Product - and Service Related Business Models for Open Source Software

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Abstract: The buzzword "open source software" is gaining in importance and popularity in public, and more and more people are interested in this phenomenon. Yet up until now most of the literature concerning open source has mainly dealt with the technical aspects of the software. The non-technical side, such as discussing the economic aspects in an overall concept, have been neglected thus far. This paper presents a scheme to describe and analyse business relation of the interacting parties involved in the open source process. Additionally business models will be described briefly, divided into two categories: the product-related and service-related. Both business models can be applied to participants in the open source model. The product-related business model deals with the issue of distributing open source products (like Linux and StarOffice). The first model is handled quickly, as much has been written about this in different studies. The service-related business model is handled in greater detail, as the services constitute new business opportunities for companies, particularly also companies today mainly active in the market for proprietary software. As an example which questions have to addressed in a business model the role of system integrators in this market segment is discussed

1 Open Source Business Models

Open Source Software (OSS) has gained a lot of attention recently. OSS addresses more and more user groups, customers are beginning to ask directly for OSS-based solutions, and the OSS market is maturing. Under these conditions, many bricks-and-mortar companies are discovering the field of Open Source Software and discussing challenges and benefits. A substantial discussion would fill an entire book. So only a brief summary of the economic aspects of OSS and some hints for relevant questions to be answered for valid business models can be given

1.1 Definition of Different Roles in the Open Source Process

To make use of the advantages that software development in an open source style provides and to make use of the results already available, business models for OSS have to be developed that constitute a win/win-situation for all parties involved in the

open source process. This seems to be even more relevant in this market than in others, because the fundament – the OSS-community – is not controlled or steered by the "normal" economical driving forces. Instruments usually used to handle partnerships like contracts and commissions are missed.

So on one hand, we must find out how companies can benefit from the open source approach by selling OSS-related products and services. New business models have to be developed that allow companies to use OSS in their portfolio. Simultaneously, the reward and contact to the OSS-developer community has to be secured.

In the beginning there were two main roles – developers of OSS and users of OSS. Often these two groups were the same people. With the growth and maturity of the segment, some intermediary roles arose to offer OSS in a marketable and customer-oriented way.

Still some users take OSS directly from the developer community. But, as the market continues to develop, more and more customers are non-IT specialists, and intermediaries are needed. An example: A company wants to change its operating system to Linux. It needs consultancy for this change process, authorizes a system integrator or software company, gets the Linux packages from a distributor, such as SuSE or Red Hat. The distributor, in turn, takes input from the developer community and adds modules to it. This results in a completed Linux package. Full services along the software value chain, including consulting, customization, implementation, integration, training and support must also be provided to the end-user.

So by analyzing the open source process, five different roles can be identified in the open source development. To better understand the open source phenomenon, these five roles need to be differentiated, as regards their functions and interrelations. The five roles[1] are:

- Developers: Private developers, professional developers, developers from academia
- Distributors: Bundling and packaging of software. Offering releases in a product-style.
- System integrators: Providing services along the value chain. Consulting and customization of software for customers. Integration of software into existing customer structures.
- Software and hardware companies: Selling software and hardware.
- Users: Home users, software developers, companies or institutions.

[1] "NOW"-project: introduction in open source software and analysis of economic and legal aspects of the open source concept; definition of different roles involved in open source process; p. 98

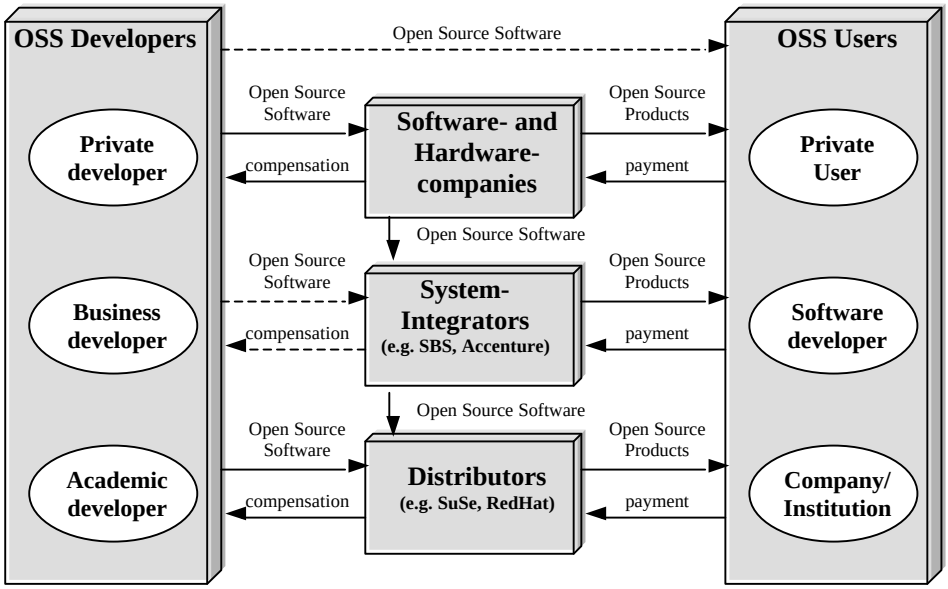


Figure 1: Interrelations between participants in the open source process[6]

In reality, some people and companies have a set of roles, like developing software as a part of the community, using open source products, and maybe at the same time, offering services in the field of integration or consulting. But we still need to understand each role, individually[2].

For each role, the motivation has to be analyzed in order to identify the intentions, demands, restrictions and objections. Starting from this base of win/win interaction, business models can be defined.

1.2 Definition of a Business Model

First, we will define the idea of a "business model". The business idea can be converted into a business model by orienting and positioning it in a market. Consequently from one business idea many business models can be developed, as the business idea is applied to different markets. There are many different definitions of business models. Porter's five forces model[9] is a classical base from which to discuss the relevant influencing area. Here, a model addressing nearly the same aspects but explicitly including internal aspects like culture is chosen[1].

[2] Additionally roles like e.g. platform or portal providers for open source-Communities etc. can be considered. But to understand the interrelations and options of the open source market the analysis has focused on the five roles as described.

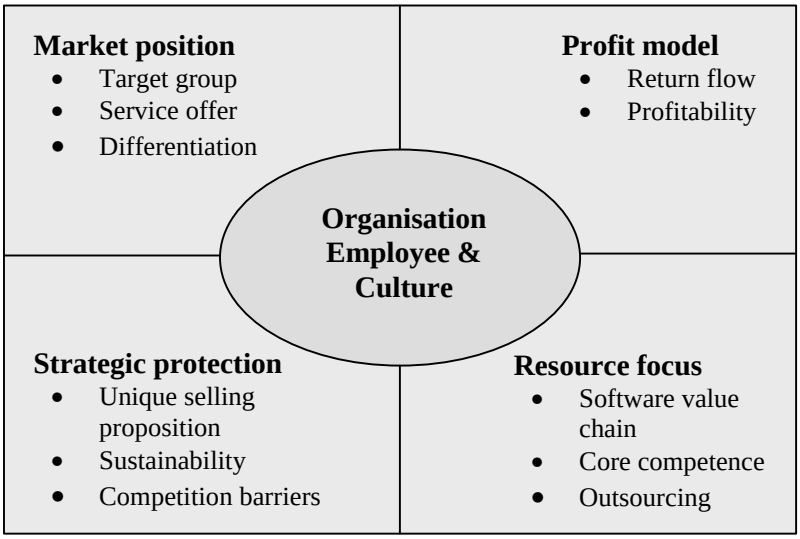


Figure 2: Simplified scheme of a business model[1]

The market position derives from the description of the offer, target customer groups, market segments and the strategic decisions concerning distribution, price etc.. OSS is a difficult market because questions like segments and pricing are still under development.

The profit model describes how revenues can be generated. This demands a creative change of view for companies traditionally dealing with licences. But OSS offers a wide range of other sources of income as described in the later chapter about product and service oriented business.

The aspect, resource focus, deals with the question about the inner view of competencies, which part of the software value chain the company should carry out by themselves, which part will be outsourced, and what resources are needed. The resource focus forces companies to make decisions about strategic alliances, partnerships and their own competencies in order to be more efficient.

Finally, strategic protection addresses the measures that need to be taken to protect against opponents entering the market or aiming for the same market position. Here the market entry barriers, the unique selling point and the sustainability of the business model, have to be analyzed. The traditional point of view – blocking competitors by restricted availability or solely owing a product – is overruled here by headstart competencies and market position.

The internal aspect, organisation, employees and culture - is of special relevance for OSS-business models. The idea behind OSS and the community interaction needs are driven by a lot of non-monetary aspects that require a different understanding

of owning, exchange and, surely, adaption of inner processes. It also represents the core of the company. From this core, other aspects and measures of the business model can be influenced and carried out.

2 Business Models for Open Source Software

Business models for open source software can be divided into product-related business models and service-related business models[7].

Selling open source products means charging all of the efforts necessary to bring an OSS to the product level or style – major examples are Linux distributions and Staroffice.

Service-related business models can generate revenue with a wide range of different services around OSS. Both product- and service-related business models can be applied to all three intermediaries in the open source process, because they are all capable of selling OSS-products, as well as, performing services for customers. They have to decide about their business model, in regard to their portfolio and current market position.

2.1 Business Models for OS-Products

In the area of product-related businesses there are already established well known companies – mainly distributors. Their core business is better defined than the wide field of services and some profit models have already been evaluated by years of experience[14].

The market can be subdivided according to the different product areas and market segments. The market segments are the server-area, the desktop-area and the embedded-area. The product areas are distinguished between operating systems, applications, appliances and other business models[14].

Table 1: Product areas and market segments[14]

Product business models	Server-area	Desktop-area	Embedded-area
OSS-operating system-distributors	Server-Linux-distribution	Desktop-Linux-distribution	Embedded-Linux-distribution
OSS-application-providers	Server-applications	Desktop-applications	Embedded-applications
OSS-appliance-manufacturers	Server appliances	Thin clients	

The OSS operating system distributors are specialized in operating systems - in particular Linux. They package and sell their version of the Linux operating systems.

A Linux distribution consists of the Linux kernel and several hundred additional files that together form the Linux operating system. The task of distributors is to add modules to the kernel, fix a version, provide a documentation, etc. and finally package the software. In addition, they have to do the marketing and distribution of the OSS-product. The distributors generate revenue through the sale of OSS-products. The OSS-operating systems are divided into the market segments server-area, desktop-area and embedded-area[4].

OSS-application-providers[14] develop new applications, create releases and distribute different types of OSS. Their products include applications and development and administrative tools. Normally, their software is developed to run on Linux, but some products also run on Windows or other operating systems. The portfolio of available OSS-based applications still has a lot of vacant fields and therefore offers new product opportunities. There are several profit models for OSS-application-providers like “sell it, free it”, “loss leader”[7] and other models often combining traditional software business with OS approaches as an additional impulse to penetrate the market.

The third product area is OSS-appliances[4]. Appliances are bundles that consist of a combination of hardware, software and operating system. Appliances are available for the server- and desktop-area. The bundling of OSS-product with such other components offers new opportunities in enriching the use without the necessity to calculate external license fees.

2.2 Business Models for OSS-Related Services

Within a service-oriented business model, no product development takes centre stage, instead services based on OSS-products are offered[14].

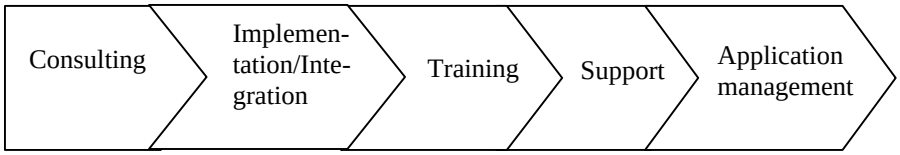


Figure 3: Parts of the software value chain that belong to the business area of the service provider[14]

Almost all business models concerning OSS have a service component - including business models for distributors and software firms, who along with selling products, also offer software related services to customers.

Among all OSS-business models, the service-business model is in one way the least controversial one, because it is very similar to classical business models. If you compare classical IT-service providers for proprietary software, like Accenture or IBM Global Services, with an OSS-service provider, there is almost no difference. Thus, it does not matter if you do consulting for standard software or for OSS-based software, some underlying processes and mechanisms are nearly identical.

One difference between proprietary- and OSS-service providers is the absence of a relationship to the software provider. Many proprietary service providers partner with big software companies. Then the software companies try to help their service providers with partner programs (support in terms of training, marketing and reduced licences).

Often additional revenues are gained through the trade in software licences. Typical examples of this business are partners of large ERP-suppliers, like SAP, who work closely together with their suppliers. This additional revenue is missing completely by OSS-service providers, as they have no relationship to the software providers. But on the other hand in case of OSS the customers available budget could be spend for the services components instead of third party license fees. The margins for service may be better than before.

An other aspect concerns quality assurance function. The software providing company has to test, correct and maintain the software while in open source the service providing company may provide those services too or involve a product providing company.

A topic close to this is the warranty and liability the service company has to face[3].

2.2.1 Five different categories of OSS-service providers

The OSS-service providers can be categorized into five different groups, according to the intermediaries in the graph (see figure 1).

- Distributors as OSS-service provider: Their primary business model is the sale of OSS-distribution. They also offer support for their distribution as an enlarging and completing of their business model. For enterprise-customers, they offer yearly maintenance contracts with guaranteed services (like defined reaction time) and general services for installation and implementation.
- Large hardware producers: They sell hardware systems with preloaded OSS distributions (mainly Linux), but they don't sell OSS-distributions of their own[2]. Hardware producers have large clienteles, which they have gained through their proprietary Unix-systems. With their experience and reputation in this field, they can also benefit in the open source field.
- Large software firms: Their main business area is development of proprietary commercial software. They are gaining interest in open source software. Many software firms have begun to commit themselves strongly to the open source movement. They are supporting the open source communities and portals in the development of OSS with investments. They are also converting formerly proprietary software into OSS by releasing the source code. These software firms are also adding OSS to their product portfolios and distributing them to their customers. Simultaneously, they are offering product-related services to them[11]
- Global system integrators: These firms offer IT-services worldwide, while formerly in the proprietary software field, they are increasingly entering the

[3] This major topic could not be addressed here.

open source field. With their internationally oriented organisation structures, they are focusing on big, complex IT-projects in existing IT-infrastructure. There they offer a complete range of IT-services[14].

- Specialised OSS-service providers: These companies concentrate completely on services for OSS-components. Normally, these are smaller firms from the start-up-sector. They distinguish themselves through dynamic growth and a very open company culture and philosophy. However, they are less experienced in the management of large IT-projects. These companies are independent of software providers and normally support several OSS-distributions.

According to the already established portfolio and competencies these companies could set a focus. But – as in the whole IT market – the lines between those roles become blurred. Software companies conquer the field of process consultancy and vice versa.

2.2.2 Services along the value chain

The first step in the service provider value chain is consulting. Consulting performed by a service company includes the following steps:

- Analysis of the current situation.
- Definition of process-related, functional and technical requirements.
- Concept and selection of software solutions.

There is no difference in the consulting process itself. The basic structure of offers and tasks to fulfil is in principle the same. So are the basic the abilities and experiences. Therefore the same types of companies are qualified in this way. Although there are many companies that specialize in OSS products and offer special knowledge in this category, their consulting process does not substantially differ from companies which are focused on proprietary software. An interesting field is the consulting of migration – from a proprietary to an OSS-based infrastructure.

The second field of activity of a service provider is implementation/integration which consists of the following steps:

- Installation – mostly on an existing basis of software or hardware.
- Configuration - to adjust the software to customer needs within the given framework without changing the source code of the software.
- Customization - to adjust the software to customer needs, changing of the source code is necessary, additional systems integration can be necessary.

A general argument in favour of OSS is that the open source code enables customisation, which is not possible with a closed source code. Hence, OSS offers unlimited opportunities for customising a software product.

Training is the third component in the service providers value chain. Software distributors and service companies offer training for their software products and solutions in particular. For them, training is one service that they offer, but normally not their core competence.

Service providers also offer support for their customers. Support for OSS products is first of all offered by the OSS community through various forums. However, for corporate users this kind of support is not sufficient as there is no guarantee for a problem being solved. Distributors and independent OSS service and integration companies also offer expert support for corporate users.

The market for (product-) support-services can be classified into four categories[4]:

- Installation support: With purchase of an OSS distribution, distributors grant gratis installation support for a certain period of time. For example Mandrake offers 60 days of expert-support, 30 days of telephone-support and online-support through a web-database. SuSE differentiate their support offer according to the purchased distribution product (personal version: 60 days support from the selling date, professional version: 90 days). This addresses not only installation topics. But because they are limited to the starting phase they include installation problems.
- Support packages: distributors offer support-packages in the form of "incident packs" and "call packs", dependent on a certain number of incidents or calls. These benefits can be retrieved at any time.
- Maintenance contracts: In these contracts, a certain level of performance will be guaranteed by the provider for a period of time (3, 6, 9, or 12 months). In particular, maintenance contracts are sold to companies and large public authorities.

Those offers include often mail and telephone – which ranges from a simple call center during normal office hours to 24x7–support with guaranteed reaction time.

- Integration services: General OSS-service providers also provide complex support for OSS that exceeds such support mentioned before. This includes strategic consulting, development, and integration into the existing system environment.

Application management includes all activities to ensure that a software is performing in the way it was desired to perform. There is basically no difference between proprietary software and OSS – only the concept and quality of the software may differ and therefore effect the way and effort to be spend for providing and hosting.

These are the parts of the value chain carried out by the service oriented companies. Other tasks can be understood as "services" around the OSS as well, but they linked with product base directly, like software development, documentation, packaging, marketing and distribution. So they can be assigned to different roles. As a prime contractor those kind of services are often outsourced by services companies. They establish alliances and partnerships with other companies, like:

- Technology/Development partnerships (companies or OSS-developers that deliver technology)
- Service partners (companies that the service providers engage as subcontractors)
- Sales partners (companies that convey services and maintenance contracts to customers)
- OSS-communities

- Other distributors and software companies (who deliver software products)

2.3 Business Model for OSS-Related Services Applied on System Integrators

As an example which questions have to be addressed to develop a business model here the role of system integrators is discussed.

System integrators / consulting companies are companies that have special process knowledge in how to provide a service related to IT in general. This can be knowledge in process- and IT consulting, systems integration, providing and maintenance, IT-training or IT-recruiting, sometimes even with a vertical functional or industry-specific specialization. The business operating area of consulting firms only consists of software related services, they don't develop software products on their own. Consulting companies help their customers realize IT strategies based on their business needs, independent from software providers. System integrators provide full services along the software value chain, which include consulting, customizing, implementation/systems integration, training, support, maintenance, remote administration, and application management. Especially in open source change management and provision of business appropriate solutions based on open source there is a wide field of activities.

2.3.1 Market positioning

The motivation of system integrators for engaging in open source software is their desire to differentiate from competitors, who only offer proprietary software in their solution packages, and to meet the growing demand of customer requests of OSS-based solutions. The governmental and public sector is addressed as an interesting target group. Especially the public area is accustomed to place tenders for prime contractors. This is a role those companies are used to fill.

System Integrators can to bridge a gap in the market that has been neglected so far. As the market matures the number of non-IT specialist customers grows who need such an intermediary. Another reason of system integrators for dealing with open source software is the assumption that with OSS a greater profit margin could be realised than with proprietary software. With open source software system integrators can gain more independence from big commercial software companies regarding product - and price policy. Another advantage of open source software is availability of the source code, which means that system integrators can achieve a better customizing of the software according to the individual customer needs. The first level target groups of system integrators are small-, middlesized- to large enterprises, but no end consumers.

The main advantage is the existing contact to key customers, deep branch specific knowledge about processes, standards and technologies.

2.3.2 Profit model

The profit model is set up on these advantages. The profit model of system integrators for Open Source Software is similar to those of proprietary software. The service offerings in both cases are basically alike as illustrated before. Only the software product base are different. The effort or cost to acquire the relevant knowledge base is a normal element in their business too. Those companies are used to enlarge portfolio of their consulting and integration competence by new concepts or technologies.

But the calculation differs. Budget element normally dedicated to license fees are available for better margins, other tasks or for more competitive prices. A necessary effort which will be difficult to estimate in the beginning will be the change of processes and the lack of experiences concerning liability and warranty e.g.

2.3.3 Strategic protection

The business dynamics in the market for software-related services differ in several ways from those in the software products market, mainly due to its service character[8].

The capital needed to start a service company is different to product development with necessary pre-investments of large amount and over a longer period of time. Instead here, knowledge is the major fundament and entry barrier. Therefore, it is easy for a new company to set up if its founders have the technical and domain knowledge to offer services. Thus entry barriers are low, and incumbents have to face a constant threat of new entrants.

But the deep knowledge of market, domain specific processes and customer base provides the bricks-and-mortal companies with some advantages if they are able to enlarge their field of competence in the direction of OSS. One main aspect will be the main weakness of commercial OSS at the moment: trust.

The intermediaries, especially the well established consulting and integration providers, face some opportunities in a growing market here.

A high pace of innovation in the software products market leads to a similarly high pace in the services business. New technologies arise and with them new companies, which are able to offer the service.

2.3.4 Resource focus

System integrators often provide full services along the software value chain, which include consulting, customizing, implementation/systems integration, training, support, maintenance, sometimes up to remote administration and application management. Resource focus addresses the inner view of the companies main competences and portfolio. Relevant aspects which the company can not efficiently cover out of this and which should not be build up to a new core competence should be considered for outsourcing respectively strategic alliances.

2.3.5 Organisation, employee & culture

The organisation of system integrators is aimed at service processes for customers (consulting, system administration, project controlling etc.) By system integrators the customer has top priority, therefore the culture of consulting firms is different to the culture and philosophy of software development companies.

In the service sector employees need besides their expertise also “soft skills”. The degree of utilisation is crucial for the profitability. Therefore processes have to be organised tightly and made calculable, revisable and chargeable through appropriate measures like time recording and project management.

The main challenge is the difference of culture between OSS and proprietary Software. The handing over from software providing source (e.g. software company, distributor, OSS-community) into the business processes of the integrator have to be redefined according to the different interaction and transfer proceedings. The interaction with a traditional software supplier is imprinted by contracts e.g. The interaction with a OSS-community differs. The change of processes and lack of contract base deserves a new cultural understanding.

3 Prospects

Those business models will not stand alone aside the proprietary market. They will also effect each other.

Some software companies convert their proprietary software into open source software, because they can gain more popularity and meet customer requirements and market share this way. So they can increase the sales volume of their service offerings related to their OSS, which is their main source of income. One Example is Zope (a content management system), with the publication of the source code the company could increase the sales volume of their service – and support offerings[14].

So, may be OSS will not only bring up a diversification of products and services and establish new elements in the portfolio of companies. Maybe the even deeper impact will be on the proprietary market, because it will allow the service providing companies to concentrate the available budget on their added value.

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