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Patterns for startup business models

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A large effort in industry and academia in the area of business modeling suggests that the successful commercialization of an innovation strongly depends on its business model. The present article investigates this theory with the goal to find common patterns that can be used to leverage startup resources, and their commercial success in general. For this reason we assessed different business models for software based products and companies. We identified a general business model pattern, and two patterns for software business models in particular. Startup companies can use those patterns to revise their development options prior to product development, and to assess their options.

Categories and Subject Descriptors: **Business and organizational Issues:** Business model patterns;

General Terms: Business model patterns

Additional Key Words and Phrases: Innovation management, Patterns

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1. INTRODUCTION

Choosing the right business model is one of the challenges that new companies face (Chesbrough 2010). Business modeling is therefore seen as an integrate part of the entrepreneurship process (Sahlman & Stevenson 1989). For some researchers it contains the process of opportunity recognition, as well as the marketing and finance elements in the process of resource acquisition (Baden-Fuller & Haeffliger 2013). Others claim that it is the connecting piece between those (Ruseva & Ruskov 2015a). The empirical evidence for the importance of the business model is only one reason for the current study of business model patterns.

Another reason is that a good business model can not only leverage profits, but it also is the most important requirement to capture value from innovation (Chesbrough & Rosenbloom 2002). Therefore, the outcome of the commercialization of one technology depends on the business model it is based on (Chesbrough 2010). In other words value is created not only by the technology itself, but also through the business model. For this reason we consider the business model an integral process, comprising three main elements: opportunity recognition, solution architecture, and a commercialization plan (Ruseva & Ruskov 2015a).

The third and crucial reason for the study on hand is the tremendous velocity of technological progress that renders a development head start insufficient. The is similar to the concept of *planned obsolescence* or also *built-in obsolescence* as a policy of artificially limiting a product's useful lifetime (Fitzpatrick 2011). In software design the limitation is not in the product's lifetime, but in its *imitability*. The current study of business model patterns is an effort to support startups to overcome this weakness by offering them a framework for business model definition. This has the potential for a huge benefit by minimizing development effort and focusing on alternative activities depending on the type of their business model.

The goal of the paper is to address the needs of software startups for resource-oriented guidance, and provide them with a reference for their options. The paper addresses student companies or internal accelerator programs as leading sources of young software projects.

The paper is structured in 5 chapters. The first chapter briefly represents the motivation for the current study, by demonstrating its current importance. Chapter two provides an overview of the essential theoretical pinpoints that are related to the patterns presented in this paper, as well as to the specifics of software startups. Chapter three presents a general pattern for a business model, applicable to companies in any industry. Chapter four presents a specific pattern for software startup business models. And finally, chapter five discusses the results of the study and gives hints to existing patterns related to the topic.

2. THEORETICAL BACKGROUND

2.1 What is a business model?

The business model has gained importance after the bubble burst in 2001 (Osterwalder u. a. 2005). With the Internet and the complex environment of the globalization the term business model evolved to an individual science sector (Demil & Lecocq 2010), investigating the question why some companies succeed and others don't.



Figure 1: Definition of a business model as to (Burgelman u. a. 2008)

The most frequently cited definition of a business model suggests a value-based perspective: “a construct that describes how a company creates and captures value” (see Figure 1)(Burgelman u. a. 2008). There are contradictive opinions not only about the importance of the business model, but also about its nature. Whereas some almost exclusively define it from a clearly financial perspective, e.g. How does one business make money (Johnson 2010), others accentuate on its competitiveness (Magretta 2002), e.g. What is the competitive advantage. Teece even sees business models as conceptual rather than financial models (Teece 2010). Researchers are also divided on the question if the business model is part of the strategic framework or an individual discipline (Baden-Fuller & Haefliger 2013).

2.2 How to create a business model?

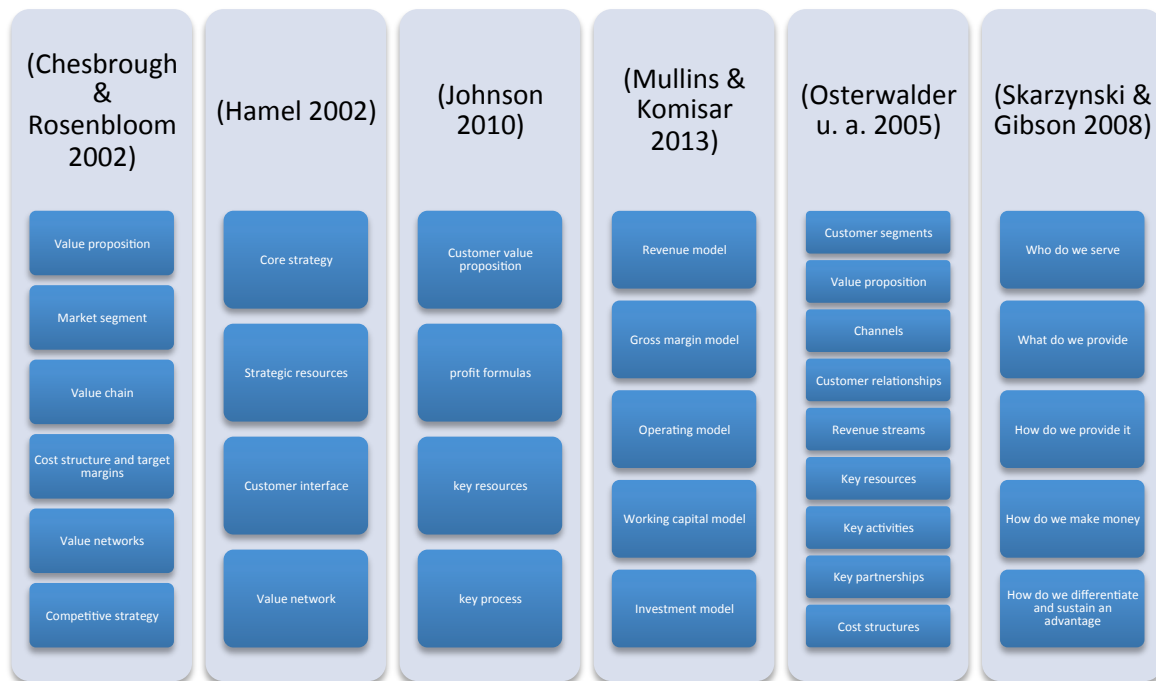


Figure 2: Elements of a business model

Business models are usually seen as a set of elements that describe the businesses architecture; a.k.a. business modeling frameworks. Business modeling frameworks therefore are more like a list of ingredients then like recipes. Figure 2 shows the most popular elements of business modeling frameworks. It demonstrates a more conceptual than actionable nature. For this reason currently available business modeling frameworks are great at representing a current or a planned state of a business architecture but not that helpful for design purposes, i.e. as an action-oriented business design process. A few of those frameworks contain a differentiation element,

e.g. (Skarzynski & Gibson 2008) but any of them can be used to describe a generic business model. (Ruseva & Ruskov 2015a) suggest that any business model can be described through its underlying generic business model and a differentiation element, e.g. Subway has a generic fast food restaurant business model with the differentiation of individualization, and Apple has a generic business model of hardware manufacturer, with the differentiation of design.

2.3 What is special about software startups?

A business model pattern for software startups should take into account their specifics. First of all, they usually “trade” with intangible goods, which means that they do not need a warehouse. Secondly, the cost of goods sold is almost entirely determined by marketing and human resource spending, whereas the marginal manufacturing cost is negligible. These result in a relatively high proportion of variable cost, and low fix cost factors. This not only facilitates rapid growth, but also significantly reduces investment amount and respectively capital costs. On the other side, they do require an initial development investment before they are able to start selling. In comparison to typical commerce, which might start on a small case and still generate revenue software businesses need to develop a software first and can only sell it after it has some functionality at all.

Even if every business needs a differentiation in order to be successful, business models, in the software industry, too, can be classified upon their generic basis. In software, there are six generic business models (Ruseva & Ruskov 2011):

- Independent software vendors (ISV) – software manufacturer, who can sell software in different ways, directly or through a distribution channel
- Value added reseller (VAR) – companies reselling software licenses from ISV to consumers or business, and offering additional services, like consulting, installation, customization, maintenance and so on
- Distributors – Intermediaries in the software distribution process, usually between ISV and VAR
- Original equipment manufacturers (OEM) – companies buying wholesale licenses from vendors, who modify and repackage them to create a separate self-branded product. The latter can be redistributed in either way.
- System integrators (SI) – Companies realizing solutions on the basis of products of a couple of vendors for business customers
- Software-as-a-Service (SaaS) providers – software provided as a service through the internet

3. GENERAL PATTERN FOR A BUSINESS MODEL: THE CORE OF EVERY BUSINESS

<u>PATTERN NAME</u> The core of every business	<u>AUDIENCE</u> internal startups, startup accelerator teams, student companies, product managers, or private persons investigating a business opportunity	
<u>PROBLEM</u> Which are the essential elements of a business model that startups need to define in order to get a clear picture of their idea?	<u>FORCES</u> <ul style="list-style-type: none"> • There exist a number of elements each of which can change the final business model. • Startups lack resources. • Most startups lack business or entrepreneurial skills. • Most startups fail due to a wrong business model. • The startup team needs to gain a common understanding of their business model. 	<u>SOLUTION</u> Startups need to only focus at three elements first. Their calibration will allow them to identify a number of questions that need an answer as well as their assumptions for the business. This very core of every business consists of three elements: <ul style="list-style-type: none"> • Marketing product • Technological solution • Sales channel
<u>QUESTION</u> Which are the essential elements of a business model that startups need to define in order to get a clear picture of their idea?	<u>CONTEXT</u> The pattern applies to early-stage startup projects in any industry and the person behind them when they need a decision to pursue or to drop the project.	<u>CONSEQUENCES</u> By focusing their efforts only at the core of every business startups save resources and gain velocity at iterating until they find the right idea.

Figure 1 The core of every business

Audience:

Internal startups, startup accelerator teams, student companies, product managers, or private persons investigating a business opportunity

Context:

The pattern applies to early-stage startup projects in any industry and the person behind them when they need a decision to pursue or to drop the project. *An example for a context might be a team of students in computer science which have developed an application which they are interested to further develop and commercialize.*

Problem:

How much is enough, but not too little. In a situation of limited time and resources every next step needs to be the one with the highest impact. So what is essential? What is the right scope at defining the business model for a startup company? What is the first minimum effort that a company should spend in designing their business? **Which are the essential elements of a business model that startups need to define in order to get a clear picture of their idea?** *An example for the problem might be that the student team does not where to start when planning the future business.*

Forces:

- Startups need to define a number of elements each of which can change the final business model.

- Startups lack resources.
- Most startups usually lack business or entrepreneurial skills.
- Most startups fail due to a wrong business model.
- Startups usually consist of a team which needs to gain a common understanding of their business model.

Solution:

Through the overview of business model elements in Figure 2 we discovered **three essential elements of a business model** - a general pattern for a business model, which we will further refer at as the “**core of every business**”. Startups need to only focus at three elements first. Their calibration will allow them to identify a number of questions that need an answer as well as their assumptions for the business. This very **core of every business** consists of three elements:

- Marketing product
- Technological solution
- Sales channel



Figure 3: A general business model pattern: “The core of every business” marks the three elements of business models.

3.1 Marketing product

This is the outcome of the opportunity recognition process, where a customer need or a problem is discovered, e.g. “*As a support engineer I need quick access to customer history.*” The resulting marketing product is then “*a quick access to customer history*”. This is the reason why customers would buy the product. As Christensen puts it “the task your customers your product for” (Johnson u. a. 2008). This is the reason why we call this a “marketing product”.

The marketing product answers questions like: “What is the customer problem?”, “What is the customer need?”, “What benefits does the innovation deliver to the customer?”, “What partners are involved in the value creation process?”

3.2 Technology solution

Now, what customers say they want is not always what they need. Ford ones said “If I asked customers what they wanted they would have answered quicker horses.” Indeed being quicker is a requirement that one can solve in different ways. This means that for every marketing product there exist a number of possible corresponding technology solutions. It is the company’s task to decide which one they can implement best.

The technology solution usually answers questions like: “How does a company solve the problem?”, “What is the technology that can solve the customer problem?”, “How can technology facilitate existing ways of doing things?”, “What partners are involved in the creation process?”

For our support engineering example a technical solution might be a library of customer folders, but also a CRM or a ticketing system. Or an additional text search engine for one of those. There are unlimited technical solutions to every customer problem but only one most important problem or need why they would buy it.

3.3 Sales channel

Successful innovation is defined as something new that has successfully settled down on the market. This means that every innovation contains a working sales channel. This is the channel, through which your customers can acquire the product, and you can acquire back the profit (Value capture). It usually answers the questions: "How does the product/service get to the customer?", "Where is the product/service sold?", "How much does it cost?", "What partners are involved in the sales process?", "Who pays what at what time?"

If the Marketing Product and the Technology Solution comprise the process of Value creation, the Sales Channel serves the Value Capture element from Christensen's definition (Figure 1). There are not endless sales channels but there are many. A startup needs to find the most efficient one in order to capture the highest value from the innovation. E.g. a sales channel for a CRM system might be a Key account management force, but for a search engine add-on for a CRM system it might be an individually downloadable extension on the internet.

The pattern can be applied for example at the idea of the student team which wants to provide home exercise with the opportunity *to exercise whenever they want, wherever they are, however they like it* (**marketing product**). The company then needed to define a technological solution for the marketing product. The technology solution depends on the marketing product, but there exist alternatives. There were different options for this, e.g. an online platform with video recording, a live streaming platform directly from the gym, a mobile app or even a book with instructions. The company then chose to implement a live streaming platform for fitness gyms (**technology solution**). Each technology solution narrows down the options for the sales channel. In the case of the live streaming platform for fitness gyms, the sales channel was *direct B2B sales* (**sales channel**).

Another startup, which has expertise and access to freelance fitness instructors, might rely on word of mouth among them as a sales channel. Having defined that, they would need to create a technology that serves the fitness instructor, e.g. a scheduling app for instructors, or a video platform with exercises (technology solution). This technology solution then needs to serve a marketing product that instructors are willing to pay for, e.g. higher productivity for instructors.

Consequences:

By focusing their efforts only at the core of every business startups save resources and gain velocity at iterating until they find the right idea.

4. BUSINESS MODEL PATTERNS IN SOFTWARE: OPTIONS FOR SOFTWARE

<u>PATTERN NAME</u> Options for software	<u>AUDIENCE</u> Young software projects, startup teams with an idea of a software technology or an existing prototype that want to develop the right business model for a high-growth company with potential for venture capital investment	
<u>PROBLEM</u> Many startups develop business models that are not feasible venture capital investments. Startups unaware of this invest their limited resources in investment development instead in sales. Although they would have been able to grow organically and break-even without an investment.	<u>FORCES</u> <ul style="list-style-type: none"> Startups do not know if their models are able for organic growth. Not every model is a high-growth model. Companies do not need a high-growth model to become very successful. It is essential not to invest scarce resources in the wrong option because every waste might end deadly for young companies 	<u>SOLUTION</u> <ul style="list-style-type: none"> All startups generally have two options: to complete product development before being able to sell it, or to develop the product/solution together with their customers. Chose the right option through the application of 4 sub patterns: <ul style="list-style-type: none"> Classic pattern Enterprise software Open innovation Mass customization
<u>QUESTION</u> After creating the business model, should the startup focus on product development or on sales?	<u>CONTEXT</u> The pattern applies when an idea is evaluated for high-growth potential, between the processes of business modeling and product development. The prerequisite for the solution is that the startup has defined the core of their business.	<u>CONSEQUENCES</u> After assessing their options startups have the confidence to either pursue with software development, or to focus on sales. They save resources and energy and have better results by choosing one key initiative for their activities.

Figure 2 Options for software

Audience:

Young software projects, startup teams with an idea of a software technology or an existing prototype that want to develop the right business model for a high-growth company with potential for venture capital investment.

Context:

The pattern applies when an idea is evaluated for high-growth potential, between the processes of business modeling and product development. The prerequisite for the solution is that the startup has defined the core of their business (see Chapter 3).

Problem:

Many startups develop business models that are simply not feasible for venture capital investors. Startups unaware of this invest their limited resources in investment development instead in sales. Although they would have been able to grow organically and break-even without an investment, i.e. create a successful business, they then lose their time in the investment process and the company loses ground. **After creating the business model, should the startup focus on product development or on sales?**

Forces:

- The business model influences growth factors and sales cycles.
- Startups do not know if their models are able for organic growth.
- Some innovations do not bring the growth factor necessary to be invested and have to grow organically.
- Some sales channels allow startups to grow organically without an investment.
- Some marketing products provide a sales opportunity before product development.
- It is essential not to invest scarce resources in the wrong option because every waste might end deadly for young companies

Solution:

All startups generally have two options: to complete product development before being able to sell it, or to develop the product/solution together with their customers. Software products are usually either developed as out-of-the box-solutions (e.g. Microsoft Office, Mobile Apps, Games) or as custom solutions (e.g. Application software for transportation companies, in-car entertainment for a particular brand etc.). Custom solutions are usually developed hand-in-hand with the customer and represent a reduced risk for investment since both parties share initial development cost (or are even covered by the customer).

In the software industry an example of a product that needs to be completely packaged before sold is a mobile app. Mobile apps need to be completed in the form of a minimum viable product before their upload in an app store. Moreover the quality of an app in the first use often decides if the user will ever return to the service. A different example from the software industry however shows that for some software products the other way around is more suitable and even preferred – enterprise software. This means that if a company has a sales channel (relationship to a buyer of enterprise software) they might base their business model on that and go for the enterprise model instead of the pre-configured application. This would reduce the risk in product development and also make them more independent from investment availability (partly prepaid configuration).

Consequences:

After assessing their options startups have the confidence to either pursue with software development, or to focus on sales. They save resources and energy and have better results by choosing one key initiative for their activities.

4.1 Sub patterns

The meta-pattern Options for software represents **4 sub patterns** for possible business models in software according to the level of completeness of the technological solution and the possibility for revenue streams before or during development.

4.1.1 Classic pattern (e.g. a mobile app, Microsoft Office)

The classic pattern for software is the standard software development process of ISVs. They first develop a technology solution, and only after it is completed it is pushed into the sales channel. This doesn't mean that such products are not successful or do not consider customer requirements. But this pattern only allows for revenue after the product is out of the development process.

An example for such patterns are represented by mobile apps. You can only place an app in the app store after its development has been completed. Those can hardly be individualized (except probably for interface). Investors are less likely to invest in such models before the maturity phase, but if a company already has the product developed then they do not necessarily need an investment and can pursue into sales and grow organically until a point where they are able to be invested.

4.1.2 Open Innovation pattern (e.g. Apples Apps)

Open innovation (a.k.a. co-creation) specifies the process of opening organizations' innovation process towards their external environment in general. In particular it identifies the active and deliberate

engagement of customers in the product development. In software this model defines custom technology which is developed as requested and/or co-designed by the customer. It is so created (or co-created with the customer) before sales.

An example for open innovation is Apples App Store which is filled almost entirely by their customers own product and is one of the key success factors for their current market share. Investors are interested in such models, sufficient market demand provided and proven since they minimize risk.

4.1.3 Enterprise software pattern (e.g. a CRM system, or industry applications)

Enterprise software comprises applications and application infrastructures for business purposes. Those are used throughout the complete value chain of a company. Such solutions usually need a high level of individualization, are very complex, and need longer development. For this reason they are usually developed closely with the customer. This means that at the beginning of the development process a sales channel already exists (see Chapter 3).

This comprises a minimum risk and makes them a popular investment target of venture capital or bank loans. Companies having the sales channel however might decided to pursue the opportunity without an investor in order to capture a higher value form the opportunity. This models allows for this option because usually pre-payments or consulting fees finance development upfront or during the process.

4.1.4 Mass customization pattern (e.g. online car configuration and order, Spreadshirt)

Mass customization represents a predefined set of individualized features (like the picture-print on a T-Shirt). Customers usually chose from those, or configure their final product, through an electronic interface. Only after their complete and binding order is placed, is the product manufactured.

An example for a mass customization software-based startup is Spreadshirt – an online platform for T-shirt printing, where T-shirts are designed by the consumers and ordered online. This model also limits risk for investors.

Technology Solution	Custom	Open innovation pattern (e.g. Apple App Store)	Enterprise Software pattern (e.g. a CRM system)
	Out-of-the box	Classic pattern (e.g. Mobile App)	Mass customization pattern (e.g. Spreadshirt online shop)
		Make before sell	Sell before make
		Sales channel	

Figure 5: The 4 “Options for software” make it easy for software startups to identify their next step: development or sales

5. CONCLUSION

Both patterns suggest means of optimization of the scarce resources at young companies. They contribute to an action-oriented business modeling framework which startups can use for more than architecture and visualization purposes, and as a sparing partner (Ruseva & Ruskov 2015b).

The “Core of every business” pattern eliminates waste and extracts the three essential elements of a business model which startups need to define. It offers a shortcut towards business planning through conservative planning. It reveals the main relationships between marketing product, technology solution, and sales channel. The “Core of every business” motivates startups to identify sales channels right at the start of product planning by putting it on a par with product design and development.

The “Options for software” pattern was another consequence of the study. Although young entrepreneurs were found to have a good general understanding of the term business model, its particular characteristics for the business of software found little or no consideration. Through the “Options for software” startups again are stimulated to develop a sales channel early in the product development stage, when it is possible. It is an actionable system which provides guidance for startups and investors, at the same time.

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