

## **Introduction to the OW2 Consortium Business Ecosystems Strategy**

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### **Introduction**

The IT industry is without doubt one of the most dynamic and competitive sectors in our economy. It provides an excellent stage for innovative strategies. The OW2 Consortium is fortunate to be at the junction of two recent innovations in business: open source software and business ecosystems.

In this article, we introduce the OW2 business ecosystem strategy. Drawing from our experience in the software industry, we will start by positioning the Business Ecosystem concept against the more popular Value Chain concept and by highlighting some of its characteristics. We will then explain how the OW2 Consortium is implementing its business ecosystem strategy and the lessons we have learnt after nearly two years of operation.

### **-A- Value Chain and Business Ecosystem**

Here, we review the Business Ecosystem concept by comparing it to the more popular Value Chain concept. We start by identifying the Value Chain as a concept focused on the value creation process of the firm, and then position the Business Ecosystem concept as useful to understand complex inter-firms relationships which form the background of the value creation process.

#### **1. Generating Value: the Value Chain.**

In its most basic definition, the value chain concept refers to the linear process through which

value is progressively added to raw material until it is transformed into a consumer good which represents value to customers. This is a complex transformation process which involves many different inputs, some tangible (raw material, machinery, energy, etc.) and some intangible (R&D, design, management, legal, financial, marketing, etc.).

Originally, value chain is an analytic device (made popular by Porter, 1985) designed to understand how the activities of a firm hopefully add value in excess of the cost of those activities. Porter extends the value chain beyond the individual firm to its suppliers (and their own suppliers), its channel and customers and he calls "value system" this industry-wide sequence of value chains.

For the purpose of this article, we will define the value system, or industry-wide value chain, as the flow of gradually increased value along an upstream-downstream path by firms linked by supplier/buyer relationships.

In a value system, supplier/buyer relationship are essentially monetary. The growth of value added along an industry value system is a quantitative process. Firms make tangible the value added by their activities by selling downstream the result of their production process.

This value chain approach applies to all economic sectors, from agriculture and manufacturing, to utilities, health and financial services. It is important to note that a value chain is, conceptually, a one dimension structure, a sequential set of primary and support activities organized to add value to inputs. In our view, this sequence is comprised of three essential steps (applicable to both the tangible and intangible goods sectors and to services industries): component provider -> product integrator -> solution implementer.

Firms compete by leveraging a business value, or discipline (as in Tracy and Wiersema 1995), specific to their positioning in the industry-wide value chain. Component Providers mainly compete on being state of the art (by their R&D investment) or low-cost (by improving

their manufacturing efficiency). Product Integrators compete by creating new products that anticipate and address customer needs, they thrive on differentiation. Solution Implementers make the output of an industry useful for the rest of the economy, they transform this output into value for end-users, they thrive on customer ownership. Typically, in the software industry, components are provided by Universities, open source projects, large and small software vendors, products are developed by larger firms able to integrate components and to build the required support organizations and solutions are implemented by systems integrators which have an understanding of the business requirements of their customers. In reality, an on-going industry trend is that in order to grow their margins, many companies tend to combine several roles.

## 2. Beyond Value: the Business Ecosystem

Although it had already been in use for some years, the term *business ecosystem* gained its mainstream popularity in Moore, 1996, which proposes the following definition: "An economic community supported by a foundation of interacting organizations and individuals – the organisms of the business world. This economic community produces goods and services of value to customers, who are themselves members of the ecosystem."

Let's examine two examples of business ecosystems. The Silicon Valley, in California, is an excellent and famous example of business ecosystem in the IT industry. In the Valley one can find the full web of complementary expertise necessary to deliver a state of the art IT solution including the education system, well established product integrators, small, agile companies, head-hunters specializing in engineering while others specialize in sales and marketing, lawyers who understand the intricacies of the technology, investors with industry experience, specialized real estate brokers, public relations firms with the right address book, etc.

Wine growing regions provide other examples of business ecosystems. Take the Champagne region, in France, for instance. From growing the grapes to shipping the bottles, the implicit

value chain, with its supplier/buyer relationships is easily identifiable. However, the Champagne region is more than merely its value chain. As a business ecosystem, it is characterized by the orchestration of a full range of complementary expertise from specialized curriculum in schools and universities to wine consultants, lawyers, brokers and bankers who understand the specificities of the wine industry through specialized suppliers of crates, barrels, bottles, cork, labels, transport services, etc.

Other examples include the City in London, a financial services business ecosystem, and La Chaux-de-Fonds in Switzerland, now known as "watch valley" (Donzé, 2007, for a fascinating historic perspective).

Not all business ecosystems are so easily identified geographically. Following the long-term trend of the economy toward internationalization and globalization, industry structures have often become increasingly distributed and many business ecosystems are today built on global networks spanning several time zones. Open source software developers linked together through the Internet are a typical example of a global community.

Business ecosystems are born from value chains, they may incorporate one or several value chains; similarly, it is probably feasible when analyzing a value chain to see the business ecosystem within which it evolves. Although ecosystems are built on industry-wide value chains, they are more than just a mechanical sequence of supplier/buyer relationships. "Community" is the important word in the definition of an ecosystem. The success of a business ecosystem lies in a combination of efforts from business, government, education, and all segments of a community. A business ecosystem is a value chain enhanced by a culture. And why is this important from an economic standpoint? Because the two-sided cultural interactions between members of a community sharing the same interests and the same values result in long-term relationships. The implicit objective of these interactions is the long-term sustainability of the whole community. This is one of the key differences between value chains and business ecosystems: value chains are held together by supplier/buyer

relationship which, by nature, are volatile. Value chains create *value*, business ecosystems generate *sustainability*; this is the real benefit for the different players in a business ecosystem.

Another difference is that the one-direction supplier/buyer relationships, and upstream-downstream flow of value added give way, in a business ecosystem, to a network of privilege relationships representing the complexity of mutual dependence between firms in the real business world. In a business ecosystem, firms create value not only for their customers, but also for each other. Business ecosystems are characterized by multi-directional relationships, a "value web" rather than a value chain.

In our view, in a business ecosystem, monetary and non-monetary relationships are closely interconnected, complementary and equally important. Non-monetary relationships bring advantages which are not necessarily immediately reflected on the bottom line; these are what economists call network externalities. Network externalities benefit the business ecosystems itself as, by reinforcing its attractiveness, they reinforce its sustainability, they may also benefit individual firms since in business ecosystems, the real winners are those organizations which can leverage network externalities.

### 3. Business Ecosystems Highlights

#### *3.1 Competition and Coopetition*

In business ecosystems, firms compete but, at the same time, they share the same interest in the defense and development of their ecosystem. Firms are complementors in making market and competitors in dividing market (Brandenburger and Nalebuff, 1996). Situations of simultaneous competition and cooperation between rivals is called coopetition. In business ecosystems coopetition is the defining relationship as opposed to supplier/buyer.

Competition is the process by which a firm tends to maximize its own profit against rival firms through price, quality, innovation, publicity, channels, etc. Cooperation, on the other hand, is the process by which firms aim at improving the situation of the group. Firms can cooperate in many different ways, for instance through defining technical standards, setting benchmarks for education, promoting business and technical best practices, sponsoring market studies, lobbying public government, organizing market entry deterrence, etc.

In a business ecosystem, firms cooperate to grow the ecosystem itself, an objective shared by all participants. Generally, they find it easy to cooperate on those non-monetary issues which do not seem to create any immediate danger for their competitive positioning. The IT industry provides many examples of firms agreeing on technical standards and then developing products that compete with each other using those same standards.

### *3.2 Key Business Ecosystems Strategies*

In a business ecosystem, all participants are not equal and, of course, do not pursue the same strategy. Observers of biological ecosystems have identified three types of behavior among species: Keystone Players, Dominators and Niche Players. We found this typology useful in understanding the positioning and the strategies of participants in business ecosystems (for an overview, see Iansiti and Levien 2004).

In the software industry, Keystone players provide a predictable environment upon which other ecosystem members build their strategies. Not the largest nor the most powerful of business ecosystem players, Keystones are certainly highly interconnected. They benefit from the growth of the ecosystem and, in return, they contribute to it in a way which is altruistic and tends to foster diversity in the community.

Dominators are stakeholders who, simply due to their size and power, thrive on integration

efficiency. They may create business opportunities for niche players but only for as long as they remain competitive suppliers. They often integrate vertically and, by taking over functions initially provided by other firms, they tend to eliminate diversity. Dominators have enough resources to invest in their own R&D and, as a result, have no incentive to share knowledge.

At the other end of the spectrum are Niche players. The large majority of members, they are non-dominant players, large or small organizations, often specializing in a technology or a market segment and thrive on the efficiency of their segment focus. They represent the creative, the burgeoning population in a business ecosystem. In the software industry, their growth depends on their ability to leverage keystone platforms and to maintain a level of technology differentiation.

### *3.3 Social Capital*

Whereas value chains are essentially defined by the accumulated value generated by monetary relationships, business ecosystems are also defined by the non-monetary advantages derived by firms participating in them. Therefore, a business ecosystems growth depends largely on the quality of the non-monetary, qualitative interactions between stakeholders. These interactions create something intangible that is shared by all participants, something called Social Capital.

While there are many definitions of Social Capital (see Durlauf and Fafchamps, 2004), for the purpose of our examination of business ecosystems, we call Social Capital the array of factors which increase the likelihood with which non-monetary relationships will be repeated across different participants. It can be argued that social capital may be as important as physical capital (plant, equipment, and technology), and human capital (design, competences, education, and training) in driving innovation and growth. We consider that social capital is a key factor in a business ecosystem's sustainability. In fact, networks, common norms, shared values and trust, comparable expectations, brought forth in cooperation and business



relationships, create a web of social relations that have productive benefits by facilitating coordinated actions.

The social capital shared by participants in the open source software business ecosystem is characterized by the strong ethical values of the open source movement. These common values and practices can lead to lively discussions between members. Intangible issues are often the stage for some intense competition between members, especially when participants feel they lead to potential direct or indirect advantages in the business world.

## **-B- The OW2 Consortium Business Ecosystem**

From the onset, at OW2, our ambition was to implement a business ecosystem strategy. OW2 is an open source community committed to making available to all the best and most reliable middleware technology. Our mission is to develop open source code middleware and to foster a vibrant community and business ecosystem. The consortium is an independent non-profit organization open to companies, institutions and individuals.

### 1. An Open Source Business Ecosystem

The open source movement is based upon a software development process by which coding and debugging efforts are shared among the greatest possible number of developers thus improving the quality of the code (for a classic introduction to open source, see Raymond, 1999). But, in our view, open source is essentially a business development strategy: in some software market segments it can be a way to break through existing entry barriers.

Open source and middleware go well together. The middleware layer stands between the operating system and business applications. Firms can cooperate on developing common middleware code while at the same time be competitors in offering business solutions to end-users. Or, to apply the value chain sequence identified above, firms can share the same components and still develop different products and implement different solutions.

Participants in the OW2 ecosystem have essentially technical and business expectations. On the technical side, first of all, they seek a reliable service infrastructure which will support their development efforts. They also look for technology vision, technology independence, technical framework and expertise sharing. And on the business side, they expect marketing guidance, market credibility, revenue growth and access to international markets.

Participant stay active in the OW2 ecosystem as long as they identify positive returns on their investment. Such returns can be measured in many ways. Maybe a technical exchange has allowed a participant to make the right technology decisions (better technology alignment) or has shortened development time (improved time to market). Or participating in the OW2 ecosystem has allowed a member to increase market share, to sign new partners, to improve market visibility, or more simply to carry on doing business with the open source license of its choice.

As is typical to open source, participants are expected to contribute to the ecosystem. Since OW2 is about developing a base of open source middleware, code is the first contribution expected from participants. There are, however, many ways to contribute to the OW2 ecosystem: sharing expertise, providing feed-back, reporting bugs, submitting specifications, and providing success stories and marketing resources to promote the consortium.

## 2. The OW2 Community

As of March 2008, the OW2 Consortium membership counts to 13 strategic members, 41 corporate members and 860 individual members.

Strategic Members are organizations which choose to base the development of their open source strategy on the OW2 ecosystem. Therefore, they stand out through providing significant resources to support the Consortium's objectives and play an active role both in setting the direction of the Consortium code development activities and in facilitating the use and acceptance of its technology. Membership fees and commitments (and associated rights) are higher for strategic members than for corporate members.

Among the 41 corporate members, there are 3 large organizations, 17 small and medium sized organizations, 12 micro organizations (organization categories as per the European Commission definition), 3 universities and 6 research laboratories. This membership base

reveals two distinct orientations. The first is towards small companies: they are the typical niche players which represent the innovative force of our business ecosystem. The second is toward the academic world. This is a deliberate strategy because we reckon that, in technology markets, academic research is an essential source of competitive advantage through innovation.

Our individual members provide an interesting insight into the geographic spread of the OW2 business ecosystem. Some 50% are from Europe, 30% from Asia, 10% from Latin America and 10% from the rest of the world.

Lastly, it is worth mentioning that not all stakeholders in the OW2 business ecosystem have signed the membership agreement, far from it; therefore we estimate that OW2 federates 100 organizations and 6000 IT professionals.

### 3. The OW2 Business Ecosystem

The OW2 business ecosystem is organized around the OW2 Consortium. The consortium is a non-profit organization, its role is to provide the governance and service framework through which members work together in developing a mutually beneficial business ecosystem.

OW2 has defined three *Activities* designed to facilitate qualitative (non-monetary) interactions between participants in the business ecosystems: Projects, Initiatives and Local Chapters.

Projects support technical interaction between members. At OW2, everything starts with a Project. Developing a broad and consistent code base is the utmost priority of the consortium. A Project regroups development actions corresponding to one or more technical software components. Each project is under the responsibility of a project leader and all project leaders together form the Technology Council which is the OW2 governance body in charge of

maintaining the consistency of the code base. Recently, for instance, the Technology Council has defined the Himalaya Program aimed at gradually achieving seamless interoperability between all projects.

Initiatives provide the framework for business relationship between members. Initiatives are joint efforts by OW2 Members aiming at facilitating the use of OW2 technologies by mainstream Systems Integrators, End-Users and Software Vendors and to develop business activities in a specific market sector. Within an Initiative, OW2 Members work together to develop both technical integration between projects and business synergies in order to address specific market needs. The business outcome of an Initiative is a set of core relationship between technology providers, integrators, academia, consultants and users. Together, they provide the expertise to implement effective business solutions built upon OW2 technologies. Initiatives aim at facilitating technology integration between projects and at helping build business synergies between companies.

In short, Projects are technology driven whereas Initiatives are market driven.

Local Chapters, the third Activity are set-up to facilitate community interaction on a regional scale, in a business neutral way. In a Local Chapter, a group of OW2 members join their efforts to promote the goals of the consortium within a community characterized by its geography or its language. Local Chapters aim to extend the consortium's marketing effort and to foster social linkage between members. Local Chapters are also a way to implement some sort of global governance and to empower members throughout the world.

## 4. Lessons Learned

### *4.1 Creating a Business Ecosystem Platform*

The OW2 Consortium is a governance and service organization set-up to promote a business ecosystem established to leverage a code base of open source middleware. The organization works for the benefit of the ecosystem participants. It is a "platform" (as theorized by Rochet and Tirole, 2004) designed to facilitate interactions between participants in the ecosystem, a *business ecosystem platform*.

The governance and service value proposition of OW2 is threefold. First, it is a technical platform delivering collaborative services to project teams, such as a forge for collaborative software development, bug trackers, wikis, downloads facilities, mailing lists, etc. Second, the consortium is a catalyst for social and business interaction: its governance system helps organize activities in a way that grows the social capital available to all. Third, the consortium is a communication machine for developing projects' visibility and market awareness; members' market power is higher when participating in OW2 than individually.

#### *4.2 A Long-Term Organic Process*

The type of relationships which define a business ecosystem take time to develop. As far as OW2 is concerned, our current organization is the sequel to ObjectWeb which was founded in 2000 in France as a joint project between INRIA, Bull and France Telecom. The consortium agreement ended in 2006. Throughout part of 2005 and most of 2006, ObjectWeb members debated on whether there was a market opportunity to carry on or not which led to the current project. In 2005, we analyzed members' expectations, in 2006, we defined the OW2 plan. All governance processes were described in detail, work started on three Initiatives, and in the last quarter of 2006, we merged ObjectWeb with Orientware, an open source middleware community from China. Finally the Consortium was launched on January 1, 2007.

But this is only the beginning. It quickly appeared that consortium members needed time to make the project their own. OW2 is still undergoing a maturation process. After a first stage of benevolent skepticism, members started exploring the possibilities of processes they

themselves had contributed to define. The OW2 business ecosystem is made up of multi-dimensional interactions, between participants and, because of this complexity, it requires some time before delivering on its promises.

### *4.3 In Search of the Critical Mass*

It has been known for a long time in the high-tech industry that the cost of developing a market is much greater than that of developing a technology (Davidow, 1986). For a new organization like OW2, communication efforts are very uncertain and can easily be wasted with no result at all. There is a threshold beyond which marketing investments actually start to yield positive results and to contribute to the cumulative visibility of the organization; this is how we define critical mass in our context. The OW2 Consortium has not reached this point yet; analysts still regard OW2 with skepticism (if not contempt), journalists are not particularly interested in writing about OW2 and end-users still need convincing that, despite its quality, implementing OW2 code is a sound decision. OW2 is still at the stage where it needs to over-invest in marketing in order to see results.

How can we build critical mass? As a non profit organization, our resources are limited and our hand must be played very carefully. Investing in superficial brand communication is necessary, but not enough. This is a serious business and stakeholders expect substance. Currently, we think the best way is to promote our projects and to show the extend to which OW2 technologies are actually used in mission critical applications by real-life companies. This is why we have launched a broad effort to develop case studies.

### *4.4 Coordination, Communication, Complexity*

There are not many organizations such as the OW2 Consortium on the market; our strategic endeavor is original and unusual. However, because we are inventing something new, all

stakeholders (either Consortium members or outside observers) are not exactly on the same footing and, sometimes, they do not share the same understanding of what OW2 is really about or what its priorities should be. Each member has its own open source strategy (and open source strategies come in many different flavors!) and its own – sometimes rather opportunistic – particular agenda and expectations vis a vis OW2. Although the OW2 consortium benefits from the converging efforts of its members, it must also navigate through diverging business interests. This internal complexity calls for intense communication and a lot of explanation if we are to maintain a consistent strategic trajectory. This is part of our maturation process. In a new relational organization such as OW2, it takes time to gradually develop the shared vision which will eventually provide the framework for a stable cooperation equilibrium, as we speak of market equilibrium, between members.

#### *4.5 Not the Average Manager*

Implementing a business ecosystem is a complex task with no hope of a quick result. To build an ecosystem is to develop relationships at the edge of business. It is not for the average manager driven by his short-term P&L. The big picture is paramount, and decisions must be based on a clear understanding of the potential gains which lie within intangible connections between stakeholders. Sometimes this means forgoing an immediate profit in favor of a long term and more sustainable one.

Thinking in terms of business ecosystem requires managers to think strategically. But it also requires thinking laterally in ways that might not be intuitive at first sight. It has to be understood that, although it can be pushed a little, a business ecosystem goes through its own organic growth process. It develops by itself. The movement in a business ecosystem is essentially bottom-up, and participants' initiatives are decentralized. There may well be some power play but there is no chain of command in a business ecosystem. Sometimes it can be wiser to let go and share than to try and control a situation or maximize an advantage at all cost.



## **Conclusion**

There is probably no such thing as a pure business ecosystem or a pure value chain, however they are useful analytical tools to understand our business world and make better decisions. Because of its emphasis on non-monetary, or cultural interactions, the business ecosystem concept appears well suited to understand the dynamics of a knowledge-based networked industry such as open source software where the value creation process is set on a background of a complex web of business and social relationships, of shared values and interdependencies between firms.

At OW2 we are deliberately implementing a business ecosystem strategy. We found that the business ecosystems growth process is organic by nature, it is a one-way process, the result of the different strategies of individual firms and with no room for trial and error, it can be influenced but not driven, it is determined by the combination of individual interests which can be both converging and antagonistic.

The theory of business ecosystems is in its infancy, we still need to analyze how business ecosystems relate to the classical idea of an industry equilibrium and the undefined spontaneity of catallaxy (as compared in Reekie, 1979), and where they stand between markets and hierarchies (Williamson, 1975). Both empirical and theoretical research are needed ranging from managerial studies of optimum business ecosystems strategies to broader societal questions as to whether industries structured as business ecosystems benefit their communities or improve the way customer needs are addressed.

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