

The software market

Lluís Bru Martínez

PID_00145048



Universitat Oberta
de Catalunya

www.uoc.edu

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Introduction

This module introduces the main features of the software market in general and how the free software model adapts to this market.

In the first section, we will see that it is fairly common to have access to products that are freely distributed or free of charge in our environment, and we will look at the particular way in which this business works.

The second section looks briefly at the target market of the software and the most common means through which potential customers acquire the product.

Objectives

After completing this module, students should have achieved the following aims:

1. To understand the features of the market of products with free access.
2. To understand the relationship between free software and the exploitation of parallel business models.
3. To understand the implications of software supply on the business concept.
4. To obtain a detailed knowledge of paradigms of software development and relate them to the features of free software.

1. Businesses with similar features to free software

Now that we have looked at the main economic concepts, we can answer the question we asked in section 1.4 "Summary" of module 1:

If free software is free, i.e. by definition, anybody can gain access to this software – possibly at no cost – how is it possible for computer scientists (and computer companies) to earn a living from programming free software? Can we trust that resources (money and people's time) will be spent in the future on its maintenance and development?

1.1. Is it really so shocking that software can be free?

To put it another way, is it really so rare for a product to be freely distributed or even free of charge? If we look closely, we can identify certain business models that are based on offering a product free of charge to customers.

In general, any company whose business is to act as an intermediary between other companies and their customers must decide what pricing policy to adopt, and perhaps the best option is to dismiss the possibility of making money with some of these customers.

Different business models based on free supply

If a television wants to earn revenue from advertising, it needs to guarantee its paying customers (the companies that place advertisements during broadcasts) the largest possible number of viewers, and the best way to do this is to allow the latter to receive the television signal for free.

Similarly, if **Adobe** wants to attract customers for its PDF file creation product, Adobe Acrobat Professional, it makes sense to offer the simplified version of this software, Adobe Acrobat Reader, for free. This way, Adobe can guarantee its paying customers that other users can actually read the documents that they create.

Likewise, **Amazon**, besides being a book shop that sells on-line, has transformed its website into a platform that connects its customers with second-hand book shops offering used books at a discount. When we check the availability of a title, we see Amazon's offer together with that of the other bookshops. In this case, Amazon offers its customers the possibility of viewing the series of available books for free and instead charges the bookshops for its intermediation service. Given the reasons for adopting this pricing policy discussed earlier, it is convenient that Amazon earns money from the sales of the other book shops because it might otherwise be tempted to offer a biased service (ensuring the sale of its own books over those of its rivals listed on the website).

Alternatively, a company can offer customers a product for free, but link it to another product, which is the one it wants to sell. An example of this follows:

Free products

In Spain, we have television channels such as Antena 3, Cuatro, Telecinco and La Sexta that offer free television to viewers. Of course, the business of these stations is to sell advertising, that is, to act as intermediaries between companies that want to publicise their product and their potential customers (for example, viewers will see advertising placed before, during and after the broadcasting of a football match).

Recommended reading

You can read the full article published in *El País*, 15 July 2007 "Prince vuelve a enfurecer a la industria musical".

"Anyone who has purchased the British weekly *Mail on Sunday* this morning has taken home a free copy of Prince's new work, *Planet Earth*. In all, 2.9 million copies have been sold."

[...]

Planet Earth will also be distributed free of charge to those attending any of the 21 concerts that the Minneapolis musician is putting on at London's O2 Arena from 1 August to 21 September."

El País, 15 July 2007.

As we can see, in the first case, it is quite possibly the newspaper that has bought the right to give away copies with its publication (a way to promote the newspaper), while in the second case, the artist foregoes the possibility of making money with the distribution of copies of the CD (contrary to the efforts of music labels and record shops who want to hold on to their business model at all costs) to focus on making money from his concerts. (Another story, this time in the *New York Times*, says that the musician is putting on exclusive concerts at small venues for which tickets, with meal included, are being sold for \$3,000 (12 July 2007, "Star Turns, Close Enough to Touch").

Recommended reading

You can read the full article published in *El País* on 12 July 2007 "Star Turns, Close Enough to Touch".

1.2. Software as part of a product

Software is only one component of a product (albeit a very important part), a part or complement of the whole product that we wish to obtain, and what we want is to have all the pieces – such as the computer and the software – at the same time.

As a result, the multinational giants of the computer industry like IBM and Sun Microsystems provide funding to computer scientists who develop free software. Their selfish (in the sense that they are thinking primarily of increasing their profits) reason is that they think that this will increase the sales of complementary products and services for which they charge their customers.

Likewise, the leading mobile phone manufacturers (Nokia, Motorola, Siemens, Samsung, etc.) teamed up to create – and allocate financial resources to – the Symbian consortium, which develops free software designed as a program to operate the mobile telephones that they manufacture. Thus, all mobile telephone manufacturers use the same platform (the same operating system), which is based on the **GNU/Linux operating system** and is flexible enough for each manufacturer to then design a different mobile phone model to its rivals, incorporating improvements and variations to attract customers (telephones that double as cameras, allow the user to send e-mails, etc). Each company changes the appearance of the phone screen to adapt it to the services it offers, since it has access to the source code of the program used to operate the telephone. This system encourages innovation and product improvement because the companies expect to attract new customers by creating a device (the telephone) that works better than that of its rivals.

The fact that the big multinationals have fully incorporated free software as a tool in their activities thus guarantees the future development of this software. It even ensures that IT engineers can, on their own initiative, engage in the development of free software. As Lerner and Tirole (2002) explain, these engineers can demonstrate their professional expertise to companies in this sector by participating in the improvement of this software, which will make them highly sought after by IT companies, hence allowing them to improve their employment prospects.

1.3. Software supply. Distribution

Just because the software is free, this does not mean that we cannot have companies that exclusively supply related IT products and services.

To begin with, one possible business is the distribution of free software. In addition to selling CDs containing the free software, these companies provide technical support to the consumers and businesses that opt to use free software (Red Hat is the best-known example of a company that has developed this line of business). Therefore, the company offers its experience and knowledge of the software to clients, guaranteeing them any technical support they may need.

If we think about it, this business model is perhaps not as uncommon as it might appear. For example, the publishing house Aranzadi has created a very similar business model.

The information has always been freely available (Spanish legislation is published in the Official Gazette and all law firms subscribe to it). However, organising the information in useful ways is a complicated task, and this is the service that these publishing houses offer to their clients. And, naturally, these companies have incorporated digital technologies to serve their clients, as we see in the following press release:

The offices of law firms and tax experts are still bedecked with yard upon yard of solemn legal tomes. But these are increasingly becoming mere decorations. Most legal experts are already opting to access the necessary documentation for their work through the Internet, an out-and-out revolution sparked by the big legal publishing houses such as Corporación El Derecho, which has set a benchmark in new technologies.

Corporación El Derecho provides legal information to state prosecutors (through a call for tenders organised by the Spanish Ministry of Justice) and basic tax information to the Tax Office.

El País, 22 July 2007.

1.4. Software supply. Service

Broadly speaking, an IT engineer who works with free software has a similar profession to a chef, car mechanic, plumber or lawyer.

Aranzadi

Aranzadi offers its clients (legal professionals) a comprehensive source of legal information. It also provides the technical support needed to process all of this information efficiently.

Recommended reading

You can read the full article published in *El País*, 22 July 2007 "El tomo ha muerto, viva la red".

Law firms work with a knowledge and understanding of legislation that is as free and widely available as free software could be. Clearly, their business model consists of raising revenue from a complementary product, which is their expertise or in-depth knowledge of the law, their ability to adequately organise the information set down in legislation to defend their client's interests, which are things that their clients cannot necessarily do.

Ultimately, the lawyer incorporates the right ideas into the right product for its client (defence of the latter's interests).

Similarly, computer engineers who work with free software offer clients their expertise, the ability to meet their need to organise information in a specific way and process data by harnessing the intrinsic possibilities of the free software available, or, if necessary, by developing additional code.

Thus, we can see how a given economic sector (legal services) can even have different levels of information (corporate, law and Aranzadi on one level and law firms on another), which gives rise to multiple business models that simultaneously coexist.

2. Who needs software?

2.1. Software, a basic need in any company

Who are the clients of software companies? Nowadays, potentially any company. As Nicolas Carr points out in "IT doesn't matter", ICTs have been incorporated as an essential tool for all companies, just as nowadays all companies are connected to the mains to light up their offices and power their machines, they are all equipped with telephones, or they all use cars and trucks on the motorways to transport their raw materials and products.

When Carr writes in his article that "ICTs no longer count", what he means is that a company no longer has a competitive advantage just because it uses them, since all companies now have access to them.

On-line ticket bookings

A commonly cited case in this regard are the commercial airlines that developed the first ticket booking software. At the time, this software gave them an important edge over their rivals. Today, all commercial aviation companies have a website where we can make bookings and purchase plane tickets, so this software no longer constitutes an advantage for a company over any other.

This evolution in the use of ICTs can be an advantage for free software development in that it reduces the possibility for companies to get carried away with the idea that having proprietary software for their internal processes can give them a competitive edge. Given that any company can obtain software with similar capabilities, it is probably best to use free software that can incorporate the developments made in other activities and tailor them to the specific needs of the company.

2.2. Paradigms of software development

We said in the previous section that all of today's businesses need to use ICTs and software in particular, but how can a company get the software it needs for its production processes?

Based on the classification developed by Bruce Perens in "The emerging economic paradigm of open source", we can sort companies as follows:

1) The Microsoft and Adobe model (Perens' "Retail" model), whereby a company develops software and sells it packaged to customers.

Additional reading

N. Carr (1 April 2004). "Does IT matter?". *The Economist*. <<http://www.nicholasgarr.com/articles/matter.html>>

Required reading

B. Perens (2005). *The emerging economic paradigm of Open Source*. <<http://www.uic.edu/htbin/cgiwrap/bin/ojs/index.php/fm/article/view/1470/1385>>

Thus, from their point of view, customers can forget about the development of the software and simply buy it finished.

Consequences of the retail model

Naturally, this software development usually takes the form of proprietary software (where the provider does not reveal the code to its customers). From the point of view of somebody who purchases this software, the first obvious drawback is that it is not designed for his/her specific needs (because, obviously, it has to be sold in a very uniform way in order to be of interest to a range of customers). Another potentially serious problem is, as we mentioned earlier, the danger of being trapped by the provider, which makes it difficult to switch to other software, retrieve certain databases, etc. Conversely, but with similar consequences, there is the danger that the provider will disappear and thus cease to provide the required software maintenance and improvement services.

2) The business model where the company that needs the software develops it, either with the computer scientists on its staff or by hiring a specialist IT company to develop it (Perens' "In-House and Contract" model).

In the last two models of development in Perens' classification, companies seek out other companies with which they can collaborate to develop the software they need.

3) In this model, the consortium develops a software that is not free (i.e. that will not be available to companies that do not participate in its development).

4) In the last model, the consortium companies develop free software, i.e. with a source code available to any other company, even if they are not involved in its development.

This offers the clear benefit of being able to take advantage of improvements in the community of programmers created around the project, thus reducing development costs.

Of course, the development of the free software will not be free to the consortium companies, which will need to finance an initial group of programmers. The danger of consortiums (both proprietary and for free software) is that there is a lack of leadership in the development of the project because no company wants to commit to guaranteeing its development, which creates a barrier to its implementation (either from the start or when successive developments generate new expenses).

Development cost

Of course, this way of developing the software that a company needs can be very expensive, and can lead to repeating parts of programming that have already been developed and could have been used.

Summary

In our more immediate environment, a scenario is being shaped by multiple business models converging with different policies to achieve their aims, from the direct promotion of the product per se to the supply of products free of charge to encourage customers to access a new world of complementary products and services.

The free software business uses the latter market form, setting up parallel and complementary businesses based on its promotion. Nowadays, many companies and multinationals have adopted a clear stance in support of the development of free software, especially considering that software is a basic product for any business and that the free software development model offers guarantees for securing these aims.

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