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ELECTRONIC COMMERCE FOR FURNITURE MANUFACTURERS

Covering:-

E-Commerce, What is it?
How to develop an e-commerce strategy
Preparing for e-commerce
Implementation
Monitoring your website
Glossary Of Terms

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CONTENTS

Introduction

The purpose of this document is to enable furniture companies to develop and implement their own electronic commerce strategy suitable to meet their own unique circumstances.
To achieve this, this document sets out to explain the different types of electronic commerce systems available, various strengths and weaknesses and how these can be harnessed to improve the profitability of textile manufacturers.
The potential of electronic commerce can be seen from its basic underlying principle which is that anyone can go to the internet, describe what they produce and sell it to a worldwide market.
The document will then look at the preparations needed to identify what sort of e-commerce system is required.
This is then followed by the implementation phases needed to ensure the effective use of e-commerce.
Having covered the project through to its implementation, we will then identify how you can monitor and improve the commercial effectiveness of your system.

To implement electronic commerce effectively, you will need to understand what it is and to be able to understand the jargon some people use.
A Glossary of Terms is included in the final chapter for reference. Some of the terms included are technical and some are sales and market related.

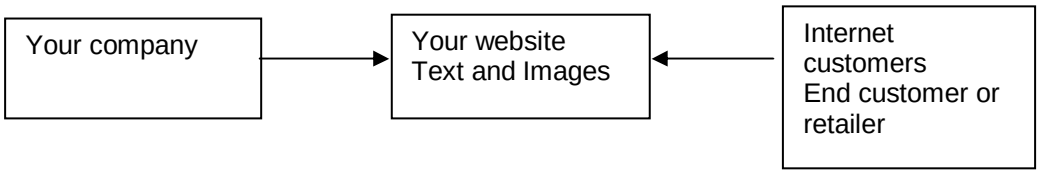
CHAPTER ONE - E-COMMERCE WHAT IS IT?

E-commerce stands for electronic commerce but sadly definitions over what constitutes e-commerce and what does not can vary greatly.
Some definitions include all forms of electronic communication, including email, which are in any way connected with selling a product or service. For example the UK Government use the following definition:-
"E-commerce is the exchange of information across electronic networks, at any stage in the supply chain, whether within an organisation, between businesses, between businesses and consumers, or between the public and private sector, whether paid or unpaid."
As various types of e-commerce have come into being the various definitions have gradually evolved and a general definition today would tend to limit e-commerce to ways of actually selling and buying products on the internet.

1.1 Different types of e-commerce systems

1.1.1 The Single Site Website

The basic website is a series of pages held on the internet normally containing text, photographs and sometimes graphics. The most common application of this in a commercial sense is a website which describes who a company is, what they make, and then contains photographs in an electronic catalogue which shows a potential customer what the products are.



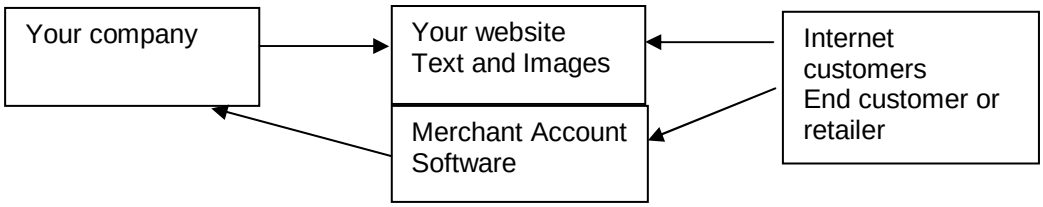
This approach can be used to sell to any customer, either a retailer or the products end user but it does not hold financial transactions. To make sales a potential customer needs to either email the company, sometimes from the website, or telephone them.

Because of the highly variable nature of the content, these websites are highly customised and the vast majority are developed anew for each company.

1.1.2 The Single Site Website that includes a Merchant Account

A Merchant Account is the software that accepts a credit card number and moves the payment from the credit card account to the bank account of the selling company. This software uses encryption software to make the financial details secure and

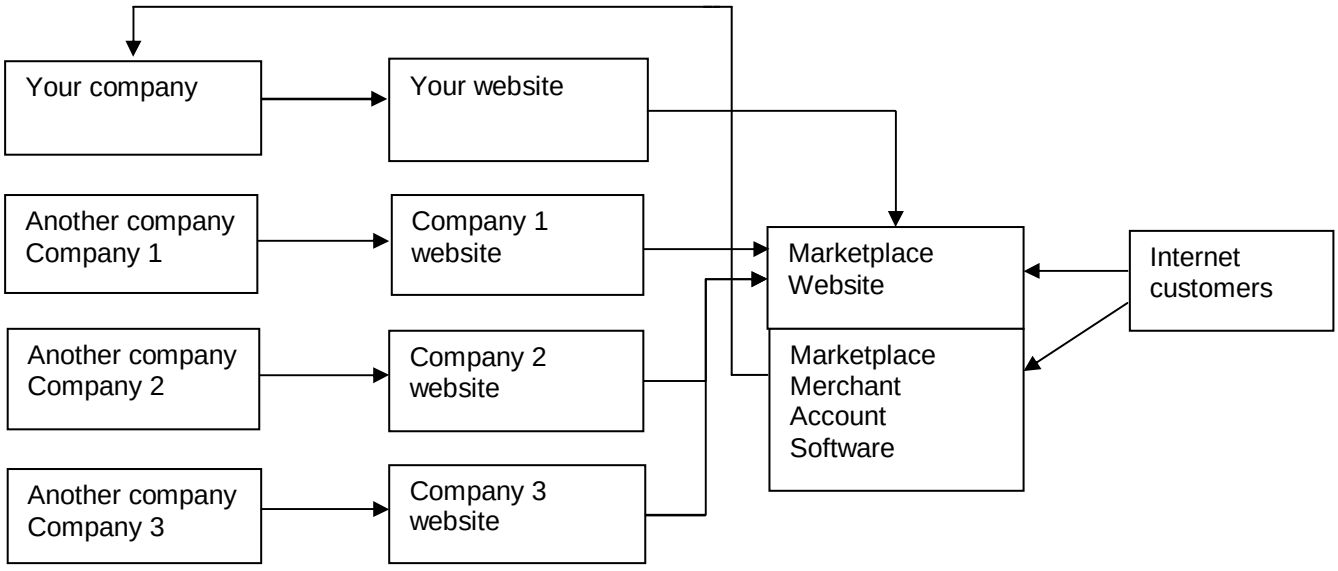
because of its highly specialised and complex nature, this software is commonly packaged or standard software. Because the software automates transactions into bank accounts the actual software used has to be approved by the bank. A bank will therefore normally have a number of approved Merchant Account software suppliers. This software is then added to a website to create a website where a customer can pay for a product he wishes to buy. The figure below shows a website with the Merchant Account software bolted on. This is to reflect the fact that in most cases the Merchant Account software is package software added onto a website.



With the increased complexity of this sort of website, some flexible packages are available. These give the advantages of increased functionality, quick development and implementation schedules plus the flexibility of customising the website content to suit the needs of an individual company.

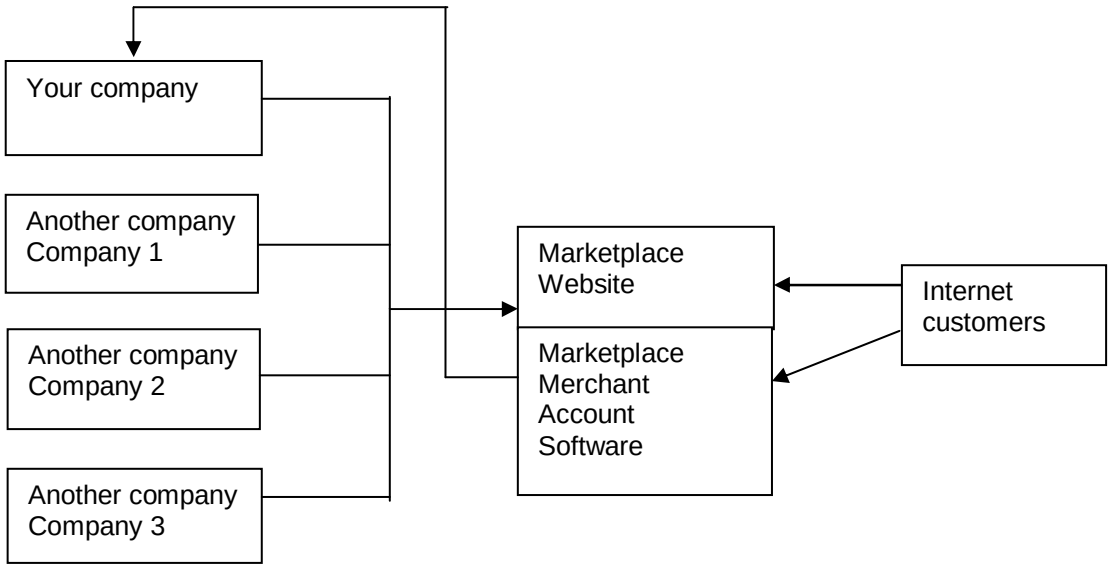
1.1.3 Multi-Site Websites

Multi Site websites are websites which contain goods or services from several companies.
These are sometimes known as marketplace websites because they tend to attract more customers than a single site website.



In the figure above we can see how a marketplace website can be linked to several single site websites. This means that a company can attract sales from either their own website and via a marketplace website. Any single site website can be linked to several marketplace websites.

However, as can be seen from the figure below, a company can have its products shown on a marketplace website without having a website of its own. The products are shown on the electronic catalogue within the marketplace software and the marketplace software still handles the financial transactions.



This option means that a company can implement an e-commerce strategy without incurring the development time and cost associated with developing its own website.

1.1.4 Communication between Computers (EDI).

Back in the late 1980's communications between computers became increasingly sophisticated and this began to link computers in different organisations. This technology had the somewhat unwieldy title of Electronic Data Interchange, or EDI for short. EDI enabled different companies in the same supply chain to speed up the distribution of sales order information down the supply chain thus speeding up the flow to components along the chain. However, EDI itself, ie the actual link itself, was of little use in isolation. The important factor was the programmes which took the data supplied by EDI and manipulated it into something useful.
As such, EDI does not use the internet but instead uses a telephone line to communicate between the two computers.

1.2 Where are we now?

E-commerce started with the connection of two computers together in different businesses to speed up the flow of data from one company to another. This was Electronic Data Interchange or EDI. As EDI became more common companies looked at the way the data was used rather than just its flow. At that time the internet was still in its infancy. As the internet grew the principles of EDI were applied to the internet. However, the rapid development of the internet opened up more and more opportunities. Faced with this rapid technological evolution, it is inevitable that many companies should try and apply this technology to their current operations. This we can call a Stage 1 Phase. The use of this technology to radically alter business practices, or Stage 2, can be seen in the multitude of new internet companies. The impact of this has already been felt by traditional retailers as the scale of overall e-commerce trading escalates.
Within this increase we can also see changes in the breadth of products being made available for sale on the internet. E-commerce sites used to focus on make to stock products on the basis that to make a sale, the internet had to offer a quick service. This is gradually changing. It is now common to find websites that offer products with a delivery date of several weeks. This is viable because of the internets lower prices. The second factor is the increasing flexibility in the growth of internet auction sites. This weakens the perception that to sell on the internet there has to be a rapid response to the customer. Instead we see the rise of other customer incentives propelling the growth of e-commerce.

If we look at e-commerce development and application it is not surprising to see that traditional retailers have fed much of the investment in e-commerce. But the internet is also being used by companies to completely alter their trading practices. This we can expect to continue at an every increasing pace.

1.3 The impact of e-commerce so far in the furniture industry.

In 2001 the European Information Technology Observatory published a report into the impact of e-commerce in the furniture industry.

Its main observations were as follows:-

- Design, manufacturing, and sales and marketing are the areas that add most value. Segments in the chain would probably benefit from the application of e-commerce.
- Currently there are few examples of industry specific e-commerce marketplaces where suppliers and buyers can trade together. Initiatives in e-procurement of raw and semi-finished materials are likely to increase as manufacturers become aware of the large benefits of the technology.
- Distribution in the industry is structured in a complex way and extranets and internet-enabled supply-chain automation systems should hold particular benefits to manufacturers and dealers.
- Areas where the application of e-commerce should be of greatest benefit are order management and logistics.

The report also went on to say that the USA is the largest marketplace for e-commerce in the furniture industry but Europe is trying to catch up. However, there is a growing shift from Business-to-consumer to more business-to-business uses for e-commerce. E-mail is being seen as the preparatory stage to having all quotation information directly sent to the buyer.

The main challenges that face the industry in Europe were predicted to be:-

- the cost of e-commerce systems, particularly to small companies
- resistance to change
- lack of skilled personnel
- the absence of an addressable end market for the online selling of furniture
- uncertainty of the likely rewards of the technology.

Since that report the European Furniture Manufacturers Federation (UEA) has created a furniture portal with the objective of organising the presence of the European furniture industry on the internet. This project began by standardising the information relevant to the industry. The portal also creates a model of different categories of furniture and types of products. The EU-Furniture site also contains a search function showing companies and federations together with a profile area that allows companies and federations across Europe to create and edit company information. Also included is a furniture auction.

CHAPTER TWO – DEVELOPING YOUR E-COMMERCE MARKETING STRATEGY

When developing your marketing strategy there are some key questions that need to be answered.
These include:-

1. who are your target customers, retailers or end customers?
2. what products are you going to sell to them?
3. how are you going to sell to them?
4. what is your target market?
5. how are you going to distribute the goods to them?
6. are there any services which need to be supplied along with the goods. If there are, how are you going to provide that service?
7. do you need any business partners to either manufacture or supply the goods or services? If so, have they agreed to the strategy?
8. what is the likely demand for the goods or services?
9. are you going to use e-commerce to buy goods or services?

We will deal with each of the above in more detail followed by a summary of e-commerce strategies and additional disciplines you may need..

When you have developed some answers, albeit some may have to be estimates, to the above you should be in a position to put together some rough costings. These costings should include all identifiable costs including technology and distribution costs. These costings should give you break even prices and estimated sales prices from which you can calculate your estimated profit margins. This exercise will help to show if the strategy you have formulated is commercially viable.

2.1 Target customers, a retailer or the end user?

This is a key strategic decision. If the customer is going to be a retailer then are these going to be existing or new retailers or a combination of the two. What are the sales trends like of the retailers you have in mind. If you are considering a major investment in e-commerce then you need to be confident that either the profit margins or volumes or both will improve to cover that investment.
Alternatively, if the end user is your customer, the rewards may be higher but you will have to work harder to get them. For example, if you plan to sell more to the end user, you will be able to control the end user price more fully but you are likely to have to invest more in branding, improved customer service and of course distribution. But once you have done this you will have much greater control over your own destiny.
If you sell solely to retailers at the moment the shift towards supplying the end user can be a gradual strategy, and applied only to target markets. The product range may be isolated from the product ranges sold to retailers to minimise any risks of cannibilisation, that is the growth of e-commerce sales at the expense of other sales.

2.2 Products to sell to them

The products can be new, or old or even dead products resurrected.
When selecting the products however, there are some considerations to bear in mind. Traditionally only make to stock products have been made available for sale via e-commerce. However, this is based on several assumptions which include:-
-the customer will complain or cancel the order unless he gets a quick delivery
-that traditional make to order products remain make to order if they are sold direct from the manufacturer to the end user.
However, both these assumptions are increasingly flexible. Many internet users routinely make offers for products without placing a conventional order via auction sites. In addition the internet is already awash with products where the delivery date is measured in weeks. However, the greater the longer timescale, the greater the risk of cancellation. In respect of make-to-order products, these can be included if one of two criteria are met. These are, firstly, if the delivery time can be kept short. This can be achieved if the end product can be made from a work-in-progress store,
The traditional philosophies of make-to-stock versus make-to-order can become blurred if the manufacturer can be confident of a steady demand, even at a low level. This can be achieved if the manufacturer is selling direct to the end user.

If we then look at some examples of production lead times we can see the sort of range of furniture products than fall within the six week category and we can also assess the level of risk associated with each product range based upon the criteria that the lower the production timescale the lower the risk.

Sector	Sub-sector	Typical Lead Times	Risk Factor
Domestic	Cabinet	2-3 weeks	Low
	Upholstery	8-12 weeks	High
	Dining room furniture	2-3 weeks	Low
	Kitchen	2-3 weeks	Low
	Bedroom	8-12 weeks	High
	Bathroom	2-3 weeks	Low
	Restoration	5 – 10 weeks	Encompasses end user sales.
	Reproduction	10-12 weeks	High
	Furnishing & Interiors	8-12 weeks	High
	Wrought iron furniture	2-3 weeks	Low
	Garden furniture	6 weeks	Medium
Office	Cabinet	2-3 weeks	Low
	Upholstery	8-12 weeks	High
	Tables & chairs	2-3 weeks	Low
Contract	Cabinet	2-3 weeks	Low
	Upholstery	8-12 weeks	High
	Tables & Chairs	1-3 weeks	Low

From the above list we can see that the high risk areas are those were textiles are used as a component and where high quality craftsmanship may be involved, i.e. reoduction.

Many high volume forms of furniture are low risk.

2.3 How to sell to them

If you are selling to a retailer then this becomes a version of the process you have now. If on the other hand you are going to sell direct to the end user then you will need to brand and market your product. This will require time and money.
Another factor is if you are going to solely rely on your website or use internet links (hyperlinks) to create a network of complimentary websites to help attract customers to your site. Trying to attract customers to your website can be very costly and the intensive use of hyperlinks can be very cost effective. You will need to pick your web partners carefully so that there are advantages to both you and your web partner in the relationship. A prime candidate for such relationships are marketplace websites.
These are websites that contain several companies products and there value is that by showing products from several companies they can attract a relatively high number of visitors. Such sites can play a key role in generating e-commerce revenue.
Websites which contain your hyperlink, become the internet equivalent of an agent. They will want some payment for the orders they generate.

2. 4 Target markets

If you have got this far then you should have a good idea what your target market is. If you have not, then this is the time you need one.
Your target market will need to identify what products you plan to sell together with any geographical restrictions. Before finalising these geographical areas you will need to also finalise the other factors below.
Your target market can be based on one or more of the below:-

- existing profitable customers
- new geographical market
- new product range
- special interest market, eg sport, hobby activity etc.
- large companies
- small companies

2.5 Distributing the goods

It is standard internet practice to separate out shipping cost from the cost of the product itself. This is to try and use the shipping costs as an incentive to the end user to buy more from a single source.
Your distribution plan will need to dovetail into other parts of your strategy. For major geographical markets you may wish to use local warehouse or sub-contract processing facilities. This would help to reduce your delivery timescales.
Distribution, or outbound logistics management as it is sometimes called, can be critical to the success of your website.

Difficulties in distribution are closely tied to the strategy used by your website. If your website is geared to selling only stocked items then any problems with distribution are kept to a minimum. If, however, you sell items via the website with varied availability then the issues surrounding distribution can multiply.
The conventional e-commerce approach is to separate out the shipping costs from the costs of the product. This means that the shipping costs involved can be tailored to meet customer variable factors. It also means that actual distribution can be limited to geographical areas where distribution can be cost effective. However, availability constraints should be made clear on the website itself, preferably at the product catalogue stage.
If you are not restricting your website to stock only items then you have to structure your site to cater for different levels of availability. The most common approach to this problem is to offer the customer the choice of holding the delivery back until the last item on the order is available and then ship the entire order or shipping when items reach stock. The latter option involves greater costs but leaves the choice to the customer.
Your distribution plan will depend on what overall strategy you employ. If you are selling to a niche market you will under less day to day pressure to fulfil tight delivery expectations than if you are competing against a retailer. Stock depots or warehouses can be essential if tight delivery schedules are required.

2.6 Services that need to be supplied along with the goods

The standard internet procedure for delivering services is as follows. The user is asked to select the geographical area where the service has to be supplied. This selection is done from drop down menu on your website. Naturally only areas where the service can be supplied are listed. Once the user has selected the area he is presented with the name and address of the local supplier of the service.
These service suppliers will need to be coordinated by you and you should have maximum control of expected quality standards.

2.7 Business partners

When putting together a cohesive e-commerce you need to identify what sort of business partners you need if any. These partners could be:-
Suppliers – where delivery of supplies need to be short and therefore streamlined
Internet websites – these could be retailers, marketplace websites or others.
Your plan will need to co-ordinate action across partners where needed.
E-Commerce Partners
There are several approaches that can be used with e-commerce partners and these are discussed below.
Joining into one company.
This can take place in the form of a merger, acquisition, or the simple creation of a new company by two or more separate companies. Acquisition is a very common form of e-commerce expansion and normally acts as a version of vertical integration of various parts of the supply chain. As such, these acquisitions can be the joining of companies with complimentary expertise or previous competitors.
Investment in a company.

Rather than create a new entity you may wish to decide to invest in an existing company. This has several advantages. If allows you to share in their existing internet presence, takes advantage of their expertise and enables you to influence their activities to suite your needs.
Strategic alliance.
This is where two or more companies agree to work in collaboration with each other. This can be to develop a new product or service or to promote existing products or services more effectively. It is simple and easy to set up and can be discontinued just as quickly.
Long or short term contract.
You may wish to obtain the goods or services of a partner in the long term without any of the above in which case a long term contract would be appropriate.
Alternatively you may only need the expertise of a partner for a short period time ie at start up. In that case a short term contract would give you what you need when you need it.
Product based link
Instead of having a company wide arrangement you may wish to create new arrangements for one or more products. For example, if you manufacturer a unique component with a finished product, eg a special yarn within a fabric, you may wish to control the use of that component in several end products but you do not make the end products yourself. The internet coupled with conventional sub-contract procedures allows any manufacturer to exercise control over the manufacturer, sales and marketing of the end product. Here we see e-commerce being used to allow more equal sales and marketing opportunities to any manufacturer no matter where he is in the supply chain.

2.8 Likely demand

When creating your strategy you will need to assess the likely demand you will encounter. Data on this may be hard to get but since it is such a key factor you need to pay attention to it.
Firstly you can assess the overall market size. Traditionally you then needed to reduce that by the number who will have internet access but since today that figure is very high, that part can be missed. You will then need to look at sales trends for various products being bought over the internet and extrapolate that over two or three years.
When putting together your demand assessment here are the factors you will need to consider:-
Buyer power – The power of on line buyers is increased through greater choice and this frequently forces down prices. However, this can be reversed where niche markets are involved. If your product is feeding a specialised demand not normally catered for by traditional retailers then your margins may still be high.
When dealing with suppliers and where you are the buyer, the linking of suppliers to your strategy can strengthen your supplier ties leading to what is called a “soft lock-in”.
Supplier power – As can be seen from the above, normally the power of suppliers is reduced. However this is turned on its head if a manufacturer uses e-commerce to supply direct to the end customer instead of an existing retailer. In this circumstance the power of the manufacturer is dramatically increased. This is an inevitable result of two basic factors:-

-the manufacturer has total control over the end customer price
-there is no traditional retailer margin to consider. This instantly puts such a manufacturer at an advantage.
Flexibility – new products can be introduced into an e-commerce environment quicker and easier than by traditional methods. This rewards those companies who are alert to market changes and can react to them. By the same token it can punish those companies who are not.
New entries to the e-commerce market – up till now most of the investment in e-commerce has come from traditional retailers. Although this enables them to reduce prices it still involves a middle-man between the manufacturer and the end consumer. Manufacturers who sell direct should therefore be operating with a basic advantage for a period of time. Effective new entries are likely to be manufacturers of internet dedicated companies.
Competition among existing competitors - the internet can commoditise a product if you are not operating in a niche or specialised market. It offers the potential of higher volumes. In terms of competition between manufacturers a lot depends on your ability to generate increased profits to finance investment. Supplying a traditional retailer normally does not offer any realistic expectation of healthy profit margins. So success between manufacturers can depend upon how successful you are in exploiting new ways of selling. The internet also promotes globalisation in terms of new customers and new suppliers.
The collation of market research data can be broken down into two sections:-

- direct data, this is data relating to your own products and/or services
- and indirect data which relates to overall market information, much of which is collected by other companies such as specialist e-commerce marketing companies.

Naturally the source of data regarding your own products and services will come from you and may include the following sources:-

- existing website. An existing website can provide you log files of the sites activity. This is cheap and provides valuable data of your existing and potential customers. However such log files are highly detailed and they may need careful analysis and summarising.
- questionnaires. These can allow you to request data that logs cannot provide such as various levels of customer satisfaction
- focus groups where a relatively group can provide very detailed information.

In terms of collecting published market data, you can use the internet or hire a marketing company to collate and analyse the various sources for you. These can of course include online and offline methods.

2.9 Using e-commerce to buy goods or services

The use of e-commerce to buy goods or services is commonly known as e-procurement. This can cover the integration of the following activities:-

- purchase order requests
- purchase authorisation
- ordering
- deliveries
- payments

An e-commerce procurement system essentially entails using the internet to search for the right products at the right price, negotiating and placing orders via the internet and/or email, generating appropriate authorisation documents automatically, and then converting the authorised requisition into a purchase order. Once the goods have been received the system can then automatically send payment.

2.10 Summary Examples of Objectives and Strategies

Below are some examples of objectives, targets and strategies using e-commerce:-

Objective 1 - Improve profit margins by selling direct to the end consumer.
Target 1 – Increase current profit margins by 50% over two years and achieve internet revenue of £1 million by year three. Use existing target market.
Strategy 1 – Develop website, linked to additional agents and market place websites.

Objective 2 – Develop revenue from new geographical markets.
Target 2 – Achieve revenue from new market of £1.5 million by year two.
Strategy 2 – Develop own website with heavy emphasis on e-commerce partners in new markets. Using extensive use of hyperlink marketing partnerships.

Objective 3 – Increase revenue from additional retailers.
Target 3 – Increase in volume of 25% by year two.
Strategy 3 – Extend website presence into new retailers with increase in hyperlink marketing and agents.

Objective 4 – Protect existing customer base by improving efficiency.
Target 4 – Increase sales revenue from existing customers by 20% by year two.
Strategy 4 – Extend e-commerce links and service to existing customers by use of internet services. Lock in major customers by the use of e-commerce activities. Eg use the internet to obtain rapid quality data from customers to improve overall quality to the end consumer.

Objective 5 – Flatten production variations by obtaining new markets where the demand is created in current quiet months of the year.
Target 5 – Identify new markets which create demand in target months. Obtain increased sales revenue from new markets of £2 million by year three. Reduce staff turnover by 50% by year two. Reduce late deliveries to all customers by 50% by year two.
Strategy 5 – Extend website to new markets to service target months. Link to new e-commerce partners to service new markets by extensive use of hyperlinks.

Objective 6 – Improve overall costs by increased use of the internet for outsourcing activities.
Target 6 – Reduce raw material costs by 5% by year two.
Strategy 6 – Develop procurement procedure to monitor price and performance of supplier products.

Objective 7 – Increase response to market changes.

Target 7 – Reduce time taken to identify market changes and initiate responsive new products by 40%.
Strategy 7 – Extend e-commerce to collect market sales data by product and design. Analyse sales variations and trends. Develop introduction of new products onto the electronic product catalogue.

Objective 8 – Increase sales activity from current website.
Target 8 – Increase sales revenue from website by 20% by year two.
Strategy 8 – Implement a Customer Relationship Management (CRM) system. Identify your attrition rate (the rate at which visitors to your website leave your site at each stage of the buying process). Use customer extension techniques to encourage customers to stay on your website longer and increase the probability of them making a purchase. Implement customer acquisition techniques to attract more customers and utilise customer profile data to decide how to action the above. Infomediarys (companies who specialise in collecting customer profile data) can supply vital information on how to apply these techniques to your business.
Finally you can use search engine optimisation to ensure that internet search engines give your website prominence when customers are searching the internet looking for your type of product or service.

2.11 Additional Disciplines - Branding

When selling over the internet, if you are changing from selling to a retailer to selling direct to the end consumer, you also need to accommodate the additional disciplines involved. The major discipline that needs to be looked at in detail is branding.

A brand is a name used by a customer to associate and identify a company, product or service. It becomes a factor in e-commerce whenever e-commerce is being used as a vehicle to sell a company, product or service. Its importance lies in marketing and sales and is an additional discipline if e-commerce is being used to sell to new customers, particularly in new markets such as directly to the end customer.
In the furniture industry, some sectors already have a brand presence which identifies the company. The companies with the highest brand presence tend to be those who have complimented their sales to retailers with there own retailing activities. So branding by furniture manufactures is nothing new. However, to a furniture manufacturer who has always relied on a traditional retailer to carry out the branding activity then selling direct to the end customer can be a culture shock.
But the importance of branding varies tremendously depending on what is being made. If the product or service is one sold directly to the end consumer without significant change then branding becomes an important factor. This is why branding is already present in some furniture sectors where the furniture manufacturer makes the end product. This by definition limits many sectors where the end product is made later on in the supply chain. In these circumstances branding of the company becomes the primary objective.
In those circumstances where the end product or service is supplied, then branding of both the company and the product or serviced becomes an issue.
Company branding.
Company branding is where the name of the manufacturer or company is emphasised.

It can be very cost effective in that it can influence any product or service delivered by that company. Its very effectiveness also means it has to be handled carefully. If a product or service turns out to be a failure and customers associate it with the company not the individual product or service, then every product or service supplied by that company can be adversely affected.
Company branding becomes a major factor in business to business e-commerce, otherwise known as B2B.
Most business to business transactions tend to be more long term than a conventional end consumer purchase so in that sense company branding only reflects normal business trends.
Only where there is a single product company does the company brand also become the product brand.
Product branding.
Product branding is the name of the product being emphasised to sell the product. The most common form of product branding occurs at product range level rather than the individual product itself. This of course is to reflect product variations. The product range branding is normally geared at the target customer market to meet the particular needs or desires of that market segment.
Website branding.
In some cases a traditional manufacturer may want to promote his on-line products and keep them separate from other types of sales. In that situation a company may wish to create another identity to control only the on-line sales. This new identity is normally the website address being used. This allows product range flexibility but protects the name of the company should the on-line venture fail. It also allows on-line marketing to emphasise the website address which has an impact across all the – on-line products.

2.12 Costing Your Strategy

You now need to check to see that you have a strategy that is commercially viable. The ingredients you need to include are as follows:-
Income – the demand estimates you have calculated from the demand or target section of the strategy formulation.
Outgoings – Be sure you include website development, staff training, customer service costs, and distribution costs taking into account that distribution costs can be separated from the cost of the product.

If your calculations show that you can achieve your objective then you can proceed further. If, however, your figures show losses then the strategy should be revised.

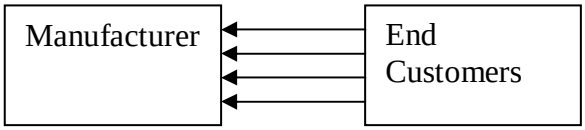
CHAPTER 3 - THE RETAILERNOTINCLUDED SYSTEM

If the strategy you have chosen is to sell to the end consumer, then the Retailernotincluded system can provide vital assistance in helping to achieve your aim.

3.1 With a conventional retailer

Under the conventional manufacturer to retailer to end consumer scenario, many end consumers provide a stream of demand for products upon the retailer.
The volume of supply from manufacturers to retailers to meet this demand is normally via infrequent large orders.
This scenario is further characterised by low profit margins at the manufacturer end of the chain.

3.2 Without a Retailer



If the manufacturer sells direct to the end consumer, the end customer demand can be expected to fall directly upon the manufacturer. This dramatically alters the business model for a manufacturer. The manufacturer sets the end customer price and controls all aspects of sales and marketing directly to the end customer. Instead of facing irregular and unpredictable large orders the manufacturer is faced with more regular small orders. This rise in predictability of demand allows a greater degree of manufacturing freedom and a greater ability to convert make-to-order products to make-to-stock.
This increased flexibility is enhanced by the costing calculations provided by the system.
These calculations show the expected production costs involved in producing low volume orders.
This allows the manufacturer the option of reviewing the order volume versus production cost balance on an ongoing basis.
However, this route will not be appropriate for all products and it is expected that some will still require a significant order volume before production can begin.
To cater for these products it is of course necessary that the customer has some idea

of the delivery time involved. This need also must take into account the flexibility within the system to achieve the required volume by amalgamating orders together and by the manufacturer bringing production forward by producing some of the batch quantity to stock.

3.3. Main Features Of System

The primary objective of the software is to allow manufacturers to sell make-to-order products via the internet. To achieve this the system needs to fulfil a number of tasks currently performed by a traditional retailer. These tasks are as follows:-

3.3.1 Batching

The software will try and combine orders wherever possible to maximise production and order volume. This will operate on the Product Identification and the Product Family. The software will combine orders for the same Product. It will also link orders together where the products belong to the same Product Family. A Product Family is defined as those products which share a common manufacturing process or material which reduces the set-up cost of production. By combining products of the same Product Family the software takes account of actual reductions in production costs when these products are manufactured together.

3.3.2 Logistics

The software will take into account the fact that some of the manufacturers may not be used to distributing their products direct to the end consumer. As a support mechanism the system will incorporate logistics and distribution options the manufacturers may use.

3.3.3 Analysis

The software will incorporate sales order analysis options to the manufacturers. This analysis will operate on two levels:-

-analysing the sales of products for a specific manufacturer

-analysing all the orders received by the system. This data may be useful to those companies seeking to develop new products.

In addition, quality analysis will also be included in the system.

3.3.4 Carpets

The carpet module allows end customers to specify the dimensions of the room, stairs or space they wish to carpet. The programme then automatically calculates the square metres of carpet. Then the user selects which carpet he wishes to buy and the system will then calculate the price of that carpet for the square metres required. Once processed the order is then sent direct to the carpet manufacturer who makes the selected carpet. The mark up in carpets at a traditional carpet retailer is currently normally in excess of 30%. The above process should allow cheaper carpets to the end consumer and increased profit margins to the manufacturer. In addition, the system should be able to process successfully each order entered since this function is not dependent on the presence of a matching or similar order.

3.3.5 Alternative Products

The system also incorporates an Alternatives Products feature. This is a set of webpages which contains lists of alternative products which may be used by manufacturers if a raw material is difficult to obtain. It is expected that selling make-to-order products will put pressure on the supply chain. The system will enable manufacturers to look at alterative components which may reduce product lead times and costs.

3.3.6 Auction System

This allows Manufacturers to sell products via the internet via auctions. It is intended to serve several purposes:-
- allow manufacturers to sell excess production
- assist manufacturers in identifying market prices for products by assessing the bids being made
- assist manufacturers in matching products to markets

3.3.7 The Colour Studio
This allows users to select a colour from a palette, store that colour via a name defined by them, ie my bathroom yellow, and match that colour against products for a matching or similar colour
In addition the Colour Studio allows users to identify harmonious colours which can then be selected by the user for matching against products.
This facility is unique to the system and is aimed at end users to want to use colour as a means of selecting the product they wish to buy.
3.3.8 The Supply Chain module.
This is intended to automate the passing of order and manufacturing data to suppliers to help speed up the supplier lead time

3.4 The Scope of the system.

Whilst the system has special features to support sales to the consumer, it can also support sales to retailers or agents.
Its basic catalogue structure encompasses the following furniture product types:-

Sector	Sub-sector	Typical Lead Times	Recommended Sales option to end consumer.
Domestic	Cabinet	2-3 weeks	Both make to stock & make-to-order.
	Upholstery	8-12 weeks	Make to stock
	Dining room furniture	2-3 weeks	Make to stock and make to order.
	Kitchen	2-3 weeks	Make to stock and make to order.
	Bedroom	8-12 weeks	Make to stock
	Bathroom	2-3 weeks	Make to stock and make to order.
	Reproduction	10-12 weeks	Make to stock.
	Furnishing & Interiors	8-12 weeks	Make to stock
	Wrought iron furniture	2-3 weeks	Make to stock and make to order.
	Garden furniture	6 weeks	Make to stock and make to order.
Office	Cabinet	2-3 weeks	Make to stock and make to order.
	Upholstery	8-12 weeks	Make to stock
	Tables & chairs	2-3 weeks	Make to stock and make to order.

Contract	Cabinet	2-3 weeks	Make to stock and make to order.
	Upholstery	8-12 weeks	Make to stock.
	Tables & Chairs	1-3 weeks	Make to stock and make to order.

3.4.1 Product Selection

Product selection is an important part of preparing for the system. The system uses the concept of Product Families. A Product Family is a number of products that have a process in common, which if combined together across products, can reduce production Costs. If we use woven carpets and fabrics as an example, different woven carpets sometimes use the same set of warp yarns. If production moves from one product using a type of seat to another product using the same seat, the time and cost of replacing that seat is eliminated and overall production costs are reduced. The system calculates the estimated production costs taking these factors into account. It can therefore be appreciated that selecting products with the same products, allowing the system the opportunity to link orders for products with the same family, is going to be a far more effective strategy than selecting products which are totally dissimilar.

3.4.2 Data Loading

Data loading can be achieved by the manufacturer using two possible methods:-
Direct- Directly onto the website database. This option is suitable for broadband users.
Indirect- Data can be loaded onto the users PC first and then transmitted to the website PC once the data loading onto the PC has been finished. This option is suitable for dial up or non broadband users.

3.4.3 Data to be loaded

The transactions included in the system for data loading are as follows:-

Add, amend and delete Company Parameters
Add, amend and delete Product Master Data
Add, amend and delete Product Size
Add, amend and delete Product Design
Add, amend and delete Product Colour
Add, amend and delete Product Costs
Add, amend and delete Product Manufacturing Schedule
Add, amend and delete Product Images
Add, amend and delete Product Suppliers
Add, amend and delete Features
Add, amend and delete Colours used.
.
A list of the data items used by the system is contained in Appendix 1.

3.5. Going live and running.

Once the data has been loaded and checked a date is set with the manufacturer for going live.

3.5.1 Standard Order Processing – Make to stock

In this circumstance the user can select a product from the Product Catalogue and the order is sent directly to the manufacturer.

3.5.2 Make-to-order

To place an order the user selects a product from the Product Catalogue in the conventional way. The first part of the order placement system looks conventional to the user. However, when a product is ordered the system then tries to link orders for similar products together. This takes into account other orders and any prescheduled production run for the product the manufacturer has supplied to the system. The system then calculates the estimated cost of production to the manufacturer for the current level of demand. When the system has identified that the manufacturer wishes to make the product the system passes the order data to the manufacturer. At that point the manufacturer takes over and he then confirms delivery schedules and details with the end customers. The manufacturer has full control of pricing.

3.6 The Auction Module

The Auction Module is where the manufacturer can select to sell a product to the highest bidder. He specifies what product and what quantity he wishes to sell. A bidder can then select a quantity and price he wishes to bid for. If the manufacturer accepts the bid, an order is created between the bidder and the manufacturer. The manufacturer then confirms delivery with the customer. Payment methods can be by credit card or the standard manufacturing invoice procedures.
Because the sellers are always manufacturers the bidder can have confidence in the seller.

It is expected that the Auction Module will be used by the manufacturer for the following reasons:-

- to sell excess stock
- to sell seconds
- to sell experimental lines
- to sell cancelled ordered products

3.7 The Colour Studio

The Colour Studio is a highly innovative part of the system which will help to attract a significant number of customers.
The user can select a colour from a colour palette which will act as a target colour. This is the colour the user wants to match against. The user then also selects various types of product which he wants the system to search. The system will then search the product types specified by the user to find any product with a matching colour.

Say for example a user has a carpet that he wishes to match against. He can specify curtains and chairs to match against. The system will then search the Product Catalogue for those products and display the products with a matching colour to the user.
In addition to colour matching, the system will also identify complimentary colours to the target colour selected by the user. Any of these complimentary colours can be selected by the user to become target colours for search purposes.

3.8 The Support Modules

As the title suggests, the system contains some modules of software that are aimed at supporting the manufacturer's activities. These cover specific parts of sales process after the order has been passed to the manufacturer. These modules are:-

3.8.1 Alternative Products

This module contains lists of alternative products that the manufacturer can use if we wishes to make an order cannot get his normal components in time. The manufacturer can search the lists to find the product type he is looking for and the screen will contain a direct link to the suppliers website. From that route he can negotiate a contract with the supplier.

3.8.2 Logistics

To aid distribution the system will hold depot locations that can be used by the manufacturer to store or hold goods. This may play an important role in determining what geographical areas a company can sell into.

3.8.3 Supply Chain Director

This module is used where a manufacturer wishes to pass order information directly to a supplier. The system will correlate and combine different product pieces of information and send them automatically to the supplier.

CHAPTER 4 - PREPARATION

Preparation is the vital link between having a strategy that you think is going to work and developing the software to act as a vehicle for your plans.
Preparation encompasses the following stages:-

1. Defining the user needs of the website
2. Identifying how the company is likely to change to make effective use of the software
3. Identifying new procedures the company will need to apply.

As can be seen this phase links the needs of the organisation and its management team with the Project Team who are responsible for carrying out the projects successful implementation. It ensures that the differing departmental needs are reconciled into a cohesive set of company requirements which is used later as a measure of success for the project.

4.1 Objectives Of Defining Your Requirements

The primary objective of defining what you want, whether it is via a simple checklist or a complex Definition of Requirements, is the same, and that is to help make sure you either buy or develop the right system which matches your needs. The level of expenditure to achieve this should be cost effective to you and to do that it should bear some relationship to the importance of the system to your company and the likely level of investment in the total system. Put simply, there is little cost effectiveness in spending tens of thousands of pounds in defining your needs if the system cost is measured in hundreds and it is not critical to your business. But the reverse is also true, if the investment you are likely to make in the system is measured in hundreds of thousands of pounds and the system is critical to your business then investing in a comprehensive DOR which protects your investment and your business is frequently crucial to success. So what risks do you run if you do not protect your investment? According to a recent European survey over half of all companies who responded said they had experienced computer project failures in the past and this proportion only altered slightly when analysed against company size. Clearly, whether you are a large company or a small one, there can be a substantial risk of wasting your entire investment.

To protect your investment you need to:-

Minimise the risk of failure - You need to make sure you buy the right software, running on the right hardware with the right skills to make sure you can maximise the benefits the system can give you.

Find the most appropriate software - If you are considering packaged software, you need to identify the software package which is the best fit to your company’s specific needs.

Ensure that all potential IT suppliers are bidding against the same criteria.

Identify potential software problem areas per supplier.

Identify cost per functionality to measure the cost effectiveness of complex areas of modified software.

Reduce the total cost of implementation by identifying clearly what is required thereby avoiding wasted expenditure.

The need to cover the areas above becomes clear if you consider the dangers to you in either buying or developing the right system. These dangers include:-

Failure – If the system is a failure you could lose your investment and the time taken for it to collapse is time lost in the race against your competitors. Both can cause serious problems to your business.

Spiralling costs – If you have not specified the software functions accurately substantial and expensive modifications to the system may be required.

Wrong hardware – The hardware used must be adequate to support the system in the manner you wish to use it. To do this it must meet the demands of your business seasonal peaks plus any expansion or growth plans of the business. The main measure of performance is the response times of the software.

Poor support – To obtain a smooth installation of the system it is important that adequate support is available to your company when you need it.

Alienation of users – After the system is installed the people who will determine the success of the system are your end users. It is important that they are fully involved in the selection and implementation of the system so that the potential benefits of the system are achieved.

Lack of direction – Any new system should computerise the company as it wishes to operate in the future. If the requirements of users and departments are not co-ordinated effectively, there is a risk of obtaining ineffective software and an ineffective plan on how it should be used. A DOR is an opportunity to build a cohesive and co-ordinated IT plan.

By contrast to the above a good Definition of Requirements provides an essential tool in the following areas:

- Cost

A good Definition of Requirements enables you to obtain comparable costs from potential suppliers reducing the risks of increased costs later on due to gaps or misunderstandings with the chosen supplier. This is an essential element in implementing the system on specification, on time and on budget.

- Getting the right system

This is a basic requirement of the project but in many cases the decision making process can be clouded by opinions rather than facts. A DOR should be the agreed guiding manual for the project. This is extremely important. At the time of making a decision each department within your company may prefer a different system, the one which normally works best for their department.

- Helps to avoid misunderstand between the company and suppliers in a changing

world.

This is important in two contexts. Firstly you need to be sure that each potential supplier you are considering is fully aware of what is expected of him in all areas of his involvement. Then once you have selected a system and implementation has commenced you will be initiating a process of change. As part of this process your users will become more knowledgeable about how computers can make them more efficient and they will think of enhancements to the system which was not contained in the DOR. An effective implementation needs to allow for this positive process and decisions will need to be made in assessing the benefits of any system enhancements.

- User confidence in success

This can become more important and frequently more difficult to achieve with larger projects. In the case of small stand alone projects the users should be able to see progress as their needs are defined, systems are evaluated and their system selected in a fairly quick way. In the case of large corporate projects it is important that users see project progress even though the progress may be comparatively slow. The DOR is clear evidence that the views of the users are important to the company and that they continue to "own" the new system.

- Helps your company to evolve its requirements to become more efficient.

In depth involvement of end users is a crucial element of a good DOR. As will be discussed more fully later, the creation of a DOR should stimulate users at all levels into thinking how their jobs could be made easier and more efficient. This should be seen as the start of a continuing process at all levels. At Director and Managerial level the DOR can provide assistance in developing and sustaining a framework for a cohesive managerial team with common objectives across all departments. As the process moves through the stages of system selection and implementation, this positive outlook for change should be continually nurtured and developed.

- Helps to identify what is cost effective and what is not.

If the DOR is structured in such a way as to enable software costs per function to be identified, it is then possible to identify the cost effectiveness of non essential functions. This is particularly useful in the case of "wish list" or non essential functions which require software modifications to fulfill.

- Contractual

It is increasingly common for a DOR to become an integral part of the contract with a supplier. The basic reason for this is that a good Definition Of Requirements should provide an accurate basis of the suppliers obligations. In addition, many companies are recognising the fact that a suppliers normal contractual terms are heavily biased in favour of the supplier. The frequent response to this is a contract based upon the principle that the suppliers obligations are to provide a working system which meets your needs as defined in the DOR with the onus to supply such a system resting firmly with the supplier.

4. 2 How to Define Your Requirements

The areas you should include are contained in the Definition of Requirements varies depending on whether or not you are going to develop your website internally or externally and the external items.

Definition of Requirements Checklist

Information You Need to Give To Potential Suppliers	**Explanatory Notes**	**Tick When Complete**
Background (External only)	A brief description of your company, what it does or makes and what your objectives are of the new system	
Description of Tasks The Software Must Fulfil	This description must be in sufficient detail to enable the potential software supplier to understand what software he must supply. A frequent problem is lack of detail in the software description. A useful check is to compare the description of the main elements of the system you require, eg sales order, production order etc, with any ISO9000 (or BS5750) documentation showing the stages each element goes through. If any relevant stages are missing in the software description, these should be added.	
Training Needs	The number of staff in each department who will need training in the new system and if the training needs to take place outside normal working hours to accommodate normal work in the implementation.	
Commercial Framework (External only)	If you wish to obtain fixed price contracts from potential suppliers, this must be clearly stated.	
Information on Existing Hardware.	This should be a description of any relevant existing hardware together with its software.	
Number of users for new system and output devices and types.		
Any relevant hardware policy within your company.		
Preliminary Schedule	This should specify any time constraints you may have and indicate how soon you want the system up and running and when you wish to start	
Transaction Volumes	This indicates the approximate workload expected of the new hardware. It is normally expressed by	

	stating the number of relevant documents the system will have to handle over a given time period eg number of sales orders per week. WARNING: The figures you quote must be those experienced at the height of any seasonal variations. These can be several times the average.	
Information You Need To Obtain From Potential Suppliers (External only)		
Authors or agents	Some software suppliers write their own software whilst others act as agents for software developed by another company. You should identify which.	
Expertise	In the case of a software house acting as an agent, their support expertise may not be in the same area as the software they offer. You should identify the areas of expertise support.	
Customer base	How many customers do they have, both overall and for the particular system they have to offer you.	
Implementation	How many implementation staff do they have.	
Background	How long have they been in business and their turnover. You should also ask for their last set of statement of accounts to check stability.	
Costs	Obviously you need to know all the costs associated with any software you are being offered. It is advisable for you to ask for the costs to be broken down as follows:	
Packaged software	The cost of unmodified standard packaged software.	
Modification costs	The cost to modify standard packaged programmes to meet your specific needs.	
Bespoke software costs	Costs of completely new software required to meet your needs.	
Other software costs	Costs of software needed other than those specified above to meet your needs. Eg operating system etc..	
Hardware	The hardware costs broken down into major components.	

Implementation Training Maintenance Facilities	This is the cost of help you will need from the software supplier to implement the system in your company. It normally Consists of a number of man days at a specified cost per day. This is the cost from the software supplier to train your staff in using the system. This is the on-going maintenance costs to you once the system is fully installed. These costs can be substantial so it is important they are identified. Does the supplier have the facilities necessary to carry out training courses at the suppliers premises.	
Hardware description		
Software description		
Phasing	Availability dates of the system being offered in conjunction with any phasing required.	

If any of the above areas are NOT included, you should be clear in your own mind why.

4.3 Defining Your Software Needs

This is the most important section of the DOR and if this is wrong you may buy the wrong system and waste your entire investment. It is critically important that this section is accurate.
The first objective to bear in mind is that a new system should cater for your company needs both now and for the future.

It should not be limited to the way your company conducts business today. So the first thing you need to do is to identify what your company needs for the future are. This should be done on the following levels:-

1. Corporate strategy.

You need to identify your company's business strategy for the next three to five years if there is one. If there is no formal strategy in place you will need to identify the corporate needs of each department covered by the project.

2. The Corporate IT Strategy

The corporate needs identified in stage 1 should then be converted into an IT strategy which identifies the types of systems you need to support your corporate strategy. This can then act as a framework for the software needs of the DOR.

3. User Needs

This section deals with the software needs of your end users for the areas covered by your strategy.
Stages 1 and 3 will be carried primarily via interviews and the processes required are as follows:

3.1 Information gathering – The objective of this process is to obtain information relevant to the tasks covered by the project. In the early stages it is important that you are perceived as a problem solver. This is best achieved by encouraging the free flow of information to you with the minimum of constraints. In addition you need to stimulate the user into thinking about how their job or function can be improved. This process should not be rushed or attempted in one interview. The user must be given time to think without excessive time constraints. As can be seen the success or otherwise of this stage will depend heavily on your skills as a listener. If you have never conducted interviews before for this process, here are some guidelines to help you:-

- Prepare well before each interview
- Conduct the interview at the users normal place of work if possible
- Make sure you have enough time for the interview, do not rush it or truncate it unless you absolutely have to.
- During the interview ask questions and listen attentively to the interviewee.
- Ask for clarifications if necessary.
- Ask about the problems the user has as well as what they do.
- Always use concise and simple questions.
- Stimulate the user into thinking how his or her job could be made more efficient.
- Never dominate the discussion.

Some useful questions for consideration when interviewing are:-

- What are the biggest problems you have performing your job. (Discuss and where possible suggest solutions. The user may already have identified the best solution, but not been able to put it into action. If you do have someone with some IT knowledge this can be very useful as they may be able to suggest solutions that are not automatically apparent to the non-IT literate among us.)
- What parts of your job are the most time consuming.
- What parts of the current system (computer or paper) do you think are the best – could not be improved upon.
- What improvements would give the maximum benefit to you.
- What information do you currently receive – how could this be improved? (Timing, content, layout)
- What information do you not currently receive but would be useful?

It is unlikely that a computer system will be able to solve all of the problems highlighted, but it may be possible to make improvements by changing procedures, personnel etc.

3. 2 Analysis of data gathered. If you have successfully achieved the first stage you will have information which needs to be analysed. Firstly you must separate out information which is relevant to the project and information which is not. It is the sign

of a good listener that you may have data which is not relevant. Relevant data can be split into procedural and functional. Procedural data deals with the flow of data and how it is used. Functional data deals with items of data used together with what it is used for and how. From analysing the data you should start to get a picture of how the company should operate in the future at all levels and in the case of inter departmental projects, how the various departments wish to interact in the future based upon the greater accessibility and accuracy of information provided by a new system. At this point you may need to consider the creation of two documents, a DOR as originally planned, and a second new document which looks at the procedural changes required in the company to make maximum use of the new system. This second document should provide a stimulant for change but be flexible enough to encompass evolving procedural changes. So all being well you should have ideas which need to be checked and discussed further. This leads on to the next stage which is to evolve and qualify the information you have and any conclusions you may have reached.

3.3 Evolution and Qualification. In this stage you will evolve the ideas and information given to you in the first set of interviews. But in addition to this, the users should be able to inform you more fully of ideas they have had which can make their jobs easier. If one or two of them are having difficulty try and ask a few probing questions together with suggestions.

3.4 Reanalysis and Reiteration. You then need to analyse the new information you have and rediscuss until you have reached a consensus with the end users over the functions they need to operate in the future. In addition you should have some form of consensus regarding procedural changes needed within the company.

When upgrading or changing an existing computer system particular attention should be paid to areas where information is added by hand, and occurrences of double data entry, as these are indicators of pitfalls in the current system.

4.4 Format of the DOR

Now you have reached a milestone, you can start to write the DOR.
A Definition of Requirements can be written in many formats and these range from large chunks of text describing what is required to segmented functional operated documents. Before deciding which is the most appropriate format for you, think about the information you want from the supplier. As a general rule text options only tend to work well if your requirements can be easily met by any supplier, the project is small and if you have no need for costs per software functions. In medium to large projects a segmented functional approach tends to provide more valuable information back from the supplier and can save time and money in preventing the need to ask for additional information. Whichever format you choose, do not forget to ask the supplier to identify how he intends to satisfy your software needs, by packaged, modified or new software. Obviously one of the objectives is to obtain information from the supplier so these sections should be structured as a questionnaire.

4.5 Writing the DOR

Earlier we discussed a DOR Checklist. Work your way though this using the areas which are relevant to your project. The most complex area will almost certainly be the description of the software requirements. This should be written in a logical way and broken down into the application software areas you need such as:-

- Objectives of the website
- Expected website structure
- Linkages to other websites

When writing it always remember that the reader may know nothing about your company or industry other than that contained in your document so he must be able to understand what the software functions needed are solely from the DOR.

After spending many hours writing you have now finished, or you think you have. If you have not written a DOR before there is a probability that you have used assumptions on the textile industry and/or knowledge of your company when writing. So you next need to check it. If you have not used internal company documents when writing the DOR, go through your functional description and compare it with ISO9000 or BS5750 documentation making sure that all the major stages of each element (sales order, purchase order etc) are covered in a logical sequence. If you do not have such documents available check each area with a relevant end user. Include relevant internal documents as Appendices to the final DOR.

When the DOR has been checked and you are happy that it is an accurate description of what you need then you can move onto the next stage.

Basic examples of furniture related data are contained in Appendix 2.

4. 6 Distribution of the Definition of Requirements – For externally developed websites only.

Once your requirements have been finalised in a form a software supplier can understand and has been checked you are ready to distribute it to potential suppliers. The options you can use are as follows:-

- Very limited distribution – This entails sending the DOR to only one or two potential suppliers. This is only advisable if the software you require is so specialised that nobody else can viably supply it.
- Limited distribution – This entails sending the DOR to only preferred potential suppliers. The limited option normally depends upon the nature of the software but in the cases of very large projects, financial stability of the supplier may be a major factor. In these cases the distribution may be limited to hardware suppliers who are then made responsible for selecting their most appropriate software supplier with the hardware manufacturer acting as prime contractor. Please note however that the option of going via a hardware manufacturer will not be cheap.
- Open distribution – This option provides for distribution to many potential suppliers and can operate on the basis of known suppliers of the type of system you are looking for as well as recommended companies. If you wish to open the distribution up beyond the suppliers you are currently aware of, you can contact

hardware suppliers many of whom have software supplier catalogues giving the names of software suppliers and descriptions of the types of systems they provide. These are normally free.

CHAPTER 5 – IMPLEMENTING YOUR STRATEGY

When you have arrived at the stage where you think you have a viable objective and strategy you then need to develop an implementation plan.
You will of course need to appoint a Project Manager. The Project Manager can be an internal or external appointment. Ideally he or she should have experience of managing projects, be aware of the pitfalls involved and preferably have a working knowledge of your industry. The Project Manager should be given sufficient authority to make arrangements for all aspects of project.

Your plan may need to include the following:-

1. website development time
2. staff training
3. managing change
4. implementation and planning

We will now look at each of the above in more detail.

5.1 Website Development

Most websites are a combination of customised and unmodified software. The actual homepage and the associated web pages must relate to your own business. These web pages can be based upon existing single site e-commerce packages or they can be developed purely for your needs from scratch. A single site e-commerce package can normally offer greater functionality and quicker implementation than web sites developed purely from scratch. By contrast, other parts of the website, ie the merchant account software, will almost certainly be packaged software. This is for two reasons:-
- complexity. The software has to contain highly secure encryption techniques to carry secure financial data. This has to be able to withstand software attacks from hackers.
- confidence. The software must have the approval of the bank whose account is being linked to. This inevitably means that the bank must have confidence in the software.
If you intend to make a significant investment in the website or you expect it to play an important part in the company's future then it is strongly recommended that you follow the procedure below:-
Stage A – Create a Definition of Requirements. This is where the user requirements of the software are collected and analysed. These user requirements should cover all the departments who are going to use the software. It will collect data initially on how the procedures currently operate within the company. Once the data is collected it is analysed with a view to identifying how the internal procedures may change with the new software.

A website should be developed with the following criteria in mind:-
Ease of use.
The website should contain easy to understand instructions and be structured in a logical way. It should contain demonstration transactions of the functionality where

necessary and be pleasing to the eye. Data should be presented in an uncluttered way and, where needed, additional data should be made available.
Any logging in required should be made as simple as possible and error messages should tell the user precisely what is wrong and how to correct it.
On-site resources
The website should contain all the necessary information which may be needed by the customer. This may include product specifications, and service information which may be needed by the customer along with the product.
Where the product catalogue is large, search facilities should be available so that the customer can quickly find what he is looking for.
Customer confidence.
The website should give confidence to the customer. This can be achieved by showing a depth of products and services together with customer service options such as email and phone contact methods.
The website should also include FAQ's (frequently asked questions), helpful advice and be personalised where possible (eg user name recognition). The buying cart procedure should be simple, well structured and helpful to the customer.
Product guarantees and terms and conditions of purchase must also be shown.

5.2 Staff Training

To demonstrate the importance of effective staff training we first should look at what is called the "productivity paradox".
The productivity paradox was first identified in the late 1980's.The productivity paradox indicates that there is little or no correlation between the level of investment in information systems and the company's performance as measured by its profitability or share value. Studies appear to show that in the USA and UK there is a random relationship between IT investment and returns on shares.
Such studies have concluded that whilst both IT and corporate investment have a strong positive relationship with sales, assets and shares, this does not apply to net income. However, spending on computer staff and staff training is consistently linked to increases in company performance, more so than computer capital.
Staff training is crucial for two reasons. Firstly there is the added value to the project and therefore to the objective being attempted, and secondly there is the impetus for change to consider. Trained staff are in a position to interpret the new technology in a way that is relevant to your unique business needs. This helps the company to use the new technology to improve performance, efficiency and profitability. It is easy to see how this results in the productivity paradox mentioned above.
However training staff frequently has pitfalls which must be avoided. The most common problem is that training is given a lesser priority than normal, frequently vital work. This creates interruptions to the training process and hinders the learning process. It is therefore important that such training takes place in an environment which cannot be interrupted.
The method of training also needs to be considered. A common method is the train the trainer approach. In this method a small group is trained by experts with the intention that the group then trained become trainers and in turn train others. This has two difficulties. Firstly it is unrealistic to assume that the group who are trained by the experts will become experts themselves within a short space of time. In reality they become far more knowledgeable but less than expert. When they in turn train the rest

of your staff, the majority of your staff are trained by personnel who are less than expert. Secondly the group trained by the experts have to spend time being trained themselves and then have to spend time training others. Their time is therefore double that of the direct training method. The most common reasons for the train the trainer approach are money and convenience. It frequently cost less to hire an expert to train a small, group than it does a large audience. In terms of practicality it is of course easier to arrange training for a few than for many.
All too often training is under prioritised and the company can suffer as result. When planning your training programme make sure that it is adequate to meet your needs and that it has been given proper priority.
When selecting which staff to include in the project team and therefore who to train, you need to ensure that you have the right blend of skills relevant to the project and its objectives. Then you need to look at the expertise gaps within that team to put into place training that fills those gaps. Some members of staff may need more training than others.

Consideration needs to be given to the particular skills factors found in the furniture industry.
IT skills are in short supply within the industry as studies carried out by FFINTO have identified. The skill needs identified by furniture employers are shown below:-

Skill Type	FFINTO Survey 2003	FFINTO Survey 2004
Craft	25 %	10 %
I.T.	22 %	13 %
CAD	22 %	9 %
Design	9 %	6 %
Numeracy	8 %	6 %
Literacy	9 %	6 %
Administration		4 %
Business Planning		8 %
Finance		6 %
H & S		5 %
Marketing		8 %
Personnel		5 %
Purchasing		5 %
Sales		5 %
Other		5 %

However, it can also be seen that the I.T. skills shortage has reduced significantly between 2003 and 2004. One of the biggest dangers to I.T. development is the high I.T. staff turnover caused by low wages. A dependence on e-commerce will dramatically increase the need to pay higher salaries for I.T. personnel.

Additionally, skill shortage predictions for the industry are as follows:-

- Design skills will continue to be a key factor.
- The use of technology will increase in various forms.
- The industry will still be divided between those that rely on technology and those that rely on traditional craft skills.

- Competition from overseas will continue to drive many companies to reposition themselves.
- Supply chain issues are essential in the drive for increased productivity and profitability.

5.3 Managing Change

This is another important element to the project.
To manage change you need to have identified what changes are beneficial to your business. Within your workforce you may have some members of staff who are more creative than others. You need to include people who generate ideas in your project team. They may be the ones who, in this situation, are going to have the most impact.
The process for developing and implementing change tends to follow a certain cycle. First of all at the training stage, you and your staff will have ideas. Over a short period of time, say a few days, these ideas mature and sometimes change. When ideas are going through the maturing stage they should be discussed by the project team, ie brainstormed. The idea then may change slightly into something slightly different to the original idea. This is valid process and should be encouraged. Do not worry if some or many of the ideas being created are worthless. Every one produces some bad ideas together with the good ones. The process needs to ensure that the bad ideas are filtered out and the good ones are nurtured.
At each stage you need to ensure that the whole project process stimulates the creative process in the project team.
As each idea is matured it should then be included in the project plan. This should be done using small, easily achieved objectives that build towards larger goals. This stimulates a sense of achievement within the team.
As each idea is identified, matured, nurtured developed and implemented others should follow. These may be completely new or extensions to the one just implemented.
But a word of caution is needed. This creative process needs to be harnessed towards the primary project objectives. If it is not channelled correctly it can easily lead to a loss of focus and a dissipation of resources leading to delays and confusion. If ideas are being generated that do not contribute to the initial project objectives then these should be carried forward to after the successful completion of the projects primary objectives. In this way the ideas act as a motivator towards the completion of the primary objectives.
Changes may arise that impact upon more than one department. In this case it is essential that all the departments impacted are actively involved in the maturing and development of the idea.

5.4 Implementation and planning

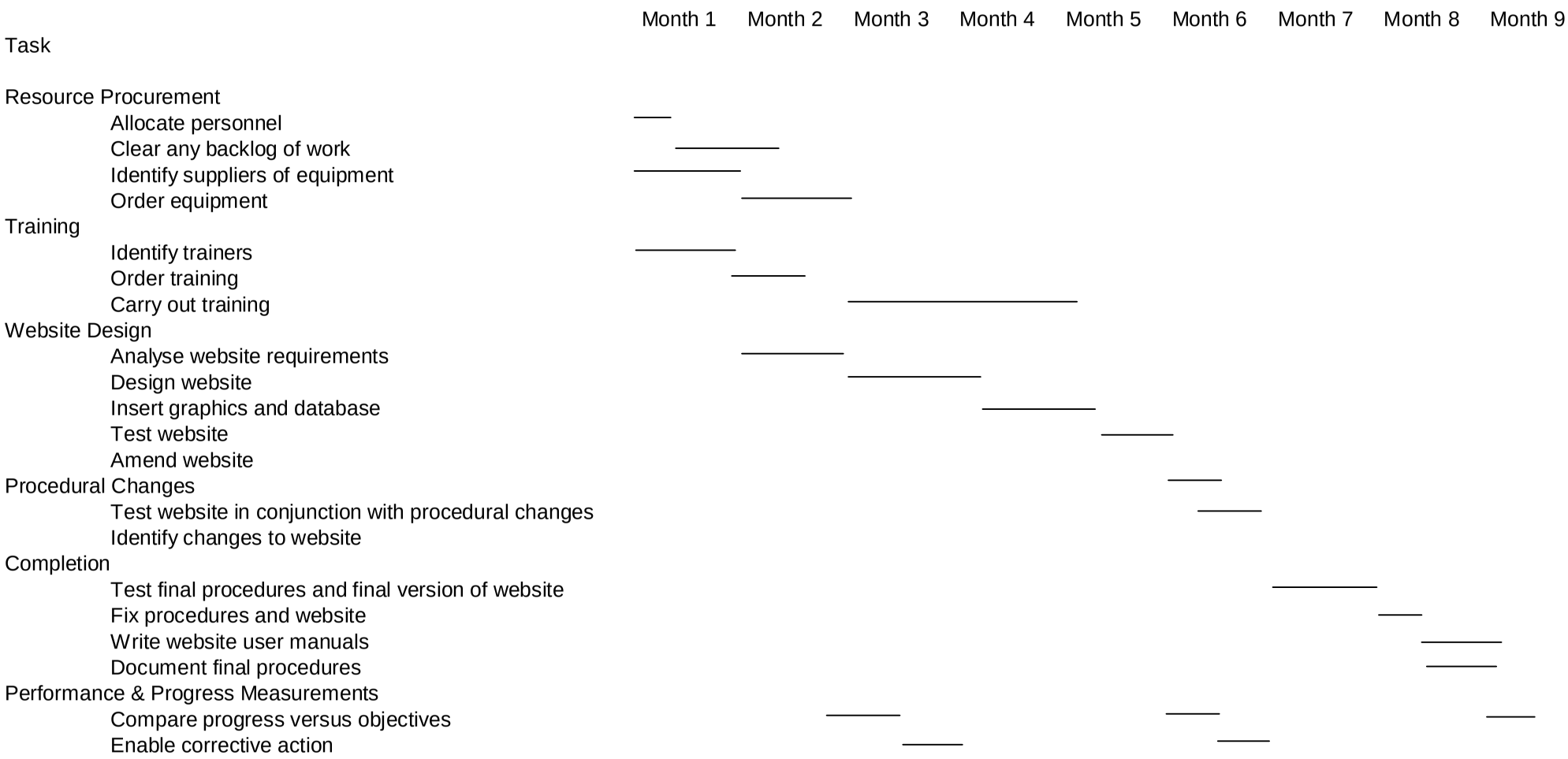
Implementation and planning can be broken down into the following phases:-

1. Task identification
2. Complexity identification and dependencies
3. Resource allocation
4. Co-ordination
5. Feedback procedures

6. Measurements of success
7. Testing
8. Changeover

5.4.1 Task identification is listing the tasks that need to be carried out in a structured and logical sequence. This must include all parts of the project and needs to include all resources needed to start the project. The first set of tasks may therefore be related to securing these resources, including any equipment.
Your next set of tasks may be training related.
Whilst training is continuing you may wish to start the website development process.
An example of an implementation plan is shown below.

Example of E-commerce Implementation Plan



5.4.2 Complexity rating occurs when the tasks have been identified. This involves estimating the complexity and therefore the time required for each task.
At this stage you can then identify what tasks are dependent upon other tasks. Some tasks can be started before others and run in parallel. These should be shown on the planning schedule. This activity should be assessed also to identify dependencies showing which tasks need to completed before other task can follow.
5.4.3 Then you can allocate **specific resources** to each task. Here you can identify who is responsible for the successful completion of each task. Obviously responsibility may vary depending on the expertise involved for each specific task. Where the responsibility for a task is not the Project Manager, the Project Manager still has overall responsibility for all tasks. By this time you will need to have organised the final Project Team.
5.4.4 Co-ordination needs to occur at several levels:-
- internal between members of the Project Team
- internal between departments
- external between business partners
- external between contractors to the project such as training companies and equipment suppliers.

Where you have a complex project with task dependencies linking from one company to another, then the project schedule needs to show the plan for each company and also an overall plan for all companies involved in the project.
5.4.5 Feedback procedures need to be clearly defined at the start of the project. The Project Manager has an on-going responsibility for monitoring the projects progress, but there should be several assessment points within the schedule where the whole Project Team can meet together with senior management to assess the overall progress. Problems will always occur and the sign of effective project management is the rapid implementation of corrective action. As the project progresses you should be able to identify warning signs before some problems occur. When you have identified some warning signs you need to develop contingency plans and inform those concerned of any action they are required to take.
There are two types of change to the schedule, the first is project drift. This where the time required changes gradually due to minor changes in several tasks. Project drift is extremely common and, in itself, is not a cause for concern. The second cause of change is the result of a major change or failure within in a particular task. When this occurs the Project Manager needs to identify what changes, if any, will result to other parts of the project due to dependencies links. To maintain accurate control revisions should be made to the plan when necessary.
5.4.6 Measurements of success also need to be identified at the start of the implementation. As the project progresses and alterations are made to the plan, such changes should be checked against the success criteria.
5.4.7 Testing will need to focus on the following areas:-
- making sure that the software works in accordance to the plans
- testing in conjunction with user procedures
- fixing the final website functionality in conjunction with final procedures.

As can be seen, the development of the website is not carried out in isolation. User needs drive the analysis and required functionality, testing is carried out conjunction with new procedures, and the finalisation of the website is made in conjunction with the finalisation of procedures. This approach is designed to ensure that the website is married to procedures and locked into procedures that make sure it is used effectively. At the start of the testing process a testing plan should be drawn up.

This should list the sequence each in which each programme should be tested and all the functions in each programme. Each programme must be tested in the sequence that ensures that the records are loaded correctly, error messages are correctly displayed and each function within each programme gives the correct results.
Care must be taken with Merchant Account software to ensure that the figures updated from credit card and bank accounts are accurate.
When the website is being developed, the space of the computer which holds the software being developed is sometimes known as the development environment. When testing starts, the software being tested is copied to another part of the computer and this is known as the development environment. Both areas are kept isolated from the space where live programmes are run.
The website tested initially is sometimes known as the prototype. This is not necessarily intended as the final version, but instead serves as a basis from which the final website can be developed.
Only when both the procedures and software have been finalised and both are ready for implementation is the website ready for publication. Software developed and tested in isolation of procedures to use the software carries a high and unnecessary risk.
5.4.8 Changeover is the process by which a new piece of software is made available for use in a live environment.
Changeover can easily cause chaos whichever changeover method is chosen. The antidote to this chaos is thorough preparation and planning. Consider the changeover options carefully to pick the most appropriate method to suite your particular project. Consider the workload involved and make sure that you have adequate staff levels. If additional staff is required make sure you employ and train them prior to the changeover itself.
There are three methods of going live:-
Big Bang – In this method all of the new software is used live on a single day and the old system is immediately discontinued. The advantage of this method is that it is quick. Its major drawback is that it carries with it a high element of risk. Any errors can be difficult to correct since little back up data is held. It is normally only used where the implementation is small and the risks can be tightly controlled.
Parallel Running – This is a very common method of implementation and involves using both the old and new systems for a period of time. Its advantages are that it reduces the risks involved since the old system is available to correct any errors that may occur. Its disadvantages are that it takes a longer time than the Big Bang method and creates a heavy workload during the parallel running period since two systems are being maintained instead of one. This in itself can cause difficulties since it may require additional staff which in turn creates extra work since they have to be trained.
Phased Implementation - In this method different modules or parts of the system are implemented in a phased and staggered way. This method is also very common since it offers a compromise between the Big Bang and Parallel Running methods. However, it can be lengthy and clean cut off points between the different phases can be difficult to achieve due to interdependencies between different parts of the system.

For very large implementations, say across several sites and/or partners it is common to apply the Pilot System approach. It involves taking one plant or area and implementing that fully and measuring the effects before implementation in other areas. It is used in conjunction with one of the three methods above to determine how the changeover is managed within the pilot site or area.

Another facet of changeover is that of data transfer. If your website contains a database and some or all of that data is held on files in an old system, utility programmes will be needed to take the data in an old file and transfer it onto the new database. These are normally very simple programmes but they are important tools in the changeover process.

Whichever type of branding you employ, there are some basic principles behind an e-marketing plan.

CHAPTER 6 – MONITORING YOUR PLAN

Monitoring your plan once you have gone live should include the following areas:-

- Customers
- Effects on other sales
- Revenue and profit

Before you can carry out any of the above you will need to collect data regarding what activities are taking place on your website.
The data will take the form of information on the types of transactions being carried out and the levels and activities.
These could include:-

- any registrations taking place on the website broken down by type and quantity, eg the number of registered customers who have purchased goods or services.
- requests for further information
- responses to a promotion
- types of goods and services being bought
- the number of visitors to your website.

Frequently the most basic measurement of website activity is the number of hits made to your website. This, unfortunately, is a somewhat inaccurate measurement of website traffic. The problem with the recorded number of hits is that if you have, for example, 15 pieces of content on your website, eg 14 images and graphics plus 1 text, then the number of hits for one visit to your website is recorded as 15 hits.
Page impressions are a much more accurate measure of website activity although even this is a visit per page. So the recorded number of hits and page impressions can easily give the erroneous impression of a very active website.

The various types of website analysis are:-

- entry and exit pages
- path analysis
- user sessions
- unique users or visitors within a specified time period
- session duration
- visitor domain or URL and country

As well as measuring overall activity there are several layers of action to improve the effectiveness of a website. These include:-

- customer acquisitions - strategies geared to obtaining new customers
- customer extension – strategies aimed at enticing visitors to stay longer at your website.
- customer retention – strategies aimed at encouraging customer loyalty

In most cases the website monitoring process involves assessing the website activity at key stages within the website purchase process, identifying weaknesses in the

website and making improvements aimed at improving the level of online revenue produced by the website.

However, where you have a mix of online and offline sales it is important to assess offline sales to look for any swap of offline business to online business. This is sometimes known as cannibalisation. This is required to get an accurate picture of the new sales revenue being generated by the website.

CHAPTER 7 – GLOSSARY OF TERMS

This glossary is intended to act as an aid to those developing an e-commerce sales and marketing strategy. To achieve this objective, some of the terms are purely technical, some purely marketing and/or sales related whilst others are the result of the two activities combined.

Accessibility legislation – Legislation covering users of the web with disabilities.

Active Server Pages (ASP's) – A method developed by Microsoft for dynamic web pages, frequently using database enquiry and retrieval.

Activity based process definitions – The analysis of the interrelationship of tasks within a business process.

Active-X – A common programming language.

Actors – People, devices or software that interface with a system.

Affiliate networks – Where a website pays commission on sales referred from other websites.

Agents – Software programmes that collect data from the internet according to user defined parameters. Can also exchange data between other agents.

Aggregated buying – Where customers combine to buy products at volume discount rates.

Application server – A server supporting a business application, usually remote from a company.

Asymmetric encryption – Where the sender and receiver use different key codes to encode and decode a message.

Attrition rate – The percentage of visitors to a website that drop out at each stage of the purchasing procedure.

Backbones – High speed communication links across a country and/or internationally.

Back-office systems – Systems that were traditionally operating within a company separate from systems linking customers and suppliers.

Balanced scorecard – A framework for setting and monitoring business performance.

Bandwidth – The speed at which data is transferred.

Baselining – Where all major parties to an activity sign a document at the tasks completion.

Brand equity – The perceived assets of a particular brand.

Brand identity – The total customer perception of a brand and its associated factors along with any brand symbols.

Branding – The creation of a customer recognisable name for a product, organisation or service.

Bricks and mortar – A traditional business with limited internet trading.

Broad and narrow navigation – Where many choices are contained on each web page resulting in fewer web pages being required by the user to obtain the necessary data.

Broadband connection – Accessing the internet via digital transfer.

Bundling – Offering complimentary products or services together.

Burn rate – The rate at which investors money is spent.

Business-to-business (B2B) - E-commerce transactions between companies.

Business-to-customers (B2C) – E-commerce transactions between a company and its customers.

Business models – An analysis of how a company will generate income. Normally includes product mix, services and target markets.

Business process automation (BPA) – The automation of business activities, normally linked with enhancements.

Business process improvement (BPI) – The identification of new business processes or the optimisation of business processes.

Business process re-engineering – Identifying new ways of operating.

Buy-side e-commerce – E-commerce transactions that take place between a company and its suppliers or business collaborators.

B2B marketplaces exchanges and hubs – Websites that allow trading between buyers and sellers.

Cannibalisation – The process where one side or activity within a company damages another in the same company eg internet sales causing a reduction in traditional retail sales.

Catalogues – Lists of items, normally products, (see also electronic catalogue).

Certificate and certificate authorities (CA's) – A certificate is a valid copy of a public key of an individual or company with identification information. They are issued by

trusted third parties a certificate authority. Ca's can make public keys available and issue private keys.

CGI – Common Gateway Interface – Provides interactivity through the web.

Change management – Managing and implementing the essential activity of changing processes and/or procedures or culture within a company.

Changeover – The move from an old piece of software or procedure to a new piece of software.

Churn rate – The rate at which a customer stops buying products and/or services. Normally expressed over a specified time period.

Client-side encryption – Browser executed scripts.

Clicks and mortar – A business with a mix of on-line and traditional business reveues.

Clicks only – A company only selling on the internet (same as internet pureplay).

Collaborative filtering – The collation of customer interests data often based on information from a variety of sources.

Commoditisation – The process where product price becomes more important than other features such as benefits and value added services.

Content management system – A system for combining editing software, saving and retrieving web content and a database for storing and publishing data.

Conversion marketing – The techniques used to convert potential customers to actual customers and actual customers to repeat customers.

Conversion rate – The percentage of visitors to a website that perform an action eg purchasing.

Cookies – Small text files stored on an end-users computer to enable web sites to identify them.

Core competencies – Fundamental skills of a company that provide benefits to customers.

Core product – The basic features of a product that meet customer needs.

Counter-mediation – The introduction of a new intermediary company by an established company.

Customer acquisition – The strategy to be used to obtain new customers.

Customer extension – Techniques by which customers can be encouraged to increase their association with a product or service.

Customer profile – Customer data used to segment or generalise a customer into types.

Customer relationship management (CRM) – The strategy of building long term business relationships with customers.

Customer retention – The means of keeping customers.

Customer self-service – Where customers obtain the information or service via a website rather than through interaction with staff.

Data subject- The individual whose privacy is protected via data protection legislation.

Dedicated server – A server that only operates or supports a single company.

Demand analysis for e-business – Analysis of the demand for goods or services to be supplied by electronic means.

Demographic characteristics – Variations in populations such as age, and sex.

Deployment plan – The plan or schedule covering the changeover to a new system.

Development environment – The software and hardware used to develop a system.

Dial up connection – Accessing the internet via telephone lines and analogue models.

Differential advantage – A desirable feature of a product that is not currently available from competitors.

Digital certificates – Keys made up of large numbers that are used to uniquely identify individuals.

Digital signature – The identification of individuals using public-key encryption.

Directories – Structured lists of websites.

Disintermediation – The elimination of organisations between a company and its customers.

Disruptive technologies – New technologies that give rise to companies altering their business strategies.

Domain names – The website address name immediately after the www. letters.

Dot-coms – Companies who trade via the internet, usually with .com at the end of their website address.

Downstream supply chain – Transactions between a company and its customers.

Dynamic pricing – Prices that can be updated in real time according to market conditions.

Dynamic web page – A web page that is created in real time, such as in response to a search engine query.

Early adopters – Companies that invest in new technologies.

Early mover – An early entrant into a market.

E-business applications infrastructure – Application software that provides access to information and/or services.

E-business infrastructure – The combination of hardware, software, and data used to deliver products and/or services.

E-government – The application of e-commerce in government and public services.

Electronic Business – All information exchanged via electronic means, either internally or externally, supporting or relating to business.

Electronic catalogue – A catalogue on an electronic medium, normally a list of products on a website.

Electronic customer selection – Selecting the ideal customer for acquisition, retention and extension.

Electronic customer relationship management (E-CRM) – The integration of customer information databases.

Electronic Data Interchange (EDI) – The transfer of data from one computer to another.

Electronic funds transfer (EFT) – Automated digital transmission of money between organisations.

Electronic marketing – Marketing via electronic means.

Electronic marketspace – A virtual marketplace where no direct contact exists between a company and its customers.

Electronic procurement – The electronic integration of all supply activities.

Electronic Procurement System (EPS) – A system to control and manage electronic procurement.

Electronic tokens – Units of digital currency in a standardised electronic format.

Enabling goals – Small goals that build towards bigger goals.

Enterprise application integration(EAI). – The software linking of different software applications within a company or enterprise.

Enterprise Resource Planning applications (ERP) – Business software covering all the main operations of a company such as sales, production, finance etc. Used to be called Production Control.

Environmental scanning – Constant monitoring of surroundings and events.

Explicit knowledge – Knowledge that can be easy stored in a computer system.

Extended product – Non basic product features that add value to a product.

Extranet – A network created by extending an intranet to the company suppliers, customers and/or business partners.

File transfer protocol – The technical standard used for moving files to and from servers.

Financial EDI – The transfer of financial data from one computer to another eg payment mechanisms.

Firewall – A software application whose purpose is to prevent unauthorised access to company data.

GIF (Graphics Interchange Format) – A graphics format used for simple graphics.

Hit – A visitor to a website based upon recorded graphics or text requested by a user. See also Page impression for a more accurate way of measuring visitors.

HTML (Hypertext Markup Language) – A standard for web page presentation used to define the text and layout of web pages. Such files usually have the extension .HTML or .HTM

HTTP (Hypertext Transfer Protocol) – A standard which determines the way data is transmitted across the internet.

Hyperlink – A website address of a webpage on the page of another webpage. Allows quick and easy movement between web pages. These pages may be on the same website or on different websites.

I-Mode – A mobile device that can utilise colour graphics and content, normally via subscription services.

Inbound e-mail – An e-mail coming into a company or user email address.

Inbound email marketing – The receipt of emails from customers to your marketing.

Inbound logistics – Supplies

Infomediary – A company who obtains and sells customer information including customer profiles.

Insourcing – Using the untapped potential of your existing non technical staff.

Interactivity – The dialogue between a company and its customers.

Internet EDI – The use of internet EDI standards to deliver data across non-proprietary IP networks.

Internet pureplay - A company only selling on the internet. (same as clicks only).

Internet service provider – A company that provides links or access to the internet.

Instant messaging (IM) – Immediate text communication between computers and/or mobile phones.

Intranet – An internal network using the internet to link employee activities.

Internet governance – Control of the operation and use of the internet.

Interruption marketing – Marketing activities that interrupt customer activities.

IP Address – The unique numeric address of a computer.

Java – A common programming language.

JPEG (Joint Photographic Experts Group) – A graphics format best used for photographs.

Landing page – A web page used for direct responses from an email marketing campaign.

Lean-back – Where the website or device eg tv, has not got the undivided attention of the user even though it may be turned on.

Lean-forward - Where the website has the undivided attention of the user.

Lifetime value (LTV) – The total revenue from a customer during the life of his relationship with a company.

Live environment - Hardware and software used to run the operational system (see also production environment).

Localisation – The tailoring of web site content to meet the needs of individual regions or countries.

Log file analyser – Software used to analyse and summarise activities contained on a log file.

Mass customisation – The ability to supply tailored products or services to a customer by using technology.

Measurement framework – The criteria used to measure success or failure of a system.

Measurement process – The method used to collect data to identify success or failure of a system.

Metamediaries – Third parties that give a single point of contact to deliver a range of services between customers and suppliers.

Meta tags – Keywords that enable search engines to find your website.

Middleware – Software to enable communications between business application software.

Mixed mode buying – The pattern of customer purchases between on-line and off-line methods.

Mobile e-commerce – E-commerce carried out via mobile devices such mobile phones, laptops etc.

MRO – Maintenance, Repairs and Operations normally of manufacturing operations.

Narrow and deep navigation. – Where few choices are contained on each web page but more pages may be required for the user to obtain the required data.

Off-line marketing communications – Marketing communications that do not use the internet. Frequently used to generate on-line business activity.

On-line marketing communications – Internet based techniques to raise on-line business activity.

On-line promotion contribution – The proportion of customers who are influenced by on-line information.

On-line revenue contribution – The amount of sales generated by electronic means, normally expressed as a percentage.

On-line value proposition (OVP) – A description of the benefits of e-commerce that ideally your competitors should not possess.

Open-source software – Software that can be used across different manufacturers hardware.

Opt-in – Where a customer actively agrees to receive marketing information.

Opt-out – Where a customer decides not to receive further marketing information.

Outbound e-mail. An e-mail being sent by a company or user.

Outbound e-mail marketing – The sending out of marketing emails

Outbound logistics – Shipments to customers or agents.

Packet – A segment of an internet message. Internet messages are broken down into segments for ease of transmission.

Page impression – One person visiting one web page.

People variable – The delivery of customer service via interaction with customers.

Performance drivers – Key factors that determine whether or not objectives are achieved.

Perl – Practical Execution Language used mainly for server based scripting and the production of CGI scripts.

Permission marketing – Where customers agree to be involved in marketing activities.
Physical evidence variable – Tangible product factors on how a product is purchased and used.

Plug-Ins – An add-on programme to a web browser providing extra functionality, eg animation.

Portal – A website that links various products and/or services together.

Positioning – The customers perception of a product or service within a market.

Prescriptive strategy – The three key areas of strategic analysis, strategic development and strategy implementation are linked together to form a cohesive strategy.

Preselling – Releasing information on a product or service before it is available.

Price variable – The pricing factors and degree of flexibility of a product or service.

Pricing models – The forms of purchase such as rental, on-off purchase etc.

Privacy statement – Text on a webpage that explains how personnel data will be collected, stored, used, distributed and updated.

Process mapping – Identifying the stages of a process or procedure, can be expressed in a graphical form.

Productivity paradox – Research has shown that a poor correlation between investment in IT systems and business performance measured by return on equity.

Process variable – The methods and procedures used to carry out marketing functions.

Production environment – Hardware and software used to run the operational system (see also live environment).

Prototype – A version of the all or part of a website developed as an intermediate stage before the development of the final version.

Prototyping – The technique of using an initial web design to stimulate ideas for the development of the final version.

Psychographic segmentation – The analysis of customers by different characteristics.

Pull media – Communications to a customer actively seeking the website.

Pull supply chain – A supply chain to customers who are active in the product development..

Push media – Communications to a passive customer.

Push supply chain – A supply chain dealing with passive customers.

Qualified lead – Customer contact information and information on the likelihood of a purchase from that customer.

Reciprocal links – An exchange of links (normally hyperlinks) between two web sites.

Re-intermediation – The introduction of new organisations between a company and its customers.

Re-purposing – Developing content for a device that was previously used primarily for a different device such as the web.

Resource analysis – The analysis of company technological, human and financial resources and how they are utilised.

Return path – Where the customer sends information to the provider using a phone line or cable.

Revenue–model – Analysis of how revenue will be created.
Scalability – The ability of a company to respond to increases in demand for its goods or services.

Risk management – Identifying potential causes of failure and developing ways of avoiding them or negating their effects.

Rolling your own – Developing and maintaining your own website from scratch.

Scripted language – A software programming language providing a set of instructions to carry out the required tasks.

Scaling out – Getting several computers to carry out the same task.

Search engine – A software programme that searches the internet looking for user defined text. The search engine then presents the user with a list of websites containing the specified text.

Search engine optimisation (SEO) – The techniques and structure to enable search engines to find your website and give it prominence.

Secure Electronic Transaction (SET) – A standard for public key encryption developed by Mastercard and Visa.

Secure sockets layer (SSL) – A common encryption technique for encrypting data from a customer web browser to a merchants web server.

Segmentation – Different groups within a target market.

Sell-side e-commerce – Business transactions between a company and its customers.

Semantic web – Common content, including data and any definitions, enabling improved data exchange between computers and/or people.

Server (see also web server) - A computer which stores and presents websites.
Service level agreement – A specification of service standards a contractor must meet.

Server-side scripting – Scripts executed on a server.

Short message service – Text messaging.

Share of wallet – The proportion of customer expenditure that is spent on a particular category.

Site relaunch – The launching of a new website with a new or revised look and set of functionality.

Site visitor activity data – Information on the features used by visitors to a website.

Soft launch – A preliminary launch of a new website with limited promotional activity to obtain feedback from potential users.

Spam – Unsolicited e-mails.

Static web page – A webpage that does not change.
Total cost of ownership (TCO) – The total cost of data management for end-users, including purchase, support and maintenance.

Stickiness – The length of time a visitor stays at a website.

Strategic analysis – The analysis of company internal processes, resources and market in order to create a corporate strategy.

Streaming media – Audio and visual content that can be heard and seen before the whole video clip is downloaded.

Supply chain visibility – Access to accurate, up-to-date information on supply status.

SWOT analysis – The analysis of strengths, weaknesses, opportunities and threats.

Symmetric encryption – Where both ends (sender and receiver) of an encryption process use the same key code.

System development lifecycle – The time taken from initiation, design, build and implementation of a system.

Systems integrator – A company that specialises in linking or integrating different systems from different suppliers together. Can also mean a company that procures hardware and software needed for implementation.

Tacit knowledge – Knowledge that cannot easily be stored in a computer system Eg unrecorded data.

Tagging – Monitoring customers and their spending habits.

Talk-through – A verbal user description of the required actions.

Target marketing strategy – The assessment and selection of markets for goods or services to be supplied on-line. This includes the means of supplying and selling the goods or services.

Task analysis – The analysis of tasks within a process together with responsibilities, timescales and sequences. Can involve several layers of sub-tasks.

Taxonomy – The classification system used to organise your products on an electronic catalogue.

TCP/IP – The Transaction Control Protocol is a layer protocol that moves data between applications. The Internet Protocol is the network layer protocol that moves data between host computers or servers.

Technical methodologies – The development rules to be applied when writing new software.

Technology convergence – A trend where devices primarily designed for different purposes, start to have similar functions eg TV.s, computers, mobile phones etc.

Test environment – Where hardware and software are separated from a live system and used to test new software.

Thin client – A terminal or monitor where data processing and storage are minimised.

Three tier client server – The first layer is where the client handles the display, the second tier are the application and business rules and the third layer is the database storage.

Transaction log file – A file that stores details of all transactions and requests.

Uniform Resource Locator (URL) – The address of a web site (see also Universal Resource Locator).

Universal Resource Locator (URL) - The address of a web site (see also Uniform Resource Locator).

Upstream supply chain – Transactions between a company and its suppliers.

Use-case – A sequence of transactions carried out by a user, device or piece of software.

User case modelling – The modelling of user requirements.

User-centered design – A design focused on the needs of the user and optimising his experience.

Value added networks (VAN) – A secure network that utilises proprietary rather than internet technology.

Value chain – An analysis showing how a supply chain adds value to a product or service.

Value networks – The links between organisations that make up the value chain.

Value stream – The tasks needed to add value to a product or service.

Vertical integration – The combining of certain supply chain tasks within one organisation.

Virtual integration – Where the majority of supply chain tasks are carried out by third parties.

Virtual marketing – Marketing activities via email.

Virtual private networks (VPN) – A secure encrypted connection between two points on the internet for secure internet trading.

Virtual organisation – An organisation that uses information technology to provide goods or services to customers by sub-contracting them to third parties.

Virtualisation – The process by which a traditional company becomes more like a virtual organisation.

Virtual warehousing – Selling goods from someone else's warehouse

Walk-through – Where the user carries out their actions using a system in either prototype or final form.

Web based personalisation – The customisation of web pages.

Web browser – Software which allows access to data stored on the internet on different servers.

Web server – A computer which stores and presents websites.

Web services – Software accessed remotely from an application provider.

Wi-Fi (wireless fidelity) – A high speed wireless local area network that can access the internet for mobile, office and home users.

Wireless Application Protocol – A technical standard for transferring data to wireless devices such as mobile phones

World wide web – The collection of websites on the internet.

Workflow management (WFM) – The analysis and management of information including tools for utilising the data.

XML (eXtensible Markup Language) – A standard for transferring structured data.

X Unified Modelling Language (UML) – A language used to identify and document the components of an object-based system.

3G – Third generation mobile phone technology with high speed data transfer allowing video calling.

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APPENDIX 1 – Data Items Used By the System

Company Data

Data Name	Data Description
Manufacturer Name	**Normal name of manufacturer**
Manufacturer Code	**Short name of manufacturer.**
Industry Type	**Single character code denoting Industry type egT=Textiles, F=Furniture**
Product Type	**Type of Product produced by manufacturer.**
Order Notification Method	**Method by which the manufacturer wishes to be informed of orders eg E=Email, F=Fax,**
Order Notification Address	**The manufacturers email address or fax number for order notification.**
Batcher Option	**Should the products sold by the manufacturer be batched together? Y=Yes**
Prod Schedule	**Does the manufacturer wish to input into the system a prearranged Manufacturing schedule for the products? Y=Yes**
Analysis Option	**Does the manufacturer wish to have orders analysed by the system? Y=Yes**
Order by Customer	**Does the manufacturer wish to see his orders analysed by customer? Y=Yes**
Order by Quality	**Does the manufacturer wish to see orders analysed by quality? Y=Yes**
Batcher Acceptance	**Criteria to be used by system to batch orders together before notifying manufacturer. A=All orders sent, P=Only profitable orders sent, Q=Qualified profitable orders sent (orders 85% of breakeven costs sent.), C=Operate on Profit/loss Excluding Contribution to Overheads.**
Logistics Option	**Does the manufacturer wish to access the Logistics Module showing depots. Y=Yes**
Supplier Link	**Does the manufacturer wish to automatically send data to suppliers? Y=Supplier Link Used**
Supplier Address	**If Supplier Link used, this is the email address of the Supplier or fax number.**
Supplier Notification Method	**Method by which suppliers should be informed eg E=Email, F=Fax,**
Manufacturer Address 1	**Line Number 1 of Manufacturer postal address.**
Manufacturer Town	**Manufacturer Town**
Manufacturer County or State	**Manufacturer County or State**
Manufacturer Country	**Manufacturers Country**

Manufacturer Postcode or ZIPCode	**Post code or ZIP code of manufacturer.**
Parent Company Name	**Name of Parent Company**
Manufacturer Password	**Password of Manufacturer**
Manufacturer Website Address	**Manufacturers website address**

Product Master Data
One per product.

Data Name	Data Description
Industry Code	**Industry relating to product eg F=Furniture, T=Textiles**
Product Code	**Short name of product. Normally the short name of the product excluding design, colour and size which is added later.**
Supplier Name1	**Name of main supplier if appropriate**
Supplier Name2	**Name of alternative supplier if appropriate**
Company Name	**Company Name to be displayed**
Manufacturer Code	**Short name of manufacturer**
Product Market	**Product Market (eg Garden furniture)**
Product Type	**Product Type within Market eg Garden chairs**
Type Category	**Alternative grouping of Product Types**
Market Region	**Geographical area product sold in.**
Product Matrix	**Should the system try to link products of the same Product Family together? 1 = Yes. A Product Family is a common factor or process which reduces the cost of production of each of its products. Eg a textile fabric or carpet which uses the same warp beam or warp yarn can reduce the cost of production of every fabric using the same warp beam by reducing the production change or set up time.**
Product Description	**Full product description**
Short Product Description	**Short product description**
Width	**Width of product**
Weight	**Product weight**
Content	**Product Content**
Unit of Measure	**Unit of measure for product weight**
Supplier Product Code	**Supplier code for product.**
Cost List Price	**Price at standard Cost List of product.**
Special Offer List Price	**Special offer List Price**
Q1 Price Break	**Minimum Order value for special offer to become active.**

Q1 Price Break Price	**Reduced price once special offer activated.**
Q1 Discount	**Special offer discount percentage**
Q2 Price Break	**Minimum Order value for special offer to become active.**
Q2 Price Break Price	**Reduced price once special offer activated.**
Q2 Discount	**Special offer discount percentage**
Sales Rating	**5=Topseller, 1= Poor Seller**
Sales Level	**Expected sales level**
Minimum Stock Level	**If made to stock, minimum stock level required of product**
Product Stock Control Override	**Y=Use fields above**
Product Shipping Rate	**Weight in units (1-999)**
Product Shipping Cost	**Nominal Shipping Cost**
Parent Company Name	**Name of Parent Company**
Product Keyword	**Keyword for product**
Options	**Y= Complex, S = Complex**
Vat Add	**Should VAT or a sales tax be added. 1=Vat to be added**
Vat Rate	**Vat % or Sales tax rate to be applied**
Product Checkout Type	**P=Purchase**
Product Option Price	**1=Use Product Price, 2=Use Product Size Price**
Hide From Publish	**N=To Publish, Y=To Hide**
Sales Enable	**N or blank to use manual, Y=sales price dates.**
Sales Start	**Start date**
Sales End	**End date**
Sales Price	**Reduced sales price**
ProdPAD's PSD	**Do different sizes or widths need to be linked to the product? Y= Yes**
PCD	**Do different colours need to be linked to the product? Y= Yes**
POD	**Do different options need to be linked to the product? Y= Yes**
PDD	**Does the product need to be linked to separate departments? Y= Yes**
PS	**Does the product need to be linked to different suppliers? Y= Yes**
SLD	**Is a stock level linked to the product? Y= Yes**
PSLO	**If made to order, does the stock level vary by option?**

	Y= Yes
FD	**Are different features linked to the product? Y=Yes**
Currency	**The sales currency.**

Product Size Data

One per size per product.

Data Name	Description
Product Id	**Product Code or Id**
Size	**Product size or width**
Cost	**List Price of product**
Special Cost	**Special Offer Price**
Stock Level	**Stock Level of product**
Simple Shipping Cost	**Simple Shipping Cost eg 2.15**
Size Vat Rate	**Vat Rate %**
Size Part No	**Part No for this size if different**

Product Design Data

One per design per product.

Data Name	Description
Product Id	**Product Id**
Design	**Design Reference**
Repeat Length	**Repeat Length of Design in Metres**
Product Type	**Type of Product**

Product Feature

One per feature

Data Name	Description
Name	**Product Feature Name**
Title	**Feature Title Displayed**
Type	**N=No choice, S=Single choice, M=Multiple choice, Default =S**

Product Colour Data
One per colour per design per colour.

Data Name	Description
Product Id	Product Id
Product Design	Design of product
Colour Set Ref	Ref of Set of Colours within Product/Design
Colour Description	Description of colourway
Manufacturer Code	Code of manufacturer
Total number of colours	Number of colours within colourway.

Sales Account Data

One per company

Data Name	Data Description
Account Name	Name of account holder
Address 1	First line of postal address of account holder.
Address 2	Second line of postal address of account holder.
Town	Town where account holder resides.
County	County or State where account holder resides.
Country	Country where account holder resides.
Postcode	Account holders post or ZIP code.
Telephone	Account holders telephone number
Fax	Account holders fax number.
Email	Account holders email address.
Contact Name	Contact Name for account. For use where the account holder is a company.
Proprietor	Company owners name if account holder is a company.
Business Nature	Nature of company business if the account holder is a company.
No Staff	Number of staff if account holder is a company.
Bankers Name	Bankers Name if account holder is a company.
Banks Address	Address of bank.
Bankers Account Name	Account name of bank if account holder is a company.
Account Number	Bank Account Number where the account holder is a company.
Sort Code	Sort Code of Bank Account where account holder is a company.
Invoice Address 1	First line of invoice address.
Invoice Address 2	Second line of invoice address.
Invoice Town	Invoice Town of invoice address.
Invoice County	County or State of invoice address.
Invoice Country	Country of invoice address.
Invoice Postcode	Post or ZIP code of invoice address.
Account Fax	Fax Number of Bank where account holder is a company.
Account Email	Email of bank where the account holder is a company.
Type of Account	Account Type

	M = Manufacturer, A = Advertiser, C= Carpet Sales, Purchaser.
Sales Last Year	**Value of sales last year**
Sales This Year	**Running total value of sales this year.**
User Id	**Username for account.**

Product Link Data

This data is used where one product can be linked to another by a process (ie same warp)

Data Name	**Description**
Product Id	**Product Code**
Size	**Dimensions of product**
Colour	**Colour of product**
Design	**Design of product**
Feature	**Feature of colour**
1st Match Name	**Display Name of Process to be used to match products. Best Fit option.**
1st Match Field	**Field to be Matched**
1st Match Value	**Ref code of process to be matched. Eg where the Match is on warp beam, the specific type of warp beam may be 2332**
1st Match Sign	**If match found, sign of adjuster**
1st Match Adjuster	**Adjust cost amount**
2nd Match Name	**Display Name of Process to be used to match products. Second best fit option. Eg Reed width**
2nd Match Field	**Field to be Matched**
2nd Match Value	**Ref code of process to be matched. Eg where the Match is on warp beam, the specific type of warp beam may be 2332**
2nd Match Sign	**If match found, sign of adjuster**
2nd Match Adjuster	**Adjust cost amount**
3rd Match Name	**Display Name of Process to be used to match products. Third best fit option. Eg Fabric Type**
3rd Match Field	**Field to be Matched**
3rd Match Value	**Ref code of process to be matched. Eg where the Match is on fabric type, the specific type of fabric may be Denim**
3rd Match Sign	**If match found, sign of adjuster**
3rd Match Adjuster	**Adjust cost amount**
4th Match Name	**Display Name of Process to be used to match products. Forth best fit option.**
4th Match Field	**Field to be Matched**
4th Match Value	**Ref code of process to be matched.**

4th Match Sign	**If match found, sign of adjuster**
4th Match Adjuster	**Adjust cost amount**
5th Match Name	**Display Name of Process to be used to match products. Fifth best fit option.**
5th Match Field	**Field to be Matched**
5th Match Value	**Ref code of process to be matched.**
5th Match Sign	**If match found, sign of adjuster**
5th Match Adjuster	**Adjust cost amount**

Manufacturing Production Schedule

This part to be used for products which have a production schedule.
One per product per schedule.

Data Name	Data Description
Period Start	**Start date of manufacturing schedule in YYMMDD format.**
Period End	**End date of manufacturing schedule in YYMMDD**
Product	**Product code of product**
Size	**Size of product if appropriate**
Colour	**Colour of product if appropriate**
Feature	**Feature of product if appropriate**
Quantity	**Quantity to be produced**
Unit of Measure	**Unit of measure of scheduled product. Must conform to sales unit of measure.**
Design	**Design of product to be produced if appropriate**

Product Costs
One per product.

Data Name	Description
Product Id	**Product code**
Size	**Size of product to be costed if appropriate**
Colour	**Colour of product to be costed if appropriate**
Feature	**Feature to be costed if appropriate**
Initial Cost/Batch 1	**Fixed cost per batch, eg set-up cost**
Batch Quantity 1	**Maximum Batch Size**
Costs per batch breakdown of names	**Names of first cost items per batch in cost per batch costings**
Actual costs per batch per cost	**Actual cost per batch per cost item used in cost calculations**

item.	
Direct Unit Cost	**Cost per product unit for total direct costs**
Raw Material C/U Name 1	**Raw Material.**
Raw Material Cost /Unit	**Raw Material Cost/Unit**
C/U Assembly Cost/Unit Name	**Name given to Assembly cost**
Assembly Cost Up Cost/Unit	**Actual cost of assembly cost per unit.**
Cost per unit names	**Name of third cost per unit**
Cost per unit values	**Cost per item per unit cost**
Currency	**Currency used in costing calculations**
Cost Method	**B=Batches Quantity, M =Minimum Order Quantity**
Contribution to Overhead Unit Cost	**Contribution to overheads cost**
Total Unit Cost	**Total Direct Cost plus Contribution cost per unit**
Subsequent Cost/Batch 1	**Set up of first major process. Unused.**
Subsequent Best Fit %	**Best Fit when linked to another order. Maximum 1, minimum 0. 1 denotes full set up cost repeated, 0 denotes no additional set up cost when linked.**
Shipping Costs	**Shipping costs of product.**

Colour Matching Data Required
One per individual colour

Data Name	Description
Colour Description	**Description of colour.**
Individual Colour	**Name of colour.**
X Co-ordinate	**X number of colour from XYZ co-ordinates.**
Y Co-ordinate	**Y number of colour from XYZ co-ordinates**
Z Co-ordinate	**Z number of colour from XYZ co-ordinates**
Type of Colour	**Eg Red**
Keyword	**Keyword for colour search.**
Manufacturer Code	**Manufacturer code.**
Red Level in RBG	**R value in RBG values.**
Blue Level in RBG	**B value in RBG values.**
Green Level in RBG	**G value in RBG values**

Supplier Data
One per supplier. Not to be used for order notification to supplier.

Data Name	Description
Supplier Name	**Name of supplier.**
Supplier Code	**Code of supplier.**
Address Line 1	**First line of suppliers address.**
Town	**Supplier town.**
County	**County or region of supplier.**
Country	**Country of supplier.**
Postcode	**Supplier post or zip code.**
Telephone	**Supplier telephone number.**
Fax	**Supplier fax number.**
Email	**Supplier email.**
Contact Person	**Contact person for supplier.**
Invoice Address 1	**First line of invoice address.**
Invoice Post Code	**Invoice post or zip code.**
Invoice Town	**Invoice town.**
Invoice County	**Invoice county.**
Invoice Country	**Invoice country.**
Sales Last Year	**Sales last year.**
Sales This Year	**Running total of sales this year.**
Payment Method	**Payment method.**
Bankers Name	**Bankers name.**
Bankers Address	**Bankers address.**
Bank Account Name	**Bank account name.**
Bank Account No	**Bank account number.**
Sort Code	**Bank account sort code.**
Manufacturer Code	**Manufacturer code.**
Supplier Notification Method	**E=Email, F=Fax**
Supplier Notification Address	**Fax or email address of supplier.**

Supplier Notification Data

To direct orders to other members in the supply chain

Data Name	Description
Industry Code	**F = Furniture, T = Textiles**
Product Code	**Product code of product to be sent to supplier.**

Product Design	**Design of product to be sent to supplier.**
Product Colour	**Colour of product to be sent to supplier.**
Product Size	**Dimensions of product to be sent to supplier.**
Product Feature	**Feature of product to be sent to supplier.**
Supplier Name	**Supplier name**
Company Name	**Customer name**
Manufacturer Code	**Manufacturer code**
Document 1 Title	**Document title to be sent to supplier.**
Document 1 File Location	**File name where document located.**
Document 2 Title	**Document 2 title.**
Document 2 File Location	**File where document 2 located.**
Document 3 Title	**Document 3 title.**
Document 3File Location	**File where document 3 located.**
Document 4 Title	**Document 4 title.**
Document 4 File Location	**File where document 4 located.**
Document 5 Title	**Document 5 title.**
Document 5 File Location	**File where document 5 located.**
Special Instructions	**Special instructions**
Supply Lead Time	**Lead time in days to manufacture product once supplies received. Used to calculate date supplies required.**
Price per unit	**Price paid to supplier**
Unit of measure	**Unit of measure.**

Colour Link Data

One per colour per collection of colours. Eg If 20 colours are required, 20 of these records are required, one for each colour.

Data Name	Data Description	Data to be Loaded.
Product code	**Product code**	
Design	**Design of product**	
Colour set ref or colourway	**Colourway or colour ref of product**	
Colour number in	**Number of colour within**	

design	**design/colourway.**	
Individual colour ref.	**Individual colour reference.**	
Colour content	**% colour in colourway, plain = 100**	
Manufacturer code.	**Code of manufacturer.**	

Appendix 2 – Basic Furniture Related Examples

Example 1 - Wooden chair with fabric seat.

Finished product – Chair
Examples of product data – Chair identity, chair description, dimensions, end prices, discount levels, colours.
Bill of materials – Wood, tacks, fabric, finishes.

Manufactured product – Fabric.
Examples of product data – fabric name, fabric description, fabric weight, picks per inch or metre, weft insertions per inch or metre, selvedge name.
Fabric Bill of materials – weft yarns, warp yarns, weight of each yarn per inch or metre. selvedge yarns

Manufactured product – Yarn (dyed).
Product data – count of yarn (thickness), yarn type, twist direction.
Bill of materials for yarns - fibre types or blends, weight per fibre type, dyestuffs used in dyeing recipe. For the sake of this example all the items in this bill of materials are treated as raw materials purchased from outside suppliers.

Order examples

Note: All orders for finished products are customer orders. Orders raised for manufactured products or raw materials are purchase orders raised by the company creating them and customer orders received by the company receiving the order.

Customer order for chair :-
Order header - delivery address, customer name, delivery date, supplier name, supplier address, customer discount.
Order line – chair identity, dimensions, colour, price, quantity, delivery date if different to header, discount level, packaging.

Order for fabric:-
Order header – customer name, delivery address, delivery date, supplier name, supplier address, customer discount.
Order line – fabric identity, fabric description, fabric type, price, quantity, discount level, delivery date if different to header.

Order for yarn:-
Order header – customer name, delivery address, delivery date, supplier name, supplier address, customer discount.
Order line – yarn identity, yarn description, yarn type, price, quantity, discount level, delivery date if different to header.

Order for fibre:-
Order header - customer name, delivery address, delivery date, supplier name, supplier address, customer discount.
Order line – fibre identity, fibre description, fibre type, price, quantity, discount level, delivery date if different to header.

Production orders:-

Production order for chair – chair identity, chair description, dimensions, colour, quantity, delivery date, date production expected to start, priority, production route, customer name, customer order number.
Production order for fabric - fabric identity, fabric description, colour/design, quantity, delivery date, date production expected to start, priority, production route, customer name, customer order number.
Production order for yarn - yarn identity, yarn description, colour, quantity, delivery date, date production expected to start, priority, production route, customer name, customer order number.

Supplier data
Supplier name, address, delivery address, discount to be applied on all products purchased from supplier.

Cost data - (applied to finished and manufactured products)
Cost data per product – raw material cost, set-up costs, costs per unit quantity of product (including labour, machine & overheads).

Supply chain data
Cross check that data above includes the following:-
1.Overall production lead time data, including supply of raw materials
2. Costs per product identifying production set-up costs and costs per unit quantity of production.

Example 2 - Wooden table

Finished product – Table
Examples of product data – Table identity, table description, dimensions, end prices, discount levels, colours.
Bill of materials – Wood, finishes (ie varnish etc), tacks or nails

Order examples

Note: All orders for finished products are customer orders. Orders raised for manufactured products or raw materials are purchase orders raised by the company creating them and customer orders received by the company receiving the order.

Customer order for table :-
Order header - delivery address, customer name, delivery date, supplier name, supplier address, customer discount.
Order line – item identity, dimensions, colour, price, quantity, delivery date if different to header, discount level, packaging.

Production orders:-

Production order for table – table identity, table description, dimensions, colour, quantity, delivery date, date production expected to start, priority, production route, customer name, customer order number.

Supplier data
Supplier name, address, delivery address, discount to be applied on all products purchased from supplier.

Cost data - (applied to finished and manufactured products)
Cost data per product – raw material cost, set-up costs, costs per unit quantity of product (including labour, machine & overheads).

Supply chain data
Cross check that data above includes the following:-
1.Overall production lead time data, including supply of raw materials
2. Costs per product identifying production set-up costs and costs per unit quantity of production.