# *Towards A Pattern Language For Business Process Modelling*

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***Abstract***
The patterns in this paper form part of a pattern language under development for business process patterns. Business processes are an essential part of all businesses, although not all businesses recognise their processes as such. There is often a lack of precision in the terminology used to describe processes, for example flow diagrams, activity diagrams, and information models, all of which are used synonymously with business processes.
The pattern language aims to offer a more standardised approach to business process modelling, presenting business processes in a consistent, communicative and less complex manner. What is different and important about this pattern language is that it is focused on the use of centres as focal points of design, as used by Christopher Alexander, and emphasises the sequence in which the centres are formed. The patterns are not presented in a linear manner, rather as groups of patterns that are clustered around perceived foci.

A subset of patterns from the language is described in this paper. These are: Next In Queue; Collector; Pass It On; Contract Carrier; Common Carrier.

***Introduction***
The following patterns form part of a pattern language under development for business process patterns. Patterns are about the reuse of knowledge. We take our experience and trading of the different possible solutions to find the best fit that balances all the needs and requirements of the situation. Research into pattern history has shown that patterns may be useful in business process modelling, as they are proving to be in many other domains. There is a need to build processes that abstract the essence of business processes for the purpose of developing computer system support for those processes. Business processes are an essential part of all businesses, although not all businesses recognise their processes as such. There is often a lack of precision in the terminology used to describe processes, for example flow diagrams, activity diagrams, and information models, all of which are used synonymously with business processes.

Business process reengineering has emerged as a technique for businesses to examine their own processes, with the aim of improving trade efficiency (Kallio, 1999). Internal processes are reengineered to improve consistency both within and between departments. As part of the reengineering process, all models and changes are documented, and where possible templates and formats specified.

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However, although reengineering business processes can be seen to be beneficial to the company, the costs and time involved means that BPR is not the only way in which to improve processes. The time taken to remodel and implement the changed processes may mean that the finished processes are already out of date. So although it is recognised that something has to be done to improve process definition, BPR is not the optimal solution. There needs to be some other way of improving process documentation.

Current business trends towards mergers, acquisitions, e-commerce and e-business have highlighted the need for business processes to be structured in such a way that the interfaces of the internal processes within a company are compatible with those interfaces of collaborating businesses, as many organisations may be involved in more than one supply chain (Holland, 1995).

***The Pattern Language***

The pattern language aims to offer a more standardised approach to business process modelling, presenting business processes in a consistent, communicative and less complex manner. The patterns are written in keeping with the patterns movement, that patterns are a general solution to a recurring problem within a given context, as proposed by Christopher Alexander (Alexander, 1979). What is different and important about this pattern language is that it is focused on the use of centres as focal points of design, as used by Christopher Alexander, and emphasises the sequence in which the centres are formed, i.e. as Alexander has claimed in his most recent work, patterns are generic rules for making centres. In this work (Alexander, 2001), (Alexander, 2002), Alexander has demonstrated that in order to build living structures (of any kind), there are 15 characteristic fundamental properties. These are: 1. Levels of Scale; 2. Strong Centres; 3. Boundaries; 4. Alternating Repetition; 5. Positive Space; 6. Good Shape; 7. Local Symmetries; 8. Deep Interlock and Ambiguity; 9. Contrast; 10. Gradients; 11. Roughness; 12. Echoes; 13. The Void; 14. Simplicity and Inner Calm; and 15. Not-Separateness. These properties are all based around the use of centres in the pattern language, a centre being a phenomenon that contains elements acting together, which form a focal point or role in the larger scheme of the whole.

The patterns in the language tend to loosely aggregate in clusters with a similar focus, which may be of an abstract nature. In a particular application, certain of these patterns in an aggregation will collaborate to form a centre or nucleus of activity, within a general context. Some of these patterns may have dependencies on others; some may have dependencies in particular instances only, depending on the forces at play. This is illustrated in (Figure 1). This centre-driven approach is being developed in the area of business processes, investigating the sequence in which the centres are formed to facilitate the rapid formation of a new business enterprise, or to improve an existing one. The sequence in which patterns from the Business Process Pattern Language can be applied around individual centres, and the use of patterns to link the centres, will be of general significance to the Patterns Movement.

Whilst researching patterns and business processes, it was noticed that many pattern authors reference the patterns of Alexander (Alexander et al., 1977) and the design patterns of Gamma et al. (Gamma et al., 1995). In the keeping of the underlying tenet of pattern writing – why reinvent a solution to a problem when the solution already exists, albeit in a different form – the ‘essence’ of the patterns from both these authors were considered when mining potential business process patterns. This paper identifies some of the initial patterns identified within the language, 5 of which are fully described: **Next in Queue**, **Collector**, **Pass it on**,

**Contract Carrier** and **Common Carrier**. Other potential patterns in the language are still being developed, and are given as thumbnails in the appendix at the end of this paper.

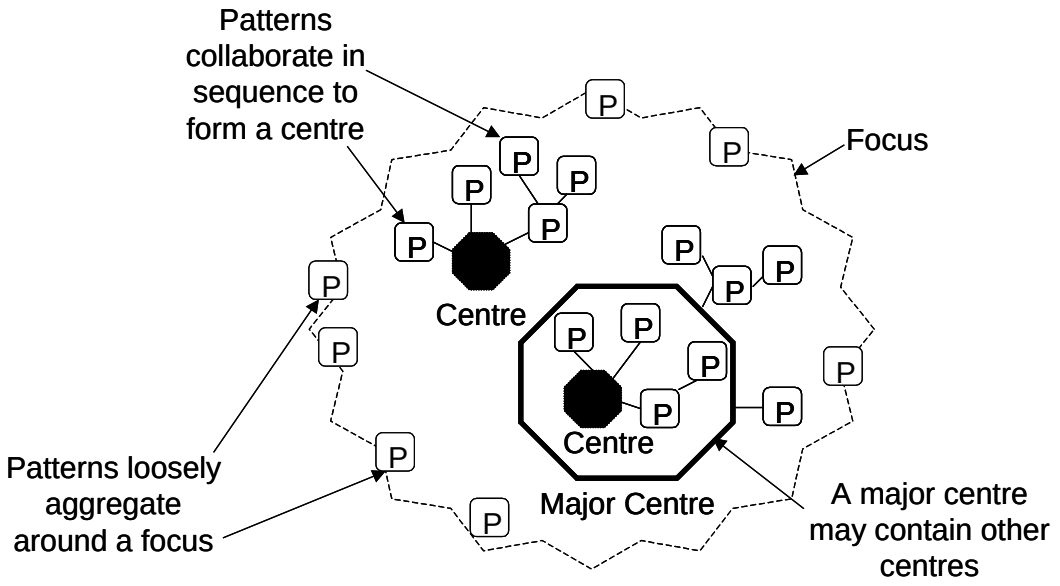



**Figure 1. Focus and Centres Using Patterns**

***Scoping the language***

As a result of mining and analysing the processes of several businesses, potential process patterns have been identified. Patterns were identified in several focal groups or centres, for example the welcome process and order fulfilment process. Some of these centres, for example sales process and accounting process, are traditionally seen as departments in larger organisations. A synopsis of the potential patterns identified to date is given in (Figure 2). The businesses studied were generally of limited scope nature, which led to patterns being identified across all of the centres. For the purposes of this language, the identification of process patterns across the whole business would be too large, so the pattern language was scoped down. . When looking at business process modelling across the whole scope of a business, there are some areas that have already been analysed and documented, resulting in the development of patterns and pattern languages. For example customer interface and web usability ((Graham, 2002), (Orme, 2004), (van Welie, 2003), (Erickson, 2004)), business goals (Eriksson and Penker, 2000), sales ordering (Fowler, 1996) and accounting ((Wake, 1995), (Johnson, 1995)). The start-up, sales and accounting processes were therefore removed from the scope of the paper.

This left four centres of importance – Request Handling/Customer Services, Welcome Process, Order Fulfilment and Governance Control, with potential patterns identified in each. These patterns have been included in the thumbnails in the appendix. As part of the development of the pattern language, it was decided to concentrate on just one of these centres and develop it further – the Order Fulfilment process.

***Order Fulfilment as a Major Centre***
Across all of the businesses studied, fulfilling an order for a customer was seen to be a key activity and common to most businesses, of importance to both the customer and the business. Order Fulfilment was thus seen as a major focal point or centre for the business. Within this major centre, other focal points were also identified. These focal points initially seemed to be analogous to processes or departments within the business, but when examined more closely were in fact large centres, made up of other smaller centres. These larger centres proved difficult to define, due to their size, and so have been left defined as a 'focus' rather than a 'centre'.

There were activities around locating (**LOCATE**) of the goods, so that the goods could be collected (**FILL**) together, in order to pack (**PACK**) the goods and then despatch (**DESPATCH**) the order to the customer.

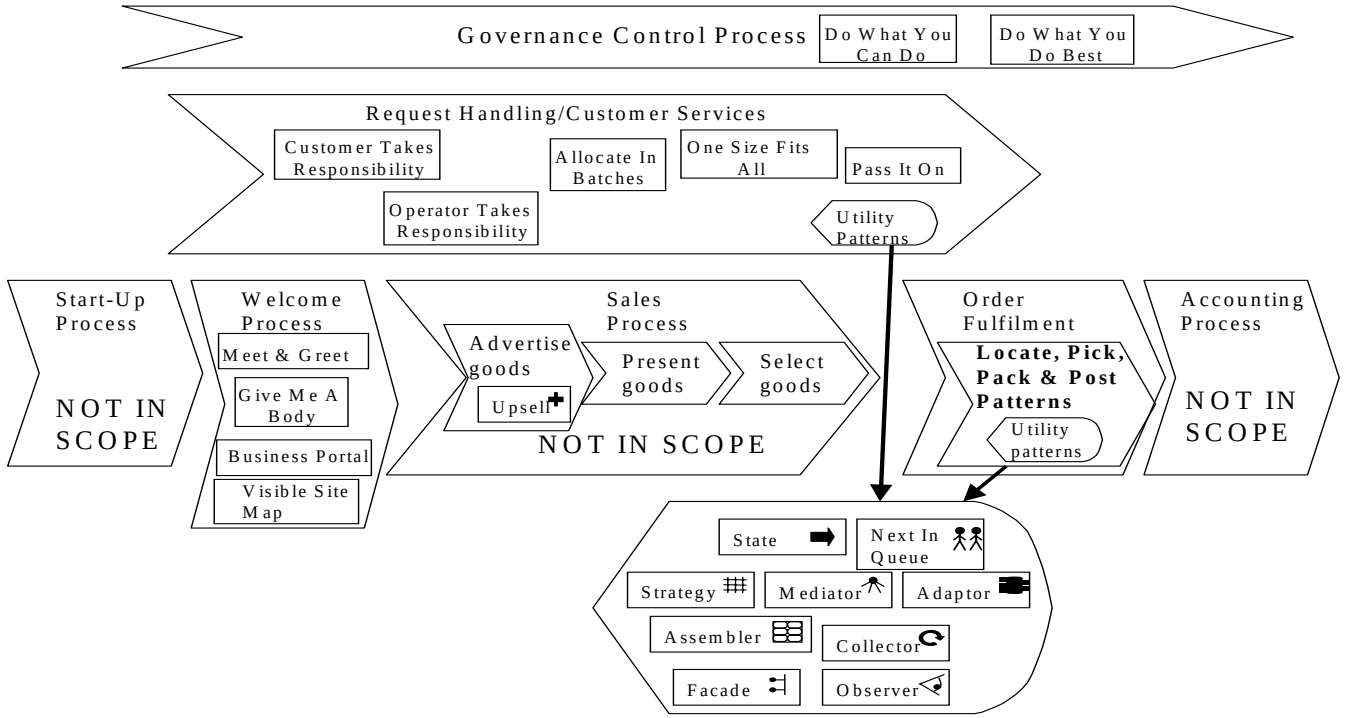
As the patterns were mined, they were loosely placed around the focus or centre with which they were most associated, and this then helped to determine their position in the developing pattern language. Some patterns appear in more than one centre, others are patterns that tend to link centres together, rather than be associated directly with a centre. An attempt was made to structure the pattern language in such a way as to collect patterns with common centres together, within their focus, to enable the user to use the patterns in a more intuitive manner, and in short logical sequences.

***Example of sequences of patterns based around centres***
(Case study adapted from Bowersox p474, A Unique Arrangement (Bowersox and Closs, 1996))

Calyx and Corolla specialise in delivering a floral or plant arrangement by Federal Express that looks as though it was picked that morning and lasts for weeks. The most unique feature of the operation is that Calyx and Corolla never physically handles the flowers. Instead. Calyx and Corolla acts as the catalyst in a three party arrangement. Calyx and Corolla handle all of the sales and administration processes; the flowers are picked, arranged and packed by any one of 8 main growers; while delivery is performed by Federal Express. Supplemental business is handled at 13 other growers, and United Parcel Service performs additional ground deliveries of dried flowers and bulb kits. Since the flowers are picked and shipped so soon after an order, they last days to weeks longer than arrangements delivered through traditional distribution channels. Special iced gel packs are inserted in the package by the grower to ensure freshness. Handwritten notes and cards with care instructions and information about the gift are also enclosed. Delivery, limited to the United States, is available Monday through Saturday and usually has a one-to five- day window. However, delivery can be organised to occur on an exact date. Same day delivery is even possible if orders are received by a specific time as well.

Patterns used in sequence, arranged by centre:
**LOCATE –** Direct System; Pass It On; Next in Queue
**FILL** – Collector; Assembler
**PACK** – Damage Protection; Blanket Wrapping; Next in Queue
**DESPATCH** – Contract Carrier; Common Carrier; Speed Costs; Precision Cost

**Figure 2. Synopsis of Potential Business Process Patterns**



*Sample Patterns from the Business Process Pattern Language*

# Next in Queue

## *Problem*

**When an operator has a list of tasks that need doing, it is often the case that tasks are selected by operator preference, or pressure from the requester**. Tasks may be neglected, or completed late.

## *Context*

When faced with a list of tasks, it is human nature to do those tasks which are most appealing, for whatever reason, ahead of those tasks which are less favourable. It may be that a task is of a short duration, is easy to complete or is done as a favour to another person or department, and is thus completed ahead of those tasks that are more complicated or lengthy. Where such a neglected task is time dependent or is crucial to the completion of other tasks, slippage of projects and/or customer dissatisfaction may result.

## *Solution*

**Ensure that a strict policy of task handling is enforced, by placing each task into a queue.** Each task is then allocated to an operator upon request or completion of the previous task. This ensures that tasks are done in the sequence in which they arrive. One queue of tasks is then available to all operators.
Applicable to: Queued telephone calls, task lists with similar levels of required operator skills

## *Consequences*

- ✓ Tasks are completed in a timelier manner.
- ✓ No task has preference over others
- ✓ All tasks will be completed, regardless of content
- ✗ The delegation of a task to the next available operator may mean that operator skill sets are not being adequately used
- ✗ There may be loss of continuity within closely coupled related tasks

## *Related Patterns*

Allocate in batches

# Collector

## *Problem*

**An item/order is made up of component parts, located in different places. The component parts of an item/order need to be brought together prior to assembly.**

## *Context*

An order may be made up of multiple parts, for example a floral arrangement is made up of different types of flowers and foliage, a container, oasis and optional decorations. A pick list is required to detail the individual components for a particular order, as specified by the customer. The list components need to be collected, possibly from different sources, and may require collection in a pre-defined order. The actual components to be collected and their collection order (if any) need to be managed and documented.

## *Solution*

**Allocate a collector role to an operator whose responsibility is to maintain a list of components for an item/order, and to systematically collect all components on the list, in whatever order required and from whichever source**. Human, computer or mechanical operators may carry out this role. An operator should be able to deal with more than one order at the same time.

## *Consequences*

- ✓ Reduces the risk of spoilage where availability of some components causes a delay in completion
- ✓ Lower risk of incomplete orders being sent to customers.
- ✓ Enhances reliability and company image
- ✓ Makes best use of available resources
- ✗ Cost may increase if more than one collector is required

## *Related Patterns*

Assembler, GoF Iterator

# Pass it on

## *Problem*

**When a customer contacts an organisation with an unusual or personal requirement, they expect their request to be handled by an operator who is capable of dealing with them without having to be passed from one operator to another, repeating the problem each time**. Allocating a specific worker to the request can reduce the efficiency in which the request is handled. A policy of randomly allocating a specific operator to a request can reduce the efficiency with which the request is handled

## *Context*

Some questions/requirements requested by customers do not fall in to the general category of requirements, and need specialist operators capable of dealing with the request. The number of calls of this type may be low enough that it is not feasible to train all operators in all specialist areas, due to training costs and time. The number of specialised operators capable of dealing with certain customer requirements is lower than the number available for more general requirements.

## *Solution*

**A synopsis of the problem is passed from one operator/department to the next until an operator is located who has the necessary skills to deal with the customer's requirement**. The response to the request is organised according to its generality, from the most general to the most specific. The request can be dealt with by one of several operators, which one depends on the context and how specific the available help is.

## *Consequences*

- ✓ The customer is unaware of the transfer between operators
- ✓ Calls are dealt with quickly and efficiently, enhancing customer satisfaction
- ✗ Customer may not know which operator/department is dealing with the request, so repeat calls may take them to a different operator, which is not good for continuity of problem
- ✗ Customer may be kept on hold for a long time whilst an appropriate operator is found. Not good for customer relations
- ✗ May lose connection to the customer. Again not good for customer relations

## *Known Uses*

Consider the services offered by a customer help desk. When the user dials the help desk, they give a brief indication of their query to the operator. The operator then selects the most appropriate department to deal with this request, and transfers the customer through. This department member may then be able to deal with the query themselves, or may transfer the customer to another person more able to handle the query, or to a different department in the event that the call was wrongly interpreted.

## *Related Patterns*

One Size Fits All, GoF Chain of Responsibility

# Contract Carrier

## *Problem*

**A business regularly has to deliver items of all sizes and types to many destinations.**

## *Context*

A business may have many items to send out per day, on a regular basis. The cost of transporting each item separately may become expensive. The cost and time involved in actually getting the item(s) to the carrier company may also be an issue, as a member of staff may have to physically go to the courier's premises.

## *Forces*

- Regular deliveries
- Many destinations
- No time to take to a courier's premises
- Not concerned with *how* the items are transported
- Reasonable time scale
- Require a fixed cost for volume

## *Solution*

**Take out a contract with a carrier, whereby an agreed maximum volume and frequency of items can be transported over a regular period for a fixed period cost**. The carrier collects any items on an agreed regular basis (e.g. hourly, twice daily, daily, weekly) and organises the transportation of the item(s) to the final destination, without any effort on behalf of the business. The items are then transported to the destinations by the most efficient means to the contract carrier, within a time scale agreed by both parties and stipulated in the contract. The contract covers delivery of agreed items, and should include insurance against loss or damage.

## *Consequences*

- ✓ Responsibility for the collection and delivery of items is placed on the contract carrier, leaving the business free to do what it is best at (see Do What You Do Best).
- ✓ There is an agreed working relationship between the two businesses
- ✓ Contract can be renegotiated if delivery needs change
- ✗ There may be a fixed term tie-in to the contract, which is expensive to break

## *Related Patterns*

Do What You Do Best (Allocate the Rest), Common Carrier

# Common Carrier

## *Problem*

**Items of any size and type need to be delivered on an irregular basis to their destination within a reasonable time scale and at low cost**

## *Context*

Upon receipt of an order/transaction, a business needs to get the required item(s) to their final destination within an agreed time scale. The cost of transportation is usually included in the final price to the customer, so the cost to the business should be within this agreed price. Provided the items reach their destination intact and without damage, the business is not concerned with how or when the items are transported, or whether the items are transported with those of other businesses.

## *Forces*

- Cost of goods delivery needs to be as low as possible
- Delivery timescales are not urgent, simply a reasonable timescale
- Goods need to be delivered intact, with no damage
- Goods are not regularly delivered to the same address
- Goods may be delivered anywhere in the country

## *Solution*

**Use a commercially available delivery service that is able to offer cost-effective package delivery of items** by collecting items from many different businesses, moving the items by the most efficient modes of transport (road, rail, air) and delivering the items to the destination within a short time scale. Examples of common carriers include Parcel Force, DHL, UPS, public transport and taxis.

## *Consequences*

- ✓ Cost is incurred on an 'as-needed' basis, and so can be kept low
- ✓ Responsibility for the safe delivery of the item(s) is passed to the common carrier.
- ✗ Items may be mislaid or misdirected in transit, which may incur extra cost and/or bad business image
- ✗ Common carriers, by being commercially available to the public, will have no particular loyalty to an individual business.

## *Related Patterns*

Contract Carrier, Do What You Can Do

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## *List of Potential Order Fulfilment Patterns, arranged by focus and centre*

### LOCATE FOCUS
**Focus on locating the goods in an order**

| Problem | Solution | Pattern Name |
|---|---|---|
| Finished goods and components need to be stored prior to sale | Rather than fill valuable storage space in the production facility, move completed goods and components to a warehouse for storage or for transfer to the next stage in the supply chain | **Centre** – Warehouse |
| A supplier needs to provide inventory replenishment to its customer on a regular basis as cheaply as possible. | Position the warehouse geographically close to the key customer locations. This allows maximum long-haul transport of goods from manufacture and minimum secondary transport to the customers. | Market-Positioned Warehouse |
| Goods need to be assembled before they can be shipped to customers | Position the warehouse as close to the production plants manufacturing the components as possible, so that the components can be assembled prior to shipping the completed items to the customer. | Manufact-uring Positioned Warehouse |
| Need to store goods, but are not able to find a warehouse for lease that fits the exact requirements of the business | Contract a real-estate developer to build a warehouse to the business's specifications on a leased-basis. | Private Warehouse |
| Need to store goods as cheaply as possible and/or for a short time-span | Use a public warehouse that offers a standardised range of services for a fixed or variable fee. | Public Warehouse |
| Need tailored storage services over a long time period with low cost and risk | Combine the benefits of private and public warehouses to provide a unique and tailored warehouse exclusively to one client | Contract Warehouse |
| Need to balance cost, flexibility and performance of delivering goods to the customer | Select a logistical service that best fits the business for optimal inventory management using available technology | **Centre** – Logistical Operation |
| A customer needs specific items on a one-off basis in a short time period | Ship the items directly to the customer from one or a limited number of centrally located warehouses. | Direct System |
| Customers need variable quantities of many items on a regular basis | Stock some amount of every inventory item at each intermediate location in the supply chain | Echelon Structure |
| Some items are too large or expensive to be held as stock in the echelon channel structure | Combine direct delivery with distribution via intermediate stockholding points | Flexible System |

### FILL ORDER FOCUS
**Focus on collecting/picking the goods required to fulfil the order**

| Problem | Solution | Pattern Name |
|---|---|---|
| The items for an order are spread | Collect the goods together in small | Consolidate |

| | | |
|---|---|---|
| over several locations | quantities from many locations for multiple orders and assemble into a bulk load. Then transport by the best method | |
| A bulk load needs to be sent to numerous locations | Disaggregate the bulk load into smaller consignments, and deliver to their different locations by the best method of delivery | Disperse |
| Many components need to be assembled together to form the order, and many orders need to be picked per day | Where possible, automate the assembly by the use of robotics, automated sorting devices and conveyor systems, controlled by computer. | Automated Handling |

## PACK ORDER FOCUS

**Focus on assembling or packing the goods together**

| Problem | Solution | Pattern Name |
|---|---|---|
| Goods of any type need to be transported to the customer without being damaged | Package the goods in such a way that they are protected from impact, temperature change, water or foreign matter | **Centre** - Damage Protection |
| Items to be delivered are large and irregularly shaped, but need to be protected from damage | Wrap the items in blankets or similar reusable material and carefully stack or strap within transit vehicle | Blanket Wrapping |
| Regular cost is incurred sending goods to the same customers on a regular basis, using the same expensive packaging materials | Purchase reusable plastic, steel or fibreboard boxes, bottles and drums, which can then be returned empty or refilled with ordered goods | Returnable Container |
| Single or multiple items need to be packaged as cheaply as possible | Stock corrugated fibreboard boxes/cartons, or similar packaging, and use the most appropriate size for the order | Multipurpose Barrier |
| Fragile and/or irregular-shaped goods placed in suitable packaging may still be in danger of damage from the packaging itself | Use the best-sized multipurpose barrier or suitable container, and pack the spaces with padding material | Foam Fill |
| Items in an order are heavy and/or bulky, and are difficult to move | Package items onto a standard-sized pallet (wooden or plastic) contained with film, cardboard or plastic and held with plastic strapping, so that the order can be moved by forklift | Pallet |

## DESPATCH ORDER FOCUS

**Focus on delivering/posting the goods to the customer**

| Problem | Solution | Pattern Name |
|---|---|---|
| What is the most effective way for a business to transport their goods to their customers? | Determine the primary delivery requirements of the customer and then select the most appropriate delivery option | **Centre** - Transportation Format |
| Items of any size and type need to be delivered on an irregular basis to their destination within a reasonable time scale and at low cost | Use a commercially available delivery service that is able to offer cost-effective package delivery of items | Common Carrier |
| The business needs to regularly | Company owns its or leases a | Local Delivery |

| | | |
|---|---|---|
| deliver goods of all sizes and types within the local area | delivery vehicle, capable of holding the goods produced, and delivers personally within the local area | |
| A business regularly has to deliver items of all sizes and types to many destinations | Take out a contract with a carrier, whereby an agreed maximum volume and frequency of items can be transported over a regular period for a fixed period cost. | Contract Carrier |
| Large quantities of goods have to be transported over long distances | Bulky or large quantities of goods are packed into transport containers, and the containers moved en bloc | Trunk Haul (Containerised Goods) |
| The delivery of goods has to be made on a fixed day or within a stated time period, or not at all | Use the most effective delivery option that is available to accommodate the fixed delivery period and pass on the extra charge to the customer | Precision Costs |
| Goods need to be delivered as soon as possible, or not at all | Select the carrier who can deliver within the time limit at whatever cost, and pass this cost on to the customer | Speed Costs |

**Patterns that link the centres (Utility patterns)**

Business Process State
Pass It On
Next in Queue
Assembler
Business Process Mediator
Collector
Business Process State Observer

## *Appendix A*

## *Thumbnails of potential patterns in the Business Process Pattern Language*

### UTILITY FOCUS

| Problem | Solution | Pattern Name |
|---|---|---|
| Sometimes, the interface of a process or process pattern is not what the users expect, and it can't be used because the interface doesn't match the domain-specific interface the user requires | Apply an adapter to form a bridge between the interfaces of the two components, allowing the two processes to run in a seamless manner between two processes with incompatible interfaces | Business Process Adaptor |
| It takes too long to search through the different subsystems and menus of my system to find what I want | Insert a shield or façade between the users and the subsystems to present the user with a single, simplified interface | Business Process Façade |
| There are so many interested parties or processes that all need to talk to each other, it takes too long to communicate | Allocate a mediator role, which is responsible for controlling and coordinating the interactions of a group of roles | Business Process Mediator |
| How do I monitor the status of an order? | Allocate a state pattern, whose responsibility it is to hold the details of the current state of an order, and to change the behaviour of the order when the state changes | Process State |
| How do I know how much to charge the customer? | Set up a pricing structure which automatically calculates the prices of all stock depending on the supplier, order quantity and customer status | Pricing Strategy |
| When an operator has a list of tasks that need doing, it is often the case that tasks are selected by operator preference, or pressure from the requester | Ensure that a strict policy of task handling is enforced, by placing each task into a queue | Next In Queue |
| Why are different operators working simultaneously on similar tasks? | Sort similar or related tasks into batches and allocate a batch to an operator | Allocate in Batches |
| An item/order is made up of component parts, located in different places. The component parts of an item/order need to be brought together prior to assembly | Allocate a collector role to an operator whose responsibility is to maintain a list of components for an item/order, and to systematically collect all components on the list, in whatever order required and from whichever source | Collector |
| Need to be able to track the stages of assembly an item/order has reached | Allocate an operator whose role is to check that the parts required for assembly are collected together, whether there is a predefined order of assembly, and to monitor the actual use of each component as it is used in the assembly of the final product. | Assembler |

## WELCOME FOCUS

| Problem | Solution | Pattern Name |
|---|---|---|
| How does a potential customer know that they have entered the correct business site? | Provide a portal area to the business, so that a potential customer knows that they have entered or left the business site. | Business Portal |
| Not all customers are happy to deal with computer systems or automated telephone systems, and many hang up or leave when required to do so | At the earliest opportunity, offer the customer the choice to speak to a person | Give Me A Body |
| On entrance to a business, how does a customer find what they want as quickly as possible? | Identify a means by which to meet and greet customers at the business portal, identify their requirements and direct them to the correct place within the site | Meet and Greet |
| On entry to the business, the customer needs to know where to find the different business products | Lay out the gateways to the different options together in one place, so that all of the initial choices are visible at once | Visible Site Map |

## GOVERNANCE CONTROL FOCUS

| Problem | Solution | Pattern Name |
|---|---|---|
| The owner of a business finds that their time is being taken up in running the business, rather than doing the actual job that makes it their business | Employ other staff to do those routine tasks involved in running a business, or tasks that can easily be allocated to other staff | Outsource |
| It takes too long/costs too much to get a particular job done by employing someone else to do it | If it is with your capabilities and you have the time, do the job yourself | Do What You Can Do |

## CUSTOMER SERVICE FOCUS

| Problem | Solution | Pattern Name |
|---|---|---|
| When a customer contacts a company, they may have no idea who or what department can deal with their request, but they expect their call to be dealt with as quickly as possible | Operator takes details of customer requirements, and then makes the decision which department/person to route the customer to | Operator Takes Responsibility |
| When a customer contacts a company, they may know exactly which person, department or extension they need to contact, and wants to be connected as quickly as possible with the minimum of fuss | Provide a choice of departments or personnel for the customers to choose from, and then route the call | Customer Takes Responsibility |
| When a customer contacts an organisation with a general requirement, they expect this requirement to be met in a speedy and competent manner. | All the operators are trained to the same degree, so that they can all deal with any requests that are received from the customer | One Size Fits All |
| When a customer contacts an organisation with an unusual or personal requirement, they expect their request to be handled by an | A synopsis of the problem is passed from one operator/department to the next until an operator is located who has the necessary skills to deal | Pass It On |

| | | |
|---|---|---|
| operator who is capable of dealing with them without having to be passed from one operator to another, repeating the problem each time | with the customer's requirement. | |
| A business receives many calls from customers, each of which needs to be routed to the person most able to deal with the query | Introduce an automated answering service, whereby the customer selects the option most suited to their needs | Automated Call Service |
| A customer needs to have some means of contacting an organisation, other than in person | Ensure that contact details are prominently displayed to the customer, in the form of a telephone number or address | Contact Us |

## SALES ORDER FOCUS

| Problem | Solution | Pattern Name |
|---|---|---|
| Need to increase the sales of goods to a wider variety of customers | Offer other goods or services on the same website or in the shop, especially related goods that the customer may not have thought of | Upsell |