



LarKC

*The Large Knowledge Collider:
a platform for large scale integrated reasoning and Web-search*

FP7 – 215535

D9.4 – First draft of Exploitation and IPR Plan

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EXECUTIVE SUMMARY

This deliverable report describes the most suitable business model and licenses for the LarKC platform and its plugins. To reach this goal, a suitable task force was set up and the discussion was conducted, both via a dedicated mailing list and periodically phone conferences, in order to take a final decision on these issues.

It was decided that the issue of discussing about LarKC Business Model and Licensing Policy couldn't be delayed till the initially scheduled delivery date of D9.4 (M36), since it is quite a central issue for the whole project. For those reasons, this deliverable was therefore anticipated to include the findings of those activities. The Final Exploitation and IPR Plan (D9.6) will be delivered at M42 as planned in the DoW.



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1. Introduction

During the October's Consortium Meeting in Stuttgart, the EPMB decided that the issue of discussing about LarKC Business Model and Licensing Policy couldn't be delayed till the initially scheduled delivery date of D9.4 (M36), since it is quite a central issue for the whole project.

Given the heterogeneity of LarKC partners that include both academic and industrial expertises, the EPMB decided to set up a task force to early define the licensing models of the LarKC results. The task force was made up by some representative people from the following 6 partners:

- CEFRIEL (as leader) with both industrial and academic expertises
- HLRS with academic expertises
- VRIJE UNIVERSITEIT AMSTERDAM with academic expertises
- ONTOTEXT with industrial expertises
- SIEMENS with industrial expertises
- CYCORP with industrial expertises

The task force collaborated during October-November and December by exchanging emails¹ and discussing during phone calls. This deliverable reports about the results obtained by the task force that include the suggested licensing models for the LarKC results and a first draft of the business model for the LarKC exploitation.

This deliverable is structured as follows: Chapter 2 presents the requirements, the discussion and the suggestions provided by the Task Force about the licensing, as well as the final decision taken by the EPMB; Chapter 3 introduces the early findings of the work carried on within WP9 about the Business Model for Larkc; this model will be used to draw the final exploitation plan of the project. Finally Chapter 4 presents some conclusions.

¹ The mailing list of the license task-force is available at: https://lists.sti2.at/mailman/listinfo/larkc-license_task_force



2. Licensing Models

One of the goals of the LarKC project is the development of new technological solutions to support reasoning at large scale. Since those technologies will be developed jointly by the partners of the consortium, it's important to select the most suitable licensing model in advance to avoid misunderstandings and to clarify the exploitation chances of the produced results.

The technologies developed by LarKC can be grouped in 3 main groups:

- The *platform* that provides a common middleware for the LarKC technologies
- The set of *plugins* that leverage over the platform and extend its functionalities. Plugins may be considered both as internal or external components that use the platform and are used by the platform.
- The set of *use cases* that demonstrate the feasibility and business value of the LarKC technologies in real-domain contexts. In order to use such technologies, use cases may develop additional plugins or specific external components (thus falling in the previous group) or may adopt and modify any data with specific digital rights.

Each group poses a set of requirements to be met by the licensing model. The following section describes the requirements of those 3 groups of technologies. Then, accordingly to those requirements, we analyze the most suitable licenses and select the most appropriate.

2.1. Requirements for the Licensing Models

Each group of technologies has its own requirements for the licensing model.

Requirements for the Platform Licensing Models

- Req 1) The platform is made up by several components and almost all the partners contribute to it. Furthermore, the components are so tightly connected; for these reasons, it's unfeasible to define a licensing model for each specific component. The platform **MUST** have a single license.
- Req 2) The platform is the result of a research activity and it will act as a basis for further developments. Thus, its licensing model **MUST** permit inspections and modifications of the source code.
- Req 3) The platform is released without any warranty. Thus, the authors of the platform code **MUST** not be responsible of any usage of the code.
- Req 4) The platform is designed in order to be used by a different set of plugins or external components. For this reason, the platform license **MUST** permit the development and use of plugins and external components without setting any constraints over their licenses.
- Req 5) The platform is designed in order to be used in different use cases. For this reason, the platform license **MUST** not set any constraints over the licenses of the resulted data or service obtained.

Requirements for the Plugins Licensing Models

- Req 6) The plugins licenses **MUST** be compatible with the platform license.
- Req 7) Due to the tight and bidirectional relations between plugins and platform, it's unfeasible to define clearly if the plugin uses the platform or if the platform uses the plugins. As platform license don't set any constraint to plugin licenses, plugins licenses **MUST** not set any constraint to platform license.
- Req 8) Given the nature of plugins, there could be several different plugins that interact one with the others. Even if it's possible to define a unique license for all the plugins adopted in a specific use case, we recommend that plugin licenses **SHOULD** be independent, thus not setting any constraint to the licenses of other plugins.



Requirements for the Use Cases Licensing Models

- Req 9) Use-cases MUST be free to make use of data with any type of digital right protection (that could be copyleft, copyright, or any “some rights reserved” approach) under their own responsibility.
- Req 10) Use-cases licenses MUST not limit or impact in any form the platform license.

2.2. Analysis and Selection of the Licensing Models

This section provides the list of chosen licenses for the 3 groups of technologies.

Analysis and Selection of the Licensing Models for the Platform

Req 1) implies that the LarKC platform will have a unique license.

Req 2) and Req 3) narrow the selection of licensing models to open source licenses. The Open Source Initiative has provided a concise list of all the approved Open Source licenses². At the time of writing this report, there are 63 licenses. Restricting the choice to the most popular licenses for software and services, it results in 10 licenses.

- Apache License 2.0
- New and Simplified BSD licenses
- GNU General Public License (GPL) 2.0
- GNU General Public License (GPL) 3.0
- GNU Library or "Lesser" General Public License (LGPL) 2.1
- MIT license
- Mozilla Public License (MPL) 1.1
- Common Development and Distribution License
- Common Public License (CPL) 1.0
- Eclipse Public License

Req 4) excludes the adoption of the GPL 2.0, CPL and MPL licenses, because they require any linked software to be released under the same license.

Req 5) excludes the GPL 3.0, because it sets some constraints if the component is provided as SaaS (Software as a Service).

Thanks to the discussions held within the task force, among the six remaining licenses, we end up with a restricted selection of two licenses: Apache License 2.0 and LGPL 2.1. Both those licenses meet the previous requirements and those have been submitted to the EPMB of the LarKC project for the final decision. The final decision about the platform license was influenced by the following two opinions, respectively from an industrial and an academic perspective.

From an industrial point of view, the adoption of the LGPL poses some constraints that may lower the adoption of the results. For example, if a company adopts any code released under the LGPL, the company becomes legally forced in advance to release under the same license any modification to the code. This may not be a strong limitation for companies, but the “in advance” constraint is a limit that the company has to take into account since the beginning of its activities.

From an academic point of view, the task force agreed that it's better to optimize the chance that anybody takes advantages by LarKC results than to optimize the conditional chance that the LarKC project and the community take advantages by receiving back any third-party improvement.

Given the previous perspectives, the final decision for the platform license was the adoption of the **Apache License 2.0**. This implies that, even though LarKC is a research project, the consortium

² The complete list is available at: <http://www.opensource.org/licenses/alphabetical>



encourages anyone to adopt (and eventually publicly contribute to) its technologies. For this reason, the platform license should not pose any constraint to the commercialization of results based on it. In particular, any company adopting and modifying the platform should be able to keep preserved its industrial knowledge and the modified source code.

Analysis and Selection of the Licensing Models for the Plugins

Given the wide range and the heterogeneous context of development and use of plugins, the consortium decided to not define in advance the license of each plugin. For this reason, any plugin responsible MUST define the license model of their plugin assuring the compatibility with requirements Req 6), Req 7) and Req 8).

Both Apache License 2.0 and LGPL 2.1 for plugins are compatible with those requirements. GPL, CPL and MPL licenses remains incompatible. Moreover, both Apache License 2.0 and LGPL 2.1 licences are compatible with the use of commercial or closed source components in the plugins. A particular attention should be put in using LGPL software, since it requires to release all modifications applied to the LGPL-licensed software with the same license.

Analysis and Selection of the Licensing Models for the Use Cases

Given the wide range and the heterogeneous context of adoption and modification of data by the LarKC technologies, the consortium cannot define in advance the license for the use case data. For this reason, any use case responsible MUST define the license model of their use-case results assuring the compliance with Req 9) and Req 10).

Whenever feasible, we encourage the use of non-viral “some rights reserved” licensing for the data, such as the Creative Common “Attribution” license (see <http://creativecommons.org/licenses/by/3.0>).

2.3. Final Statement

Here we report the final statement that justifies the selection of the licensing model for the LarKC results:

The LarKC Platform and its source code will be released under the Apache License, Version 2.0 (<http://www.apache.org/licenses/LICENSE-2.0.html>). LarKC plugins, and other code produced by the LarKC consortium may be released under any license which does not have the effect of imposing any copyleft requirement whatsoever on code to which it is linked, connected, or otherwise associated. For the purposes of clarity, "copyleft requirement" here signifies a requirement to license such associated code under a license identical or similar to the license asserting the copyleft requirement. Licenses that are acceptable for release of code produced for the LarKC project include, but are not limited to: the Apache License Version 2.0, the BSD License, the MIT License, the LGPL and the Creative Commons Attribution License without the Share Alike feature. Licenses that are unacceptable for release of code produced for the LarKC project include, but are not limited to: any version of the GNU General Public License (GPL).

3. Preliminary Business Model

This chapter describes the preliminary version of the LarKC Business Model. The aim of this model is to provide a first step and a process towards the identification of the LarKC exploitation opportunities. The chapter is structured into three subsections: firstly it defines the value chain of the LarKC project, then it describes the primary markets in which LarKC can do business. Then, it considers the existence of secondary markets where LarKC results may be exploited.

3.1. Value Chain

The value generated by the LarKC technologies can be seen as a joint contribution by all the parts that made up the technology. In the following figure, we describe the value chain of the LarKC project taking into consideration the value provided by developers (acting as technology suppliers) and providers (acting as suppliers of services based over the technologies).

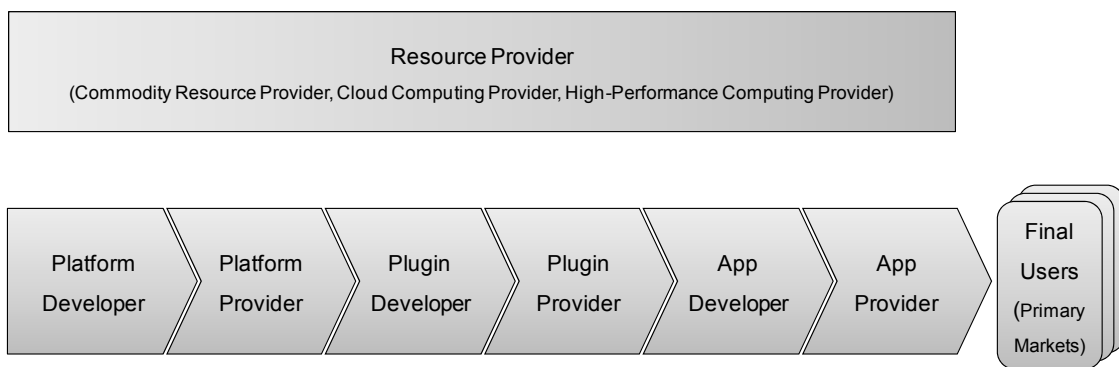


Figure 1: Value-Chain of LarKC technology

Platform developers represent the first stage of the chain. Such developers are both researchers and industrial engineers working together to create new innovative solutions. Platform Providers take those results and provide services over them. Such services may include both the sale of the technology as a software product and the provision of the technology as *Software as a Service* (SaaS)³. Behind both approaches, there are other peripheral services useful to increase the provider businesses, such as: training, consultancy, customizations...

The value chain continues with a similar path for plugin and application developers and providers. The value created by the previous stage is used as basis to create value for the following stages. At the end of the value chain there are the final users of the LarKC applications that are initially identified in section 3.2.

By the side of all the chain, there are the supporting providers, in particular the resource providers such as: commodity resource providers, cloud computing providers and high-performance computing providers.

The following figure emphasizes the value-flow (dark arrows) and the cash-flow (white arrows) among all stages.

³ SaaS is becoming a popular model for deploying software as a service on demand. The provider hosts the application and defines a license to let customers use it.

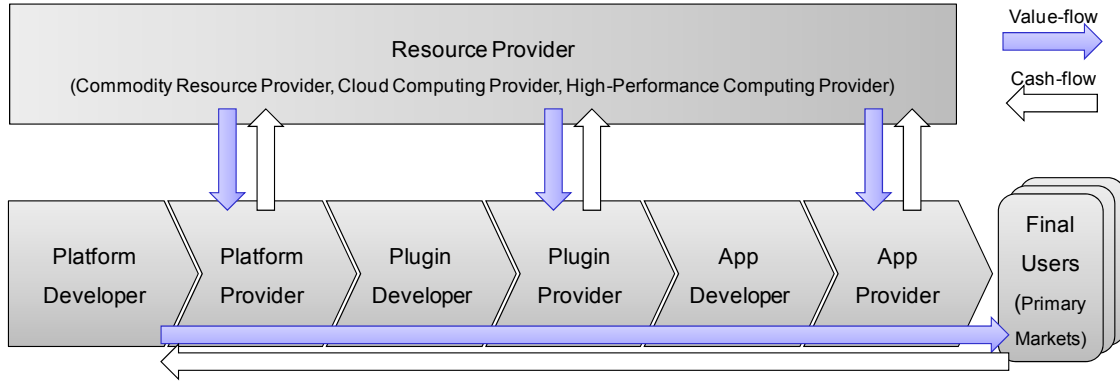


Figure 2: Service-flow and Cash-flow with the Primary Markets

The main value moves from platform developers to application developers going through all the intermediate stages. As reward of such value, cash is flowing in the opposite direction. Then, there are value and cash flows among the resource providers and the providers of the value chain.

There could be others parallel flows between the resource providers and the developers that are not shown in the figure. For example, developers may need to experiment their technologies over some demanding resources to evaluate their scientific and technical solutions. Anyway, those flows are secondary against those shown.

3.2. Primary Markets

As drawn in Figure 1 and in Figure 2, the value created by the LarKC value chain is sold to the final users that represent the primary markets for LarKC exploitation.

LarKC aims to contribute in providing new and refine technologies to move the current abilities of semantic technologies to a further level of performance and features. For this reason, we expect that the LarKC primary markets are represented by those applications that leverage on semantic technologies in general, including the three use case of the project.

Firstly, we identified the most common types of applications based on semantic technologies, categorizing them between consumer-oriented applications and enterprise-oriented applications. Table 1 reports the results of such categorization: the first column is for consumer applications and the second column is for enterprise applications.

Table 1 : Consumer and Enterprise applications targeted within initial Market Analysis

| CONSUMER APPLICATIONS | ENTERPRISE APPLICATIONS |
|--|--|
| Semantic Social Networking | Information Sharing |
| Semantic Bookmarks | Semantic Data Interoperability / Integration |
| Semantic Search & QA | Semantic Search, Discovery & Navigation |
| Semantic Desktop / Webtop / Email & IM | Commodity |
| Semantic Blogs & Wiki | Semantic Mashups and Composite Applications |
| Semantic Mobility | Semantic Infrastructure / Middleware (SSOA, SBPM, SWS, Virtualization, Policy-based Computing) |
| Reality Browsing & Context-Aware Games | Semantic Business Intelligence |
| | Semantic ERP Applications (CRM, PLM, SCM, HRM) |
| | Semantic Governance Compliance & Risk |
| | Semantic Web Sites, Wikis, Collaboration, Interest Networking & Collective Knowledge Systems |



| CONSUMER APPLICATIONS | ENTERPRISE APPLICATIONS |
|-----------------------|--|
| | Semantic Advertising, Marketing, Personalization & Customization |
| | Intelligent Systems, Agents, Robots: Knowledge-based Research, Design Engineering, Simulation, Planning, Scheduling, Optimization & Decision Support |

For each type of application, we are currently proceeding in collecting on the project blog⁴ any useful reference related to its usage, adoption, trend or opinion. Such information will act as basis to perform the analysis that we aim to do for the exploitation plan. In particular, we expect those information to be useful to understand which features of LarKC may provide benefits to the applications and how this may be fulfilled for some of them.

3.3. Secondary Markets

Besides the final users of LarKC technologies, we expect the possibility to make revenues with other markets (named secondary markets) by leveraging on the know-how grown up during the project, by selling some LarKC results as prototypes or as commercial products.

For example, there are nowadays several applications based on semantic technologies that exist without being based on LarKC technologies. It's realistic to think that some of those applications can be further improved by including some LarKC technologies.

Moreover, we also expect the existence of external competitors able to satisfy the same users' needs of LarKC applications adopting similar or different technical solutions. Also in this case, LarKC can collaborate with such competitors by selling its know-how or its technologies. Figure 3 highlights some of the most prominent value and cash flows between the LarKC's value chain and the external competitors' value chain.

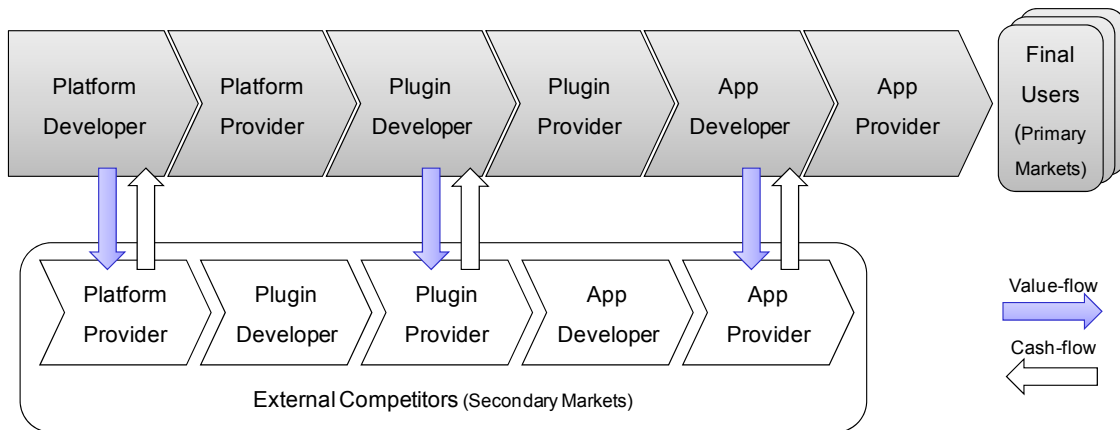


Figure 3: Service-flow and Cash-flow with the Secondary Markets

⁴ The blog page that reports this categorization is: http://blog.larkc.eu/?page_id=831



4. Conclusions

This deliverable represents the first draft of the Exploitation and IPR Plan for the LarKC project. Because of the relevance of the IPR issue, this deliverable was anticipated from M36 to M12 and a specific Task Force was set up to discuss and take a decision about the software and data licensing for the project and the Consortium partners.

The results of this discussion as well as the first draft of the Business Model are included in this document. An updated and enriched version will be released at M42 with deliverable D9.6.



Appendix A.

Apache License
Version 2.0, January 2004
<http://www.apache.org/licenses/>

TERMS AND CONDITIONS FOR USE, REPRODUCTION, AND DISTRIBUTION

1. Definitions.

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