Innovation and Technical Textiles

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What I will cover...

• Innovation as an essential element in technical textiles strategy
• Innovation in technical textiles: where it comes from, how it can be managed
• The place of the Middle East in global competition in technical textiles
Innovation in a technical textiles business strategy
Innovation is important in all textiles..

• Innovation has been one of the main drivers of textile activity for 300 years
• Textiles led the way in industrial innovation for other industries
• Machinery, new techniques, new materials, design, fashion
• Commodity textile production – without innovation – is low-margin, low-profit business
But even more in technical textiles

• Technical textiles always existed, but on a small scale (under 5% of total)
• Now, technical textiles are over 10%, and much higher in some regions
• 80% of current technical textile products have been developed in the last 20 years
Technical textiles are not an easy option

- The market is growing – but it is a demanding business
- Entering the industry from other textile sectors is possible, but needs new skills
- And, generally, additional investment
- It needs total commitment to quality, customer service – and innovation
World technical textile production 2013

8.1 million tonnes

- Europe
- Americas
- China
- Other Asia
- Other
Innovation is continuous

• Innovation in technical textiles is rapid – and is continuing
• Commercial application of innovation opens up new markets...
• ...stimulates replacement of other materials by technical textiles...
• ...and adds value and profit to existing technical textile products
• NO INNOVATION, NO FUTURE
Innovation must be part of an integrated package

- Some companies fail because of lack of innovation
- Some fail because they over-emphasise innovation
- Innovation is an essential element in a winning business strategy – not a strategy in itself
- The winning strategy mixes innovation with efficiency, marketing and customer service as an integrated package
Innovation and marketing are linked

• Added value from innovation is not always well understood by customers
• Concentration on innovation has to overcome a « lowest cost » fixation
• Technical textile producers have to demonstrate that added functionalities justify a premium
• So marketing is important too
The challenge of China

• Any technical textiles operation has to face up to the challenge of China

• Until recently, innovation was seen as an answer to Chinese competition – China was seen as a producer of commodities

• Now, China has the biggest state-sponsored R&D technical textiles programme in the world

• China will have innovation capacity + low costs + government investment support
Meeting the Chinese challenge

• The challenge can be met!
• Market-driven innovation is part of the answer (China’s is state-driven)
• Logistics and customer service capability are a partner for innovation
• They provide opportunities for regional supply bases and export
• And quality, manufacturing efficiency and marketing are part of the answer too
Innovation in technical textiles – where it comes from, how it can be managed
Competition between technologies drives innovation

• Competition drives innovation
• Staple fibres vs filament
• Woven vs knitting vs nonwoven
• Natural fibres vs man-made
• Polyester vs polyolefins vs polyamide vs cellulosics...
• Fibre modification vs fabric treatment
• Textiles vs other materials
Material suppliers are an innovation resource

- Fibre and polymer suppliers have a major R&D effort for technical textiles
- European fibre producers have spent over $650 million on technical fibres R&D in the last 5 years
- Major fibre producers in other parts of the world follow this route too
- In polyolefin technical textiles, polymer producers take the R&D lead
Borouge Polymer Innovation Centre, Abu Dhabi
Universities and research institutes should be used

- Over 2,000 institutes claim R&D capability for technical textiles
- But serious players are limited (150?)
- Traditionally mainly in Europe and USA, but China, India and others progressing
- These bodies give essential research capability – but commercial ideas need to come from industry
Technical textile users have R&D ideas and capability too

- Collaboration with customers is another innovation route
- Some large ones – mainly consumer goods and automotive – have their own research facilities
- But remember that customers will keep many of their innovation ideas secret
- Joint development work helps build customer loyalty
Techtextil is your innovation ally

• Techtextil is the global leader in promoting technical textiles
• Participation in Techtextil fairs is a sign of commitment to the market
• Techtextil symposia and networking at fairs is a source of innovation ideas too
Openness to other disciplines is essential

- Technical textiles innovation needs input from other disciplines
- Among others, electronics, advanced materials, 3D printing, physics, radiation, graphene...
- Universities and institutes can play the biggest role here
- It needs leaps of imagination to see textile applications from advances in other fields
In my view, the most promising areas for technical textiles innovation are...

- Application of modified fibres (permanent effect, lower cost of downstream processes, environmental advantage)
- Nonwovens, especially spunbonding (favourable cost, increasing versatility)
- Advanced fibres and textiles (substitution of non-textile materials)
- Environmental excellence
53rd Dornbirn Man-Made Fibers Congress

10.–12.09.2014
Austria

Congress Themes

- Fiber- / Filament Innovations
  (Oil- and Bio-based Fiber Raw Materials, Carbon Fibers, Functionalities, Waste Management...)
- Nonwovens / Filtration
- Automotive
  (Transportation – Train / Ship / Air)
- Key Technologies
  (Finishing, Coating, Spinning / Extrusion...)
- Global Strategies for a Change
  (Market Specials / New Business Models)

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The Middle East in technical textiles
Global competition in technical textiles is intense

• Global competition in technical textiles is already intense
• And becomes fiercer every year
• Commodity production is only profitable in the lowest cost countries
• Other countries need to develop alternative strategies
Middle East advantages in technical textiles

- Lowest cost production of polyolefin polymers
- Low-cost energy
- Relatively low-cost labour force
- Investment capital available
- Supportive approach to downstream investment from major companies (SABIC, IPIC..)
- Positive attitude from authorities
Middle East disadvantages in technical textiles

- Few local suppliers of polymers and fibres (except PP)
- Limited regional market
- Limited water availability for processing
- Limited workforce availability
- Higher costs than China, India...
- Logistic difficulty in competing on specialities in markets needing high customer service
Case study 1: Flexible packaging

• FIBCs have become the main way of transporting many products
• An innovation 20 years ago
• Now, most of the market is commoditised, supplied by China, India...
• But other suppliers remain, thanks to innovation and customer service
• Turkey leads in differentiated supply
• A Middle East regional supply base is possible
Case study 1: Flexible packaging
Case study 2: Carbon fibre

• One of the lightest, strongest materials that exist
• Introduced 1958, but constant innovation
• Mass market: only emerging now
• Most production in Japan, USA, Europe – but China investing heavily
• Middle East (SABIC) entering
• Profitability disappointing to date
Case study 2: Carbon fibre
Case study 3: Automotive textiles

• A huge, diverse and growing market
• Interiors, safety, tyre reinforcement...
• Mainly polyester and polyamide
• Car companies want local final suppliers, but intermediate products (yarns, fabrics) can come from anywhere
• Price important – but reliability and innovation capability essential
• Bulk yarn and fabric production moving to China
Case study 3: Automotive textiles
Opportunities for the Middle East: a personal view

• Capital-intensive PP products for world markets: weaving, spunbonding, synthetic grass yarn

• Downstream PP products for regional markets: FIBCs, geotextiles, agrotextiles.

• Carefully targeted non-PP products for regional markets, using imported yarn

• With some reservations, advanced materials such as carbon fibres
Conclusions
In conclusion: the positives

- Technical textiles are a growth sector
- They will be an increasing proportion of the total textiles market
- Innovation plays an important role
- Even if Asia, led by China, will increase its lead in volume terms, there is still space for other specialist producers
In conclusion: the negatives

• The market is highly competitive, and will become even more so
• Customers are reluctant to pay an adequate premium for added technical textiles functionalities
• Technical textile markets will become increasingly commoditised
• China is determined to be the dominant producer (research, subsidies), all other producers will suffer
And finally...

- Despite some negative factors, technical textiles are the most exciting and promising textile sector today.
- Their future success is closely linked to innovation, and to its commercial applications.
- Innovative, well-managed Middle East companies will play an important part.
Thank you!

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