

# ASSESSING THE COMMERCIAL VIABILITY OF NEW FIBRES

by David Rigby, David Rigby Associates  
Talk held at 34<sup>th</sup> IFC, Dornbirn 1995

**The development and commercialization of new textile fibres is a difficult, expensive and risky process. This paper describes some of the market-based, bottom-up assessment methods that David Rigby Associates have developed for assessing new fibres in garment end-uses.**

**Die Entwicklung und Kommerzialisierung neuer Textilfasern ist ein schwieriges, teures und riskantes Verfahren. Dieser Artikel beschreibt einige der von David Rigby Associates entwickelten marktorientierten, von der Wurzel aufwärts beginnenden Bewertungsverfahren, die zur Bewertung neuer Fasern für Konfektionsendverbraucher entwickelt wurden.**

## Introduction

The development and commercialisation of new textile fibres is a difficult, expensive and risky process. Many millions of dollars have been spent in the past on developing new fibres for which, ultimately, there was found to be little or no market demand. In the case of other, more obviously commercial fibres it has sometimes taken many years to find their most effective end-uses. The problems are particularly complex in garment end-uses, in which the often intangible considerations of aesthetics, fashion and fibre versatility must be taken into account in addition to the more measurable performance-in-use characteristics of the fibre.

Fibre companies have particular difficulties in making judgements in these areas since their development staff often have very little direct experience in downstream products and markets. There are many points in the process of development and commercialisation when important decisions have to be made about how big or how fast the next phase of investment should be or, indeed, whether to stop the project altogether (which is the most difficult decision of all). These decision-making needs give rise to the question as to whether there are any methods for arriving at robust assessments of a new fibre's market potential before committing to further major investment. David Rigby Associates (DRA) are specialist consultants in the fibre, textile and clothing industries with experience in many downstream product/market segments. We have recently carried out five projects to assess the commercial viability of new or modified textile fibres in world markets, including both fashion and technical end-uses. This paper describes some of the market-based, bottom-up assessment methods that we have developed for assessing new fibres in garment end-uses. They are based on our experience with both natural and chemical fibres and are applicable both to entirely new fibres and to modifications of existing fibres.

## The fundamental principles

There are some fundamental principles relating to the likely commercial viability of new fibres which should be stated immediately. Some of these principles seem to be self-evident in retrospect but we have repeated experiences of fibre companies spending large amounts of time and money while acting contrary to them. The fundamental principles are as follows.

1. Identify, and try to engineer, as many applications as possible in which the new fibre produces a unique effect. Useful uniqueness gives the best chance of developing a market and/or commanding a premium price in the market.

- If no unique end-product can be engineered, commercial viability will depend on:
  - substituting the new fibre for other existing fibres in 100% form
  - the new fibre's qualities as a component in a fibre mix.
- Avoid end-use which merely reproduce the aesthetics of a cheaper fibre or fibre blend. (It is quite remarkable how many new fibre innovations we have been shown that could be easily reproduced by some form of polyester/viscose blend).
- To achieve commercial success in today's consumer markets, a fibre/fabric innovation must offer a tangible and explainable benefit to the consumer at the point of sale of the garment (eg value, drape, handle, colour) or soon afterwards (eg easycare, crease resistance). Benefits which occur within the processing chain (eg ease of processing) will only be fully exploited if they ultimately translate into consumer benefits (eg lower prices).

## Fibre and fabric types

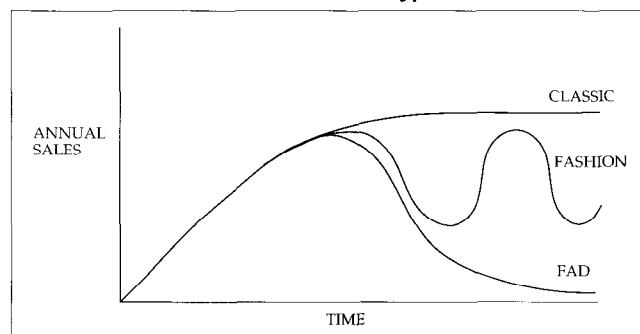


Exhibit 1

## The classic and fashion components of fashion

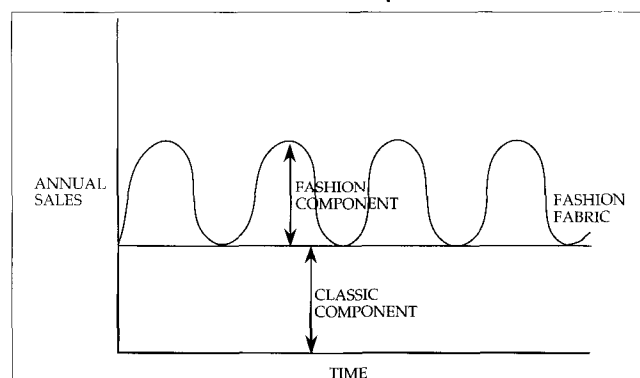


Exhibit 2

5. New fibre end-uses in garments can be classified as

- Classic
- Fashion
- Fad

as shown in Exhibit 1. "Classic" demand will grow to a level at which it will persist without being influenced by fashion. "Fashion" demand has a basic Classic element (which may in fact be zero) overlaid by a fluctuating Fashion element, as shown in Exhibit 2. "Fad" demand grows and then declines to zero when the fad is over. It is important to determine as soon as possible whether an initial demand for a new fibre in a particular end-use is Classic, Fashion or Fad. The three growth curves are indistinguishable in the early phases and the market itself does not always know how demand will develop. One of the aims of the assessment methods we have developed is to make this classification into Classic, Fashion, Fad for a particular new fibre in a particular end-use.

### Summary of DRA research techniques

The ideal result of an assessment of the commercial viability of a new fibre is a statement of the volumes of fibre which could be sold in the future and at what price. We have taken this result as our target in developing our assessment methods, which contain the following elements.

1. A summary of the physical and aesthetic properties of the new fibre compared with other fibres and the consequent likely interesting end-use areas.
2. In-depth technical and market research by interviews at all levels of the garment supply chain.
3. Quantitative summary comparisons of fibre characteristics in garment end-uses.
4. Assessments of the advantages and disadvantages of using the new fibre in blends.
5. Definition of the „fabric stories“ in which the fibre should have significant future use and the estimation of fibre volume sales for each fabric story at different price levels.

These elements are described in more detail below.

### Physical and aesthetic properties

These will typically include: wet and dry tenacity, loop tenacity, elongation, wet and dry modulus, light fastness, fibre diameter, smoothness, reflectance, softness, propensity to fibrillate etc. A table is constructed showing how the new fibre compares with existing fibres in all these respects. Extrapolations are then made of the likely properties of the fibre in yarn and fabric form or the properties are measured/inspected from yarn and fabric samples. From this it is usually possible to identify the fibres with which the new fibre will have to compete and some end-use areas in which the new fibre is likely to have some competitive edge.

### In-depth research in the supply chain

This research consists largely of interviews with decision-makers, at all levels of the garment supply chain, including spinners, weavers, knitters, dyers & finishers, garment designers and manufacturers, trading companies and retailers.

The interviews are focused around fabric and garment samples wherever possible. These samples should be as simple as possible to avoid confusing the discussion by irrelevant issues of the current season's trends in colour, garment design etc.

The emphasis in the research is ultimately on fabrics, since, of all the intermediate and final products in the supply chain, fabrics provide the best balance between low degree of product variety and the ability to assess the fibre's impact in garment form. By comparison, yarns have a low degree of variety but their effect in the final garment is often difficult to estimate, and garments often display a high degree of fashion-influenced variety which makes it difficult to assess the aesthetic fundamentals.

The interviews are very open-ended to allow subjects to explain their own attitudes to the fundamental and long-term roles of different fibres in garment and their own approach to innovation and novelty in this area.

Interview subjects are, of course, usually pre-occupied with the next one or two garment seasons. Great care is therefore taken during the interviews to avoid their responses being over-weighted by their current concerns. Subjects often have 20-30 years' experience in the industry and have seen many garment seasons come and go. Every effort is made to tap into the widely applicable knowledge and wisdom that this has created.

Both single fibre fabrics and fibre-blend fabrics are discussed.

These interviews are carried out by consultants who have a good knowledge of downstream fabric and garment markets. This is particularly essential if a coherent set of "fabric stories" is to be identified.

### Fibre characteristics in use

Based on the results of the interviews, summary comparisons are made of the new fibre's characteristics in likely target end-uses. The five assessment criteria and some illustrative comparative assessments are shown in Exhibit 3. In practice, each assessment criterion is composed of a number of sub-criteria. "Fundamental Aesthetic" for example, is composed of the sub-criteria: Handle, Lustre, Drape and Body. The number of sub-criteria associated with each major criterion is as follows.

Fundamental Aesthetic	4
Performance in End-Use	5
Processability	4
Versatility	4
Image	2

It is possible to weight the importance of the different criteria to reflect the needs of a particular end-use. Exhibit 3 shows the ratings of different fibres, including a new one, in an end-use that requires a strong fundamental aesthetic and a fibre with a high consumer image. This is not a real example. It has been constructed purely for the purpose of illustrating the methodology.

**Fibre characteristics - summary (Example only)**

Fibre/fabric assessment criteria	Viscose	Cotton	Wool	Silk	Linen	Polyester- Regular	Polyester- Shin Gosen	New Fibre	Weights (%)
Fundamental aesthetic	5	5	7	10	9	5	7	8	30
Performance	3	4	5	3	4	7	8	5	10
Processability	5	6	4	4	3	5	3	6	20
Versatility	4	6	4	3	3	6	6	3	5
Image	4	7	7	8	8	4	6	8	30
<b>Weighted Average</b>	<b>4.2</b>	<b>5.5</b>	<b>5.7</b>	<b>6.6</b>	<b>6.2</b>	<b>4.7</b>	<b>5.6</b>	<b>6.6</b>	<b>100</b>

Scores: on a scale 1 = poor to 10 = excellent

Exhibit 3

**Impact in fibre blends**

In assessing the impact of the new fibre in blends the following distinct major reasons for blending fibres are considered and the new fibre's impact in each area is assessed.

- Diluting a more expensive fibre
- Engineering a fabric to a price point
- Improving processability
- Improving performance in use
- Widening finishing options
- Engineering the aesthetics of the fabric.

Exhibit 4 shows assessments of some of the more common fibre blends using these criteria.

**Impact of new fibre in fibre blends**

Base Fabric/ Fibre	Fibre Added	Impact of Fibre Addition/Blending					
		Dilute Expensive Fibre	Engineer Price in Middle Market	Improve Performance in Use	Improve Processability	Widen Finishing Options	Engineer Aesthetics/ Fibre Synergy
Cotton	Modal		X	✓			✓
Polyester	Viscose		X		X	✓	✓
Wool	Viscose		✓		X		✓
Linen	Viscose	✓✓		✓			X
Cotton	Polyester		✓	✓	X		
Viscose	Polyester		✓	✓✓	✓		X
Polynosic	Polyester		✓		✓		
Polyester	Polynosic		X			✓	✓
Modal	Nylon		✓	✓✓	X		X
Cashmere	Wool	✓✓					X

Key: ✓ = Benefit, ✓✓ = Major Benefit  
 X = Disadvantage, XX = Major Disadvantage

Exhibit 4

**Fabric stories**

In one of our projects we found in one retail store, side by side on a rack, six pairs of ladies' "linen-look" trousers made from fabrics of quite different fibre contents. Linen-look was in fashion that year and the producers and processors of different fibres (eg flax, cotton, polyester, wool, viscose, acrylic) had all focused on how to sell their fibre into the end-use. In this sense „linen-look“ is a „fabric story“ which can include a wide range of different fibres and fabrics aimed at meeting the same market need. „Soft denim“, „washed silk look“ and „peachskin“ are other examples of fabric stories. It is necessary to define in each new fibre assessment project that set of fabric stories in which the new fibre could have a significant role to play.

**Estimation of likely future demand**

Estimates are made of likely future fibre demand in each of the target fabric stories based both on the findings of the research described above and on other research at the macro level of world consumption and production of various garment and fabric types. Each demand estimate for a fabric story is made on an assumption about the relative prices of the different competing fibres in the fabric story. For each such price relativity assumption, the quantitative estimates are made by estimating answers to the following questions:

1. What is the size of the current world market for this fabric story and what is the split between its classic and fashion elements?
2. What is the current market share of existing fibres in this fabric story in both 100% and mixture form?
3. What, if any, are the other new fibres which might compete in this fabric story?
4. Based on the results of the interviews, what is the likely market share achievable by the new fibre in both 100% and mixture form?

**Estimation of future demand**

Fabric Story	Estimated World Market Size (kg)	Estimated Classic Fashion Split (%)	Estimated Current % Market Shares of Existing Fibre Types A - M					Estimated Potential Future % Market Shares of Fibre Types A - N					Potential Volume for New/Modified Fibre N (kg)		
			A	B	...	I	M	A	B	...	L	M	N	Classic	Classic & Fashion
1															
2															
3															
4															
•															
•															
•															
P															
Total															

Exhibit 5

Exhibit 5 shows in outline, how, for a particular set of price relativities, the future total demand for a new fibre N is computed in a situation in which there are several important fabric stories (1 to P) and a number of other competing fibres (1 to M). The final estimate is in two parts:

- (i) the total classic element, which can be expected as a minimum every year
- (ii) the total of the classic and fashion elements, which is the maximum demand likely in any year.

Estimates of demand patterns over future years can be built up by making different assumptions about: total world fibre consumption, both overall and by fabric story; and price relativities among the different fibres.

### Impact on decision making

We have found from experience that the methods described here can give credible answers to the following types of question relating to the potential for new and modified textile fibres in apparel end-uses.

- How does the market rate our fibre against competing fibres in different fabric end-uses?
- How does the market rate our fibre in different fibre blends compared with the competition?
- What are the trends in fibre substitution and what are the factors driving them? How will they evolve in the future? What will the impact be on our fibre?
- To what extent does our fibre have unique qualities? What are the most promising target end-uses for the fibre? Is future demand likely to be constant, to oscillate with the fashion cycle or to be a one-time fad?
- What volumes of fibre can we expect to sell in future years? How will these volumes vary with changing price relativities among the competing fibres?

Our clients have used the results of our assessment in many areas of decision-making, including the following:

- Whether to invest in a plant to manufacture a new fibre, how big the plant should be and where it should be located.
- The retailers, garment types, fabric types and price points to be targeted by the fibre.
- Fibre pricing policy and production cost targets.
- The desirable fibre properties to be targeted by further technical research and development work and the level of research and development budgets.
- The areas of focus and product targets for development programmes for yarns, fabrics and finishes related to the new fibre.
- The most promising countries in which to carry out collaborative product developments and the best spinners, weavers and finishers with which to work.
- Fibre branding policy.
- Targets, activities and budgets for fibre marketing, selling and promotion programmes.

### Conclusion

We believe that these micro, bottom-up fibre assessment techniques that we have developed represent a revolutionary new research tool which enables fibre companies to focus on the fundamentals concerning fibre demand into the longer term. By combining with traditional macro, top-down methods (which consider trends in production capacities, demographics, lifestyles, world trade, GDP per head, etc), our experience has shown that robust and credible forecasts can be produced to support fibre companies' decision making across a wide range of critical policy areas.