More patterns for Software Companies
Product development
(EuroPLoP 2007)
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1 Introduction

Many patterns have been written concerned with the design and architecture of software systems, e.g. (Gamma et al. 1995; Manolescu et al. 2006; Schmidt et al. 2000) to name a few. Other patterns have been written describing the organizational development of software organizations, e.g. (Coplien and Harrison 2004; Marquardt 2004) among many. The patterns presented here are concerned with product development, business strategy and the operations of software companies.
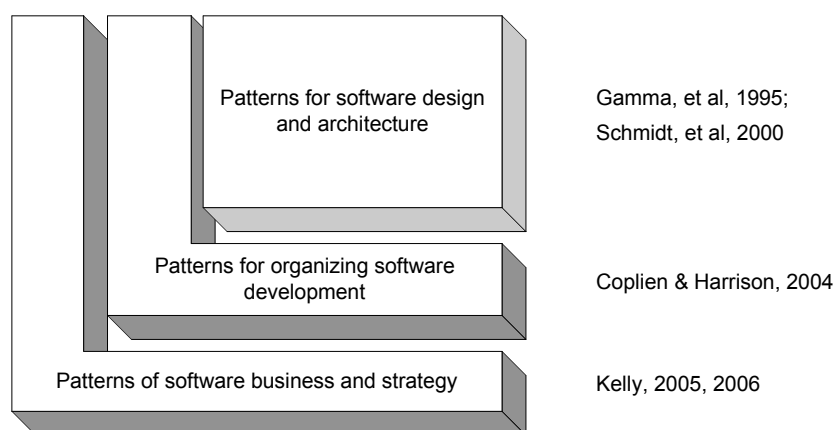

Figure 1 - Patterns for all aspects software

The patterns in this paper describe product development techniques common in software companies. These patterns build on the authors' earlier work on business patterns (Kelly 2005a, 2006a) within the business pattern framework previously described (Kelly 2005b, 2006b).

From this work there are several business pattern themes emerging (Figure 2). One theme concerns overall business strategy for the company, others concern product development, e.g. CORE PRODUCT ONLY (Kelly 2005a), and a third stream look at the interplay between the product and service offerings of a company, e.g. CONTINUING SERVICES FOR PRODUCTS (Kelly 2005b).
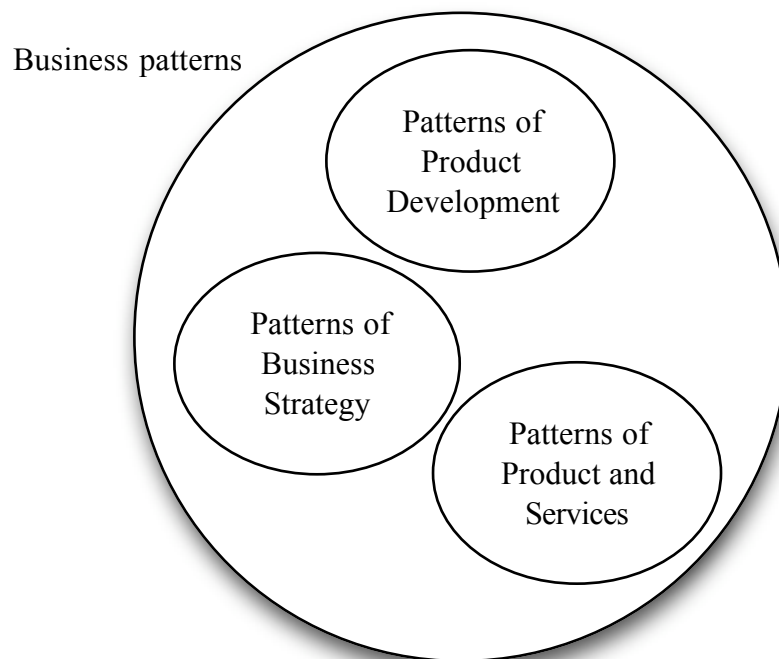
Figure 2 - Emerging themes of business patterns

2 Audience

These patterns are intended to codify several common business practices in a pattern language so that they may be better understood, communicated and studied. The patterns given here are intended for those interested in how corporate strategies may be applied. This group includes existing managers, future managers and entrepreneurs. In particular it is hoped that these patterns will be of interest to those who are on the receiving end of corporate strategies and tactics. For example, engineers, software developers and others involved in actually creating software and other technology.

The patterns in this paper, and others in the series may be read and applied outside the domain of software companies. They may be applied to technology companies in general and to non-technology companies in some instances. Indeed, the examples drawn from outside the software domain demonstrate the wider applicability of these patterns. These examples have been chosen primarily because they clearly illustrate the pattern in question.

The author has chosen to confine the domain and context of these patterns to software companies for two reasons. Firstly this is the domain the author knows and has experience in. Secondly, limiting the domain helps maintain the brevity of the patterns. Despite these deliberate limitations the author believes many of these patterns may be applied in context outside the software domain.
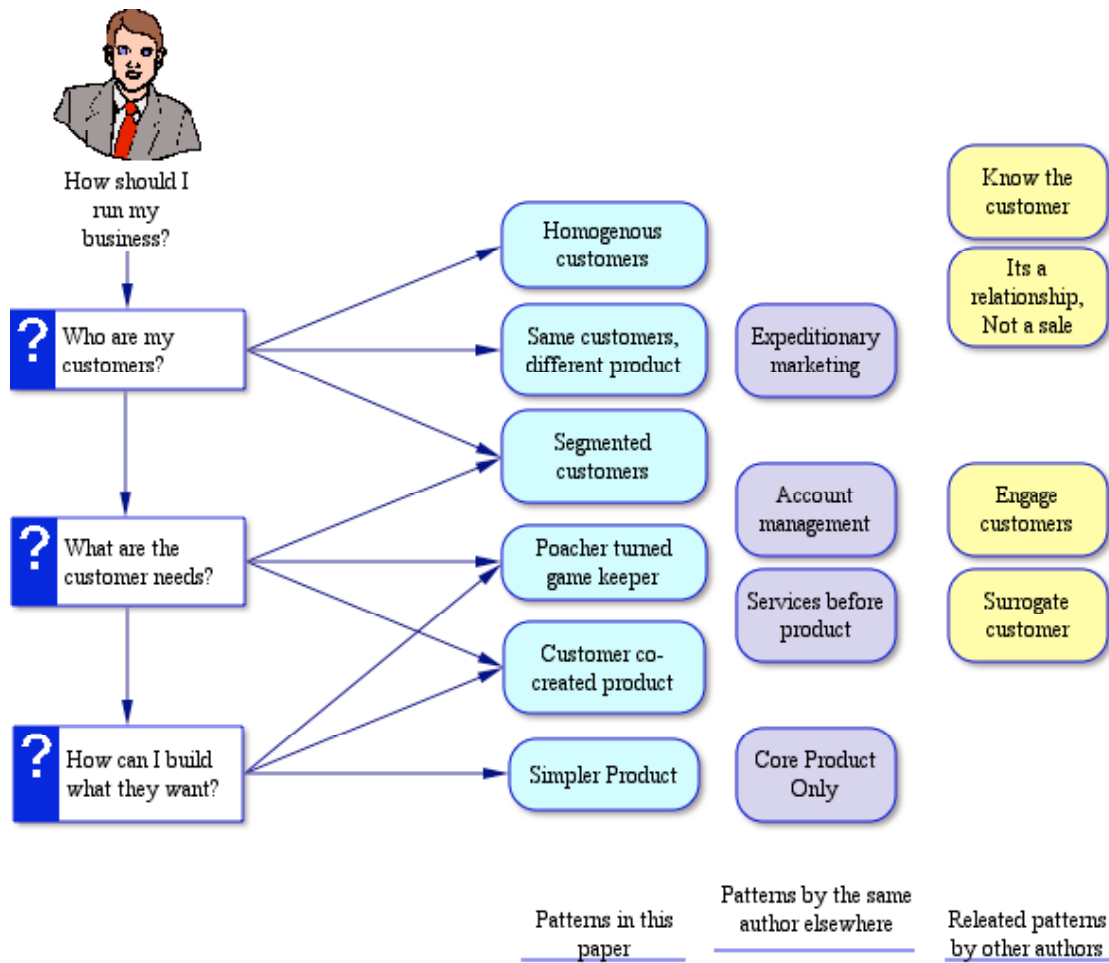
3 The Patterns

Figure 3 - Patterns map

There are a number of pattern sequences for the patterns in this paper, the author's previous patterns and future work, e.g. VikingPLoP 2007. A future paper will consider these sequences in more detail.

3.1 Homogenous customers

Microsoft MS-DOS was an early PC operating system. It ran on IBM compatible computers based on the 80x86 line of CPUs. Home users and corporate customers all used the same software which came in the same boxes with the same utilities and sold at the same price. At one time it was pre-installed on every PC whether the customer wanted it or not.

Context   You are establishing a new, possibly innovative, product in a new market. Your company is new and you have limited resources.

Problem   **How do I enter a market quickly when I do not understand the potential customers?**

Forces   Not knowing who your customers are might well be a sign of you do not understand the market. Money spent developing a product to enter the market may be entirely wasted if you discover that there are no customers after all.

Your product may be innovative and difficult to copy so you have little direct competition. But this also means it is difficult to validate the market and know who will buy your product and why.

A good understanding of customers and the market would help product development and direct marketing. Without a good understanding money may be wasted developing features you do not need and marketing to people who will not buy. But since the product and market are new it is difficult to know who will buy it until you enter the market. Further study may be useful but would take time and money.

Getting to market fast will save money, allow you to generate revenue and stake out some market space. But your product might be incomplete and competitors may copy the product.

Alternative you may choose to wait, hold back your technology, watch the market and learn what potential customers want. But this approach takes time, costs money and allows competitors to enter the market first.

Solution   **Aim to enter the market as quickly as possible. This will reduce costs and expedite market research.** Track who is buying your product and try and find out why. Use this information to inform further product development and marketing.

Start by assuming customers are homogenous and generalise about their needs and requirements. For the initial product select a few potential customers and extrapolate from their needs. Try not to choose people who are too close to your product already (e.g. developers and other employees.) If there is a particular customer is enthusiastic for early access to your product use CUSTOMER CO-CREATED PRODUCT to help inform your product development.

Keep the first product basic; resist the temptation to add more features. Since you know little about your potential customers any effort on additional features may be wasted. Extra features may actually deter some customers. Basic products may be supplemented with services – see PRODUCTS WITH SERVICES – to help meet customer needs. Such services will also bring in revenue and more information on customer needs.

Create tracking mechanisms to collect information about your customers. If your product is a mass-market product include customer feedback forms (online or postal), find customers and interview them, watch them use the product, ask about their experience and ideas.

For niche products you should know exactly who bought the product and who is using it - include registration mechanisms in the product. Send people to meet the buyers and users. Again find out what they are using the product for and how.

Review the information you have gathered. Look for patterns in who is buying your products, where they are buying them and if possible why they are buying. Start to segment your customers as soon as possible. You should be able to distinguish between financial buyers, power users and novice users at least.

Understand what problem each segment is using your product to solve. Use this information to create a second version of your product. This time you will make fewer guesses than before.

Consequences By entering the market quickly you can start to learn about your customers. If you have entered the market before your competitors (a so called *first mover*) then your lead will not last indefinitely. The more successful you are the faster competitors will try to copy you.

Once in the market your conviction will be tested. If the product sells you can start to examine who is buying it, what they are using it for and how they are using it. If your product is not selling you will still be able to ask people why they have not bought your product and what they have bought instead.

Success with a standard product for homogenous consumers may make it harder to change your approach. Sales staff may not want to be told which customer segments to target. Technical staff may not like being told which features to develop and which to drop.

While it is easier for you to study your customers your competitors can study them too. They will seek to understand your customers, your market advantage and look for opportunities to segment your customer base so their products can compete more effectively.

Variations

Examples

Also known as   -

Related work   HOMOGENOUS CUSTOMERS is typically used at the start of a products
life to get to market. Once in the market companies can use
EXPEDITIONARY MARKETING (Hamel and Prahalad 1991; Kelly
2004) for iterate over product development and improved customer
understanding. As the product matures move to SEGMENTED
CUSTOMERS.

In any given market different companies may be using different
patterns at the same time.
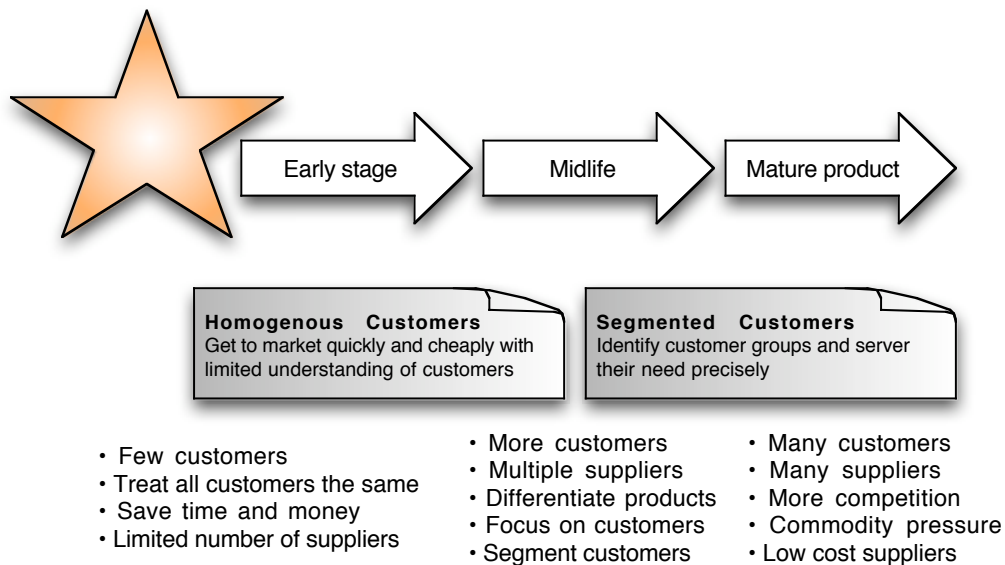
Sources   Author's observation.

Figure 4 - Patterns apply at different stages of the product life cycle

3.2 Same customers, different product

Once you have a relationship with your customers they will trust you and your brand. You are in a good position to understand their needs and wants. Growing your market need not mean acquiring more customers (which can be expensive); growing your market may mean selling more products to your existing customers.

Context   You are seeking to expand an established business with a number of customers.

Problem   **How do you maximise your return from existing customers?**

Forces   You already have a relationship with some customers. Satisfied customers have a positive impression of your company and your sales staff already have a relationship.

New customers are expensive and time consuming to obtain but existing customer already have your product.

In some markets there may only be a limited number of customers. Even where there are many potential customers there may be a "long tail" with a few big customers buying lots of products and many small customers buying a few products. But there may still be rich pickings in the long tail, neglecting smaller customers misses opportunities and risks opening the door to future competitors.

Big corporations like dealing with innovative firms because big companies often lack innovation themselves. But it is expensive for big firms to deal with many different suppliers. More suppliers results more in administration, more sales people visiting, more relationships to deal with - more time and more money.

Conversely innovative firms are often small, have few products (maybe just one) and need to find new customers. But selling to big companies can be difficult - you can't just walk up to the front door and knock - and can be bureaucratic.

Solution   **Expand your product offering so you have more products to sell to your existing customers.** Do this by focusing on the customer needs rather than the product in hand. This will benefits both you – you will sell more - and deepen your relationship and the customer – who will get a better solution.

An existing relationship with a customer is an asset; selling more products to the same customer will generate more revenue from your asset. In order to better address a customers need you need to understand the customer. Fortunately an existing relationship is a great way to get to know the customer and their problems. You can learn about your customers market, the problems and opportunities they face, their business strategy and growth plans. This will help you enhance existing products and illustrate opportunities for new products.

Some sales will build directly on the products you have already sold: more licenses for the same software, upgrades and add-on modules with new features are all possible. Services like support, training and installation are highly applicable to existing products - see PRODUCTS WITH SERVICES (Kelly 2006a) and CONTINUING SERVICES FOR PRODUCTS (Kelly 2005b).

Look also at what is used with your product. For example, software requires machines to run on, could you sell hardware too? Could you offer pre-printed stationary and forms?

Products with similar characteristics to your existing products can be natural complements. A company selling anti-virus software might also offer privacy or spam detection applications.

Products need not be developed in-house, your relationship with the customer will allow you to endorse other suppliers. You could put your name on someone else product - so called "badge engineering" – or you may just resell another vendors product.

Partnership and distribution agreements can also provide additional products for your sales force. In the extreme you may buy another company so as to add their products to your portfolio.

Individual customers may find a specially tailored version of the product to better match their needs. Similarly special integration with legacy or third party systems may enhance the customers experience of your product and provide extra sales.

Be careful not to annoy your customer by over selling or offering poor products. Just because you can make an extra sale does not mean you should. Selling a product the customer does not want, is unsuitable to the task or poor quality may sour your relationship with the customer.

Consequences Selling multiple products to the same corporations will entrench your position make it more difficult for competitors to displace your product. At the same time it will create more chances to learn about your customer and move the relationship forward.

Producing add-ons and enhancements for a product can provide useful revenue sources. However if they are bundled with the product to sweeten a sale they will generate no extra revenue.

With more products to sell you can concentrate your efforts on fewer, bigger, customers. This will be more cost effective for both you and the customers.

Focusing on the customer rather than the product will help you serve the customer needs better. Customers may welcome the opportunity to reduce the number of suppliers they deal with - buying is costly for them too.

Competitors might find it easier to enter your market through

smaller customer who you neglect in favour of the bigger ones. At first you may welcome this development as it removes smaller customers and allows you to concentrate on the more profitable ones. However this might provide the market opening a new competitor needs to get started. (See (Christensen and Raynor 2003) for more on this.) Alternative distribution channels, or different versions of your product can be used to address the smaller customers in the *long tail*.

Variations   Tailored versions of your product may result in improvements you can feedback into your main product line or insights you can use in developing the next product. However tailored versions also represent additional products you need to support and maintain in future. This can impose additional costs on the business.

Examples   Restaurant dining is still a new activity to many people in the Russian regions where few people visit restaurants as often as they do in America or even Moscow. The author had dinner with a Russian restaurant entrepreneur who knew he had 470 regular customers in a city of 1.5 million people. The slow growth in restaurant dining meant his main challenge was keeping existing customer supplied with a steady stream of fresh products (new dishes and new restaurants) to keep them spending money.

Also known as   -

Related work   This pattern builds on ITS A RELATIONSHIP, NOT A SALE (Rising 2002) which describes the ongoing relationship between a vendor and a purchase.

ACCOUNT MANAGEMENT (KELLY 2007) and CUSTOMER CO-CREATED PRODUCT may be used to help implement this pattern.

Research supports the view that repeat business from satisfied customers is cost effective: "a customer that generates £1,000 for a supplier in its first year is likely to generate a total profit of £50,000 if retained as a satisfied customer over 10 year." (Doyle 2002)

Sources   -

Product or Customer focus?

Technology companies often focus on creating the best product possible. This is natural, many of these companies come into being to commercialise a piece of technology. University spin-outs are a classic example of this, having developed some technology in the academic environment companies are formed to create products around the technology.

Product focused companies aim to produce the best product and develop their technology. Armed with technology they seek problems that can be solved by the technology. Such companies are often technically led and rich on innovation.

This approach stands in contrast to customer focused companies where the customers are paramount. Such companies focus on their customers needs and produce products using the most applicable technology whether it is cutting edge or well established.

In many ways these two approaches represent opposite ends of a spectrum. In order to be product focused a company needs technology, with technology they can seek to create the best product. Initially these companies have technology and products but no customers. This mode is typical of start-up enterprises.

Conversely, in order to be customer led a company generally needs to have customers so such companies tend to be more mature and have an existing customer base. In the service sector such companies may not even have products. Those companies that do sell products may offer a portfolio of products that change gradually over time. For example, motor companies offer a range of cars, models change incrementally each year and occasionally an entire model is replaced. Technology is used but only to satisfy customer needs.

It is intrinsically difficult to focus on more than one thing at a time and changing focus is hard. A company that starts life focused on technology may find it hard to acquire a customer focus as it grows but this may be exactly what is needed if growth is to be maintained. Changing focus requires a shift in culture and structure. For example, switching from product to customer focus means:

- Getting to know your customers in depth rather than finding the customers to match the product.

- Product changes need to be customer led not innovation led: Innovation for the sake of innovation is less important.

- Selling to the same customers again and again rather than selling new products to new customers. Consequently customer care and the after sales experience are increasingly important.

- Supplementing your product offering with services and add-ons rather than creating new products.

- Inbound marketing precedes rather than follows research and engineering.

It is not always easy for firms with a history of focusing on the product to re-orientate to a customer focus. Changing focus from product to customer can be difficult, you will need to change your practises and culture. You will need to get the customers voice heard within your organization. Staff will need to think less about "cool technology" and more about customer needs. Back office staff may not want to meet customers, technical staff may prefer to hide behind technology.

Reducing focus on products carries the risk that you might miss some technology advance. Competitors may use new technology to produce a superior product, or redefine the market in novel ways.

The focus and the customer/product spectrum represents one dimension of strategic positioning. *The Delta Model* (Hax and Wilde 1999) proposes three dimensions of positioning: customer solutions, best product and system lock-in. In this model companies position themselves in relation to these three apex.

Many of the patterns here, and in the author's other work, attempt to show how product focused companies can create better products and improve their customer focus.

3.3 Segmented customers

Software products often have multiple customers. Banks, airlines and hospitals may all use the same application. Within each group there will be different people and roles using the product. In a hospital you may find doctors, nurses, administrators and managers all using your application to do different things. Neither should you forget the manager who authorised the purchase but never uses the software.

Context   You make a technically complex product that is used by a variety of different people with different objectives in mind.

Problem   **Your customers all seem to want different things, how do you know what features to provide? What documentation to write? And services to offer?**

Forces   Your product may be useful to different organisations, professions and individuals. But needs and usage patterns will vary between groups. Trying to satisfy everyone is worthy but is likely to mean nobody is completely satisfied. Potential customers are not equal; they differ in needs, scale and budgets.

Within a single organization there are multiple user roles who will have different demands on your product. Users will have different requirements because they fulfil different roles and because they will have individual preferences.

Developing products, especially new ones, involves making judgements and guesses about how your product will be used. Many scenarios (or *use cases*) you imagine sound reasonable but may be unnecessary. Some scenarios will contradict one another. Doing all cases would be expensive and time consuming.

Solution   **Segment your customers into different groups and address the needs of each group separately.** Groups are defined on discernable attributes and characteristics that allow you to differentiate one group from another. Working with definable groups avoids generalisations that do not accurately describe any one group. You may choose not to meet the needs of some groups if doing so would compromise the needs of another. When resources are limited is it better to target resources than spread them thin.

Start by identifying your groups, define the attributes of each group and what differentiates them from one another. Next determine the size of the groups then prioritise those you are interested in for further study. Over time you may want to sub-divide groups or merge them together as your understanding grows.

The choice of who to serve reflects and informs your corporate priorities and strategy. Segementation avoid sidetracks where more attention is paid to a particular customer who may not be very

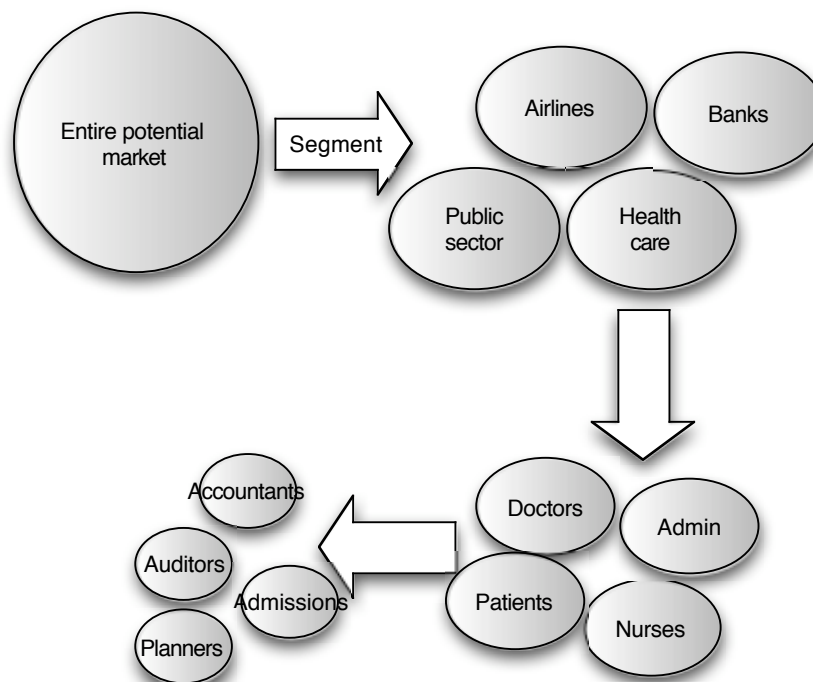important overall. Just because they shout loudest does not mean they are the right customer to serve.

Figure 5 - Break the market into ever smaller segments

Segmenting your customers will allow you to segment your market. As you decide which customer groups to serve you will define your market position relative to your competitors. You are also deciding who you will not serve. In some cases you may need to extricate yourself from some existing group to pursue your new targets.

Once you understand your potential customers, their needs and how they are different from other groups you can set about creating products to address their needs.

Consequences Those users you decide to serve will benefit because they will get a product that more specifically fits their needs. A deliberate choice not to serve some groups allows you to serve others better.

The groups you decide not to serve will benefit too if others decide to serve their needs specifically. In the short run it might be difficult to explain to customers and sale staff why you have decided to stop serving a particular group.

Targeting specific groups of customers will help you decide what products to build and what features they should have. This will take a lot of guesswork and 'what if' discussions out of the development process. Scenarios and use cases can refer to specific groups.

Sub-dividing your customer base will also help you spot opportunities to serve customers better. Sometimes it is not necessary to offer a different product to different customers groups,

all you need to do is emphasis different aspects of the same product; e.g. SUV manufactures may emphasise safety features to mothers and off-road abilities to husbands.

Knowing who you serve and how they differ from other groups will help to differentiate you from competitors. You can also avoid groups competitors already serve well.

Segmenting your customers allows you to understand the needs and usage of each segment in more detail. With a little imagination segmenting a market can go on almost indefinitely. However performing segmentation will increase your costs. In the long term you will save money on marketing and sales effort.

Acting on the information may require some difficult decisions. Such decisions may be unpopular, e.g. to discontinue serving particular customers or particular markets. This might cause bad feeling and arguments within your organization.

Variations	Segmentation can also be applied to pricing and distribution of a product.
	An extreme form of segmentation is micro-segmentation in which companies focus on even small groups.
Examples	
Also known as	-
Related work	CORPORATE CERTIFIED EXPERTS (Kelly 2006a) and SIMPLE PRODUCT VARIATIONS (Kelly 2005a) are both forms of customer segmentation.
	HOMOGENOUS CUSTOMERS described a view of the market before segmentation and should be contrasted with this pattern.
	The Inmates are Running the Asylum (Cooper 2004) describes the creation of user personas that can be used to help design user interfaces. The same technique is used by groups such as product management and marketing departments to better understand customers.
Sources	-

Salt

Once upon a time salt was a cheap commodity. Everyone bought the same salt. Today we can buy table salt, cooking salt, sea-salt, organic sea-salt, rock salt, salt crystals, reduced sodium salt and more.

When a market is young or unsophisticated one product can satisfy all needs. Having the basic product is worthwhile. Such an approach allows economies of scale to reduce costs and provide the product to many people who would otherwise not be able to afford it.

Yet this also creates opportunity for innovation and market segmentation. Understanding what is possible with the product -see SIMPLE PRODUCT VARIATIONS – and the customers – as described in SEGMENTED CUSTOMERS – can reveal new opportunities for differentiation.

3.4 Poacher turned game keeper

Former poachers know the how poachers think, they know the poachers techniques and motivations. This makes them effective at catching poachers.

Hiring someone from an customer organization can be a quick way to learn about the customers problems and needs in depth.

Context   You are a technology company making products and selling products to multiple businesses with multiple employees each.

Problem   **How do you get an in-depth understanding of your customer, their needs and the pressures they work under?**

Forces   Creating successful products requires a deep understanding of your customer, the problems they face, how they use current product and opportunities for new products. But, you can only learn so much from observing and questioning the customer.

Acquiring an in-depth understanding can take a lot of time and effort but in a competitive market place time to market is important. Spending time understanding the customer costs more money and delays work on the product.

Customers may be willing to help you develop your product but they will have limits to how much time they can spend working with you, after all they have their own jobs to do.

To really understand your customer and their needs you need to live the customer's life. But, you have your own life to live and your own job to do creating products.

Some sources of information should not be used because they breach ethical and legal boundaries. To do so may make your company and yourself liable to prosecution and damage the company reputation.

Solution   **Employ (ex)customers who have experience and knowledge of the application domain you are targeting.** These people may be employed as subject matter experts, product managers, analysts or hired on a consultancy basis for the duration of the project.

While your new employees will know your customer domain very well they may not understand your business or what is now expected of them. In their last role they were not business analysts or product managers so it is wrong to assume they can take on such a role overnight. Arrange suitable training and mentoring so they quickly master new skills and understand what they need to do.

For example, an expert hired from a telecoms firm to work as a software product manager will know a lot about telecoms technology, issues and opportunities. However, they will not know much about software development and product management. It may be wise to pair them with an experienced employee while they learn

the new role.

Once hired take these people to see your other customers so they can generalise about the domain and identify common opportunities and differences.

Do not expect your new hires to disclose confidential information; this would be unethical and possibly illegal – breaching their contract with their former employer. Do not overstep the mark and breach ethical or commercial boundaries when hiring staff from corporate customers. Boeing made this mistake when it hired Darleen Druyun from the United States Air Force. Consequently Boeing's CFO was sacked, the CEO resigned and Druyan spent nine months in prison.

Consequences   Customer knowledge and understanding now exist within your organization. However such knowledge may cost a premium so make sure you make the best use of this experience and share insights. You have bought a snapshot taken from the moment your expert leaves his previous employer. Things will change with time: your customer will change and your new employee will see things differently.

You have bought yourself in-depth knowledge and understanding of one individual from one corporate customer. Few customers will have identical environments and needs so be careful not to extrapolate from one to many without other checks.

Some of the people keenest to work for your company will be your product champions inside the customer. Hiring them may remove your products greatest advocate and opening opportunities for competitors.

Hiring your customers employees may upset you relationship. If you hire too many staff from the same customer you may harm your commercial relationship.

Variations   Hiring similar staff from corporations that are not currently customers can provide many similar benefits with fewer ethical dilemmas.

Examples

Also known as   -

Related work   SURROGATE CUSTOMER (Coplien and Harrison 2004) suggests a role with "someone who will try to think like a customer." Obviously someone who was once a customer will find this role easier to play. Both SURROGATE CUSTOMER and POACHER TURNED GAME KEEPER patterns are forms of ENGAGE CUSTOMERS (Coplien and Harrison 2004).

In contrast CUSTOMER CO-CREATED PRODUCT tackles the same problem in a more co-operative fashion by actually bringing customers into the development environment. POACHER TURNED

GAME KEEPER is a more aggressive solution that ensures intellectual property belongs to your organization.

This pattern is one means of achieving the *Onsite customer* practise from *Extreme Programming* (Beck 2000).

Sources   Authors experience and observation.

3.5 Customer co-created product

> *"The design phase of the 777 differed from previous Boeing jetliners. For the first time, eight major airlines and their passengers had a role in the development of the plane. .... The "Working Together" philosophy, as Boeing called it, meant that the 777 was their most customer oriented aircraft yet." Wikipedia*

Context   You are developing a technically complicated product with many design choices

Problem   **How do you ensure your product does what your customers want?**

Forces   You know the customers general requirements but there are many specific issues that still need to be decided. Some requirements will change during your development process and addressing some will reveal more issues to be specified.

The opportunity (or problem) your product addresses is understood (more or less) but the solution is not so clear. In creating a solution you explore both the opportunity and the solution at the same time, consequently, your design choices multiply and knowing what the customer wants becomes more difficult.

You have the ability to create a solution but you lack specific knowledge of the problem domain; e.g. a software firm can create software but the firm lacks knowledge of other domains.

Product development is risky. Even if you think you understand the customers, product needs and requirements it is still possible to get things wrong. And, during the time it takes to create a product things will change. The more expensive the product development the greater the need to reduce these risks.

Spending more time up front understand customer needs would help reduce risk. But this will also delay a start on building the product and delay future revenues. But without really understanding you customers you risk making guesses.

New products should include new thinking, but if you rush to develop the product you will use your past experience and knowledge of earlier products, so the new product will not be so new and will address the same issues in the same way.

Solution   **Enrol one or more customers as partners in your development process.** Give them an opportunity to influence the product design and implementation. Make the product development process a *win-win* situation for you and your customers.

Talk to your partners - talk to them a lot, share problems and solutions, share documentation, share as much as possible. Have your people work at their sites and their people work at your sites.

Show them mock-ups, prototypes and models of the product. Spend time discussing the models and working through usage patterns, operations scenarios and variations to models.

When customers do co-operate you will need to respect their intellectual property (IP). Customers may be prepared to share some IP but they may also want to restrict access to other IP or ensure it is not made available to competitors. What IP may be used, and who owns the resulting IP should be clearly agreed before the project starts.

Using a customer as a partner combines elements of bespoke product development and elements of generic product development. It is an opportunity to create a product that fits many customers needs, it is also a challenge to avoid creating a product that fits one customer's needs.

In order to partner with a customer you need to find a customer who is prepared to partner with you, and not just any customer will do. They will have a genuine need for your new product and see the advantage of working closely with you to shape the product and get early accesses. They need to be prepared to devote people, time and money to the project. In short the should see a *win-win* opportunity.

Customers who see the project as a route to get a cheaper product, or offload work should not be considered. Neither should you consider customer who might become competitors.

Consider too the practical aspects of co-operation: are you close enough geographically to meet regularly? Do your computer systems interconnect? Are your corporate cultures a good match? Such differences can halt co-operation before it even starts.

Consequences   Working with customers results in a better understanding of the opportunity, solution and technical aspects. Your partner customer will benefit too. They will have early access to your new product and it will be a close fit for their needs. The best solution may only emerge after several iterations of discussion, design, building and evaluation.

When working with a partner you can short-cut some of the up front requirements and design because your customer is involved. Some of these decisions can be deferred because you know you can ask the customer later. Other decisions can be made faster because the customer is readily available.

Informed and timely decision making can reduce risk on the project and accelerate the development cycle. Both partners benefit from reduced risk, faster execution and a better product more closely aligned with the customer needs.

However joint development can also take longer because more people are involved and need to share in the discussions. Reaching consensus can be difficult in large groups. If your corporate cultures and incentives are not aligned co-operation may be fraught with

disagreements and arguments. This in turn can poison the wider organization.

Co-creating a product also means your partner's competitors may have access to the same product. If the product offers customers a competitive advantage, or contains confidential IP they may prefer to develop their own custom solution even if this costs more.

Pricing a co-created product may be difficult. Offering the product for free or at a discount to partners may encourage some to join your programme but such partners may not really value the product. At some point you need to know customers will pay cash for the product you are developing. If partners insist on some financial payment offer royalties on product sales, this will align their interests with your own.

Variations

Examples   A London based telecoms software house worked with major customers in Europe, USA and Australia to develop products later sold to many operators world-wine.

Military systems like Euro-fighter Typhoon are often developed by contractors and armed forces and later sold to third parties.

Also known as   -

Related work   This pattern can be used to help implement KNOW THE CUSTOMER (RISING 2000) and EXPEDITIONARY MARKETING (KELLY 2004).

The Extreme Programming practise of *Onsite customer* is a variation on this pattern.

It is useful to contrast CUSTOMER CO-CREATED PRODUCT with POACHER TURNED GAME KEEPER.

This patterns echoes several of Christopher Alexander's (1977) patterns which suggest, or assume, the end user is involved with the architecture, design and construction of their building.

The IN BED WITH THE ENEMY (Weiss 2007) patterns also consider business partnerships, in this case partnerships with potential competitors.

Sources   Authors experience and observation.

3.6 Simpler Product

Blogging isn't anything new: you don't need Blogger or Typepad to create web pages, to publish your thoughts; an HTML editor can do just as well. Because blogging is simpler than writing HTML and because Blogger is simpler than a word processor they create new products.

You don't need RSS, you can check the web pages you care about often, publishers can simply list their changes on page one. By simplifying the task you (or rather your machine) can check pages more often. Together Blogging and RSS simplify use of the web and create a new type of web.

Context   You are looking to break into an existing market with a new product, perhaps using new technology.

Problem   **What new product can you introduce to a market that is already served by a fully featured product(s)?**

Forces   Initially you need a foothold in the market. You need some revenue and some experience to refine the product. But entering a market against existing, well-resourced, incumbents is difficult.

You have a product or technology but it looks like the market is already well served. Your technology may be superior to the current products but there are already several incumbents who produce good products, matching their products will take time and money.

The market incumbents produce similar products. They traditionally compete by adding new features and/or making their products faster. But the current products already serve most customer needs; new features do not really add much. Indeed, new features tend to complicate the product further.

Although capable of doing what customers want an increasing complexity products will become less usable and less elegant. Complexity of the product adds to the cost of ownership. Time must be spent learning the product, users need training, and even consultants to advise. But customers expect these features, options and services. Without these you are not a serious competitor but adding these take more time and money.

Solution   **Create a product that is massively simpler to use then existing products and target a different set of customers.** Target customers who do not need all the features of the existing products, do have time to spend learning the product and find the complexities of existing products off putting. Most likely these customer do not buy any of the current products.

Start by defining the problem your product is solving and for whom. Segment potential customers to better understand who buys the products and what they are doing with your products - see SEGMENTED CUSTOMERS.

Existing customers expect a fully featured product. Instead target customers who would benefit but do not buy current products because because of complexity and/or cost. In this market segment you are competing against non-consumption.

To reach this new segment you need to choose the right distribution channel. This is probably not the same channel as the current incumbents use so look for non-traditional channels. Your choice of distribution channels will also influence your pricing options (and vice versa).

Simpler products need not sell at a lower price then existing products; there may be a *simplicity premium* that allows you to sell your product for more than existing products. However this is not always the case.

When you understand your potential customers address their needs exactly. Have your designers and engineers rethink the product and interface. Look at how customers are using the product and focus on what they are using it to achieve rather than how they do it. Create personas to better understand your potential customers base and identify the most important customers/users (Cooper 2004).

Look at existing products and try to eliminate options and extras, apply the Pareto principle to find the 20% of product that is used 80% of the time. Your chosen customers value simplicity over performance.

Consequences   Avoiding competition, keeping the product simple, removing the need for support services reduces the cost, time and complexity of entering the market. Incumbents are unlikely to see you as a direct rival thus giving you the time to see revenue and build the company further.

Your technology has been packaged to avoid the direct competition that would kill it. In time you can build on this beginning to exploit your technology against the market incumbents more directly.

By changing the basis of your product you disengage from incumbent rivals. You are now competing for different customers. Further the incumbents will find it hard to match your product because they are structured around existing customers and their complex products. These companies have too much invested – financially and mentally – in the current way of doing things. They will fear undercutting their existing sales.

Your product is more accessible to customers because it does not require the same investment to start realising the benefits. Overall cost of ownership is reduced because customers do not need training or advice on how to use the product. Your target customers are new to the product category and so do not expect additional support.

After your initial success there maybe a temptation to add features in future versions. Even customers who want simplicity may desire

more features. To do so risks negating the initial advantage. You may find a way to include more features without increasing complexity. Alternatively you may introduce more products that reverse your original trade-off.

In time you might find your simple product becoming complex. This would provide an opportunity for someone else to repeat this pattern with you in the role of incumbent.

Variations   Some times it is possible to hide complexity rather than remove it. Complex software products may offer *Wizards* that guide users through a complex task. The *Wizard* breaks a task into several discrete steps and only offers the most common options. If you find you are adding more and more *Wizards* it is time to look at a more radical simplification.

Examples   Apple's iPod combined simplicity with styling to reinvent the MP3 player and redefine the market.

One of the EuroPLoP reviews of this pattern described how her company had replaced a UML modelling tool costing several thousand dollars per licences with a far simpler tool costing hundreds of dollars per license. The simpler tool had fewer features but was far easier to use and much cheaper.

Also known as -

Related work   Existing incumbent companies may choose to use CORE PRODUCE ONLY (Kelly 2005a) or ENTRY LEVEL PRODUCT (Kelly 200X) as alternatives. While SIMPLER PRODUCT advocates creating a simpler product for new customers, CORE PRODUCE ONLY suggests stripping back the entire company and product in a price sensitive market. ENTRY LEVEL PRODUCT suggests a cut-down version of the existing product. As such ENTRY LEVEL PRODUCT can be used a pre-emptive defence against SIMPLER PRODUCT.

SIMPLER PRODUCT does imply CORE PRODUCE ONLY. For example, Apple's iPod is simple but to keep it simple Apple offer additional services like iTunes and software for PC and Mac.

Conversely, Ryanair offers a core product. The company transports people from A to B within Europe. The product is not simple, to get the cheapest fairs customers must book as early as possible and navigate their way to and from airports that are often far from the desired destination.

The Innovators Solution (Christensen and Raynor 2003) describes how companies can use innovative products to enter an existing market. Such products may have fewer features than existing products but are targetted at a specific need. Combined with a lower price this allows new entrants to compete with incumbents.

For more ideas on how simplifing produces see *The Design of Everyday Things* (Norman 1988) and *The Laws of Simplicity* (Maeda

2006).

Sources   Author's observation.

4   Thumbnails for related patterns

Onsite customer	At the time of writing I am unable to find *Onsite customer* written as a pattern or presented to a PLoP workshop. It is not contained in the *EPISODES pattern language* (Cunningham 1996) or *Organizational Agile Patterns of Software Development* (Coplien and Harrison 2004). *Onsite customer* is listed as a pattern on the *Agile Process Adoption* Wiki (http://agileprocessadoption.com/wiki/index.php?title=Onsite_Customer). However this description is more of a thumbnail than an actual pattern e.g. it lacks a problem statement. No author is given for this pattern neither does it appear to have been workshopped at a PLoP.
CORE PRODUCT ONLY	Reduce costs by only supplying the core product, anything extra should be billed separately. (Kelly 2005a)
PRODUCTS WITH SERVICES	Technically complicated products are not commodities; they can be hard to use. Therefore, offer services to help the customers in addition to the product, e.g. a support desk and training courses. (Kelly 2006a)
CONTINUING SERVICES FOR PRODUCTS	Complex products often require ongoing maintenance and support. The company that makes the product already knows a lot about the product is well positioned to do this activity too. By sharing knowledge between service and product operations both can be improved. (Kelly 2005b)
ACCOUNT MANAGEMENT	Continue to actively work with customers even after a sale has closed, this will allow you to identify future opportunities and sell more products.(Kelly 2007)
CORPORATE CERTIFIED EXPERTS	You and your customers want to know who is competent to work with the product in depth. Your staff can't do all the work. Therefore, segment the user base by offering to certify those experts who know the product in depth. (Kelly 2006a)
SIMPLE PRODUCT VARIATIONS	Product variations allow you to differentiate your product form competitors and provide your customers with a choice they value. But variations can be expensive to produce and support; therefore, offer simple variations on the product, e.g. choice of colours. (Kelly 2005a)

5   Acknowledgements

6   History

Date	Event
November 2007	Post conference revision published to web prior to proceedings.
July 2007	EuroPLoP 2007 conference

March 2007	Shepherding begins
January 2007	Submitted to EuroPLoP 2007
December 2006	First draft

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