

Hybrid revenue models of software companies and their relationship to hybrid business models

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Abstract. Software companies create revenue from selling software licenses and services to customers. This paper tries to model revenue streams of software companies and addresses questions like: What do revenue models consist of and how do companies differentiate their revenue model to that of other companies? After structuring revenue models and describing attributes of revenue streams, this paper shows the relationship between revenue models and business models and provides some answers to the questions by using a semi-formal approach to classifying and modeling business models and revenue models on a type level. It illustrates the findings with examples from three companies in the software industry.

Keywords. Business model, Software business models, Business model classification, Hybrid business models, Business model generation

1 Definition of terms

To talk about business models and revenue models, these terms have to be defined. By extending the classification of business models from Weill [1], we are able to classify the business model of a software vendor. Two dimensions are being used: types of goods and services and business model archetypes. The **types of goods and services** are: **financial goods** (cash and other assets), **physical goods** (real, physical products, durable and non-durable goods), **intangible goods** (software but also other intellectual property, knowledge and brand image) and **human services** (people's time and effort).

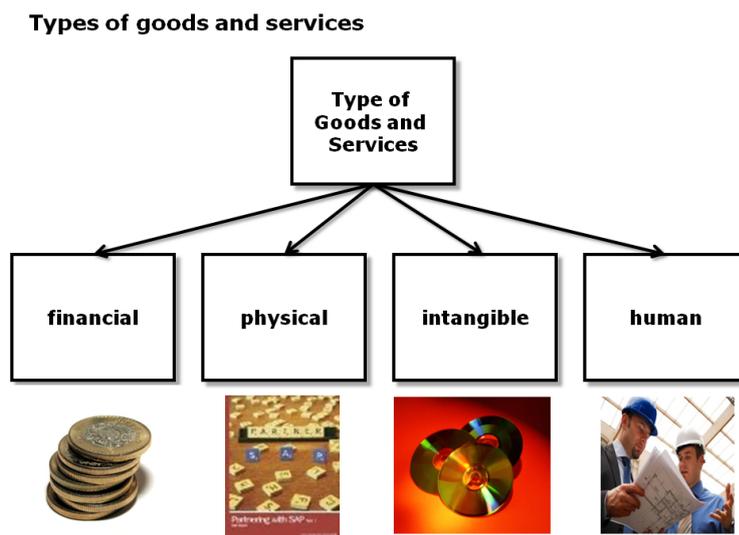


Fig. 1: Types of goods and services [2]

2 Business Model Archetypes

Business model archetypes are basic patterns of doing business [1]. They were derived from a study analyzing one thousand companies in different industries. Available archetypes are creator, distributor, lessor and broker.

A **creator** uses supplied goods and internal assets and transforms them to create a product. It is important to know that the main work done by the creator is designing the product. An example is Apple. Apple designs the iPod in California. So Apple uses the business model archetype creator.

A **distributor** buys a product and provides the same product to customers. Obvious examples are companies in the wholesale and retail industries, or value added resellers in the software industry.

A **lessor** provides the temporary right to use, but not own, a product or service to customers. Examples are landlords, lenders of money or software companies that license their software to customers.

A **broker** facilitates the matching of potential buyers and sellers. A broker never takes ownership of the products and services. An example is a stock broker. Another example is Google's advertising business, which matches the advertisers with potential customers.

Figure 2 shows the combination of archetypes and type of goods offered, resulting in 16 different results. Each combination of the type of goods/services provided and the business model archetype is called a business pattern.

Business Models Archetypes and Type of Goods/Services

	Type of Goods/Services offered			
	Financial	Physical	Intangible	Human
Creator	Entrepreneur	Manufacturer	Inventor	n/a
Distributor	Financial trader	Wholesaler, Retailer	IP distributor	n/a
Lessor	Financial lessor	Physical lessor	IP lessor	Contractor
Broker	Financial broker	Physical broker	IP broker	HR broker

Fig. 2: Business patterns are inside the matrix [2]. Software companies typically, but not exclusively, use business patterns from the column titled "Intangible". Consulting services are classified as "Contractor"

Since software vendors are focused on providing intangible goods and services like software [3], let us investigate what the specifics of the different business patterns are for intangible goods/services.

Inventors create intangible services or goods. The main task is inventing (designing) the new service or product. Being an inventor is a widespread business model archetype in the software industry. Often this is an expensive task, e.g. when the inventor designs and programs software leveraging developers on his own payroll. After the invention activities have ended, software companies make use of other archetypes for intangible products to make them available to customers. Common are IP distributor for selling the intellectual property or IP lessor to provide usage rights for the software to customers.

IP distributors sell their intellectual property rights or another software vendor's usage rights to customers. Typical ways to distribute intellectual property in the software industry are OEM agreements for software components and distribution rights for redistributables, which are often bundled with development tools and are integrated and shipped with a software product.

IP Lessors are providing intangible goods "for rent". As outlined above, intangible goods can be software but also other intellectual property, like knowledge, brand image, trade secrets or patents. Software companies provide usage rights for their software to customers and thus act as IP Lessors.

3 Business, Business Model and Revenue Model

For the sake of simplicity, let's assume a business (software company) under consideration has one or more business models and one or more revenue models. A **business model** determines which goods or

services are provided by a company. Formally, the business model consists of one or many business patterns. A business model is a model on type level, which means that it is a generic model showing the type of business, but not how the business is run. For further definition and information on business models, please review the literature [2,3].

Business, Business Model and Revenue model

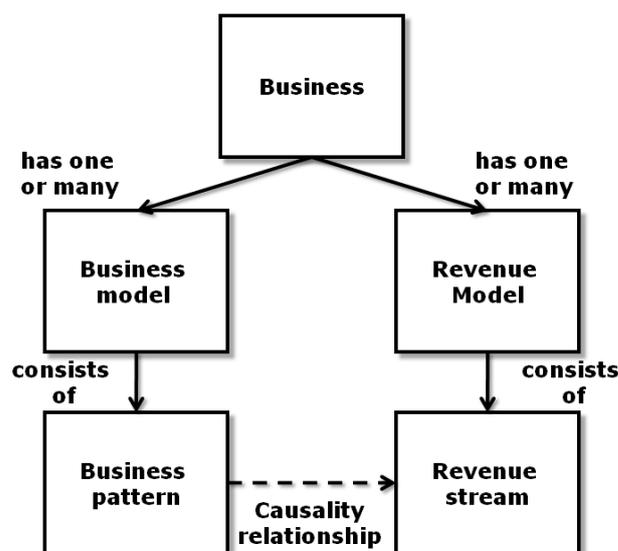


Fig. 3: Business model and revenue model components

A **revenue model** defines how a company is compensated for each of the business patterns provided. The compensation usually, but not necessarily, is a payment. A company has the freedom to create a revenue model for each the company's business patterns.

A revenue model consists of one or several **revenue streams** [4,5]: Usually one revenue stream compensates for each of the business patterns offered. But this is not necessarily the case. In the case of SaaS, the customer usually pays one subscription fee for the combination of the business patterns Physical Lessor, IP Lessor and Contractor business.

There are flexible ways to create revenue streams for the goods and services provided. Different types of revenue models and revenue streams are created by choosing different values for the following **attributes that apply to revenue streams** [2]: Compensator, Effect, Rating, Charging and Timing. All of these attributes except causality also apply to revenue models.

3.1 Compensator

The Compensator is the party, which provides the compensation (e.g. a customer or third parties). In the creation of a revenue model, you first look at the different parties which could provide the compensation. A simple case of a compensator for goods and services is that a customer pays in cash for each instance of a service that was consumed.

3.2 Effect

The effect of the compensation tells if a compensation takes place and of what type the compensation is:

A good or a service might have **no compensation**. An example is open source software, which can be used without monetary compensation under a certain license. Another example is the social work of a volunteer.

A good or a service might be compensated with **other goods and services** in return. The search service from Google is compensated with information about the searching user.

A good or a service might be compensated financially by **different forms of payment**. An obvious example is a barber, who gets compensated by cash or credit card payments.

3.3 Causality

The relationship between business models and revenue models is based on causality. A revenue stream is always linked to exactly one business pattern that represents the cause for the revenue stream (**Causality**). Please note that the relationship between business model and revenue model is an indirect relationship, which allows flexibility in creating combinations of business models and revenue models.

3.4 Rating

Rating is defined as the **way to measure** the usage or consumption of goods and services. Ratings are done based on amounts or on time or ratings are combinations of both. **Ratings by amount** are based on the number of goods and services consumed. There are many different ratings possible and many different ratings are used in practice. Typical ratings by amount in the software industry are the number of processors of a computer that runs software or the number of users that has access to a software solution or the throughput of a software solution. A software as a service provider usually rates the number of users that have access to the offering.

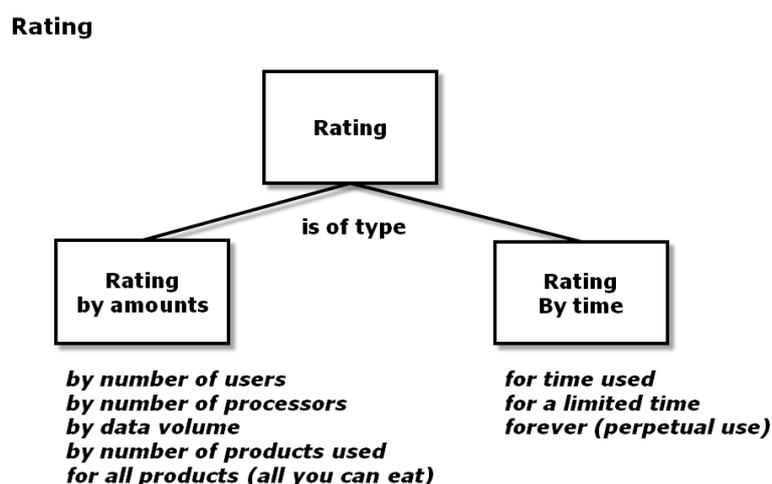


Fig. 4: Types of Ratings

Ratings by time are also popular. You could allow the usage of a software or service for a limited time or for a certain period of time. A cell phone network provider could for example rate for initiation of a call and for each minute of the call by one minute increments.

3.5 Charging

Charging is defined as the **way to define the compensation amount for a certain rating** of goods and service consumption. There is again tremendous freedom to create charging rules. Typical charging models in the software industry are fixed fees for each processor of a server or fixed fees per user or fixed fee per megabyte throughput for a data cleansing solution or a combination of the above.

Extreme examples of rating and charging in the software industry are used for perpetual licenses and all you can eat licenses. **Perpetual license** means that a revenue stream relates to perpetual use of a software component, which means that the software can be used forever. So the usage is rated by time for unlimited time, but compensated for perpetual use.

An **all you can eat license** might refer to the customer having a right to use all software solutions of a software vendor. In this case, the software vendor is bundling all of its products into one bundle. This is usually done for large customers of software vendors. It is a good way to sell more products into a customer and to lock-out competitors from that customer.

3.6 Pricing

There are different pricing mechanisms and strategies possible. We omit further discussions on pricing and therefore point to existing literature [2,3,6].

3.7 Timing of compensation

The **timing** of compensation tells **at what time the compensation will happen and what additional conditions apply** for the timing of the compensation. Examples we meet often are **prepay**, which means you pay before you are able to consume goods or services, by **payment schedule**, which might define certain payments at different points in time under certain payment conditions and **post pay**, meaning you pay after you were able to consume or have received or consumed the products or services.

4 Hybrid business models and hybrid revenue models

If a business model is made up of several business patterns, it is called a **hybrid business model**. To create a hybrid business model in the real world, you could choose the business patterns Inventor, IP Lessor and Contractor to create a product software company. Hybrid business models can be a source of **business model synergies** to create competitive advantage, for example: when there is an asymmetric market for companies offering that specific hybrid business model, like the early markets for on demand software or if a hybrid business model creates competitive advantage in markets due to synergies between business patterns or business models.

If a revenue model is made up of several revenue streams, we call it **hybrid revenue model**. By definition, a hybrid business model always has a hybrid revenue model due to causality. Hybrid revenue models can be a source of **revenue model synergies** to create competitive advantage. This can be the case if a hybrid revenue model allows to fund cost of a business pattern with a revenue stream that is not connected by causality or to fund cost for a new business pattern. We will see examples later in this paper.

4.1 Hybrid business and hybrid revenue models in the software industry

Looking at the software industry, most software companies have a hybrid business model, because they are acting as an inventor and as an IP Lessor at the same time. In addition, software companies can differentiate their business model by offering software as a product, software as a service or a combination of both.

Software as a product (SaaP) means that a copy of the software product gets delivered to the customer and the customer gets usage rights, usually in the form of a license, for using the software for a specified purpose. The customer does not get ownership of a product, but rights to use the software for a compensation back to the software company. Cost of support and of providing maintenance releases is carried by the IP Lessor. The cost of operations of the solution and the license fees are carried by the customer. The typical Software as a product business represents a hybrid business model as shown in figure 5.

Hybrid Business Model for Software as a product

	Type of Goods/Services offered			
	Financial	Physical	Intangible	Human
Creator	Entrepreneur	Manufacturer	Inventor	n/a
Distributor	Financial trader	Wholesaler, Retailer	IP distributor	n/a
Lessor	Financial lessor	Physical lessor	IP lessor	Contractor
Broker	Financial broker	Physical broker	IP broker	HR

Software vendors provide maintenance and support services

Fig. 5: Hybrid business model for Software as a product [7]. Software companies typically use these archetypes in combination if they offer Software as a product.

The hybrid revenue model for software as a product is usually made up of the following revenue streams: Inventor (no compensation), since there is no direct compensation for the Inventor business pattern in the software product business, the Inventor business pattern is often associated with sunk cost, IP Lessor (license fees) and Contractor (service, maintenance and support).

Software as a service (SaaS) means that the customer gets access to the software as well as usage rights for a specified time and a specified purpose. The software runs at a hosting provider or in the cloud and is not delivered physically to the customer.

The hybrid business model for SaaS consists of the business patterns Inventor, Physical Lessor, IP Lessor and Contractor. The Inventor business pattern creates the software product that is underlying the service. The software is operated leveraging the business patterns physical lessor (hardware usage), IP Lessor (usage rights) and Contractor (operating, maintaining and supporting). The software company carries the sunk cost of development, the cost of support and maintenance as well as the cost of operations of the software.

For most SaaS offerings in the market, the customer pays for the usage of the SaaS offering, but not for each of the business patterns contained in SaaS. The hybrid revenue model for SaaS is constructed as follows: Inventor (no compensation), since there is no direct compensation for the Inventor business pattern in the software product business, the Inventor business pattern is often associated with sunk cost, IP Lessor (license fees), Physical Lessor (usage fees) and Contractor (operation, service, maintenance and support fees).

Hybrid Business Model for Software as a service

	Type of Goods/Services offered			
	Financial	Physical	Intangible	Human
Creator	Entrepreneur	Manufacturer	Inventor	n/a
Distributor	Financial trader	Wholesaler, Retailer	IP distributor	n/a
Lessor	Financial lessor	Physical lessor	IP lessor	Contractor
Broker	Financial	Physical	IP broker	HR

Software vendors provide hardware usage to customers as part of SaaS

Software vendors provide operating, maintenance and support services

Fig. 6: Hybrid business model for Software as a service [7]. Software companies typically use these archetypes in combination if they offer Software as a service. Key difference to SaaP is that the software vendor offers the hardware use and operations services to the customer as part of the SaaS offering.

5 Revenue models of successful software companies

Now let us apply this framework to three software companies, which were chosen for their size and availability of information about their business models: SAP, Microsoft and Google. The first one is SAP AG, a German company selling software and services in the area of enterprise applications.

SAP is a 11,5 billion Euro revenue company, with more than 100,000 customers in 120 countries [8]. SAP's focus is on offering software as a product, but SAP is actively working on increasing the software as a service business. In addition, SAP also offers system integrator services and a variety of support services.

5.1 SAP business model details

One part of SAP's business model is acting as an inventor. SAP's inventor business means sunk cost of development, but there is no direct revenue stream compensating for the inventor activities. This would work for SAP if and only if there are enough customers paying for licenses, maintenance and support in the future to make the break even for each product invented. By having a hybrid business model, SAP's revenue streams for IP Lessor and Contractor business (license, maintenance and support revenue) cover for sunk cost of inventions.

Another part of SAP's business model is the IP distributor business. Here SAP acts as a reseller and revenue share partner for a number of partner solutions. SAP distributes usage rights for the intellectual property of SAP partners while avoiding the sunk cost of inventing these solutions.

Furthermore, SAP has IP Lessor business working in a direct and indirect way with customers. While SAP owns direct business for very large and large enterprises, they engage with partners to get access to small and medium sized customer companies. SAP offers all models of the IP Lessor business. While most of the customers run along the traditional model of SaaP, SAP is increasingly targeting the software as a service business.

Yet another business at SAP is the financial lessor business since SAP offers financing to customers to pay for their license fees. SAP also acts as a physical lessor by running customer software on SAP's hardware. In addition, SAP offers SaaS solutions like SAP Business ByDesign or SAP CRM on demand, which are running on hardware in SAP data centers.

SAP also acts as a contractor by providing consulting services, support and maintenance services as well as customer specific development for SAP's on premise offerings as well as operating services for SAP's SaaS products.

Last but not least, SAP has an IP broker business [2]. They host an online solution partner marketplace called SAP Ecohub. Partners can advertise their solutions there and SAP can get a revenue share from partners if leads for partner solutions are created via SAP Ecohub. SAP is also advertising partner products and services that are resold by SAP on SAP Ecohub. Overall, SAP is extending their activities in the partner ecosystem in order to increase revenue from the ecosystem.

5.1.1 SAP's Revenue Models

Figure 7 gives a simplified view of SAP's revenue model, because only large streams of revenue are listed. The largest stream of revenue for SAP is revenue for maintenance and support followed by a revenue stream for SaaP. Revenue from maintenance and support services is used to compensate indirectly for inventor business at SAP. Emerging revenue streams at SAP are for SaaS and revenue from the ecosystem.

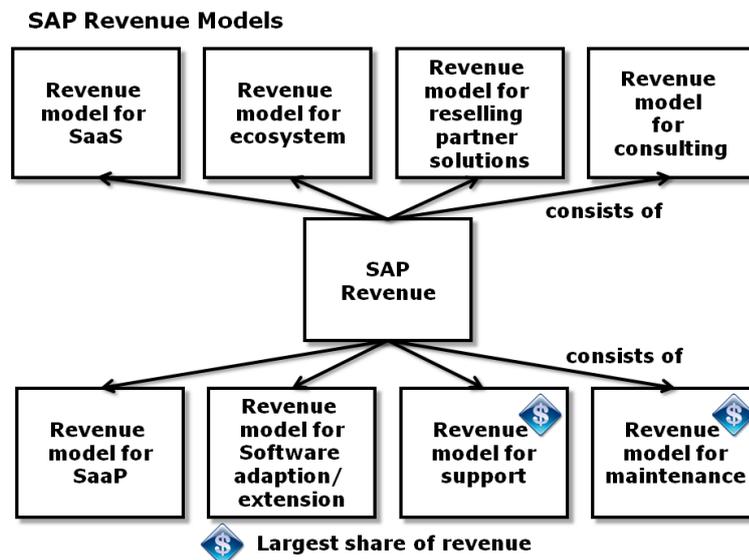


Fig. 7: SAP revenue models.

5.1.2 SAP's revenue model synergies

SAP's hybrid revenue model allows to fund new product development from support and maintenance revenue models. In addition, funding of SaaS activities by revenue from SaaP seems possible. The revenue generated also allows SAP to acquire companies and thus extend their business and revenue models.

5.2 Microsoft's business model

The second software vendor analysed here is Microsoft. Microsoft is a very large company with a number of different business models and over 60 billion US Dollar revenue. Analogous to SAP, Microsoft is rapidly changing from a company that was solely focused on offering software as a product to offering software as a service solutions. As a difference to SAP [8], Microsoft is in the business to business as well as in the business to consumer business, Microsoft offers software and hardware solutions, Microsoft has done significant steps forward in establishing a software as a service offering in the business to consumer business (with Windows Live etc.) and Microsoft does most of its revenue indirectly through partners. Hardware vendors are bundling Microsoft operating systems, software vendors are including Microsoft's databases in their offerings etc.

Microsoft has direct and indirect IP lessor business with end customers and offers all models of the IP Lessor business with most of the revenue being indirect. In addition, Microsoft has a well established cross-licensing business with a number of software vendors. Microsoft's Partner solution finder allows customers to find partner solutions on Microsoft's website, so they match partner offerings with customers (IP broker business). But Microsoft is also extending their business models into other types of broker business. Microsoft partners with Yahoo in the advertising/matchmaking business and provides advertising opportunities via their search engine Bing and as part of Windows Live.

5.2.1 Microsoft's revenue models

As mentioned above, the main source of revenue is the ecosystem of partners. Many hardware vendors (computers, cell phones, cars) are delivering Microsoft operating systems as part of their offerings and many SaaS and SaaS software vendors base their solutions on Microsoft operating systems and database platforms. In addition, Microsoft has revenue coming from SaaS (Windows Live) and from appliance sales (e.g. XBox).

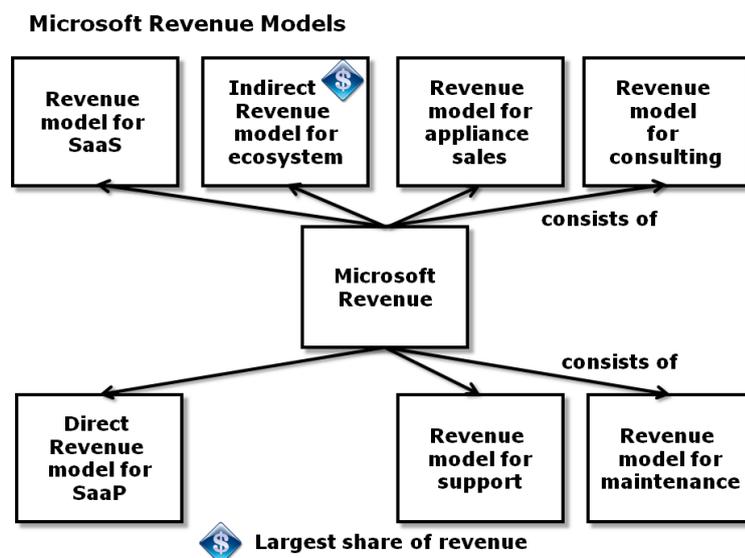


Fig. 8: Microsoft revenue model.

5.2.2 Microsoft's revenue model synergies

Microsoft's direct and indirect revenue allows Microsoft for their activities in the SaaS and other new areas of business.

5.3 Google's business model

Google is a software company that started in the search and advertising business and has extended its business to many other areas. Google's revenue in 2010 was 29 billion US Dollars, mainly from broker business.

What Google does successfully is matchmaking between advertisers and potential customers. But Google has more products and services than just advertising and search. Let us have a look at the business model. We start with the products/services offered and the business model archetype.

Besides of Google's main business as a broker, Google is a manufacturer of the Google Search Appliance, which is a hardware appliance that includes Google's Search Engine. Target customers are companies, that should use the search appliance for searching their intranet. Inventor business at Google is mainly focused on inventing products for the broker business and for other SaaS offerings like Google Apps, Gmail or Google Voice. The SaaS offerings are created by combining the business models Physical Lessor, IP Lessor and Contractor. In addition, Google acts as a IP Lessor for browser, operating systems and content of books.

5.3.1 Google's revenue models

This overview is limited to large sources of Google revenue. As mentioned above, the main source of revenue at Google is from their broker business, which we will analyze in a little more detail below.

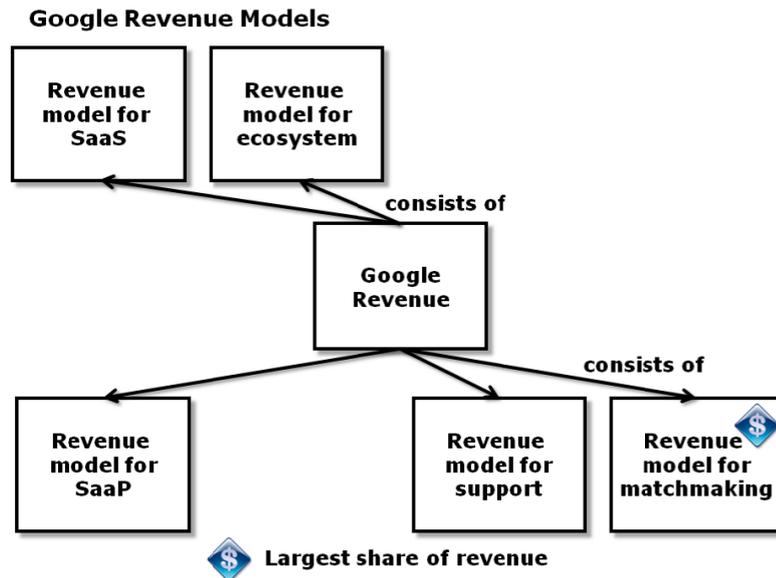


Fig. 9: Google revenue models

Now let us have a look at Google’s revenue model for the broker business. As you may remember, there usually is a compensation for every product and service, not necessarily as a payment. In Google’s case the non-monetary compensation for their search offering is the key to Google’s fortune. In Fig. 10 you can see that Google’s search business basically provides a search service to search customers and a PPC (Pay per click) advertising service to its advertising customers. The compensation for the PPC advertising service is payment per click on an advertisement. The non-monetary compensation for the search service is data about the user who is searching.

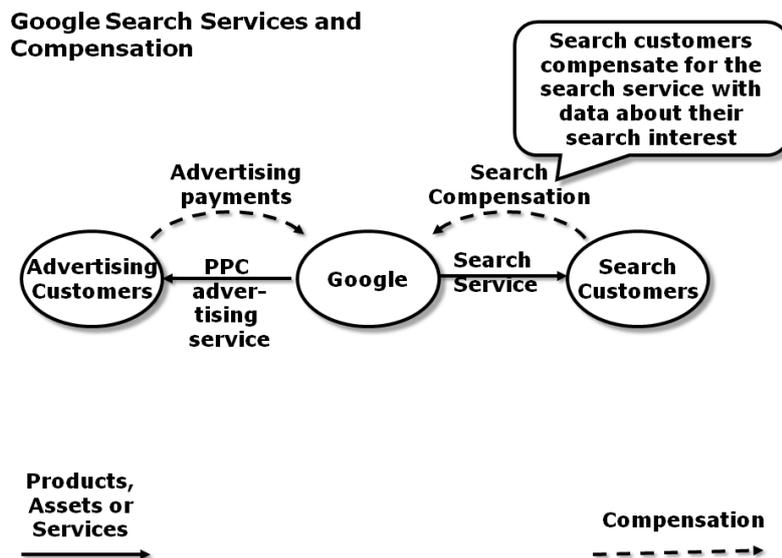


Fig. 10: Google services and revenue streams.

5.3.2 Google’s revenue model synergies

This business model has two striking advantages: The information about the search customers is provided to Google for free and Google sells advertising space, perfectly matched with the customer information, to advertisers via an automatic online auction. So Google leverages a revenue synergy between the search and advertising business. The revenue generated in the broker business is used to carry the sunk cost and operations cost of offerings like Gmail and others.

6 Comparison of the three revenue models

Software companies design and frequently change their business models and corresponding revenue models to create competitive advantage and to adapt to a changing business environment [9]. In addition, they try to leverage synergies Figure 11 shows similarities and differences of the three business models.

Comparison of the three revenue models

	SAP	Microsoft	Google
Main business model	Software as a product (hybrid)	Software as a product (hybrid)	Broker (hybrid)
Main source of revenue	Maintenance and support	Indirect license revenue	Advertising
non-monetary Revenue streams	No	Yes (Bing)	Yes (Broker)
Revenue synergies between e.g. ...	SaaP maintenance, support and SaaS	Ecosystem and SaaS	Advertising and all other businesses
Impact of existing ecosystems	Customer ecosystem funds innovations and subsidizes new business	Partner Ecosystem funds innovations and subsidizes new business	Customer and partner ecosystem subsidizes new business

Fig. 11: Comparison of the three revenue models.

While SAP and Microsoft both are currently focused on software as a product, they show significant differences in their revenue models and main target customers. Google in contrast, is focused on its main broker business model and has advertising as main source of revenue. It is interesting to see the similarities that all three vendors do follow a common trend in the software industry to offer SaaS solutions. But here, again, they also show differences in the target customers. While Microsoft and Google are mainly focused on consumers, SAP is mainly focused on businesses as customers.

An interesting view on the three companies is how they leverage their customer and partner ecosystem. SAP mainly uses revenue from its customer ecosystem to fund innovations and new business, while its partner ecosystem is still not a significant source of revenue. Microsoft leverages its partner ecosystem to create most of its revenue to fund innovations and to subsidize new business. Google, in contrast, leverages the customer and partner ecosystem to massively subsidize new businesses.

7 Summary

This article has outlined a classification of business and revenue models of software companies and a structure of business models as well as revenue models. These were applied to three successful companies in the software industry showing similarities and differences in their status quo and future direction. Insights provided here are:

Software companies usually have hybrid business models. Each of the business patterns used has its specific characteristics and the combination of them creates a hybrid business model with special characteristics. Related to software ecosystems, there has to be a fit of business models between the companies in the software ecosystem.

Hybrid business models might differ between software vendors to create competitive advantage. So the specific characteristics of hybrid business models might be used to differentiate from the competitors. But that differentiation between companies might also pave the way for a symbiosis in a software ecosystem.

Software vendors usually have hybrid revenue models. The structure of revenue models with their combination of revenue streams, often containing one or more non-monetary compensations, can be a source of competitive advantage in a business model. Related to software ecosystems, there are two aspects. One is, that there might be revenue models specific to the software ecosystem like software ecosystem fees or revenue shares. The other is, that

Revenue models can be used to fund business patterns or businesses that are not connected by causality. This funding might be used to create competitive advantage, e.g. by establishing lower pricing for other revenue streams. It might also be used to subsidize the software ecosystem, e.g. by donations of a commercial software vendor to the open source community.

Overall, it was proposed that creation of competitive advantage is possible in business and revenue models. It is obvious that this paper only shows an initial view of the subject and further detail research is warranted. Topics of interest for that research might be profitability of different business patterns, new combinations of hybrid business models and hybrid revenue models based on additional software companies analyzed and matching of business and revenue models of different companies in a software ecosystem.

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