Component-Based Business
Background Material

Business Patterns

Richard Veryard, October 2000

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Summary

- There are all manner of business patterns out there, or at least things we might want to treat as patterns after a little effort, but people don't always call them patterns.
- Meanwhile, lots of the things that call themselves business patterns probably aren't.
- There are lots of opportunities for sharing knowledge at the level of the business pattern, which many companies have yet to explore.
- The opportunity facing us is to bring this work together in a systematic way, create proper pattern languages, and disseminate and utilize the patterns more effectively.

Types of pattern

From patterns to business patterns

The architect Christopher Alexander published a book on patterns in 1977. His ideas started to infiltrate into software engineering during the late 1980s and early 1990s, and are now extremely popular within certain sectors of the software community. Some pattern books for object-oriented analysis and design have been best sellers, notably the Design Pattern book by the so-called Gang of Four, and the Analysis Pattern book by Martin Fowler. A number of other pattern collections have been published, both in book form and on the web, and many software engineering books contain things optimistically called patterns, or even pattern languages.

Although there are some notable exceptions, many pattern collectors behave like nineteenth century gentlemen collecting butterflies or fossils, capturing attractive specimens and arranging them in display cases, for the admiration of other amateurs. But these collections often lack any coherence or structure, and there is rarely any serious attempt to provide systematic or comprehensive coverage of a domain. Patterns themselves are often presented raw, unprocessed, incomplete or out of context. In the original work by Chris Alexander and his colleagues, the term Pattern Language is used to refer to a collection of tried and tested patterns with a particular ethos and structure. Most so-called pattern languages fall far short of this.

Nevertheless, even if the bulk of pattern work is confused, incoherent or intellectually lazy, we should not dismiss patterns so quickly. After all, many singers are so bad you might want to cross the street to avoid hearing them; but some singers are so good you might cross a city to hear them.

What is a pattern?

Let's look at an example. One of the patterns identified by Christopher Alexander and his team is called Entrance Transition. This states that there are some common requirements that an architect or designer must consider when designing entrances: an entrance should clearly represents a transition from one space (e.g. outdoors) to another (e.g. indoors). A popular way of designing the outdoors/indoors transition is by having some sort of porch, but of course porches are not appropriate everywhere. There are thousands of different ways of building porches, and thousands of other ways of designing entrance transitions, but they all share some underlying structural properties. This is the Entrance Transition pattern.

Patterns are not standard components. Whereas a component can (at least in theory) be plugged in by a casual user, without understanding how the component works, this is not true for patterns. Patterns do not substitute for design experience and skill. After all, we don't necessarily want to see a series of identical, mass-produced porches along a street – we want to see a series of individual porches, but with some deeply shared design principles. That's what Alexander regards as a pattern.

Business Modelling Patterns

Software people often use the prefix "business" to refer to software artefacts that are slightly less technical than the other stuff. Thus we often find so-called business systems that are really computer systems, business objects or business components that are merely lumps of software, and business analysts who talk exactly the same IT jargon as the rest of the IT community.

So when we are offered business patterns by software people, we may be suspicious as to whether they truly deserve the "business" prefix. And if they're expressed in UML, as in a recent book on Business Modelling that contained a chapter on business patterns, I tend to be doubly suspicious. Many of these so-called business patterns turn out to be patterns for the analysis and design of computerized information systems.

So what makes a pattern deserving of the "business" prefix? One way of answering this is by using the ODP reference model, which identifies five different viewpoints for distributed systems. Many "business" modelling patterns can be completely described from an information viewpoint or a computational viewpoint, and these patterns are used primarily to design information systems or computational systems respectively. In my opinion, for a pattern to have a reasonable claim to be regarded as a business pattern, it must have something to say from the enterprise viewpoint.

There are certainly some patterns around that satisfy this criterion. Some important research is being conducted at BT, strongly influenced by the enterprise modelling notions of ODP. These patterns (which BT calls Business Stamps) are not used solely to specify or design computer systems, but to specify and design market roles and responsibilities, and organization structures.

Component Supply	The consumed component will become an integral part of the product/service supplied to the end-customer. A failure of the component make cause a failure of the whole product, therefore the component consumer place heavy reliance on the component supplier. Component supply relationships are often long-term, this reflects the informedness and significance of this relationship to both parties. As the end-customer has no visibility of the component, the customer has no direct interaction with the component supplier. Example: supply of PCBs to a PC manufacturer. [Source: BT]

BT's patterns are clearly structured, and can be summarized in a schematic diagram. BT has an obvious interest in the role of intermediaries, and this is one of the things that can be analysed through these patterns.

BT's interest in business patterns is shared by a small number of other European firms, in various sectors. One recent project explored patterns in the deregulation of the electricity sector, while another dealt with enabling customer profiling in the banking sector.

Business Judgments

A pattern is a kind of reusable judgement. Whereas a judgement may be bound within a particular context, the pattern is partially abstracted from its context, which is what makes it potentially reusable in other contexts. To understand what kinds of pattern there are, let's start by considering what kinds of judgement there are.

After retiring from a successful career as lawyer and administrator, Sir Geoffrey Vickers sat down to write some of the classic texts of systems thinking. In his book, ***The Art of Judgment***, he introduced the notion of **appreciation**, and distinguishes what he calls appreciative judgments from instrumental judgments. Appreciation provides an understanding of a situation, and involves a combination of observation, interpretation and evaluation – both fact and value. However, appreciation stops short of action – how to respond to a situation.

Following Vickers, I'm going to divide patterns into **appreciative patterns** and **instrumental patterns**. An appreciative pattern is something we can observe and analyse in the environment, to which we may wish to respond. An instrumental pattern is something we can enact, perhaps as a way of responding to an appreciative pattern.

Design patterns are usually instrumental ones: they contribute towards the solution to some set of design problems. In addition, of course, we may appreciate (and sometimes criticize) the patterns that have been used by other designers, or the patterns that have emerged from the evolution of legacy systems.

Profit Patterns

Some writers on patterns present us with appreciative patterns: patterns whose primary aim is to help us to understand the world. An excellent example of this approach to patterns can be found in last-year's best-selling book on Profit Patterns, by Adrian Slywotzky. Although this is subtitled: "30 ways to anticipate and profit from strategic forces reshaping your business", the book actually offers 30 patterns describing the strategic forces themselves, rather than 30 patterns describing responses to them.

Here's an example of one of Slywotsky's patterns.

> **Product to Blockbuster.** *From many projects to few.* In many industries, profit migrates from a balanced portfolio of products to a few blockbusters. This usually results from dysfunctionality brought about by two conditions: (1) deteriorating economics of development and production, which makes the 'average' product a money loser, and/or (2) increased variability in the outcomes for any product.
>
> [Source: Adrian Slywotzky, **Profit Patterns**]

This pattern is one that can often be observed, but is extremely risky and difficult (if not impossible) to engineer.

The same can be said of many patterns that have occupied whole books. For example the **Crossing the Chasm** pattern is itself an appreciative one, although there may be a number of instrumental patterns contained in the advice how to cross chasms.

Best Practices

There is a vast body of best practices available on the web. Many best practice databases are freely browsable, while others are available only to members or customers of some organization. Like a business pattern, a best practice is intended to be a reusable solution (or solution-contributor) to some common problem.

Browsing through these databases, I was not surprised to find considerable variation in the quality and power of the items. Several items, although they may well be valid pieces of advice to businessmen facing particular problems, don't seem to me to have the structural qualities I'm looking for in a pattern. For example, on a database of manufacturing best practice, I found an item that advised the use of a particular material for grinding wheels. Even assuming that this advice was wholly independent of the supplier of this material, it doesn't have much structure behind it.

Business Solution

When IT people talk about business models, they usually mean something constructed from entity types, process dependencies and suchlike. When business journalists write about business models, they usually mean something quite different, something much closer to what we would probably call a pattern. A recent front-page story in the ***Financial Times*** provides a good example of this.

> **Kelda sales model may be adopted by sector.** Plans announced yesterday to sell Yorkshire Water's physical assets to a non-profit-making mutual company are expected to provide a model for other water groups struggling to finance big investment plans.
>
> [Source: Financial Times, June 15th, 2000]

This story contains many of the essential elements of a true pattern. There is a common problem faced by many companies within an industry (the struggle to finance investment), a structural solution used by a particular company (Kelda, which trades as Yorkshire Water), and the belief that suitable variants of this solution may be adopted by many other companies within the same industry. On reading the whole article, we discover among other things that a version of the same pattern has already been practised in the French water industry.

How to use patterns

Sharing understanding

In order to share an understanding of some area, either appreciative or instrumental patterns may be useful. A set of patterns provides a shorthand language for discussing situations. Usually, however, we want to discuss solutions as well as problems, and this is where we hit the limitation of purely appreciative patterns.

Deploying patterns as part of solution

One use of patterns is for solving complex business problems using some patterns, or combinations of patterns. The solution may include software, organization and other elements. For this purpose, the patterns need to be instrumental ones.

An important area of business patterns is the analysis of business relationships, particularly in terms of the responsibilities on either side of the relationship. You might want to understand the role of intermediaries in your market, or the effect of the Internet on these roles.

This analysis is crucial for the specification of non-functional system requirements. Chris Russell, a researcher at BT, explained to me how you can draw boxes around responsibilities, so that the patterns form.

Of course, it's also important to understand the limitations of the solution.

Negotiating patterns with regulators

When industry regulators are faced with an apparently monolithic giant, one of the tactics is to demand that smaller players be allowed access to internal interfaces. For example, a utility may be required to allow its competitors to use its network to distribute their products and services. The regulator develops a set of patterns that can be imposed on an industry, although these patterns may not be explicitly formulated as such.

In most cases, the giant starts by resisting these demands. Often however, after the interfaces have been exposed to competition, the giant may concede that it was quite a good idea after all. This is because exposing the interfaces also exposes internal units to external market forces, allowing each unit to specialize and adapt in ways that are potentially beneficial to the whole.

However, this only works if the patterns imposed by the regulator are good ones. The wise giant comes to the negotiating table with a set of patterns of its own. The debate between regulator and regulated is conducted in a pattern language.

Externalize pattern

Even without the intervention of the regulator, making a pattern visible outside a given unit or operation may bring significant business benefits.

Process issues

Who pays for patterns?

Patterns and best practices occupy a grey area of intellectual property. There are some organizations that distribute patterns and best practices freely. Some of these

are funded or at least sponsored by governments. Other organizations have a more directly commercial agenda. Some are run by amateurs – individuals doing this in their spare time, or as a sideline from some other activity. There are several websites created by some project or other, with apparently no activity after the project's funding ceased.

Some websites are innovating new patterns (if we can call them that) of knowledge sharing. I found one best practice website, focusing on financial trading practices, which promised to send me three items from its database (presumably selected at random) on condition that I submitted a best practice of my own first. I declined this opportunity.

This confusion of course resembles the situation with software. Freely distributed patterns can be regarded in the same light as open source software, such as Linux. These patterns are primarily developed by users. People who want to use patterns may be willing to invest some resources in developing and improving the patterns, with various motivations.

And then there are people who want you to buy their pattern books, or to join their organization. As with software, the quality of paid-for patterns is not necessarily any higher than the quality of free patterns – and in some cases, there may be further advantages in using the same pattern across an industry.

From appreciative patterns to instrumental patterns

Appreciative patterns are important. Indeed, management gurus often write a whole book around a single pattern – for example **Crossing the Chasm**. These patterns may tell you what's going on, or they may help you envision what you want to happen in the future, but they don't actually tell you what to do.

The books then typically provide a number of lower-level instrumental patterns, giving the reader some clues as to how to achieve or ride the main pattern. Appreciative patterns are clearly useful as a trigger towards instrumental patterns, but it's important to preserve the link between the understanding and the design.

Essential elements of a business pattern

Okay, so here's some proposed criteria for what we might want to regard as a business pattern.

Instrumental	Tells you what to do	
Structural	Can be depicted in schematic form. Not just a vague bit of advice.	(including process maps; organization models; RACI matrices; RIM diagrams; balanced scorecards, and so on.)
Reusable	Relevant to multiple contexts.	
Proven	Based on experience, not just a bright idea.	
Business/Enterprise	Meaningful to business, not just software people.	(defining the business benefit that can be derived from the pattern, i.e. why should we re-use this?)

Recap

Business patterns can be categorized in various ways, as shown in the following two (preliminary) tables.

Viewpoint	Enterprise	Information	Computation	Engineering	Technology
Appreciative patterns	Profit Patterns (Slywotsky)	-	-	-	-
Instrumental patterns	Business Stamps (BT) Best Practices	Fowler Analysis Patterns	Gang of Four Design Patterns	-	-

Business process oriented	Business model (price/interaction) oriented	Role / interaction / business model
° Case working ° Level 1/2 support	° Free product as trial ° Free product, commission on transport ° Free product, paid for by advertising ° Free product, paid for by sister products	° Open B2B exchange ° Closed B2B exchange ° B2B auction ° B2C auction ° C2C club ° C2C exchange

Further Reading

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Sir Geoffrey Vickers, ***The Art of Judgment***