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Summary

This deliverable presents the procedures followed to estimate and establish the cost of operating, maintaining and expanding the OpenAIRE infrastructure. It includes costs from all components (technical and human), outreach and marketing/strategy design, account keeping and financial analysis of and operation/ maintenance.

This work is still in progress with the AUEB business team in close collaboration with the consortium, undergoing the first phase of gathering the estimated costs with a preliminary, unofficial, analysis of the results.

1 Introduction

The OpenAIRE infrastructure/platform consists of three layers:

Layer 1: infrastructure core with existing repositories, journals (literature and data) and authoritative registries/databases.

Layer 2: the coordination platform, which harmonizes, aggregates, cleans up and enriches the metadata/data exported by repositories making it ready to be consumed by the end user or 3rd party services.

Layer 3: end user value added services.

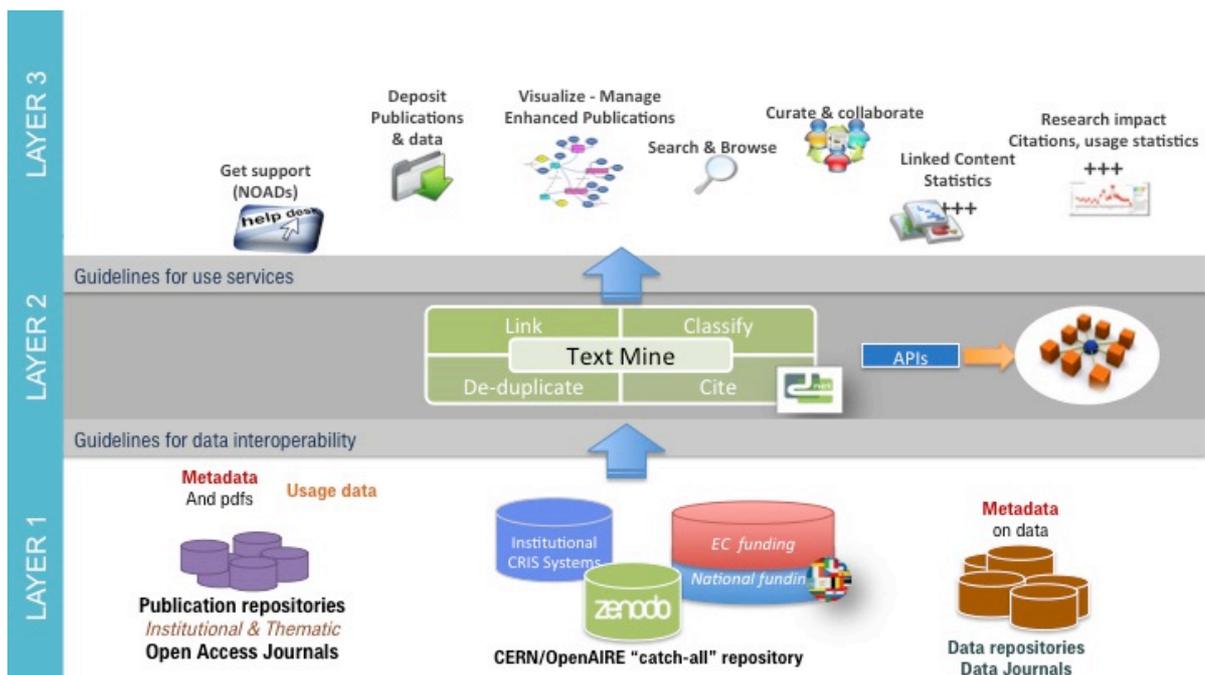


Figure 1. Overview of the OpenAIRE Infrastructure.

The cost estimation in this report is concerned with the technical and organizational structure involved in Layers 2 and 3, as we consider the costs associated within Layer 1 as existing and sustained by institutions. The costing procedure of the OpenAIRE infrastructure includes the following three levels:

1st level - Budget of OpenAIRE technical/organizational construction cost:

- Technical specifications of hardware, cost and method of procurement and operating life. The specifications and the operating life of the assets are important and determining factors for the overall costing.
- Technical specifications of software, cost and method of procurement.
- Time required completing the construction.
- Labour costs assayed in monthly wages.
- Administrative and other costs incurred and distributed during the lifetime.
- Cost of setting up all organizational aspects.

2nd level - The Operating Budget under a subsidized financing:

- Duration and rate of subsidy.
- Operating costs of production (rents, depreciation, depreciation of equipment replacement, cost of equipment maintenance, cost of labour expressed in monthly wages, insurance costs, *which are related to the institution overheads*).

- Administrative and other operating expenses per month (e.g. user support, policy implementation, communication, etc.).
- Outreach efforts (dissemination, communication channels, publicity material, workshops, travel).
- Strategy efforts (marketing) cost of potential partnerships with publishers and other stakeholders involved in the system operation.

3rd level - The Operating Budget under a self-financing scheme:

- Duration of utilization equipment.
- Cost to upgrade or renew equipment.
- Operating costs of production (rents, depreciation, depreciation of equipment replacement, cost of equipment maintenance, cost of labour expressed in monthly wages, insurance costs, *which may or may not be related to institutional overheads, depending on final decisions of OpenAIRE feasibility operation*).
- Administrative and other operating expenses per month.
- Outreach efforts (dissemination, communication channels, publicity material, workshops, travel).
- Strategy efforts (marketing) cost of potential partnerships with publishers and other stakeholders involved in the system operation.
- Sources of funding, potential customers.

The last level raises the most challenges since the consortium needs to move beyond a fully subsidised scheme and optimize its operations at all layers to provide the most cost effective solution.

2 Methodology

The cost estimation process goes through a set of phases as described below:

Step 1: Categorizing of operations/activities

Even though a rough categorisation of activities is established in the OpenAIRE DoW (Description of work) in the corresponding Networking, Service and Joint Research Activities sections, the activities are further divided to simulate OpenAIRE operation as a legal entity:

- NOADs activities – these involve all outreach and support activities expected to be carried out by a NOAD at the national level and their participation in the OpenAIRE bodies and events (detailed descriptions are illustrated in Table 2).
- Technical operations – these include (i) the operation of a stable production system (hardware and software) where all established services are run automatically with monitoring and data curation intervention, (ii) the maintenance of the system including hardware and software component upgrades for existing services and cost of external databases, and (iii) the R&D activities that include the development of new services. Quality assurance processes (both for services and content) are considered as an essential part of all technical operations.
- Management – these include activities of the executing management bodies, the internal coordination of the complex OpenAIRE structures, the communication of the different “departments” of the operational branches, as well as administrative, accounting and possibly legal services.
- Sales and Marketing – this simulates the dissemination, outreach and liaison up keeping with the large range of stakeholders involved, strategic activities within the European and international scopes. It also considers commission of studies related to scholarly communication that are deemed necessary to help formulating strategic advances.

Step 2: Gathering of financial/cost data

This task involves the acquiring of cost estimates from all partners participating in OpenAIRE operations, with a clear understanding that all recorded costs will be used towards a simulation of operations when OpenAIRE is established as a legal entity (vs. a project fully subsidized by a funder which could induce additional overheads). Partners have been asked to complete the spread sheets presented in the Appendix of this report. Some basic guidelines were given, especially to the NOADS:

- A NOAD organization should not have full time personnel dedicated to OpenAIRE activities, but rather assign a % of time from existing staff;
- Some of the dissemination costs will be organized/shared from the central management of OpenAIRE;
- Traveling concerns both internal activities (national) and European events and should be justified accordingly;
- Organization of OA national events can (and should) be subsidized by or co-organized with other activities;
- As time progresses some activities may phase out, but others will definitely emerge (e.g., research data management related activities);
- Some activities require minimal time (days rather than months) and therefore they need to be often conservative in their calculation.

The technical operations are much harder to estimate, especially given the requirement to break them down to the phases of operation, upgrade and development, as most often the technical teams have people that work on all the above aspects.

Step 3: Analysis and harmonization of data

Once the cost estimate templates are completed by the partners and gathered by the accounting team, a second phase of analysis will start to try and harmonize the estimated costs¹, particularly the ones incurred by the NOADS. A set of criteria (some already defined) will be established in order to make this process easier and more transparent to all so that costs may be adjusted based on them:

- Size of member state (# of universities and research institutions);
- Involvement of local/national funders;
- Maturity of existing national infrastructure;

It has to be noted however that final costs will need to be adjusted on a one to one basis.

Step 4: Derivation of cost- and operation-optimal scenario(s)

Once the costs have been harmonized, the next phase includes the process of making the most cost- and operation-efficient choices. Specifically, the analysis will answer to the following questions: How (optimal architecture / choice between or combination of centralized or distributed processes); Who and Where (optimal distribution / allocation of operation, management and marketing centers). The results of this analysis will mainly affect the technical operations, and the management, sales and marketing departments concerning:

- Material production, dissemination channel, communication tools;
- Workshop organization;
- Administrative, accounting and legal services;
- Technical operations (look into similar technical infrastructures or their components);
- Consolidation of some processes (e.g., regional outreach).

¹ Preliminary results indicate wide variations in the way NOADs or other partners calculate their operating costs.

3 Analysis

The analysis of the responses (spreadsheets in the appendix) concerns the estimation of expected financial costs, as well as the derivation of optimal financial costs, and it will be completed at the end of June, when all data has been gathered. The results will be combined with the results of the analysis of socio-economic costs and benefits of the OpenAIRE initiative. The latter will also aim to identify and assess the categories of institutions and individuals, who may support, contribute, influence, fund, or derail the development of an infrastructure for sustaining the OpenAIRE initiative beyond the current project funding.

The aim is to derive the optimal business plan and sustainability model with respect to both financial and socio-economic criteria.