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# The Effect of Open Source Licensing on the Evolution of Business Strategy

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**Abstract.** This paper explores how the approach underlying Open Source development has encouraged a greater sharing of knowledge in related business and legal affairs, and subsequently leads to the emergence of Open Source-driven collaboration by enterprises to address challenges. We use an Economic approach to propose a theoretical framework for Open Source business analysis and provide a defined sample of real-world developments to support its initial findings. We conclude that the need to develop effective Open Source governance solutions has led to widespread collaboration regarding business and legal challenges by stakeholders in the field, and that this collaboration will increase to improve efficiency as the market matures.

## 1 Introduction

In spite of the increased adoption of Open Source technology in businesses, most enterprises do not yet have formal processes in place regarding its management. According to research by Gartner (2011), over 50% of organizations are using Open Source as part of their IT strategy, while only 33% have a policy to address it. OpenLogic (2010) reported 65% of organizations who think they do not use Open Source actually include technology licensed under its terms.

It is possible that one of the reasons Open Source has such extensive market penetration is that initial adoption is not associated with a licensing fee. Nevertheless, while users are free to use, study, share and improve the technology, these freedoms are conditional on various terms associated with individual Open Source licenses.

The most common license - and therefore the most illustrative - is the GNU GPL. This latter requirement originated in Open Source and is termed “Copyleft”, a play on words that refers to its formal provision of lasting freedom to subsequent users, as opposed to traditional restrictions applied by copyright law. Copyleft as a principle facilitates on-going collaboration on projects like Linux, though as pointed out by

Hatta (2007), understanding its scope or definition is not sufficient to explain how and why Open Source itself works. This paper explores this question via the application of historical and logical analysis, asking what conditions are necessary to sustain Open Source dynamics and to encourage the applications of multiple business models - and therefore participants - in the global Open Source community.

## **2 Open Source Licensing and the facilitation of Business Models**

### **2.1 Copyleft and its Evolution**

Richard Stallman, the originator of the formal definition of the Copyleft licensing provision, wanted to ensure that the GNU Operating System would be available to everyone with a lasting set of freedoms. This is not to suggest that the concept of Copyleft itself is uncontroversial. Some would suggest that Open Source licenses without this provision are best because the cooperative model does not require formal statements of subsequent sharing. Some maintain that they want an explicit Copyleft requirement applied to their code.

Of course licenses using provisions like Copyleft have been modified occasionally - with a good example being the GNU GPL, now on its third revision - but the core grants and the principle of maintaining those grants has been consistently maintained, allowing relatively certainty in the development and use of software under its terms. The same principles and the same expectations also apply to derived licenses such as LGPLv2 and AGPLv3. Where the former takes steps to loosen the conditions applied to linking software packages and the latter increases the Copyleft conditions into the sphere of network-based software (including cloud computing), they are consistent with the core values of Open Source and offer the same pre-conditions that facilitate collaborative development.

### **2.2 Copyleft and the Cooperation of Labor**

The Internet has allowed people to communicate and to work together across great distances at a lower cost and at a higher speed than ever before. It has been a powerful driver in reducing barriers to working with partners and customers to accomplish goals, what is sometimes referred to as co-innovation. In the software field it is difficult for a single vendor to meet all the requirements of multiple customers, and it is more effective for several parties to cooperate on developing and enhancing a shared platform. This is what increasingly happens, and it has led to the commercial sustainability of Open Source projects such as the Linux kernel. This is because Open Source, a software paradigm built on the inherent assumption of cooperation and sharing, is a natural beneficiary of trends towards cooperation.

The dynamics of the software industry have altered in the last two decades. Twenty years ago the dominant proprietary paradigm resulted in a small number of providers controlling innovation and serving a large number of users in a fairly static relationship. However, the emerging Open Source paradigm encouraged new development models and new software development processes that moved the decision-making emphasis to users. Since the Open Source paradigm gained mainstream traction this has had a profound effect on the market as a whole.

### **2.3 The Cooperation of Labor in Software Development**

The proprietary software and Open Source paradigms facilitate the establishment and improvement of various software development models and processes. These development models may be hierarchical, loosely managed or unstructured depending on the given software paradigm and the requirements of the individuals or organizations working on a project. It would be incorrect to attempt to associate Open Source exclusively with one development or business model, though such an approach has in the past been unfortunately common.

There are many business models applicable to Open Source. This is for the same reason that Open Source facilitates multiple development models; as a paradigm Open Source draws a wide set of parameters that participants operate inside. The cooperation of labor in software development indeed evolves a variety of business models in Open Source. And business models corresponding to the market needs, open source businesses as revenue generating models can be formed into practice.

Ultimately the numbers of possible business models applicable to Open Source make it impossible to pick out any one as a clear favorite. As with any field of business, the correct model depends on market segment analysis, an understanding of skills, and a prudent balance between maximization of profit and sustainability. As has been discussed, open source licenses in the meta-level, strongly expressed in the Copyleft concept, have led to the natural consequences of cooperation of labor and collaboration.

## **3 Open Source Business Models and Licensing Strategy**

### **3.1 Intellectual Property Rights and Business Strategies around Licensing**

Business enterprises have always exercised their Intellectual Property Rights (IPR), especially around patent properties, in compliance with their business strategies. Takahashi (2007) indicates that the monetary value of patent properties primarily depends not on the scientific value per se but rather on the business assessment regarding its worth and the processes that frame such understanding. This means that aggression is possible with patents of low worth, but also that the opposite holds true.

For example, even if a patent with value in terms of monopolizing a technology implementation is possessed by a business enterprise, the exertion of it is determined based on a strategic understanding of the requirements of the enterprise.

There are occasions when Open Source software packages or projects primarily governed by copyright licenses come into potential conflict with patent issues. Some Open Source licenses address this matter by the inclusion of patent provisions providing non-aggression pledges between collaborators on the licensed software, but the larger issue of whether a business makes a strategic decision to leverage patents aggressively essentially remains open. This is especially true of parties not collaborating on the same Open Source packages, or of third parties who may have minimal investment - and therefore understanding or sympathy - for Open Source approaches as a whole.

Such challenges have led to an evolution in the governance applied to Open Source. Early legal concerns around Open Source focused on copyright issues.

### **3.2 Open Source and Transition of Governance**

#### **(1) Early cases of open source governance**

The governance of Open Source in the late 1990's to early 2000 was naturally focused on the licenses that govern Open Source transactions. The emphasis was on compliance as this was regarded as the critical issue for minimizing potential risk in adoption and deployment.

#### **(2) Growing up stage in open source governance – supply chain consideration**

As Open Source stakeholders became more understanding of how Open Source derived value - namely through collaboration between an ever-changing pool of third parties - they also became more nuanced in their understanding of the governance necessary to provide maximum benefit. This encouraged an alteration in their approach to governance, and there was a shift in perspective towards using governance as a tool to assist in maximizing value throughout the supply chain while honoring obligations in procurement and deployment.

#### **(3) Market solutions**

There are many services, products and collaborative platforms that contribute to governance in the Open Source marketplace. None is a panacea but many are useful for new entrants and relatively experienced participants alike, providing avenues for discovering and comparing approaches to minimizing risk, improving understand and dealing with suppliers or customers.

### **3.3 Open Source and Remaining Governance Challenges**

The trend in Open Source legal affairs is aware from copyright licensing matters - which are essentially solved though not yet fully refined - and towards broader questions of governance and business management. One key challenge from this perspective remains the aforementioned tension between Open Source concepts and

IPR, especially in the context of third parties who do participate in Open Innovation or direct invests in Open Source. Leveraging IPR against Open Source-derived technologies - whether as a business strategy to obtain new revenue streams or to hinder competition - is a significant potential challenge to the future growth and lasting viability of Open Source solutions.

The majority of these actions is rather passive and may introduce further complexity, perhaps by diminishing the perceived value of collaboration around Open Source or by creating complex tangles of Open Source licensing obligations and proprietary licensing conditions. An alternative strategy is to seek other ways to engage with tension between Open Source and IPR, in particular by seeking to find collaborative solutions to this challenge.

### **3.4 Collaboration to Sustain Open Source Business Models**

It is observable that in issues related to Open Source license compliance various checks and measures have been created to provide adherence to the rules and to discourage imbalances in the market. Examples include the lawsuits initiated by GPL-violations.org in Europe and later followed by Software Freedom Law Center in the USA, or the knowledge-sharing communities fostered by Linux Foundation and Free Software Foundation Europe.

One similar collaborative approach that has arisen in Open Source to be engaged with IPR tensions is Open Invention Network (OIN), established in 2005 by Red Hat, IBM, NEC, Sony, Novell and Philips. Initially conceptualized as a shared pool of defensive patents and a common agreement not to litigate over a defined set of Linux System technologies, OIN has since grown to lead a community of over 400 companies and projects that formally pledge non-aggression to each other over the Linux System, and to hold hundreds of patents important to all sectors of technology.

While it makes sense for companies investing in the development of new technology to formally register such innovation in the form of patents what these companies subsequently seek to do with these patents is another matter. The aggressive enforcement of rights may provide initial advantage, but it reduces the ability of parties to collaborate in the mid to long-term, thus undermining the central precept behind obtaining lasting returns in Open Source. Taking this into account, the defensive holding of patents - and the strengthening of shared defensive pools and risk mitigation methods - is only logical. It is likely that OIN and perhaps similar entities will remain significant contributors to Open Source legal matters, and that the extent of its shared patent pool may increase as well. The reduction of potential risk from other collaborators on the Linux System in combination with the deterrent against aggression from third parties alone makes this reasonable.

From a broader perspective, it is possible to contextualize the modern governance activity around Open Source as being characterized by stakeholders seeking to efficiently maintain the rules inherent to deriving value between stakeholders, and to mitigate the risk of disruption from third parties wherever possible. This ensures the

sustainability of value through collaboration, a state that facilitates a business environment with a wide range of applicable models and investors. As with the intersection between IPR portfolio decisions and Open Source business imperatives, the tension between commercial and collaborative life-cycle knowledge provision may be an interesting vein of potential further study, as may be the multi-layered relations between Open Source and proprietary software companies moving forward.

## 4 Conclusion

We analyzed the evolution of business engagement with Open Source as a paradigm for the creation, distribution and shared evolution of software platforms. The inherent value provided by Open Source appears to be that it provides rules for collaboration between multiple parties with multiple motives. While the propositions behind Open Source challenge preconceptions from the perspective of proprietary software development, and while some parties would question the necessity of Open Source-derived measures like Copyleft, there is no doubt Open Source as a concept and licenses like the GNU GPL have in practice delivered tremendous value.

With Open Source now maturing and collaboration moving into avenues of legal and business intelligence, the dynamics of the field are changing. A reoccurring theme is that Open Source and proprietary approaches to software and IPR management increasingly brush against each other, and inevitably will seek some form of coexistence. This will not necessarily be without further tension, though from a rational perspective it is hardly feasible that destructive conflict would be the preferred outcome from either side. It is therefore our conclusion that the need to effectively engage with improvements in Open Source governance will see increased collaboration on all forms of legal issue by the stakeholders in the field, and those stakeholders from both Open Source and proprietary business perspectives will ultimately reach a form of accommodation and equilibrium.

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