Deliverables

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Deliverable Title	**Foundations of a business plan for the wayforlight portal**
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1. Preface

The development of the future strategy for the wayforlight.eu portal (WFL) and setting up a corresponding business plan (BP) represents a complex process including a variety of dimensions to be taken into account. Both, the strategy as well as the BP development processes include different steps, each of them requiring a thorough analysis of various factors and scenarios as displayed in figure 1.

During the first 30 months of the project, first steps of the WFL strategy development process have been initiated and completed. Based on the results, also the business plan development process has been started. The schematics of both processes are displayed in figure 1. The present status is indicated as well.

Deliverable D5.2 provides an overview on the current financial, legal and organisational situation of WFL. In addition, it summarizes the first results of the analysis of the internal and external WFL environment including WFL missions & visions as well as a SWOT analysis of WFL. Based on ongoing

discussions on services & programs of WFL, future developments and the results on the SWOT analysis, a first draft for the future medium-term operational costs of WFL has been drafted for several scenarios. This is also part of the present deliverable.

Long-term sustainability of WFL requires a sound business plan and for this reason it has been decided to replace the original content of **deliverable D5.2** "Concept of a business plan for wayforlight " by **"Foundations of a business plan for the wayforlight portal"** and to add a new deliverable due by month 47, which will build on the present one and will provide a realistic concept of a business plan when this becomes a pressing need close to the end of the project.

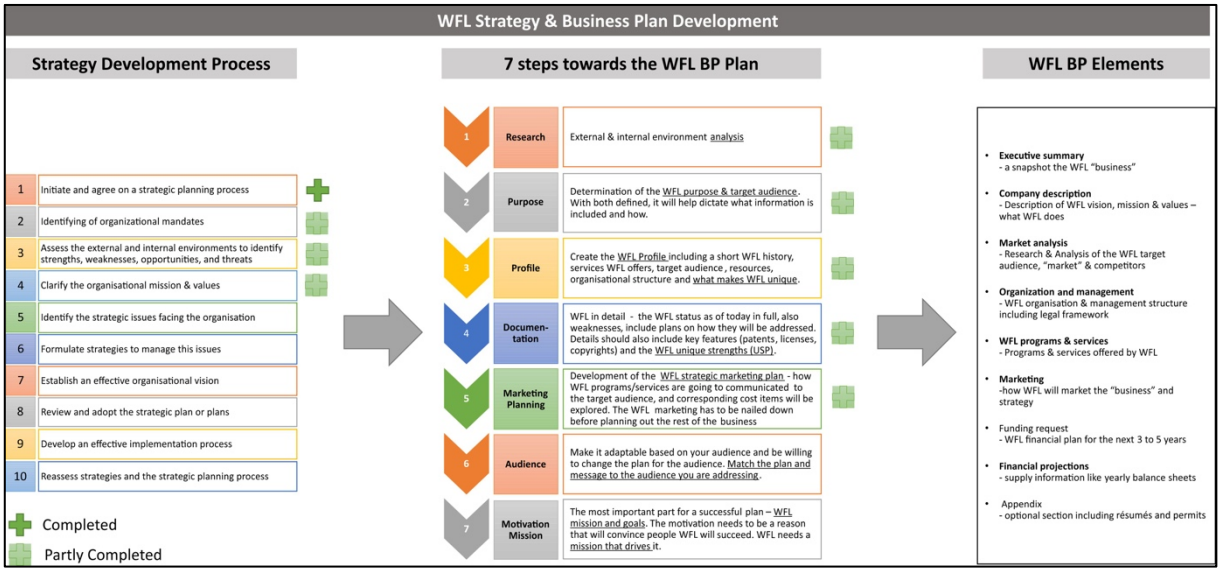

Figure 1 - Scheme of the WFL strategy & business plan development process.

2. Background

The WFL portal is an example of an initiative seeded by the European Commission (EC) and subsequently developed alongside the needs of both the sponsoring facilities and the users.

Wayforlight was first conceived in 2011, before submission of the FP7 CALIPSO Integrating Activity proposal. It started with simplified facility datasheets only; in 2014, during CALIPSO, a prototype Standardized Proposal Format and the Standardized Beamline Datasheets were implemented. The European Synchrotron and Free-electron laser User Organisation (ESUO[1]) section was realized in 2016 and an industry-dedicated section[2], including the SMEs tailored proposal form, under H2020 CALIPSOplus in 2017. In 2018, thanks to the H2020 project EUCALL[3], the Free Electron Laser beamlines datasheets were harmonized with the Optical Laser ones and a new, smart database was built. The new database allows easy data mirroring[4] between WFL.eu and any other chosen website.

[1] http://www.wayforlight.eu/en/users/esuo/
[2] http://www.wayforlight.eu/en/industries/
[3] https://www.eucall.eu/
[4] via dedicated Application Programming Interfaces (APIs)

In the meantime, the future of WFL is still being discussed within Working Group 5[5] of the LEAPS initiative[6]. In addition, best practice exchanges and fruitful meetings have taken place between the WFL management team at Elettra and representatives of the MERIL, RIPaths and CatRIS[7] European projects.

3. Current situation

At the time of this writing, all nineteen (19) Research Infrastructures (RIs) forming the CALIPSOplus Consortium are working on WFL under the CALIPSOplus grant agreement itself. Seventeen (17) of the RIs are also part of LEAPS[8].

During mid-2015 to 2017, in advance of the approval of the H2020 project "CALIPSOplus", the Synchrotrons (SR) and Free Electron Lasers (FEL) facilities signed an agreement based on support letters and including money transfer to Elettra to ensure the operation of WFL at this time.

Today, WFL includes in addition fifteen (15) laser facilities, which are not involved in the initiatives listed above[9]. In the frame of the recently approved H2020 projects "IMPULSE"[10] and "LASERLAB-Europe", a small amount of resources to increase the number of lasers displayed on WFL may become available.

Annex IV to D5.2 provides a detailed current financial overview which can be summarized as follows:

- Human resources for daily maintenance of WFL are provided by Elettra within CALIPSOplus Work Package NA1[11] as well as the corresponding IT infrastructure. Funds for dissemination material is also assigned to Elettra in NA1. All other participants have two (2) persons-months overall during the 4 years of the project assigned to portal updates.
- Additional working time has been provided by in-kind contributions, mainly by Elettra, to deal with ELI and Laserlab Europe[12] as well as with the MERIL-2, RIPaths and CatRIS H2020 projects. Some of these could be labelled as in-kind contributions to the LEAPS initiative.

However, the overall WFL collaboration does not have a dedicated legal framework involving all stakeholders at the same time.

This leads to at least three practical consequences:

1. the baseline support for the portal is ensured by an external source (H2020 project CALIPSOplus) that will end in April 2021;
2. any further development is first subject to the need to secure the basic operation of the portal and then to the scouting of additional funds;

[5] LEAPS WG 5 -User services and Impact
[6] https://www.leaps-initiative.eu/
[7] https://portal.meril.eu/meril/, https://ri-paths.eu/, https://project.catris.eu/
[8] 16 CALIPSOplus partners are LEAPS members, while SESAME is associated with LEAPS
[9] http://www.wayforlight.eu/en/lasers
[10] Grant Agreement 871161
[11] NA1 – User tools for access and data management
[12] Grant Agreement 821124

3. interaction with different stakeholders is often based on the possibility (or not) to apply for additional funding, and this also drives the composition of the interest group.

4. Methods and analysis

To setup a concept for a business plan (BP), a series of analyses of the external and internal WFL environment have been carried out within the frame of the CALIPSOplus NA1 work package (WP). The respective survey includes the following items:

a) Vision and Mission statements for WFL;
b) Stakeholder analysis;
c) Strength – Weaknesses – Opportunities – Threats (SWOT) analysis.

Most of the CALIPSOplus beneficiaries completed the survey with the support of the respective facility user office and IT staff as well as beamline scientists. In addition, also ESUO gave its contribution. The feedback of both ELI and Laserlab Europe consortia will be considered to be provided at a later date.

In addition, a cost summary was drafted within a smaller volunteer working group, also taking into account IT costs provided by the Elettra IT department. Finally, a User Survey in the frame of CALIPSOplus NA1 was conducted among a group of volunteering users who kindly had left their e-mail address during a 2015 survey.

In the following sections, a summary of the surveys will be provided[13].

4.1 Vision and Mission

A **vision** statement describes the desired future position of a specific activity while a **mission** statement defines the main focus, objectives and how to reach those objectives. Elements of **mission** and **vision** statements serve as guidance notes to plan the future of wayforlight with reference to its purposes, goals and **values**.

Most respondents were User Office colleagues from SR and FEL facilities; therefore, the contents were quite homogeneous. For the scope of the present document, Tables 1 and 2 give an overview of what was proposed by the NA1 members. The complete list of Mission and Vision statements can be found in Annex I. The next steps will require additional feedback from all other stakeholders, followed by a prioritization work and a final synthesis.

Table 1 - List of proposed Vision statements for the WFL portal.

VISION
• Wayforlight will become a reliable reference point for all European lightsources facilities by providing an up-to-date, interactive and informative environment for all internal and external users; • A website that can become a European catalogue of RIs related to the use of light; • The European platform for all synchrotron and FEL's users providing information on facilities , training

[13] The overall contribution can be found in the Annexes I to IV of the CALIPSOplus deliverable D5.2, respectively.

material and promotion of educational courses/workshops;
- Wayforlight being a global portal, the central information hub for any information related to lightsources in Europe;
- Be ranked first in Google search for "EU lightsources", be known to most EU SR/FEL users;
- Grow with time thanks to a solid collaboration of facility staff and external users;
- The information already included on WFL is a great basis for the LEAPS cause, the only place where all information about facilities and beamlines can be found in one place. However this will need to expand significantly and perhaps shift focus to be the face of LEAPS;
- Become the only data base where data on beamlines etc. have to be updated;
- Light sources science promotion;
- include information on European projects such as FELs of Europe, LEAPS, etc;
- Building an interdisciplinary community in advanced science; starting point for research projects, fostering cross-country utilization and promoting the highest level of collaborative research at the European level;
- Stimulating cooperation between science and industry in finding new technical solutions with commercial potential Lead to science discovery and innovation.

The statements collected displayed two slightly different visions. The first one sees WFL as "*a* possible", "*a* reliable" portal, just another one in the game; the second one has a vision of "*the* central entry point", "*the* unique portal" etc. Most comments can be assigned to these two categories. Other notable comments from the survey regarding the WFL vision are the following:

- A significant contribution mentions wayforlight as "the entry point to update the technical data": this is probably a statement from a beamline scientist; it is focused and presents a possible unique selling point of the portal.
- Other feedbacks mention the role of WFL in stimulating collaboration in scientific and technological projects, both within academy and/or industry-related contexts. A website that could steer collaboration is definitely a stimulating challenge.

Finally, worth mentioning is the vision of "growing with time thanks to solid commitment from the facilities"; this underlines once again the **crucial issue of commitment**, be it minimum, average or maximum.

Table 2 - List of proposed Mission statements for the WFL portal.

MISSION
• To promote the European lightsources facilities and their work at regional, national and international level, particularly in Eastern Europe regarding large scale light sources; • To provide the academic user community and the students worldwide a unique and unified information portal about all EU lightsources (synchrotrons, free electron lasers and optical lasers), saving time and only needing to visit only one up-to-date website; • To thrive to provide interaction among users, industries and beamline scientists in order to support further collaboration; • To establish the access platform as a source of teaching materials such as eBooks or videos produced by the HERCULES school team, for new or potential users of EU lightsources • To provide specific information or links to dedicated websites for selected user groups, e.g. industry users, archaeologists, arts historians etc. • To promote the European Synchrotron and FEL User Organisation among the users; • To contribute to both scientific and methodological training for future generations of scientists to help them find best suitable beamline, and to apply and use beam time successfully; • To encourage open science and the sharing of data and provide easy access to publication; • To be the website needed for LEAPS.

The list of mission statements includes some practical actions, showing a positive attitude towards current and future activities. In particular, in this frame much focus has been posed on training. It is interesting to note that the wish for a new deal on WFL has been expressed, while in previous years it has not been possible to commit more than 0.5 person-month (PM)/year, even with external sources. Within LEAPS, even 1 PM/year to be provided in-kind seemed to be too much. This is certainly one of the crucial issues to be discussed, clarified and, hopefully, solved in the upcoming months.

Quoting a recent OECD report "Digital platforms for facilitating access to Research Infrastructures"[14]

> "[…] *Improving the provision of, and access to, research infrastructures (RIs), which account for a substantial percentage of public investment in science, is an important policy challenge in most countries.* […]"

The report also makes a distinction between different types of digital RI platforms, namely between

- […] "those platforms whose main mission is to provide comprehensive up to date information for analysis and planning ***(data services)***
- those whose function is more than that of a service provider with a brokering role ***(platform services)***

although in practice many initiatives attempt to fulfil both functions to some extent."

Wayforlight clearly falls into this last category.

4.2 Stakeholder analysis

For the operation of WFL as well the future development of the portal, the awareness of the WFLs stakeholders[15], i.e. understanding their needs and expectations, is of crucial importance. Therefore, as a first step it is important to identify WFLs stakeholders to better manage their involvement and expectations.

The survey conducted included for this an initial list of stakeholders to be reviewed and, if applicable, updated. Nearly 40 stakeholders have been identified. To classify them a short description of the stakeholder, including their needs and interests was completed. In this regard, the following points have been considered:

- How does WFL perform[16] against stakeholder criteria?
- What are the benefits of WFL for the stakeholders?
- What actions have to be taken in order to meet the stakeholder criteria and needs?

A detailed stakeholder list can be found in Annex II.

Table 3 - Stakeholders macro-categories and assigned weighting factors.

#	Stakeholder	Interest	Impact
1	EU Funding	3	5

[14] https://www.oecd-ilibrary.org/science-and-technology/digital-platforms-for-facilitating-access-to-research-infrastructures_8288d208-en

[15] **Stakeholders** are persons or organisations that has interest or concern in WFL.

[16] It is meant "at the time of this writing".

#	Stakeholder	Interest	Impact
2	Facilities Funders	3	5
3	Facility Staff	4	4.375
4	ESUO	5	4.25
5	Linked projects/initiatives	3	4
6	Political & Science Authorities	2.6	3,8
7	Current Users	4.25	3.25
8	Media	1	3
9	Potential Users	3	2,5
10	Suppliers	2	2
11	National/Regional Founders	1.5	1.5
12	Industry	1.3	1

The identified stakeholders have been grouped into 12 macro-categories. To rank the stakeholders, two weighting factors have been assigned to the macro-categories, estimating their present **interest** i.e. level of support, as well as their **impact** i.e. their power or level of influence on WFL. The stakeholder categories with their respective factors are reported in table 3. Furthermore, figure 2 presents them in a graphical way in the so-called **"Interest-Impact analysis"**, with the size of each sphere derived from the Impact value. It must be noted that the "EU Funding" and the "Facility Funders" categories are completely superimposed in the picture.

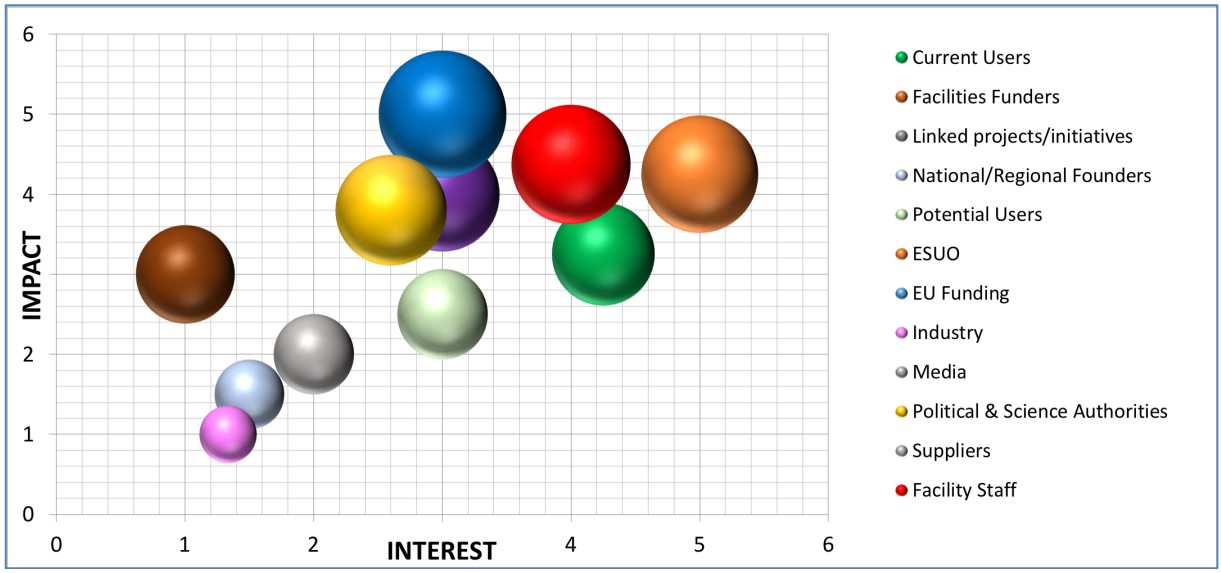

Figure 2: Interest-Impact analysis – EU Funding and Facilities Funders are superimposed since they share the same Interest and Impact values (3 and 5, respectively).

The following considerations could be drafted and profited from in the future steps, before the end of CALIPSOplus:

- **EU funding and Facilities Funders** have totally superimposed size and position in the scheme: they have a crucial role and sustainability must be discussed with both of them. However, if we aim at long-term sustainability, we may strive for a funding scheme allowing the portal to survive even without any EC funding - i.e. without such a large and high EC sphere;
- The **Linked Projects and Initiatives** (purple) is a further important stakeholder of high impact (4/5) and medium-high Interest (3/5); this reflects the past and present interactions with

projects like MERIL, CatRIS, RIPaths but also IMPULSE (ELI) and Laserlab Europe. However, so far, no financial contribution from such initiatives has been agreed upon.

- **Facility Staff** (red) is a crucial stakeholder together with the ESUO (orange): continuous feedback from them will always be needed. However, facility staff have been kept separate from the funding decisions (Facility Funders) while the ESUO as a whole is both an acting and a funding entity.
- The **Current users** (green) fall below several stakeholders, and Potential Users (light green) are even in a lower position. To ensure future developments and sustainability of WFL we must aim to raise their impact, at least at their interest level.
- **Industry** (pink) is too little involved at present; we should aim at pushing this sphere from bottom-left to upper-right corner of the diagram;
- Finally, the **Media** sphere (brown) has a low level of interest. This is due to the fact that the portal is not widely known among the Media, that nonetheless can have a high impact on it.

4.3 SWOT analysis

The purpose of the SWOT analysis is to provide information on the strengths and weaknesses on one side, and the opportunities and challenges or threats WFL faces on the other. The information of the SWOT analysis can be used for creating ideas of strategic inventions that will shape and guide the decisions of WFL and designing actions to create public value. Strengths and weaknesses are usually internal factors referring to the present capacity of WFL, whereas opportunities and challenges/threats are typically external and refer to the future potential of WFL for good or bad. The SWOT analysis will help to clarify the nature of tensions WFL is texting in by juxtaposing two fundamental dimensions of existence: good (strength & opportunities) and bad (weaknesses and challenges), and present (strength & weaknesses) and future (opportunities & challenges).

The results of the feedback to the SWOT analysis are displayed in Tables 4-7, while the full list of SWOT items can be found in Annex III.

Table 4 - SWOT analysis summary – Strength most cited items and corresponding Actions needed.

STRENGTH CATEGORIES	ACTIONS NEEDED
Catalogue including complete European LS information (Beamline, Industrial Liaision, ESUO)	Keep the catalogue and pages up-to-date, include new facilities (optical lasers)
Website Operation	Plan long-term maintenance of the current operation; keep offering daily assistance to User Offices and BL scientists
Networking platform (e.g. in the frame of networking with LEAPS, between all facilities)	Keep discussing WFL status and development within different stakeholders e.g. LEAPS; establish a long-term collaboration (e.g. MoU)
Communication & dissemination channel for all European facilities	Boost dissemination of WFL inside and outside the facilities
Relieving the researchers life (e.g. by saving time browsing relevant facility information, proposal deadlines)	Foster implementation of semi-automatic data sending from WFL database to the facilities' own websites or other initiatives

Table 5 - SWOT analysis summary – Weaknesses most cited items and corresponding Actions needed.

WEAKNESSES CATEGORIES	ACTIONS NEEDED
WFL updates & functionality	Solve the lack of manpower at the facilities to coordinate efforts, e.g. inform BL scientists about the catalogue and its usage and potential developments

WFL awareness & visibility in user & science community	Boost dissemination of WFL inside and outside the facilities
WFL unique selling point (USP) is missing	Discuss and choose the best one - catalogue ? Platform for users ?
Catalogue as tool of the future?	Discuss internally but also learn from other EU initiatives e.g. CatRIs, MERIL, RIPaths
WFL sustainability unsecured at today	Keep discussing WFL status and development within different stakeholders e.g. LEAPS; establish a long-term collaboration (e.g. MoU)

Table 6: SWOT analysis summary – Opportunities most cited items and corresponding Actions needed.

OPPORTUNITIES CATEGORIES	ACTIONS NEEDED
Consolidated facility information & standardized single entry point	Boost dissemination of WFL inside and outside the facilities
WFL potential as networking and interactive platform	Keep discussing WFL status and development within different stakeholders e.g. LEAPS; establish a long-term collaboration (e.g. MoU)
Improving user & science community awareness	Boost dissemination of WFL inside and outside the facilities
Training section @ WFL	Discuss with relevant stakeholders (e.g. LEAPS WG6) what is most needed
Commitment by LEAPS, facilities & ESUO	Keep discussing WFL status and development within different stakeholders e.g. LEAPS; establish a long-term collaboration (e.g. MoU)

Table 7: SWOT analysis summary – Threats most cited items and corresponding Actions needed.

THREATS CATEGORIES	ACTIONS NEEDED
WFL sustainability - Financials & Legals	Keep discussing WFL status and development within different stakeholders e.g. LEAPS; establish a long-term collaboration (e.g. MoU)
Technical WFL operation	Plan long-term maintenance of the current operation; keep offering daily assistance to User Offices and BL scientists
No further Research Infrastructure projects / Proliferation of projects creating portals	Discuss internally but also learn from other EU initiatives e.g. CatRIs, MERIL, RIPaths
WFL sustainability - Awareness & Visibility	Boost dissemination of WFL inside and outside the facilities

The list of actions proposed is shorter than the items in the S,W,O or T boxes; this shows that at least some actions could be contemporarily solved, e.g. a Weakness and a Threat, or boost a Strength while seeking for an Opportunity.

A recurring topic is "**dissemination**"; however, as already noted above, we have often suffered from a lack of dissemination due to a lack of commitment and available manpower. Another action that is repeated several times in the table is "**to discuss**" with a large range of stakeholders, together with the linked "**Plan long-term maintenance / sustainability**".

We can state that these are the most critical issues to face in the next phase of WFL.

4.4 User Survey 2019

In November 2015, a User Survey was conducted among the users included in the entire User Offices' (UO) mailing list of the former CALIPSO Consortium members. More than 1,500 answers were received and used to shape our priorities in CALIPSOplus, particularly within NA1. The survey

also provided the possibility for the users to be contacted for future contact about the WFL portal. In this context 340 volunteer users and have been contacted in September 2019.

For this reason, the user base of the User Survey 2019 is neither as large nor as heterogeneous as in 2015. It is, however, still very important because it shows the feedback of a number of committed and often experienced users, including e.g. ESUO delegates. The User Survey 2019 includes five questions regarding the WFL catalogue, the Standardized Proposal Format and UmbrellaID Federated Identity. Two additional questions were asked about the ESUO. Finally, a free non/mandatory text with suggestion for future user-friendly tools for WFL was requested.

Figure 3 reports on the 44 answers received on the two questions on wayforlight.

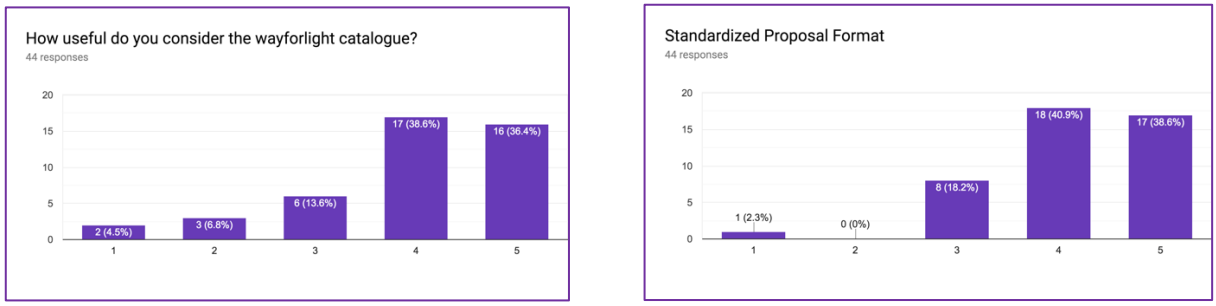

Figure 3 - Answers from the 2019 User Survey.

The questions had a five-level scale with possible values ranging from 1 – not useful to 5 – extremely useful. 75% of the feedbacks considered the WFL catalogue either "very useful" or "extremely useful": ***the catalogue is the hearth of the portal and is probably its "Unique Selling Point"***. 80% of the users considered the Standardized Proposal Format "very" or "extremely" useful, confirming that all the work done to reach this milestone was worth it.

Finally, the last open question was: *Which tools or actions would you suggest to improve the visibility and impact of the WFL website within the European user community?*

The most frequent answers emphasized the need for **more dissemination**, suggesting newsletters, email alerts but also presence at Synchrotron / FEL users meetings or even by organizing a dedicated European workshop. It was also proposed to have WFL as an open access publishing server or to host web instruments and data format development. Another suggestion was a **higher level of commitment from the facilities**.

5. Future scenarios

5.1 Budget scenarios

A draft cost estimation was made based on the current project funding through CALIPSOplus, the estimated operation costs and taking planned future WFL developments as discussed within LEAPS WG5.

In addition, the costs of those items needed for massive dissemination of the portal, including social media presence, which were not part of CALIPSOplus due to lack of budget and human resources, has been evaluated. The detailed cost summary as a first draft is available in Annex IV.

To keep the spotlight on WFLs sustainability, **three financial scenarios** are considered:

1. the **"baseline"** scenario: including real costs for services, equipment, marketing and other costs as well as in-kind contributions from the facilities to operate WFL;
2. the **"wayforlight 2.0"** scenario: includes the costs foreseen for the developments discussed within LEAPS WG5 in the past year;
3. the **"overall"** scenario: is the sum of the "baseline" and the "wayforlight 2.0" ones.

The items of the "wayforlight 2.0" scenario are reported in table n.8. They stem from an initial list included in the so-called "LEAPS WG5 pilot – wayforlight as a new e-infrastructure" presented in November 2018 at the LEAPS 2nd Plenary Meeting at DESY[17]. During 2019, additional items like the industry-tailored developments and the virtual instrument repository in collaboration with WG1 were added to this list.

Table 8: List of developments foreseen in the "wayforlight 2.0" scenario.

Item	WFL developments
1	Virtual Beamline - Sample environment
2	Virtual Beamline - All
3	Catalogue of Services[18]
4	Training[18]
5	LEAPS Partner Search
6	Industry Section including TamaTA

It is worth noting that:

- the costs for "Training" have not been estimated yet. However, they could be included in the LEAPS WG6 "Dissemination and Training" budget. The next opportunity for discussion will be the LEAPS Plenary meeting at PSI in November 2019.
- the "Catalogue of Services" costs have been estimated only roughly; they will strongly depend on external factors, like interaction with the CatRIS project, but also based on other discussion e.g. within LEAPS.
- no further developments than those discussed within the LEAPS WG5 have been considered, e.g. expansion of the Optical Lasers database by including all Laserlab Europe facilities, or new developments proposed by linked initiatives like MERIL or RIPaths or ELI.

Table 9 presents the **baseline, the wayforlight 2.0 and the overall budget scenarios**. For the cost estimation 2021 to 2026 have been considered with a lower cost estimation for 2021 due to the end of the funding period of CALIPSOplus in April 2021. The expenditure rate varies from year to year due to the different activities planned e.g. for dissemination. In the last columns, we have split the in-kind human resources requested to the facilities from the cash requested contribution.

Table 9 - WFL budget scenarios for 2021-2026

Costs Scenarios	2021	2022	2023	2024	2025	2026	in-kind (PM)	to be financed	Total

[17] https://www.leaps-initiative.eu/news/first_leaps_plenary_meeting/
[18] Costs still to be estimated

Baseline	43,9k€	212k€	198k€	198k€	196k€	208k€	651k€ (97)	408k€	1059k€
wayforlight 2.0	-	292k€	282k€	282k€	282k€	282k€	860k€ (129)	560k€	1420k€
Baseline + 2.0	43,9k€	504k€	480k€	480k€	478k€	490k€	1511k€ (226)	968k€	2479k€

The baseline cost estimation is quite accurate. There is potential for improvement, but the main cost items will not change. At this point it has to be pointed out that it is necessary to involve other stakeholders i.e. Laserlab AISBL and ELI ERIC, but also the LEAPS Associate SESAME and the CALIPSOplus Beneficiary Ankara University (representing the TARLA Facility). Last but not least, a basic fee should be requested from the ESUO once it becomes an independent legal entity with its own budget.

The cost estimation for further developments is not complete, and costs might be reduced due to a scale effect e.g. if more IT developments are approved, we will first need to confirm or select among those items.

In addition, new developments could be proposed by other stakeholders or within other LEAPS working groups, as what happened with the WG1 for sample environment, and prioritization will certainly be needed.

A more precise cost estimation for the developments will be provided closer to the end of the funding period of CALIPSOplus in spring 2021.

If, as funding entities, the facilities managed by the 16 LEAPS members are considered, we end up with a yearly basic fee per facility as summarized in Table 10 considering both in-kind as well as cash contributions. In future refinements, we would probably also consider different contributions from large and small facilities.

Table 10 - WFL budget scenarios for 2021-2026 per year and per each of the 16 LEAPS members.

Costs Scenarios	**in-kind personnel costs (PM)**			**to be financed**			**Total**		
	2021-2026	**per year**	**per year & facility**	**2021-2026**	**per year**	**per year & facility**	**2021-2026**	**per year**	**per year & facility**
Baseline	651k€ (97)	130k€ (19)	**8,1k€ (1,22)**	408k€	81,6k€	**5,1k€**	1059k€	212k€	**13,2k€**
wayforlight 2.0	860k€ (129)	172k€ (26)	**10,75k€ (1,61)**	560k€	112k€	**7k€**	1420k€	284k€	**17,7k€**
Baseline + 2.0	1511k€ (226)	302k€ (45)	**18,9k€ (2,8)**	968k€	193k€	**12,1k€**	2479k€	496k€	**30,9k€**

This first cost estimation draft should be considered as a solid starting point, with a mid-term commitment to increase the number of funders via negotiation with ESUO and the laser facilities in the upcoming years.

5.2 Operational scenarios

To secure the future operation of WFL, as underlined by both the vision statement and SWOT analysis, a long-term collaboration needs to be established, e.g. being based on a **Memorandum of Understanding** (MoU), similarly to the Umbrella collaboration and the FELs of Europe one. The MoU is going to include at minimum a statute, defined members and a yearly fee to finance the further operation of WFL and all related activities. As presented in the cost summary (tables 9 and 10), all of

the three scenarios could be funded by yearly fees paid by the 16 LEAPS members. However, this would not favour flexibility in the list of developments and/or in the linked initiatives involved. On the other hand, a funding model solely based on running projects may put the daily operation of the portal at a risk, e.g. in the case of time intervals without proper funding.

Therefore, a second operational scenario based on a **mixed solution** is proposed, consisting of:

- **a fee-based financing for the baseline costs** – to ensure the sustainability of the basic; operation of WFL , also including updated datasheets and intense dissemination activities;
- a **project-based financing for further developments** – for example, in the case LEAPS would fund the items proposed by WG5 under one of its programs.

Additional funding sources besides LEAPS will be investigated based on synergies with other running initiatives. In the years 2017-2018, the H2020 EUCALL project sponsored the new smart WFL database and the creation of standardized datasheets for the ELI facilities and some of the optical lasers part of Laserlab Europe.

As of today, possible additional contributions to WFL are expected from:

- the H2020 **Laserlab Europe** project; Elettra will assist in adding to the WFL catalogue all Laserlab Europe transnational access providers who were not previously part of the EUCALL project;
- the H2020 **IMPULSE** project, that aims to boost the ELI-ERIC start; WFL will benefit from dissemination and strategic discussions within the project.

However, projects like these would only fund specific developments of the portal, and not any "baseline" costs for it.

Larger-scale initiatives already linked or potentially linked to it are the following:

- the **MERIL**[19] one, now linked to the H2020 **CatRIS**[20] project. Our idea would be to provide the technical data of the WFL catalogue to the MERIL database, also bridging to the **European Open Science Cloud (EOSC)**[21] galaxy;
- the **OpenAIRE**[22] one, providing access to publications and data repositories and also part of the EOSC;
- the **EURAXESS**[23] portal, this is financed by the EC and co-designed via external calls for tools and developments.

We refer again to the OECD report "Digital platforms for facilitating access to Research Infrastructures"[14] stating:

> *"There are a variety of digital RI platforms that have been developed, in a largely ad hoc and uncoordinated manner, over the past two decades and that are more or less used and more or less useful."*

[19] https://portal.meril.eu/meril/
[20] https://project.catris.eu/
[21] https://ec.europa.eu/research/openscience/index.cfm?pg=open-science-cloud
[22] https://www.openaire.eu/achieving-open-science-in-eosc
[23] https://euraxess.ec.europa.eu/

In a forward-looking perspective, therefore, we must find the best compromise between the wish of being **"the unique portal for information about EU lightsources"** and avoid being **"yet another nice but isolated portal"**.

However, one of the WFL's assets consists of the smart interface with other databases; a stable connection between our portal and the other websites should therefore help to reduce the overall entropy, while distributing up-to-date and standardized data sets. This may require several years, during which we must secure the basic functions of the portal.

In addition, although **the catalogue can be considered as the WFL "Unique Selling Point"** it has to be underlined that other tools, like the ESUO pages, the services catalogue or a future training section, may become crucial parts of the portal. This will depend on both discussions within CALIPSOplus members and from interactions with all the actors mentioned above.

6. Conclusions and next steps

The aim of deliverable D5.2 is to sketch the present, short-term and mid-term-future of the WFL portal, as well as to propose the next actions to ensure its sustainability and growth.

To quote once again the OECD report[14], the list of issues to be addressed "to develop efficient, effective and sustainable digital RI platforms" is the following:

- Landscape analysis
- Platform objectives
- Do not underestimate data-related work
- Platform services depend on a solid data foundation and must be designed to meet user needs
- Both data and platform services are assets

The present deliverable has already initiated the considerations of these points and awareness has been raised among the CALIPSOplus NA1 members.

As a result of all the analysis and consultations, the following conclusions can be formulated:

- the WFL portal is a great tool of the European SRs, FELs and Optical Lasers; nevertheless, it needs dissemination and scaling-up to face future challenges like basic operation and opening to new communities;
- the human resources distributed among the participating facilities are the crucial issue to be secured; in particular, in-kind resources, not necessarily financed from external sources;
- there is the need for a stable formal framework between the WFL stakeholders, starting from a nucleus made by the 16 LEAPS members;
- external contributions to both the baseline costs and the one for further developments have to be explored and discussed;
- a mixed financing scheme composed of a yearly fee for basic operation, to be covered by the participating facilities, and a project-based financing for additional developments, seems to be the best option;
- WFL has a high potential to reach out to current and potential lightsources users, as well as to contribute to the standardization and open science challenges within the EOSC.

It is clear that there is the need for further discussions, analysis and focusing following the release of deliverable D5.2 , as this represents only a starting point towards WFL's sustainability.

Discussion will continue in the framework of CALIPSOplus as well as frame of the LEAPS initiative. Following finalization of the business plan, WG5 will be requested to revise the proposal for final approval by the LEAPS General Assembly (GA). In case sustainability of the portal cannot be achieved with in-kind contributions only, the proposal will have to be submitted to and discussed within the Coordination Board prior to submission to the GA.

In addition, preliminary discussions with other relevant stakeholders, such as the Optical Lasers community as well as with running EU projects like CatRIS will be based on the present analysis. The ESUO will evolve into an independent legal entity and this will also modify the overall constraints for the portal maintenance and developments.

It was therefore agreed among NA1 members that an update of the business plan would be extremely useful before the end of CALIPSOplus (m48 = April 2021), for example in month 47 (March 2021).

7. Acknowledgements

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