

UPGRADE is the European Journal for the Informatics Professional, published bimonthly at <<http://www.upgrade-cepis.org/>>

Publisher

UPGRADE is published on behalf of CEPIS (Council of European Professional Informatics Societies, <<http://www.cepis.org/>>) by **Novática** <<http://www.ati.es/novatica/>>, journal of the Spanish CEPIS society ATI (*Asociación de Técnicos de Informática*, <<http://www.ati.es/>>)

UPGRADE monographs are also published in Spanish (full version printed; summary, abstracts and some articles online) by **Novática**

UPGRADE was created in October 2000 by CEPIS and was first published by **Novática** and **INFORMATIK/INFORMATIQUE**, bimonthly journal of SVI/FISI (Swiss Federation of Professional Informatics Societies, <<http://www.svifsi.ch/>>)

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UPGRADE Newslist available at

<<http://www.upgrade-cepis.org/pages/editinfo.html#newslist>>

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ISSN 1684-5285

Monograph of next issue (August 2009)

"20 years of CEPIS: Informatics in Europe today and tomorrow"

(The full schedule of UPGRADE is available at our website)



The European Journal for the Informatics Professional
<http://www.upgrade-cepis.org>

Vol. X, issue No. 3, June 2009

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SpagoWorld, the Open Source Initiative by Engineering

Gabriele Ruffatti

This article is a case history of the experience of a large Information Technologies (IT) firm in developing and managing free open source software projects (OSS). It is intended to examine reasons, strategy, relations with the communities and results, and to provide lessons learned as a base for further developments and initiatives. In the first part, we introduce the company, its role and involvement in OSS activities. The article then presents the reasons behind the corporate strategy decision to enter in OSS and the business model of SpagoWorld, Engineering's main OSS initiative. Finally, the double role of commercial activities and community building and management is investigated with focus on the of the model's sustainability.

Keywords: Business Ecosystem, Corporate Strategy, IT firms, Libre Software.

1 Introduction

Engineering¹ is an IT global player and Italy's largest operator in the IT services market, a leading provider of complete integrated offerings throughout the software value chain: design, development, outsourcing services, products and proprietary vertical solutions, IT and strategy consultancy, tailored to the business models of its clients in all markets.

It has been more than five years now since Engineering decided to develop and directly manage OSS projects, instead of just collaborating with the various OSS communities or using their results. SpagoWorld², the main OSS initiative by Engineering has built over time an ecosystem which brings together companies, integrators, vendors, institutions and users effectively operating to add value to the OSS domain (Figure 1).

The building of an effective OSS ecosystem must fulfil some key aspects:

- The collaboration with OSS communities at international level.
- The realization of effective projects in the field of the current most strategic technologies and, at the same time, presenting an innovative vision.
- Commercial success.

Today SpagoWorld is an OSS ecosystem based on software projects mainly focused on Business Intelligence (BI), Service Oriented Architecture (SOA) and Business Process Management (BPM) domains, which Engineering has from way back identified as the most promising in OSS. The projects are hosted by the OW2³ global community. They add an original approach to the standard capabilities of their specific domains, characterized by special attention to the end user's needs, which is the reason for their increasing commercial performance.

The SpagoWorld initiative is not only a technological cooperation. Its main objective is to promote the projects' communities, while ensuring the free use of the developed software in time and the business collaborations, in order to consolidate a diversified business model based on the commercial OSS approach. The many valuable aspects of this

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approach include the development of adaptable solutions with a particular focus on user's requirements, the development of enterprise level solutions, the offered support services, the attention paid to the demands from the OSS communities and the academic research and, finally, everything which concerns the growth of an ecosystem that creates new value for all its participants.

SpagoWorld is an effective example of a business ecosystem acting a specific business model, based on the development and promotion of the single solutions (by selling support services and correlated software projects) and at the same time sustaining the entire system in a real coopection⁴ environment. The OSS domain is particularly appropriate to the development of a collective strategy that increases value in a context that can be defined as ecological, where indirect non-monetary and barely quantifiable

¹ <<http://www.eng.it>>.

² <<http://www.spagoworld.org>>.

³ <<http://www.ow2.org>>.

⁴ The term *coopection* means the simultaneous presence of cooperation and competition relations.

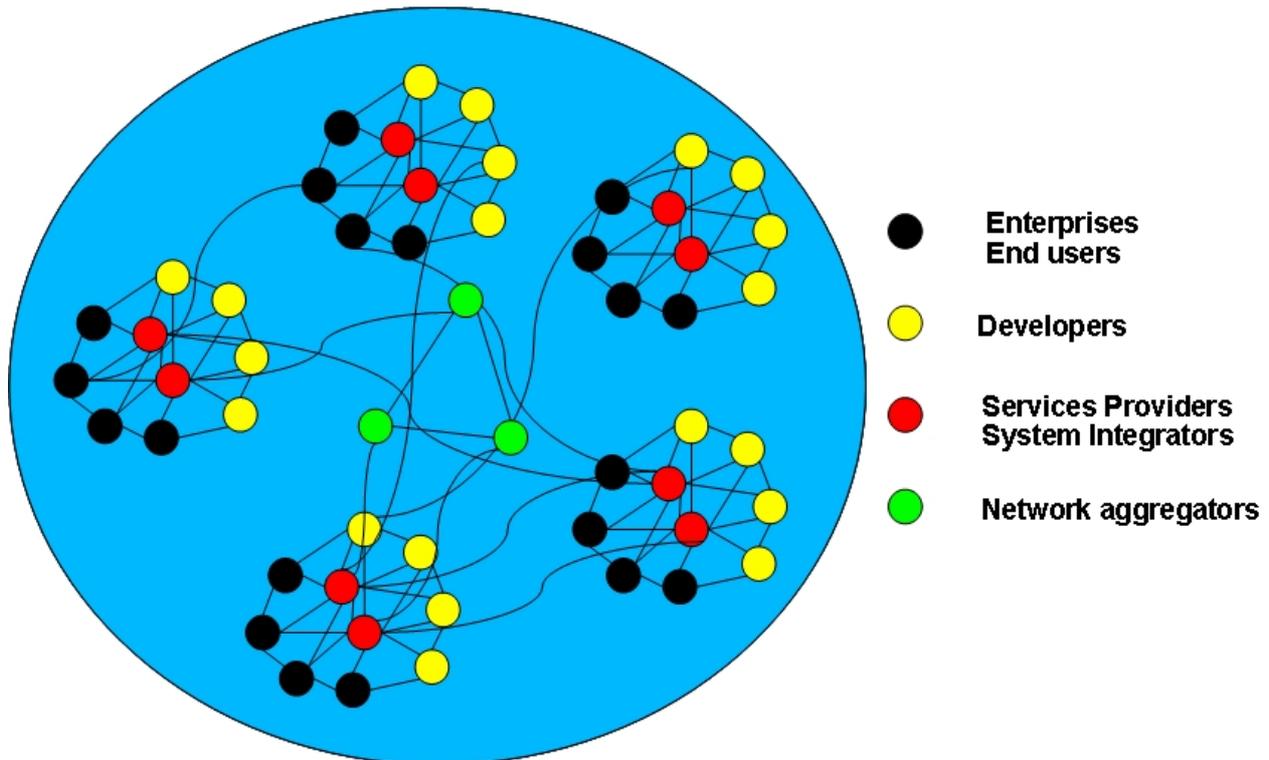


Figure 1: Open Source Business Ecosystem.

returns can be more valuable than monetary ones, because they are beneficial in a long-term sustainability context.

2 Engineering for OSS

Engineering carries out the definition of innovative architectural solutions and the realization of complex projects for public authorities, financial institutions and large private companies using both proprietary and open source solutions.

The first phase focussed on support of OSS initiatives and research communities, but since 2004 Engineering has defined an approach strategy based on the deployment, implementation and integration of OSS solutions as a business and technological opportunity in its services for clients, and its main objectives are:

- Industrial use of OSS in system integration activities and provision of complete support services.
- Active contribution in several OSS projects.
- Active presence in international communities.
- Development and support of OSS initiatives.

The company believes in OSS as a major accelerator for the achievement of the mission-critical business goals of the enterprises.

Engineering provides its customers with its experience and knowledge in the selection, integration, validation and support of the best OSS components, including its own solutions, offering them the full benefits of higher value for money ratio, thanks to the attractive licensing schemes of OSS, and high robustness as a result of intensely scrutinised

software code.

The approach to OSS is a rational Engineering approach: analyse the pros and cons and then make proper decisions, rather than "ideological" ones. Engineering is convinced that, when adequately used, OSS can not only help generate high returns for customers but enhance quality as well.

3 The Engineering's Software Freeing Process: Reasons and Strategy

For the last 30 years Engineering has been operating in the software development and systems integration market. Six years ago the company started to think that OSS could be useful to its business. At that time, OSS was less widespread on the market than it is today and the question was whether OSS had the potential to be profitable in the systems integration market. In order to answer this, the company analysed the peculiar characteristics of OSS and determined that, for various reasons, it was possible to build a business model suitable for a system integrator which could take advantage of these characteristics.

Briefly, the complete lack of license costs can free-up financial resources which the client can allocate to the acquisition of services and tailor-made solutions, both representing the core business of a system integrator. The availability of the source code allows a system integrator to extend its offering in the areas of support services and the maintenance of OSS. This potential market has very weak entrance barriers, as there aren't any dominant positions.

Moreover, we have to take into consideration that the

main characteristic of an IT professional is represented by his competence acquired through experience. Therefore, it is inevitable that training in the OSS domain passes through the *make*, i.e. the OSS project's active realization and management.

Orazio Viele, Engineering's Research & Innovation manager, wrote in 2005: "*Open Source represents more an opportunity than a threat for a system integrator. Nowadays, we can't establish the potential market value stimulated by the open source. However, the characteristics of this phenomenon are such as to foreshow a progressive growth in the next years. The challenge for a system integrator consists in his excellent training, because only this characteristic may allow him to take advantage at his best of the results brought by this revolution*" [1].

After examining the reasons, it became necessary to define how to approach this opportunity and to define a strategy which would successfully position Engineering's offering in this market.

Throughout these last six years Engineering has refined this strategy and based it mainly on the following fundamentals.

- Taking a leading role in the OSS world by developing its own solutions and creating an ecosystem around them: this differentiates the company from other systems integrators who only use solutions developed by others. The SpagoWorld initiative is the concrete action undertaken in order to carry out this strategy. This approach has also made it possible for Engineering to be perceived as a producer of OSS solutions, especially outside the Italian borders.

- Being a part of and contributing to international OSS communities in order to create a collaborative network which enriches its offering to the market with solutions and services. The OW2 Consortium membership and the contributions to different existing communities are clear evidence of this approach.

- Selecting highly reliable OSS to satisfy clients' needs. The introduction of a competence centre fully dedicated to the scouting of solutions together with the definition of a methodology to assess OSS are two tools adopted to reach this goal.

The strategy embraced by Engineering in OSS is centred on two further aspects:

- The development of *free open source software*, considering that Engineering doesn't adopt the dual (or open-core) licensing model, but realizes and manages software released in a unique version under an open license (like the Apache License or the General Public License (GNU/GPL)⁵, avoiding any license policy making OSS similar to the proprietary model⁶.

- A *project-centric type* of business model, where the project is more important than the adopted technological solutions and where the ability to design and develop complex systems capable of satisfying the clients' needs is fully exploited. In this model, the use of OSS becomes a tool to enhance the design skills and the technical know-how of a systems integrator.

This strategy hasn't been planned *a priori* but it derives from the analysis of the results, its growth and adaptation over time. Thus, after some years of activity, we can say we have lived the experience of being inserted into an ecological contest where the strategy concept has been changed from the already known one. "*For the development of a strategy, it is usually important to fix short-term, middle-term and long-term objectives and to define a plan, called strategic, through which we can reach these objectives, by defining their most adequate means, supposing that these are always scanty. Adopting an ecological approach to the value means both abandoning part of those certainties coming from the possession of a definite plan to develop a certain set of objectives, and replacing them with our capacity of continuously exploring the meaning of our existence in the world and the sense we have to assign to this. The aim is to improve the quality of our condition, by experiencing all different possible potentials*" [2].

4 The Engineering's Open Source Business Model

Engineering, in its OSS business model, considers that today OSS isn't just a model for software development and distribution, but that it's correlated with the nature of communities, and their evolution over time with business models, and their ecological structure (for a comparison between business ecosystems and biological ecosystems see [3]).

Today, Engineering is certainly an IT global player, but it is primarily a systems integrator with peculiar characteristics whose results are valued by the market as the outcome of an IT company with effective development performance, starting from:

- The "genetic" ability to design.
- A strong focus on in-field "knowledge" achievement (first test, then propose to customers and development), growing in time with experience and evaluation.
- Independence from the chosen and adopted solution.
- Flexibility towards different situations, and a natural attitude to adapt every solution to different contexts, in order to build both custom solutions and products with a high customization level.
- An industrial approach with strong focus on a real-world results adoption along with their effectiveness.

These characteristics also apply to OSS, especially in

⁵ The SpagoWorld initiative itself, on which Engineering's open source commercial model is based, requires the release of a unique consolidate software version under the GNU/GPL license.

⁶ The dual licensing is the so-called hybrid model which includes both software release as free license (generally part of the GNU family) and its sale, or the sale of a more extensive version, with a "proprietary" license, according to the End User License Agreement (EULA) scheme. Some elements make this model look nearer to the proprietary model than to the open source one, such as: the open-core dimension, the presence of institutional investors in the companies that produce it, the almost total control by the company developing the solution, the features of the solution itself, generally typical of the product rather than of the platform.

the design and development of the solutions, the independent attitude and the focus on industrial utilization.

As a result, Engineering's OSS model is an *enterprise open source model*, in regard to the open solutions development and projects realization, and a *professional open source model* in regard to the certified skills and services supporting the open solutions.

In detail, the OSS development model can be named *project-centric* because "*the scope of the development of a specific solution is the realization of software projects asked by different customers who can benefit from an open source solution offering better characteristics than a proprietary one in terms of availability, openness, modifiability, modularity, integration, adaptability, reusability and scalability. Summarizing, the project is more valuable than the adopted solution*" [4].

According to this model, OSS solutions enable the development of projects; these projects, in turn, enable the OSS growth. On the one hand, open source facilitates the fulfilment of customers' requirements in order to realize the best custom application; on the other, the community benefits from new requirements, codes, testing, feed-back and contributions.

In this context, the system integrator is both the enabler activating the synergistic relationship and one of the main actors, thanks to the "genetic" ability to work in this way.

5 SpagoWorld Initiative: A Brief History

SpagoWorld Initiative is an example of how Engineering actually drives the *project-centric* OSS business model.

Born in 2004, the Initiative now includes four main projects:

- *SpagoBI*: the BI platform.
- *Spagic*: the SOA/BPM enterprise integration platform.
- *Spago4Q*: the SpagoBI specialization for Quality of Software.
- *Spago*: the Java enterprise framework.

All these projects adopt the same license model (they are released under the GNU/LGPL license, no "professional" or "enterprise" version against payment of a fee), and are hosted by the OW2 Consortium, providing also a long-term sustainable independent support by a global community.

The projects share a unique vision, based on:

- *Flexible solutions*: integrate already existing components and develop new modules with an integration platform approach, in order to identify the most suitable solutions for the users' needs.
- *Enterprise level*: the solutions result from the experience of enterprise level projects where the applications are mission-critical and must guarantee functionality and high performance.
- *Focus on project's development*: the ability to understand users' real needs as well as the requirements of different projects makes the SpagoWorld solutions the best option to start the development of a new software project.
- *Commercial use*: the adopted OSS licensing model

permits the use of SpagoWorld solutions with different categories of products and services.

- *Support services*: each solution is delivered, on request, with a complete set of support services.
- *Focus on community and research*: all projects have a high commitment to follow the community needs and to incorporate innovative research results.
- *Creation of an ecosystem of value*: the SpagoWorld Initiative takes part in the creation of an ecosystem adding value for all participants: companies, developers, academia and users.

6 SpagoWorld and the Commercial Open Source Market

SpagoWorld solutions are downloaded from various countries around the world. This confirms that they are well known (and probably used⁷) in a global context, without focusing on a specific geographical market.

But the commercial success is something different. This aspect must consider two preliminary remarks, one peculiar to each project and one regarding all the solutions as a whole.

The specific premise is that every solution has to face specific competitors in an OSS context where the reputation given by the support community is crucial:

- Spago, the Java framework, can hardly compete with other better known and supported Java frameworks.
- Spago4Q is a new and unique solution, with no real competitors, but it needs to achieve a sufficient reputation.
- Spagic, a very well received new solution, needs some time to demonstrate its effectiveness in real use cases worldwide.

■ SpagoBI, the most popular among all is recognized as an OSS product.

The general premise regards different aspects:

■ Engineering, developing all the solutions, is a system integrator acting in all the IT markets and domains and it is following an internationalisation path not yet completed. The "OSS competitors" are companies acting in a specific domain (like Pentaho, Jaspersoft and Actuate for OSS BI, or Intalio and MuleSource for SOA/BPM solutions) offering worldwide support. Opposed to a "general-purpose" system-integrator, the IT market perceives these companies as more effective, focusing on a single domain that is mission-critical for their success and investing significant amounts in marketing activities.

■ Especially in Europe, big system integrators driving the IT market prefer not to use the solutions of another inte-

⁷ The number of downloads (that is how many times a file is taken by a user from the web and downloaded on his/her computer) is usually considered to be a number correlated with the success of an OSS project. However, it is not very meaningful, because of many factors which influence the phenomenon and it says nothing about the real use of the downloaded solution.



Figure 2: Open Source Communities Evolution in Time.

grator explicitly, in order to avoid "field invasion".

- The lack of wide and constant support in regions like Europe, USA, Asia and Latin America does not help the insertion of SpagoWorld solutions in the top lists, notwithstanding their features and innovative characteristics.

Nevertheless, both SpagoBI and Spagic have a good reputation (the recent inclusion in Gartner Research [5][6] is confirmation of this fact) and have gained some early commercial results and are becoming two OSS assets of Engineering Group: Spagic is gaining momentum in the development of SOA/BPM projects for Engineering’s clients, some of the multinational companies; the development activities of SpagoBI are sustained thanks to revenues coming from the sales of training and support services, mainly in France and in the French-related market. Furthermore, SpagoBI support services are being offered both in Latin America and Asia.

7 SpagoWorld and the OSS Community: Lessons Learned

Engineering’s first significant results in the OSS model come from the activities of some Italian and European research initiatives and projects.

Collaborations in this field with firms, universities and research institutes have provided the opportunity to develop innovative open source components and solutions, among which we can mention bxModeller for business processes modelling, which comes from the results of the research projects DISCoRSO, X@Work and TEKNE; the solutions of the Bricks project for the digital libraries of cultural heritage; SeCSE for the Service Centric systems and ETICS, for the software developments and the quality in the grid environment.

When Engineering decided to start developing and managing free open source projects at industrial level, it made two important decisions:

- The choice not to work alone, but to connect itself to a wider already existing international community.

- To be consequent with the changed nature in the time of OSS communities.

In fact, while the nature of the OSS has changed over time, moving from an infrastructural field to a middleware one and today to an applicative one too, new communities with different connotations are being built over time (i.e.: Linux, Apache and Eclipse Foundations, OW2 Consortium).

From the first communities of individuals following *hacker ethics*, they have moved to the third generation of OSS communities gathering different legal entities, federating companies, vendors, customers, public administrations and individuals (Figure 2). The business model of such meta-organizations is collective: the core of their value proposition, oriented towards the value increment of the organization as a whole, consists in stimulating collaboration between members to reach various goals, useful to all members.

The modified nature of these communities is having repercussions on the present participation Engineering’s research projects, too. Some examples of these new communities are:

- Qualipso Project⁸, a unique international alliance of Information and Communication Technologies (ICT) industry players, SMEs, researchers, public sector bodies and academics, whose role is to help industry and governments fuel innovation and competitiveness with open source software.

- The Networked European Software and Services Initiative (NESSI)⁹ Open Source Working Group, which supports the initiative to build the European technology platform dedicated to software and services in defining an over-

⁸ <<http://www.qualipso.org/>>.

⁹ <<http://www.nessi-europe.org/>>.

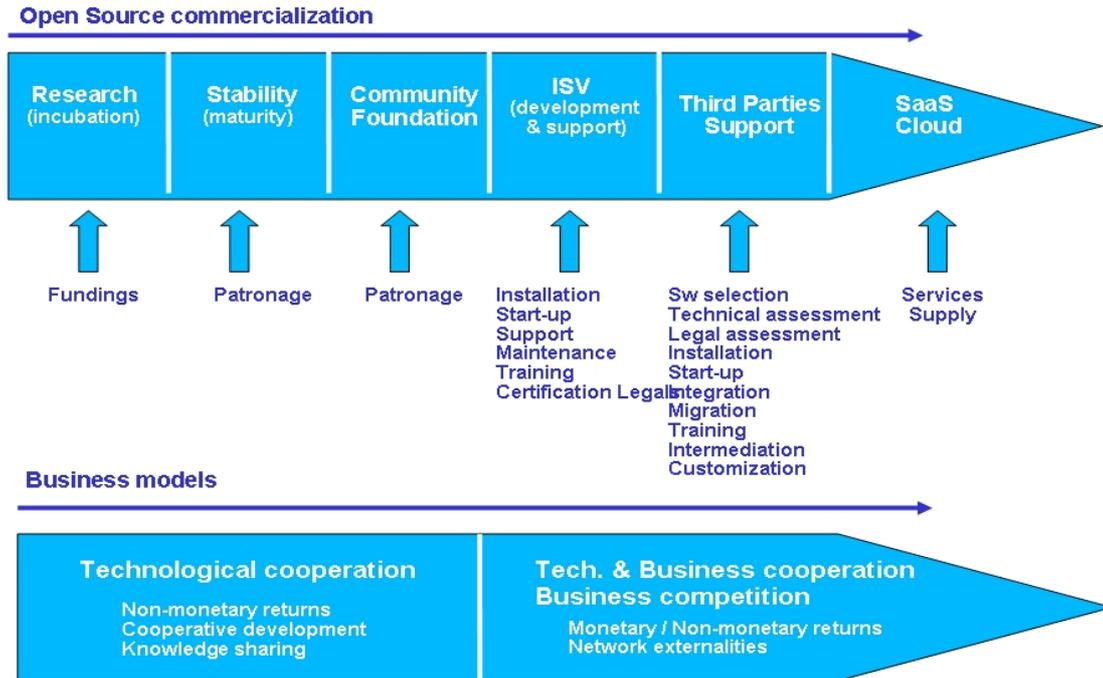


Figure 3: From Collaboration to Competition: Moving Open Source to Business Level.

all open source strategy targeted at companies wishing to implement or adopt OSS, as well as at OSS development communities wishing to collaborate and participate in NESSI, providing the needed support, help and inputs to position OSS as a major channel for the dissemination of NESSI outcomes, ensuring adequate levels of software quality, security, dependability and safety.

Even when Engineering was looking for a reference community for its OSS projects, it chose a community which could pay particular attention to the end users' and enterprises' requirements in the ecosystem, still without ignoring the role of the community of developers and individuals. The adhesion to the OW2 Consortium in 2005 represents their particular wish to enter a community, characterized by a precise identity which aims to promote and affirm a sustainable and long-lasting ecosystem and based on open source solutions. These characteristics can help the enterprises of the Consortium reach their business objectives and help administrations and user-enterprises satisfy their needs.

Participation in ObjectWeb has also provided the opportunity to share its transformation towards OW2 Foundation, a new stronger and more consolidated international consortium, guided by an open philosophy, aiming at promoting technological solutions and a new way of seeing the business. Born in January 2007, as a consequence of the merger of the European ObjectWeb and of the Chinese OrientWare communities, OW2 is today an independent industry consortium dedicated to foster a vibrant business ecosystem, which embraces more than 100 organizations and 6.000 developers distributed in Europe, Asia and in the Americas, besides hosting over a hundred technological

projects.

Adhesion to OW2 has demonstrated Engineering' OSS strategy aiming at sharing the projects with the community and at integrating them with other solutions, continually seeking new opportunities. The SpagoWorld software is hosted by the OW2 Forge to allow the community to participate using specific tools (mailing lists, forums, repositories, download areas), granting an independent management of the released open software over time. This collaboration goes beyond the noticeable support of the growth of the entire OW2 software stack and represents the participation in one of the most successful examples of a third-generation OSS community.

Today Engineering is co-founder and strategic member of the OW2 Consortium. Moreover, it is particularly active in consortium life, being part of the Board of Directors of all the ecosystem support councils (Ecosystem Council, Technology Council, Management Office) and being actively involved in many initiatives (it is leader of the BI Initiative and takes part in the European Local Chapter activities).

Over time, the collaboration has been extended to other communities. Mainly thanks to the development of the Spagic platform, Engineering participates in the Eclipse community through the development of the Eclipse STP/ Intermediate Model project with the French research organization INRIA, and in the Apache community as a contributor to the ServiceMix project.

Engineering uses its own competence in the management of the OSS, even when the company uses OSS solutions of third parties such as substantial components in its

own realization projects or when it must extend or customize them or solve their software bugs. In this case, Engineering gives the software improvements back to the third parties, obtaining a double benefit:

- The support to and the active participation in the OSS ecosystem.

- The protection of the investment of the client for which the project has been realized. In fact, if the contribution is accepted and becomes part of the new version of the open source solution, there are some clear benefits in terms of maintenance and future evolution of the project which first used this version.

Among these contributions, talking about Java developments, SOA architectures and BI, we can name those of the eXo Platform, Cimero, Jpivot, Harvard JHOVE, in addition to the above-mentioned Eclipse STP and Apache ServiceMix.

The history of Engineering's relation to the communities shows that:

- Not only the *community participation* but also the *community building* are crucial, both inside already built communities and in the creation of new communities. This allows widening of the network-effect, facilitation of the global reputation, knowledge and experience exchange and real contributions.

- The *community management*, in which an enterprise plays a leading role in the project governance, represents a critical but surmountable element, especially when the project possesses particular characteristics in terms of novelty and effectiveness. Even with Engineering's experience, it is difficult to make the community of actors active in the support and guidance of the project grow and extend, to the exclusion of the software users and those enterprises which operate in the OSS in collaboration with Engineering. The issue of the trust relationship among the community, the enterprise and the firms of different size is still under investigation, Engineering being well aware of the fact that it is still a crucial element in the construction of a real value ecology.

- *Relations with communities* are a value creation process set against the background of a complex network of business and social relationships, and of shared values and interdependencies between the different members. The returning value is high but mainly non-quantitative (i.e.: monetary). It is collaboration in a knowledge-based industrial network sharing common promotional efforts and a strong commitment to crucial decisions, fostering innovation, open competition and freedom to embark on different activities.

8 Sustainability of the Model: An Ecological Approach.

The SpagoWorld Initiative provides a context in which its community and the involved actors (companies, vendors, integrators, BI consultants, governmental institutions, customers, academia and individuals) cooperate to develop mature and reliable infrastructure solutions and compete to meet their goals, creating a lively and stimulating environ-

ment. In this way, all SpagoWorld adopters can find a reference environment for their open source adoption strategies and an opportunity to contribute to the growth of a collective strategy aiming to increase value in an ecological context. Simultaneous cooperation (in non-monetary issues) and competition (in the same market) enable the complex relationships fostering the ecosystem (see Figure 3).

From this point of view, the SpagoWorld Initiative is an effective example of promotion of a business ecosystem acting as a specific business model of Engineering, based on the development and promotion of its solutions (by selling support services and correlated software projects) and, at the same time, supporting the whole system in a real *coopetition* environment. In the OSS context the indirect, non-monetary returns, can be more valuable than the monetary ones because they are beneficial in a long-term sustainability context.

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