This paper classifies design processes in seasonal industries, where designs of consumer products have to be delivered to tight deadlines, from the viewpoint of the relationship between the design company, the retailer and the final customers. The paper looks specifically at the risk that designers and retailers carry, the design rework required by the retailer and the communication between the retailer and the designer. We employ a motoring metaphor to show six models of design.

Keywords: classification; design processes; designer-customer relationship; communication; redesign; design risk.

Introduction

This paper was inspired by our observations on managed processes amongst networks of companies involved in the design and production of consumer products for the seasonal markets. It became clear that radically different ways of working tended to group together, as similar, companies, and networks of companies, that one would intuitively classify as different. McCarthy (1995) discusses predictions and the role of classification for manufacturing systems. The way that different
companies interact in a network constrains all of the managed and commercial processes from concept to sale, so grouping of like with like is essential to understanding of the seasonal market place. Dumas (1989) discusses the inherent difficulties in management of design and Oakley (1990) considers the methods used for management of design.

“Why can’t I buy what I want?” is a frequently heard cry from the shopping public. The public is rarely aware of the processes involved in establishing what will sell in a new season, and the designing of products to this predicted fashion. With the exception of the artisan craftsman or craftswoman there is little contact between designers and their end customers. Consumer products sold through stores are deeply embedded in the context of all the other designs sold at the same time. The public, often naively, assumes that after designers design products, shops buy them from the designers in order to sell them to the end customer. However, the reality of consumer product design is far more complex as different stores pursue different sales and procurement strategies. In consequence, the design processes are different for different manufacturers, but all are embedded in the seasonal cycles of consumer product design. This paper looks at different patterns of interaction between the manufacturers, the stores and the end customer by focussing on three vital aspects of any design process:

- **Communication**: interactions between designers in a manufacturing company, the buyers for the store and an end customer, as well as their interactions with the marketplace.
- **Redesign**: the amount of change that needs to be done to individual designs or design ranges in response to customer feedback.
- **Risk**: the likelihood and impact of commercial failure, and implicitly reward, from the viewpoint of a design company in terms of product sales.

The underlying question is one of ownership of designs. At one extreme, designers own their designs and sell them under their own brand; through their own shops, or through stores that buy their ranges. The other extreme is designers working solely for stores, according to detailed briefs from those stores. In the time this research was undertaken Marks and Spencer, one of our contributing companies, conspicuously failed to provide designs that satisfied the market and so suffered financially. Marks and Spencer held the ownership of designs; it was their suppliers who provided the design effort. In exchange, companies were guaranteed an order volume almost independently of the success of the designs they produced. Suppliers also produced designs designed by Marks and Spencer’ competitors. The system broke down when Marks and Spencer withdrew contracts from long-term suppliers, as in the case of William Baird, or refused to commit to new orders when design decisions had to be made, as happened with Coats
Viyella. Marks and Spencer introduced designs by famous designers into their stores, so threatening the company’s distinctive relationships with all its suppliers. In this paper a driving analogy is used to present six different patterns of interaction, reflecting decreasing ownership of designs and a consequent reduction in the freedom of designers.

The models proposed do not describe one company or one industry, but the type of relationships they have with their customers. The same company can have very different relationships with different customers. Many of the companies we studied produced designs under their own brand name, but also designed for other brands and manufactured for competitors. A spread of different patterns of interaction is desirable for many companies because it reduces risk. In essence, risk and ownership are complementary characteristics: the more the ownership, the more the risk. For many years, supplying Marks and Spencer was an obsession for British manufacturers. Those who were Marks and Spencer suppliers tried very hard to build up other business and those who did not supply Marks and Spencer desperately tried to become suppliers. This paper draws primarily on an in depth study of knitwear design (see next section). In this industry, all the proposed models can be found, and many companies followed different models with different suppliers, while the underlying design process was remarkably similar in all the observed companies.

Next section introduces the specific characteristics of seasonal industries and places them in the context of existing design research, which has largely focused on the design of individual complex products rather than seasonal ranges of simpler products. The analysis presented in this paper is largely derived from an in depth ethnographic study of the knitwear industry, complemented by interviews with designers from a range of other consumer products. The resulting models are presented in the following section and the paper concludes with a comparison of the models.

**Seasonal Industries**

In seasonal industries manufacturers produce a range of designs to very tight price points and time scales. The challenge lies on coordinating interwoven the design process for many different products, as opposed to creating one complex product as typically in engineering or architecture.

**Research bias towards complex products**

Design research has traditionally concentrated on domains of engineering, architecture and software design, where complex products are typically sold to an end customer, without intermediaries who influence the design. Therefore the
emphasis of research has been placed on requirements engineering (e.g. Kano 
et al., 1984 for a classification of requirements) to elicit exactly the needs of a 
specific customer, or strategic planning to address a wider market place through 
targeted innovations (Ehrlenspiel, 1995). Once high-level product specifications are 
generated by marketing in conjunction with a select team of conceptual designers, 
the majority of designers are fairly disjoint from the end customers until problems 
occur in real industrial use, unless a customer changes the specification. Again, 
these changes are translated into specifications and passed onto designers. In the 
design of complex products communication is crucial, both for integrating diverse 
designing activities in large organisations (Clark & Fujimoto, 1991) and in the 
operation of local design teams (Minneman, 1991; Bucciarelli, 1994; Henderson, 
1999). Failures in communication can be a major cause of redesign (Eckert 
et al., 
2001a). Redesign typically arises due to faults, or when the design fails to meet 
its specification (Lindemann & Reichwald, 1998). The process is very similar to 
changes undertaken to the product in response customer wishes during or after 
the design process (Eckert et al., 2001b).

Specific characteristics of seasonal industries

All products for sale to the general public are subject to changes in fashion, as 
well as technological developments, and follow seasonal sales patterns. Clothing 
and accessories, and other consumer products such as radios, watches, kettles and 
vacuum cleaners follow current colours and styles to the beat of restocking 
patterns after winter and summer sales. Toys and other gift items peak in the pre-
and post-Christmas period. Home decoration, such as carpets, coincides with the 
housing cycle.

Designs in all seasonal industries are produced under intense time pressure. 
Companies cannot afford to be late; otherwise, their competitors will be happy 
to oblige. Textile companies race to have their stock ready to make the displays 
in stores. The design lead-time in parts of the fashion industry can be up to two 
years before garments are sold. The design process is driven by the annual cycle 
of trade shows and so much effort is put into predicting fashion styles and 
adjusting predictions as the target season approaches. By committing themselves 
too early to a product range, in order to avoid excessive time pressure at the end 
of the design to production cycle, companies run the risk of missing essential 
short time trends. Industries, such as the toy industry or consumer electronics 
industry, require specific tooling that takes several months to build, so they need 
to factor this additional lead-time into their design process planning.

At the same time, the pressure to undercut competitors and sell in price 
brackets is enormous and so designers must be acutely aware of the cost of
Classifying Design & Design Management in Seasonal Industries

design features (Eckert & Demaid, 1997 for a detailed discussion). Under this intense price pressure more and more production facilities have been moved to countries offering cheap labour. However, this increases the time pressure on the process because the shipping time must be factored in. Through offshore production companies also lose some of their ability to respond quickly to changes in the market. End customer tastes are notoriously hard to predict, and experienced designers and buyers are often taken by surprise by the success or failure of a particular product. For example, Sony tried to introduce a combined television and video recorder on three separate occasions before such a product was successfully marketed. Before most Marks and Spencer suppliers moved their production offshore they responded quickly to the success or failure of product lines, based on carefully monitored sales in key stores, by reducing or increasing production runs accordingly. Now, Marks and Spencer blames their decline in profits partly on the amount of garments needing to be kept in stock.

The Study

This study draws on research that both authors had undertaken independently, supplemented by follow-up interviews to research the questions specifically addressed in this paper. The second author developed Open University teaching materials on means of communication in design (Demaid, 1999) by collecting empirical data through in depth analysis of project-based documentation and semi-structured interviews with designers in different parts of the textile industry, the toy industry and the carpet industry, as well as consumer electronics. The technique employed to organise, analyse and interpret this data is based on Grounded Theory (Glaser & Strauss, 1967), an iterative and generative approach to data collection, analysis and interpretation that ensures close coupling between emergent theoretical accounts and empirical data.

The first author conducted an empirical study of 25 knitwear companies in Britain, Germany and Italy between 1992 and 1997. Company visits ranged from one-hour interviews to ethnographic observation over a number of weeks. The approach combined ethnographic observations (Hammersley & Atkinson, 1995) with a knowledge level approach to process modelling (see Smithers, 1996; 1998), where the knowledge required to undertake tasks was iteratively redescribed in increasing detail, and further observational data was gathered to test the models (see Stacey & Eckert (1999) for a detailed explanation). Where possible the study aimed to interview people with different tasks and expertise, as well as people with the same expertise within one organisation in order to identify the influences of personal opinions and working styles. Special emphasis was placed on studying different companies that supply to the same market sector in order
to differentiate between the practices of an individual company and the influences of the market sector on the design process. The main focus of the study was the communication between designers, who design the visual and tactile appearance of the garment and technicians, who program knitting machines. The technical function led to the development of a computer support tool that generates unambiguous garment specifications and aids design communication (Eckert, 2001). However, external communication with customers was an important issue identified amongst the concerns of designers.

It became clear that there was a need for classifications that encapsulate different approaches to the business of design and manufacture in seasonal industries that evaluated and discarded designs to a regular pattern. Large and small companies working together and competing operated radically different management procedures, despite easy classification into industrial sector or size.

Based on their past studies the authors decided to investigate the ratio of design ideas to final sold designs in different industry sectors through follow up face to face or telephone interviews. Companies were unable to provide accurate figures, about the number of designs carried on, modified, or discarded, at different stage of the design process. This was partly due to the notoriously bad record keeping in the textile industry (Scaife et al., 1994), but also due to the varying working pattern with different customers in the same company. Many companies quoted different figures for designs supplied to Marks and Spencer or their suppliers than for other customers. Looking at the total data it become clear that the patterns did not depend on the industry itself, but on the interaction between their customer and end customer.

A Classification of Seasonal Industries

The formal difficulties of taxonomic systems, in particular the treatment of exceptions, is well-considered in (Touretzky, 1986). The multi-dimensional nature of classification problems in complex physical and social systems and the context specific nature of models of complexity are recognised in the field of design, e.g. (Frost, 1994) and (Maffin & Alderman, 1995). Design processes can be modelled in many different ways (see Cross, 1989, for an overview) often with the claim of presenting models that describe all design activities in all domains. The models presented in this paper respect the context within which design takes place. They describe certain patterns of behaviour which distinguish between different processes and focus attention on key factors, in this case design ownership, which influence other characteristics of the process, in this case risk, redesign and communication. These characteristics, in turn, influence the design process at a detailed level.
This section presents six models of the relationships (Figs. 1–7) between

- The **Maker**, the company that does the design and undertakes or subcontracts to production.
- The **Store**, mainly consisting of retail chains.
- The **User**, who is the end customer for the product.

All of these constituents are embedded in and influenced by the **Market**. The Market includes information about fashion trends, which are extracted and interpreted by other players. The models show the difference in information flow between the players, shown through the black arrows. The thickness of the lines indicates the amount of information and the labels describe the type of information that is passed. The light grey arrows describe, in a similar way, the flow of feedback. Typically, information flows from the Maker to the Store and the customer, and feedback flows from the customers to the Store and possible to the Maker.

The issue of information flow is picked up under the heading of communication, which looks at intentional communication between the players as opposed to information that can be picked up through research. Communication includes both information that is handed on explicitly, like sales figures and issues that are negotiated between the different players. Communication can involve negotiation for clarity to understand the others viewpoint, as well as negotiations to derive a common viewpoint (Minneman, 1991; Minneman & Harrison, 1998). Eckert & Stacey (2001) discuss communication scenarios in more detail.

A *driving* metaphor suggests itself for our models, in order to give different types of interaction intuitive labels:

- Racing driver companies
- Owner driver companies
- Taxi driver companies
- Co-driver companies
- Bus driver companies
- Chauffeur companies

These six models are illustrated by six case-studies, presented in order of decreasing designer ownership or control.

**Racing driver companies**

Racing drivers are the stars amongst the drivers, they are unaffected by the normal rules of driving and compete in a very public way. Couturiers are the racing car drivers of fashion. They have complete ownership over their designs.
Our studies include interviews with Zandra Rhodes and designers at Missoni. Zandra Rhodes was a leading fashion designer from the late 60s to early 80s, she still designs collections and is commissioned to produce distinctive designs. Missoni is one of the few catwalk knitwear designers and manufacturers.

Couturiers are affected by global fashion trends, for example the turn of the millennium sees a re-run of 80s fashions. However, they set more specific design trends by picking up on certain aspects of those global trends, or drawing on sources other than contemporary fashion for inspiration. For example, Clements Ribiero included polka dots in their 1999 collection and are now credited as creators of the polka dot fad in the summer of 2000. Whilst other designer embark on complex research processes to identify themes that the market will follow, companies like Missoni or Escada look for inspiration outside the market, such as butterflies and Klimt painting, to do derive colours and ornamental patterns. The next year will see other companies pick up on the theme.

The couturier, the Maker in Fig. 1, influences the Market, and, through the Market, the Store. The User picks up trends from the market place and hopes to gain reflected status in society by purchasing new clothes. The couturier obtains feedback on designs through coverage in the fashion press and, to a lesser extent, from a store’s orders. However, they do not know how well the designs have sold because feedback from the user to the store is not passed on to the Maker. The two modes of feedback are closely linked because the users’ purchasing behaviour is strongly influenced by press coverage.

![Design information flow for racing driver companies.](image-url)
Risk

Racing driver companies hold most of the risk: the risk that a collection is not being taken up by the press and the risk of stores not buying the garments. Successful press coverage increases, but does not guarantee, the likelihood of garments being purchased. For example, for the first three years of their business Clements Ribiera had garments pictured in most of the leading fashion magazines but barely covered their costs. They only began to make money when they collaborated with high street stores such as Top Shop. While racing driver companies are comparatively free from the influence of other design trends, they do develop a personal style or trademark that can be hard to change. For example, when Zandra Rhodes issued her Punk Collection in 1975 she was heavily criticised for breaking away from her previous, colourful, ornamental patterns. She lost money on the collection but was instrumental in making punk fashion socially acceptable. Although there is little feedback between stores and couturiers about sales successes, unsuccessful past sales do make stores less likely to take up “labels” in the future, despite good press coverage. So, stores do take some risk of expensive garments not selling.

Redesign

There is no redesign due to customer requests. Design ideas, requirements and feedback come primarily from the designer or, to a lesser extent, the design team. The design process and its iterations are, nevertheless, complex and elaborate. The designer contrives a theme for a new collection through research or serendipity, and then resources the area in search of inspiration. For example, Zandra Rhodes has produced a sketch or drawing every day of the year for the past 30 years. She returns to these drawings for ideas when designing a new collection. She works on her prints until totally satisfied, which can include many rounds of changes. Designers are strongly involved throughout the entire design and sampling process because they are likely to introduce changes at any time between concept and production.

Communication

Racing driver designers always work in teams. They hire less experienced designers to do detailed work and have a technical support team. Communication and feedback occurs primarily within that team. There is no communication with stores during the design process, and very little after the garments have been sold. The press acts as a feedback mechanism for the designers, and so
communication is very public and without much detail. Designs are produced to
the very tight deadlines of the fashion weeks and trade shows: those who are late
are not taken up by the press.

**Owner driver companies**

The owner driver controls both the means and the intent. The knitwear companies
who best typify this model are the suppliers to mail order chains, such as
Littlewood in the UK or Ottoversand in Germany. They produce a large number
of different designs, rather than a coordinated collection, before they have any
contact with the store. Buyers from the stores are shown the garments at trade
shows, or during buyer visits, and select from the existing range of designs. Buyers
might suggest small changes to the garments, such as different colours,
but do not impose preconceived ideas of design on their suppliers. The same
pattern of interaction also exists for toy manufacturers in the pre- and post-
Christmas sales, who sell their products through toy fairs.

Design information flow from the market does reach the stores, but more by
way of success measured at the till. Figure 2 illustrates that the main design

![Diagram](image-url)

Fig. 2. Design information flow for owner driver companies.
information flows are from the Market to the Maker, and from the Maker to the Store. The User picks up on fashion trends from the market, but also uses the store as a source of fashion information.

The Store provides the Maker with requirements for the designs in terms of material and quality control information. Information flow from Store to Maker is explained in Pycock & Bowers (1996). Stores derive general fashion information from the market and designers also inform them about the trends they perceive in the market for a particular product. Stores get feedback from users through sales and through rejection rates in the case of mail order garments. Rejection figures are passed back to the designer if they are unusual. In rare cases stores also require reorders if garments sell well. Users receive fashion information from the market and from a store’s catalogues.

**Risk**

Owner drivers carry the lion’s share of the risk. The power of an established brand name helps, but companies supplying dominant stores need to be agile in order to accommodate to changing market conditions. Owner driver companies often benefit from other brands not associated with a store (for example Star Wars toys). Large advertising budgets are not warranted by the profit in the market, but spin off film products benefit from the film’s market presence. However, if the movie is less successful than predicted they carry the risk of unsold merchandise, as the example of Star Wars has shown.

The knitwear companies carry the entire cost of the development of designs with no guarantee of any sale. Once a stock is ordered, they carry the risk that orders will be reduced if the products do not sell. If their designs do not sell, or are returned because they fail on quality, they risk losing the store as a customer. The risk for the store is less than with other models because they can stop unsuccessful runs and re-order successful ones. Some stores have gone even further in moving risk down the value chain by not holding their own stocks, for example Argos in the case of the toy market. In the toy industry the risk is higher because of tooling costs.

**Redesign**

The markets are strongly seasonal, in the case of the knitwear companies new designs for summer and winter wear are presented as collections and the toy company caters for the Christmas and post-Christmas markets. Lead times of about four months in the knitwear industries are extended to about nine months in industries with fixed tooling processes.
The design process is independent of the store, as designs are not generated for a particular customer but presented to a variety of stores. Each store, however, might require changes to a design, once selected, in order to comply with its own measurements, materials and quality standards. The scope for changes is limited because the stores follow very tight schedules and the costings are very competitive.

**Communication**

Internal design approval processes involve relatively little communication with stores and users. The communication is formal, usually taking place during sales meetings. The stores do not communicate their intentions during the design process. In the knitwear industries interactions can exist to assure quality standards across all the stores products. As there is very little scope for rework in toys, little communication occurs.

**Bus driver companies**

Bus drivers serve routes that they know very well. Bus companies need to balance their costs by serving routes that make a profit, as well as those that lose money but require a bus service. Bus companies that service unprofitable lines often win contracts.

The German knitwear company we studied sells into a range of department stores that they know very well. An established and mature market factors into bread and butter designs supplemented by flagship designs that identify and unify a range. The flagship designs are often expensive garments that sell in small numbers and require large amounts of sampling effort. Some of the loss on these designs is offset by re-using parts of the designs in following years.

Bus driver companies generate their ranges fairly independently. However, unlike racing driver companies they are embedded in the context of fashion. Many companies that like to think of themselves as racing driver companies fit much better into the bus driver model. Bus driver companies in knitwear design drive many of the technical innovations because they are free to generate their own ranges, but are constrained within the requirements of their market. Many of the cable patterns, which were taken up across the entire market, originated from bus driver companies. For example, golf-wear manufacturers design for a very conservative, affluent market so need to draw attention to their ranges through new structures and colour patterns, not by radical changes in form. Changing the image of a bus driver company can be extremely difficult, as the
Recent, quite successful attempt of Pringles to rejuvenate their image has shown. Racing driver companies, by contrast, often make bold statements setting new directions, but do not break technical boundaries.

Fashion research is very important for a bus driver company (Fig. 3) because their garments are sold together with competitor products in the Store and therefore need to appear to fit into the same fashion context. Bus driver companies tend to sell garments directly from brochures or through trade shows. The main source of feedback on their designs is the orders placed on each individual design, garments are very rarely re-ordered. The Maker does not know how well their designs perform once they are in the shops; for example they don’t know what percentage of their designs end up in sales. There is also no feedback link between the User and the Maker. However, as bus driver companies operate in stable, conservative markets they have a feeling for the needs of the end customers and stores reorder garments from the same company year after year, so building customer loyalty. Both the bus driver companies and stores undertake market research to create a detailed profile of their target customers.
Risk

The design risk is low in this type of design market as signals from the market are large and continuous. Elaborate design processes, a relatively high price point, and production and design in the same place make these companies very vulnerable to competition from cheap labour countries. The risk is high when a maker tries to move into a new market, because the brands are associated strongly with a group of key customers. They are often not the “trendiest of souls”, as a golfwear designer explained. They run the risk that customers might move up to the “real” designer labels of the racing driver companies or move down to the high street no-label products.

Redesign

Designs do not change as radically as is possible with the other models. In some cases only the flagship garments change; the bulk of the range evolves very slowly. Stores are not involved in the design process and so no rework during the design process is required. The Store companies re-evaluate continuously how many garments they will buy, so Makers re-evaluate their ranges and the performance of individual designs at the end of each season.

Communication

There is no communication between the Store and the Makers, or between the Users and the Makers. However, the long-term sales relationships provide routes for unsystematic and informal feedback.

Taxi driver companies

A taxi driver caters for individual journeys, whilst keeping control of the structure of the day. The company that exemplifies this model is a designer and manufacturer of bespoke carpets for multi-million pound installations such as airports and hotel chains. The process is competitive, projects are put out to tender and design themes are expected to integrate with other aspects of the interior design of a building or range of buildings. These large projects often use design consultants who design the entire corporate identity of the installation. Typically, the consultants interact with designers for any of the sub-products involved in it, such as carpet design. Consultants make initial selections and decisions, later involving the user in the final selection. Sub-projects are always put out to tender. The carpet manufacturer is able to cope with the high demand on design
capacity originating from the competitive tendering process by maintaining an archive of their own past designs and other historic collections. The carpet manufacturer has dedicated sampling machines, so they can turn design requests around within a few days. Typically they produce two or three designs for each order, and might narrow these down further by showing samples to their customers or the consultant.

A similar process also exists for accessory products in the knitwear industries, e.g. one or two jumpers in a woven range or a company asked to produce a small number of designs to specific requirements. Specifications may be detailed, for example when a jumper must be co-ordinated with a range of a woven garments or where a print pattern needs to be picked up in a knitwear design. In this case the relationships become very similar to the co-driver model discussed below. In other cases designers are given little guidance on requirements. For example, one knitwear company was approached by airport stores for a couple of exclusive knitwear designs. The designer was given as a brief: “Design something nice”. For designers these unconstrained briefs are very difficult. In this case the garments did not even have to fit into tightly defined fashion constraints. Eckert et al. (1999) argues that amongst other factors the lack of constraints that some designers are working under hastens designer burnout.

Here we present two variants, one with an intermediary consultant (Fig. 4) and one without (Fig. 5). In both cases feedback is from the ultimate user in the form of an order, or not, as the case may be. There is a strong two-way flow of

![Fig. 4. Design information flow for taxi driver companies without a consultant.](image-url)
Fig. 5. Design information flow for co-driver companies.

design information between the User and the Maker, possibly mediated by a consultant designer (to maintain the analogy view the consultant as a map-reader).

The Maker gathers fashion information and general design ideas from the market place. Consultants derive fashion information from the Market as well as a feeling for what is technically possible and has been done in other projects, the User is also informed by the Market. Without a consultant, the onus is much more on the Maker to justify designs and educate the user. Consultants translate requirements into a design brief before approaching the taxi driver company. Feedback from the User is through placing an order, this feedback is not anonymous but through an appraisal of the design by the User.

Risk

The local risk is not winning a particular contract. The overall risk for the taxi driver company lies in not winning enough orders to keep the Maker company at full stretch, or in underestimating the cost of a design. As taxi driver companies build up a relationship with consultants and clients, there is also a risk of losing this link.
A taxi driver company needs many potential customers in order to keep the shape of the market smooth. In supplying the housing market there is not the same intensity of seasonal variation that the owner driver company has to deal with, although there may well be a cyclical shape to the market, depending on activity in the overall economy. Taxi driver companies in the fashion industry or making gifts have to follow the usual seasonal patterns.

**Redesign**

The amount of redesign depends on an individual client, some clients might interact strongly in the design process and require rework. Clients who are not educated in the field might need to see a finished sample, rather than a description or a sketch.

**Communication**

Communication between the Maker and User is intense and the nature of the opposition is known. Communication at the front end of the design process reduces the risk involved by closely matching the offer to the need.

**Co-driver companies**

This model is a variant of the taxi driver model; it is a taxi driver with a limited number of fixed customers who influence the routes and limit the flexibility of the taxi driver. Similarly, companies that work closely with the commercial outlets for their products share risk by designing in tandem. The co-driver model in Fig. 6 applies to the many preferred supplier relationships in industries where design, or parts of a design, are shared.

Our case study is a knitwear supplier to a major retail chain. The designers at the manufacturing company are subordinate to the designers in the retail chain. This is the same company that designed garments for an airport store from a minimal design brief in a taxi driver role. Knitwear companies supplying the Store get sketches for designs, which they need to interpret, complete and turn into garments. The Store produces co-ordinated ranges across wovens, prints and knitwear, and conducts extensive fashion and market research to inform their own design processes.

Concurrently, designers in co-driver companies do their own fashion research and report back to the Store with mood boards or design details. This gives the Store greater confidence in their own research and ensures that both parties work...
within the same frame of reference. Feedback comes through re-orders and reports on sales performance.

Risk

The Store provides the Maker with the conceptual design of a product and receives the detailed design back. The Store orders a fixed number of garments, which are at their risk. Risk is shared but time delayed. Although the initial risk is less for the Maker, failure of the Store is a major disaster for the co-driver company. For example, if garments are returned in large numbers due to quality problems the Maker company is likely to be blamed, even if the original design proposed by the Store was extremely difficult to produce. If an entire range is unsuccessful, then the failure of a particular garment will not be the responsibility of the Maker.

Redesign

Although seasonal, the length of time for design and acceptance is greater because of the greater amount of communication involved. Designers in knitwear companies are often presented a piece of print, which they need to translate into a knitwear design. For example, our case study company was given a six colour print of a flower and asked to place the design on a child’s cardigan. In the prescribed
material this would have been extremely difficult to make and would have looked bulky, so they negotiated with the store about a simplification of the pattern and provided several suggestions to the Store.

**Communication**

Communication is very high in this model because the design function is distributed between the Maker and the Store. Designers and their customers are the most equal partners, and so problem solving is mutual and by negotiation in this model, which corresponds most closely with the engineering companies described in Bucarelli (1994).

**Chauffeur companies**

Chauffeur design companies have no ownership of the design of their products. Like chauffeurs they go where they are told, when they are told. Our case study is that of suppliers to Marks and Spencer, who have been dominating the UK market for a long time; textile companies supplying the store typically depend on the store for some 70% of their turnover. In the last few seasons, Marks and Spencer has also included designer ranges that were designed for them by well-known designers who were given far greater freedom than their typical suppliers, following an upmarket version of the owner driver model.

The Store and the Maker exist in a symbiotic relationship (Fig. 7). They depend on each other for orders and reliable design quality. The Store has separated the success of designs and the placing of orders; it guarantees order volume to suppliers (subject to the caveat of Store failure. Most of the order volume consists of the Maker’s own designs, but sometimes competitor’s designs are produced to balance manufacturing demands. The Store asks various competitors, typically two or three in knitwear, to produce a range of designs to the same design brief. Each of the suppliers follows the same design process of research, design and sampling. The Store interacts with each of the suppliers at the same time during the design process. The Store aims to sell a coordinated range, produced by different manufacturers, by making the same sources of inspiration available to all of the suppliers, so defining the design space of these new designs (Eckert & Stacey, 2000).

Designers in supplier companies have a duty to raise the Store’s awareness of fashion trends that the Store might have missed. For example, if a designer generates a design outside the range prescribed by the Store and drops this design in the course of the design process they are later blamed if it is later believed that
the design would have been successful. The degree of belief in a design, i.e. the willingness to fight for it is crucial to design success.

Designers demonstrate the design development to the Store during the design process. Typically, they present mood boards, collections of images, fabrics and yarns that define the design space at the beginning of the process. Later, they show fabric swatches and sketches before they show their final collection. At each stage, they receive immediate feedback on the quality, coherence and versatility of their designs on the whole, and specifically on individual garments. There is also intermediate communication. The Store receives immediate feedback on the success of their garments, typically it runs small ranges in flagship stores and subsequently places a final order for particular garments. User feedback is entirely to the Store, Makers design to the taste of the buyers in the store, rather than to the end customer.

Risk

Until recently, this was a low risk and low reward model because the Store guaranteed a certain amount of business each year, even if this was producing competitors’ garments. However, decline in the popularity of the Store proved catastrophic. In recent years, the Store has had to reduce their promises of order volume in between seasons and also remove preferred supplier status completely.
Production has moved, increasingly, offshore, to reduce production costs. Consequently, they have lost the chance of testing small runs in selected shops, which has increased the risk for individual designs. As more and more designs were offered in end of season sales, the success of an individual supplier’s designs becomes more significant.

**Redesign**

The number of designs discarded by a dominant store exceeds those of other industries in seasonal markets, who follow other models. There is a large degree of interference in the design process by the buyers at the store. Many designs are modified repeatedly to satisfy individual buyers throughout the design process. Re-work increases the costs of a design process that is already wasteful. Because the store wants to see that designs are carefully selected from a range of options it requires suppliers to produce a large number of redundant designs. A typical ratio of designs might be about 1000 ideas to 100 sketches to 50 swatches to 15 garment samples to 3 garments sold.

**Communication**

Communication is frequent, but its information content is sparse. Designers and buyers see each other at presentations. The buyers’ feedback is typically in the selection of ideas, rather then the generation of ideas or the solving of problems. The personal relationships between designers in the supplier companies and buyers in the store are vital because informal communication can provide a competitive edge.

**Discussion**

Our models illustrate major shifts in the locus of control of the companies studied, and their relationships with outlets, suppliers and consumers. Racing driver, owner driver, bus driver and taxi driver companies have a strong brand identity that gives their outlets confidence, whereas co-driver and chauffeur companies subordinate their identity, to a greater or lesser extent, to their partners or outlets. Table 1 gives an overview.

It is clear that control of the design process carries significant implications for risk, the amount of communication, and for the number of designs generated during the design to manufacture processes. Increased ownership also carries a higher risk, but a comensurate benefit by a reduction in the influence of tacit knowledge across different company cultures, for example Sternberg & Wagner
Table 1. Overview of classification.

<table>
<thead>
<tr>
<th>Innovation</th>
<th>Ownership</th>
<th>Typical Price Point</th>
<th>Risk</th>
<th>Redesign</th>
<th>Communication</th>
</tr>
</thead>
<tbody>
<tr>
<td>Racing Driver</td>
<td>high style, trend</td>
<td>yes</td>
<td>high</td>
<td>high</td>
<td>no</td>
</tr>
<tr>
<td>Owner Driver</td>
<td>low</td>
<td>yes</td>
<td>low</td>
<td>high</td>
<td>low</td>
</tr>
<tr>
<td>Bus Driver</td>
<td>high technical</td>
<td>yes</td>
<td>high</td>
<td>medium</td>
<td>low</td>
</tr>
<tr>
<td>Taxi Driver</td>
<td>as required</td>
<td>yes</td>
<td>all</td>
<td>medium</td>
<td>low</td>
</tr>
<tr>
<td>Co-driver</td>
<td>low</td>
<td>no</td>
<td>medium</td>
<td>low</td>
<td>medium</td>
</tr>
<tr>
<td>Chauffeur</td>
<td>medium</td>
<td>no</td>
<td>medium</td>
<td>low</td>
<td>high</td>
</tr>
</tbody>
</table>

(1992) or Senker (1995). The need to establish a brand identity and a higher price point increase the willingness to innovate. As the risk falls the amount of communication and redesign tends to increase. The bus driver model shows the best compromise (here we assume that communication and redesign are costs, so reduce reward) between risk and reward. The spider diagram of Fig. 8 shows the
difference between the six models. The eventual ratings of risk, redesign and communication, on a five-point scale, depend on an amalgam of numerical information and opinion. There is insufficient access to commercially sensitive information to present the results on a more discriminating scale and, perhaps, more detail would obscure the analysis.

The failure of the Marks and Spencer model during the course of our research illustrates well the differences between short-term and long-term risk, and the importance of ownership of the design processes. Risk is a combined measure of likelihood and impact. In most cases, it is a sensible strategy to reduce both likelihood and impact of potential failure. However, a situation with low likelihood and high impact can lead to total disaster. The chauffeur model is superficially attractive, as it reduces the aggregate risk; it does so by transferring ownership and the costs are the highest of all the models. Some chauffeur companies have suffered very badly because their customer has dropped them as suppliers — an event, which once had very low likelihood but high impact. As the likelihood increases in a more price conscious and competitive market, the chauffeur model becomes less attractive compared to owner driver or co-driver models.

Integrated approaches to risk are of significant current interest, (Gomes-Casseras, 1996), here we show that strategic approaches to design alliances are an important facet of a general approach to mastering risk.

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