Annual Conference Report 2013

Rebalancing the Power between Manufacturing and Retail

ITMF Annual Conference 2013
Bregenz, Austria, Sept. 8–10
Annual Conference Report 2013

Rebalancing the Power between Manufacturing and Retail

From September 8 - 10, 2013, the International Textile Manufacturers Federation (ITMF) held its Annual Conference in Bregenz, Austria.

This report contains all available (unedited) presentations.

December 2013
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Speakers’ Contact Details

Sponsors
ITMF ANNUAL MEETING IN BREGENZ 2013
OPENING SESSION

by Dr. Dionys L. Lehner

We wish you, our dear guests of the annual meeting of ITMF, a very warm welcome here in Europe, in Austria and in the wonderful town of Bregenz. You may think “yes, you have beautiful mountains and beautiful lakes, but what about your textile industry?”

In my few words I will try to answer exactly that question. The answer will not move mountains, but it is certainly not as negative as you might expect. Let me speak in the first part about Europe and in a second part about Austria.

I. Remarks to the Textile Industry in Europe

As we all know, the decline of the European textile industry in the last 30 years has been dramatic. The “ITMF global textile machinery shipments statistics for the year 2012” speaks a clear language. Last year, 95% of the short staple ring spindles and more than 90% of the rotor spindles and shuttle-less looms have been shipped to Asia. Shipments to Western Europe, the continent that invented the textile machines, were in all three sectors below 1%.

The “ITMF international production cost comparison” shows why Europe has been squeezed out of the textile market in the last 30 years. Globalization of the market has caused a big competition in price. The main cost factors in textiles are labour cost, energy cost and capital cost. Labour cost differentiates between countries 1:40, energy cost 1:4 and capital cost also 1:4. (If you can remember the figure four, you remember the global cost comparison in textile production.) As labour cost is the most important factor in textile production, it is clear, that Europe is an extremely tough base in this industry. But the textile industry does not mean only textile production. It also means textile machinery, textile distribution and fibre. Here, the picture of textile industry in Europe looks much sunnier. Let me shortly describe five areas where Europe still stands on firm feet in the textile world:

1. Dominance in Spinning Machinery

The ring spin machine, that was invented in Great Britain in the last quarter of the 18th century, is in the high segment still dominated by two European machine producers: Rieter and Saurer. The two Swiss/German companies supply about 50% of the high segment of the ring spin-, rotor- and air jet-machines. The segment makes up about 1/3 of the total ring spin-equivalence shipments in 2012. This European position is extraordinary, given the fact, that in 2012 Western Europe consumed only 0.1% of the global ring spin machines shipped. (Fig. 1 shows the spindle equivalent shipments in 2012.)

2. European Textile Distribution

Today, in the USA and Europe you cannot buy a textile product anymore. You buy distribution margin and along with it you get, quasi as an extra, the textile product. The cause of this imbalance is the low price of garments in Asia and the high price distribution asks from its customers. In Europe, the total margin of distribution and transport is about 80 to 85% and can reach 90% or more. The very successful textile retailer Zara reported for the year
2012 an EBIT-margin of 20%. For certain textile products this is the product price times two!

A profit margin of more than 100% of the price of such a textile product means that the price to buy the fibre, spin the yarn, weave or knit the fabric, dye or print the fabric, finish the fabric, make up the clothes and pack them, is lower than the profit retail gets selling this piece of cloth. It doesn’t look like a very fair sharing of profits between industry and distribution in these days. For distribution one has to say however that this sector needs a tremendous know-how in fashion trends and logistics. (Fig. 2 shows the list of the top 10 textile retailers in Europe that are all in European hands.)

3. **Europe is an Export Leader in Textile**

One would not expect, that Europe (EU-27) is, not so far behind China, the worldwide number 2 exporter of garments and textiles. The total export market in 2011 was USD 707 bn.; of that figure USD 248 bn. came from China and USD 193 bn. from Europe (EU-27). India, with USD 29 bn. is a distant number three.

The export figure in Europe also includes the exports between the European countries as they are independent nations. But the USD 52 bn. export of clothing and textiles to countries outside the EU keeps the EU-27 still at a comfortable second place in this statistic. It shows that Europe still has a tremendous know-how in the textile industry, textile fashion and logistics. (Fig. 3 shows the garments and textile exports statistics 2011 for the leading exporters.)

4. **Europe is strong in Technical Fabrics**

A fast growing sector of textile fabrics is the segment of technical textiles. In 2012, the total market volume in Europe amounted to EUR 28 bn. The characteristic of this market is, that it moves fast into new segments of application and is highly innovative. With 80% made in Europe, the continent has a firm grip on the demanding and rewarding market of technical textiles. (Fig. 4 shows the European market for technical textiles in 2012.)

5. **Europe leads the Cellulosic Fibre-Segment**

With Lenzing, Europe is the biggest producer of cellulosic fibre worldwide. As this is an Austrian company, let me speak a bit more about Lenzing in part two of my remarks “the Austrian textile industry”.

II. **The Austrian Textile Industry**

The Austrian textile industry employed in 2012, with 12,200, persons roughly 2% of the textile industry employment of Europe (EU-27). Along with the European trend, Austria lost in the past 10 years roughly 1/3 of its textile employment. Turnover went down by 20% somewhat less dramatic from EUR 2.9 bn. to EUR 2.3 bn. Even less dramatic was the decrease of exports from EUR 2.4 bn. to EUR 2.1 bn. This led to an increase of the export quota from 83% to 91% of total turnover. (Fig. 5 shows the development of the Austrian textile industry 2002-2012.)

A strong and even expanding export quota is the characteristic of the Austrian textile industry. Austria has in its backyard only a small home market corresponding to its small population of 8.5 mio. people. To export is a tough job. It means “fly or die”. If an Austrian company wants to reach the necessary critical size to cope with the production costs, export is a must. This process has reduced the number of companies substantially, but has also
formed some tough, export-oriented companies that have a leading position in their segments in Europe. Some examples to mention are Linz Textil, Sattler and Getzner.

Lenzing has the same position in the world market as the three above mentioned companies have in Europe. Founded in 1938, as the biggest cellulosic fibre producer in the world, Lenzing has today, 75 years later, still that position. It holds with a market share of 21% in the 3.8 mio. ton short staple cellulosic fibre market not only the number one position in size, but also in research, product variety and product functionality. (Fig. 6 shows leading Austrian textile companies with significant market shares.)

To summarize: the textile industry in Austria is small in size but it is home to some strong companies that are well-positioned in Europe and the world. Three of the four mentioned companies are growing and this because of exports.

The next 10 years may bring a further decline of the Austrian textile industry, but this decline will be most likely much smaller than the decline in the last 10 years. The leading companies however, are likely to hold their size or to grow. Today, we textilists in Austria share a feeling of optimism.

Bregenz, September 9, 2013
ITMF Annual Conference 2013
Bregenz AUSTRIA
Sept. 8-10

50% of the high-end spinning machine shipments are European

Fig. 1

Mio Spindle equivalent 2012

Source: ITMF Statistics, Zürich
EUROPEAN TEXTILE DISTRIBUTION IS FIRMLY IN EUROPEAN HANDS

<table>
<thead>
<tr>
<th>RETAILER</th>
<th>TURNOVER 2012</th>
<th>HEADQUARTER</th>
</tr>
</thead>
<tbody>
<tr>
<td>H &amp; M</td>
<td>12.9 bn €</td>
<td>Sweden</td>
</tr>
<tr>
<td>Marks &amp; Spencer</td>
<td>11.5 bn €</td>
<td>U.K.</td>
</tr>
<tr>
<td>Inditex</td>
<td>11.2 bn €</td>
<td>Spain</td>
</tr>
<tr>
<td>C &amp; A</td>
<td>6.8 bn €</td>
<td>Belgium/Germany</td>
</tr>
<tr>
<td>Next</td>
<td>4.3 bn €</td>
<td>U.K.</td>
</tr>
<tr>
<td>Primark</td>
<td>4.3 bn €</td>
<td>U.K.</td>
</tr>
<tr>
<td>Arcadia</td>
<td>3.3 bn €</td>
<td>U.K.</td>
</tr>
<tr>
<td>Debenhams</td>
<td>3.3 bn €</td>
<td>U.K.</td>
</tr>
<tr>
<td>Esprit</td>
<td>2.4 bn €</td>
<td>Germany</td>
</tr>
<tr>
<td>Benetton</td>
<td>1.6 bn €</td>
<td>Italy</td>
</tr>
</tbody>
</table>

Source: Fachverband Textil, Bekleidungs-, Schuh und Lederindustrie, Wien

EUROPE IS NO. 2 IN WORLD WIDE GARMENTS AND TEXTILE EXPORTS

<table>
<thead>
<tr>
<th>Country</th>
<th>TOTAL MARKET 2011 = 707 bn $</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>248 bn $</td>
</tr>
<tr>
<td>India</td>
<td>193 bn $</td>
</tr>
<tr>
<td>Turkey</td>
<td>141 bn $ within EU 27</td>
</tr>
<tr>
<td>Bangladesh</td>
<td>52 bn $ outside EU 27</td>
</tr>
<tr>
<td>USA</td>
<td>20-30 bn $</td>
</tr>
<tr>
<td>Vietnam</td>
<td>10-20 bn $</td>
</tr>
<tr>
<td>Korea</td>
<td></td>
</tr>
<tr>
<td>Pakistan</td>
<td></td>
</tr>
<tr>
<td>Indonesia</td>
<td></td>
</tr>
<tr>
<td>Taiwan</td>
<td></td>
</tr>
</tbody>
</table>

Source: WTO Statistics
“MADE IN EUROPE“ DOMINATES THE MARKET FOR TECHNICAL TEXTILES

80 % of market is “made in Europe“

Source: Industrieverband Veredlung – Garne – Gewebe – Technische Textilien e. V. (IVGT), Frankfurt

AUSTRIAN TEXTILE INDUSTRY 2002 – 2012:
DECLINE IN VOLUME, GROWTH IN EXPORT QUOTA

<table>
<thead>
<tr>
<th></th>
<th>2002</th>
<th>2012</th>
<th>ca. △ - %</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO OF FIRMS</td>
<td>200</td>
<td>130</td>
<td>- 35 %</td>
</tr>
<tr>
<td>EMPLOYMENT</td>
<td>18.900</td>
<td>12.200</td>
<td>- 35 %</td>
</tr>
<tr>
<td>TURNOVER</td>
<td>2,9 bn €</td>
<td>2,3 bn €</td>
<td>- 20 %</td>
</tr>
<tr>
<td>EXPORTS</td>
<td>2,4 bn €</td>
<td>2,1 bn €</td>
<td>- 15 %</td>
</tr>
</tbody>
</table>

Source: Fachverband Textil-, Bekleidungs-, Schuh und Lederindustrie, Wien
### AUSTRIA HAS TEXTILE COMPANIES WITH HIGH MARKET SHARES IN EUROPE

<table>
<thead>
<tr>
<th>COMPANY</th>
<th>SECTOR</th>
<th>MARKET SHARE IN EUROPE</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINZ TEXTIL</td>
<td>Cellulosic Yarns</td>
<td>35%</td>
</tr>
<tr>
<td>SATTLER</td>
<td>Sun shading</td>
<td>30%</td>
</tr>
<tr>
<td>GETZNER</td>
<td>Shirts</td>
<td>10%</td>
</tr>
<tr>
<td>LENZING</td>
<td>Cellulosic Fibre</td>
<td>21%</td>
</tr>
</tbody>
</table>

Source: Linz Textil, analysis for ITMF LINZ, 2013

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**THANK YOU FOR YOUR ATTENTION**
From Cellulosic Gap to the "Profitability Gap"
A story about the Chinese Viscose Industry
or
“How to lose a lot of money”
Once upon a time there was a profitable viscose industry in China.....

Viscose Market Perspectives

- From good to .......................?  
- Global cellulose market growing – 9% p.a. 
- Global commodities markets in turmoil 
- Global economy in relatively good shape 
- 1%- growth in Europe for the next three years 
- China yet in relatively good condition, but what comes next?

⇒ But Chinese viscose industry faced with low prices, high inventories, big losses and huge overcapacities
VSF Price and Margin of China Jan - August 2013

Major issues in the Cellulosics Industry

• What happens after 10 years China growth?

• Can Chinese Viscose producers sustain another significant loss making period (US$ - 0.5 bn/2012; US$ - 0.5 bn/2013)?

• Is China loosing its competitive cost advantage?

• What are the learnings out of this!

• Do we really want to learn anything?
China dominates Cellulosics

- China biggest cellulose producer market (viscose & cotton)
- China biggest cellulose consumer market
- China biggest cellulose growth market
- But China’s supply / demand dynamics distorted

→ What are the consequences out of these new realities?

Chinese cotton consumption sharply down – import sharply up – but higher stock level
China's GDP will double by 2020

Although GDP growth will slow down, China is expected to develop as second largest economy by 2020 – major challenge is increase of private consumption.

Economic development and outlook China (1/2)

Source: EAC research
China's GDP will triple by 2025

<table>
<thead>
<tr>
<th>China National income</th>
<th>2010</th>
<th>2015</th>
<th>2020</th>
<th>2025</th>
<th>2030</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAGR in %</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nominal GDP (USD bn)</td>
<td>5.879</td>
<td>9.563</td>
<td>13.413</td>
<td>17.950</td>
<td>22.309</td>
</tr>
<tr>
<td>INVESTMENT GDP RATIO in %</td>
<td>46</td>
<td>42</td>
<td>38</td>
<td>36</td>
<td>33</td>
</tr>
<tr>
<td>CONSUMPTION GDP RATIO in %</td>
<td>54</td>
<td>55</td>
<td>60</td>
<td>62</td>
<td>65</td>
</tr>
<tr>
<td>INVESTMENT (USD bn)</td>
<td>2.784</td>
<td>4.517</td>
<td>6.097</td>
<td>6.642</td>
<td>7.998</td>
</tr>
<tr>
<td>Consumption (USD bn)</td>
<td>2.822</td>
<td>5.260</td>
<td>6.048</td>
<td>11.129</td>
<td>14.091</td>
</tr>
<tr>
<td>TEXTILE CONSUMPTION is 10% of overall Consumption in (USD bn)</td>
<td>282</td>
<td>526</td>
<td>805</td>
<td>1,113</td>
<td>1,489</td>
</tr>
</tbody>
</table>

WORLD BANK; CHINA QUARTERLY UPDATE SUSTAINING GROWTH; April 2012
Deutsche Bank; Asia Economics Monthly; 12 June 2012

Viscose producers loosing $ 0.5 bn in 2012

- China's viscose industry lost its sunshine-image
- What does another loss making 2013 mean!
- China's viscose capacity increasing another 20% by 2013 after a jump of already 25% in 2012
- Current Chinese viscose economic metrics not sustainable
- Is there any official guidance necessary?
China's long term cost position to be..?

- Wage & energy inflation above 10% p.a.
- Wages double every 7-8 years
- Administration & sales cost increasing year by year
- Increasing logistic cost 10% p.a.
- Management cost rising extremely fast
- Many other issues in disguise

➡️ 12th 5 year plan – what does China want to achieve?

Not all viscose producers can move to Xinjiang-Province
Is Xinjiang saving China’s viscose industry?

- Relatively low production cost not sustainable (big subsidies!)
- With increasing logistic cost some major cost advantages may disappear in coming years
- Management and viscose quality improvements an issue
- Attractiveness of sites
- Mobility, capabilities of staff

➔ The more plants in Xinjiang the more cost advantages may disappear on the lower quality end

Long distance between Xinjiang & customers

- R&D getting more & more important issue in industry
- Continuous process improvements key to set off cost increases
- Currency appreciation makes exports even more difficult
- Cotton Linter availability getting biggest cost issue in future
- Cotton harvest getting lower & lower year by year
- Cotton politics in Xianjiang – a special issue

ITMF Annual Conference Report 2013, Bregenz/Austria  Opening Session: Peter Untersperger
CLP & viscose pulp supply / demand dynamics

- China’s agriculture reduces from 10% to 6% of GDP!!
- China’s cotton crop decreasing by 3 - 5 % p.a.
- China’s cotton linter capacity continuously decreasing
- China’s CLP plants getting uncompetitive
- China’s CL pulp / viscose pulp very expensive
- China’s wood cost not competitive long term

China’s viscose industry needs new paradigm

- Consumer growth with > 10% p.a.
- Apparel consumption with 8% of household spending
- Apparel growth with 7-10% p.a.!!
- China’s viscose producer have to change from producers image to marketer image

➔ China’s viscose producers need to earn more money for products / value delivered
China's viscose industry needs to make money and not make losses

- Capacity utilization of 60 - 80%! (for how long?)
- Current profitability metrics negative (for how long?)
- If such negative viscose dynamics continue, Chinese viscose Industry to become highly vulnerable
- Further capacity investments must be in line with consumption

➡️ Further capacity growth must be profitable
➡️ Lenzing will not add to overcapacity in China

What to do in China!

- Deliver Chinese customers what they want
- Sell added value for good money
- Make profits more relevant than capacity increases
- Beware of fast increasing cost base
- Invest in raw material availability - pulp
- Request higher customer prices for higher value

➡️ Become more profitable & long term oriented
Leading Fiber Innovation

Thank you

谢谢您
Welcome Address

ITMF Annual Conference 2013

Bregenz / Austria

(September 8-10, 2013)

Dear Dr. Lehner,

Dear Dr. Untersperger,

Dear ITMF Delegates and Guests.

It is a great pleasure and honor to welcome you here in the city of Bregenz in Austria for the ITMF Annual Conference 2013. This is 70th conference since the foundation of the Federation in 1904 and the 5th that is held in Austria, the first four taking place in Vienna. The city is located at the shore of Lake Constance in the triangle of Austria, Germany and Switzerland in the famous region of “Vorarlberg”, with its long tradition both in textile and textile machinery production and is home today to many global players in the textile business, along with its outstanding beauty, thus making the choice for this year’s venue a very good one. Additionally, the idea of organizing the ITMF Annual Conference in conjunction with the Dornbirn Man-made Fibers Congress was very appealing. Right after our conference delegates have the opportunity to attend also this traditional congress in the neighboring city of Dornbirn only 20 kilometers from here.

On this occasion I would also like to thank the two hosts – the Austrian Textile Industry Association VTI and Lenzing – for hosting this year’s ITMF Annual Conference in Austria. They have jointly invited the ITMF family to convene in 2013 in Austria in order to discuss the state of and the outlook for the global textile industry. We are grateful indeed for their efforts to organize an informative conference program as well as an interesting social program. Yesterday they hosted already a wonderful Welcome Reception and Dinner aboard the paddle steamer Hohentwiel on the Lake Constance and in the Festival House. This evening we are invited to a Gala Dinner on the Gebhardsberg, an old castle from where we can oversee the Alps, the Rhine valley and the Lake Constance.

We choose to call this 70th conference as “Rebalancing the Power between Manufacturing and Retail”. Manufacturing and retail, like two conjoined brothers, are bound to live together. One can only exist with the other; hence the better their relationship, the better the results for them both. The whole textile manufacturers’ chain can do a lot to improve and enhance relations with retailers and consumers. Today’s consumers have access to all kind of information and options and it is up to us to catch and keep their attention on what we are doing and can do for them. More than any time before, the real power in the market lies on the consumer’s hands and manufacturers and retailers alike can take advantage of the unprecedented possibility of permanently keeping an watchful eye on our consumers’ needs, opinions and wishes, for instance via social networks. We can anticipate
what their demands will be and be ready to better satisfy them in due time. E-commerce and today’s mobile world, that allows unprecedented reach at relatively low cost and great scalability, are just the most visible part of the plethora of great tools recently made available for us.

Developing brands and enhancing brands’ awareness is another important step of what can be done to better serve retailers and consumers. This is an important lesson we can learn from other industries, where much intelligence and energy is directed to identify and satisfy consumers’ desire even before they knew they have it.

Also, the constant and continued evolution of new products obtained by important technological breakthroughs, not only but mainly in manmade fibers, opens a large array of possibilities on how to diversify the spectrum of choices we can offer to retailers in the joint effort to charm and captivate consumers.

Last year, one could read in international newspapers around the world a lot about Europe and the ongoing sovereign debts crises in many European countries or the never-ending Euro crisis. Today, many of these problems are at least partially resolved or being worked on. Behind these macroeconomic financial and monetary challenges one should not forget and overlook that Europe is not only a region with a long textile tradition but a region that has proven for centuries to be innovative. European textile machinery producers are among the leading ones. Many high-quality products or brands have their origin in Europe. The same is true for technical textiles where many European companies are global leaders in their respective fields. We will have a chance to listen to some of them today and tomorrow.

Let me add a couple of words about macroeconomics elsewhere. The prospects today are much better than in the past three or four years. United States’ economy is steadily recovering and the possibilities derived from their new energy matrix, totally reshaped by the shale gas and the important price reductions it is bringing, are allowing a relevant and firm reindustrialization. China, with the new internal market emphasis of its economic policies will add an unprecedented number of new consumers on the market. These two countries, along with Europe, have the potential to foster growth on the other economies, thus leaving behind the worst economic crisis since 1929. Against this background, the textile industry, which has demonstrated innovation capacity throughout these difficult times that we just passed, is well prepared to seize the opportunities brought by world wide growth that is already in sight and just starting.

Also, I would like to thank the many speakers. We appreciate very much indeed that so many experts in their respective fields have accepted our invitation to share their knowledge and expertise with us. We are very much looking forward to their presentations and the discussions that will follow.

Last but not least, I would like to say a big thank you to our sponsors. Without the support of our sponsors such a conference would not be possible. This year our esteemed sponsors are:

- Dornier
- Oerlikon
- Otto Stadtlander
- Plexus
- Trützschler
- Rieter and
- Swiss Textile Machinery

With this I would like to close the Formal Opening Session wishing you an interesting two days here in Bregenz with informative presentations, fruitful discussions and good personal meetings with old and new friends and colleagues.

Thank you very much for your attention!
THE BRADING MULTIPLYER IN A DIGITAL and rebalancing age

DAVID ROTH
CEO, The Store WPP, EMEA and Asia
droth@wpp.com
360° Perspective

CLOSE YOUR EYES
Valuable brands have STRONG RELATIONSHIPS with consumers and are MEANINGFULLY DIFFERENT.

And have MORE LEVERAGE TO REBALANCE.
INTANGIBLES ARE VALUABLE

BRANDZ™
BIG DATA
The world’s most authoritative and largest brand equity and diagnostic data warehouse

WPP
Created and funded by WPP, exclusive to operating companies, undertaken by Millward Brown

Years
15

Countries
43

Categories
450

Brands
50,000

Consumers
2,000,000

The Brand Relationship is Like Dating

Bonding
Now a very strong relationship

Advantage
A strong liking is developing

Performance
The first date goes well

Relevance
At first you are cautious

Presence
Relationships start with awareness
VALUABLE BRANDS can be created across ALL industry types

China
- Others: 8%
- Tech
- Retail
- Financial
- Telecom
- B2C
- B2B

Global
- Others: 13%
- Tech
- Retail
- Financial
- Telecom
- B2C
- B2B

LATAM
- Others
- Tech
- Retail
- Financial
- Telecom
- B2C
- B2B

Note: BrandZ strong brands are those with a brand contribution of 30% or more

BRANDZ™
Strong Brand Portfolio vs. S&P 500

(April 2006 – April 2013)

WPP
China TOP 50 Outpaces MSCI

MCI China
- BrandZ™ China Portfolio: All companies in the Top 50
- BrandZ™ China IC Portfolio Top 10 in Brand Contribution

Source: BrandZ™ / Millward Brown Optimor, Bloomberg

The INTANGIBLE is TANGIBLE
BRANDS
help you control your own destiny

BALANCE OF POWER SHIFT
Using brand and consumer power to strategically engineer leverage
MORE CHANGE
in the next 10 years
than the last 40

SCALE
not the
ADVANTAGE
it was
ITMF Annual Conference Report 2013, Bregenz/Austria

1st General Session: David Roth

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NON-LINEAR path to PURCHASE

- Pre-store Context
- Shop the Store
- Shop the Category
- Select the Product
- PURCHASE
DIRECT RELATIONSHIP with the consumer in a DIGITAL WORLD

COMMERCE IS ECOMMERCE
In this screen, I chose to pay an additional RMB100.00 (set up). The button says “Confirm to Send.”

Top screen says: Waiting for Confirmation.

This shows how many taxis have been pushed, with the distance and remaining time left on this request.
This shows the driver’s info who has agreed to pick up the request.

This shows the distance between the pick-up location and the current location, and estimated time prior to its arrival.

WPP

This pop-up asking for if you are happy with the driver's efficiency, politeness, and hygiene.

Complete

WPP
MODEL and CONSUMER CHANGE
FORMAT ROLL OUT
to drive LFL
DEAD

STORES ran out of IDEAS
CONSUMERS ran out of MONEY
TOO MUCH
physical space
AND NOT
in the right place

OMNI CHANNEL
EXPECTATIONS
FEWER and SMALLER STORES
MOBILE OMNI CHANNEL with CUSTOMER in the CENTRE
DATA is the NEW OIL

3D DATAVATAR
Every business needs to be a DIGITAL BUSINESS
Every brand needs to be a DIGITAL BRAND
THINK
the
UNTHINKABLE
RETAILER
and brand owner as CURATOR

RECONFIGURE
for a DIGITAL location-based RETAIL WORLD
GO BEYOND FORMATS

New Retail Paradigm

FACE:

BONES:

BRAINS:
Love and nurture your BRAND

Your route to CONTROL your own DESTINY

WPP
In a rebalancing digital age
BRANDS ARE MORE not less VALUABLE

THE FUTURE IS NOT what it USED TO BE
Thank you

Email: droth@wpp.com

Blog: www.davidroth.com

Twitter: @davidrothlondon
We Can Double the Business Again
Enabling Global Commerce (TPV)

2009  $72B
2012  $145B
2015E

LEADING IN MOBILE

$14B
25M
10%
25%

MOBILE PAYMENT VOLUME 2012
APP DOWNLOADS Q1 2013
TOTAL PAYMENT VOLUME 2012
PAY VIA MOBILE 2012

Entries accepted with credit and mobile transactions in the history. Click report.
PayPal Connects Retailers & Consumers

Consumers
140M+

Merchants
10M+

PayPal is THE Digital Wallet

Financial Flexibility

Shopping Tools

Ways To Pay
How can we help them?

A Retailer’s Challenge

How can we help them?

online

offline

‘New retail’ emerging

Consumer behavior changing

ITMF Annual Conference Report 2013, Bregenz/Austria

1st General Session: Teppo Paavola
today’s retail reality —

Commerce revolution

mission control device new retail interface

Consumers are Changing Their Behavior

Consumers demand immediacy, transparency and connectivity in all aspects of their lives

![Graph](image)
Thank you!
Industry and retail –
an Industrial Viewpoint

AGENDA

- Changing patterns
- The retail vs. industry situation
- Opportunities
- Future directions
Linz Textil Holding AG

80% equity ratio
Linz Textil Holding AG

35% viscose yarns EU

devlopment partner textile machinery
Changing patterns

Empowerment of consumption
Awareness
Sustainability
Socio-balanced

Inditex – figures

Source: Inditex Annual Reports 2004-2012

x 3

x 4

+ 6% p.a.

Clothing:
- ASIA: 52%
- EU: 27%
- ROW: 11%
- Source: WTO International Trade Statistics

Textiles:
- ASIA: 52%
- EU: 34%
- ASIA: 52%
- ROW: 14%

Source: WTO International Trade Statistics

Installed capacities (2001-2011)

Ring spindles:
- Short/long staple
- ASIA: 70%
- EU: 12%
- ROW: 18%
- Source: ITMF International Textile Machinery Shipment Statistics

Weaving looms:
- Shuttle-less/shuttle
- ASIA: 67%
- EU: 12%
- ROW: 21%

Source: ITMF International Textile Machinery Shipment Statistics
EU Textile Industry (2001-2011)

<table>
<thead>
<tr>
<th></th>
<th>2001</th>
<th>2011</th>
<th>ca. +/- %</th>
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<tr>
<td>NO OF COMPANIES</td>
<td>52,100</td>
<td>46,800</td>
<td>-10%</td>
</tr>
<tr>
<td>EMPLOYMENT</td>
<td>1,380,000</td>
<td>685,000</td>
<td>-50%</td>
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<td>TURNOVER</td>
<td>122,2 bn €</td>
<td>83,7 bn €</td>
<td>-30%</td>
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<td>INVESTMENT</td>
<td>4,9 bn €</td>
<td>2,7 bn €</td>
<td>-45%</td>
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Source: EURATEX Statistics

Inditex – location of suppliers

Source: Morgan Stanley
European supply chain - Example

Innovation process - example
Future directions

CONTINUITY

SCENARIO ??

DISRUPTION

Input factors: Energy

Source: European Energy Exchange
European Union - economy

26.4 million people unemployed
(+ 1.1 million within last year)

Youth unemployment: 23%

Source: Eurostat

USD – JPY currency relation
Reduced Visibility #1

Raw material

Source: Bremen Cotton Exchange

Reduced Visibility #2

Currencies
Conclusion

innovative  adaptive
responsive

INTELLIGENT BUSINESS LOGICS

Thank you for your attention!
“Industry and Retail – an Industrial Viewpoint”

Ladies and gentleman,
As a representative of the Austrian-based Linz Textil Group, it is an honour for me to be able to address you as part of this 2nd General Session on the subject of Europe’s textile industry from an industrial viewpoint.
The topic chosen refers to a European perspective on this year’s conference title, which relates to the restoration of a balance of power between distribution and manufacturing, an issue that is both ever-present and challenging.

My presentation will cover following aspects:

- Changing patterns
- The retail vs. industry situation
- Opportunities
- Future directions

Before tackling these subjects, please allow me to provide you with a short introduction to the Linz Textil Group, which has a portfolio that is dominated by semi-finished products for the textile supply chain.

Linz Textil is one of Europe’s leading manufacturers of yarns, fabrics and terry products and has annual sales revenues of around 150 million euros. In addition, the group can point to following remarkable figures.

The first of these is an equity ratio of 80% and a balance sheet that is bank-debt free. Secondly, the possession of an approximately 35 per cent share of the viscose staple-fibre yarns market within the EU 28 as a result of a successful Austrian cooperation model with the Lenzing Group.

Moreover, the group occupies a position as a development partner for European textile machinery manufacturers.

Linz Textil is acting as partner in the fields of technical textiles, home textiles and apparel, whereby the focus of this presentation is on the latter.

1. Changing patterns

Before dealing with the current situation, I would like to take a brief look at its hystorical content
In the 1960s, a gradual transformation from a sellers’ to a buyers’ market commenced. Then during the 1980s and 1990s, product variety entered the picture as an additional element. Finally, in the last ten years, we witnessed an evolution towards extremes both in the sense of product diversity, excess of choice and the speed of change. This underlying trend is universal, but is specifically exemplified by the apparel business.

If we focus on the past decade, it becomes evident that the shifting patterns during this period of acceleration have been accompanied by a number of significant trends.

More than ever before, customers are the centre of attention and thus constitute the driving force behind the changes taking place. We are now in the midst of a phase that we can call the “empowerment of consumption”. Information technologies are significantly modifying the decision-making and the purchasing process itself. Customers are playing a more active role and are turning into participating partners and even experts. Consequently, instead of the one-way communication that dominated previously, interactive communications are now crucial.

Furthermore, modern information tools foster an increasing awareness of the emergence of products for sale. Within this new mind-set, textile production and distribution are the object of more critical scrutiny with regard to sustainability and the social standards applied, especially amongst the younger generation. However, the question as to whether this awareness also applies once the buying decision has been made remains unanswered.

Sustainability has became one of the most frequently used buzzwords in our line of business and increasing expectations on the part of consumers are forcing the players within the textile supply chain to develop plausible “eco-positions”. Socio-balanced production standards and processes are more visible on the awareness radar whereas influence on the existing supply structures will increment.

2. **Situation retail vs. industry**

The question that everyone is asking, is how do apparel production and distribution fit into this scenario?

There can be no doubt that fashion retail groups have done an excellent job as far as logistical concepts and high-speed fashion offer changes are concerned. The big players have virtually perfected their logistics models and have thus reaped the benefits derived from the increase in their business scope that has emerged from frequent range alterations.
If, for example, the figures from Inditex, which constitutes a prominent European group are analysed, the effects are obvious. Apart from rapid growth driven by shop expansion and enormous speed in collection changes, one can see the significant cost impact of sophisticated logistics and information systems. As shown here, from 2004 to 2012, net sales and number of shops almost tripled, but on average the expenditure on logistics, store operation and general overheads only increased 6 per cent annually. This had a sizeable influence on the fourfold rise in profits within this period.

Apart from this upgrading of distribution models in terms of logistical intelligence, overall volumes in the clothing trade have also been transformed in the period under review.

One example, based on WTO figures, illustrates the shift in volume (value-based) towards Asia in the last decade. In 2000, Asian countries accounted for 52 per cent of global clothing exports, but by 2011, this figure had surged to 62 per cent. However, interestingly, the EU kept its 27 per share, which represented a clear no. 2 position after China. Intra-EU sales are taken into consideration in these figures.

Textile exports present a similar picture, Asia’s share having increased from 52 to 62 per cent between 2000 and 2011, while within the same period, the European Union’s share fell from 34 per cent to 25 per cent.

In terms of installed capacity, the concentration is even more significant, as indicated by just two ITMF figures for ring spinning and weaving (2001-2011).

If the data regarding the number of ring spindles installed for 2001 is compared with that for 2011, the Asian share rising from 70 to 84 per cent, while that of Europe declined from 12 to 5 per cent. As far as looms are concerned, the picture is similar, with the Asian share going up to 81 per cent and Europe’s dropping to 6 per cent. Furthermore, the figures for installed capacity 2012 are even more dramatic.

The inherent conflict that is affecting the industry worldwide is that margins have moved along the apparel supply chain, from the production territories and processes towards distribution.

To be somewhat provocative, in line with the famous Abba song, “The winner takes it all”. 80 to 90 per cent of margins are concentrated at the distribution level, leaving the remainder for the entire, multi-stage, upstream production process. This applies in general and also to Asia, as indicated by one example from our group’s business in China where market levels for viscose yarns are gridlocked to such a degree that producers are prevented from earning the depreciation on their investments.
Comparatively low margins and shifting volumes have led to a natural reduction in industrial capacity, especially in the commodity production segment. And this trend is revealed clearly by a look at the European textile industry. Figures for the EU-27 countries demonstrate the consolidation that has taken place between 2001 and 2011 with a reduction in the number of companies, in turnover, in investments and specifically in the workforce to 680,000 (minus 50%!), which means that within a decade every second job has been lost.

On the other hand, the textile industry in Europe still employs nearly 700,000 people and owing to their know-how, the percentage of companies that have found a viable model within this consolidated base has risen.

3. **Opportunities**

Although this imbalance exists, especially at the bottom-end segment of the market, viable opportunities for the industry are identifiable with regard to future distribution needs.

The sophisticated retail models outlined previously offer inherent possibilities for the industrial locations in geographic proximity of the markets. If the current benchmarks of less than one month from the order to product sale are applied along with the rising standards for stock replenishment programmes, flexible and fast regional supply chains will definitely gain greater relevance.

If the Inditex Group is again used as an example, the figures show this trend clearly with 50 per cent of products sourced from a local region in what they call “proximity sourcing”.

Apart from the aspect of fast supply, if the sustainability issue is considered from a logistics standpoint, the question arises as to what extent “apparel tourism” is a smart solution. One example from our group, although not from the apparel segment, shows what a regional supply chain structure could look like. In this case, which involves towelling, processing from the fibre to the final product takes place exclusively in Europe within a small operating radius. By definition, this procedure is 100 per cent European, transparent, sustainable and quick and is likely to appear more frequently within modern retail structures and not only in Europe.

Another opportunity for the industry, which simultaneously represents a necessity, is a focus on innovation that begins with the raw material and continues along the entire industrial chain. As an example from our group, an innovation process at the spinning stage has the following appearance.

Through a coordinated project, lasting several years, three participants – Lenzing, Rieter and us integrated the know-how in raw material, textile machinery and
connection, airjet technology, which constitutes an up-and-coming spinning system, was implemented and brought to maturity in the field of cellulosic yarns, thereby creating new types of yarns and acting as a catalyst for fashion innovation at the end of the line.

This approach has been facilitated by efficiency and quality in tandem with the pursuit of a clear, long-term investment-oriented strategy. A fact illustrated by the average age of the machinery at the Linz spinning mill, which amounts to just three years.

In the final analysis, successful models in this respect lead to an upgrading of the product portfolio and hence an increase the share of higher value-added products. And here Europe can count on innovative enterprises in the fields of sustainable raw materials, leading textile machinery producers and industrial downstream partners. Thus far, Europe has not lost the know-how contained in any of the industry’s cornerstones and should be prepared to act as an innovation base.

The sophisticated distribution approaches applied today demonstrate a certain tendency towards look-alike products, converging fashions and a reduced differentiation level. The need for high-speed reactions often implies the incorporation of existing designs instead of newly created models. This conceals the inherent risk that we could reach a point at which a fast, fresh and flexible offering will probably be insufficient to stay on the pace. Upon reaching this stage, retail will have to be taken one step further and industrial innovation will acquire greater relevance in the equation as a basis for fashion innovation.

4. Future directions
Within this context, the question as to how the story thus far will continue is certain to be asked. No one can predict the results with certainty, but let us assume two fundamental scenarios, continuity and disruption, and discuss their implications:

   a) Continuity

The following questions might be posed within the context of a fairly continuous sequence of events:

Will we witness a further concentration of production in Asia?
Definitely yes, although regional supply structures will gain in relevance. The trend towards flexible, fast, fresh and innovative fashion will further accelerate and proximity sourcing will be important to a certain degree and not merely in Europe.

In addition, a change in the input factor ratios, especially with regard to labour and energy costs is imminent and will probably affect the global spread of volumes. The dynamics of labour cost and workforce availability are already relevant issues in Asia,
doubled since the start of this project in 2006 and is already within the Eastern European range.

As far as energy is concerned, re-industrialization in the USA, which is driven by attractive energy costs, is a current topic of extensive discussion. However, three years ago, who in Europe would have anticipated a significant downturn in energy costs? The diagram shows that electric energy prices have fallen by 40 per cent during this period with a significant effect on prime cost comparisons between regions.

Technological change is also levelling out differences. In order to stay competitive, investments in state-of-the-art technology are essential and as the level of the technology available around the globe do not differ significantly, this represents a balancing element between regions.

All of these aspects will lead to an alteration in competitiveness levels and a certain equilibrium between new, up-and-coming supply bases and traditional ones, is at least within the range of realistic options.

b) **Disruption**

As our industry is embedded in a broader economic landscape, in order to obtain a comprehensive picture when discussing future developments, one also has to consider disruptive aspects and their probability. What therefore are the potential sources of disruption?

**Financial liability**
Firstly, the financial system must still be characterized as unstable. Liquidity in the financial sector continues to be maintained by the central banks, the government debt crisis is yet to be settled and bank stability remains a matter that demands critical scrutiny. In addition, we are faced by an absence of economic growth and a reluctance to invest. Therefore, the question as to whether we are now experiencing a rather quiet phase before entering another period of turbulence has to be asked.

**Trade policy**
Economic reality in Europe today is still characterized by zero growth, even though the second quarter indicated a fragile 0.3 per cent recovery after a 6-quarter recessive period with unemployment in the EU reaching record levels.

At a present rate of 11 per cent, over 26 million people are without a job in the Union and at 23 per cent, unemployment among the younger generation is alarming. If we assume a continuing trend in this direction, we may reach a point at which protective action might seem politically opportune and two to three years of trade restrictions on certain product categories could be implemented.
The trade policies initiated during the last decade show both a supplementation of tariff-related procedures and non-tariff measures. One example that affects day-to-day business within our group is provided by the anti-dumping measures implemented in Brazil, which start from the raw material and continue downwards.

Even if such measures were in conformity with WTO rules, a systematic increase in the number of measures applied could have a significant influence on business models in general and supply chains in particular.

Currencies are also gaining in relevance as an instrument of trade policy. A recent example is the Japanese yen, which reached a 5-year USD/JPY peak during the second quarter of 2013.

Legal statutes, especially with regard to environmental and ecological regulations relating to the products entering circulation, constitute another significant aspect within this context. A global comparison shows that stipulations and standards differ and various rules are applied to imports. Changes in the legal framework could also imply structural changes like those discussed previously.

When reflecting on the aspects mentioned, at the very least, in general terms the current period is reminiscent of one in which the likelihood of disruptive events is on the increase.

5. **Conclusion**

Whatever the actual scenario turns out to be, strong links between industry and retail will be crucial for both sides and innovation will play a central role.

We are all operating in an environment that is characterized by increasing uncertainty and reduced transparency. Vital framework conditions do not fluctuate, but they do show the amplitude of seismographic tremors. Apart from the energy diagram shown before, raw material prices (cotton chart) and currencies (USD/EUR ratio) are examples in this connection.

Therefore, future models have to be flexible, responsive and innovative, as process efficiency alone will no longer be profitable.

To sum up, intelligent business logistics involving manufacturing and distribution, as well as balanced margin structures are set to become of increasing relevance.

Thank you for your kind attention and I look forward to receiving your comments or questions.
To be different is our essence.

Difference is in our company’s ADN.
We look at our final consumer as our support, which will help us adapt rapidly to the market.

Our motivation is trying to surprise him always with creativity.

**SPEED**
- In **PRODUCT DEVELOPMENT**
- In **SERVICE**
- In **INFORMATION**

**CREATIVITY**
- In the way to do our **MARKETING**
- In our **RSC MODELS**
- In our **PRODUCT**
Key factor to succeed in our goal to be different:

- Not to be the best, **but to be the first**
- Not to be the most consistent, **but to be surprising with consistency**
- Not to be the strongest, **but to be the most adaptable**

WHERE DO WE LOOK TO?
WHAT DO WE LOOK FOR?
We look for CONCEPTS

We look for SOLUTIONS

SUPPORT TOOLS
Base of every project.

→ Trained teams
→ Involved teams

Who develop the Technological Innovation and Research process

Innovation and Research in TS
The **innovation process** in TS follows a pattern that involves **every department** of the Company, from the initial research and development, through the operations management, to the **final product** sale.

We program every single action we have to carry out, assigning **deadlines**, **development budgets** and an estimated **cost** of the product.
Our follow-up process ensures the precise observance of the different milestones in each creation process, to meet the commitments agreed with the clients or simply established by the Organization itself.
RESEARCH- AND CREATIVITY- BASED EUROPEAN TEXTILE PRODUCTION

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ITMF Annual Conference Report 2013, Bregenz/Austria 2nd General Session: Juan Parés 10
HOW DO WE WORK?

IDEAS RESEARCH

- Near the customer
- Near the market
- Near the fashion
- Nearly to the technological novelties
- Near the suppliers and their research dep
- Open to our new ideas
- Close and fluent communication between departments
CREATING CONCEPTS
BUILDING SOLUTIONS

CORPORATE SPECIFICATIONS
Army
Police

PROTECTIVE WEAR REQUIREMENTS
Oil and Gas
Petrochemical
Foundries
Standards, ...

CUSTOMER REQUIREMENTS
Special activity with specific problems

INNOVATION

TECHNOLOGY

SOLUTIONS

FABRICS

FABRICS + DYING = GENERAL SOLUTION
FABRICS + DYING + FINISHING = SPECIFIC SOLUTION

VALIDATION PROCESS
OK?
FROM CONCEPTS AND SOLUTIONS TO FABRIC MANUFACTURING

PROTECTION + CONFORT:

- DURABILITY
- ECONOMY
- ECOLOGY / SUSTAINABILITY
- SOCIAL RESPONSABILITY
- SERVICE

WE DON'T OFFER ONLY FABRICS – WE CREATE SOLUTIONS
FINISHING must be analyzed within the product development along with all stages of the textile process, because its success will depend mostly on it.

Remember: Sustainable development in textile finishing

- ENERGY
- WATER
- CHEMICALS
- SERVICE FASTNESS/ PRODUCTION RATIONALIZATION
- TO BE IN ACCORDANCE WITH THE GOVERNMENTAL RULES AND CUSTOMERS STANDARDS
ACHIEVEMENTS OF OUR FINISHES:

• Style
• Colour
• Aspect/look
• Different fabric handles
• Flexible adaptative technologies
• Physical properties

OUR GOAL

• MAKE OUR CONCEPTS TO COME TRUE
OUR TECHNOLOGY FOR TEXTILE FINISHING PROCESSES

WITH OUR TECHNOLOGY

- TO BE COMPETITIVE
- TO BE COMPATIBLE WITH ENVIRONMENT
- TO FULLFIL WITH STANDARDS AND CORPORATE SOCIAL RESPONSABILITY
- TO IMPROVE OUR SERVICE
CONVENTIONAL PROCESSES
- COLD PAD BATCH
- PAD STEAM
- PAD DRY
- THERMEX ECONTROL
- INDIGO WARP DYE
- YARN DYE

CONVENTIONAL FINISHING
- SOFTENING IN STENTER
- EMERYING
- MICROEMERYING
- BRUSHING
- CALENDERING
- ROTATORY PRINTING
- DIGITAL PRINTS
- COATING

FASHION MARKET

TECHNICAL TEXTILES MARKET
FASHION MARKET

SPECIAL PROCESSES AND FINISHING

**PAD DRY SPECIAL COLOURS**
- FLASHDYE

**PAD OX**
- ECOSANDYE
- ECOLANDYE

**SULFUR PRINTING**
- DUO SANDYE
SPECIAL PROCESSES AND FINISHING

**WASHDOWN PRINTING**
- FADED

**COATING AND FOAMING**
- CANADA

**FLOCKING**
- FLOC

**EMERY DESIGNS**
- COLUMBUS

**SPECIAL CALENDERED**
- RABAL

**DIGITAL PRINTING**
# FINISHING

- Water Repellency
- Oil Repellency
- Impermeability
- Antibacterial
- Antimosquito (Vectors)
- UV Protection
- IR Protection
- FR Protection
- Hi-Vis Protection
- Alexandra
- Aluminized
- Industrial Laundry

---

# FINISHING

- Water Repellency
- Oil Repellency
- Impermeability
- Antibacterial
- Antimosquito (Vectors)
- UV Protection
- IR Protection
- FR Protection
- Hi-Vis Protection
- Wooltechs
- Alexandra
- Aluminized
- Industrial Laundry
RESULTS: TWO EXAMPLES
We look for CONCEPTS

We look for SOLUTIONS

We look for CONCEPTS

We look for SOLUTIONS
• Washable fabric with a clean look
• Fabric with an intense color
• Ecological
• Shorter washing times
We look for CONCEPTS

We look for SOLUTIONS
The foundry market is searching for a product that procures protection from the splatter of molten metal, a different product from what is available in the market right now.

TECHNICAL REASONS:
- Not very comfortable
- A lot of shrinking
- Look and durability

COMMERCIAL REASONS:
- Monopolization of the market and lack of competitive offer
Wooltechs born with the will of trying to solve the technical lack detected in the current solutions and with the goal of becoming a real alternative to the existing offer.

UNE EN ISO 11612: 2013
LEVELS D3 (ALUMINIUM)
E3 (IRON)

SOME DATA
What is the investment allotted by our company?

10.000.000 €

What is our business turnover?

120.000.000 €

EXAMPLE OF SUSTAINABILITY
Example of sustainability applied in the tencel® as a source of inspiration for our developments made with this fibre.
Eurozone Deficit Crisis Receding

- World Economy to Surprise on Upside

Folker Hellmeyer, Financial Markets
September 9th, 2013

1.1  „Politico“ very outspoken …

Are markets efficient or are there possibly drivers beyond the radar screens of media and analysts and even politicians?

Pentagon preps for economic warfare
By EAMON JAVERS | 4/9/09 4:18 AM EDT
The Pentagon sponsors a war game that examines how hostile nations might seek to cripple the U.S. economy.

…

1.2 July 2008 versus October 2012

July 2008: EUR-USD 1.60
Markets discussed the displacement of the USD as world leading currency in favor of the Euro.

September 2012: EUR-USD 1.20
Outmost aggressive and outmost sizeable speculative positioning in history against the Euro with the intention to spark disintegration of the Eurozone.

1.3 Script book of executing market dominance/manipulation

- Since the fall of communism in 1990 the western banking sector is confronted with a massive structural change. Over the time a banking aristocracy with overwhelming market force acting globally has been established supporting interests of the power axis Washington/New York/London (oligopoly versus polyopoly).
- Rating agencies, being owned by the anglo-saxon and US finance aristocracy, are powerful catalysts of executing power in markets, as these agencies have been put into a powerful (legal) position in the financial framework.
- Anglo-saxon and US financial media do enjoy a dominating role in determining the topics being globally discussed and discounted offering a marketing tool to above mentioned powerbase.
- Deregulated markets, amongst them credit default swaps (CDS), are offering high leverage and the potential to dominate price movements in regulated markets.
- The financial centers New York and London over time seduced the western hemisphere to adopt short-term accountancy rules eroding inner reserves in the balance sheets of companies leading to a much more procyclical financial establishment and offering a higher potential of manipulation.
### 1.4 Looking at deficits (IMF Fiscal Monitor 04/2013)

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<td>-3,0%</td>
<td>-2,6%</td>
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<td>+2,7%</td>
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<td>Greece</td>
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<td>-4,6%</td>
<td>-1,2%</td>
<td>0,0%</td>
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<td>-5,5%</td>
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<td>-1,4%</td>
<td>BB</td>
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<td>Spain</td>
<td>-10,3%</td>
<td>-6,6%</td>
<td>-7,9%</td>
<td>-3,5%</td>
<td>BBB+</td>
</tr>
<tr>
<td>France</td>
<td>-4,6%</td>
<td>-3,7%</td>
<td>-2,2%</td>
<td>-1,4%</td>
<td>AA+</td>
</tr>
<tr>
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<td>-7,5%</td>
<td>-4,6%</td>
<td>-4,3%</td>
<td>BBB+</td>
</tr>
<tr>
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<td>-0,3%</td>
<td>+2,4%</td>
<td>+1,8%</td>
<td>AAA</td>
</tr>
<tr>
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<td>-2,9%</td>
<td>-0,8%</td>
<td>0,0%</td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>-8,3%</td>
<td>-7,0%</td>
<td>-6,1%</td>
<td>-5,0%</td>
<td>AAA</td>
</tr>
<tr>
<td>USA</td>
<td>-8,5%</td>
<td>-6,5%</td>
<td>-6,4%</td>
<td>-4,6%</td>
<td>AA+</td>
</tr>
<tr>
<td>Japan</td>
<td>-10,2%</td>
<td>-9,8%</td>
<td>-9,3%</td>
<td>-9,0%</td>
<td>AA-</td>
</tr>
</tbody>
</table>

### 1.5 Trade- and service sector balance of reform countries

<table>
<thead>
<tr>
<th>Country</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012 (P)</th>
<th>2013 (P)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Greece</td>
<td>-30,0</td>
<td>-33,6</td>
<td>-26,3</td>
<td>-20,2</td>
<td>-16,0</td>
<td>-11,9</td>
<td>-4,1</td>
</tr>
<tr>
<td>Portugal</td>
<td>-13,5</td>
<td>-17,3</td>
<td>-12,5</td>
<td>-12,3</td>
<td>-6,7</td>
<td>-0,8</td>
<td>+2,9</td>
</tr>
<tr>
<td>Spain</td>
<td>-70,8</td>
<td>-63,3</td>
<td>-19,5</td>
<td>-23,0</td>
<td>-8,5</td>
<td>+15,2</td>
<td>+37,8</td>
</tr>
<tr>
<td>Italy</td>
<td>-3,9</td>
<td>-13,1</td>
<td>-8,1</td>
<td>-30,2</td>
<td>-23,2</td>
<td>-5,7</td>
<td>+43,0</td>
</tr>
<tr>
<td>Ireland</td>
<td>+17,1</td>
<td>+16,3</td>
<td>+24,9</td>
<td>+29,8</td>
<td>+33,6</td>
<td>+37,6</td>
<td>+41,9</td>
</tr>
</tbody>
</table>
### 1.6 Exports trade and service sector

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013 (F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>(EUR)</td>
<td>EUR</td>
<td>EUR</td>
<td>EUR</td>
<td>EUR</td>
<td>EUR</td>
<td>EUR</td>
<td>EUR</td>
</tr>
<tr>
<td>Greece</td>
<td>52.4</td>
<td>56.2</td>
<td>44.5</td>
<td>48.9</td>
<td>51.7</td>
<td>52.3</td>
<td>53.6 (+20.5%)</td>
</tr>
<tr>
<td>Portugal</td>
<td>54.5</td>
<td>55.8</td>
<td>47.2</td>
<td>53.6</td>
<td>60.7</td>
<td>64.1</td>
<td>65.0 (+37.7%)</td>
</tr>
<tr>
<td>Spain</td>
<td>283.3</td>
<td>288.2</td>
<td>250.7</td>
<td>285.1</td>
<td>321.8</td>
<td>338.2</td>
<td>353.0 (+40.8%)</td>
</tr>
<tr>
<td>Italy</td>
<td>448.4</td>
<td>448.2</td>
<td>360.9</td>
<td>413.2</td>
<td>454.5</td>
<td>477.3</td>
<td>488.6 (+35.4%)</td>
</tr>
<tr>
<td>Ireland</td>
<td>152.4</td>
<td>150.2</td>
<td>145.9</td>
<td>157.7</td>
<td>165.3</td>
<td>172.7</td>
<td>183.8 (+26.0%)</td>
</tr>
</tbody>
</table>

### 1.7 Labour unit costs driver of competitiveness

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(Eurostat)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Greece</td>
<td>+2.6%</td>
<td>+5.1%</td>
<td>+6.2%</td>
<td>-0.1%</td>
<td>-1.8%</td>
<td>-8.1%</td>
<td>-1.5% (+11.5%)</td>
</tr>
<tr>
<td>Portugal</td>
<td>+1.1%</td>
<td>+3.5%</td>
<td>+3.1%</td>
<td>-1.6%</td>
<td>-0.7%</td>
<td>-3.1%</td>
<td>-0.6% (+6.0%)</td>
</tr>
<tr>
<td>Spain</td>
<td>+4.1%</td>
<td>+5.6%</td>
<td>+1.3%</td>
<td>-2.0%</td>
<td>-1.5%</td>
<td>-1.7%</td>
<td>-1.1% (+6.3%)</td>
</tr>
<tr>
<td>Italy</td>
<td>+1.6%</td>
<td>+4.5%</td>
<td>+4.0%</td>
<td>-0.5%</td>
<td>+0.9%</td>
<td>+1.8%</td>
<td>+0.9% (+3.1%)</td>
</tr>
<tr>
<td>Ireland</td>
<td>+4.1%</td>
<td>+6.4%</td>
<td>-3.7%</td>
<td>-6.5%</td>
<td>-3.2%</td>
<td>-1.9%</td>
<td>-1.2% (+12.8%)</td>
</tr>
<tr>
<td>Germany</td>
<td>-0.8%</td>
<td>+2.3%</td>
<td>+5.6%</td>
<td>-1.1%</td>
<td>+1.4%</td>
<td>+3.0%</td>
<td>+1.5% (+4.8%)</td>
</tr>
</tbody>
</table>
### 1.8 At a glance .... (Data: IMF, Fiscal Monitor 04/2013)

<table>
<thead>
<tr>
<th></th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Budget deficits in % of GDP</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Eurozone (R)</td>
<td>6.4%</td>
<td>6.2%</td>
<td>4.1%</td>
<td>3.6%</td>
<td>2.9%</td>
</tr>
<tr>
<td>USA (-)</td>
<td>13.3%</td>
<td>11.2%</td>
<td>10.1%</td>
<td>8.5%</td>
<td>6.5%</td>
</tr>
<tr>
<td>UK (R)</td>
<td>10.4%</td>
<td>9.9%</td>
<td>8.7%</td>
<td>8.3%</td>
<td>7.0%</td>
</tr>
<tr>
<td>Japan (-)</td>
<td>10.4%</td>
<td>9.4%</td>
<td>9.8%</td>
<td>10.2%</td>
<td>9.8%</td>
</tr>
</tbody>
</table>

### 1.9 USA – consumption versus investment (structural/cyclical)

<table>
<thead>
<tr>
<th>Fiscal Year</th>
<th>Total debt</th>
<th>Increase</th>
</tr>
</thead>
<tbody>
<tr>
<td>09.30.2000</td>
<td>5.674 bln.</td>
<td>+ 18 bln.</td>
</tr>
<tr>
<td>09.30.2001</td>
<td>5.807 bln.</td>
<td>+ 133 bln.</td>
</tr>
<tr>
<td>...</td>
<td></td>
<td></td>
</tr>
<tr>
<td>09.30.2007</td>
<td>9.007 bln.</td>
<td>+ 500 bln.</td>
</tr>
<tr>
<td>09.30.2012</td>
<td>16.066 bln.</td>
<td>+ 1.276 bln. USD</td>
</tr>
<tr>
<td>03.29.2013</td>
<td>16.771 bln.</td>
<td>+ 705 bln. USD</td>
</tr>
</tbody>
</table>
1.10 Measures taken by EU and member states

- The current intervention volume of the EFSF (300 bln. Euros) and ESM (500 bln. Euros) exceeds the potential of the IMF. Given the balance of reform achievements this sizeable intervention pool is likely to be sufficient.

- The Fiscal Pact has been established. Solidarity is only granted if national commitments are being met.

- An Economic Stimulus Pact was established offering a volume of 120 bln. Euros.

- The ECB has delivered a variety of successful measures (liquidity, SMP) (Central banks in comparison).

1.11 Conclusion

- The Eurozone has implemented massive reforms
- Success of reforms is measurable
- The Eurozone is far ahead in comparison to USA and Japan (structural reforms)
- The Eurozone lacked cyclical momentum due to reforms and speculation

**Media coverage and analyst coverage so far do not mirror these substantial efforts!**

**Basic scenario 80% probability:** Receding Eurozone deficit crisis starting from September 2012
2.1 World Economy: IMF’s call …

<table>
<thead>
<tr>
<th>Growth</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013 P</th>
</tr>
</thead>
<tbody>
<tr>
<td>Global</td>
<td>-0,5%</td>
<td>5,2%</td>
<td>3,8%</td>
<td>3,1%</td>
<td>3,1%</td>
</tr>
<tr>
<td>Advanced Economies</td>
<td>-3,4%</td>
<td>3,2%</td>
<td>1,6%</td>
<td>1,2%</td>
<td>1,2%</td>
</tr>
<tr>
<td>Emerging Economies</td>
<td>2,8%</td>
<td>7,3%</td>
<td>6,2%</td>
<td>4,9%</td>
<td>5,0%</td>
</tr>
<tr>
<td>World Trade volume</td>
<td>-11%</td>
<td>12,7%</td>
<td>6,9%</td>
<td>2,5%</td>
<td>3,1%</td>
</tr>
</tbody>
</table>

Source: IMF “World Economic Outlook 07/2013”

2.2 Growth of world population key driver ....

© Government of Australia/Treasury
### 2.3 Emerging countries: Risk Provider or Stabilizer?

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>4 bln. USD</td>
<td>53 bln. USD</td>
<td>941 bln. USD</td>
</tr>
<tr>
<td>India</td>
<td>7 bln. USD</td>
<td>0 bln. USD</td>
<td>156 bln. USD</td>
</tr>
<tr>
<td>Korea</td>
<td>5 bln. USD</td>
<td>8 bln. USD</td>
<td>225 bln. USD</td>
</tr>
<tr>
<td>Taiwan</td>
<td>10 bln. USD</td>
<td>-4 bln. USD</td>
<td>260 bln. USD</td>
</tr>
<tr>
<td>Rest of Asia</td>
<td>93 bln. USD</td>
<td>53 bln. USD</td>
<td>442 bln. USD</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>214 bln. USD</strong></td>
<td><strong>195 bln. USD</strong></td>
<td><strong>2.701 bln. USD</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>-170 bln. USD</td>
<td>-119 bln. USD</td>
<td>1.445 bln. USD</td>
</tr>
</tbody>
</table>

### 2.4 Interest rate environment – nothing but subsidies

<table>
<thead>
<tr>
<th>Central Bank</th>
<th>July 2008</th>
<th>Currently</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fed</td>
<td>2.00%</td>
<td>0.00% (CPI 2.0%)</td>
</tr>
<tr>
<td>EZB</td>
<td>4.25%</td>
<td>0.50% (CPI 1.3%)</td>
</tr>
<tr>
<td>BoJ</td>
<td>0.50%</td>
<td>0.10% (CPI 0.7%)</td>
</tr>
<tr>
<td>BoE</td>
<td>5.00%</td>
<td>0.50% (CPI 2.8%)</td>
</tr>
<tr>
<td>SNB</td>
<td>3.25%</td>
<td>0.00% (CPI 0.0%)</td>
</tr>
</tbody>
</table>
2.5 Inventory cycle saturated or unsaturated?

Quelle: Federal Reserve St. Louis

2.6 Global capital investment cycle: saturated or unsaturated?

<table>
<thead>
<tr>
<th></th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>EUR</td>
<td>1.971</td>
<td>1.989</td>
<td>1.731</td>
<td>1.740</td>
<td>1.800</td>
<td>1.741</td>
<td>1.718</td>
</tr>
<tr>
<td>USD</td>
<td>2.336</td>
<td>2.101</td>
<td>1.916</td>
<td>2.030</td>
<td>2.032</td>
<td>2.356</td>
<td>2.513</td>
</tr>
<tr>
<td>GBP</td>
<td>371</td>
<td>308</td>
<td>237</td>
<td>258</td>
<td>254</td>
<td>277</td>
<td>274</td>
</tr>
</tbody>
</table>

Quelle: Eurostat
2.7.1 Leading indicators – strong turnaround on cards

© Moody’s Economy.com

2.7.2 Leading Indicators, just the last 12 months ....
2.7.3 USA– Leading Indicator and Consumer Confidence

2.7.4 China: Currency Reserves and GDP
### 2.8 Global Forecast Bremer LB

<table>
<thead>
<tr>
<th>Country</th>
<th>Share of World GDP</th>
<th>Performance 2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>USA</td>
<td>18.6% (19.1%)</td>
<td>2.2%</td>
</tr>
<tr>
<td>Canada</td>
<td>1.8% (1.8%)</td>
<td>1.8%</td>
</tr>
<tr>
<td>Eurozone</td>
<td>14.0% (14.3%)</td>
<td>0.2%</td>
</tr>
<tr>
<td>Japan</td>
<td>5.4% (5.6%)</td>
<td>2.0%</td>
</tr>
<tr>
<td>UK</td>
<td>2.8% (2.9%)</td>
<td>1.3%</td>
</tr>
<tr>
<td>Rest</td>
<td>7.3% (7.4%)</td>
<td>2.3%</td>
</tr>
<tr>
<td>Germany</td>
<td>3.8%</td>
<td>1.0%</td>
</tr>
<tr>
<td>China</td>
<td>14.7% (14.3%)</td>
<td>7.8%</td>
</tr>
<tr>
<td>India</td>
<td>5.7% (5.7%)</td>
<td>5.5%</td>
</tr>
<tr>
<td>Rest of Asia</td>
<td>5.3% (5.1%)</td>
<td>5.7%</td>
</tr>
<tr>
<td>Russia</td>
<td>3.0% (3.0%)</td>
<td>3.0%</td>
</tr>
<tr>
<td>Brasil</td>
<td>2.9% (2.9%)</td>
<td>3.0%</td>
</tr>
<tr>
<td>Rest</td>
<td>18.3% (17.9%)</td>
<td>5.0%</td>
</tr>
</tbody>
</table>

**Global Growth:**

| 2013 | 3.5% - 3.7% |

---

### 3. Thank you very much for your attention!

Folker Hellmeyer  
Financial Markets  
0421 332-2690  
folker.hellmeyer@bremerlandesbank.de
Opportunities within the textile added value chain

Gherzi: Integrated Consulting

<table>
<thead>
<tr>
<th>Management Organisation</th>
<th>Corporate Finance</th>
<th>Engineering &amp; Logistics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Restructuring and Turn-around</td>
<td>Strategy</td>
<td>M &amp; A</td>
</tr>
<tr>
<td>Management Studies</td>
<td>Supply Chain</td>
<td>Operational Improvement</td>
</tr>
<tr>
<td>Product Development</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Gherzi Textil Organisation
Gessnerallee 28
8031 Zürich, Switzerland
Tel: +41 44 2196000
info@gherzi.com
9th September 2013
Index

1. 2012 Worldwide textile added value chain
2. 2020 Worldwide textile added value chain
3. Some drivers (from within the chain)
4. Opportunities for textile companies

2012 Worldwide textile added value chain [mn t]

Fiber Consumption (for textile applications)

- Filament (+tape) 33 mn t
  - Polyester (22.0)
  - Polyamide (3.0)
  - Polypropylene (4.5)
  - Viscose (8.4)
  - Inorganic (1.2)
  - Organic (0.7)
  - Silk (1.1)
- Short staple 45.0 mn t
  - Polyester (13.5)
  - Polyamide (0.3)
  - Polypropylene (1)
  - Viscose (1.9)
  - Inorganic (1.4)
  - Organic (0.2)
  - Cotton (25.1)
- Long staple 8.1 mn t
  - Wool, Acrylic, Jute, Linen, Coco, Bisal, etc

Yarn / Filament

- Filament (+tape) 33 mn t
- Short staple spinning 39 mn t
  - OE 9 mm rotors
  - Ring 240 mm spindles
  - Air Jet 9.0 t yarn
  - ~5% waste
- Long staple spinning 15 mm sp 3.8 mn t
- Short staple fibers 3.5 mn t

Textile surfaces

- Traditional Tex.
  - (Woven, Knits, Rachel) Hometex & Garments 59 mn t
- Trad. Tech. Tex.
  - (Woven, Knits, Braided) 10.8 mn t
- Prepreg - Composites 3.5 mn t
  - (~only fibers pr PU, PVC matrix)
- Nonwoven 7.5 mn t
  - ~5-10% waste

Finishing & Garmenting

- Garments 1'200 bn $ (ladies 650 bn $)
- Hometex 170 bn $ (US: 23 bn $)
  - (final consumption)
- Tech. Tex. 160 bn $ (roll goods)

Market

- Garments 1'200 bn $ (ladies 650 bn $)
- Hometex 170 bn $ (US: 23 bn $)
- Tech. Tex. 160 bn $ (roll goods)
- out of which
  - Composites 55 bn $
  - Nonwoven 33 bn $

~5% waste

Source: Gherzi
2020 Worldwide textile added value chain [mn t]

<table>
<thead>
<tr>
<th>Fiber Consumption (for textile applications)</th>
<th>Yarn / Filament</th>
<th>Textile surfaces</th>
<th>Finishing &amp; Garmenting</th>
<th>Market</th>
</tr>
</thead>
<tbody>
<tr>
<td>Filament 43 mn t</td>
<td>Filament (+tapes) 42 mn t</td>
<td>Traditional Tex. (Woven, Knits, Braided) 69 mn t</td>
<td>Traditional Tex. (Woven, Knits, Braided) 69 mn t</td>
<td>Garments 1’400 bn $</td>
</tr>
<tr>
<td>Tapes (2.2 → 3)</td>
<td>Short staple spinning 45 mn t</td>
<td>Trad. Tech. Tex. (Woven, Knits, Braided) 16 mn t</td>
<td>Finishing &amp; Garmenting 5% p.a.</td>
<td>Hometex 200 bn $ (final consumption)</td>
</tr>
<tr>
<td>Synth. Filament (29→38)</td>
<td>OE 12 mn t</td>
<td>Prepreg - Composites 5.5 mn t</td>
<td>+5% p.a.</td>
<td>Tech. Tex. 240 bn $ (roll goods)</td>
</tr>
<tr>
<td>Viscose (0.4 → 0.0)</td>
<td>Ring 31 mn t</td>
<td>Nonwovens 12 mn t</td>
<td>+6% p.a.</td>
<td>out of which</td>
</tr>
<tr>
<td>Silk (0.1 → 0.1)</td>
<td>Air Jet 2 mn t</td>
<td>6.2 chips &amp; pulp</td>
<td>+6% p.a.</td>
<td>• Composites &gt;80 bn $</td>
</tr>
<tr>
<td>Short staple 54.0 mn t</td>
<td>Long staple spinning 6 mn t</td>
<td>Garments 1800 bn $</td>
<td>+5% p.a.</td>
<td>• Nonwoven 52 bn $</td>
</tr>
<tr>
<td>Synthetic (16→20.5)</td>
<td>Short staple fibers 6 mn t</td>
<td>Finishing &amp; Garmenting 5% p.a.</td>
<td>+5% p.a.</td>
<td>Source: Gherzi</td>
</tr>
<tr>
<td>Viscose (3.9 → 6.5)</td>
<td>103 mn t</td>
<td>Garments 1800 bn $</td>
<td>+5% p.a.</td>
<td>Seite 4</td>
</tr>
<tr>
<td>Cotton (25.1 → 27)</td>
<td>99 mn t</td>
<td>Hometex 200 bn $</td>
<td>+5% p.a.</td>
<td></td>
</tr>
<tr>
<td>Long staple 6 mn t</td>
<td>102 mn t</td>
<td>Nonwovens 52 bn $</td>
<td>+5% p.a.</td>
<td></td>
</tr>
<tr>
<td>103 mn t</td>
<td>95 mn t</td>
<td>Nonwovens 52 bn $</td>
<td>+5% p.a.</td>
<td></td>
</tr>
<tr>
<td>~5% waste</td>
<td>&gt; 1’800 bn $</td>
<td>Garments 1800 bn $</td>
<td>+5% p.a.</td>
<td></td>
</tr>
<tr>
<td>Fiber Consumption</td>
<td>Finishing &amp; Garmenting</td>
<td>Garments 1’400 bn $</td>
<td>+5% p.a.</td>
<td></td>
</tr>
</tbody>
</table>

Some drivers – Retail / Brands

- Stronger fashion / retail influence from Asia (Western markets (EU & US) will be fall behind India & China)
- Multi-channel retailing and online-only retailing (→ lower brand loyalty, increasing returns)
- Payment trough digital devices, paperless receipts (e.g. mobiles)
- Body scanner
- Virtual Personal Stylist (Avatar – having all individual measurements) on a tablet
- «Garment DNA» (tracking from fiber to garmenting)
- Increasing recycling
- 3D Printers, etc
## Some drivers – Digi Finishing

<table>
<thead>
<tr>
<th>Segment</th>
<th>Description</th>
<th>Market size [m]</th>
<th>Ø price</th>
<th>Players</th>
<th>Markets</th>
<th>Trends</th>
</tr>
</thead>
<tbody>
<tr>
<td>A – Segment High end</td>
<td>Several ink types, textile specific machines, industrial printers</td>
<td>150 (2008) 300 (2015)</td>
<td>1.0 mn € (2012)</td>
<td>Reggiani, Durst, Konica Minolta, MS</td>
<td>Western, Turkey, China, India</td>
<td>Apparel, home textiles, display have increasing application fields, increasingly taking shares from screen printing</td>
</tr>
<tr>
<td>B – Segment Medium end</td>
<td>Graphic machines adapted for textiles, available for large widths equipped with belt</td>
<td>2'500 (2012)</td>
<td>250 k€ (2015)</td>
<td>Agfa, Roland, ef Vutek, HP, Hollanders, Mimaki, DGI, Keundo</td>
<td>Western, Chinese</td>
<td>Display, sampling, smaller lots of any application increasingly taking shares from screen printing, flexible small lot production</td>
</tr>
<tr>
<td>C – Segment Basic</td>
<td>Basic graphic printers partly suitable for textiles, partly with belt</td>
<td>2'000 (2015)</td>
<td>60 k€ (2012)</td>
<td>Reggiani, Durst, Konica Minolta, MS, Konica Minolta, Aleph, Robustelli, Mimaki, Altecoa, DGI, Keundo, Agfa, Roland, ef Vutek, HP, Hollanders, Mimaki, DGI, Keundo</td>
<td>Western, Chinese</td>
<td>Display, flags, simple sampling for all kind of applications, usually no reactive and acid inks</td>
</tr>
</tbody>
</table>

- Developed in California by Colorep, AirDye works with proprietary dyes that are heat-transferred from paper to fabric in a one-step process. This can save between seven and 75 gallons of water in the dying of a pound of fabric, save energy, and produces no harmful by-products. The technology uses 85 percent less energy than traditional dying methods.

- Plasma Finishing

---

## Some drivers - Composites

### Moulding

<table>
<thead>
<tr>
<th>Manual moulding</th>
<th>Compression moulding</th>
<th>Injection moulding</th>
<th>Continuous moulding</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>3% 5% 4% 9% 3% 9%</td>
<td>35% 4% 2% 12% 6% 9%</td>
<td></td>
</tr>
<tr>
<td>2010</td>
<td>7% 8% 6% 10% 2% 9%</td>
<td>28% 3% 2% 11% 7% 7%</td>
<td></td>
</tr>
<tr>
<td>2002</td>
<td>10% 10% 6% 10% 3% 9%</td>
<td>25% 3% 2% 10% 8% 5%</td>
<td></td>
</tr>
</tbody>
</table>

- Manual moulding
- Compression moulding
- Tape laying
- SMC (Sheet Moulding Comp.)
- GMT (Glass Mat Tape Comp.)
- TP injection moulding
- RTM (Resin Transfer Moulding)
- Pultrusion
- Laminating
- Filament winding

### Thermoset vs Thermoplastic

<table>
<thead>
<tr>
<th>Thermoset (TS)</th>
<th>Thermoplastic (TP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>50%</td>
</tr>
<tr>
<td>2010</td>
<td>62%</td>
</tr>
<tr>
<td>2002</td>
<td>70%</td>
</tr>
</tbody>
</table>

### Textile fibers in use

<table>
<thead>
<tr>
<th>Glass fibers</th>
<th>Other fibres</th>
<th>Natural fibres</th>
<th>Other Aramid</th>
</tr>
</thead>
<tbody>
<tr>
<td>2020</td>
<td>82%</td>
<td>2%</td>
<td>2%</td>
</tr>
<tr>
<td>2010</td>
<td>86%</td>
<td>12%</td>
<td>1%</td>
</tr>
<tr>
<td>2002</td>
<td>89%</td>
<td>10%</td>
<td>0.4%</td>
</tr>
</tbody>
</table>

Source: JEC, Gherzi
Some drivers – Spinning – Air Jet

<table>
<thead>
<tr>
<th>N°</th>
<th>2010 ['000 t and '000 SE]</th>
<th>Source: Gherzi estimates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>100% CO carded</td>
<td>15’000 t 69’000 SE</td>
</tr>
<tr>
<td>2</td>
<td>Blended CO carded / PES</td>
<td>4’000 t 23’000 SE</td>
</tr>
<tr>
<td>3</td>
<td>Blended CO carded / CV</td>
<td>500 t – 400 SE</td>
</tr>
<tr>
<td>4</td>
<td>4’000 t 28’000 SE</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>100% CO combed PES</td>
<td>4’000 t 28’000 SE</td>
</tr>
<tr>
<td>6</td>
<td>100% CV combed CV</td>
<td>28’000 SE</td>
</tr>
<tr>
<td>7</td>
<td>100% Synthetic-PES SSF Yarn</td>
<td>7’000 t 68’000 SE</td>
</tr>
<tr>
<td>8</td>
<td>100% CV Yarn</td>
<td>800 t – 7000 SE</td>
</tr>
<tr>
<td>9</td>
<td>Blended PES/CV Yarn</td>
<td>1000 t – 9’000 SE</td>
</tr>
</tbody>
</table>

Total SSF-Spun Yarns: 36’000 t Total SE: 250’000 SE

Some drivers - Fibers

Organic Fibers ['000 t]

<table>
<thead>
<tr>
<th>Year</th>
<th>Filament</th>
<th>Staple</th>
</tr>
</thead>
<tbody>
<tr>
<td>1980</td>
<td>9</td>
<td>73</td>
</tr>
<tr>
<td>1990</td>
<td>54</td>
<td>230.8</td>
</tr>
<tr>
<td>2000</td>
<td>583</td>
<td>73</td>
</tr>
<tr>
<td>2010</td>
<td>556</td>
<td>158.3</td>
</tr>
<tr>
<td>CAGR</td>
<td>10%</td>
<td>9%</td>
</tr>
</tbody>
</table>

Some drivers - Fibers

Organic Fibers ['000 t]

<table>
<thead>
<tr>
<th>Year</th>
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<td>158.3</td>
</tr>
<tr>
<td>CAGR</td>
<td>10%</td>
<td>9%</td>
</tr>
</tbody>
</table>
### Some drivers – Geographical shift

![Graph showing geographical shift in textile production](image)

- **Russia**: 200, 150, 100, 50, 0 (1900-2010)
- **Turkey**: 200, 150, 100, 50, 0 (1900-2010)
- **EU countries**: 200, 150, 100, 50, 0 (1900-2010)
- **GB**: 200, 150, 100, 50, 0 (1900-2010)
- **Africa**: 200, 150, 100, 50, 0 (1900-2010)
- **S. & N. American countries**: 200, 150, 100, 50, 0 (1900-2010)
- **Brazil**: 200, 150, 100, 50, 0 (1900-2010)
- **USA**: 200, 150, 100, 50, 0 (1900-2010)
- **India**: 200, 150, 100, 50, 0 (1900-2010)
- **China**: 200, 150, 100, 50, 0 (1900-2010)
- **Pakistan**: 200, 150, 100, 50, 0 (1900-2010)
- **Japan**: 200, 150, 100, 50, 0 (1900-2010)
- **EU countries**: 200, 150, 100, 50, 0 (1900-2010)
- **GB**: 200, 150, 100, 50, 0 (1900-2010)

*2 mm were scrapped

### Opportunities for textile companies

- **Fiber producers**: Specific R&D regarding tech tex, composites and nonwoven (incl. prices)
- **Spinners**: new fibers & spinning processes
- **Traditional Textiles**: Cooperate close with retail by understanding their needs
- **Technical textiles**: no necessity of traditional distribution (higher margins), new applications
- **Finishing**: re-invent process through Digi-Finishing (“factory of the future”)
Our history

Creativity, dedication to product and customer service are characteristics that cannot be improvised: the story of Canclini Tessile started over 80 years ago, in 1925, when the company began in the silk sector of the fabric industry.

The first generational change took place in the Sixties. The outstanding experience acquired in working with a luxury fibre like silk led the family to abandon the silk sector for cotton. This proved to be an inspiring decision since the fabrics began to be exported to the main European countries.

At the end of the Eighties the second generational change took place. The business received new impetus with internationalization of sales towards new markets and new investments in technology.
The challenges faced by the European textile supply chain due to the globalization

### Scenario

#### Demand (customers)
- European domestic market (and USA) are steady in terms of quantities demanded but the needs and the complexity are increasing:
  - Lead time (sometimes) below 55 days
  - Min. order per color (sometimes) below 240 mts
  - Total quality
  - No tolerance (delay, defect, quantity produced)
- Growth in emerging markets (BRICs) is slowing; locals emerging brands created their reputation and today can shift a part of their purchase outside Europe

#### Offer (competitors)
- The competitors from emerging countries are increasing their performance in terms of design proposal, quality, lead time.
- Their lower cost (wage, energy) allow them to offer a good mix in terms of quality-price with regards to the most basic articles who are also the most demanded
- European textile supplier base has been reducing and today is characterized by high efficiency, innovation and service level

### Scenario

Is delocalization the solution?
- Apparently it could be, but competition on price is a short term strategy
Canclini experience

A possible strategy to compete into the globalized market

1. Reinforce the partnership with customers offering
   • Innovation
   • Service level
   • Quality

2. Organize the supply chain assuring flexibility, reactivity and cost efficiency

3. Merge of complementary competitors to increase the critical mass and better share costs offering to customer a “one stop shop” solution

4. Create agreement textile vs shirt manufacturers to offer to our customer brands the finished shirts as additional service

5. Internationalization vs emerging markets

6. Develop niche business based on high service

7. Enhance culture and social commitment

Canclini experience

1. Reinforce the partnership with the customers

Our clients’ portfolio is based on around 500 regular customers. Many of them with more than one line/brand/department.

Our main customers are ZEGNA, ETRO, ARMANI, CORNELIANI, CANALI, PRADA, D&G, GUCCI, BOTTEGA VENETA, FACONNABLE, YSL, HUGO BOSS, RENE LEZARD, SAND, ALFRED DUNHILL, HACKETT, VAKKO, RALPH LAUREN, CALVIN KLEIN, MICHAEL KORS, IRE BEHAR, TOM FORD, ARTURO CALLE, PORTS, ISETAN, TOMORROW LAND.

The partnership is fed by innovation, quality and a very personalized service also possible due to the physical location of some important customers who are near to our headquarter (Milano, Paris, London, Berlin). For those customers located outside Europe we are investing in local people aiming to offer and to provide the daily contact and close relationship like we do in Europe.
Canclini experience

1. Reinforce the partnership with customers - innovation

**Design**
- Continuous research for colors, hand feeling, effect, aspect, characteristics and performance of fabrics
- Research for mood and colors according to specific markets (Italy, USA, Spain, China, Japan, etc)
- Continuous contact and cross-fertilization with design office of customers for exchanging concepts, suggestions and ideas

**Raw material**
- Strong relationship with all main cotton yarn suppliers worldwide and continuous research on new sources in order to get the best quality yarns
- Research on new spinning technologies to reduce defects
- Research on blends made of different fibers according to customer needs and market trends

**Article structure and finishing**
- Continuous investments in technology in order to assure the best quality on our fabrics and high efficiency in production process
- Continuous research on article structure
- Continuous research on treatment to develop new effects and hand feelings
- Continuous research on sportswear treatments

Two annual collections (up to six thousand new variants in a year)

---

Canclini experience

1. Reinforce the partnership with customers - the service

- More than **4,000 exclusive designs** developed each year on specific request of the customers

- **Historic archive with 450,000 fabrics** of the company and from British, French and other historical collections, from the end of the 19th century to the present days: a source of new ideas at full disposal of our customers

- **Over 1,000 colours** available with immediate delivery

- **Fast delivery** according to customer request

- **Application** based on iphone/ipad through which our customer can order from our stock service (at the moment available only for Chinese market)
Canclini experience

1. Reinforce the partnership with customers - the quality

- From quality control to quality assurance
  - involvement of quality since the design of the collection in order to assure to the project the quality inside the product
  - Enhancement of the quality procedures along the supply chain
  - Compliance with the highest standard
  - Skilled quality people dedicated and focused on the need of specific customers or specific markets

The best quality today is only a necessary condition to be considered and participate to the business

Canclini experience

2. Organize the supply chain assuring flexibility, reactivity and cost efficiency

Flexibility and reactivity: the district

- Italian production asset is based, in all sectors, on industrial districts.
- Traditionally the district model is seen as a weakness of the Italian industrial structure. Anyhow in today world where the demand is fluctuating with significant peaks, the district is the best option to create a flexible and reactive supply chain able to follow fast the market demand without increasing inventory level, and thus cost, along the supply chain.
- We work into the district with other partner companies with whom we have a strong, steady and collaborative relationship: we are fully integrated with daily reciprocal updates and exchange of information. This is allowing also to reduce the lead time.
Canclini experience

2. Organize the supply chain assuring flexibility, reactivity and cost efficiency

Cost efficiency: delocalization to very close country

- Part of our production is based on not very high sophisticated product (commodities) and there the price is the key aspect demanded by our customers together with fast delivery and high quality.

- To match this need, we created a production unit for warping and weaving only in East Europe which is located only few hours by truck from us.

- The daily connection allows to be very fast and the production processes with higher added value (dyeing, finishing) are always managed centrally in Italy.

- The minor labour cost allows us to offer to our customers a product very interesting also from the pricing point of view.

Canclini experience

3. Merge of complementary competitors

- Italy is characterized by plenty of industry who are not always able to face the international competition. Anyhow these realities are very specialized and are rich in terms of know how with their heritage of history and experience.

- We aim to enhance and to leverage on such asset through the promotion of merge projects between complementary competitors qualified by their own positioning on the market, their own design/style, their own commercial structure.

- The result is at 2 levels

  - Offer to the customers integrated portfolio offer characterized by complementary levels of style/design and price
  - Create a common supply chain serving the brands in order to increase the volumes and the efficiency and so to reduce the cost

- In December 2012 we created the product line «Profilo Tessile» who inherits Honegger experience and it is willing to integrate the offer Canclini Tessile with a product casual and sport chic with a pricing slightly lower than Canclini, as demanded by the market.
4. The finished shirt as additional service

• We aim to offer to the brands which are our customers the production of their shirt as additional and complementary service vs the fabrics only.

• Today brands are mainly focused on design, communication, retail management and like to work with supply chain organized to offer them the finished product avoiding the need to coordinate more suppliers (fabric, shirt maker, accessory).

• The integration textile-shirt manufacturer can offer to the customer interesting advantages in terms of total lead time and cost.

• We are working on privilege agreement with shirt manufacturers in Italy, East Europe, North Africa, Asia, Central America.

5. Internationalization vs emerging markets

• Internationalization is a must and not simply an option. Internationalization must be addressed to all the emerging markets including BRICS but also considering and evaluating other areas of the world (Central and South America, North and West Africa, Middle East, Pakistan, South East Asia, etc).

• We created an office in China to import and distribute our made in Italy fabrics and in general to better follow the market offering to the customers additional and personalized services (import, exclusive design, etc).

• In countries where there are significant import duty we like to create a dedicated project. For example in India we started a joint venture with a local producer who has the license to produce some of our designs exclusively for Indian market.
5. Internationalization vs emerging markets

We are looking for other opportunities (market/partner) to reproduce the same experience.

6. Develop niche business with high service level

- In most of the emerging markets there is the presence of plenty of tailors, small shirt factories managed by 2-3 people, made to measure shops. These realities are often focused on quality products and are in connection with middle class customers. They work mainly with stock lots imported from dealers based in Lebanon or Singapore or similar.

- We aim to develop in each country a retail service able to offer up to 1000 fabrics colors with delivery in 24 hours and no minimum order.

- We are running such service in Italy, Spain, USA, Canada, China, Japan and we are considering further opportunities of development.
Canclini experience

7. The culture and the social commitment

**SA 8000:** we believe in Corporate Social Responsibility as an element of enrichment of competitiveness. This is why we obtained the SA8000 certification, that guarantees the respect and the quality of the relationship between the company and its employees.

**Un sorriso in più:** it is a non-profit organisation that, thanks to 20 full-time volunteers and 5 other part-time, implements projects such as assistance in rest homes to old people who have no family ties, support to juveniles in difficult family situations.

**Project with design schools:** we have been collaborating with the IED and Istituto Marangoni in Milan and some British schools, like the Central Saint Martin's School in London. A student from the St. Martin's School followed the entire production cycle from the creation of the collection up to quality control. We developed a project with IED, Milan dedicated to "colour to wear" and chromopsychology.

**Leonardo loom:** a project with Milan Museum of Science and Technology. We sponsored the building of a loom according to the project of Leonardo Da Vinci and we donated it to the Museum

**Cultural initiative:** participation to different conferences between which we mention the conference held at Pitti on evolving role of fashion with participation of expert on business and sociology.

Website

**www.canclini.it**
GLOBAL SUPPLY CHAIN –

THE NEXT GENERATION

Mark Green
EVP Global Supply Chain
PVH

September 2013
ABOUT PVH

WE OPERATE THREE DISTINCT BUSINESSES, EACH POSITIONED FOR CONTINUED GLOBAL GROWTH

<table>
<thead>
<tr>
<th>Illustrative PF LTM 3Q12</th>
<th>Illustrative PF LTM 3Q12</th>
<th>Illustrative PF LTM 3Q12</th>
</tr>
</thead>
<tbody>
<tr>
<td>2011 Global Retail Sales: ~$7.6 BN</td>
<td>2011 Global Retail Sales: ~$5.6 BN</td>
<td>2011 Global Retail Sales: ~$3.4 BN</td>
</tr>
<tr>
<td>Revenue: $2.5 BN</td>
<td>Revenue: $3.1 BN</td>
<td>Revenue: $2.1 BN</td>
</tr>
</tbody>
</table>

THE WORLD OF SOURCING IS EVOLVING

From

Price
Bulk PO’s On Time
Long Lead Time
Product Development
Compliance
Standardization
Quality Control
Factory Efficiency

To

Value
Just in Time/ Flow
Fast and Flexible
Innovation
Sustainability
Customization
Quality Assurance
Lean
CUSTOMER/ VENDOR RELATIONSHIPS ARE EVOLVING TOO

- No Shared Information
- Conflicting KPI’s
- Collaborative Planning and Forecasting
- Shared Vision and Goals
- Greater Transparency
- Open Books
- Integrated Teams
- Focusing MMU, not IMU
- Shared KPI
- Symbiotic Relationship
- Global Interdependency
- Unified Goals and KPI’s

THE NEXT GENERATION

- Speed and flexibility are the new retail imperatives. The ability to be trend or fashion forward, read and react, test and chase and never be out of stock on basics will drive top line sales and reduce markdowns. In an increasingly competitive market and with a more demanding customer this becomes essential.

- Generally speaking to unlock speed and flexibility you need verticality or virtual verticality not just through mills but the whole supply chain. This is most effective when built strategically – the Sri Lanka case study.

- The China syndrome—what could it mean to the rest of the world. The next China is a “How” not a “Where”.

- The apparel industry needs to catch up with the power of Lean Manufacturing—not just in the factory but in retail and wholesale as well as back through the whole supply chain. It is a mindset as well as a process.
WHAT IS NEEDED TO WIN

✓ Leadership Vision

✓ Innovation not just in product but creating Compelling Solutions – Reinvent Relationships, Create Interdependency

✓ Adaptive Capability – Change is Constant and Makes You Strong!

✓ Winning Culture – Not Just Systems and Processes

✓ Ultimately there is only ever one customer – all of us are customers and suppliers with the same end in mind – when we realize that the mindset and the structure and the behavior changes significantly

THANK YOU
COTTON MADE IN AFRICA
AN AID BY TRADE FOUNDATION INITIATIVE

Bregenz, September 10th 2013

OUTLINE

- Approach
- Sustainability Action
- Outreach in Africa and Verification
- Supply Chain and Retail
Improving livelihoods in Africa through the activation of market forces

Cotton made in Africa is based on the principal of a social business - improving livelihoods of smallholder cotton farmers in Africa, protecting the environment and enabling textile companies and brands to integrate sustainably produced cotton successfully and profit oriented in their product design and marketing.

The Aid by Trade Foundation markets Cotton made in Africa and spends the earnings on generating social impact in Africa.

License fee

Products

Uses sustainable cotton for collections

Standard / Label

- Standard Implementation
- Smallholder farmer trainings
- Verification
- Community Projects

Supply of sustainable cotton

Cotton Companies

Retailers/Brands*

- Supply Chain Support
- Product Labelling options

*non-exhaustive
Cotton made in Africa creates sustainability in three areas

- **People**
  - Exclusion of child labor (according to ILO conventions 138, 182)
  - Improvement of educational infrastructure (construction of 25 schools, school canteens, school gardens/orchards, 600 scholarships, literacy program for 5,000 adult smallholder farmers)
  - Health and safety measures
  - Gender activities (support for female farmers, financing women’s cooperatives)

- **Planet**
  - Strictly using only rainwater for cultivation
  - Crop rotation
  - Integrated pest management
  - Preservation of soil fertility
  - No deforestation of primary forests

- **Profit**
  - Higher income for farmers through higher yields
  - Punctual payments thus reliable income
  - Transparent and fair contracts between cotton companies and farmers
Environmental Actions

**Agro-Chemicals**
- Exclusion of pesticides banned under the Stockholm Convention and Rotterdam Protocol
- Exclusion of pesticides on WHO list 1a, 1b
- Optimization of pesticide handling, storage and disposal of empty containers
- Reduction of toxicity

**Soil Fertility**
- Construction of compost pits
- Conservation farming
- Stipulate crop rotation (minimum three crops)

**Water**
- Exclusion of artificial irrigation
- Maintaining surface water and streams
- Improve soil’s water storage capacity
- Reduction of water utilized for pesticide application and leaching of agro-chemicals in surface waters

**Biodiversity**
- Exclusion of cutting primary forest or destruction of other forms of protected natural resources
- Stipulate crop rotation (minimum three crops)
- Exclusion of genetically modified seeds

---

**Cotton made in Africa’s CO₂ footprint is up to 3-times smaller than the footprint of conventional cotton**

![CO₂-EQUIVALENT PER KG COTTON LINT PER COUNTRY AND REGION](chart)

**CO₂ footprint comparison**
- Cotton from India, USA + 270%
- Cotton from Pakistan + 340%

**Reasons:**
- Heavy usage of mineral fertilizers
- Usage of mechanical energy for harvesting

Source: Study by Systain Consulting GmbH 2012
Cotton made in Africa’s focus on water management and the exclusion of artificial irrigation pays off

- Cotton made in Africa: no artificial irrigation thus no harmful water usage (fresh water)
- Conventional cotton: 5,000 l fresh water / kg lint cotton
- Pakistan: 18,000 l fresh water / kg lint cotton

**OUTLINE**

- Approach
- Sustainability Action
- Outreach in Africa and Verification
- Supply Chain and Retail

Source: Study by Systain Consulting GmbH 2012
Cotton made in Africa works with 490,000 smallholder farmers and produces more than 210,000 tons of lint cotton p.a.

- Burkina Faso
  - 24,000 farmers
  - 14,000 tons lint

- Côte d’Ivoire
  - 46,000 farmers
  - 60,000 tons lint

- Zambia
  - 270,000 farmers
  - 75,000 tons lint

- Mozambique
  - 110,000 farmers
  - 20,000 tons lint

- Malawi
  - 14,000 farmers
  - 5,000 tons lint

- Zimbabwe
  - 26,000 farmers
  - 42,000 tons lint

An independent compliance and progress check safeguards the sustainability claim of Cotton made in Africa

Third party verifiers (EcoCert, AfriCert) check every two years the compliance of Cotton made in Africa Producer Unit with the Cotton made in Africa Standard and ranks the progress according to a traffic light system that marks the progress towards sustainability.
The demand alliance is the engine that drives the success of Cotton made in Africa.
Textile brands and retailers become a major driver in making sustainable cotton a mass market product

- Healthy soils and environment
- Less inputs → less costs
- Higher yields → higher income
- Reliable partners
- Access to education for farmers and their children
- Purchasing price with no premium
- Verified, robust standard
- Supply chain support
- Multiple communication possibilities

Long lasting, positive effects are created when producers and retailers can both profit from their commitment

ITMF Annual Conference Report 2013, Bregenz/Austria
4th General Session: Tina Stridde
CmiA Retail Partners - Key Facts for 2012

- Ca. 20.000.000 pieces of garments
- Ca. 8.000 MT lint CmiA Cotton
- Ca. 700.000 EUR for Community Projects
- Ca. 1.300.000 EUR Partnership Contribution

1 Total commitments 2011 to 2014

Aid by Trade Foundation spends income from license fees on generating social impact in Africa

- Verification
  Ensuring the claim for Cotton made in Africa through third-party verification

- Financing farmer trainings
  in efficient and environmentally sound farming methods

- Financing Community Projects
  (together with retail partners and local partners in Africa)
  Creating social value for the producer's villages as well as a practical demonstration of corporate responsibility
Retailers use Cotton made in Africa in a mass balance or hard identity system and communicate on corporate or product level.

Chain of Custody Verification
- Mass Balance (MB) check on spinning mill level (standard)
- Corporate & on product (ltd.)
- Corporate & on product

Hard identity Preserve (optional)

22 spinning mills in all major global production markets work with Cotton made in Africa.

Ensuring flexibility - thus cost efficiency in sourcing through:
- global availability
- support for offices, import organizations through CmiA supply chain department
- global network of spinning mills ensuring geographic proximity to manufacturer base
- focus on vertically integrated suppliers (e.g. in Ethiopia)
The Digital Transformation of the B2B Retail Business

Stefan Hentschel, Lead of B2B and Mobile Advertising

Agenda

1. Digital Revolution
2. Focus on the client
3. What can be done?
Agenda

1. Digital Revolution
2. Focus on the client
3. What can be done?
The pace of change is increasing

2.4 bn becoming 5bn

Fixed becoming mobile

Everything and everyone becoming connected

E-commerce becoming commerce
BIG Company Disease

---

**Agenda**

1. Digital Revolution
2. Focus on the client
3. What can be done?
Your B2B-customers just **LOVE** the Internet

B2B-retail-buyers do research on the web

Your customers just LOVE the Internet

Apparel Market: Expected Revenue in West Europe, 2013 (in Billion Euro)

- Apparel: 27
- CE: 53
- Food and drink: 8
- Computers: 11
- Others: 26

+15% Compound Annual Growth Rate 2013 until 2016

Apparel Market: Expected Revenue in West Europe, 2013 (in Billion Euro)
Here is why you should **LOVE** it too...

The traditional value chain in the old days

It is hard to figure out what the market really wants.
**BUT** thanks to the **Internet** the traditional value chain is changing

Everyone can capture the end customer
Everyone can capture the end customer

Suppliers surpassing OEMs on their way to the customer

OEMs starting engagements

Supplier → adidas → KARSTADT → Customer

Supplier → adidas → Retail → Customer
1. Be part of the conversation

2. This is your chance

3. Take a strong position
Agenda

1. Digital Revolution
2. Focus on the client
3. What can be done?

Get to know your customers better with **market insights** from Google
Which famous fabric Brand is this?

Interest in time

Regional interest
DATA IS THE OIL OF THE 21ST CENTURY
(Gartner)

Worldwide
Global reach of leading search engine

Customer-Focus
Reach your customers at the right place, in the right time in any stage of the buying process

Technology
Platforms like Google-Search, Youtube & Android

Speed
Know-how, Processes, Tools & People
1. Build strong relationships with your B2B customers and the consumer via the web

2. Your direct competitors are not your benchmark

3. Speed & Execution
Which Website is **B2B**? Which is **B2C**?

OEMs lead with example

**B2B**

**B2C**
ITMF Annual Conference 2013

Development Potentials for Technical Textiles

Dr.-Ing. Götz T. Gresser
Director ITV Denkendorf
CEO ITV Denkendorf Product Service Ltd

German Institutes for Textile and Fiber Research Denkendorf (DITF)
Europe’s largest Textile Research Center

1 Institute of Textile Technology and Process Engineering
2 Institute of Textile Chemistry and Chemical Fibers
3 Center for Management Research
4 Denkendorf Product Service Ltd
Research from molecule to products along the entire textile process chain
Application-oriented research with pilot plants (140 industrial projects per year)
Focus Technical Textiles and Life Science

Technology transfer center and product production for the industry
Management knowledge transfer into the whole textile value chain

German Institutes for Textile and Fiber Research Denkendorf (DITF)

Key Facts

- Founded in 1921
- Foundation under public law
- 330 employees (50% scientists)
- 75% application research with industry, 25% production
- Patents: 70
- Accreditation QM-System to ISO 17025:2005 (DAkkS) and ISO 13485:2003
Development of MMF and Technical Textiles

Big Growth for MMF and Technical Textiles

World final demand for MMF 1960-2060

World end-use splits for MMF 1980-2060

Properties of High Performance Fibers

Breaking length (km) of own fiber load

<table>
<thead>
<tr>
<th>Fiber</th>
<th>Length (km)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kevlar®</td>
<td>235</td>
</tr>
<tr>
<td>Carbon fiber</td>
<td>195</td>
</tr>
<tr>
<td>Glass fiber</td>
<td>135</td>
</tr>
<tr>
<td>Steel</td>
<td>25</td>
</tr>
</tbody>
</table>

Textiles with mechanical strength
- Rope and cord (gel spun PE, "Dyneema®"...)
- Technical textiles (Polyester, glass fibers, "Kevlar®"...)
- Bulletproof vest ("Dyneema®", "Kevlar®"...)

Thermostable textiles
- Protection clothing ("Nomex®", "Polybenzoxazole PBO®"...)
- High temperature protection (ceramic fibers: "Nextel®", "Cerafib®"...)

Fiber composite
- Reinforcement of polymers (glass fibers, carbon fibers, ...)
- Reinforcement of metals and ceramics (ceramic fibers: "Nicalon®", "Nextel®", "Cerafib®"...)

ITMF Annual Conference Report 2013, Bregenz/Austria
5th General Session: Götz T. Gresser
Key Markets of High Performance Fibers

**Key Markets**
- Automobile
- Aerospace
- Wind energy
- Protection wear
- Sport

**Key Drivers**
- Limits of conventional materials
- Lightweight design
- Energy savings
- New process technology

Source: SGL Carbon
Key Demands for Technical Textiles in Future

- **Life science products**
  - tissue regeneration (self healing)
  - organ substitution
  - smart implants (combination of implants with electronic)

- **Energy savings**
  - lightweight textiles
  - new fibers
  - optimized textile components
  - short textile processes

- **Ressource savings**
  - 3D outline products with no cutting scrap
  - recycling process for High Performance Fibers
  - finishing and coating
  - new textile technologies
  - energy harvesting with regenerative energy sources

- **Water yield and waste water recycling**
  - UV resistant textile products
  - Recycling and treatment in filter plants

- **Smart materials**
  - smart textiles with electronic and control systems
  - adaptive material
  - self healing

---

Key Notes for Technical Textiles in Future

- **Health and Medicine**
- **Mobility and Transport**
- **Environment and Energy**
- **Communication and Information**
- **Emotionality und Functionality**
- **Textile Technology Process**
Health and Medicine

**Today**
Integrated sensors in baby bodysuit

**Outlook**
Location independent medical emergency control

**Future**
Defibrillator Shirt

---

**Health and Medicine**

**Today**
Medical implants

- Conductable fibers absorbable tube

**Outlook**
Nerve regeneration

**Future**
Nonwoven biohybrid heart valve
Nonwoven cell seeded ears
Mobility and Transport

Today
Carbon lightweight components

Future
Bionic and textile based products out of fiber composites „Textile Car“ and „Textile Airplane“

Outlook
Complex 3D Outline Figures

Environment and Energy

Today
Water harvesting from fog in the desert

Outlook
Higher performance of wastewater treatment plants with textile carrier materials for micro organism

Future
Water transport system inspired by nature
Environment and Energy

Today
Energy independent textile building with flexible solar thermal collectors (solar thermal efficiency of approx. 70%)

Outlook
Bionic based air retaining textile → energy savings 10%

Future
Fuel cell membrane

Communication and Information

Today
Signals from the sensor shirt to the outside commando to protect fire fighters

Outlook
Fiber composite car bridge with integrated sensor for damage and maintenance control

Future
Self-regulated shape-adaptive roofs out of fiber composites with textile based tension sensors and indicating luminescent textiles
Emotionality and Functionality

Today
Visual deep effect with luminous textile products

Outlook
Self luminous filament yarns in technical applications

Future
Integrated luminous fabrics in 3D shaped technical applications

Emotionality and Functionality

Today
Flectofin, a hinge-less flapping mechanism inspired by nature

Outlook
Energy and weight savings with textile power actors for automation process

Future
Sticky-free self adhesive textiles inspired by nature (Gecko)
Textile Technology Process

Today
Optimization of technology components
New yarn structure, energy savings, higher production

Outlook
Control of spinning and recycling process for High Performance Fibers

Future
New technologies for lower manufacturing costs
Spinit – combination of spinning and knitting machine

Development Potentials in Technical Textiles

Summary

The Future is …
… Textiles!

(Euratex)
Thank you for your Attention

www.itv-denkendorf.de
New Textile Paradigms
Printed Electronics, Additive Technologies (3D Printing)

Braz Costa
CITEVE’s Director General
CeNTI’s CEO

Agenda

- CITEVE and CeNTI in brief
- What are (would be) Addictive technologies in textiles
- State of the art
- Case reviews
- Printed electronics
- Opportunities for the future
What’s Digital Fabrication

- Integrates Design and Production processes
- Uses 2D and/or 3D modelling software
- Uses CNC processes to control additive and/or subtractive manufacturing processes
What’s Additive Manufacturing?

- What’s 3D Printing?
What Newspapers are referring as Clothing 3D Printing?

What Clothing Industry is Doing as 3D Printing???
Manufacturing
The third industrial revolution

The digitisation of manufacturing will transform the way goods are made—and change the politics of jobs too

Apr 21st 2012 | From the print edition

The Economist sais

by Continuum Fashion
(USA)
by Michael Schmidt and Francis Bitonti (USA)

by Catherine Wales
London College of Fashion (UK)
• Dreams

• ...

• What newspapers are referring as Textile 3D Printing and Additive Fabrication?

• What Textile Industry is doing as 3D printing and Additive Fabrication?
by Freedom of Creation (NL)
What newspapers are referring as Textile 3D Printing and Additive Fabrication?

- Nearly Nothing
- Many things

Digital Fabrication and 3D Printing concepts applied to textiles
“Digital” Funcionalization

Powerful Principle

- Multi functionality
- Single sided application possible
- Two sides can have different functions
- Patterning – place function where you want it
**Digitally Controlled Ultrasound Nanocoatings**

- Functional nanocoatings at the textile substrate surface;
  - Substrate inherent properties are kept, while new functionalities are attained
  - Minimal functional material use, allows savings in formulations and energy
  - Economically affordable use of top performance materials
  - “Roll-to-roll” or “Piece by Piece” printing processes

- Combination with nanoparticles deposition, to add several functionalities to substrate:
  - Antimicrobial
  - Self-cleaning
  - Repellency
  - Photochromic
  - Others....
Digitally Controlled Ultrasound Nanocoatings

Inkjet Printing
Examples

Local deposition of Antimicrobial Nanolayers

- Novel antimicrobial agents, Natural additives and functional nanoparticles
Ultra Hydrophobicity and Ultra Oleophobicity

- Controlled deposition of Fluorinated Silica nanoparticles

Repellent Nanolayers

- cotton
- cotton@fluor NPs

Source: CEINTI
Repelency

Contact Angle Test on Ultra-hydrophobic Textile
Contact angles higher than 150°

Nanocoated Fire Retardant Textiles

Source: CEPTI

Source: CEPTI
Nanocoated Self-cleaning Materials

Nanocoated Photochromic Textiles

- photochromic silica NPs on textile
- Photochromic silica NPs on textile

Before

After

UV irradiation

- Customized textile printing for localized functionality
• Synthesis of magnetic nanoparticles and ultrasound deposition onto substrate
Printed Electronics on Textiles

What are Printed Electronics?
Electronic Printing Process

Source: University of California

On Textiles???????
Sensors, heating elements and light-emitting elements printed on artificial leather.

Bio sensors printed on textile.
Stretchable wire Printed on Textile

Touchpad Printed on PET for lamination with textiles
Electrochromic coatings

Electroluminescent Coatings
Organic LEDs

Source: CENIT

Printed and Integrated Sensors

Capactive sensors  Resistive  Piezoelectric  Field effect

Source: CENIT
Printed Circuit and mounted LEDs on Textile

Heating Bands printed on flooring Textile
Organic Photo Voltaic Printed Cells

Light integration on textiles with printed circuit
Light integration on textiles with printed circuit

Auto-controlled Heat Glove
Embroidery approach
Auto-controlled Heat Glove
Printed approach

Protective Clothing
Instrumentation
Printed RFID Tag
By Xenia

Power storage
A traditional obstacle to Smart Clothing development
From Batteries integrated in Textile goods

- To Textiles as Energy Harvesting and Storage Devices

Layers approach by CoNT1

- Piezoelectric Layer-by-layer printed structures
- Photovoltaic Layer-by-layer printed structures
- Supercapacitor Layer-by-layer printed structures
Organic Photo Voltaic Printed Cells

Printed Batteries

Fig. 2: Design scheme of printed battery (explosion plot).

Source: Fraunhofer
Printed Battery by Prelonic

Source: Prelonic

Flexible printed Batteries by Enfucell
Fibre / Yarn / Coated Fibre approach by CeNTI

- Piezoelectric Fibres
- Photovoltaic Fibres
- Supercapacitor Fibres and Yarns

Cross section of bi-component fibres
PP / 20% HDPE+4.6wt% CNT / PP (magnification x10 and x20)
Resistivity = 1.5x10^6 ohm.cm
Conductive Fibres

<table>
<thead>
<tr>
<th>Fibre (side-by-side 3 component)</th>
<th>Electrical resistance (Ohm/cm)</th>
<th>SDΩ (ohm/cm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>PET/conductive compound/PET (25/50/25)</td>
<td>5.69E+03</td>
<td>7.49E+02</td>
</tr>
</tbody>
</table>

Source: CEPTI

- Side-by-Side conductive fibre with 30% and 50% of CPC;
- Combination of conductive and dielectric properties in the same structure;
- Compatibilization of electrical conductivity (anti-static) and mechanical stability;
- Local (1-2cm signal acquisition) conductive response:
  - Piezoresistive strain sensor (ΔR/R);
  - Combination with metallic twisted yarn allows the acquisition of ΔC signal – capacitive sensor;
  - Temperature variations may also be inferred by processing the acquired signal;

Source: CEPTI
Development of new Tri-component piezoelectric fibres for sensor / energy harvesting applications – Processing of Fibre devices!

3-component fibers or coated bi-component fibers

Intelligent Multi-reactive textiles Piezoelectric Fibres

Photovoltaic Fibres

Source: CEITI
Energy Harvesting Concept

- Shoulder straps made of polyvinylidene fluoride (PVDF) Fibre/Yarn;
- Charging of portable electronic devices, like iPads and mobile phones;
- Direct interconnection and assembly with hardware;

Sensing Concept

A foot print map register, based on piezoelectric sensing aiming running posture improvement or rehabilitation monitoring;
- Sock based;
- Sport/Medical
♩ ♩ All Together Now ♩ ♩

Energy generation and storage

Powerweave

ITMF Annual Conference Report 2013, Bregenz/Austria 5th General Session: Antonio Braz dos Santos Costa 39
The objective of the project is the development of a fabric to generate (10W/m²) and store (10Wh/m²) energy within a totally fibrous matrix through:

- Photovoltaic fibres based on the dye sensitized solar cell
- Rechargeable energy storage fibres based on thin film battery or Supercapacitor
- Textile design to ensure reliability and most efficient operation
- Reliable interface and interconnection methods to integrate the generation and storage fibres
- Demonstration in technical large area applications

Conclusions
- Additive technologies are already a reality in Textile Sector
- Digital fabrication is a reality in the textile sector
- Clothing 3D printing waiting for Materials Science and Technology yet
- Printed Functionalities as a great opportunity impulsed by nanotechnologies
- Printed Electronics as an economic way to produce smart textile products, mainly in TechTextile Subsector

Thanks
Braz Costa
bz@citeve.pt
Innovation within our Core Competence

ITMF Annual Conference 2013
September 10, 2013

Christoph Tobler
CEO Sefar Holding AG

Sefar Group at a Glance

- Sales in 2012: CHF 305 Mio.
- More than 2200 employees worldwide
- Subsidiaries in 25 countries and 5 continents
- Leading manufacturer of precision fabrics for industrial applications
- Manufacturer of monofilament fibers
- Privately held corporation
- Solid financial basis
From Pellets to Yarn at Monosuisse...

Material: PET, PA, PP, PVDF, etc.
Production Sites: Emmenbrücke (CH) Gorzow (PL)

...to the Customer specific Product

Weaving
- Single/multi layer
- Tubes
- Specialities

Finishing
- Washing
- Heat setting
- Modification

Fabrication
- Vast variety of processes, tuned to the final product

central
locally
Starting Point: Monofilament

Synthetic monofilament precision fabrics

- Diameter of filament: from 0.019 mm to 2 mm (19 µm to 2'000 µm)
- Number of filaments per cm: up to 300
- Mesh opening: from 5 µm to 5'000 µm

Sefar Precision Fabrics

Weaving patterns, as required by customer application
More than 180 years of successful activities and innovation in industrial textiles

Continuous Innovation for over 180 years

Performance

1830 Hand-operated loom

1900 Silk

2000 Automated fabrication process

Screen Printing

Modern chemical fibers

Chemical fibers PET / PA

Mech. weaving machine

Surface treatment

year
From Raw Materials to customer-tailored Solutions

- Customer requirement
- New market opportunities
- Ready to use solution

Sefar

⇒ Yarn type
⇒ Weaving geometry
⇒ Surface
⇒ Material combination
⇒ Fabrication

Multi-layer Filtration Systems
AdBlue (DEF*) Filtration for vehicles with diesel engine

Main requirements towards the filtration system
- Filtration efficiency
- Dirt holding capacity
- Resistance against DEF solution (32.5% urea/water) and temperature
- Geometrical restrictions

* Diesel Exhaust Fluid
Multi-layer Filtration Systems
AdBlue (DEF) Filtration for vehicles with diesel engine

Filtration solution
3-layer filter media consisting of:
- Woven layer for stability and protection
- Filter fleece
- Protection fleece

- Ultrasonic welding to firmly join the three layers mechanically
- Roll-to-roll process on ultrasonic calander
- 100% optical control of each welding spot
- Automatic defect indicator

Multi-layer Filtration Systems
AdBlue (DEF) Filtration for vehicles with diesel engine

Making-up
- Pleating (thermic folding) increases filter surface by factor >4
- 3-d stamping and 3-d edge welding (flaming)

Final product
- 3-layer pleated element
- Satisfies all filtration requirements
- Satisfies all geometrical requirements
Stronger magnets and/or shorter distances to the magnets are attracting higher amounts of metallic particles which are reducing the performance of the speakers.

Goal:
- Design a mesh with improved dust intrusion protection without sacrificing the acoustical transparency.

Challenge:
- An improved dust intrusion protection can be achieved by generating smaller mesh openings.
- ... but smaller mesh openings are reducing the air flow through the mesh and therefore the acoustical transparency.

Sefar Solution:
- Use of the finest filaments possible in order to minimize the mesh opening while maintaining the open area which assures the undisturbed transmission of sound.
### Protective Mesh for Cell Phones

#### High-performance speakers

**Standard Design**
- 27 or 34 µm filaments in warp
- 27 or 34 µm filaments in weft

<table>
<thead>
<tr>
<th>Filament Size</th>
<th>Dust Protection</th>
<th>Acoust. Transparency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warp</td>
<td>low</td>
<td>good</td>
</tr>
<tr>
<td>Weft</td>
<td>low</td>
<td>good</td>
</tr>
</tbody>
</table>

**24/19 Design**
- 24 µm filaments in warp
- 19 µm filaments in weft

<table>
<thead>
<tr>
<th>Filament Size</th>
<th>Dust Protection</th>
<th>Acoust. Transparency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warp</td>
<td>good</td>
<td>good</td>
</tr>
<tr>
<td>Weft</td>
<td>good</td>
<td>good</td>
</tr>
</tbody>
</table>

---

**Customer benefit of Sefar Acoustic 75/19:**

- Significantly better dust intrusion protection compared to any other woven product (19µm mesh opening)
- Unchanged acoustical impedance (75 rayl)
- Increase of sound volume by 1.5-2.5 dB at 1kHz frequency
  (10 dB are more or less equal to 2x sound volume)
**Raw Materials and Coating**

**Flexible, transparent electrode; replacement of ITO foils**

- Highly transparent, gas- and liquid-proof
- Conductive (R<1 Ω/sq compared to ITO foil 30-50 Ω/sq)
- More flexible and mechanically more stable than ITO foil
- Cost-effective “roll-to-roll” manufacturing process

---

**Raw Materials and Coating**

**Cost-effective “roll-to-roll” manufacturing process of electrode**

- PET foil
- Polymer coating
- Fabric
- UV Light

---

Sefar mesh

Sefar electrode with embedded metallic filaments

---

New Market Opportunities
**Thin film Solar Cells**

**Transparent, flexible, mesh-based electrode**

- Dye-based solar cells with excellent cost/benefit ratio
- Produces electricity at little or no direct sunlight

**Sefar element:**
Mesh-based electrode made of PEN and tungsten fibers, embedded in a polymer-based raw material and covered by a transparent foil

---

**Electroluminescence (EL)**

**Sefar mesh as front electrode**

- Front-electrode: metalized mesh, embedded in EL-layer, protected by a foil
- Active EL-layer
- Dielectric layer
- Backside Electrode: Metalized foil
Electroluminescence
Light-generating combination based on mesh

- Highly flexible
- Shapeable
- Extremely thin
- Very light weight
- Full use of electricity for lighting
  ⇒ no dissipation of heat
Ongoing Innovation Process is crucial

Where are you on your S-curve?

Have you identified your next S-curves?

I wish you the courage to jump to your next S-curve
The World Textile Machinery Market
- An Update

ITMF Annual Conference
September 10, 2013
Bregenz, Austria

Dr. Christian Schindler
Director General
International Textile Manufacturers Federation (ITMF)

Shipped Short-staple Spindles 2002 - 2012

-27%
Shipped Short-staple Spindles 2002 - 2012

China's Share

-28%

Shipped Short-staple Spindles 2012

5 Biggest Investors
ITMF Annual Conference Report 2013, Bregenz/Austria

Machinery Market: Christian Schindler 4

Shipped Open-end Rotors 2002 - 2012

-21%

World & Regions

Shipped
\(1'000\) rotors

Installed
\(1'000\) rotors


World
Asia
Europe
Americas
Africa
Installed Capacity - World

Shipped Open-end Rotors 2002 - 2012

-6.2%

China's Share

Shipped
\(1'000\) rotors


World
China
Shipped
Open-End Rotors 2012

5 Biggest Investors

World | Asia | China | India | Turkey | Brazil | Uzbekistan
---|---|---|---|---|---|---
411.2 | 408.1 | 364.0 | 19.4 | 17.5 | 11.1 | 8.9

Shipped Open-end Rotors 2002 - 2012

Europe (incl. Turkey)

Europe  | Turkey  | Share of Turkey
---|---|---
2002: 65 | 47 | 18%
2003: 62 | 52 | 25%
2004: 36 | 63 | 26%
2005: 61 | 34 | 36%
2006: 158 | 56 | 46%
2007: 175 | 56 | 33%
2008: 75 | 34 | 18%
2009: 5 | 16 | 3%
2010: 17 | 17 | 19%
2011: 47 | 23 | 28%
2012: 23 | 23 | 0%
Shipped Texturing Spindles
2002 - 2012

World & Regions

Shipped Texturing Spindles
2002 - 2012

China's Share

-13%

-22%
Shipped Texturing Spindles 2012

Shipped 5 Biggest Investors

World Asia China India Japan Thailand Turkey

Shipped Shuttle-less Looms 2002 - 2012

World & Regions

Since 2010 more Chinese participants

ITMF Annual Conference Report 2013, Bregenz/Austria

Machinery Market: Christian Schindler
Shipped Shuttle-less Looms
2002 - 2012

Since 2010 more Chinese participants

Shipped Shuttleless Looms
2002 – 2012

Since 2010 more Chinese participants
Shipped Water-jet Looms 2002 - 2012

China's Share

Since 2010 more Chinese participants

0 20 40 60 80 100

World China

Shipped Water-jet Looms 2012

86'455

58'186

1'347

1'188

0 10'000 20'000 30'000 40'000 50'000 60'000 70'000 80'000 90'000 100'000

World Asia China India Indonesia Korea Vietnam

5 Biggest Investors

80'594

80'000

10'198

3'727

1'347

1'188

ITMF Annual Conference Report 2013, Bregenz/Austria  Machinery Market: Christian Schindler
Shipped Shuttle-less Looms 2002 - 2012

Shipped Circular Knitting Machines 2002 - 2012

+27%
Shipped Circular Knitting Machines 2002 - 2012

+33%

Shipped Circular Knitting Machines 2012

5 Biggest Investors

ITMF Annual Conference Report 2013, Bregenz/Austria}

Machinery Market: Christian Schindler
Shipped Circular Knitting Machines 2002-2012

Shipped Electronic Flat Knitting Machines 2002 – 2012
Shipped Electronic Flat Knitting Machines 2002 - 2012

Since 2010 more Chinese participants

Shipped Electronic Flat Knitting Machines 2012

5 Biggest Investors

World Asia China Bangladesh Turkey Hong Kong Italy
Shipped Electronic Flat Knitting Machines 2002-2012

![Graph showing the shipment of electronic flat knitting machines in Europe (incl. Turkey) from 2002 to 2012. The graph indicates a steady increase in shipments over the years, with a significant peak in 2012.]

Shipped Finishing Machinery (woven continuous) 2008-2012

![Graph showing the shipment of finishing machinery (woven continuous) worldwide from 2008 to 2012. The graph displays the number of machines shipped each year for different processes such as Stentering, Mercerizing, Dyeing, Bleaching, Washing, and Sanforicing.]

ITMF Annual Conference Report 2013, Bregenz/Austria
Machinery Market: Christian Schindler

14
Shipped Finishing Machinery

*knits continuous* 2008-2012

<table>
<thead>
<tr>
<th>Year</th>
<th>Stentering</th>
<th>Washing</th>
</tr>
</thead>
<tbody>
<tr>
<td>2008</td>
<td>13</td>
<td>49</td>
</tr>
<tr>
<td>2009</td>
<td>13</td>
<td>52</td>
</tr>
<tr>
<td>2010</td>
<td>19</td>
<td>78</td>
</tr>
<tr>
<td>2011</td>
<td>8</td>
<td>68</td>
</tr>
<tr>
<td>2012</td>
<td>12</td>
<td>113</td>
</tr>
</tbody>
</table>

**Long-term View**

(1974-2012)

- Spinning Machines
- Weaving Machines
Shipments of Short-staple Spindles 1974-2012

Since 2000 including Chinese producers.

Shipments of Shuttle-less Looms 1974-2012

Since 2000 including Chinese producers.
Shipments of Short-staple Spindles 1974-2012

Shipments of Shuttle-less Looms 1974-2012
Actual development!

Short-term aspects
Short-term aspects

North America
Economic Climate*


Short-term aspects

Europe
Economic Climate*

Short-term aspects

![Graph showing the Economic Climate in Asia from 2005 to 2013]

*Arithmetic mean of judgement about the present and expected economic situation. Source: ifo World Economic Survey (WES) III/2013.

Projection Real GDP

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>World</td>
<td>3.1</td>
<td>3.1</td>
<td>3.8</td>
</tr>
<tr>
<td>Advanced Economies</td>
<td>1.2</td>
<td>1.2</td>
<td>2.1</td>
</tr>
<tr>
<td>Developing Economies</td>
<td>4.9</td>
<td>5.0</td>
<td>5.4</td>
</tr>
<tr>
<td>Euro Area</td>
<td>-0.6</td>
<td>-0.6</td>
<td>0.9</td>
</tr>
<tr>
<td>Germany</td>
<td>0.9</td>
<td>0.3</td>
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<td>Greece</td>
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<td>Emerging Europe</td>
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<td>3.7</td>
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<td>South America</td>
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<tr>
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<td>Developing Asia</td>
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<tr>
<td>China</td>
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<tr>
<td>India</td>
<td>4.0</td>
<td>5.7</td>
<td>6.2</td>
</tr>
</tbody>
</table>

Source: IMF
Actual development

January 2007 – July 2013

• Textile Machinery

Import/Export Textile Machinery World

Source: Wendler Marktinformationen
Import/Export Textile Machinery

Source: Wendler Marktinformationen

Import/Export Textile Machinery - China

Source: Wendler Marktinformationen
Import/Export Textile Machinery

**Germany**

![Graph of Textile Machinery Imports and Exports in Germany](image1)

Source: Wendler Marktinformationen

---

**Japan**

![Graph of Textile Machinery Imports and Exports in Japan](image2)

Source: Wendler Marktinformationen
Import/Export Textile Machinery Turkey

Source: Wendler Marktinformationen

Import/Export Textile Machinery Italy

Source: Wendler Marktinformationen
Import & Export Textile Machinery

Source: Wendler Marktinformationen

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Thank You Very Much!
中国纺织工业——现在和未来

China’s Textile Industry
– Today and Tomorrow

Sun Ruizhe
China National Textile & Apparel Council
2013-09-10

China & World: Consensus
中国与世界：共识

One swallow does not make a summer.
“孤燕不成春”

Hasty climbers have sudden falls.
“欲速则不达”
Position of Textile Industry in China National Economy


Source: Statistical Center of CNTAC, Data in above chart are come from Industrial Enterprises above Designated Size.

Position of China’s Textile Industry in the World

China’s mill fiber consumption and its global share in 2012 2012年中国纤维加工总量及占世界的比重

China’s textiles & garment export and its share in world trade in 2012 2012年中国纺织品服装出口额及占世界比重

China’s man-made fiber production and its global share in 2012 2012年化学纤维产量及占世界的比重

China’s cotton production and its global share in 2012 2012年棉花产量及占世界的比重

Source: Statistical Center of CNTAC

资料来源：中国纺织工业联合会统计中心，规模以上企业数据.

Positioning of China’s textile industry

- Pillar industry to national economy;
- Important industry for people's livelihood;
- Competitive industry in international market.

Extended boundary of the industry

- Integral part of strategic emerging industries;
- Important driving force to fashion industry.

Challenges for Sustainable Development: Export

In Jan.-July of 2013, China’s export of textiles and garment totaled US$ 154.87 billion, up 12.7% year-on-year, but China’s share in three major export markets dropped by different degrees.
Challenges for Sustainable Development: Domestic Market

- Garment retail began to grow slower than that of social consumer goods.
- In 2012, online spending topped CNY 1304 billion, accounting for 6.20% of the total.
- In 2012, online shopping of garment amounted to CNY 318.68 billion, about 24.45% of total online spending, and it is expected to top CNY 920 billion by 2016.
- The gap of clothing expenditure between urban and rural residents has enlarged from the 3.05 times in 1980 to 4.60 times in 2012.
  - 今年限额以上服装零售额同比增长一直低于社会消费品零售总额增长。
  - 2012年网购人数达2.13亿, 网购规模达到13040亿元, 占全国社会商品零售额6.20%。
  - 2012年中国服装网购318.68亿元, 占全部网购24.45%。
  - 预计2016年服装网购将达9200亿元。
  - 城镇与农村居民人均衣着支出的差异从1980年的3.05倍上升到2012年的4.60倍。

Challenges for Sustainable Development: Performance

- In Jan.-June of 2013, the profit of Chinese textile industry totaled CNY 158.65 billion, up 15.53% year-on-year.
- Survey on entrepreneurs shows increased cautious attitude toward anticipated operation of textile economy in the future.
- In 2013, labor cost in China has maintained rising trend and the growing margin of per capita salary of textile industry is estimated at 10-15%.
- Cotton price gap between domestic market and overseas market remains a prominent problem that damages the competitiveness and benefits of cotton textile enterprises.
  - 2013年1-7月, 中国纺织行业累计实现利润总额158.65亿元, 同比增长15.53%。
  - 企业家调查问卷显示: 企业家对下期行业运行总体较为谨慎。
  - 2013年国内劳动力价格继续上涨, 估计纺织行业人均工资涨幅为10%-15%。
  - 国内外棉花价差对纺织企业竞争力及效益的影响依然十分突出。
Challenges for Sustainable Development: Labor Productivity
可持续发展面临的挑战：劳动生产率

- China's textile industry is quickly upgraded in productivity, structure and competitiveness.
- The per capita GDP is positively correlated with the rising of labor cost. The perspective and preference on employment of new-generation labors has caused labor shortage.
- The trend of aging population: By 2030, China will become a country with the highest proportion of aging people in the world.
- In 2012, the 0.43% R&D rate of textile enterprises was lower than the 0.71% of industrial average.
  - 纺织工业实现生产力素质和产业规模结构、产业竞争力的快速提升。
  - 人均GDP增长与劳动成本上涨呈正相关，新生代工人就业理念和趋向导致纺织业的人力资源短缺。
  - 老龄化趋势：到2030年，中国成为全球人口老龄化程度最高的国家。
  - 2012年，中国规模以上纺织企业研发投入强度约为0.43%，低于同期工业企业研发投入强度0.71%。

Challenges for Sustainable Development: Extension of Industry Chain
可持续发展面临的挑战：产业配套

- At the present stage, to develop a well-coordinated industry, one of the priorities shall be given to developing upstream raw material industry.
- In 2012, China produced 30.57 mil. tons of polyester fiber, accounting for 80.6% of the total production of chemical fibers and about 58% of the mill fiber consumption in China. The demand for PX reached 14 mil. tons, while the production stood at 7.75 mil. tons, with 6.30 mil. tons, i.e. 45% of the demand depends on import.
- By 2015, the production of polyester fiber in China is expected to reach 39 million tons, the production of PTA about 33.5 million tons and the demand for PX about 22 million tons.
  - 现阶段中国纺织工业产业配套的重点是上游原料资源的配套。
  - 2012年，中国涤纶产量3057万吨，占中国化纤产量的80.6%，约占中国纺织纤维加工总量的58%。
  - 2012年PX需求量已达到1460万吨，PX产量775万吨，进口630万吨，对外依存度高达45%。
  - 2015年中国涤纶产量约为3900万吨，PTA产量约为3350万吨，需要PX约2200万吨。

China’s Share in Global PX Production Capacity in 2012
Others 76%  China 24%

China’s Share in Global PTA Production Capacity in 2012
Others 45%  China 55%

China’s Share in Global PET Production Capacity in 2012
Others 37%  China 63%

Source: CCFA
Challenges for Sustainable Development: Extension of Industry Chain
可持续发展面临的挑战：产业配套

Cotton — Market economy vs. policy effects

- Influenced by the state policy, no downward potential for domestic cotton price.
- Due to slow recovery of the global economy, cotton price is unlikely going up.
- Price gap of cotton has damaged the competitiveness of Chinese textile industry.

棉花——市场机制与政策效应
• 受棉花收储政策影响，中国国内棉价并没有明显的下行空间。
• 由于全球经济复苏仍然缓慢，棉价上涨仍然缺乏市场动力。
• 如国内外棉花价差问题得到有效解决，中国棉花产业所面临的压力将更加突出。

Challenges for Sustainable Development: Emission-reduction
可持续发展面临的挑战：节能减排

- The Targets for Emission Reduction of Main Pollutants in 2011-2015 issued, 105 out of the 398 industrial wastewater disposal projects are related to textile and garment enterprises.
- Some of the national standards for pollutant emission of the dyeing & finishing industry and silk reeling industry are even higher than those adopted by developed economies.
- The first batch of enterprises that comply with The Permission Conditions of Printing & Dyeing Industry (Revised in 2010) have been announced.
- Product carbon footprint ISO 14067 will be introduced in 2013.

- “十二五” 主要污染物总量减排目标责任书”，398个工业废水治理项目中有105项事关纺织服装企业。
- 《染整工业水污染物排放标准》、《缫丝工业水污染物排放标准》，某些排放标准已高于发达国家水平。
- 公告第一批符合《印染行业准入条件(2010年修订版)》的企业名单。
- ISO14067产品碳足迹国际标准(简称ISO碳足迹标准)将在2013年发布。
In 2012, the textile industry in western and central regions account for 19.9% of gross value of the industry’s total output. The moving pace from the east to inner land has slowed down.

Under the absence of associated industries and social supporting system, the operation of most relocated projects is unpromising.

- 2012年，中国西部纺织工业总产值占全国比重19.9%，沿海向中西部地区产业转移有趋缓趋势。
- 在缺乏产业配套和支持系统的情况下，现有转移项目中的相当一部分经营情况不容乐观。

**Challenges for Sustainable Development: Industrial Migration**

**可持续发展面临的挑战：产业转移**

**Chinese textile industry going abroad — field of investment, regions & investment form**

中国纺织行业海外投资行业、地域和形式及部分代表性企业

<table>
<thead>
<tr>
<th>Field of Investment</th>
<th>Enterprises/企业案例</th>
<th>Regions/投资地域</th>
<th>Investment Form/投资内容</th>
</tr>
</thead>
</table>
| Spinning            | Bros. Group, Textron 天盛，Esquell 依诗
| Dyed Weaving        | Lutai染纺，Red Button 拉得宝，Ruiyinghua 瑞英华
| Knitting            | Xinxiang 新乡，Southwold Southwood，Fengda 芳达，Taizhou 泰州，Huaer 湖尔，Jiading 上海嘉定 |
| Clothing            | Tianjin 天津，Westpeace 西普正达 |
| Chemical fiber      | Heze 济州 |
| Garment            | Bosideng 博斯登，JNBY 拉夏贝尔，Youngor 亚曼，Lutai 拉得宝，Shen Zhou 申洲，Hodo 霍多，AB，SUTECH 上海泰氏 |
| Textile machinery   | Jinsheng 金申 |
| More than 400 Chinese textile enterprises set up mills in Cambodia, and about 100 in Bangladesh. |

New challenges for going abroad: lack of local supporting industries, and culture gap.

- 目前来柬埔寨投资设厂的中国纺织企业已超过400家，到孟加拉国投资的中国纺织企业则将近100家。
- “走出去”面临新挑战：当地产业配套、文化融合问题。

ITMF Annual Conference Report 2013, Bregenz/Austria

China’s Textile Industry: Sun Ruizhe
Chinese Market – the World of Opportunity
中国市场、世界机遇

China is changing from a manufacturer for the world to an open market for the world. The urbanization process will bring new opportunity for the textile industry home and abroad.

中国正在由“世界工厂”转变成“世界市场”，城镇化过程为国内纺织行业带来新的机遇。

It is predicted that the annual growth rate of China's urbanization in 2010-2030 will be 1 percentage point, each year there will be 13-14 mil. people moving from rural areas to cities.

根据预测，2010年至2030年，中国城市化率平均每年增长1个百分点，每年将有1300万至1400万人从农村转移到城市。

Based on conservative estimation:

By 2016, the ratio of households with annual income more than US$ 15,000 will increase to 41% from the 11% in 2011. China will become the largest retail market in the world with a total value of US$ 4.2 trillion.

根据保守估计，到2016年，年收入超过15,000美元的家庭比例将从2011年的11%增长到41%，中国将成为世界上最大的零售市场，总价值4.2万亿美元。

Source: 2000-2011, BBS; 2016-2030, CASS

资料来源：2000-2011年数据来自国家统计局，2016-2030年中国社科院预测。

Chinese Market – the World of Opportunity
中国市场、世界机遇

China's GDP, per capita net income and retail sales of social consumer goods kept growing, which generated a huge domestic market with great potential.

中国国民生产总值、人均纯收入、社会消费品零售总额持续增长，带来潜力巨大的内销市场。

Source: National Bureau of Statistics

数据来源：国家统计局
Online shopping satisfied the needs of consumers
In 2012, China’s online shopping up 64.7% from that of 2011.
The turnover of apparel online shopping up 44% over 2011, growing much faster than offline retailing.

Fast-fashion brands continue to penetrate Chinese market
While consolidating the position in central cities, many fast-fashion brands are extending their business to medium- and small-sized cities. More fast-fashion brands are establishing their marketing network in China, such as Forever 21, WE, UR and Marks & Spencer.

The domestic market further expands
In 2012, the domestic sales of Chinese textile & apparel enterprises amounted to CNY 4.78 trillion, up 12.3% year-on-year, growing faster than total sales value (10.63%)

Sales generated in domestic market covers increasing share
In 2012, Chinese textile and apparel enterprises’ sales in domestic market accounted for 84.31% of the total sales value, improving 1.26 percentage points compared with same period of the previous year.

- Textile industry scale continues to expand
  2012 year’s规模以上企业内销产值达47803.7亿元 同比增长12.3% 高于整个销售产值增速（10.6%）。

- Textile industry scale continues to expand
  2012年规模以上企业内销产值占整个销售产值比重为84.31%，较上年同期提升1.26个百分点。
The Chinese market contains huge consumption potential and China's import of textile products, especially apparel, presents an increasing trend.

Within the Chinese market, the textile industry is showing significant growth. China's textile exports are on the rise, driven by increased demand both domestically and internationally. The following graphs illustrate the trends in textile imports and exports over the past several years.

**Chinese Market – the World of Opportunity**

*中国市场、世界机遇*

### China's Import of Textiles (100 mil. US$)

- **2000:** 128.3
- **2001:** 125.7
- **2002:** 130.6
- **2003:** 142.2
- **2004:** 153.0
- **2005:** 155.0
- **2006:** 163.6
- **2007:** 166.4
- **2008:** 162.9
- **2009:** 149.4
- **2010:** 176.7
- **2011:** 183.0

**Source:** WTO World Trade Statistics (WTO世界贸易统计).

### China's Import of Garment (100 mil. US$)

- **2000:** 11.9
- **2001:** 12.7
- **2002:** 13.6
- **2003:** 14.2
- **2004:** 15.4
- **2005:** 16.3
- **2006:** 17.2
- **2007:** 19.8
- **2008:** 22.8
- **2009:** 18.4
- **2010:** 21.1
- **2011:** 40.1

**Source:** WTO World Trade Statistics (WTO世界贸易统计).

### Cotton Import (10 thousand tons)

- **2005:** 255.8
- **2006:** 364.8
- **2007:** 345.9
- **2008:** 211.0
- **2009:** 152.6
- **2010:** 263.6
- **2011:** 336.3
- **2012:** 313.5

**Source:** Statistical Center of CNTAC (中国纺织工业联合会统计中心).

### Cotton Yarn Import (10 thousand tons)

- **2005:** 52.8
- **2006:** 82.8
- **2007:** 61.7
- **2008:** 51.5
- **2009:** 76.7
- **2010:** 83.8
- **2011:** 69.8
- **2012:** 120.0

**Source:** Statistical Center of CNTAC (中国纺织工业联合会统计中心).

### Wool Import (10 thousand tons)

- **2005:** 29.9
- **2006:** 20.9
- **2007:** 33.0
- **2008:** 30.0
- **2009:** 32.4
- **2010:** 33.0
- **2011:** 32.8
- **2012:** 31.4

**Source:** Statistical Center of CNTAC (中国纺织工业联合会统计中心).

### Flax Import (10 thousand tons)

- **2005:** 15.2
- **2006:** 15.5
- **2007:** 14.4
- **2008:** 8.5
- **2009:** 10.6
- **2010:** 14.2
- **2011:** 14.4
- **2012:** 10.0

**Source:** Statistical Center of CNTAC (中国纺织工业联合会统计中心).
**Chinese Market – the World of Opportunity**

**Import of textile machinery** 纺机进口

**Import of Textile Machinery by Category in 2012**

2012年纺织机进口分类占比（%）

- Dyeing & finishing machinery: 12.32%
- Spinning machinery: 21.28%
- Auxiliary equipment & spare parts: 16.31%
- Knitting machinery: 13.84%
- Chemical fiber machinery: 14.71%

Source: China Textile Machinery and Accessories Association

资料来源: 中国纺织机械器材工业协会
Chinese Market – the World of Opportunity
中国市场，世界机遇

◆ Import of textile machinery 纺机进口

**Import of Textile Machinery by Region in 2012**
2012年中国纺机进口来源地占比（%）

- Germany, 35.41%
- Italy, 11.51%
- Japan, 31.04%
- Taiwan, 3.85%
- Switzerland, 4.51%
- Others, 13.32%

**Import of Textile Machinery by Region in 2000**
2000年中国纺机进口来源地占比（%）

- Germany, 15.62%
- Italy, 14.49%
- Japan, 27.61%
- Korea, 7.50%
- Taiwan, 15.65%
- France, 7.50%

Source: China Textile Machinery and Accessories Association
资料来源：中国纺织机械器材工业协会

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Over the past five year, the exports of textiles and garment from overseas invested enterprises accounted for more than 1/4 of the total. 近五年来，合资企业的出口一直占据中国纺织品服装总出口的1/4以上。

**Export of textiles and garment from overseas-invested enterprises and its shares (100 mil. US$, %)**
三资企业纺织品服装出口额及其占比（亿美元，%）

---

**Share of Hong Kong, Macao and Taiwan investment in Paid-in Capital (%)**
港澳台商占比实收资本比重（%）

- 1978: 17.45%
- 2000: 19.57%
- 2003: 20.12%
- 2005: 21.85%
- 2007: 20.48%

**Share of Foreign Investment in Paid-in Capital (%)**
外商占比实收资本比重（%）

- 1978: 0%
- 2000: 12%
- 2003: 14.07%
- 2005: 15.79%
- 2007: 15.39%
- 2010: 15.17%

Source: Statistical Center of CNTAC
资料来源：中国纺织工业联合会统计中心
### Future 未来

#### Targets in five-year and ten-year planning  “十二五”规划目标和“2020年纺织强国”目标

<table>
<thead>
<tr>
<th>类别</th>
<th>指标 (Index)</th>
<th>2010年</th>
<th>2015年</th>
<th>年均增长（%）</th>
<th>2020年</th>
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<td>行业增长</td>
<td>工业增加值 (规模以下)</td>
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<td>总产值比2010年增长2倍以上</td>
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<td>工业增加值 (规模以下)</td>
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<td>-</td>
<td>8</td>
<td>总产值比2010年增长2倍以上</td>
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<td>出口总额 (亿美元)</td>
<td>2065</td>
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<td>纤维加工总量 (万吨)</td>
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<td>全球产业工业总产值 (10,000 tons)</td>
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<td></td>
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<tr>
<td>结构调整</td>
<td>服装、家紡、产业用纺织品纤维消费量的比重 (%)</td>
<td>51.29:20</td>
<td>48:27:25</td>
<td>-</td>
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<td>轻装纤维消费量年均增长率</td>
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<td>家紡纤维消费量年均增长率</td>
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<td>平均年度消费量的年均增长率</td>
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<td>产业用纺织品纤维消费量年均增长率</td>
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<td>平均年度消费量的年均增长率</td>
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<td>规模以上企业出口交货值占销售收入的比重 (%)</td>
<td>18.6</td>
<td>14</td>
<td>[-4.6]</td>
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<td></td>
<td>中西部地区纺织工业总产值占全国的比重 (%)</td>
<td>17</td>
<td>28</td>
<td>[11]</td>
<td></td>
</tr>
</tbody>
</table>

注：①[ ]号为五年累计数  
Note: 1. Figures in [ ] are five-year total

### Future 未来

#### Targets in five-year and ten-year planning  “十二五”规划目标和“2020年纺织强国”目标

<table>
<thead>
<tr>
<th>指标 (Index)</th>
<th>2010</th>
<th>2015</th>
<th>年均增长（%）</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>技术进步</td>
<td>劳动生产率 (规模以下)</td>
<td></td>
<td></td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>Labor productivity (above-scale enterprises)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>研究与试验发展经费支出占主营业务收入比重 (规模以下)</td>
<td>&lt;1</td>
<td>&gt;1</td>
<td>-</td>
</tr>
<tr>
<td></td>
<td>Share in prime business revenue of expenditures on research and experiments</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>可持续发展</td>
<td>单位工业增加值能耗</td>
<td>-</td>
<td>-</td>
<td>[20]</td>
</tr>
<tr>
<td></td>
<td>Decreasing rate of energy consumption per unit of industrial value added</td>
<td>-</td>
<td>-</td>
<td>[20]</td>
</tr>
<tr>
<td></td>
<td>工业二氧化硫排放强度降低</td>
<td>-</td>
<td>-</td>
<td>[20]</td>
</tr>
<tr>
<td></td>
<td>Decrease of CO2 discharge per unit of industrial value added</td>
<td>-</td>
<td>-</td>
<td>[20]</td>
</tr>
<tr>
<td></td>
<td>单位工业增加值用水量降低</td>
<td>-</td>
<td>-</td>
<td>[30]</td>
</tr>
<tr>
<td></td>
<td>Decreasing rate of fresh water consumption per unit of industrial value added</td>
<td>-</td>
<td>-</td>
<td>[30]</td>
</tr>
<tr>
<td></td>
<td>主要污染物排放降低</td>
<td>-</td>
<td>-</td>
<td>[10]</td>
</tr>
<tr>
<td></td>
<td>Decreasing rate of total discharge of main pollutants</td>
<td>-</td>
<td>-</td>
<td>[10]</td>
</tr>
<tr>
<td></td>
<td>再利用纺织纤维总量 (万吨)</td>
<td>400</td>
<td>800</td>
<td>14.9</td>
</tr>
<tr>
<td></td>
<td>Recycled fibers (10,000 tons)</td>
<td>400</td>
<td>800</td>
<td>14.9</td>
</tr>
</tbody>
</table>

注：①[ ]号为五年累计数  
Note: 1. Figures in [ ] are five-year total
2. 主要污染物指化学需氧量和氨氮。  
2. Main pollutants refer to COD, ammonia-nitrogen and ammonia-oxygen compounds.
Major policies:

- Substitute raw materials such as super cotton-like fiber;
- Differential, functional modified fiber, recycled chemical fibers;
- Development of regenerated fibers based on environment-friendly process;
- New spinning technologies such as compact spinning, low-torque spinning, siro spinning and embedded spinning technologies;
- Technical textiles;

Future 未来

主要发展方向包括：

- 超仿棉为代表的替代性原料类开发；
- 差别化、功能性改性纤维、回收再利用的化学纤维；
- 绿色、环保工艺生产的再生纤维开发与应用；
- 先进纺纱技术，如紧密纺、低扭矩纺、赛络纺、嵌入式纺纱等；
- 产业用纺织品；

Clean dyeing and finishing technologies:

- such as enzyme treatment, high-efficient and short-process pre-treatment, cold pad-batch pre-treatment and dyeing, short-process wet-steaming and pad dyeing, airflow dyeing, high-bath ratio dyeing, pigment printing and dyeing, digital ink-jet printing and foam finishing;
- Digital controlled energy-saving and environment-friendly printing and dyeing processes, high-efficient "three wastes" disposal technologies as well as resources reclamation technologies;
- Establishment of textile industry-related standards and improvement of testing techniques;
- Development of creative industry and the integration with textile and garment industry;
- Brand building: incl. product brand, enterprises brand and industry brand of textile industry;

Future 未来

- 染整清洁生产技术：
  - 采用酶处理，高效短流程前处理、冷轧堆前处理及染色、短流程湿蒸轧染、气流染色、小浴比染色、涂料印花、数码喷墨印花、泡沫整理等；
  - 运用数字化技术和装备，推广应用节能环保的印染工艺和“三废”高效治理与资源回收再利用技术；
- 纺织产业相关标准制定和修订，提高检测技术水平；
- 文化创意产业发展，与纺织服装产业的跨界融合；
- 推动产品品牌、企业品牌、行业品牌的发展。
Trend: from focusing on “product” to focusing on the textile industry’s “social value”

Chinese Ideology for Sustainability: Scientific Development & Harmonious Society

A Contemporary Interpretation of Confucianism:

- Benevolence • • Keeping balance between economic development and social justice;
- Righteousness • • Improving social security for disadvantaged people;
- Propriety • • System specification and anti-corruption;
- Wisdom • • Innovation driven and win-win development;
- Trust • • Upholding integrity-based business ethics.
Sustainable Development – Our Common Responsibility

- Human demand for renewable ecological resources is now equivalent to that of more than 1.5 Earths. Humanity is on track to require the resources of 2 planets before mid-century. In 1961, human demand was met by the resources of just 0.7 planets.

- If everybody were to live like the resident of China and US residents today, it would take 1.2 and 4 Earths respectively to support the global population.

- Japanese residents consume the ecological resources of 7.1 Japan's. It would take four Italy's to support Italy. Egypt uses the ecological resources of 2.4 Egypt's.

- 人类对可再生生态资源需求约等于1.5个地球以上。到本世纪中，人类的需求将增加到2个地球。
  1961年，人类的需求只要0.7个地球即可满足。

- 如果人人都和典型的中国居民一样，将要花掉1.2个地球才能供养全球人口。如果和美国居民一样，将消耗4个地球才能供养全球人口。

- 日本居民的消耗等于7.1个日本。
  意大利约需消耗4个意大利。
  埃及的消耗约为2.4个埃及。

Sustainable Development – Our Common Responsibility

Responsibilities of textile industry

- **Responsibilities to labor and consumer**
  Labor rights, equal opportunities & dignity, and decent work;
  Abundant quality products with affordable price, and improving individuals living standard and consumption quality.

- **Responsibilities to environment and society**
  Environment friendly and effective yield of resources;
  Sustainable industry order and social value, legislation and civilization of market and society.

- **Responsibilities to the world**
  Job opportunities,
  Stabilizing and optimizing international value chain.

- 纺织工业担负的责任与使命
  
  - 对劳动者和消费者的责任
    保障劳动者权益、平等机会和尊严，实现体面劳动；
    提供充分且物美质优产品，提高个人生活水准和消费质量。
  
  - 对环境和社会的责任
    保持和改善环境，提高资源的有效产出率；
    倡导规范、可持续的产业秩序和社会价值，促进市场和社会的法制化和文明化。
  
  - 对世界的责任
    提供、保持并促进就业，保障民生基础和国家和谐；
    稳定并优化国际供应链和价值链。
**Sustainable Development – Our Common Responsibility**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Index</strong> 统计指标</td>
<td>Unit 单位</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Total wastewater discharge of industrial sectors 全国工业废水排放总量</strong></td>
<td>100 mil. tons 亿吨</td>
<td>215.98</td>
<td>208.04</td>
<td>220.76</td>
<td>217.38</td>
<td>209.03</td>
<td>201.00</td>
</tr>
<tr>
<td><strong>Textile industry 织染工业</strong></td>
<td>100 mil. tons 亿吨</td>
<td>22.89</td>
<td>26.12</td>
<td>28.86</td>
<td>29.37</td>
<td>29.77</td>
<td>29.80</td>
</tr>
<tr>
<td><strong>Year-on-year change 同比</strong></td>
<td>%</td>
<td>• • •</td>
<td>13.58</td>
<td>10.51</td>
<td>1.76</td>
<td>1.36</td>
<td>0.10</td>
</tr>
<tr>
<td><strong>Compared to 2005 较2005年</strong></td>
<td>%</td>
<td>• • •</td>
<td>13.58</td>
<td>25.33</td>
<td>27.33</td>
<td>29.47</td>
<td>29.60</td>
</tr>
<tr>
<td><strong>in country's total 占全国%</strong></td>
<td>%</td>
<td>10.65</td>
<td>12.55</td>
<td>13.07</td>
<td>13.51</td>
<td>14.24</td>
<td>14.83</td>
</tr>
<tr>
<td><strong>Water recycle rate of industrial sectors 全国工业重复用水率%</strong></td>
<td>%</td>
<td>75.93</td>
<td>80.94</td>
<td>82.49</td>
<td>84.28</td>
<td>85.33</td>
<td>85.00</td>
</tr>
<tr>
<td><strong>Textile industry 织染工业</strong></td>
<td>%</td>
<td>68.42</td>
<td>63.46</td>
<td>62.69</td>
<td>62.69</td>
<td>62.31</td>
<td>62.00</td>
</tr>
</tbody>
</table>

% of COD discharge from textile effluent in all industrial sectors 纺织工业化学需氧量排放总量占全国工业比重

<table>
<thead>
<tr>
<th>Index 统计指标</th>
<th>Unit 单位</th>
<th>2005</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
<th>2011</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total COD discharge of all industrial sectors 全国工业化学需氧量排放总量</strong></td>
<td>10,000 tons 万吨</td>
<td>493.20</td>
<td>462.60</td>
<td>453.10</td>
<td>404.80</td>
<td>379.20</td>
<td>355.00</td>
<td>321.97</td>
</tr>
<tr>
<td><strong>Textile Industry 织染工业</strong></td>
<td>10,000 tons 万吨</td>
<td>42.40</td>
<td>44.70</td>
<td>46.10</td>
<td>43.40</td>
<td>45.20</td>
<td>45.3</td>
<td>46.13</td>
</tr>
<tr>
<td><strong>in country’s total 占全国%</strong></td>
<td>%</td>
<td>8.60</td>
<td>9.66</td>
<td>10.17</td>
<td>10.72</td>
<td>11.92</td>
<td>12.96</td>
<td>14.33</td>
</tr>
</tbody>
</table>

**CSC9000T: China Social Compliance Management System for Textile & apparel Industry**

1. 管理体系 Management System
2. 歧视 Discrimination
3. 工会组织与集体谈判权 Trade Unions and Collective Bargaining
4. 童工与未成年工 Child Labor and Juvenile Workers
5. 强迫或强制劳动 Forced or Compulsory Labor
6. 劳动合同 Employment Contract
7. 工作时间 Working Hours
8. 薪酬与福利 Wages and Welfare
9. 压迫与虐待 Harassment and Abuse
10. 职业健康与安全 Occupational Health and Safety
11. 环境保护 Environmental Protection
12. 公平竞争 Fair Competition

- CSC9000T is the first social compliance management system developed and implemented by an industry in China.
- CSC9000T covers CSR’s three major areas: care for the people, environment protection, and fair trade.
- From 2009 to 2013, more than 50 textile and garment enterprises have released their annual CSR reports.

★ CSC9000T is the first social compliance management system developed and implemented by the textile industry in China.
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- From 2009 to 2013, more than 50 textile and garment enterprises have released their annual CSR reports.
Constant dropping wears away a stone.

“滴水能穿石”

Thanks!
Fourth Year of Cotton Surplus &
Measuring Sustainability in Cotton
ITMF Annual Conference
Bregenz, Austria
September 8-10, 2013
Terry Townsend

China National Reserve

Million tons

Aug-11 Aug-12 Aug-13
World Cotton Ending Stocks

Million tons

95/96 00/01 05/06 10/11

World Cotton Ending Stocks

Stocks to use ratio

95/96 00/01 05/06 10/11
World Cotton Production & Mill Use

Million Tons

Production

Mill Use

Cotlook A Index

U.S. cents/lb

ITMF Annual Conference Report 2013, Bregenz/Austria  Fibre Session Cotton: Terry Townsend 4
Market Share
Fiber Prices

US Cents/Lb.

Polyester Staple (China)
Cotton (A Index)
Rayon Staple (China)

Jan-00 Jan-03 Jan-06 Jan-09 Jan-12

World Cotton Mill Use

Million tons

95/96 00/01 05/06 10/11
Market Share of Cotton: U.S. Textile Imports

Non-China Cotton Mill Use
World Cotton Mill Use

- $ Billion
- 95/96 00/01 05/06 10/11

Cotton Production

- Million Tons
- China: 7.3
- India: 6.2
- US: 2.9
- Pakistan: 2.1
- Brazil: 1.4
- Uzbek: 1.0
- Australia: 0.9

2012/13
- 2013/14
Cotton Exports

Million tons

- US: 2.4 (2012/13), 2.4 (2013/14)
- India: 1.4 (2012/13), 1.4 (2013/14)
- Brazil: 0.8 (2012/13), 0.8 (2013/14)
- Australia: 1.0 (2012/13), 1.0 (2013/14)
- Uzbek.: 0.7 (2012/13), 0.7 (2013/14)

Sustainability: Everyone Wants It
Sustainability:
You Get What You Reward

Definitions affect behavior

ICAC Expert Panel on SEEP:
Sustainability Metrics
Technically focused,
Empirically driven set of recommendations,
Minimum standards for sustainable cotton production
Catalogue of Sustainability Indicators:

Organic, Fair Trade
CmiA, BCI, MyBMP
Committee on Sustainability Assessment Initiative, Field to Market, RISE, SAFA

Key Sustainability Issues in Cotton Production

Environmental
- Pest and pesticide management
  - Integrated pest management
  - Pesticide use
  - Human exposure
  - Environmental contamination
  - Pesticide waste management
- Water management
  - Water depletion
  - Crop water management
  - Soil salinization
  - Water quality
- Soil management
  - Soil fertility
  - Soil erosion
  - Land use
  - Land conservation
  - Land productivity
- Biodiversity
- Climate change
  - Decomposition and mineralisation
  - Energy use
  - Carbon stock changes

Economic
- Economic viability
- Poverty reduction
- Food security
- Economic risk management

Social
- Labor rights and standards
  - Child labor
  - Employment conditions
  - Freedom of association
  - Social protection
- Occupational health and safety
- Equity and gender
- Farmer organisation
- Land Use
- Land conservation
- Land productivity
- Biodiversity
World Café
At the ICAC Plenary Meeting
The New Meaning of Sustainability

Fritz Grobien, President Bremen Cotton Exchange
ITMF Annual Conference 2013
Sept. 8 – 10, Bregenz/Austria

Natural Fibre Cotton
The New Meaning of Sustainability
Resources

- 1962: “Silent spring”, Rachel Carlson
  The modern ecological movement and fear of environmental pollution


- 1972: “The Limits to Growth”
  The mother of all apocalyptic forecasts. Commissioned by the Club of Rome

ITMF Annual Conference 2013
Cotton 80%
Wool 4%
Flax 3%
Jute & Hard 13%
Silk 0.1%
Cotton as a Natural Resource

Cellulosic 4%
Non-Cell. Stpl. 19%
Non-Cell. Fil. 41%
Wool 1%
Other Natural 6%
Cotton 29%

2012

Source: ICAC
World Fibre Production

Million Tonnes

- Cotton: 23 M.t.
- Wool: 1 M.t.
- Non-Cell.: 51 M.t.
- Cell.: 5 M.t.

World Cotton Area

Million Hectares

ITMF Annual Conference 2013

Source: ICAC ITMF Annual Conference Report 2013, Bregenz/Austria Fibre Session: Fritz A. Grobien
**Major Technical Advances**

- Mendelian Breeding
- Mechanisation
- Crop Protection

**Biotechnology Today:**
- herbicide and bollworm tolerance

**Biotechnology Tomorrow:**
- nitrogen use efficiency
- drought tolerance

**30 Years of Improvement**

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>Land Use</td>
<td>-30%</td>
</tr>
<tr>
<td>Soil Erosion</td>
<td>-68%</td>
</tr>
<tr>
<td>Irrigation water</td>
<td>-75%</td>
</tr>
<tr>
<td>Energy</td>
<td>-36%</td>
</tr>
<tr>
<td>GHG</td>
<td>-30%</td>
</tr>
</tbody>
</table>

**Field to Market - Cotton**

The Keystone Alliance for Sustainable Agriculture

**ITMF Annual Conference 2013**
Cotton’s Advantage

250 Million People involved in the cotton and textile industry:

Consumer’s View
Are the Following Fibres Safe for the Environment?

<table>
<thead>
<tr>
<th>Percentage Answering “Safe”*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cotton</td>
</tr>
<tr>
<td>Silk</td>
</tr>
<tr>
<td>Wool</td>
</tr>
<tr>
<td>Polyester</td>
</tr>
<tr>
<td>Lycra/Spandex</td>
</tr>
<tr>
<td>Rayon</td>
</tr>
<tr>
<td>Nylon</td>
</tr>
</tbody>
</table>

Sources: CCI & Cotton Incorporated’s 2012 Global Lifestyle Monitor Survey & Cotton Incorporated’s 2012 Environment Survey

*Top-5 box responses on an 11-point scale

Source: Cotton USA/Cotton Inc.

Global Consumers’ Apparel Purchase Drivers

Primary Purchase Drivers (>80%)
- Quality
- Color
- Price
- Style
- Durability
- Finish

Secondary Purchase Drivers (>50%)
- Fiber Content
- Cleaning Requirements
- Performance Features
- Environmental Friendliness
- Brand Name

Other Purchase Drivers (<40%)
- Country of Origin
- Endorsement

Source: CCI & Cotton Incorporated 2010 Global Lifestyle Monitor Survey

ITMF Annual Conference 2013
Environmental/Social Concerns* Among Global Consumers

- Increasing Retail Prices (85%)
- Water Quality/Scarcity (83%)
- Child Labor (82%)
- Preservatives/Additives in Food (80%)
- Pesticides to Grow Food (79%)
- Global Warming (78%)

*Top-5 box responses on an 11-point scale

Source: Cotton USA/Cotton Inc.

Who Would Global Consumers Hold Responsible for Clothing Produced in a Non Environmentally-Friendly Way?

- Manufacturer: 41%
- The brand: 15%
- Myself: 13%
- Store where bought: 8%
- Producing country: 6%
- Not important: 7%
- Other: 8%

*Top-5 box responses on an 11-point scale

Source: Cotton USA/Cotton Inc.
The New Meaning of Sustainability

Retailer Commitments to Sustainable Cotton:

<table>
<thead>
<tr>
<th>Retailer</th>
<th>Commitment</th>
<th>Timeline</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ikea</td>
<td>100% BCI</td>
<td>by 2015</td>
</tr>
<tr>
<td>Adidas</td>
<td>100% Sustainable Cotton Better Cotton, certified organic cotton or any other form of sustainably produced cotton that is currently available or might be in future.</td>
<td>by 2018</td>
</tr>
<tr>
<td>Otto Group</td>
<td>100% Sustainable Cotton</td>
<td>by 2020</td>
</tr>
<tr>
<td>H&amp;M</td>
<td>100% from more sustainable sources</td>
<td>By 2020</td>
</tr>
<tr>
<td>C&amp;A</td>
<td>100% Organic or other sustainable cottons</td>
<td>By 2020</td>
</tr>
</tbody>
</table>

The New Meaning of Sustainability

The textile chain is long and complex
Retailers have little influence on the raw material
In the worst case the end consumer is a critic

Confidence

ITMF Annual Conference 2013
The New Meaning of Sustainability

US Cotton Samples
Australian Cotton
SEEP measuring sustainability
DNA based cotton analysis

ITMF Annual Conference 2013

Conclusion

- No abandoning of consumption, but responsible production
- Securing demand
- Be there from the beginning
- Traceability as a part of the transparency
- We need to be a one stop shop for traceably sourced, certified cotton/textiles with efficient back up in terms of documentation, reporting, financing, market information, media and PR assistance

ITMF Annual Conference 2013
1. What is the most efficient way to create transparency and traceability?
2. How far down the textile chain has the transparency to go? (do we need to trace back the cotton to the farmer?)
3. What is the impact of traceability on the producing regions?
4. What influence will increasing transparency and traceability have on consumer behavior?
5. Who will pay for the additional costs in the whole textile chain?
ICA Bremen
DNA Based Cotton Analysis

Kai Hughes
Managing Director

What is ICA Bremen?

• An ‘international centre of excellence’ for cotton quality testing & research

• Combining the knowledge and expertise of:
  – International Cotton Association
  – Bremer Baumwollboerse
  – Bremen Fibre Institute (FIBRE)
Our services

- laboratory certification
- laboratory testing
- quality arbitration
- round trials
- cotton grade standards
- research
- cotton classing & testing training
- consultancy

Laboratory Testing

- HVI Testing
- Micronaire
- Nep Testing
- Trash Testing
- Afis
- Stickiness testing
- Manual classing and
NEW: DNA Testing Services

Why DNA testing?

- The traceability of cotton varieties is increasing in importance
- The need for suitable and reliable analytical tools is becoming greater
New partnership
DNA Based Cotton Analysis

Dr Lothar Kruse
Impetus Bioscience

Basic Working Steps
PCR Cycle

1. Denaturation
   95°C

2. Annealing
   50-60°C

3. Elongation
   50-60°C

- Reaction runs in thermocycler

G. hirsutum/barbadense STR profile

Old world strains

G. barbadense

G. hirsutum
Status Quo

- The following services can be offered immediately:
- Qualitative identification of genetically modified cotton, i.e. presence/absence of genetic modifications in raw and processed materials (seed, raw fibers, yarn, fabrics, finished products)
- Quantitative identification of gmC, i.e. determination of the gm proportion in raw and processed materials (seed, raw fibers, yarn, fabrics)
- The quantitative analysis of finished (dyed/bleached) products seems possible but depends on the total amount of DNA that can be extracted from the matrix - optimization/development is still ongoing in our lab
- Qualitative identification of G. barbadense and G. hirsutum, i.e. presence/absence of the species in raw and processed materials (seed, raw fibers, yarn, fabrics, finished products).
- Quantitative identification of G. barbadense and G. hirsutum, i.e. determination of the proportion of the respective species in raw and processed materials (seed, raw fibers, yarn, fabrics)
Topics to be covered

- An overview of MMF for fifty years.
- World textile mill consumption to 2012, all fibres and then MMF.
- Net trade in textiles and apparel to 2012 for selected regions.
- The outlook for per capita demand in MMF for selected regions.
- Consequences for MMF production to 2030.

World – fibre volumes

Long-term growth is expected to be slower, as a result of a “China effect”, China in 2020 forecast to have 32% of global consumer demand across all fibres; in MMF, more significantly, 39%, of which nearly 80% in polyester.

Any slowdown in China hits polyester but hardly touches cotton with just 11% of the consumer market in China in 2020.

Slower growth overall enables cotton to increase at its own pace and hold market share; growth over 2010-20 for all fibres being put at 3.5% pa and over 2020-30 at 1.0% (2.5% according to other observers).
World – fibre shares

Slide 3
ITMF: Bregenz, Austria - September 2013

World textile mill consumption – by fibre

Total consumption in 2012 reached 82.1 mt, an increase of 4.0%; wool at 1.06 mt down 2.5%; cotton at 22.9 mt down 2.2%; cellulosic at 4.3 mt up 17.4%; and synthetic at 53.8 mt up 6.0%.

Source: PCI Fibres Red Book.

ITMF Annual Conference Report 2013, Bregenz/Austria
Fibre Session: Peter Driscoll
World textile mill consumption – by region

The developed West recovered by 1.0% in 2012 to 12.3 mt, but the Far East declined 3.8% to 3.2 mt. India grew by just 2.0% to 8.0 mt, China by 5.6% to 43.5 mt and the rest of Asia by 8.6% to 9.2 mt.

World textile mill consumption – in MMF types

In MMF, cellulosic (as noted above) grew in 2012 by 17.4%. Acrylic fell 1.6% to 2.0 mt, nylon grew 2.8% to 3.9 mt, polyester rose 7.2% to 43.9 mt and PP increased by 0.9% to 4.0 mt.
World TMC – cellulosic staple

Cellulosic staple worldwide grew in 2012 by 19% to 4.0 mt; in Greater Europe by 10% to 0.5 mt. In India however there was an 11% fall to 0.25 mt, while in China TMC grew by 24% to 2.3 mt and in the rest of Asia by 34% to 0.7 mt.

World TMC – polyester staple

TMC worldwide grew in 2012 by 3% to 14.7 mt: the Far East down 12% to 0.3 mt, South Asia up 6% to 1.9 mt, India down 5% to 0.8 mt, and China up 5% to 8.4 mt.
World TMC – polyester textile filament

TMC worldwide grew in 2012 by 9.5% to 26.5 mt; the Far East down 8% to 1.3 mt; South Asia up 12% to 1.5 mt; India down 7% to 1.8 mt; China up 13% to 19.7 mt.

Source: PCI Fibres Red Book.

World TMC – MMF only

TMC worldwide grew in 2012 by 6.8% to 58.2 mt; the Americas up 3% to 5 mt, the Far East down 5% to 3 mt, South Asia up 10% to 5 mt, India down 4% to 3 mt, and China up 11% to 35 mt.

Source: PCI Fibres Red Book.
MMF production grew worldwide in 2012: in the Americas up 1% to 3.7 mt, in South Asia up 6% to 4.2 mt, and in China up 11% to 36.7 mt. But it declined in the Far East by 3% to 4.5 mt and in India by 1% to 3.9 mt.

South Asia’s net import of fibre is much less significant in % terms, but this market, uniquely for Asia, is still a net importer of fibre.
**USA net trade in apparel/textiles**

Cotton apparel imports (net basis) still lead those in MMF, but higher cotton prices might have had some effect in recent years.

**South America net trade in apparel/textiles**

South America’s markets import textiles more and more for their own use, net exports of apparel having declined.
West Europe net trade in apparel/textiles

Net imports of apparel in MMF have held up more than those in cotton.

Turkey net trade in apparel/textiles

Turkey’s trade in cotton products has shown some recovery, but new business is emerging in MMF textiles.
India's textile trade is still led by cotton; with the apparel side relatively modest.

China's net exports of MMF textiles stand out, but apparel volumes in all fibres, even if in some decline, are still huge.

The net figure for cotton textiles has been deflated recently by large imports of spun yarn, considered as textiles rather than as fibres.
Japan net trade in apparel/textiles

Japan imports large amounts of apparel, in cotton and increasingly in MMF. Net imports of textiles are growing.

Canada/USA final demand - MMF

Although the per capita trend in Canada/USA is still quite flat, it is forecast by 2015 to be growing at 0.7% pa (1.5% in overall volume). Pipeline stocks, currently below 20%, are forecast to peak close to 60% of final demand around 2020-25.
South America final demand - MMF

The per capita trend through to 2030 in South America is put as growing at 2.1% pa (in overall volume at 3.0%), with pipeline stocks, currently below 40%, forecast to peak close to 45% of final demand around 2015.

West Europe final demand - MMF

Although the per capita trend in West Europe is still quite flat, post-2020 it is forecast to be growing at 1.3% pa (1.4% in overall volume). Pipeline stocks, currently below 5%, are forecast to peak close to 45% of final demand around 2025.
Per capita trend in Turkey through 2000-10 was growing at 3.9% pa (5.4% in overall volume), but is now put long-term at 1.3% (2.2%). Pipeline stocks, currently below 30%, are forecast to peak just above 60% of final demand before 2020.

The long-term trend is put in per capita terms at an average 3.2% pa, and in actual volume at 4.3%.
China final demand - MMF

The long-term trend is put in per capita terms at an average 9.5% pa (2003-13) and 2.5% pa (2013-23), and in actual volume at 10.0% and 2.8%.

Japan final demand - MMF

The per capita trend for Japan remains close to flat, with any change in apparent demand coming from cyclic effects. Pipeline stocks, currently below 15%, are forecast to peak close to 40% of final demand around 2020.
Per capita trends compared – all fibres

Source: PCI Fibres Red Book.

Summary in terms of MMF production

<table>
<thead>
<tr>
<th></th>
<th>2012</th>
<th>2013</th>
<th>Y-on-Y</th>
<th>2020</th>
<th>2012-20</th>
<th>2020-30 (avg % pa)</th>
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<tbody>
<tr>
<td>Americas</td>
<td>3673</td>
<td>3738</td>
<td>1.8%</td>
<td>4128</td>
<td>1.5%</td>
<td>0.7%</td>
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<tr>
<td>Gt Europe + other</td>
<td>5166</td>
<td>5143</td>
<td>-0.4%</td>
<td>5845</td>
<td>1.6%</td>
<td>0.4%</td>
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<tr>
<td>Far East</td>
<td>4509</td>
<td>4330</td>
<td>-4.0%</td>
<td>3918</td>
<td>-1.7%</td>
<td>-0.9%</td>
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<tr>
<td>South Asia</td>
<td>4237</td>
<td>4562</td>
<td>7.7%</td>
<td>5735</td>
<td>3.9%</td>
<td>1.0%</td>
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<tr>
<td>India</td>
<td>3877</td>
<td>4005</td>
<td>3.3%</td>
<td>6430</td>
<td>6.5%</td>
<td>4.0%</td>
</tr>
<tr>
<td>China</td>
<td>36699</td>
<td>39207</td>
<td>6.8%</td>
<td>52158</td>
<td>4.5%</td>
<td>0.4%</td>
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<tr>
<td><strong>Total</strong></td>
<td><strong>58161</strong></td>
<td><strong>60985</strong></td>
<td><strong>4.9%</strong></td>
<td><strong>78214</strong></td>
<td><strong>3.8%</strong></td>
<td><strong>0.8%</strong></td>
</tr>
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</table>
Innovative applications for cellulosic fibers

Dr. Dieter Eichinger
Vice President/General Manager BU Textile
Lenzing AG

Natural fibers are important for the consumer

How important are natural materials (as cotton, wool, linen or silk) buying clothes?
Botanic principles for Lenzing Modal® and TENCEL®

Consumer wants comfort
Man Made Cellulosic still a niche in the cellulose staple fiber market

Cotton and Man Made Cellulosics

- Standard cotton
- US cotton
- BCI
- Organic cotton
- ELS cotton
- TENCEL®
- Modal
- Viscose

A shortage of ELS is on the horizon

World Output of Long staple Cotton

Source: Cotton Outlook, August 2013
Comfort factors for textile fibers

- Touch
- Moisture Management
- Drape
- Botanic

Comfort factor – drape

TENCEL®

Cotton
Moisture uptake is highest

Children with sensitive skin experience TENCEL as skinfriendly

78% admit that TENCEL® is more pleasant to wear than cotton.

88% agreed that the TENCEL® suit has a cooling effect in the summer.

62% indicate that the TENCEL® overall clearly improves the quality of sleep.
Skin

TENCEL® PASSES THE TEST

Tests of the textile compatibility of TENCEL®; Univ. Prof. Dr. Diepgen, University of Heidelberg, Germany

90% indicated that TENCEL® feels smooth and cool.

90% stated that TENCEL® distinguishes itself due to its excellent skin compatibility.

93% stated that TENCEL® demonstrates excellent heat regulation.

Friction for TENCEL on glass lowest

<table>
<thead>
<tr>
<th>Fiber Type</th>
<th>ASTM D1894-01 (Coefficient of Friction)</th>
<th>Gardner Apparatus (Cleaning Performance)</th>
<th>ASTM 6702-01 Wiping Performance</th>
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<tr>
<td></td>
<td>Glass</td>
<td>Simulated Skin</td>
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<tr>
<td>Cotton</td>
<td>0.90</td>
<td>0.78</td>
<td>73%</td>
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<tr>
<td>Polyester</td>
<td>0.67</td>
<td>0.68</td>
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<tr>
<td>Tencel</td>
<td>0.47</td>
<td>0.51</td>
<td>65%</td>
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<tr>
<td>Rayon</td>
<td>0.70</td>
<td>0.85</td>
<td>63%</td>
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<tr>
<td>Pulp</td>
<td>0.80</td>
<td>0.70</td>
<td>57%</td>
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Source: Barnhardt
Technically confirmed through friction test on glass

**Friction Coefficient***

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<tr>
<th>Fabric</th>
<th>Glass</th>
<th>Simulated Skin</th>
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<tbody>
<tr>
<td>Cotton</td>
<td>0.8</td>
<td>0.8</td>
</tr>
<tr>
<td>Polyester</td>
<td>0.6</td>
<td>0.6</td>
</tr>
<tr>
<td>TENCEL</td>
<td>1.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Rayon</td>
<td>0.4</td>
<td>0.4</td>
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</table>

Source: Barnhardt

- ASTM D1894-01 (Coefficient Friction)

A new category for comfort will be presented in Dornbirn conference

**SKINOLOGY**

The Relationship between TENCEL Fibers and the Human Skin

Source: M. Waid, J. Waid, G. N. Stiehr, E. R. Baumer
Botanic origin

TENCEL® + COTTON

Fiber cross section

Cotton  TENCEL®  Viscose
TENCEL® can be used in woven applications

Shirting  Bed linen  Denim

Up to 20% higher productivity due to lower twist with Extra Long Staple

Strength (cN/tex) vs Twist Factor
Allowing Reduction of Twist for Micro TENCEL® / Pima Blends No 60

<table>
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<tr>
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<th>100% Israeli Pima Cotton</th>
<th>25% / 75% Micro TENCEL® / Israeli Pima Cotton</th>
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<tr>
<td>120</td>
<td>14</td>
<td>17</td>
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<tr>
<td>140</td>
<td>15</td>
<td>18</td>
</tr>
<tr>
<td>160</td>
<td>16</td>
<td>20</td>
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<tr>
<td>alpha metrical twist per m</td>
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ITMF Annual Conference Report 2013, Bregenz/Austria
Fibre Session: Dieter Eichinger
Turkish cotton: TENCEL extends productivity spectrum

Better yarn quality
Airjet spinning: processability and yarn quality improved by TENCEL

TENCEL® is cost wise on a comparative level

ITMF Annual Conference Report 2013, Bregenz/Austria
Fibre Session: Dieter Eichinger
Application innovation: TENCEL® in new end uses for

TENCEL® applications

TENCEL® in 2020

Technic
Interior & Home
Apparel
NW
TENCEL® is the future of innovation
<table>
<thead>
<tr>
<th>Name</th>
<th>Title</th>
<th>Company</th>
<th>Address</th>
<th>Telephone</th>
<th>Fax</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Canclini</td>
<td>Chairman</td>
<td>Canclini Tessile S.p.A.</td>
<td>Via 25 Aprile 71</td>
<td>(+39-031) 352 7548</td>
<td>(+39-031) 899 422</td>
<td><a href="mailto:simone@canclini.it">simone@canclini.it</a></td>
</tr>
<tr>
<td>Mr. Simone</td>
<td></td>
<td></td>
<td>IT - 22070 Guanzate (CO), Italy</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Driscoll</td>
<td>Managing Director</td>
<td>PCI Fibres</td>
<td>May House, The Warren</td>
<td>(+44-1435) 873 164</td>
<td>(+44-1435) 872 855</td>
<td><a href="mailto:pdriscoll@pcifibres.com">pdriscoll@pcifibres.com</a></td>
</tr>
<tr>
<td>Mr. Peter</td>
<td></td>
<td></td>
<td>Mayfield, East Sussex TN20 6UB,</td>
<td></td>
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</tr>
<tr>
<td>Eichinger</td>
<td>Vice President BU Textile Fibers</td>
<td>Lenzing AG</td>
<td>Werkstrasse 2</td>
<td>(+43-7672) 701 2805</td>
<td>(+43-7672) 918 2805</td>
<td><a href="mailto:d.eichinger@lenzing.com">d.eichinger@lenzing.com</a></td>
</tr>
<tr>
<td>Mr. Dieter</td>
<td></td>
<td></td>
<td>AT - 4860 Lenzing, Austria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gherzi</td>
<td>Partner</td>
<td>Gherzi Textil Organisation</td>
<td>Gessnerallee 28</td>
<td>(+41-44) 219 6000</td>
<td>(+41-44) 219 6010</td>
<td><a href="mailto:g.gherzi@gherzi.com">g.gherzi@gherzi.com</a></td>
</tr>
<tr>
<td>Mr. Giuseppe</td>
<td></td>
<td></td>
<td>CH - 8021 Zürich, Switzerland</td>
<td></td>
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</tr>
<tr>
<td>Green</td>
<td>Executive Vice President - Global Supply Chain</td>
<td>PVH Corporation</td>
<td>10/F, One Kowloon, 1 Wang Yuen Street</td>
<td>(+852) 2738 0909</td>
<td>(+852) 2375 9605</td>
<td><a href="mailto:markgreen@pvh.com">markgreen@pvh.com</a></td>
</tr>
<tr>
<td>Mr. Mark</td>
<td></td>
<td></td>
<td>Kowloon Bay</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td>Tel.:</td>
<td>(+852) 2738 0909</td>
<td>(+852) 2375 9605</td>
<td><a href="mailto:markgreen@pvh.com">markgreen@pvh.com</a></td>
</tr>
</tbody>
</table>
Gresser
Mr. Götz T.
Director
Institute of Textile Technology and Process Engineering
Körschtalstrasse 26
DE - 73770 Denkendorf, Germany
Tel.: (+49-711) 9340 216
Fax: (+49-711) 9340 261
goetz.gresser@itv-denkendorf.de

Grobien
Mr. Fritz A.
President
Albrecht, Müller-Pearse, c/o Bremer Baumwollbörse
Wachtstrasse 17-24
Zimmer 409
DE - 28195 Bremen, Germany
Tel.: (+49-421) 339 700
Fax: (+49-421) 339 7033
fritz@amp-bremen.com

Hellmeyer
Mr. Folker
Chief Economist
Bremer Landesbank
Domshof 26
DE - 28195 Bremen, Germany
Tel.: (+49-421) 332 2690
Fax: (+49-421) 332 2222
folker.hellmeyer@bremerlandesbank.de

Hentschel
Mr. Stefan
Industry Leader B2B
Google Germany GmbH
ABC-Strasse 19
DE - 20354 Hamburg, Germany
Tel.: (+49-40) 808 179 068
Fax: ---
shentschel@google.com

Hofstadler
Mr. Alexander
CEO
Linz Textil GmbH
Wiener Strasse 435
AT - 4030 Linz-Kleinmünchen, Austria
Tel.: (+43-732) 39960
Fax: (+43-732) 39960-74
hofstadler@linz-textil.at

Hughes
Mr. Kai
Managing Director
The International Cotton Association, Ltd.
6th Floor, Walker House
Exchange Flags
Liverpool L2 3YL, United Kingdom
Tel.: (+44-151) 236 6041
Fax: (+44-151) 255 0174
md@ica-ltd.org
<table>
<thead>
<tr>
<th><strong>Kruse</strong></th>
<th>Managing Director</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mr. Lothar</strong></td>
<td>Impetus GmbH &amp; Co. Bioscience KG</td>
</tr>
<tr>
<td></td>
<td>Fischkai 1</td>
</tr>
<tr>
<td></td>
<td>DE - 27572 Bremerhaven, Germany</td>
</tr>
<tr>
<td></td>
<td>Tel.: (+49-471) 4832 340</td>
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<tr>
<td></td>
<td>Fax: (+49-471) 4832 341</td>
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<tr>
<td></td>
<td><a href="mailto:l.kruse@impetus-bioscience.de">l.kruse@impetus-bioscience.de</a></td>
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<thead>
<tr>
<th><strong>Lehner</strong></th>
<th>Chief Executive Officer</th>
</tr>
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<tbody>
<tr>
<td><strong>Mr. Dionys L.</strong></td>
<td>Linz Textil Holding AG</td>
</tr>
<tr>
<td></td>
<td>Wiener Strasse 435</td>
</tr>
<tr>
<td></td>
<td>AT - 4030 Linz, Austria</td>
</tr>
<tr>
<td></td>
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<tr>
<td></td>
<td>Fax: (+43-732) 3996 74</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:lehner@linz-textil.at">lehner@linz-textil.at</a></td>
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<tr>
<th><strong>Paavola</strong></th>
<th>VP, Head of Global Business Development</th>
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<tbody>
<tr>
<td><strong>Mr. Teppo</strong></td>
<td>PayPal</td>
</tr>
<tr>
<td></td>
<td>2211 N. 1st Street</td>
</tr>
<tr>
<td></td>
<td>San Jose, CA 95131, USA</td>
</tr>
<tr>
<td></td>
<td>Tel.: (+1-408) 421 2038</td>
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<tr>
<td></td>
<td><a href="mailto:teppo@paypal.com">teppo@paypal.com</a></td>
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<thead>
<tr>
<th><strong>Parés</strong></th>
<th>CEO</th>
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<tbody>
<tr>
<td><strong>Mr. Juan</strong></td>
<td>Textil Santanderina, S.A.</td>
</tr>
<tr>
<td></td>
<td>Av. Textil Santanderina, S/N</td>
</tr>
<tr>
<td></td>
<td>ES - 39500 Cabezón de la Sal (Cantabria), Spain</td>
</tr>
<tr>
<td></td>
<td>Tel.: (+34-942) 700 125</td>
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<tr>
<td></td>
<td>Fax: (+34-942) 701 711</td>
</tr>
<tr>
<td></td>
<td><a href="mailto:juan@tsanta.es">juan@tsanta.es</a></td>
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<thead>
<tr>
<th><strong>Roth</strong></th>
<th>CEO The Store, WPP EMEA &amp; Asia</th>
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<tr>
<td><strong>Mr. David</strong></td>
<td>WPP</td>
</tr>
<tr>
<td></td>
<td>Berger House</td>
</tr>
<tr>
<td></td>
<td>38 Berkeley Square</td>
</tr>
<tr>
<td></td>
<td>London W15 5AE, United Kingdom</td>
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<table>
<thead>
<tr>
<th><strong>Schindler</strong></th>
<th>Director General</th>
</tr>
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<tbody>
<tr>
<td><strong>Mr. Christian P.</strong></td>
<td>ITMF</td>
</tr>
<tr>
<td></td>
<td>Wiedingstrasse 9</td>
</tr>
<tr>
<td></td>
<td>CH - 8055 Zürich, Switzerland</td>
</tr>
<tr>
<td></td>
<td>Tel.: (+41-44) 283 6380</td>
</tr>
<tr>
<td></td>
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</tr>
<tr>
<td></td>
<td><a href="mailto:christian.schindler@itmf.org">christian.schindler@itmf.org</a></td>
</tr>
</tbody>
</table>
Stridde
Mrs. Tina
Managing Director
Aid by Trade Foundation / Cotton made in Africa
Bramfelder Chaussee 105
DE - 22177 Hamburg, Germany
Tel.: (+49-40) 6461 7461
Fax: (+49-40) 6461 1009
tina.stridde@abt-foundation.org

Sun
Mr. Ruizhe
Vice President
China National Textile & Apparel Council (CNTAC)
Room 205, 12 East ChangAn Street
Beijing 100742, P.R. China
Tel.: (+86-10) 8522 9001
Fax: (+86-10) 8522 9283
srz@ctei.gov.cn

Tessmar-Pfohl
Mr. Alexander
Member of the Board
Sattler AG
Sattlerstrasse 45
AT - 8077 Gössendorf, Austria
Tel.: (+43-316) 4104 341
Fax: (+43-316) 4104 360 341
alexander.tessmar-pfohl@sattler-ag.com

Tobler
Mr. Christoph
CEO
Sefar Holding AG
Freibach
CH - 9425 Thal, Switzerland
Tel.: (+41-71) 886 3232
Fax: (+41-71) 886 3594
christoph.tobler@sefar.ch

Townsend
Mr. Terry P.
Executive Director
International Cotton Advisory Committee (ICAC)
1629 K Street NW
Room 702
Washington, DC 20006, USA
Tel.: (+1-202) 292 1685
Fax: ---
terry@icac.org

Untersperger
Mr. Peter
CEO
Lenzing AG
Werkstrasse 2
AT - 4860 Lenzing, Austria
Tel.: (+43-7672) 701-0
Fax: (+43-7672) 701 3880
p.untersperger@lenzing.com