guidelines for IP management with 'reuse' purposes.	https://download.fsfe.org/NGI0/V2/
REUSE	Managing copyrights and licenses can be challenging, particularly when incorporating software from various projects with diverse licenses. REUSE, initiated by FSFE, offers guidelines to simplify the licensing process for Free Software projects. These suggestions make it easier for developers to announce the license terms for their works and make it simpler for computers to comprehend the licensing information of the project.	Support for innovators engaged in copyright ad licencing processes. This tool can also be valuable for supporting organisations that consult innovators on integrating open licences into their innovations.	https://reuse.software/
choosealicence (GitHub)	This platform powered by GitHub offers developers a list of licences for software and non-software projects.	Supporting tool for developers on the licencing strategies for software and non-software solutions.	https://choosealicense.com/
Joinup – Join up licence assistant – find and compare	The Joinup platform offers the source code for platform features reuse,	Promotes various interoperable open ICT solutions and offers best practices for the reuse of code, targeting innovators.	https://joinup.ec.europa.eu/collection/joinup/joinup-code-reuse

[1] Free Software Foundation Europe, a partner in the ZOOOM Project

Joinup – Find and compare software licences	Joinup licence assistance (JLA) allows everyone to compare and select open licences based on their content. It is linked with SPDX (for Software Package Data Exchange), an initiative of the Linux Foundation that aims at standardising the way in which organisations refer to software licences.	Repository of licences that can disentangle the complexity of licencing models for software and non-software solutions	https://joinup.ec.europa.eu/collection/eupl/solution/joinup-licensing-assistant/jla-find-and-compare-software-licenses
Join up licence assistant - compatibility checker	With this functionality it will be possible to determine on which licences a work using or combining data or software components licensed under two different licences can be distributed and (if it can be distributed) under which licences.	Useful in different phases of the innovation process, such as due diligence, when a company needs to assess the licencing strategies of an ICT innovation before acquiring it.	https://joinup.ec.europa.eu/collection/eupl/solution/joinup-licensing-assistant/jla-compatibility-checker
Flict	FOSS Licence Compatibility Tool (flict) is a free, open-source software tool to verify a package's licence compatibility and dependencies. Users can automate license compatibility verification in their compliance workflow.	This open-source tool can: – Verify licence compatibility – Suggest outbound candidate licenses – Simplify license expression – Display, in misc format, compatibilities between licenses	https://pypi.org/project/flict/
FOSSology	The open-source license compliance software system and toolkit allow you to conduct license, copyright, and export control scans through a command line interface. In addition, a compliance workflow is available through a provided database and web user interface as a complete system.	It can help innovators ensure that their software complies with open-source licensing requirements and avoid legal issues related to copyright and export control. On the other hand, supporting organisations can use it to manage and analyse open-source software and ensure compliance across large scale projects.	https://www.fossology.org/about/
Remodel	Brainstorming and team-building tool for open source-based business models – small teams of 2-4 people	It's printable. It might be useful for those teams that need to define their business idea based on open-source innovation. Its	https://remodel.dk/

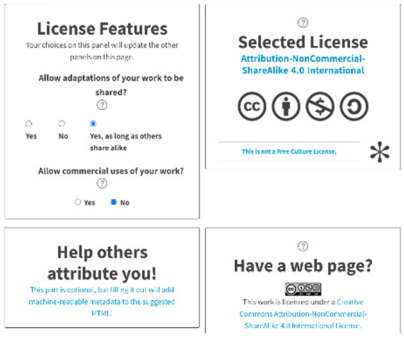
		components make it suitable for teams of individuals with no specific competencies on the topic.	
Creative Commons	Licence chooser developed within CC (creative commons) helps users determine which Creative Commons Licence is the right one for them. The interactive dashboards give results based on users' needs and requirements.	Effective licence chooser for researchers, start-ups and potentially SMEs.	https://creativecommons.org/choose/
GNU - FAQ list	How to work with and use GNU open software (licences, programs released, combinations with other software, etc.)	Training material to support innovators adopting open software licences (what they should know before working with such licences)	https://www.gnu.org/licenses/gpl-faq.html
Open Data Documentation	It's a portal that can help users to access different open datasets while promoting and supporting the release of better quality metadata and data by the EU's institutions, agencies and other bodies. It also serves the purpose of educating citizens and organisations about many opportunities arising from the availability of open data.	Repository of valuable resources within Open Data.	https://dataeuropa.gitlab.io/data-provider-manual/
Data Europa – Licencing Assistant	An EU tool developed to support users in finding licences for their Open Data projects	Open-source licencing assistant that can support both creators and supporting organisations involved in Open Data Projects.	https://data.europa.eu/en/training/licensing-assistant
Training modules on Open Data and IPRs	A training session hosted on YouTube by the data.Europa academy aims at introducing 2 main topics: – The impact of Open Data Directing on IPR – The shift from static data sharing to Data-as-a-service	Training modules for innovators, especially for those with low awareness of the potential for Open Data and IPR.	https://www.youtube.com/watch?v=VcihBPqB0vo https://data.europa.eu/en/academy
Use cases on	A list of publications on	Repository of cases to	https://data.euro

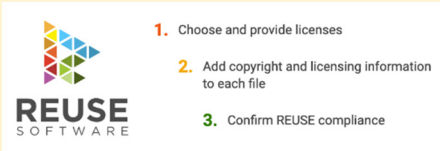
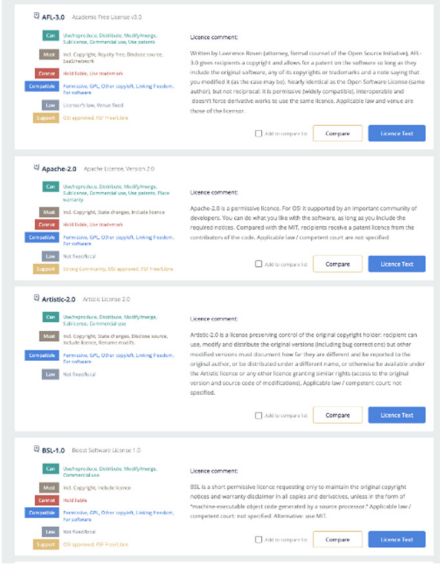
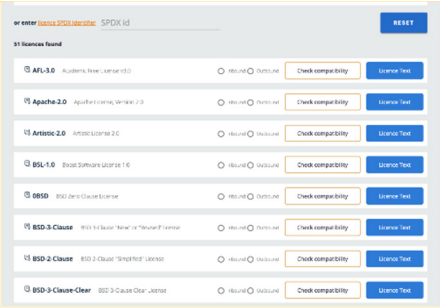
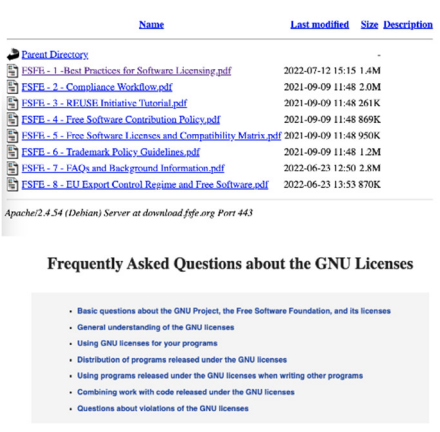
the use of Open Data in Europe	Case Studies where Open Data have been used as a form of Open innovation throughout different projects in Europe	support both innovators and organisations working and leveraging Open Data projects.	pa.eu/en/publications/use-cases

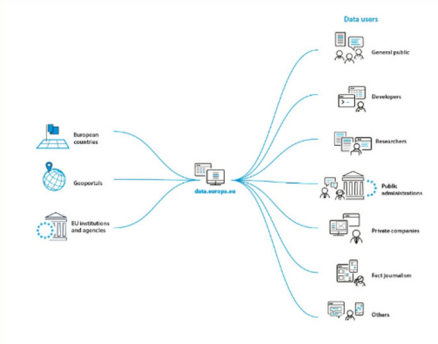
4.2. Inspirational Material Coming from Other Platforms/Tools

Below, we provide a more fine-grained view of the inspiring components that emerged from the service safari.

Table 17 List of Components Emerging from the Exploration of Already Existing Tools, Following the Support and Contribution of the ZOOOM Consortium.

Name of the Platform/Tool	Screenshot of the Component	Elements of Interest
REMODEL https://remodel.dk/		Downloadable and Open-Source kit for small teams. This can be interesting in the case of a start-up that wants to explore different business models in relation to licencing strategies. The toolkit consists of 7 work packages. Each part has step-by-step instructions, a video tutorial, and examples of how to do it. You set up a team of 2-4 employees and work through the materials at your own pace (they recommend one work package per week). Each package takes approx. 4 hours to complete.
CREATIVE COMMONS https://creativecommons.org/		Dashboard, where users can select their licencing needs and the licence changes based on such needs. E.g., if I want to allow adaptations of my work to be shared but I don't allow for commercial use, then an "Attribution-NonCommercial 4.0 International" Licence is the output of my interaction.

REUSE https://reuse.software/		The possibility of integrating the REUSE platform within the ZOOOM toolkit, offers noticeable support in creating projects that keep track of copyrights holders and their licencing software within files.
Joinup licence list and compatibility checker https://joinup.ec.europa.eu/collection/eupl/solution/joinup-licensing-assistant/jla-find-and-compare-software-licenses		The large amount of licences - especially within open software, makes it difficult for innovators to have a clear understanding of the impacts and consequences of open-source innovation. A repository of licences presenting various characteristics can become a valuable tool to simplify the complex nature of licences and potentially avoid licence proliferation.
JLA – Compatibility Checker https://joinup.ec.europa.eu/collection/eupl/solution/joinup-licensing-assistant/jla-compatibility-checker		When creating or contributing to open-source projects, it's important to be aware of the different licenses that apply to the software being used. Different licenses have different requirements and restrictions, and it's important to ensure that the licenses of different software components do not conflict with each other.
FSFE user manual and GNU FAQ sheets https://download.fsfe.org/NGI0/V2/ https://www.gnu.org/licenses/gpl-faq.html		The manual provided by FSFE, is a key set of materials that can support innovators and other organisations with best practices to increase awareness on the reuse of code and provides know-how for using and distributing open-source software. Similarly, the GNU FAQ list can help reduce the risk of legal issues related to licencing by providing clear guidance on how to comply with the terms and conditions of GNU licences. Such type of informative material will be part of the ZOOOM Toolkit and within the scope of the project, it will be crucial to understand how to make it accessible to every stakeholder

		involved through the platform.
Open data.europa portal https://dataeuropa.gitlab.io/data-provider-manual/		Within the scope of the project, it is crucial to understand how to provide a repository of open dataset to innovators and supporting organisations. Such a portal can help open-source developers and organizations access a wider range of data sources and promote the development of new open-source applications and services that are based on this data. A direct access to open data Europe, can help increase awareness of the benefits of open data and encourage more individuals and organisations to contribute to the open-source community.

5. Needs and Requirements for Toolkit and Training Modules

The following sections summarise key insights for developing the Toolkit (*Section 5.1*) and the training modules (*Section 5.2*). The information is displayed through 2 main tables and is showcased in the form of visual images that can be found at the end of this document in *Annex 1*.

5.1. Toolkit

Table 18 Summary of the Insight Concerning the ZOOOM Toolkit

#	Title	Text	Existing tools related to the insight
1	**Process as a Service** *A specific pathway for innovators doesn't exist.*	Innovators encounter difficulties in navigating various stages of the innovation process. Pathways are complex and might differ from one context to another due to a lack of standards. These challenges can pertain to business-related factors, such as funding, timing before the Return of Investment when going public, and access to general resources. They may also involve legal issues, such as IP management, compliance with local regulations and frameworks, and other legal considerations. Supporting organisations might not have the right tools at the right moment, e.g., TTOs might only provide legal support and fewer resources to understand aspects related to funding and other business resources. Mapping the various pathways for innovation might benefit both supporting organisations as well as innovators. *How might we simplify the complex innovation process by mapping out different pathways to help both innovators and supporting organizations overcome challenges related to funding, legal issues, and access to resources?*	-
2	**Stories of success**	Many innovators may be unaware of the possibilities of using open licenses in their	-

	Companies are reluctant to deliver with open-source licence due to a lack of evidence of its success in business.	business, orienting them to traditional IP protection and closed source rather than embracing open licenses. Proprietary and open are two strategies that both present risks and benefits and need evaluations, competences, and awareness to manage the IP for the business. At the same time, companies, investors and other stakeholders, may be hesitant to acquire or invest on firms with in their IP portfolio a broad asset covered by copyleft licenses due to uncertainties around committing to the derivative licences that might bring uncertainty for their profits. Both innovators and supporting organisations believe that a repository of case studies and success stories from open-source innovation could contribute to the awareness-raising campaign and the adoption of open-source approaches to innovation.	
3	**The network effect** *Cross collaboration between territorial and professional boundaries*	What can we do to address the challenges arising due to variations in cultural perspectives on the role of innovation, which in turn can lead to different approaches towards Open Source and IP management? Regional boundaries do not limit the need for collaboration; accepting open-source IP management strategies also depends on personal networks and professional circles (e.g., prof. field). Many supporting organisations and innovators communicate the need to access communities to interact with. This comprises: – communities for open-source material that e.g., perform background checks for other innovators around the output of a specific code. – networks within national boundaries where companies can interact and exchange opinions and share concerns and doubts when approaching open-source innovation. – networks of individuals dealing with open-source innovation and dealing with different cases around the 3Os and specific technologies.	-
4	**Operational literacy** *Empowering creators and supporting org. to work with open licences in an operational*	The abundance of open licenses challenges licensors, particularly in the open software category, as it can be hard to select one from many. In a distribution that involves multiple licenses, it can be tough to comprehend the terms and conditions of each license. Many open licences do not play well together, and there is a need to empower both creators and supporting	– Open data licencing assistant – Choose a licence – Licence compatibility tool – Creative Commons Licence

	way	organisations to avoid licence proliferation by making licences reusable and not duplicative. These insights also emerge from the need of bigger companies and supporting organisations that believe software that analyses guarantees and limits of licences could help them with different sorts of agreements to take in technology acquisition processes. – validation tools for reuse of code – assistance when approaching open-source libraries – assistance in due diligence phase.	chooser – Joinup Licence chooser – Joinup Licence compatibility tool – Reuse
5	**Unravel the licence** *Understanding the licences before working with them*	One of the challenges of having many open-source licenses is that it can become difficult for licensors to choose the right license for their specific needs. This can lead to confusion and potential legal issues down the line. A glossary and an interface with frequently asked questions (FAQs) for innovators and supporting organisations can help mitigate this challenge by providing clear and concise information about the available open-source licenses. The glossary, seen as a sort of “periodic table for licences", shouldn't be too complex to understand and should provide definitions and explanations of key terms, while the interface with FAQs can address common questions and concerns that licensors and other stakeholders may have about open-source licensing. This can help increase awareness and understanding of open-source licensing and facilitate the adoption of open-source approaches to innovation. – glossary – FAQs – list of licences.	– FSFE user manual and GNU FAQ sheets – Joinup Licence chooser
6	**Resources & validation** *Cross collaboration between territorial and professional boundaries*	How to access resources to apply for funds, what is the process for doing that? Researchers might need to understand how to apply for grant applications, while start-ups might need to understand the best practices to approach investors. Making innovators reflect upon the validity of their innovation can make them take the necessary steps to have it ready for commercialisation, both in terms of process and resources as well as in terms of idea validation. Providing creators with tools and methods to work internally and reflect on their creation based on the	– Remodel

		type of venues they are addressing might be interesting to future-proof ideas and create awareness of open models. This can make them reflect on key questions that often are not considered when commercialising innovations: – Am I solving the right problem? – Did I manage to conduct field research before commercialising? – Is this the right business model I want to use? – What trends can disrupt this domain in the next 30 years?	

The insights on the table above, come from a clustering process that resulted in the creation of visual images. The images are presented in *Annex 1.1* of this deliverable.

5.2. Training Modules

Table 19 Summary of the Insights Concerning the ZOOOM Training Modules

#	Title	Text	Existing tools related to the insight
7	**Awareness is key** *Encouraging open licensing as possible key for the future of business*	One of the leitmotifs emerging from the interview process is the lack of awareness around the possibilities for open-source valorisation of IP. Many clients perceive open-source software as more suitable for academic use, while they associate proprietary software with large corporations like Microsoft, which are more focused on business needs and profit. To encourage the adoption of open-source models, companies need to be aware of the significant benefits that can be gained from this approach in terms of technology improvements. How can technology and business models improve with open-source innovation? – Creating awareness on: the importance of IP licensing; advantages/limitations of open licence; choosing a licence strategy based on possible business pathways; rights and duties from licences (inbound/outbound); management of different licences and business models; supporting systems dealing with companies/researchers with	-

		critical eye on IP valorisation and open licence strategies. – Real examples could come from innovators themselves that can showcase their success stories.	
8	**IP by design** *We should work with IPRs from the very beginning of the project rather than as an afterthought.*	Training support is a key tool for both creators, who benefit from the understanding of IPRs, formats of licences, and regulations, as well as for supporting organisations that find it sometimes more important than compatibility and IP management tools. Training could integrate the analysis of case studies (both successful as well as bad examples) to: – create background knowledge to facilitate support from external organisations (when dealing with legal/business aspects) – create the possibility of creating software, datasets, and overall innovation with a different perspective. They should include various topics covering both business and legal aspects of the 3Os: – Technical/technological aspect – Legal and business aspects – Financing aspects – Evaluation of cases (good and bad examples)	Secondary material for training modules: – FSFE user manual and GNU FAQ sheets – Joinup Licence chooser Primary informative materials: – Open data video training material (data.europa academy) – Open data training videos on Open data and IPRs.

Again, the insights on the table above, come from a clustering process that resulted in the creation of visual images. The images are presented in *Annex 1.2* of this deliverable.

6. Conclusions

In conclusion, the various activities described in this deliverable rely on design-driven methods to analyse needs and requirements across a complex network of values and stakeholders. Service Design approaches have served as methodological guidelines and will continue to do so in the following months of the project. They help one to understand, frame, and contextualize various ways to enhance the valorisation of open collaborative and open-source modes of innovation across the 3Os. Compared to the initial assumptions in the project's scope, the insights emerging from this deliverable showcase a more granular understanding of the needs and requirements for creating the ZOOOM Toolkit and its associated training modules.

With the continuation of the project, throughout Task 3.2 ("*Preparation of capacity building toolkit*"), Task 3.3 ("Preparation of training modules") and Task 3.4 ("*Validation of prepared materials*"), this deliverable sets the foundation for the development of the toolkit and creates the preconditions for iterating it in the months to come. As briefly summarised in the introductory section, this deliverable does not intend to provide ready-made solutions; instead, it aims at unravelling the assumptions and enhancing the understanding of needs and requirements for support and valorisation of IP within open licence frameworks.

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Polaine, A., Løvlie, L., & Reason, B. (2013). Service design: From insight to implementation. Rosenfeld Media.

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Annex 1. Visual Representation of the Insights from Miro Board

Annex 1.1. Toolkit

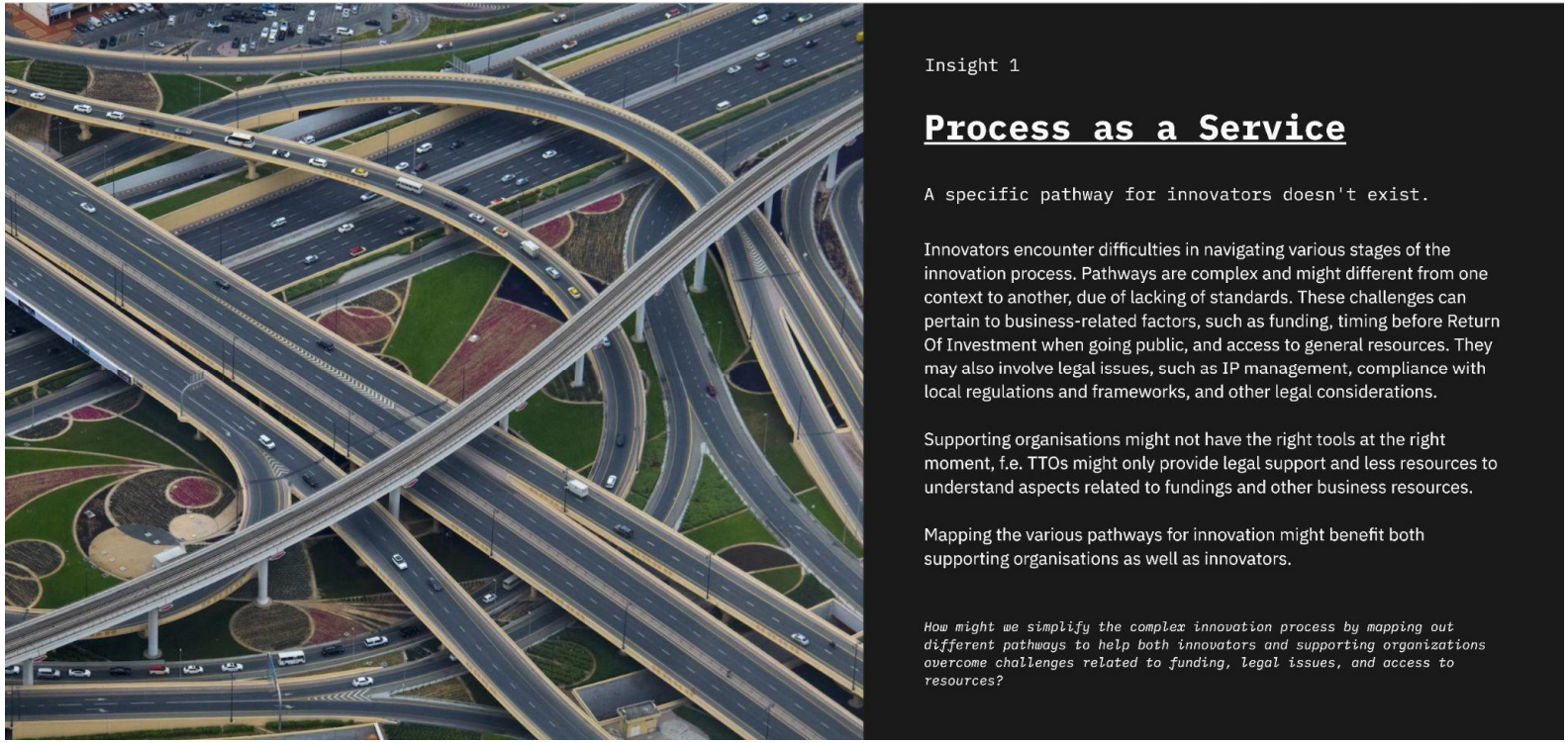

Figure 4 Insight 1: Process as a Service

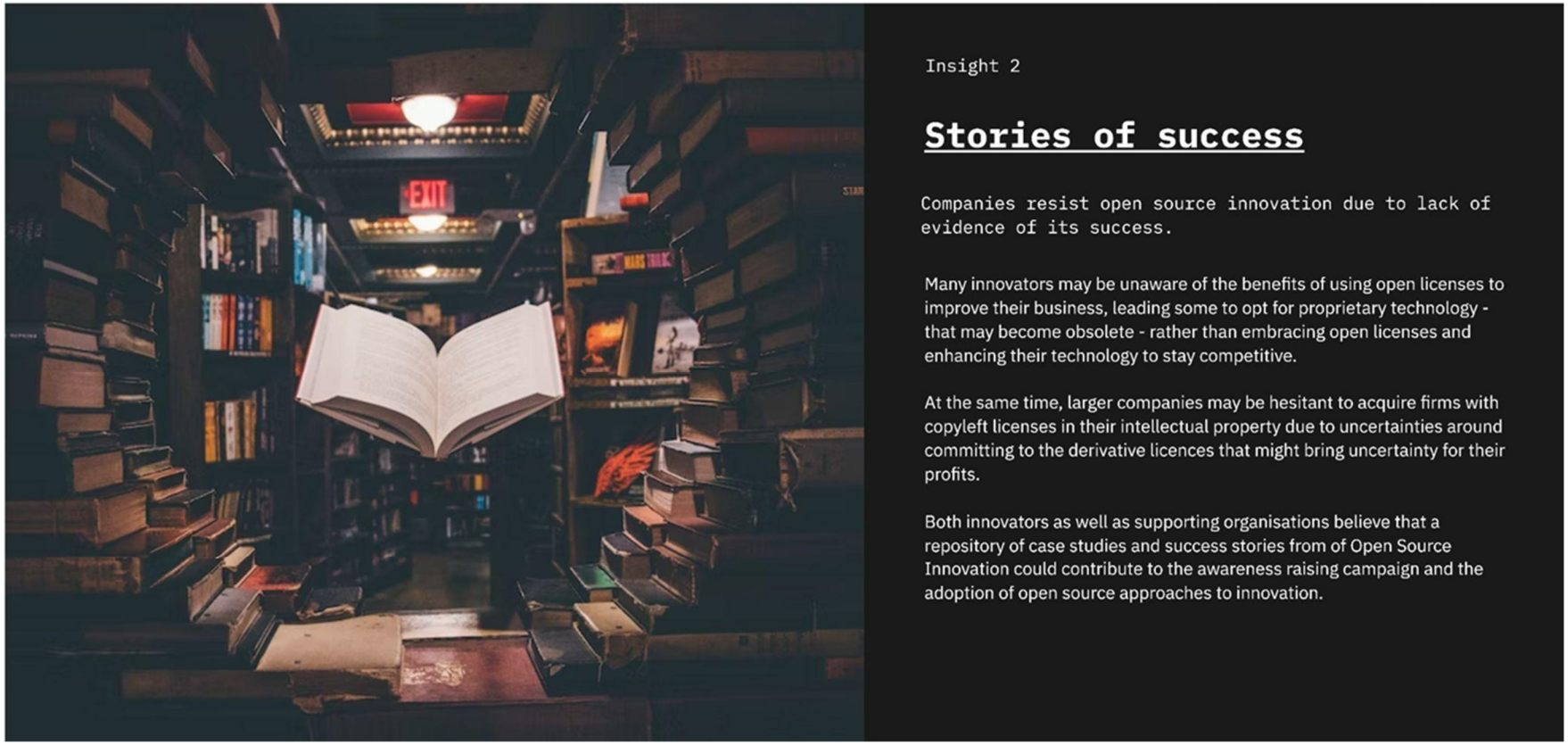

Figure 5 Insight 2: Stories of Success

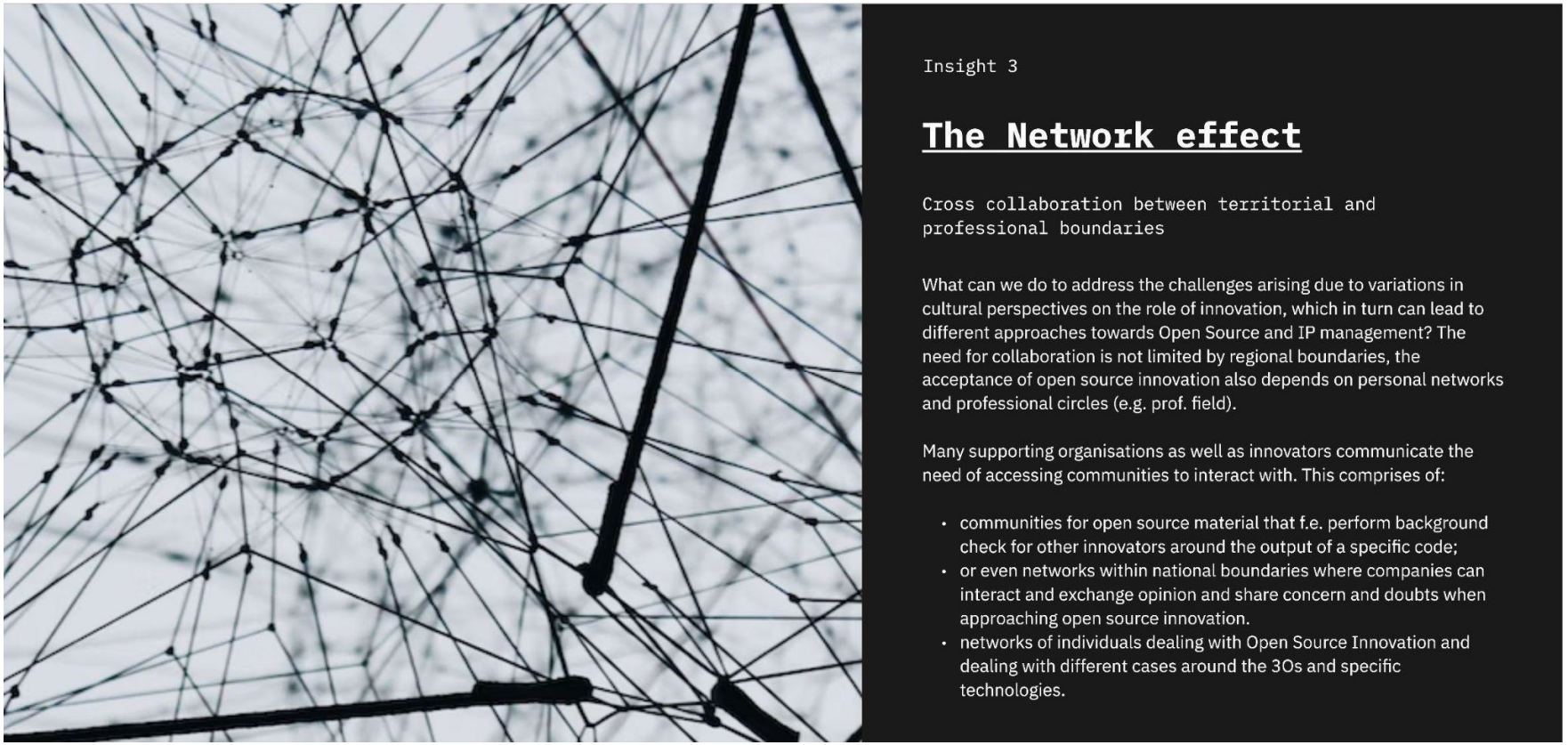

Figure 6 Insight 3: The Network Effect

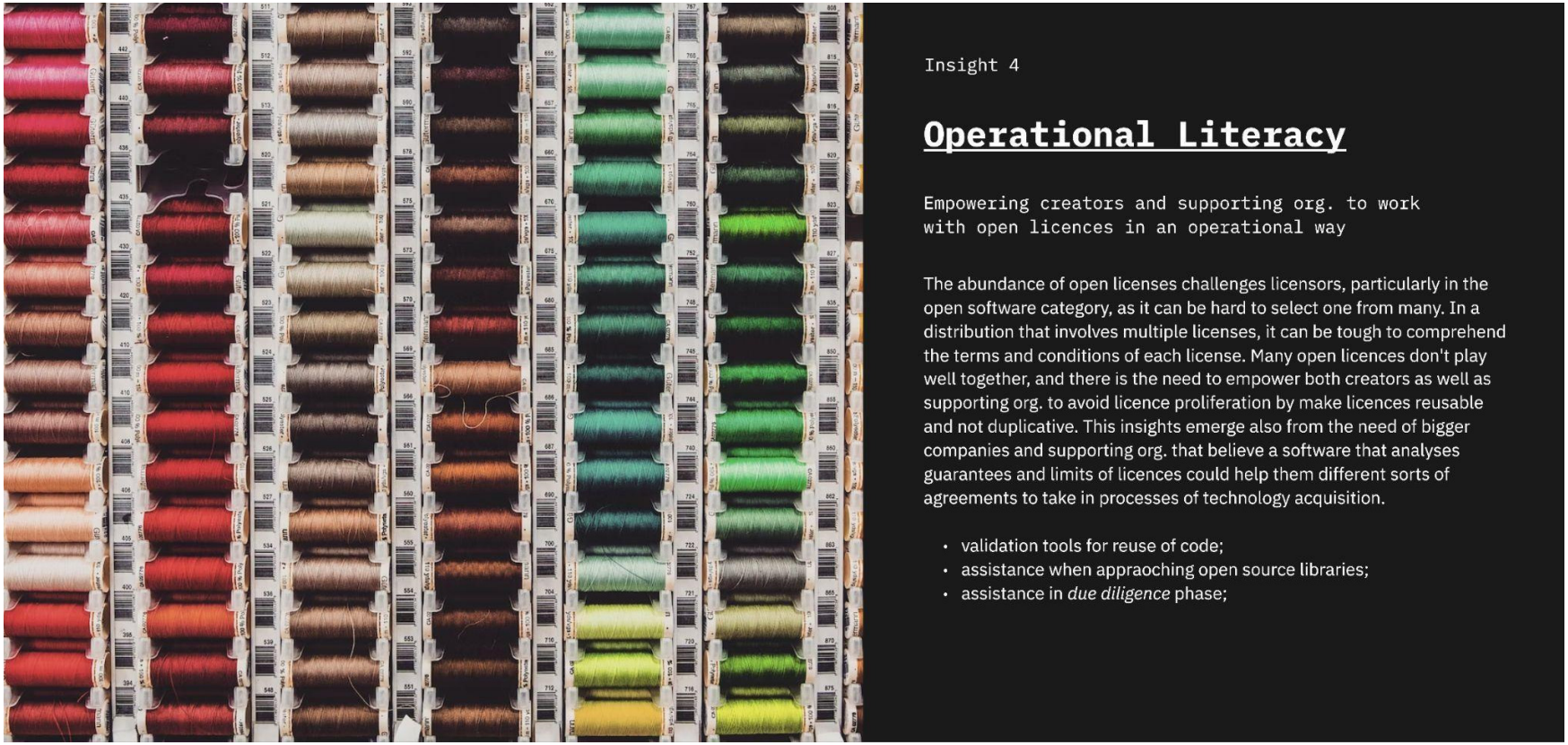

Figure 7 Insight 4: Operational Literacy

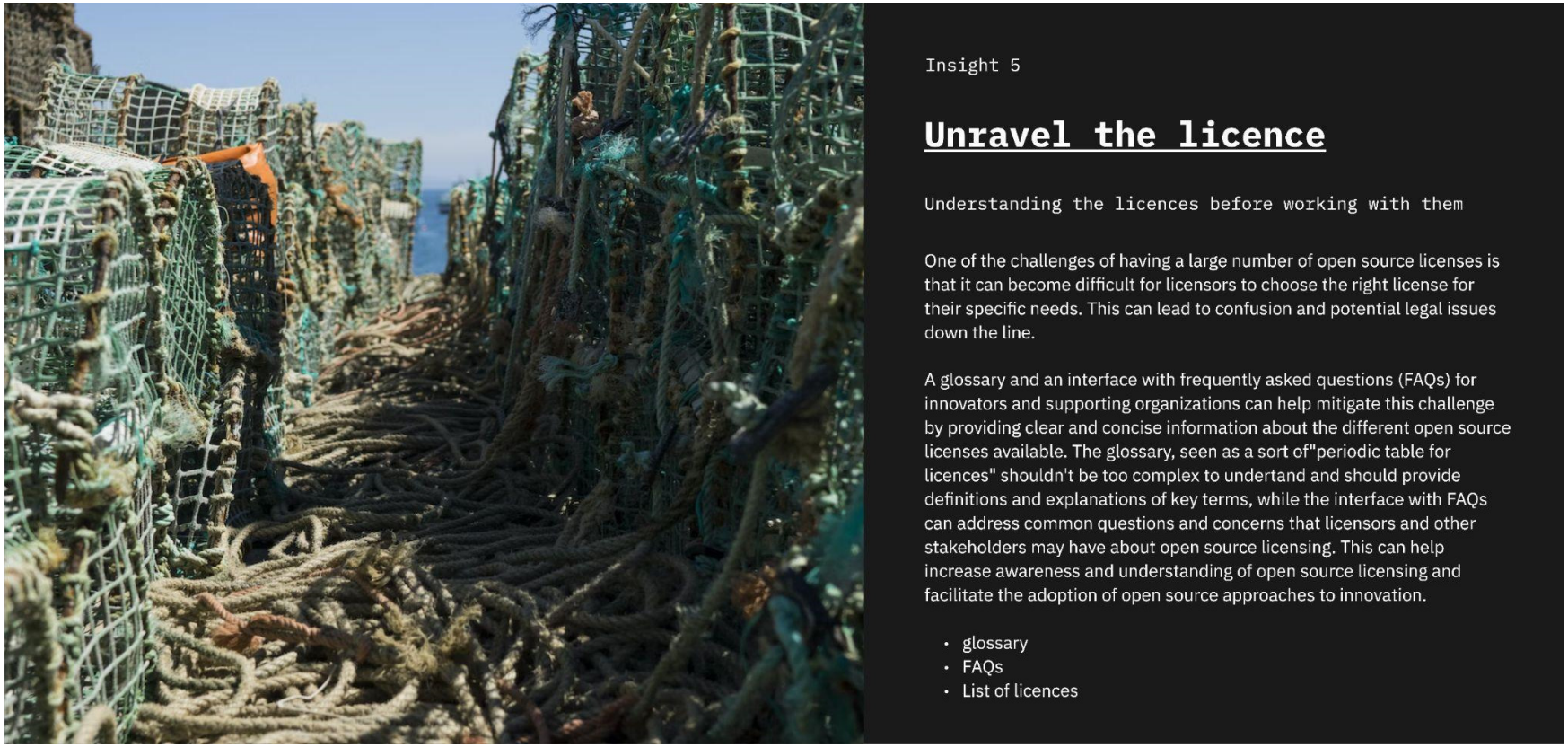

Figure 8 Insight 5: Unravel the licence

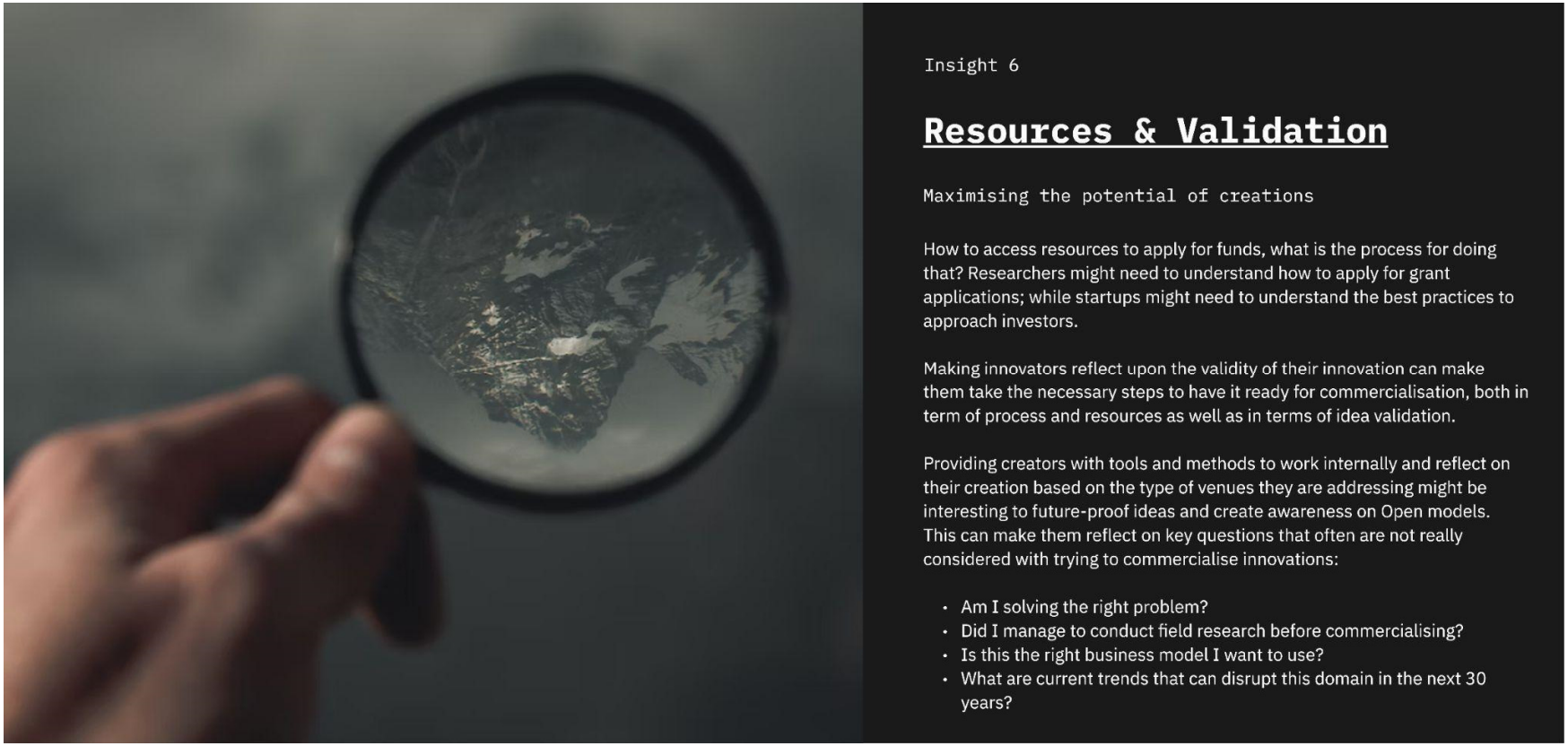

Figure 9 Insight 6: Resources & Validation

Annex 1.2. Training Modules

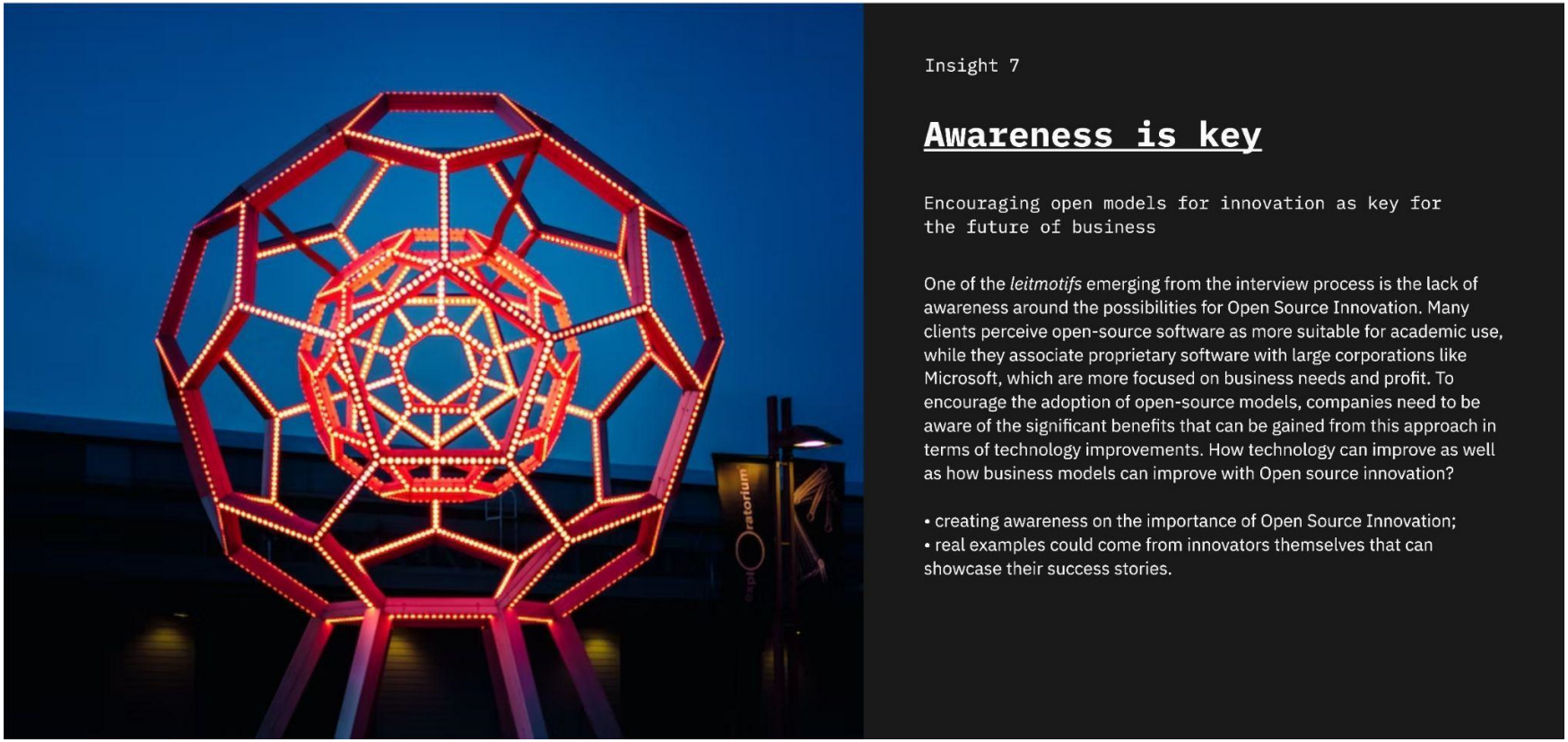

Figure 10 Insight 7: Awareness is Key

Figure 11 Insight 8: IP by Design