

Business Patterns for Product Development (EuroPLoP 2008)

Allan Kelly - <http://www.allankelly.net>

1 Abstract

This paper introduces four patterns for use by software development companies, predominantly independent software vendors (ISVs), for growing their business and creating new products. Starting with a single product company these patterns describe how product and services are added to the market offering to create a whole product and then a company with a product portfolio. The product roadmap is introduced as a planning tool for product growth and enhancement.

The patterns presented here are:

- SINGLE PRODUCT COMPANY – When time and resources are scarce, focus all your attention on developing and marketing one product.
- WHOLE PRODUCT– Provide additional products and services so customers are able to recognize the promised value from the product.
- PRODUCT PORTFOLIO – Managing your products as a portfolio.
- PRODUCT ROADMAP– Create a product roadmap to show a vision for the future.

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. Within existing companies many of these patterns already exist, albeit as tacit knowledge or embedded in operating practices.

The patterns given here are intended for those creating and applying corporate strategies. This group includes, existing managers, future managers and entrepreneurs as well as those studying to take on such roles.

In particular it is hoped that those on the receiving end of such strategies and tactics will find these patterns informative and useful. Understanding what a company is attempting, why it is acting and the implications can be benefit everyone in the organization.

Proceedings of the 13th European Conference on Pattern Languages of Programs (EuroPLoP 2008), edited by Till Schümmer and Allan Kelly, ISSN 1613-0073 <issn-1613-0073.html>.

Copyright © 2009 for the individual papers by the papers' authors. Copying permitted for private and academic purposes. Re-publication of material from this volume requires permission by the copyright owners.

The patterns in this paper, and others in the series (Kelly 2005a, b, 2006, 2007a, b) 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. 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 contexts outside the software domain.

In parts the patterns draw on existing research and literature. Inevitably these patterns represent the author’s understanding and views on how companies should go about tackling the problems identified. While there are no right answers to these problems - indeed some out dispute the problems identified – it is hoped that these patterns can help expand the understanding of business strategy in the technology domain.

3 The Patterns

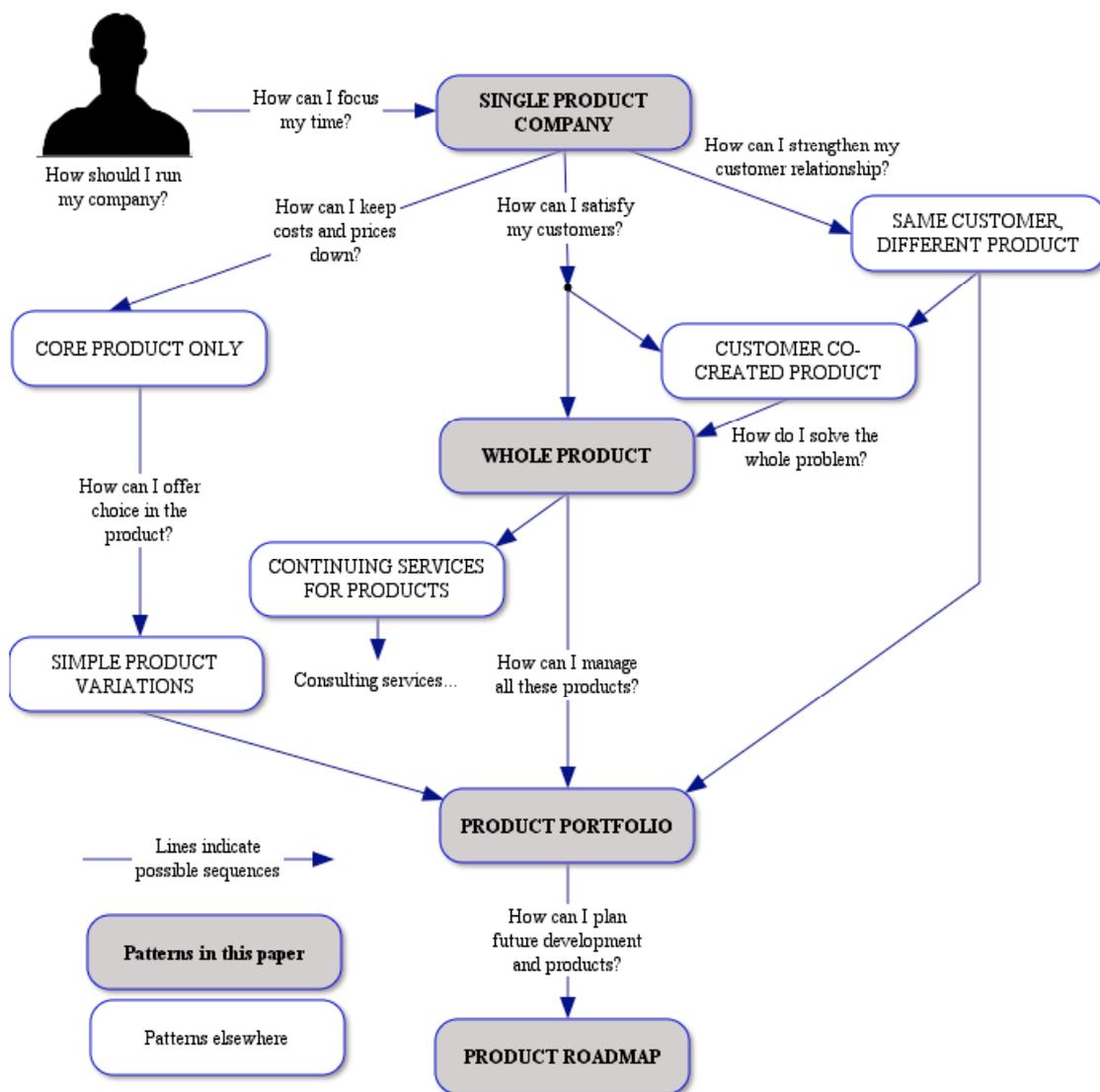


Figure 1 - Pattern sequence

SINGLE PRODUCT COMPANY Page 4	When a company is starting there are so many things to do. Focus all your attention on a single product. Get this product right and get it selling before moving onto other products.
WHOLE PRODUCT Page 8	Customers buy your product to solve a problem but solving the whole problem requires more than just your product. Therefore sell your product with everything needed to solve the whole problem.
PRODUCT PORTFOLIO Page 15	As a company grows it will offer more and more products but this makes it difficult to focus. Consider all your products as a portfolio. Balance the portfolio to achieve your corporate objectives.
PRODUCT ROADMAP Page 16	Customer and co-workers need to know what will be in future versions of the product. But you need to be able to change what features are included and when. So create a roadmap that shows future features with approximate dates. Use the roadmap to solicit views and revise the roadmap. Keep the roadmap as a living document.
CORE PRODUCT ONLY (Kelly 2005a)	Reduce costs by only supplying the core product, anything extra should be billed separately.
SIMPLE PRODUCT VARIATIONS (Kelly 2005a)	Product variations allow you to differentiate your product from 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.
CONTINUING SERVICES FOR PRODUCT (Kelly 2005b)	Complex products often require continuing maintenance and support. The company that makes the product already knows a lot about it, and so is well placed to perform this activity too. By sharing knowledge between services and products operations, both can be improved.
CUSTOMER PO- CREATED PRODUCT (Kelly 2007b)	Ensure your product will do what your customers want by enrolling customers in your development process. This gives them an opportunity to influence the product design and implementation.
SAME CUSTOMER, DIFFERENT PRODUCT (Kelly 2007b)	It is easier to sell to existing customer than it is to find and sell to new customers. Therefore have additional products you can sell to your existing customers.

3.1 SINGLE PRODUCT COMPANY



Figure 2 - 1908 Model-T Ford

After several iterations Henry Ford finally found a commercial success with the Model-T Ford. The Ford Motor Company initially focused on just producing this one car and, famously, in one colour only: Black.

Context You have identified a need in the market and have decided to start a company to address the need. You believe the need is best satisfied by a product rather than a service, so will not use SERVICES BEFORE PRODUCT (Kelly 2005b).

Problem **When you start a product company what do you do first?**

Forces When you start a company the world is our oyster. There are countless opportunities for new products and vast untapped markets.

Companies are normally brought into being to do something specific. To address need in the market, an opportunity with a specific customer or exploit a new technology. But there are many ways you can go about addressing *something*, it is hard to know where to start, and even harder to know whether you are addressing it in the right way.

There are many things a new company has to do: legal status, accounts systems, recruitment, customer accounts, etc. etc. but the company founders only have so much time, energy and money to devote to all these issues. All companies have limited resources and new companies are more limited than most.

Solution **Decide on one product and focus all your attention on developing the product, delivering the product and marketing the one product.** Bring this product to market as quickly as possible.

Ask the question: “What is stopping us from delivering this product tomorrow?” Direct your time, energy and money at resolving the issues identified by this question.

Identify your target market and target customers as early as possible. Engage with them before the product is finished, they may be happy to offer advice, to beta-test the product, or act as a lead customer -

see CUSTOMER CO-CREATED PRODUCT (Kelly 2007b).

Ensure your target customers can pay for the product one way or another. You may sell the product in a single transaction, or charge a monthly fee or offer your product for free and sell advertising around it. However you decide to monetarise your product make sure the revenue will cover your costs and give enough profit to justify the investment.

When the chosen market is large, and the problems to be solved are many, then define your own niche to improve your focus. Deliberately put some opportunities out of bounds. By defining the part of the market you will address you will improve your own focus and reduce the amount of time you need to deliver a product. Having a clear idea of who your target market is, and what you have to offer should make it clearer to communicate your marketing message.

Focus on the core problem the product is solving, limit extra activity and work on both the product and the company as a whole. Leave extra functionality out of the product and limit the growth of the company organization. Defer non-essential activities like setting up a human resources department, or look to do them differently, maybe rent services or outsource work.

While developing your product avoid the distraction of offering services, avoid the temptation to develop additional products. Focus on your market, focus on the product you are developing, focus on your potential customers.

When your product is available this advice no longer holds. You may need to supplement your offering with services or additional products as described in WHOLE PRODUCT and from there to PRODUCT PORTFOLIO.

There is no guarantee that your first product will be the right one. While researching the market, building the product or even after product launch you might identify a more interesting prospect and decide to change focus. Consider using EXPEDITIONARY MARKETING (Kelly 2004), to help refine your product ideas.

Once established most companies relax their focus on the single product. They may add additional products and services around the original product (as in WHOLE PRODUCT) or they may diversify with new products – see SAME CUSTOMER, DIFFERENT PRODUCT (Kelly 2007b) and PRODUCT PORTFOLIO.

Consequences Knowing what single product you are producing, and what single problem you are solving will make it easier to focus your resources and limit distractions.

By keeping features and functionality to a minimum you can reduce development costs and shorten the development cycle. However this means the features you do implement need to be the right ones to make your product attractive.

Focusing on the product will detract from building the company organization and infrastructure. In the short term the company needs the product – and the resulting revenue – more than it needs the infrastructure of human resource departments, public relations and such. But such capabilities too long can have negative consequences. Companies may work sub-optimally if new business units and functions are not created when they are needed. For example, a dedicated technical support desk may be a distraction at the start but when there are many customers it is more disturbing to have engineers answer queries directly.

Similarly, once the product is established and revenues are flowing companies need to consider supplementary and additional products. Delaying new products may leave opportunities for competitors to enter the market. Use Whole Product and Product Portfolio, and product services like PRODUCTS WITH SERVICES (Kelly 2006), START-UP SERVICES FOR PRODUCTS and CONTINUING PRODUCTS FOR SERVICES (Kelly 2005b).

Marketing is easier when your (new) company name is associated with one product, e.g. Hoover in Europe and Q-Tips in the USA.

Companies which do not expand their product portfolio are often acquired by large companies where they form part of a portfolio.

Variations

Companies that do not follow this strategy from the beginning can still adopt this strategy later. In order to create focus shed additional products, withdraw from non-core markets and decline customer business outside the core area. Review employee incentives to ensure everyone is focused on the same thing. It is no use focusing on quality if engineers are still given bonuses for solely making delivery dates.

Focus need not be product related, although for software companies it usually is. Companies may focus instead on particular customer and their needs, or specialist activities.

In some markets it customers may expect to buy a set of similar products. For example, a customer buying a lipstick may expect to buy matching nail-tarnish, if they cannot then they may buy nothing. Generally this is not the case for software companies.

Examples

Most start-up companies pass through a single product period in their early days. Originally Apple only sold the Apple II computer while Intuit started with Quicken alone.

Henry Ford is famous for offering his customers “Any colour they like so long as it is black”. Early Ford operations were totally integrated and focused on producing one car in one colour. This helped Ford to enter and dominate the early motor business but also provided opportunities for competitors. However this strength was also Ford’s weakness. By offering customers choice in the product General Motors was able to compete with Ford.

**Also known
as** -

**Related work
& Sources** CORE PRODUCT ONLY and SIMPLE PRODUCT VARIATIONS (Kelly 2005a) describe how to manage costs by focusing on a single product and how increase revenue with additional sales or variations.

3.2 *WHOLE PRODUCT*

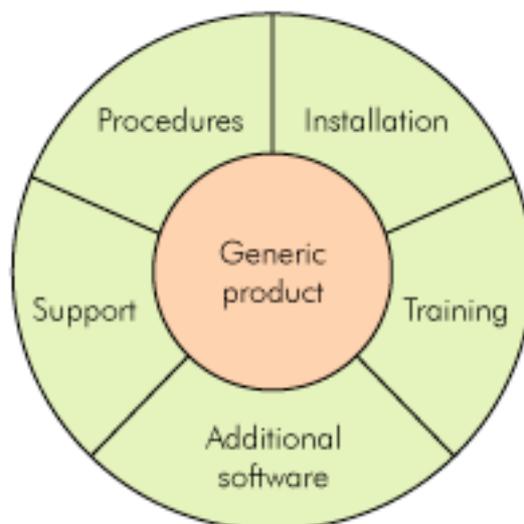


Figure 3 - The whole product doughnut

In the 1980's Silicon Graphics (SGI) set out to target the Hollywood post-production film editing process. Rather than emphasis the raw power and all-round capabilities of their machines SGI specifically presented their machines as video image editors. They added features such as video device interface ports to their machines to make their product superior to competitors for this specific task.

Context	Your first products are in the market and have sold well to early adaptors. There is more to using the product than <i>plug-and-play</i> .
Problem	How do you ensure technical products deliver value to customers?
Forces	<p>New technology is cool in its own right, it may be used in many ways and produce many benefits. But using the technology to address real world problems requires work. Some customers (early adopters) are prepared to buy the core technology and make it work for them. But many more potential customers are not prepared, or able, to put in this effort so will not buy your technology.</p> <p>You wish to expand your market beyond the technical savvy early adaptors, but your product is complicated, those individuals or organizations without technical know how will find it difficult to recognize value from the product.</p> <p>The value of your product can only be recognised when it is used in conjunction with specific hardware or additional software; when people are trained in the system, when the product is integrated with existing systems, when processes are changed. Each of these additional requirements put obstacles in the way of sales and customers seeing the full value of your product.</p>

Competitors offer products that can match, or even better, your products in many tasks. Your competitors may even have advantages over you, they may have a respected brand name or their technology may be better.

Some markets may not be aware of how your technology can improve their work. Even if they are aware they need to bring together and integrate several technologies to realise the benefits.

Solution

Match your technology to your market, identify a market where your technology can deliver benefits to customers and seek to solve customer problems completely. To do this bundle your generic product with any additional products and services are needed for customers to recognize the promised value from the product. Market the complete package to customers in your chosen market.

Continually seek to identify the obstacles that stop customers from maximising their benefit from the product. Remove each obstacle either by changing the product or supplementing the offering with extra products or services.

Differentiate yourself from technology peers by addressing the needs of a specific market. If the product needs additional hardware then bundle the product with the necessary hardware. If additional software is needed to interface with other systems then supply the software. If integration services, training or support are needed then supply these – use CONTINUING PRODUCTS FOR SERVICES. You may choose to supply these products and services yourself or you may enter into partnerships with others who can supply them.

Direct your marketing effort at your chosen market. Advertise to this industry, attend their shows, sponsor their industry awards – be part of that industry. Show how your technology is better than competitors because you cater for the market needs and solve their problems.

Be clear about the problems your product solves, before adding or changing anything about the product ask: *Will this help solve the key problem?* Rather than think of your product as a set of features think of it as a single solution.

Creating a whole product and matching customer needs is not about selling more accessories and services around your product, it is about making sure your solution solves a customers problem and the customer recognises value from your product. Taking features out of your product may help the customer reach these objectives too. For example, a product cluttered with features for customers outside the core market may make the interface or installation more complicated

Consequences Your technology is applied to a specific problem in a specific market – sometimes called a *market vertical*. The core technology product

is augmented in such a way that it fixes this problem perfectly, you sell a *whole product*, not a technology.

The technology is hidden, removed and sometimes simplified so that the product application represents a complete solution. The benefits of this solution are available far beyond the technology enthusiasts.

The value of your whole product is clearly spelt out by defining the tasks it will perform and the benefits it will provide. Focusing on the benefits and final product you actively set out to remove all barriers between customers buying the product and seeing the benefits.

You will differentiate yourself from competitors with similar technology who do not focus on your chosen market. You will be able to point to similar technology from competitors and explain why they cannot deliver the benefits you do.

Being the first to bring new technology to a specific market will give you a head start – so called first mover advantage. It will also give you a chance to define the market and product offering. Even if you do not have first mover advantage in the market, or with the technology, you can still define a niche were you will serve customers better than any competitors.

Choosing your niche, and focusing your technology into a product for a specific market vertical limits the size of your market. Instead of targeting a wide and shallow market you are aiming narrow and deep. Once you have dominated one vertical market you can repeat the exercise in another market adjacent to the first one. It is easier to tackle one vertical at a time than attack on a broad front.

As your product offering grows you will be able to justify a higher price. Fixing a specific problem in a market will help identify the value, and thus price, of your product. When your product offering contains an ongoing element (e.g. technical support or operations management) you will be able to charge regular fees. The fees are not only an additional source of revenue they are more predictable. Such fees will add to your company value because they are considered ‘high quality’.

Focusing on a specific market or market segment will mean passing over sales prospects in other area. This is necessary to create true focus but may lead to some difficult decisions, particularly when the sale in prospect is big. Continue to chase deals outside your core market will dilute the focus.

An established company adopting a whole product strategy will need change its own structure and organization. People working to support non-core markets may need to be redeployed or even laid-off. Existing customer in non-core markets also present a problem, whether it is better to continue supporting them or withdraw your product will depend on your exact relationship with the customers.

Providing services as part of a product offering can cause conflicts in product development and quality management. See the

discussion in CONTINUING SERVICES FOR PRODUCTS (Kelly 2005b).

Variations It is preferable to stop selling the generic product on its own. This will help focus your marketing message, simplify pricing and remove the danger of competing with yourself. But withdrawing from markets, or not allowing customers to mix and match your product with other “best of breed” may harm some of your prospects.

Examples See *Crossing the Chasm* (Moore 1999) for a longer discussion of whole product strategy and numerous examples including: Silicon Graphics, Intuit and Documentum.

Also known as -

Related work & Sources A WHOLE PRODUCT strategy is the opposite of a CORE PRODUCT ONLY (Kelly 2005a) approach. Both strategies may lead to SIMPLER PRODUCT (Kelly 2007b).

Lean Solutions (Womack and Jones 2005) advises suppliers to “Solve my problem completely.” That is, provide solutions to customers entire problem not part of the problem. Such an approach would naturally lead to a WHOLE PRODUCT strategy.

3.3 PRODUCT PORTFOLIO



Figure 4 - Nokia Phones

Few large companies sell just one product, Nokia sell a range of phones to suit all tastes and budgets. You can choose between a small 6300, a large N95 with a hard disk or a Blackberry like E61.

Context You have successfully used SINGLE PRODUCT COMPANY and WHOLE PRODUCT. It is time to grow the company and you are building SAME CUSTOMER, DIFFERENT PRODUCT.

Problem **How do you decide which products to continue selling, which to introduce and which to discontinue?**

Forces Company strategy is no longer synonymous with one product. Your new strategy needs to encompass multiple products. But your resources are still limited and your potential products all demand resources. Some trade-offs and compromises are necessary but nobody wants to loose resources.

New products need time to demonstrate significant sales but demand development resources. Old products might be profitable but they are near the end of their life and vulnerable to competition. Even if you do not wish to grow the company you still need to consider new products. Customer needs and tastes change over time. Products age in the market – competitors enter and new technology change production options. Introducing new products, changing existing products and retiring old products all takes time, money and effort. You need to decide how to allocate your resources between these activities and how to reduce risks.

Being a single product company has brought you success but you now need to grow the company. Maintaining focus on one product

brought success but, by definition, you cannot focus on too many things.

What is in the best interests of the portfolio may not be in the best interest of a specific product, and vice versa. Tension arises between products serving one market and products serving another market. More tension will arise because products are built by different teams, decisions about individuals effect the portfolio and vice versa.

By following **WHOLE PRODUCT** you now have a cluster of product around the original product. But as this cluster grows, and as more different products are added it is difficult to see the common elements. Each additional product – or service – requires management attention; the same managers have more work to do.

Solution

Instead of managing each product as a single product manage the collective product portfolio. Delegate management of individual products to specific teams and managers. Each *product line* can then focus on its product(s) while company management should then focus on the overall portfolio of products.

This is easier said than done. There are many criteria and conflicts to manage. The portfolio needs to balance the need for an orderly introduction of new products and retirement of old products, and balance the customers need for a range of products to choose from and switch between.

There are many criteria that may be used in creating a product portfolio so it pays to define your criteria before evaluating the portfolio. Criteria need to be based on company goals and objectives, risk aversion, approach to innovation, cost of producing new products, customer need and many other factors.

With the right criteria in place the portfolio will reflect company strategy. If you are driven by near term profits then all your resources should be put into the most profitable products. Conversely, if you are looking for growth you may tolerate loss-making products that may bring in new customers and growth in the medium term.

For some companies the customer's need for a selection of products will dominate, for example Nokia's mobile phone range. Or companies may offer customers a range of products for the different stages of their lives, so Ford Europe offers the small Fiesta car for young drivers, the Focus for couples with young children and the Galaxy families.

Other companies may need to balance aging products against new introductions will be paramount. Stability and continued support may be important in some sectors while innovation and fresh products are important elsewhere.

Your product portfolio needs a unifying theme, or *core competency*. The theme may stem from your capability with some technology, or from servicing a particular type of customer, or solving a certain type of problem.

When constructing the portfolio consider how customers needs differ, why they might change, what they will need (or want) next and provide a product. By covering a variety of positions you have multiple products to offer your customers as their needs develop and change.

Both the criteria used to evaluate products and the methods used to manage the portfolio are large topics and outside the scope of this pattern. Two approaches to constructing a portfolio are detailed in the side-boxes *Vertical and horizontal portfolios* and *BCG Product Growth Matrix*. Many other approaches are possible.

Consequences Setting portfolio criteria and positioning products against each other will highlight product priorities and inform resources allocation. The portfolio view will help balance product introduction and retirement by showing product lifecycles. This in turn will help reduce risk.

Studying the portfolio as a whole will help identify gaps and opportunities for new products. You will also see product overlap where one product is stealing sales from another. You can also see products that are in decline; these may be revived by further investment or milked for further sales without investment.

Introducing new products can offset slowing sales of an aging product. Alternatively you may be able to rejuvenate the aging product by offering it into a different market segment.

By offering a selection of products you can retain your hard won customers as they look for new and different products. When you have a relationship with your customers they will want to do business with you again; and when you sell them more products you will strengthen the relationship.

Company strategy is now concerned with a range of products you offer and how those products relate to one another. Each product group can continue to focus on their product while you focus on the portfolio.

Tensions between different products, and between individual products and the roadmap or company strategy, are easier to recognise even if they cannot be resolved.

Rather than focusing on a *whole product* you are looking at the *whole company*. Delegation becomes possible and individuals can be allowed to focus on individual products.

A balanced portfolio will allow you to invest in new products and take risks with the products you develop and introduce without jeopardising the security of the company. The portfolio will also

allow for the organized retirement of older products so customers can be migrated to new products and support wound down.

Without a unifying theme your portfolio, and company, will start to resemble a conglomerate. Although conglomerate's have advantages they often trade a discount when listed on a stock market.

Portfolio management can lead to sub-optimal decisions for individual products. Some products may be held back for fear of damaging others or *cannibalising sales*. Competitors may be able to exploit such gaps by introducing their own products. For example, IBM initially held back the PC so as not to damage sales of mini-computers but competitors raced to enhance the capabilities of the PC.

Variations	The BCG matrix is a widely cited and critiqued example of a portfolio management technique (see sidebar).
Examples	Product portfolio abound, most large companies offer a range of products.
Also known as	-
Related work & Sources	Use Product Roadmap for each product then synchronise the roadmaps.

Vertical and horizontal portfolios

Portfolios may be vertically or horizontally, or a mix for both. In a horizontal portfolio the products fulfil a similar need. For example, Dell's laptop portfolio, is arranged horizontally. The laptops are broadly comparable but are alternatives aimed at different users: Inspiron is aimed at home users and Latitude at business users. A buyer will choose the laptop that best meets their needs but are unlikely to buy more than one.

Vertical portfolios are made up of products which link together. Buyers are likely to buy several products from the portfolio to work together. For example, IBM offers the Z Series mainframe, Figure 5, this runs the Z/OS operating system, on which can be run the DB2 database and on top of that Office Vision office automation software. In a vertical portfolio one product leads to the next.

A **WHOLE PRODUCT** strategy creates a horizontal portfolio of products that serve a specific need. The layers of the *stack* are unimportant to the final customer who wants a solution to some *problem*. Each generic product will have its own mini-portfolio of related products and services. Some of these may be products in their own right if developed right.

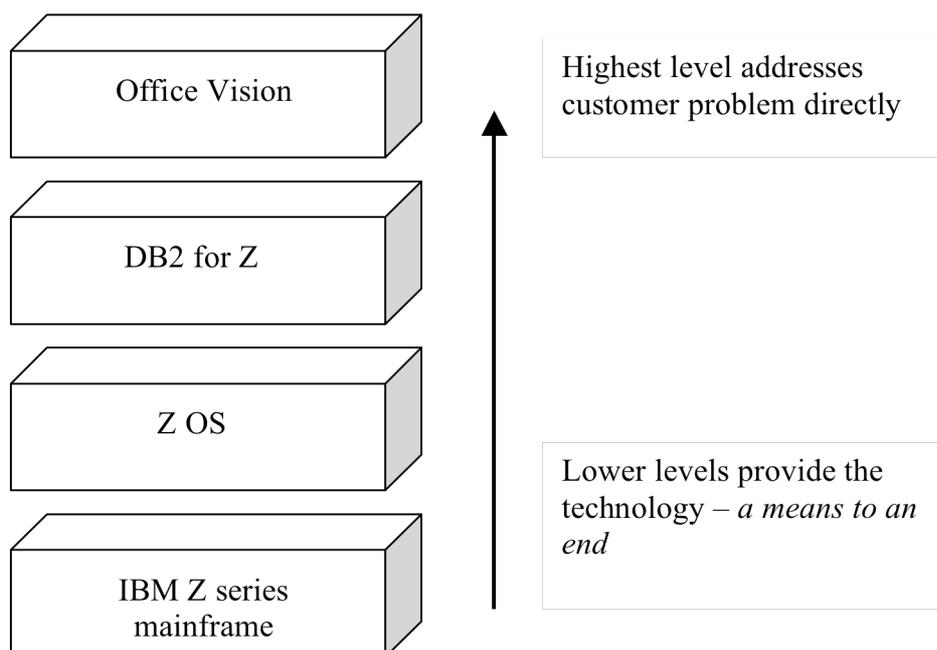


Figure 5 - IBM offers a vertical portfolio of mainframe products

BCG Product Growth Matrix

The horizontal and vertical view of the product portfolio describe how a portfolio is presented to customers. Another way of looking at a portfolio is the *Growth Share Matrix*, Figure 6, from the Boston Consulting Group (BCG). This approach looks to maximise the return for the whole company.

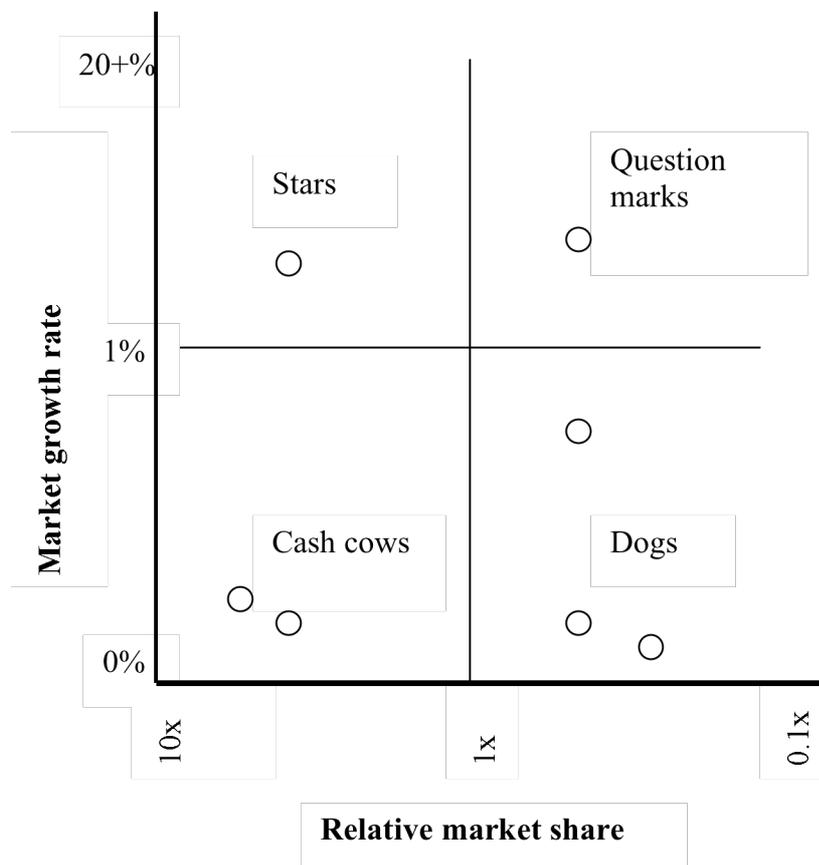


Figure 6 - Boston Consulting Group's *Growth Share Matrix*

The matrix divides products into one of four categories based on whether the company has a high or low market share, and whether the market as a whole is experiencing high or low growth.

Companies that follow the matrix are advised to maximise their returns from *Cash Cows* while minimising investments because the market is not growing. Companies are advised to discontinue *Dogs* – low sales and little potential growth - and invest in *Stars* that will produce profits in future. There is not standard advice for *Question Marks*, those products which have potential but are currently performing poor. These products require closer attention.

Such advice can be simplistic, particularly for small technology companies. More detailed analysis may consider the profitability of products and their role in providing for a *Whole Product*. An unprofitable *Dog* product may in fact be providing vital support to another product.

One problem with the growth matrix can be defining the market. *Crossing the Chasm* (Moore 1999) advise companies to define the market as narrowly as possible in order to focus action and present the company as the market

leader. Following this advice renders half the matrix pointless because we have defined our market as a market we dominate. Thus there are no *Dogs* or *Question Marks*. Conversely an expanding company may redefine its market more broadly in a search for growth. At a stroke a *Star* product can be turned into a *Dog*.

The question of market share and market definition can have a profound effect on company action. During the 1980s General Electric famously pursued a strategy of being 'number one or number two' in every market it operated in. The company exited those markets where it could not achieve first or second place market (Welch 2001). However one way to achieve leadership was to define the market narrowly. In doing so the company could miss profitable opportunities in a wider market.

3.4 PRODUCT ROADMAP

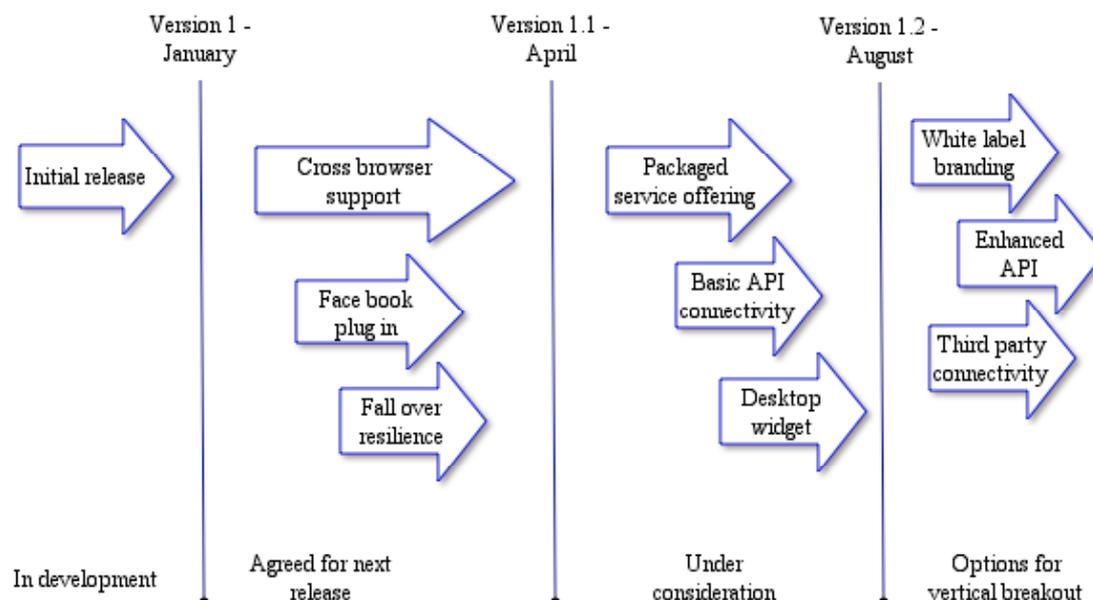


Figure 7 – Near term product roadmap

"It's tough to make predictions, especially about the future." Yogi Berra, American baseball player and philosopher

"One of the biggest roles of science fiction is to prepare people to accept the future without pain and to encourage a flexibility of mind." Arthur C. Clarke, science fiction writer

You can't predict the future for your product but you need to base your activities around a map everyone can agree on.

Context You have an existing product in the market. Now you have to tell customers and staff how the product will develop.

Problem **How do you plan for a product's future, and communicate this to customers, employees and partners when the world changes so much?**

Forces Without new products, and new versions of existing products the company will not advance. Without a vision of what will be in future products it is difficult to plan for the future and impossible for your engineers to start building.

It is always difficult to foresee the future, but lots of people want to know what your product will do in future. Your customers want to know what your product will do in future. Your organization needs to plan for the future, what resources will it need? When will it have a new product? But you cannot answer their question with absolute certainty.

Lots of disparate groups have an interest in knowing and suggesting what the product should do in future, but how do you incorporate their ideas? And how do you explain the result? The product will

need to meet future customer needs, it needs to take advantage of new technology, the product needs to fit with the company strategy and will help shape future strategy.

A plan can be formulated from these ideas and opinions but plans take time to develop and even longer to implement. During that time things change, and some things take longer than expected.

Different groups might feel the need to create different visions of the future. The Product Management group might create a roadmap which addresses customer needs while research and development create on that looks at future technology development. But multiple roadmaps will fragment your future vision, they might even conflict and may confuse customers.

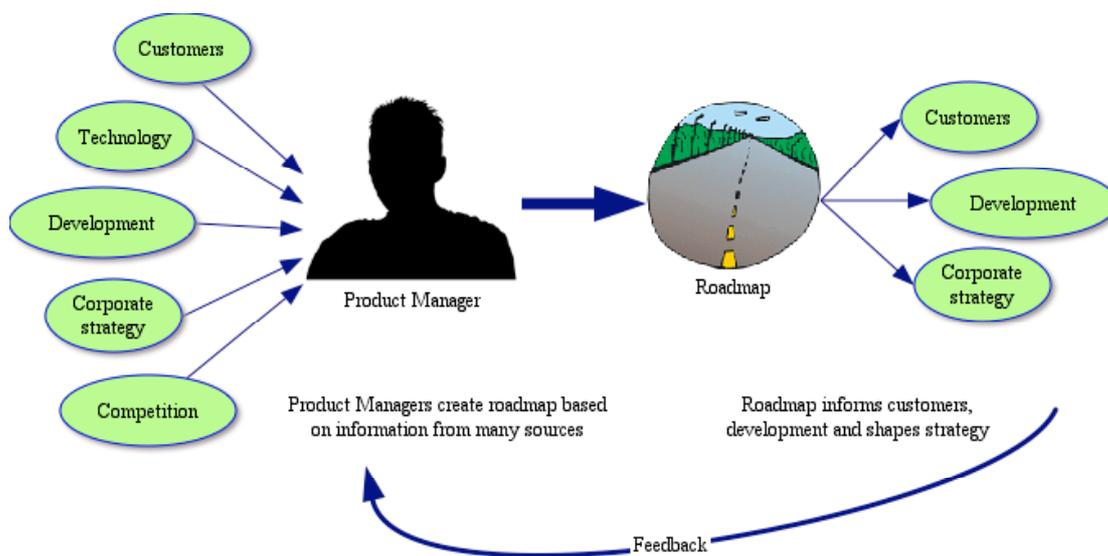


Figure 8 - Roadmap creation

Solution

Create a product roadmap to show a vision for the future. The roadmap does not contain a lot of detail, it is more about vision than execution, it shows where you are going rather than a detailed route.

Before building the roadmap decide who the stakeholders are and find out what they want from the product in the future. Customers are the most obvious (and important) stakeholders, the actual users of the product are important too – often, but not always, customers and users are the same people. People in the company will also have needs and suggestions that will be useful.

Divide the roadmap into time-buckets, perhaps by year quarters or by ‘next three months, 1 year, 5 years’ – whatever division works for you. Put different objectives in different buckets and keep timescales vague.

When there are lots of enhancements, features and changes to make group them into themes. Each theme should address a specific aspect of the customers problems.

Mark key events and dates on the roadmap too. For example, trade shows you wish to exhibit at, legislation changes, important financial reporting dates, anticipated competitor actions and dates important to your customers.

Show the roadmaps back to the stakeholders and listen their feedback. Present the roadmap to the whole company and listen again. Use their feedback to change the roadmap. Roadmaps are living documents and subject to change. Expect to update your roadmap at least quarterly, certainly not just for the annual report.

Incorporating different groups and listening to feedback will help to bring everyone in the company to agreement on a single roadmap. Technology development and customers needs can – and should – be shown on a single map which is simple to understand. Careful attention needs to be given to timelines so technology introductions and changes can be made.

Avoid making commitments based on the roadmap, you will need to commit to some things, for some dates, but the majority of the roadmap needs to be flexible. (Work might take longer than expected or needs may change.) The closer something is on the roadmap the more definite it is. Items that are further away (e.g. five years out) may be removed long before the date shown.

It may not be wise to show customers your full roadmap. Such a roadmap may contain information you don't want them to have, e.g. features for their competitors. You may wish to show customers versions of the roadmap which emphasis the things they are interested in, and hide other elements. Avoid these problems by never letting a sales person conduct a roadmap presentations alone.

Consequences The roadmap provides the future vision for people to work towards. It is always a best efforts map because things always change.

A roadmap describes one version of the future and provides a base for further discussion. Some psychologist call this a *transient object*. You cannot tell the future exactly but the roadmap allows you to talk about and plan.

The roadmap, the picture, accompanying documentation and verbal description are the result of many inputs. Some people will immediately see their suggestions, others will need to be shown. Some suggestions will be absent from the roadmap because it is not possible to satisfy everyone. The roadmap will allow you to explain what was left out and why. If every idea is included the roadmap will be impossibly large and complicated. What you leave out is may be more important than what you include; there are always some requests which are best turned down.

Creating a single roadmap which reconcile different departments – such as marketing and R&D – will create a unified vision across the company.

Developers can start work on developing the products and features on the roadmap. Although items on the roadmap will change there will be enough certainty at the start of the map to start work.

Regular updates between roadmap owners and developers will be needed to accommodate changes on both sides.

Salespeople can use the roadmap to sell products by promising features. This can help improve sales but can be problematic when sales people sell features that are later delayed or removed.

A roadmap will raise expectations and perhaps inevitably form the basis of commitments and when a roadmap changes some commitments will be broken. Sometimes this is difficult to avoid but when commitments are being broken on a regular basis it is a sign something is wrong. Look for the underlying reason: perhaps the roadmap is being interpreted too literally, perhaps sales people are over stepping their authority, perhaps you planning and roadmap creation process needs to be improved, perhaps the development team needs more resources, or perhaps you too optimistic.

Roadmaps can be used to sow fear, uncertainty and doubt and to retain customers with promises of new features. This should not be the primary use of a roadmap.

Roadmaps show priorities so adding a new theme or feature means deciding its priority relative to other items. Conversations about the roadmap quickly turn into conversations about relative priorities – and shows there is *no free lunch*.

Variations

Examples

Also known as -

Related work & sources The author has worked with several ISV who have successfully used product roadmaps.

Creating the roadmap is a learning exercise, as it is created you will be forced to think about the future. Once created the roadmap is also a learning tool to help stakeholders learn about the future and consider options. A roadmap may be considered a scenario for the future.

Scenario planning (Schwartz 1991) is a well developed field and you might borrow some techniques. For example, try creating several roadmaps and select the most promising. Once a roadmap is selected the organization sets out to build the product described.

If you also following Product Portfolio remember to synchronise your various roadmaps where necessary. It may also be useful to produce a high-level portfolio roadmap.

Acknowledgements

Many thanks to Klaus Marquardt for shepherd this paper to EuroPLoP 2008 – one would think after two of these papers he would have had enough but he came back for a third. Thanks too to the participants of Workshop C at EuroPLoP 2008: Valerie Brown, Gwendolyn Kolfschoten, Stephan Lukosch, Lotte De Rore, Dinesha Koravangala, Birgit Gruber and Andreas Fiesser.

Figure 1 - Pattern sequence: author's own illustration.

Figure 2 - 1908 Model-T Ford: from Wikimedia, copyright expired, public domain image

Figure 3 - The whole product doughnut: Wikipedia, version 1.2, <http://en.wikipedia.org/wiki/Image:Marketing-whole-product.png>. Published under GNU Free documentation license

Figure 4 - Nokia Phones: Copyright Nokia 2008, taken from nokia.com press section, pictures for media use.

Figure 5 - IBM offers a vertical portfolio of mainframe products: author's own illustration.

Figure 6 - Boston Consulting Group's *Growth Share Matrix*: author's own illustration based on Wikipedia illustration, GNU Free Documentation License.

Figure 7 – Near term product roadmap: author's own illustration.

Figure 8 - Roadmap creation: author's own drawing, includes images from iStockPhoto (purchased) and Inspiration software.

History

Date	Event
August 2008	Workshop comments incorporated
July 2008	Workshop review at EuroPLoP 2008
March – June 2008	Shepherding revisions
January 2008	Revisions for submission to EuroPLoP 2008
December 2007	First draft

References

- Kelly, A. 2004. "Business Strategy Patterns for the Innovative Company." In VikingPLoP 2004. Uppsala, Sweden.
- Kelly, A. 2005a. "A few more business patterns." In EuroPLoP 2005, eds. A. Longshaw and W. Zdun. Irsee, Germany: UVK Universitassverlag Konstanz GmbH.
- Kelly, A. 2005b. "Business Strategy Patterns for Technology Companies." In VikingPLoP 2005. Espoo, Finland.
- Kelly, A. 2006. "Patterns for Technology Companies." In EuroPLoP, eds. L. Hvatum and W. Zdun. Irsee, Germany: UVK Universitassverlag Konstanz GmbH.

Kelly, A. 2007a. "More patterns for Technology Companies." In VikingPloP 2007. Bergen, Norway.

Kelly, A. 2007b. "More patterns for Technology Companies." In EuroPloP, eds. L. Hvatum and T. Schümmer. Irsee, Germany: UVK Universitassverlag Konstanz GmbH.

Moore, G.A. 1999. Crossing the Chasm. Capstone publishing.

Schwartz, P. 1991. The art of the long view. New York: Bantam Doubleday Dell.

Welch, J. 2001. Jack: what I've learned leading a great company and great people. London: Headline Book Publishing.

Womack, J.P. and D.T. Jones. 2005. Lean Solutions. London: Simon & Schuster.