

ANNUAL CONFERENCE REPORT 2017

2017

ITMF ANNUAL CONFERENCE

September 14-16, 2017
Bali, Indonesia



Technology, Trade, Climate
Orientation in Disruptive Times

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Annual Conference Report 2017

Technology, Trade, Climate - Orientation in Disruptive Times

From September 14-16, 2017, the International Textile Manufacturers Federation (ITMF) held its Annual Conference in Bali, Indonesia.

This report contains all available (unedited) presentations.
October 2017

INTERNATIONAL TEXTILE MANUFACTURERS FEDERATION
FÉDÉRATION INTERNATIONALE DES INDUSTRIES TEXTILES
INTERNATIONALE VEREINIGUNG DER TEXTILINDUSTRIE

Wiedingstrasse 9
CH-8055 Zürich
Switzerland

Phone (+41-44) 283 63 80
Fax (+41-44) 283 63 89
E-mail secretariat@itmf.org
Web www.itmf.org

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Bali, Friday the 15th of September

Formal Opening Session - Welcome Address by Mr. Jas Bedi, President, ITMF, Kenya

Honorable Director General of Foreign Trade Sri Oke Nurwan,

Dear Mr. Ade Sudrajat, President of API,

Ladies and Gentleman, Dear friends,

It is a real pleasure to be here on the beautiful island of Bali and attend to the 2017 ITMF annual conference. I would like to welcome you all to this major event in the world of textile manufacturers. It already promises many good presentations and talks on topics of great importance to our industry. It is the first time that our conference is held in the wonderful country of Indonesia. I would thus like to sincerely thank the Indonesian textile association and its organizing committee for the warm welcome we received.

I think we all share a common enthusiasm about this year's conference focus: Technology, trade, climate: orientation in disruptive times. All words included in this title are of extreme importance in today's context. They are all major subjects with direct influence on our economy, our politics, our environment. It is especially interesting to think about these topics in relation to our industry's past influence on major developments in international trade and technological innovation.

It all started with cotton a couple of centuries ago. Historically, this natural fiber was one of the first globally traded commodity. The scale of its production, consumption, and exchange was greater than any other manufactured good. The demand for cotton fostered trade between Europe, the Americas, Asia, and the Asia-Pacific. Buying and selling yarns, fabric, and garments created a worldwide network of manufacturers, merchants, and consumers.

In the late 18th century, South Asia was generating about one quarter of the world textile output & Indian cotton was traded via land and sea to Indonesia, Japan, the Middle East, Africa, and Europe. At that time, India was literary clothing the world. Technological innovations however slowly changed the rules of the game and induced a geographical shift of textile epicenters. For example, the comparatively small western country of England captured an increasing share of the textile market thanks to new ways of manufacturing natural fibers. Cotton soon became one of the strong catalysts of the industrial revolution. At the same time, the global demand for natural fiber kept growing and created a fertile soil for further inventions in spinning and weaving. This eventually transformed the 18th century rural England into a manufacturing power. That part of the story is, however, only a start. Since these times, the cotton industry has further played a significant role in disrupting economic activities, social norms, and political agendas. Today, it is still an essential industry in

initiating economic development, in taking the path to modernization, or, put in other words, in creating the condition for developing countries to increase their citizens' individual welfare. In short, the textile industry has always played an important role in disrupting societies. As a journalist reminded last week, "[a]cross the Atlantic [cotton] generated the conflicts that ignited the American Civil War. It inspired the writing of Marx & Engels' The Communist Manifesto and played a pivotal role in Gandhi's fight for Indian independence.

Yet, one may ask: if innovation is a disruptive force, why are we experiencing challenges in disruptive times? While the answer to this question is very complex, one way of approaching it is the recognition that innovation creates a vacuum for new sets of opportunities. Hence, making a discovery with commercial use creates room for inventing many products and applications which could not have been foreseen in previous times. Take the very first "artificial silk" patent ever granted for example. This was in 1855 in England. A Swiss chemist, Audemars, produced cellulose and patented it. While his innovation was of great importance, he failed to recognize that he could emulate a silkworm by extruding the cellulosic liquid through a small hole and this process was of no use for the textile industry at that time.

Humanity had to wait for the creation of the American Viscose Company in 1910 to produce rayon and the work of Camille and Henry Dreyfus at the same period to advance research on cellulose. It is only in 1931 that a scientist called Wallace Carothers created a "giant" molecule named "polymer". He focused on developing a specific fiber initially referred to as "66" and, there you go, nylon, the "miracle fiber", was born. After that, the world of textile extended to a whole new set of fibers; those who are completely synthesized from petrochemicals. At this point in time, things started to accelerate in the man-made fiber industry. The advent of WWII, the increasing need for cars and houses, the ever-growing consumption in the modernizing western hemisphere, as well as the ground-breaking U.S. space program were all geopolitical and economic developments which boosted the demand for polymers year after year.

What happened it that scientific research paved the way to innovation and innovation paved the way to commercial successes.

Today, the textile industry is still a major player in the worldwide economy but it has changed. It has reinvented itself for competitive reasons, it has adapted to consumption preferences, it has opened to the circular economy. Some countries begun at some point in time a transformation process which ended up in rearranging the global economy. The changes that occurred in the textile industry and set new standards for our economic activity can be captured in three points.

First, in today's world, technology is a source for competitive advantage for each component of the integrated textile value-chain.

Take fiber for a start. The production of natural fibers increasingly relies on the use of transgenic seeds which characteristics have been optimized with regards to the crops environment. The research on chemicals searches for solution to improve pest control. The evolution of irrigation systems boosts water productivity. In the man-made fibers segment, there is a constant strive to close the gap to cotton quality in terms of touch, feel, and absorption. The invention of brand new

fibers opens innumerable potential markets in different economic sectors. Technical textiles such as Smart textiles or nanotechnologies and the existence of nonwovens give rise to additional applications next to the apparel and home textiles. This segment of technical textiles is especially important in developed economies as it requires lots of interdisciplinary research and expertise. Just think of the creation of composites for the aerospace industry or the development of special textiles for the medical segment.

Of course, improving fiber characteristics is not the only domain of innovation in textile. On the topic of yarns, fabric and garments, the automatization of many production processes has been jostling routines and habits for decades. Textile machinery manufacturers have constantly improved their apparatuses in terms of quality, speed and versatility. The result is the emergence of greatly superior products and strongly improved yields. If you now add the internet of things to the equation, future developments in the industry have virtually no limit.

Once again, of course, this is not the end of the story. Retail is undergoing a metamorphosis all around the globe. The emergence of innovative E-commerce selling strategies and E-market places has revolutionized distribution channels. Research shows that apparel sales on E-commerce have surpassed any other B2C categories. This is especially true in Northern America, western Europe, and developed Asian countries. A new McKinsey report explains that China has gone from a share of 1% of worldwide transactions in the digital economy a decade ago to 40% now. Moreover, the value of China's mobile payments related to consumption by individuals was \$790 billion in 2016, 11 times that of the United States.

These are novel consumption trends which are still not fully integrated in the textile value-chain. The question thus remains: what are the long-term consequences for our industry?

The second transformation which has set new standards for our industry is the global context of trade.

In 2017, the World trade organization forecasts a 2,4% increase in global trade. The WTO, however, points out that this figure is surrounded with high uncertainty. They even warn that the "unpredictable direction of the global economy in the near term and the lack of clarity about government action on monetary, fiscal and trade policies raises the risk that trade activity will be stifled".

As we all now, the years of predictable future are over. However, it is worth noting that the number of regional trade agreements has steadily grown since the beginning of the 90's. Back then, there were about 10 of them compared to 445 in 2017! Economists say that such trends show that trade has a positive impact on the global economy.

More specific for our industry, it is well known that textile and apparel trade has been the main force for economic take-off in many countries. It can be observed now in Myanmar, it was the case before in China or India. It could also be the case for other developing economies but rising concerns about some regions of the globe are to appear. In today's context, for example, the stakes are high for Africa. According to the World Economic Forum, "Africa's cotton and apparel value chain have joined

forces to integrate the global textile supply chain. Efforts to increase productivity, competitiveness, and sustainability are made in South Africa, Tanzania, or Mozambique. Investment are currently made in ginning, spinning, weaving, and garmenting. What will happen, however, if the Trump administration does not renew or extend the Africa Growth and Opportunity Act? What are the consequence for the African textile industry? Unfortunately, nothing is sure yet apart from the fact reported to Reuters on August the 8th, 2017, by Mr. Kim Elliot, a trade expert at the Washington-based Center for Global Development, that “this administration has just shown almost zero interest in Africa”.

Another region of the world nevertheless focuses on a trade initiatives which can impact our industry in a great manner. I obviously talk about the “One road, one belt initiative”, which aim at improving the trade route and speed between China and Europe, on land and on sea. As the guardian wrote it on May 12th, 2017: “There are plans for pipelines and a port in Pakistan, bridges in Bangladesh and railways to Russia - all with the aim of creating what China calls a “modern Silk Road” trading route that Beijing believes will kick start “a new era of globalization”. Contradictory liberal and protectionist forces still shape the trade environment for textile exchanges. These trade evolutions always bring uncertainty, challenges, and the consequential opportunities along with them.

The third point I want to add is of course the environmental issue. In today’s world, each industry player, from producers to consumers, is more and more conscious of the textile manufacturing global ecological footprint. Sustainability, the circular economy, the effect of climate change (which is not “fake news” by the way) are also buzz words in all industry talks. What has become increasingly clear along the years is that, we, as an industry, have the obligation to leave behind a planet where future generation can live on. What is, however, less clear is that this isn’t a social and ecological issue only. It creates a set of brand new economic opportunities which prepares the future for new disruptive times. Environmentally friendly innovations are intended to increase market shares, create competitive advantages, and save on production costs.

On the production side, as explained by Dr. Blackburn from the University of Leeds, the challenges for the textile, dyeing, and finishing industries are multiple and complex. They consist of creating material that provides an equivalent function to the product it replaces, performs as well as or better than the existing product, is designed to be desirable, is available at a competitive or lower price, has a minimum environmental footprint for all the processes involved, is manufactured from renewable resources, uses only ingredients that are safe to both humans and the environment, and finally, has no negative impact on food supply or water.

On the demand side, moreover, the millennials, or the consumers of the future, are much more sensitive to environmental issues than their parents. Many initiative have been launched lately to reach these new consuming expectations. According to the 2016 Textile Exchange’s “Preferred Textile Market Report”, the latest initiatives in sustainable textile include circular systems, recycling textile waste, and bio-based polymer developments. These movements are supported by a growing number of certifications and labels which help ensuring sustainability claims are accurate and actions behind the claims result in real and meaningful changes. The downside of the multiplication of audit initiative is, nevertheless, the emergence of confusing and conflicting standards in addition to rising

related costs of meeting social compliance requirement. As you will learn more about this topic this afternoon during the second general session on ITMF's Audit initiative.

I will conclude by saying that the global consumption patterns are constantly changing and that per capita consumption rapidly grows in developing countries such as China and India. The per capita consumption of all fibers will further increase because China's own consumption is expected to grow from current 18kgs to 25kgs (similar to Europe) and India's consumption will raise from the current 5kgs to 15kgs. Whilst the U.S. remains the largest consumer with 39kgs per capita, the global consumption patterns will change by 2025 as follows:

- Europe and U.S. current market size (USD\$665bn) is poised to grow to USD\$775bn by 2025;
- China and India, whose current market size is USD\$320bn and poised to grow to USD\$795bn, which is bigger than E.U. and U.S. combined.

Obviously, the demand patterns will shift the supply. The world will operate in a new normal, in a local area network, whereby India will be supplied by itself, Bangladesh, Nepal & Myanmar, and on its side, China will be supplied by itself, Vietnam, Cambodia, and Laos. The EU and US markets will open to new supply chains possibly based in Africa, which enjoys a competitive advantage of duty and quota free market access. Besides shifting demand and supply patterns, the world of tomorrow will witness the greatest glocalisation movement ever experienced. It will see global brands operating in a local environment. Hence, co-opetition will become the new mantra, i.e. co-operate to compete.

Ladies and Gentleman, Dear friends,

Disruptive times are source of uncertainty. In such a context, access to relevant data and information, networking opportunities, and the existence of platforms for discussion that allow launching initiatives on relevant topics to the industry is more meaningful than ever. I think you all agree that technological innovation, ever evolving trade policies, and the challenges linked to sustainability in our industry are major topics that we must face every day. In this regards, participating to such a conference as the ITMF annual conference and being able to share on common issues on a neutral ground is of great necessity. I am very happy to see all of you, delegates and organizers, willing to exchange on these important topics here. I am convinced that it can only lead to an increased awareness of the necessities we need to tackle today to ensure a long-lasting success to our organizations in the future. It is worth pointing out the important role that plays this conference in today's context of ever changing economic conditions. Organizing such an event would, however, have not been possible without the support of our sponsors. Please let me thank our gold sponsors: 88Spares, Gemini, Saurer, and Sunrise Hong Kong; our Silver sponsors: Busana Apparel Group, EFI Reggiani, Oerlikon, Rieter, Santex Rimar, Texcoms, and Trützschle, and of course our Bronze sponsors: APAC Inti Corpora, Argo Pantex, Benninger, Bitratex, Cargill, Danliris, Embee Plumbon Tekstil, South Pacific Viscose, Sucofindo/Surveyor Indonesia, and Swissmem.

The list of people who made that conference happen also entails our host, the Indonesian textile association and its organizing committee, who did a great job in preparing the event. I want to thank you warmly for the chance of being here these days. Finally, the work of the ITMF secretariat is of equal importance. Thank to Mr. Schindler and his colleagues, the operational role of the ITMF is

ensured. I now let the stage to Dear Mr. Sudrajat, President of the Indonesia Textile Association, and wish the conference plain success.

Welcome Speech
Chairman of Indonesia Textile Association (API)
Opening Ceremony
ITMF Conference 2017

Honorable.

- *Minister of Finance of the Republic of Indonesia, Ibu Sri Mulyani Indrawati, or her representative*
- *Minister of Trade of the Republic of Indonesia, Bapak Enggartiarso Lukita, represented by Director General of Foreign Trade, Mr. Oke Nurwan*
- *President of International Textile Manufacturer Federation (ITMF), Mr. Jas Bedi and all Member of Board and all members of ITMF*
- *Board of Indonesia Textile Association*
- *Distinguished ladies and gentlemen, Welcome to Bali, welcome to Indonesia. May the warmth of Bali gives us more spirit.*

It is my great honor as Chairman of Indonesia Textile Association (API) that this year we're entrusted to host a major international conference called ITMF Conference 2017. It is a proof that Indonesia's textile and textile product industry are still being considered for its existence as well as its major rule in global market. For that reason please accept my highest gratitude for the ITMF's trust given.

Mrs. Minister and Mr. Director General,

ITMF is an international forum in the textile industry, comprising textile associations, industry supporting associations and textile companies from more than 30 countries around the world includes Indonesia. The role of ITMF is very important and strategic to promote cooperation and partnership among related parties from various countries of textile producers and supporting industries. API itself does not have an active role in ITMF membership, so I would like to thank the Indonesian textile companies who have represented Indonesia in this regard, they are PT Apac Inti Corpora, PT Texcoms, PT Bitratex, PT Embee Plumbon Tekstil and PT Indorama Synthetics

In the conference today, there were more than 280 participants from 28 countries, came from both members and non-members of ITMF. I welcome the enthusiasm of participants from Indonesia as the host country. Recorded more 80 participants are came from Indonesia, both from the textile industry, textile industry associations and supporting the textile industry. This great enthusiasm is a reflection that Indonesian textile industry businessmen still have great passion in working for the country.

Ibu Sri Mulyani and Bapak Oke, please also accept my highest gratitude for your presence in this conference today. In the afternoon, we will have Bapak Airlangga Hartarto – the Minister of Industry – who will share the government’s policy for textile industry. The presence of Indonesian government officials give us the excitement that the great enthusiasm of Indonesian textile industry is sanctioned and fully supported by the government of the Republic of Indonesia.

Distinguished ladies and gentlemen,

Textile and clothing industry plays an important and strategic role for the growth of the Indonesian economy. The important role is mainly from the acquisition of foreign exchange and the provision of employment.

Indonesia is one of very populated country in the world. With a population of over 250 million and more than 127 million of total labor force, Indonesia faces the problem of unemployment. The textile, apparel and its supporting industry is one of the answer to increase the widest possible employment opportunities.

Indonesia has a fairly complete textile industry structure, from upstream to downstream. From man-made fiber industries, either polyester, rayon or nylon; spinning industry; weaving industry; knitting industry; dyeing / printing / finishing; home textile; non woven up to garment factory are existed in Indonesia. It can be a competitive advantage for Indonesia.

However, the growth of Indonesia textile industry is still lagging behind compared with the growth world textile industry. Indonesian market share in textile and clothing in the global market has not moved from 2.8% for more than 10 years.

It is a big challenge for Indonesian textile industry players. The industry has grown and developed for over 3 decades. It is time for Indonesia's textile industry to align the steps to grow and develop together with partners from other countries.

I do expect through this event, Indonesia's textile industry would have a wider opportunity to develop a cooperation among similar industries from other countries.

Distinguished ladies and gentlemen,

Please allow me to congratulate of your conference. Enjoy Bali with all of the beautiful scenery as well as the uniqueness culture. May you have a veru successful conference.

Thank you,

NATIONAL BOARD
ASOSIASI PERTEKSTILAN INDONESIA

Ade Sudrajat
Chairman

Keynote Speech by
Prof. Jaap de Hoop Scheffer
Former Secretary General, NATO, Netherlands

Thank you very much Mr. President, Ladies and Gentlemen, thank you for the invitation.

This morning I am your out of the box-guy; but I start in the box because when I read about ITMF and hear a lot about textiles, this brings me back to a state visit which the then French President Mr. Francois Hollande made to the Netherlands a few years ago.

There was French President Francois Holland on the one side and on the other side of the table there was your fellow colleague and your Board Member, Mr. Loek de Vries, my friend from the Netherlands. They signed a very important contract for building aircraft parts made from textiles for French-made Airbus aircraft. That's what I call Textile 2.0. With what you are doing as an industry, you are representing a very important sector, that is forming the basis of a fast advancing technology. Knowing the times and grasping the opportunities means – I would say – bringing textiles in the broadest sense of the word forward and Mr. de Vries did just that at the time. As a fellow Dutchman, I felt very proud.

Ladies and Gentlemen, what I will do in my brief talk is the following: I will provide you with a few trends as I see them on the international scene – the international relations – I will say something about the challenges facing us all as nations and as persons and finally I will say a few words on the main actors on the international scene – China, Russia, the United States of America and the European Union.

Let me start with the trends: the first one I would like to mention is, as you will expect, that geopolitics are back and history is back. When the Berlin Wall fell in 1989, you remember that Francis Fujiyama, a famous historian, was declaring the end of history. My opinion today is that history is back and from time to time haunting us. Geopolitics are back. Geopolitics sounds like a complicated word; in my opinion, it is nothing more or nothing less than the competition for geographical space and influence. Examples: look at the South China Sea, look at the East China Sea, look at the annexation of Crimea by Vladimir Putin, look at Ukraine. Geopolitics is competition for geographical space and influence.

The nation state is back as well; we built a system since the Second World War with all kind of multilateral international institutions so that the right of the strongest would not necessarily prevail. That system is under pressure. We see the nation state growing more important: think about the Russian Federation, think about China, think about Turkey. But in the eyes of many people, the nation state should play a bigger role. So, geopolitics are back, the nation state is back. Why is the nation state back? One of the reason, I think is globalisation. In one session I attended yesterday, there was a discussion about globalisation. Of course, globalisation is not a new trend. The world is already globalising since quite some time. But criticism of globalisation by people who do not accept globalisation, is a new trend. And those people do this, I think, for two reasons: first, they ask themselves the question «What is in it for me?» When discussing it with a friend of ITMF or with important politicians or political leaders, we are all in favour of globalisation; but the Trump-voter in the rust belt of the USA, and in the rest of the world asks himself «What is in it for me with globalisation?» and starts criticising.

Free trade, Ladies and Gentlemen, is under pressure. We discussed it yesterday afternoon in a very interesting session. Mr. Trump has left the Trans Pacific Partnership (TPP) and I really don't know why? You can discuss, if China should have been involved in the TPP from the very beginning. From a geopolitical point of view and from a power balance point of view, I can understand, that it wasn't. But in my opinion, trade is politics. So, when the United States would like to be actively involved in this region, why abandon TPP? It took a lot of time to negotiate TPP. The Transatlantic Trade and Investment Partnership (TTIP), which is the trans-Atlantic version of TPP, is also very much under pressure as is NAFTA. I think, Ladies and Gentlemen, that you, as you are sitting here, representing your sector, the ITMF, have a great stake and a great interest in free trade, and I call on you not to leave politics just to politicians but to involve yourselves in this debate, whenever you feel necessary.

This was of course not a limited list of trends as I see them and I want – as I promised to you – to go to a few challenges. When I talk about challenges and threats facing us, you must realise that there is a substantial difference between now, the year 2017, and the days when I grew up during the Cold War. In the Cold War, internal and external security were totally separated. Preventing the Soviet Union of invading Western Europe, that was what NATO was all about. And NATO was successful. Then, the Berlin Wall fell and the Soviet Union ended. If you look at the world now, there is no distinction between internal and external security. That line has gone. We fight ISIS in the Middle East and our own societies are under pressure by returning jihadists or by local lone wolves who drive trucks or busses into people under the banner of Islam. And when they are doing this, they are hijacking one of the most important religions.

First, climate change increases the risk of a pandemic. Pandemic as you know is a worldwide epidemic for instance as the consequence of bird flew. Now, it is transferable from bird to bird and from bird to man but not yet from man to man. It has been proven in laboratories in Rotterdam in the Netherlands and the US that it is theoretically possible to transfer it from man to man and imagine what that means for the world. You can pick up bird flew and board an aircraft and within 24hrs you are in any place in the world. As a Board member of Air France/KLM with more than 700 aircrafts all over the world, this scenario is a big concern. Why do I link climate change to bird flew? Because I believe climate change forces the migrating routes from birds. The birds follow other routes which they used to because of climate change and they might land in areas where they pick up the virus. We are not that far yet, but I mention it because it might happen. Climate change has also a direct relationship with another major challenge.

Migration with a capital M. You see of course migration with refugees coming from the Middle East which unfortunately is in flames. But look at Africa, look at climate change, look at parts of the Middle East which will become uninhabitable because of climate change. What do people do if their areas become uninhabitable? They are going to move, they migrate. And if you add up demography and realise that in 2050 Asia and Africa, we saw Dr. Schindler's figures yesterday, they will add 1 billion people each, you can imagine that we should be concerned by migration and mass migration. Refugees should always be welcome, but migration requires regulation. And if you look at my area nowadays, the European Union, we have not even found the beginning of a solution to answer the question of how to tackle migration. We should do this in concert with Africa and Africans and when I mention Africa, Mr. President, it is a continent that we should take more seriously than we did until now.

So, climate change is also having an impact on security. The melting of the ice cap on the North Pole and the possibility that ships – and the Russian proved it a few weeks ago – sailing from Yokohama in Japan to Le Havre in France in one third of the usual time by using the East passage along the Russian coast in the North. Climate change continues as the ice cap melts. There is a lot of oil and natural gas

under that ice cap and there are a lot of nations claiming sovereignty and ownership of these natural resources. So, climate change also has a direct impact on security.

I don't need to mention the problem of weapons of mass destruction, Ladies and Gentlemen, when I list my threats and challenges. Iran, there is an agreement. For the moment, it holds, although President Trump is threatening any other day to leave it. North Korea, mark my words, a military intervention is very seldom and almost never a solution for a political problem. The North Korean problem, which is a big problem, should be in my opinion solved with diplomacy, with intelligent diplomacy. Nations like China, Korea itself but also Russia and others have a big responsibility to use diplomacy with a capital D. Ladies and Gentlemen, it is in my opinion, a bit too easy to say – as I hear from Washington from time to time – it is only up to China to resolve the North Korean problem. Indeed, China is the nation which can bring the most influence in discussion with Korea, true; but others will be needed apart from China to find a hopefully peaceful solution.

With the One Road One Belt Initiative, China is promoting public and private investments in Asia and Africa. The promotion of investments is a smart power creating a political footprint almost across the world not only in Africa and South America but in Europe as well. Who can be against investments? I am not against investments and I think it is a smart initiative. In Europe, we are now starting to wonder where these sectors in our economy and society are which qualify as strategic, where we have to vet outside investments more seriously as we have done until now. And this does not only concern Chinese investments by the way but any foreign investments in sectors I think we can consider strategic.

For China, also if we look at his history, is in my opinion not a nation which by nature is expansionist. China, like other countries, is particularly looking after his own interest and those interests might clash with the interests of others in the region and outside.

The United States of America, let me quote Winston Churchill who made a famous speech at Harvard University in 1943 during the Second World War and I have never forgotten that quote when I read that. Winston Churchill said to the Harvard students, «Dear students, realise» and I quote «the price for greatness is responsibility». That should be in my opinion the motto of the Trump administration. The United States of America can be a great nation, they are a great nation, but with it comes responsibility and I am not sure as I stand here in front of you this morning that Pax Americana, an American leadership role, that we have seen for decades and if the United States that I consider still in most cases a force for the good and not the bad will continue to lead. The US has to lead as China has to lead. That is their responsibility. The great nations they have to lead. With this President, I am not yet entirely sure that this is going to be the case.

The Russian Federation is another important player. Vladimir Putin qualified the demise of the Soviet Union as a major geopolitical disaster and I think Putin and Russia have not yet internalised the end of the Soviet Union; because what Putin wants in fact is to re-establish an exclusive political influence in what he considers and defines as the near abroad, Russia's near abroad – Belarus, Georgia, parts of Ukraine, Moldova, Armenia, Azerbaijan, etc. But here come the Baltic states which in his mind are also part of the Russian empire. And this is where NATO comes in, which will hopefully stop him or any other Russian presidents after him.

Finally, the European Union, Jean Claude Juncker, the President of the European Commission, made his State of the Union Address the day before yesterday which was a “Europe back on track-story”. But I think that he makes it a bit too easy for himself. Remember what I said about the nation state and the criticism on international institutions. I think that it is not as easy as the President suggests. My faith and our faith in the European Union should be first and foremost Chancellor Merkel who according to expectations will be re-elected in Germany for a 4th term. She is the leader of the

European Union and if she can team up with Emanuel Macron who is now reforming France, what France should have done 15-20 years ago, I see light at the end tunnel in the European Union, still the biggest free trade area in the world.

Brexit, I already qualified this as “Imperial Nostalgia”. I think that Brexit will be a tragedy for the United Kingdom and to a certain extent for the other 27 members of the European Union. And I hope that at the end of the day and at the end of bloody, muddy and hopeless negotiations, we land in what a journalist of the Guardian in Great Britain qualified as BINO – Brexit In Name Only – which means that the United Kingdom would stay in the Customs Union and in the Single Market. This is the position Labour takes in the United Kingdom as we speak. If the UK leaves the Customs Union and Single Market, London as a financial centre will suffer. There is also another risk the British take. It might be that Brexit becomes a side show for the 27 members of the European Union given the fact that Merkel and Macron will go full steam ahead. Then Brexit might be a side show. Because in two years it will trigger automatically that the UK will leave the EU. The situation is complex, the situation is unpredictable and I think it is a tragedy and very wrong decision which should have never been taken. I still hope that the British people might have the chance as proposed by Peter Mandelson and Tony Blair to judge the result of the negotiations in a second referendum.

Ladies and Gentlemen, I will come to my conclusion. My message for you and at the end of my story is: please don't leave politics only to the politicians. You have as ITMF and in all your companies you represent, you have a lot at stake by the international order which will be shaped by politics and by politicians.

The keynote speech was followed by a Q&A-Session.

Fibre to Fabric Innovations in Australia

Professor Xungai Wang

deakin.edu.au/ifm

Deakin University CRICOS Provider Code: 00113B



This talk gives selected examples of work conducted by Deakin University staff and PhD students, in the area of natural fibres, yarns, and fabrics.

deakin.edu.au/ifm

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EXAMPLE 1: Improving Cotton Fibre Properties

(R Remadevi PhD project supported by CRDC)

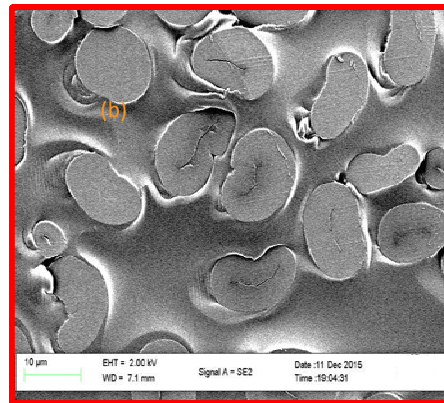
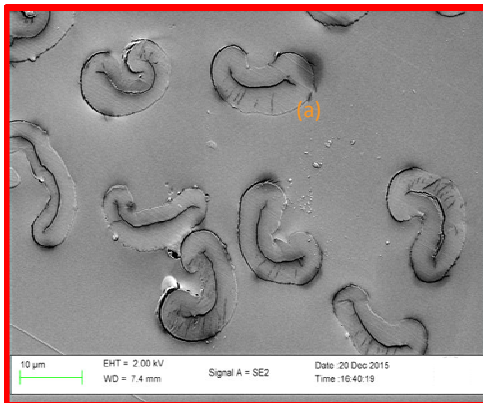


Australian Government

**Cotton Research and
Development Corporation**



Amino Acid as a Green Swelling Agent for Cotton



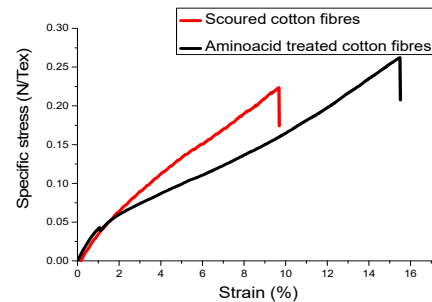
Scanning Electron Micrographs (SEM) of (a) scoured and (b) amino acid treated cotton fibres cross sections

Reference: Remadevi, R., Gordon, S., Wang, X. and Rajkhowa, R., 2016. *Investigation of the swelling of cotton fibres using aqueous glycine solutions*. Textile Research Journal, p.0040517516665267

Improvements in moisture regain and tensile properties of cotton fibres after amino acid treatment

Samples	Linear density(Tex) by cottonscope	Load (N) ± S.D	Specific stress (N/Tex) ± S.D	Strain (%) ± S.D	Moisture regain (%) ± S.D
Scoured cotton Control	0.198 ± 0.003	0.037 ± 0.010	0.194 ± 0.070	9.75 ± 2.900	6.63± 0.500
Amino acid treated cotton	0.210 ± 0.019	0.045 ± 0.010	0.215 ± 0.060	15.48 ± 4.500	7.68± 0.200

Single fibre tensile test results (n = 200) and Moisture regain(%) of scoured and amino acid treated cotton fibres.



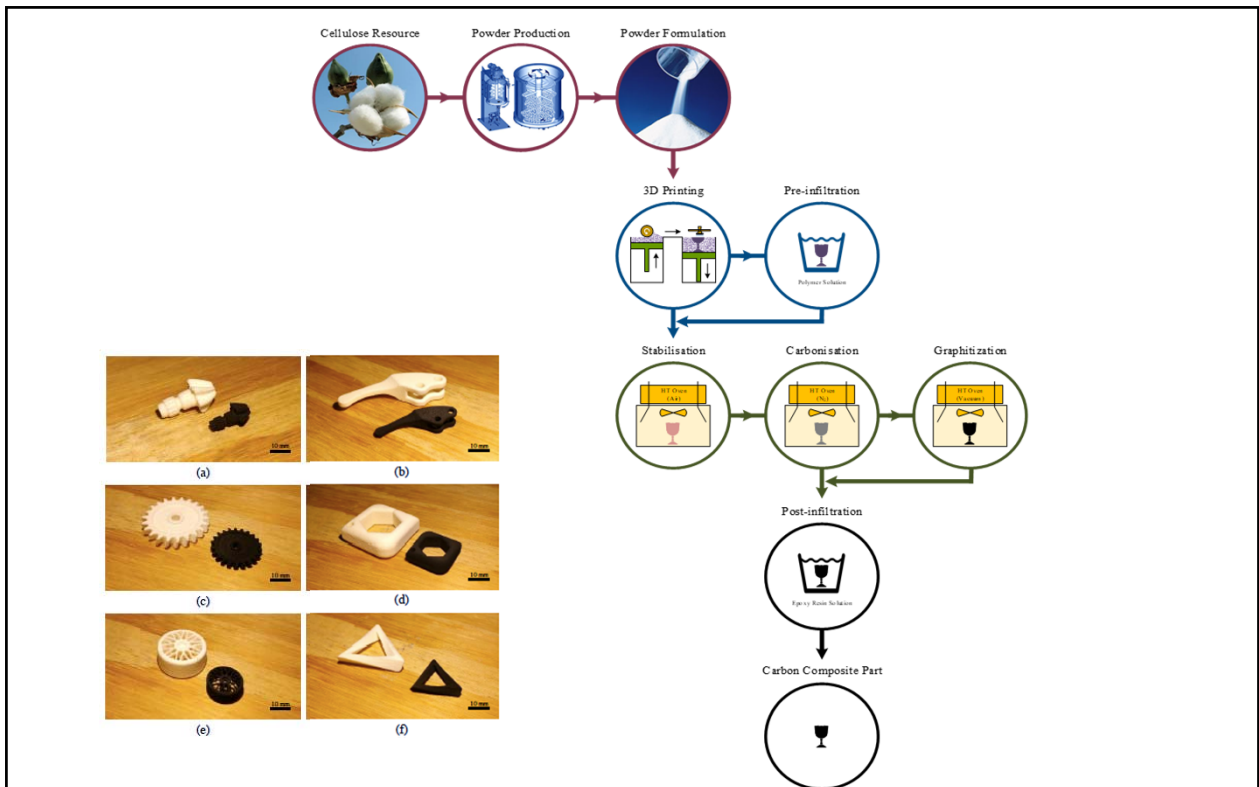
Specific stress- strain curve of scoured and amino acid treated cotton fibres

Reference: Remadevi, R., Gordon, S., Wang, X. and Rajkhowa, R., 2017. *Tensile, physical, and microstructure properties of glycine treated cotton fibers*. Textile Research Journal, p.0040517517700196

EXAMPLE 2: Fibre Powders and 3D Printing

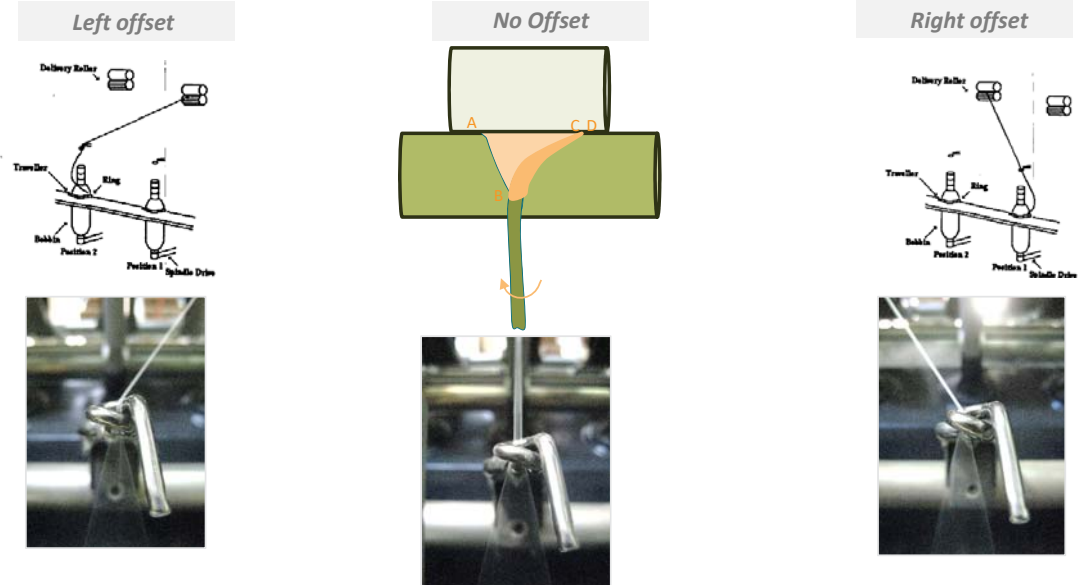
(PhD student: S Dadvar)





YouTube (<https://goo.gl/DCnfxP>)
 YouTube (<https://goo.gl/DCnfxP>)

EXAMPLE 3: Spinning Innovation – Offset Spinning

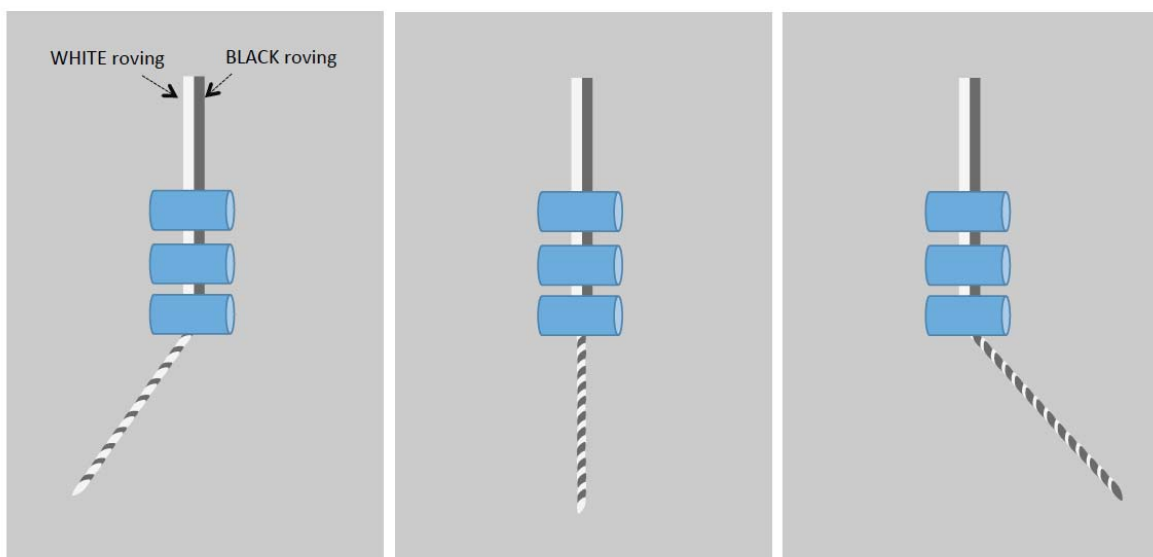


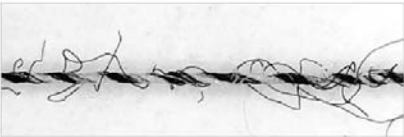
Wang XG and Chang LL, *Textile Res. J.*, **73** (4), 327-332 (2003)

Left offset

No offset

Right offset



Left offset	No offset	Right offset
		
		
		

- Significant reduction in yarn hairiness
- Colour effects
- No need for machine modification
- Commercial use in some spinning mills

deakin.edu.au/ifm Deakin University CRICOS Provider Code: 00113B




EXAMPLE 4: Improving the Safety of Motorcycle Clothing

(Key researcher: Dr Chris Hurren)



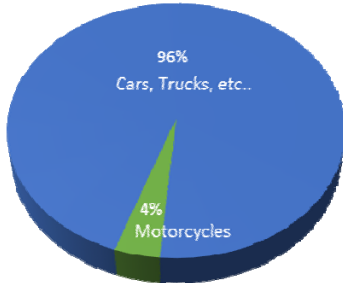




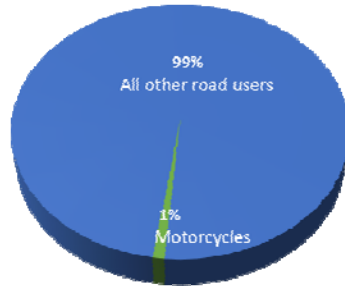




Latest statistics in Australia

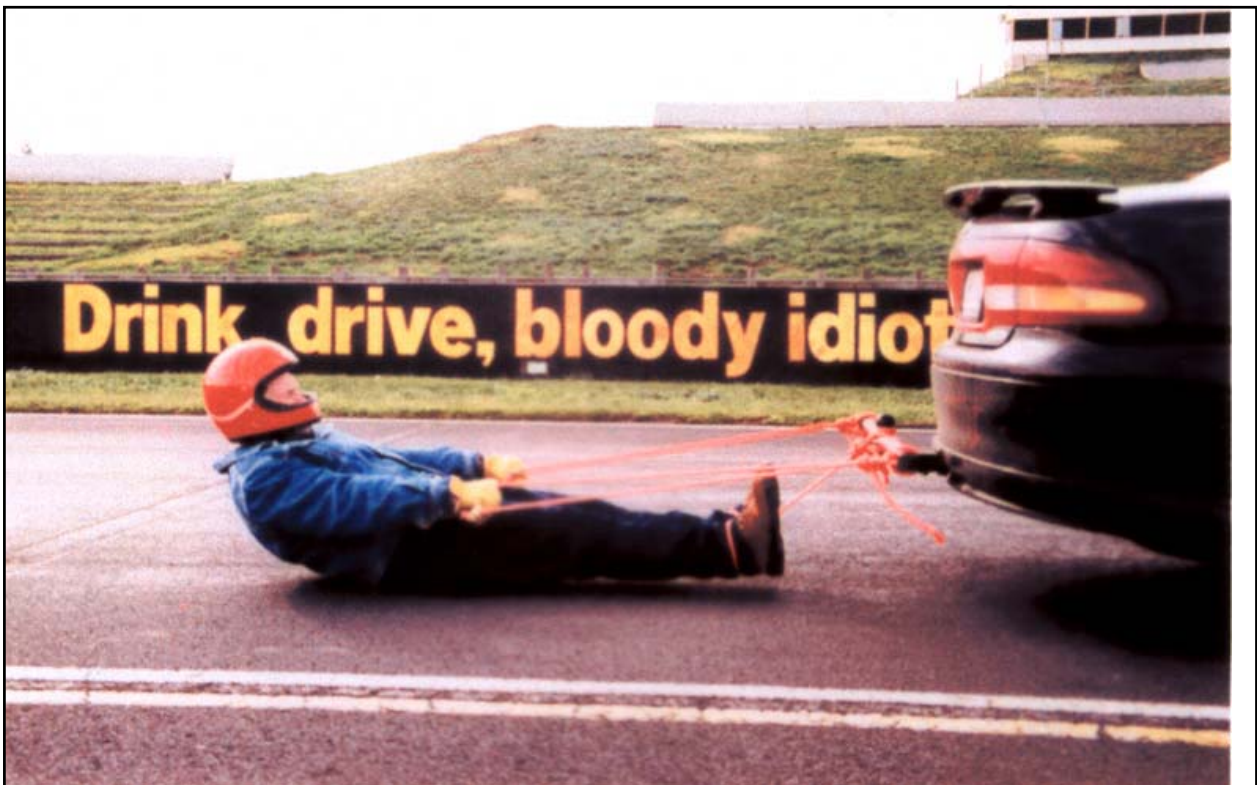
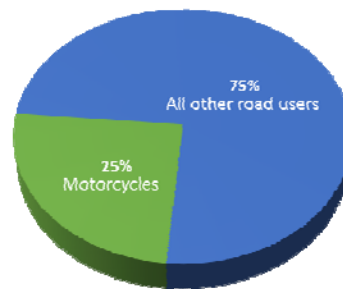


Motorcycles are 4% of all registered vehicles



Road monitoring by Monash University in Melbourne shows that motorcycles are 1% of all road users

Motorcyclists make up 25% of people injured on Australian roads



Objective evaluation of performance improvements (Video)

EXAMPLE 5: Circular Denim – Denim Dyed Denim (One of the top 5 winners out of 2885 entries)



Old denim – fine powder (colour pigment) – Coat/Print – New Denim



Acknowledgements

- Australian Research Council
- CRDC
- Deakin University
- CSIRO
- H&M Foundation



KEEPING COTTON IN HIGH DEMAND: An Australian Perspective



TRADITIONAL COMPETITIVE ADVANTAGE



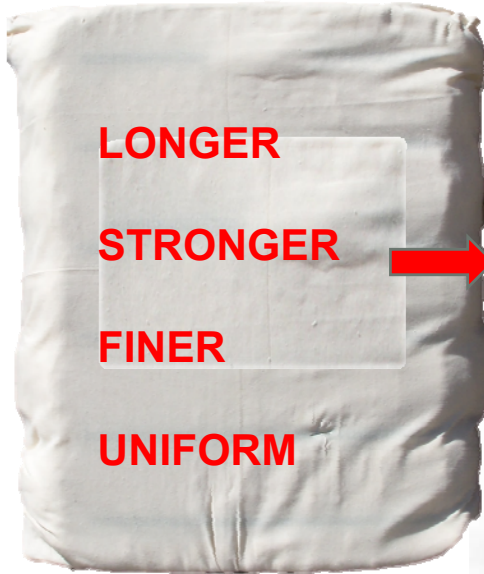


CONTINUOUS IMPROVEMENT

\$20 MILLION A YEAR IN R&D



Superior & Consistent Quality



- High Spinning Efficiency
- 40 – 60 Cnt Yarns
- High Quality Yarn
- Superior Dyeability





Cotton Contamination Surveys
2005•2007•2009•2011•2013•2016

Zero Contamination

INTERNATIONAL TEXTILE MANUFACTURERS FEDERATION
FÉDÉRATION INTERNATIONALE DES INDUSTRIES TEXTILES
INTERNATIONALE VEREINIGUNG DER TEXTILINDUSTRIE

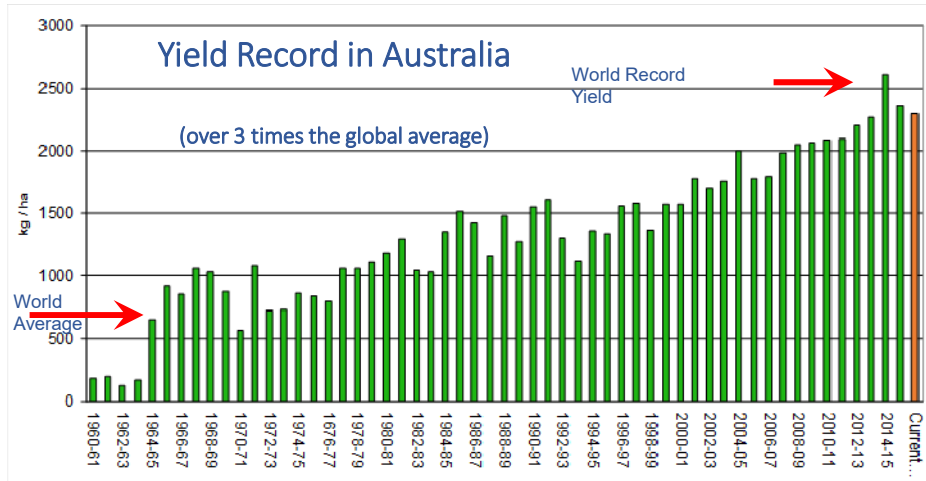




World's Highest Yields
THREE TIMES WORLD AVERAGE

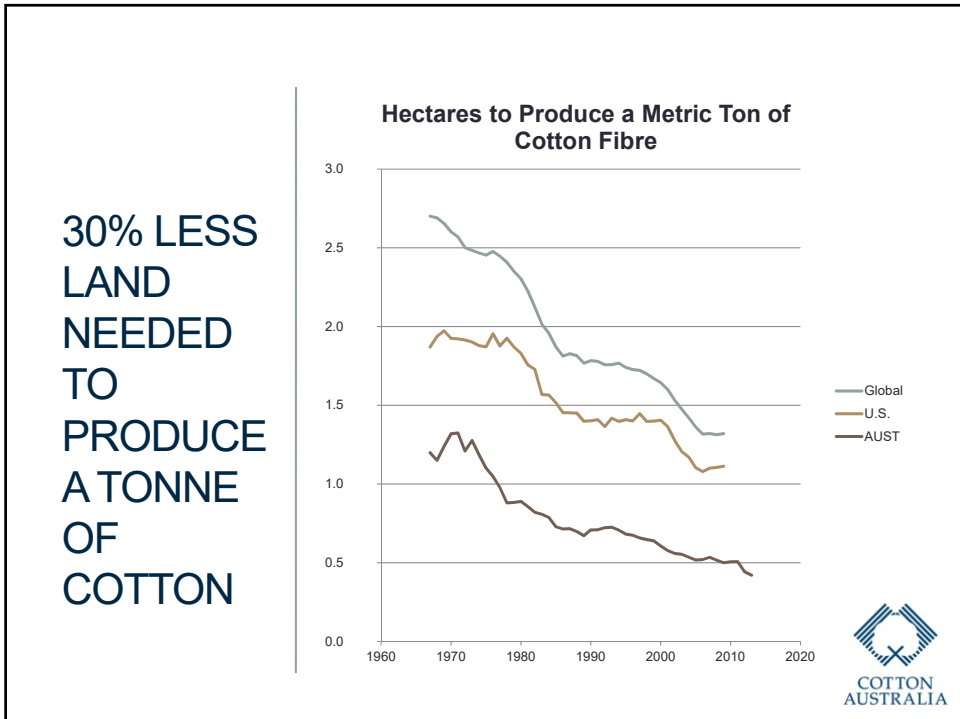


Australian Yields Continually Improve and lead the world













Rigorous Labour Standards
WE LOOK AFTER OUR PEOPLE



Australia Cotton Shippers Association



Supply Chain Traceability
FROM FARM TO MILL



Australia Cotton Shippers Association

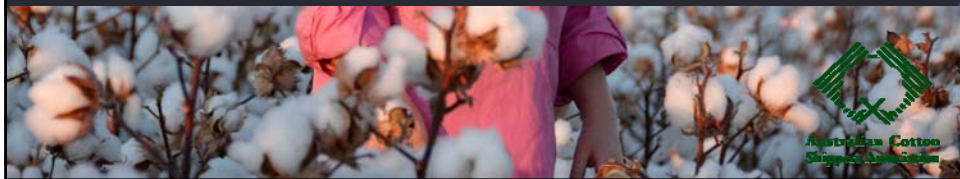




SUMMARY



THANKS







WE'RE PART OF THE GLOBAL COTTON STORY

200,000
Pakistani farmers
to be trained this
year





CONTINUOUS IMPROVEMENT



Global and local supply and demand forces

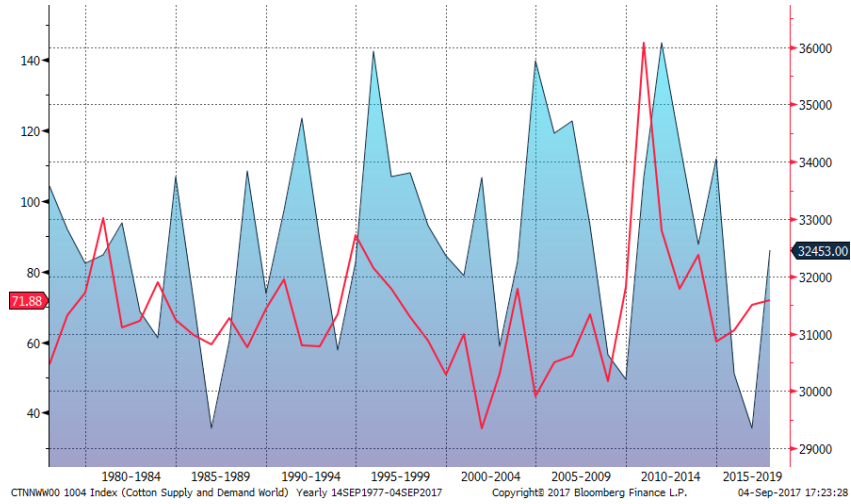
Paul Jürg Reinhart

ITMF Conference

September 2017

1. Supply Trends
2. Consumption Trends
3. Global S&D Balance and Stocks
4. Outlook – China as main swing factor

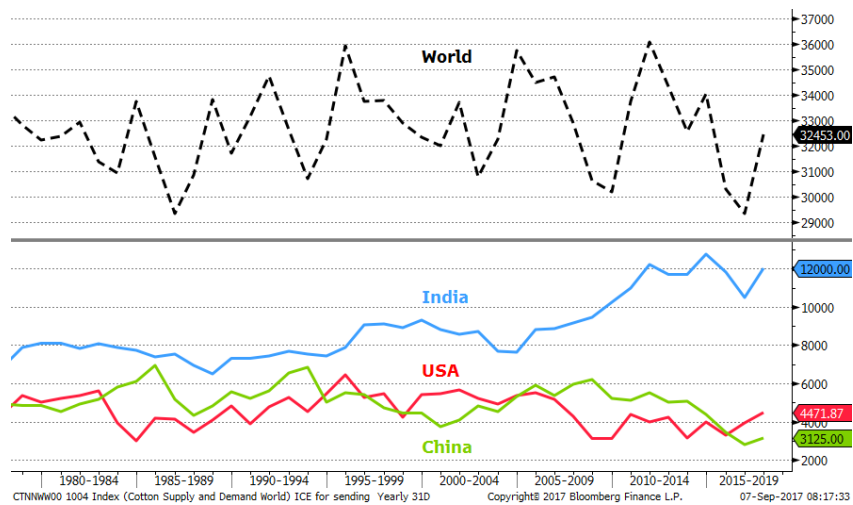
Area harvested (in '000 hectares) vs. Price (red)



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3

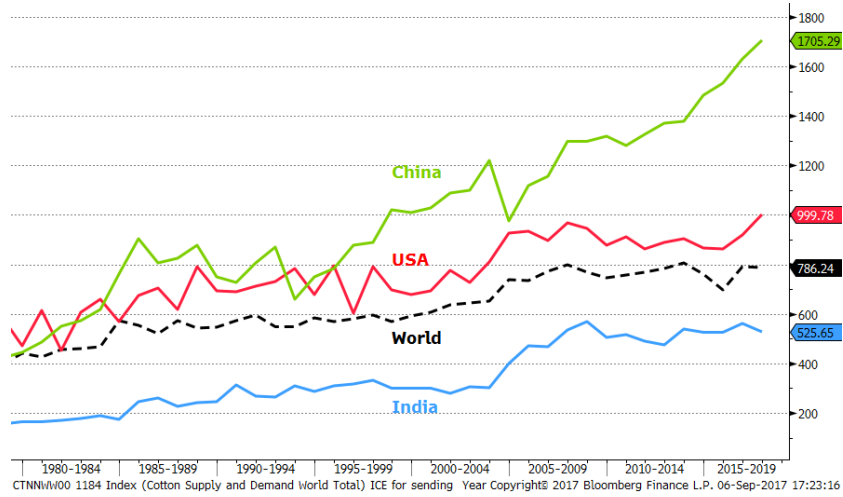
Area harvested, World vs. India vs. USA vs. China (in '000 hectares)



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4

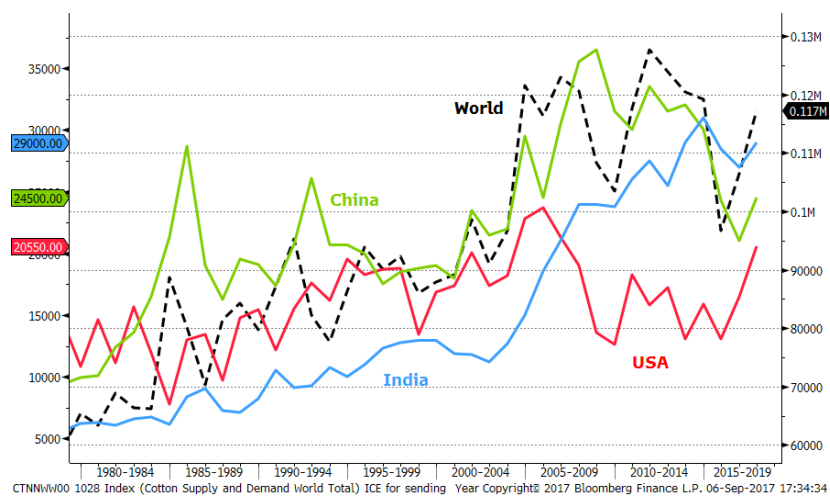
Yield, World vs. India vs. USA vs. China (kg/ha)



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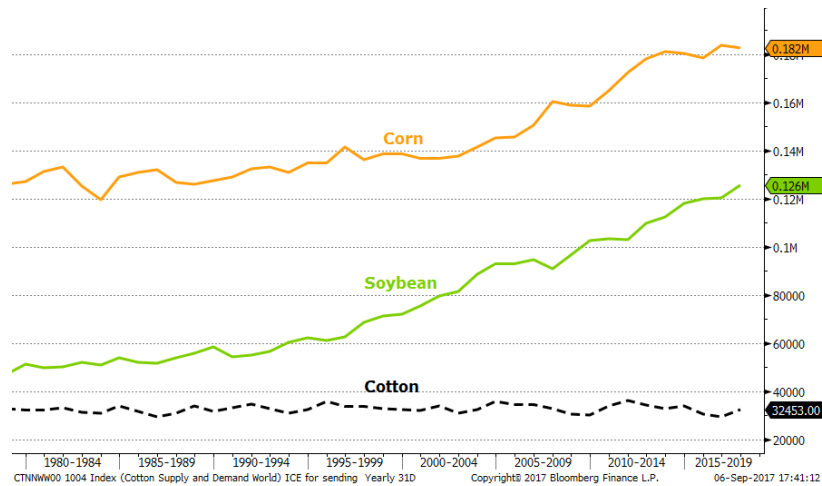
Production, World vs. India vs. USA vs. China (in '000 bales)



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Area harvested, Cotton vs. Soybean vs. Corn (in '000 hectares)



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7

Production Trend - Comments

- *Area harvested – reacting to prices*
- *Development in largest production areas.*
- *Cotton competes for area with food crops!*
- *Demand for food crops will grow in the long term, along with global population and rising incomes.*
- *Therefore: Without major breakthroughs in yield, actual production cost is a strong bottom for cotton price.*

REINHART

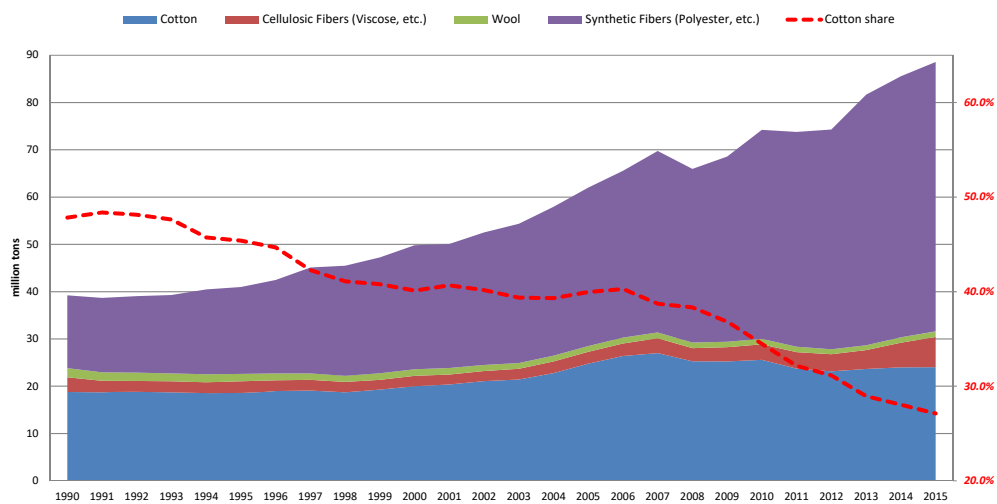
8

2. Consumption Trends

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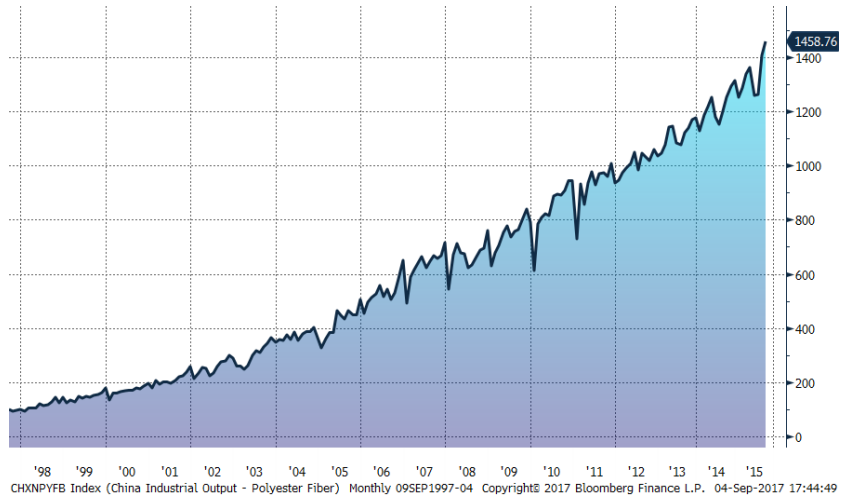
World Fibre Consumption



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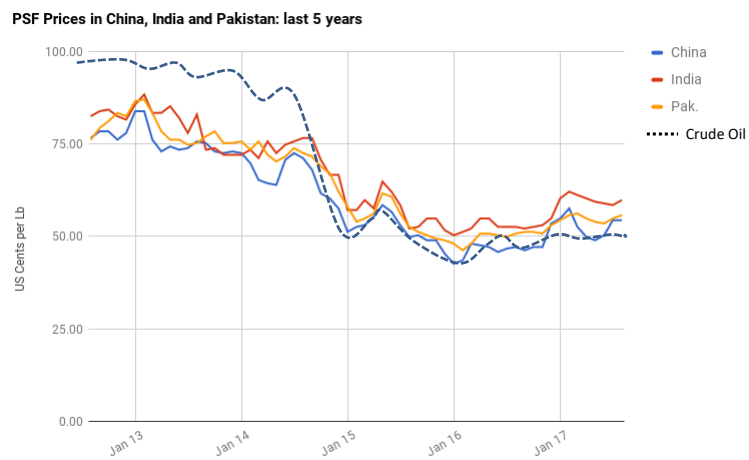
China Polyester Fibre Production since 1997 (indexed - %)



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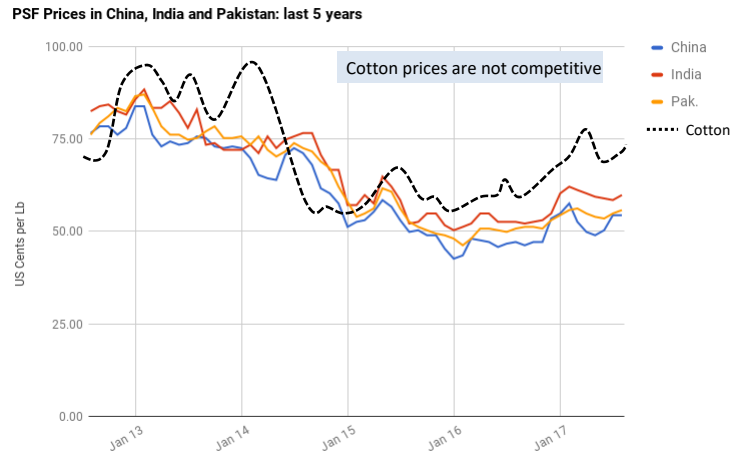
Polyester Staple Fiber (PSF) vs Crude Oil



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Polyester Staple Fiber vs. Cotton



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Consumption Trend - Comments

- Global Fibre Consumption will continue to grow.
- Growth will continue to come mainly from artificial fibres.
- Polyester prices correlate with oil prices
- Current oil prices don't favour cotton usage
- Cotton consumption will also grow, but more slowly.

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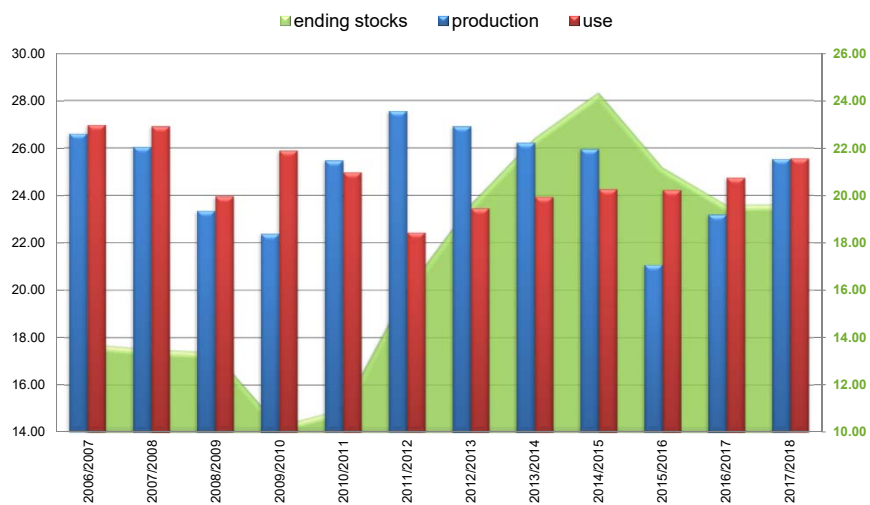
14

3. Global S/D Balance and Stocks

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15

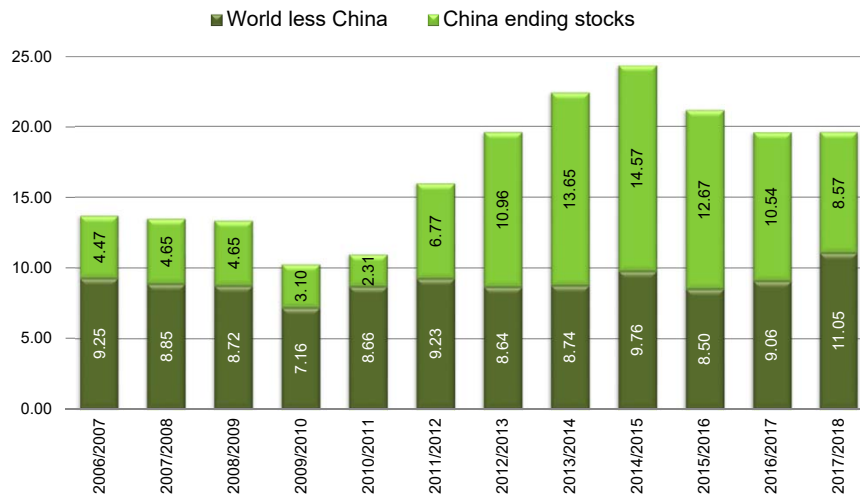
World Production / Use / Ending Stocks



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16

Ending Stocks in China and Rest of the World



REINHART

17

Global S/D Balance - Comments

- Global stocks have come down but remain historically high.
- During past 4 years, global stocks have been concentrated in China; this imbalance is now being corrected.
- Chinese stocks are decreasing, while stocks outside of China grow to a record high.
- There is no shortage of cotton!

REINHART

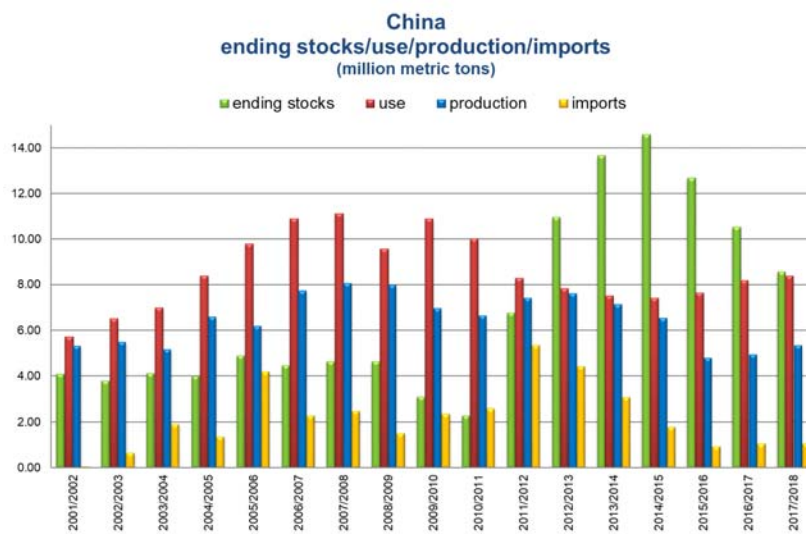
18

4. Outlook – China as main swing factor

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19

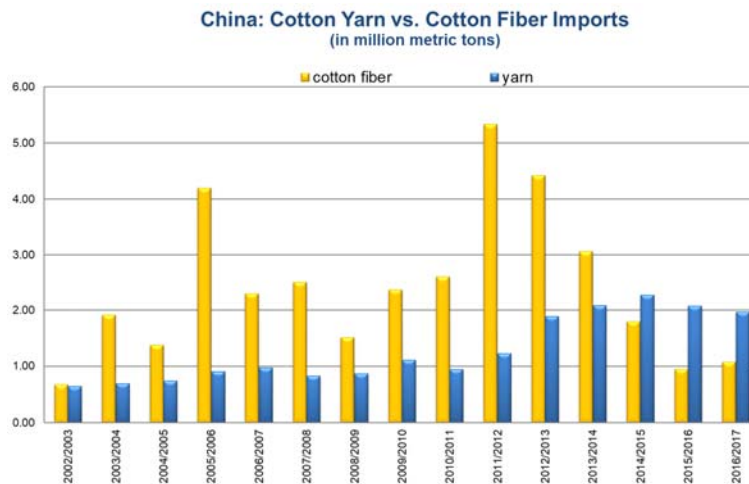
Chinese Supply and Demand



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Chinese Yarn Imports



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What to expect?

- Chinese consumption has recovered and is currently about 2.5 – 3m ts higher than domestic cotton production.
- In spite of recovering spinning business, Chinese yarn imports have not collapsed.
- The likelihood of more import buying will progressively increase during next 18 months as stocks come down.
- Increased Chinese import demand will support market prices, but not cause serious disruption in view of comfortable stocks.
- The world market is in the hands of Chinese shoppers....

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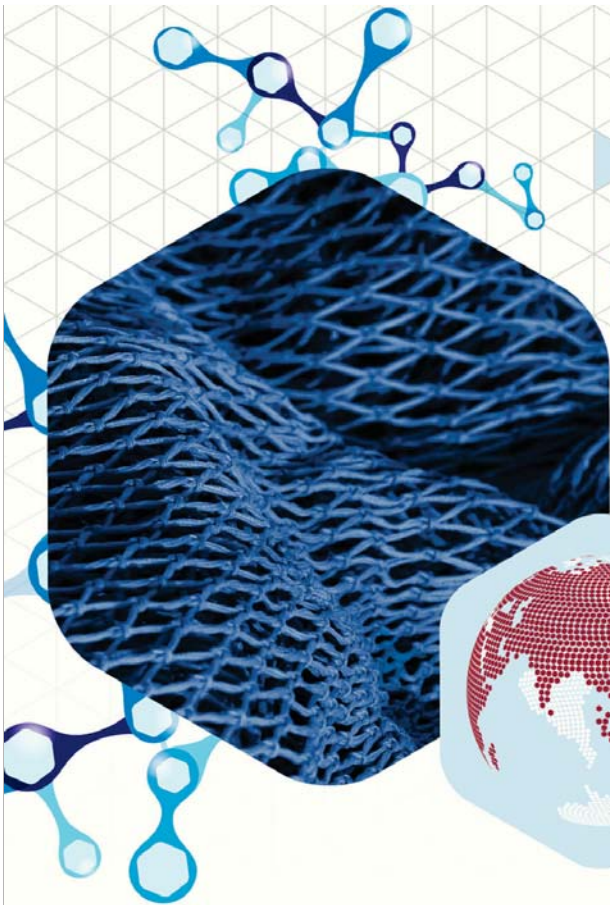
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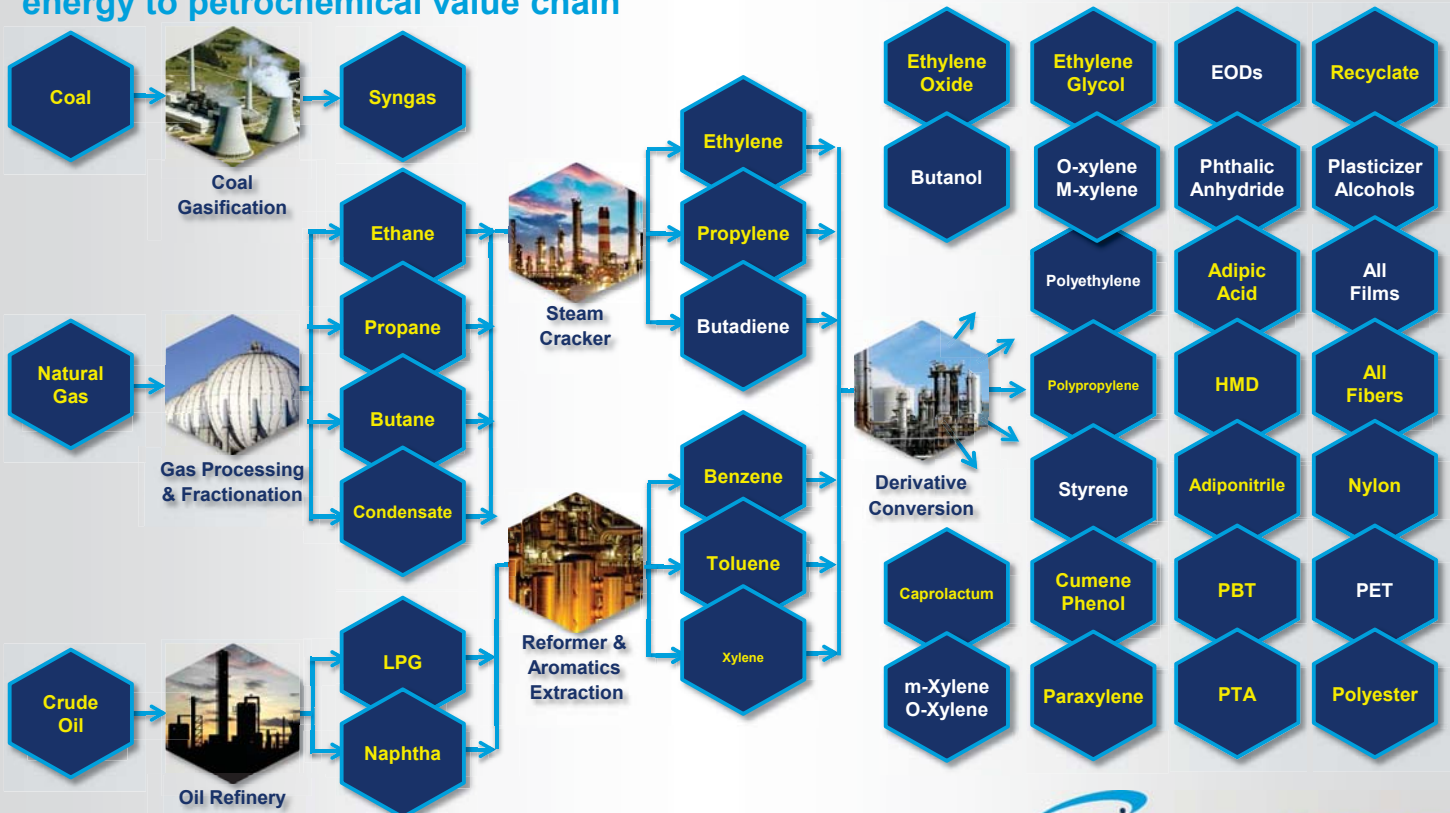
ITMF Annual Conference
14-16 September 2017 – Bali, Indonesia

Demand Creation and Sustainability
The Role of Man-made Fibres
14 September 2017



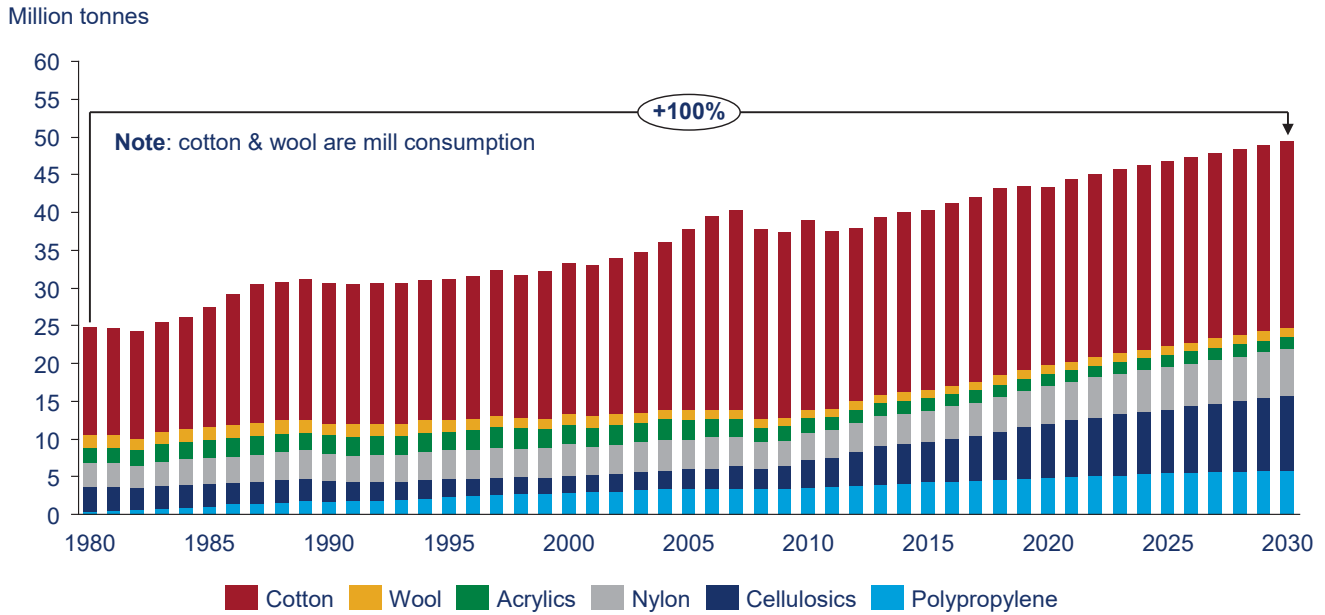
PCI Wood Mackenzie

Bringing together best experience, methodologies, and insights across the entire energy to petrochemical value chain



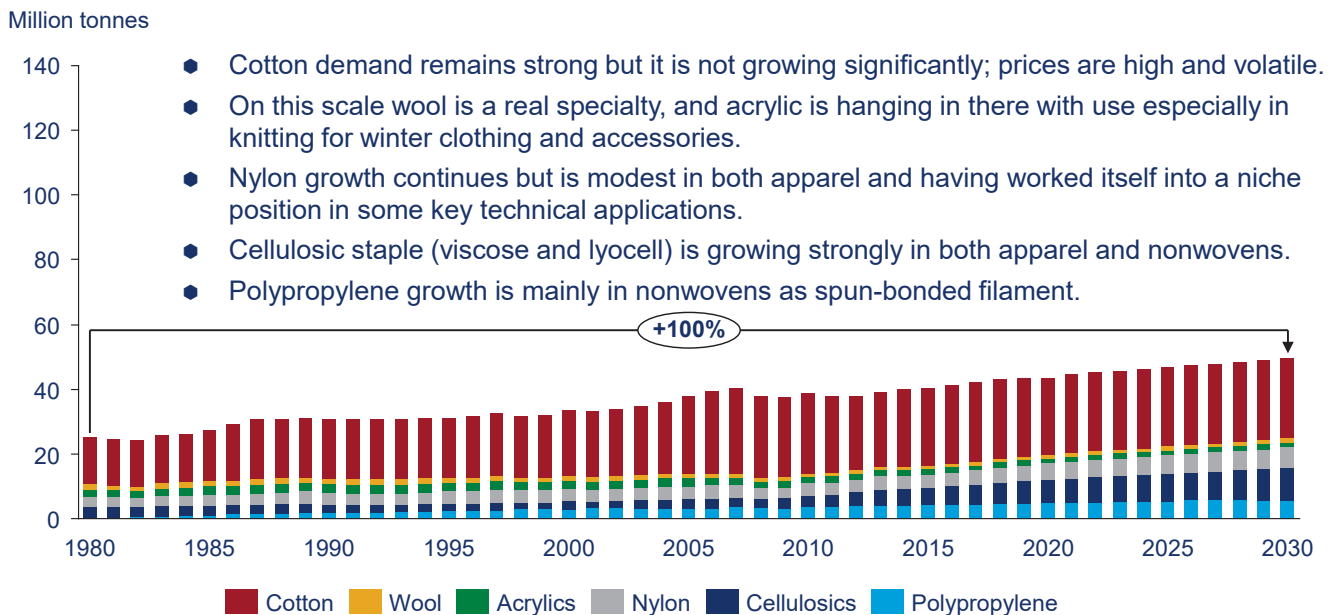
All Fibres Global Production Growth

All fibres demand – excluding polyester – is expected to double from 1980-2030



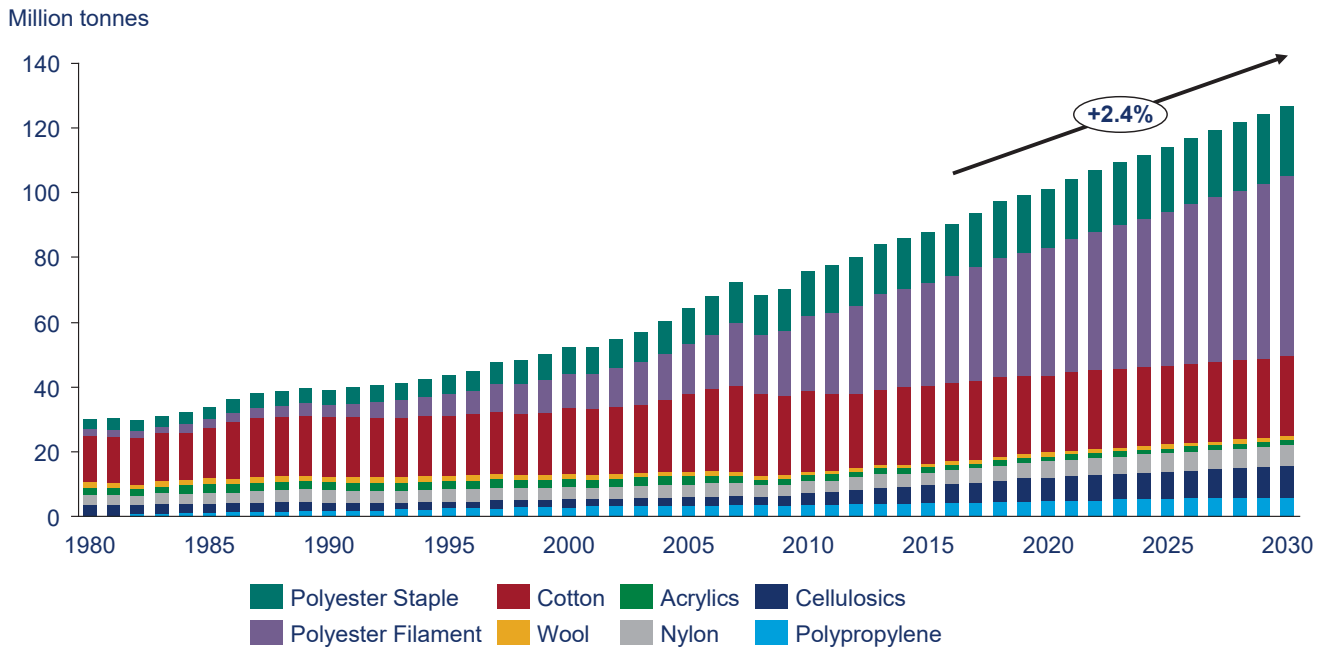
All Fibres Global Production Growth

Growth is seen in most fibre types as a more diverse fibre mix is often being used



All Fibres Global Production Growth

Polyester growth dwarfs other fibres; growing 2.4% (CAGR) overall from 2016-2030

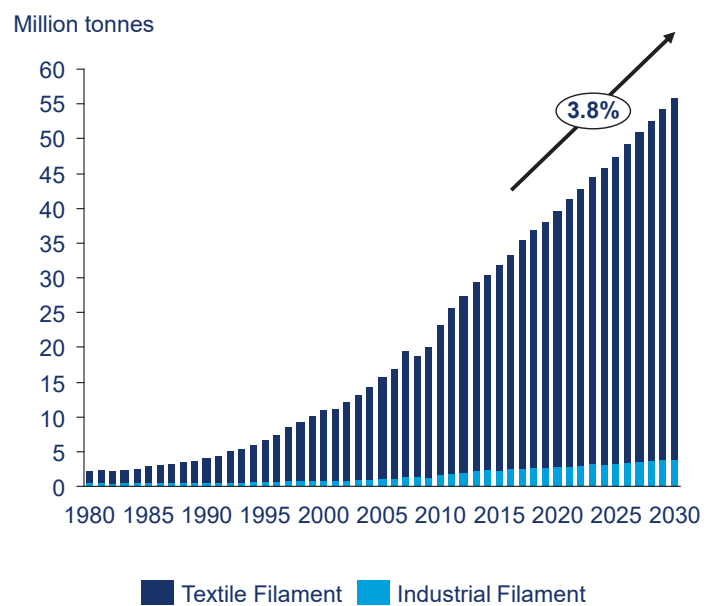
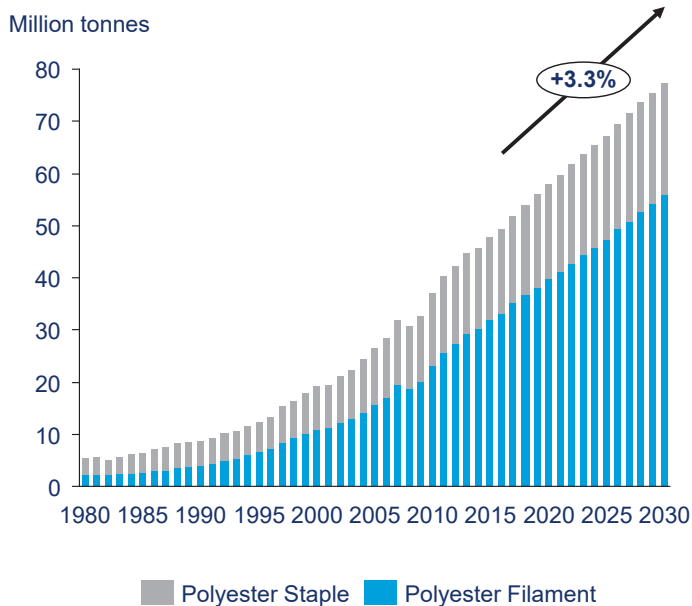


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Polyester Production by Fibre Type

Textile filament is taking the lions share of growth rather than industrial filament or staple



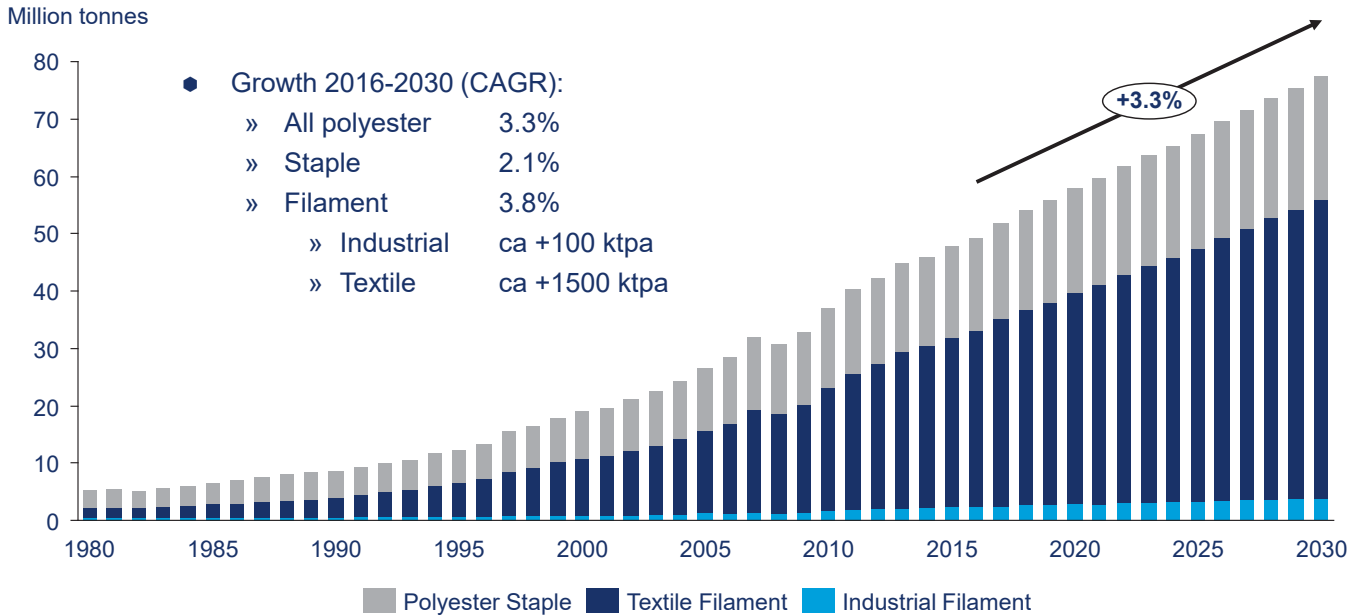
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ITMF Annual Conference Report 2017, Bali/Indonesia

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Fibre Session - Man-made: Steve Jenkins 51/303

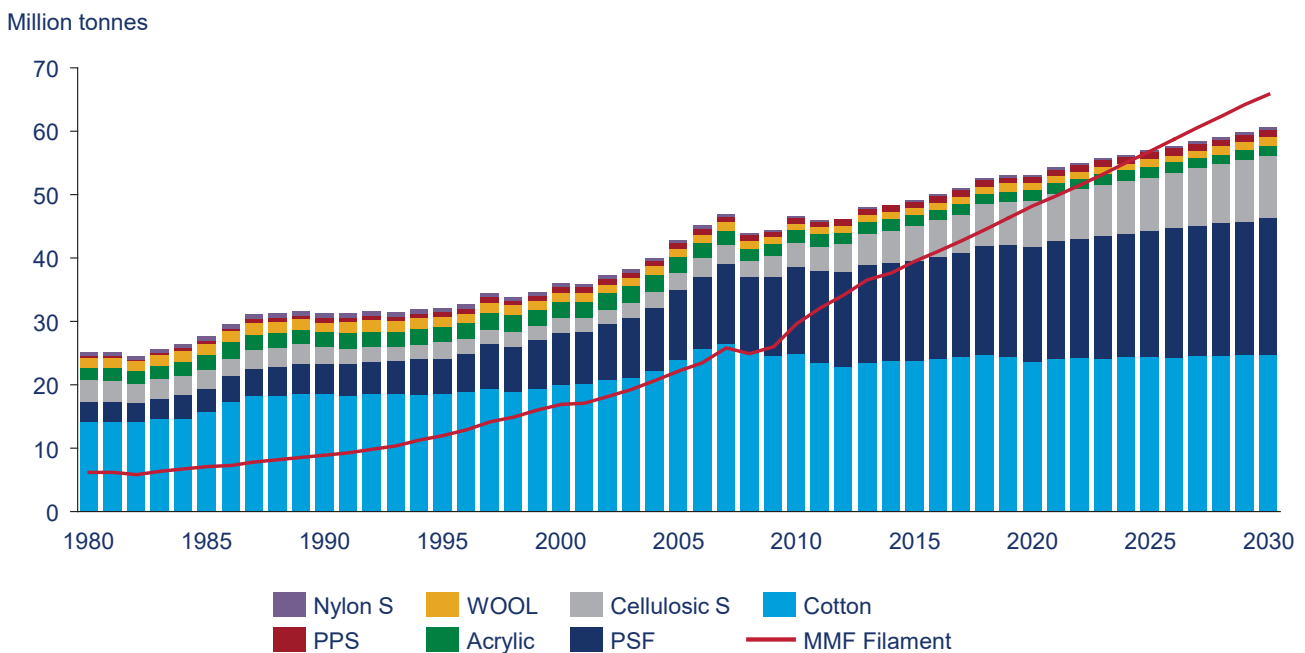
Polyester Production by Fibre Type

Textile filament is taking the lions share of growth rather than industrial filament or staple



Manmade filament is growing faster than staple fibres (MM & natural)

MMF filament will make up more than 50% of World fibre mill consumption from 2025



The wide variety of fibres used in automobiles

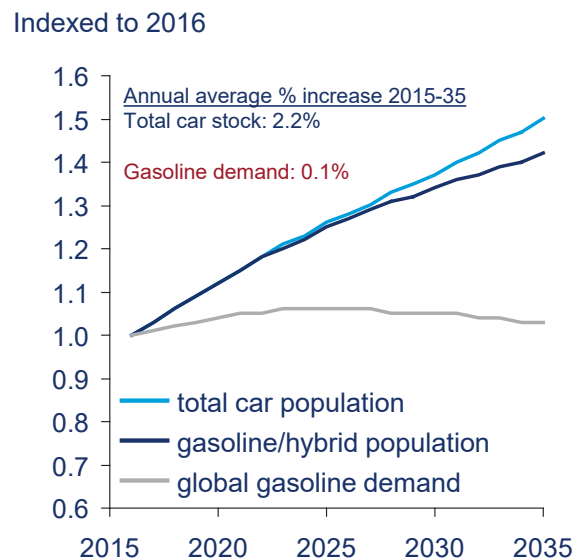
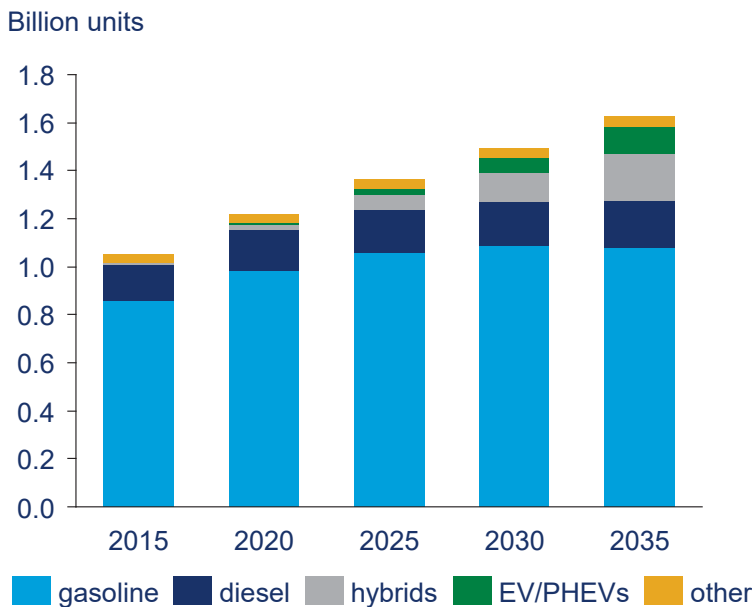
Functional benefits define which fibres are needed in each application – not all polyester



Function	Car part	Fibre Materials
Safety	Airbags	NIF, PIF
	Seat belts	PIF
Comfort	Headliner	PSF & spunbond filament
	Carpets	BCF (PES / PA), PSF
	Seats	PTF
	Sunroof & blinds	PTF
Strength and manufacturing benefits	Chassis / body	Carbon fibre, glass fibre
	Sewing thread	NIF, PIF
Energy efficiency and noise reduction	Acoustic insulation	PSF & shoddy
	Aerodynamic panels	PSF (incl. low melt)
Safety, operation at many temperatures and manufacturing benefits	Engine - MRG hoses, filters, battery	NIF, NSF, PIF rayon, aramids, glass fibre, carbon fibre
	Tyres	NIF (PA6 & PA66), PIF (HMLS), rayon filament, carbon fibre

The wide variety of fibres used in automobiles

Growth in vehicle sales will drive growth in demand for these many fibre types



World Polyester Growth Forecast 2016-19

kt	2016	2017	2018	2019
Staple	16,144	16,576	17,260	17,785
Filament	33,195	35,275	36,723	38,038
Total Fibre	49,339	51,851	53,983	55,823
PET Resin	21,766	22,460	23,852	25,191
Film	4,082	4,358	4,516	4,758
Other Resins	2,161	2,342	2,457	2,523
Polymer Production	71,552	75,018	78,504	81,528
Polymer Capacity	89,043	93,417	100,059	105,187
Polymer Utilisation Rate	77.9%	77.8%	76.0%	75.1%
Polymer Production Growth	4.1%	4.7%	4.6%	3.9%
PSF	1.8%	2.7%	4.1%	3.0%
PFY	4.0%	6.3%	4.1%	3.6%
PET	5.9%	3.2%	6.2%	5.6%

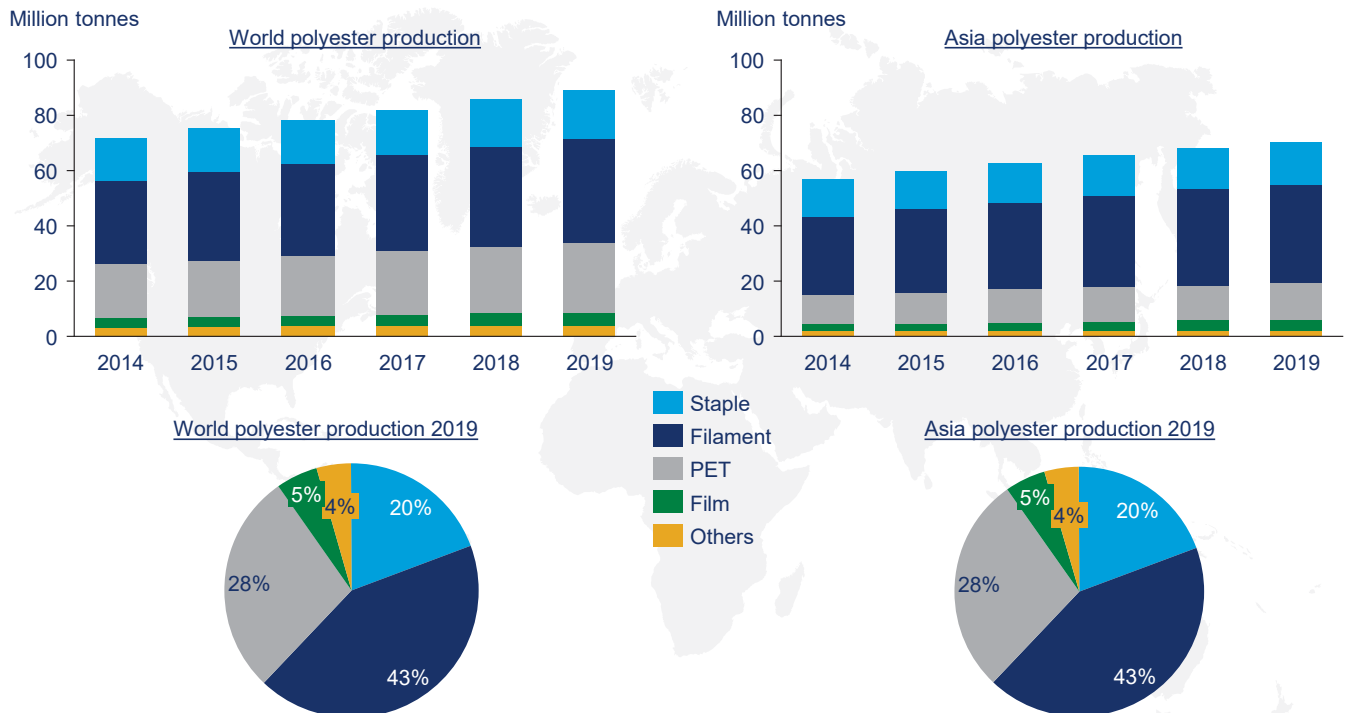
Source: PCI Wood Mackenzie

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Global and Asia Polyester Production

Polyester growth remains strong as polyester fibre market development continues

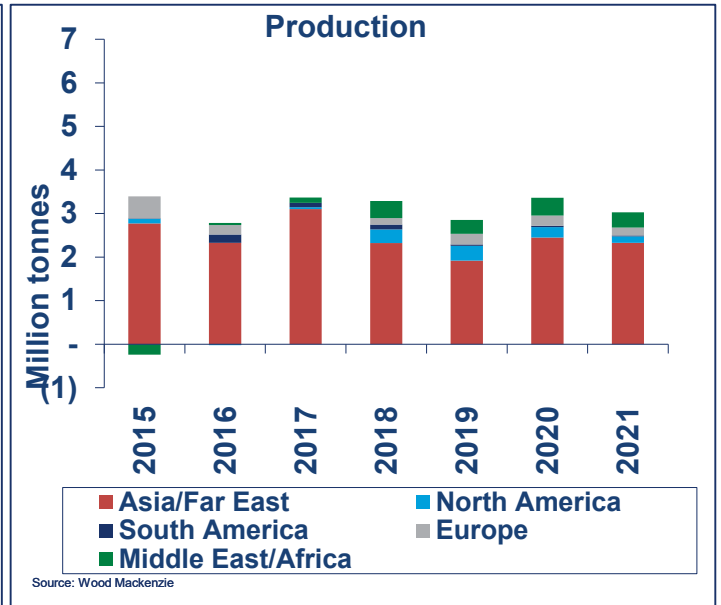
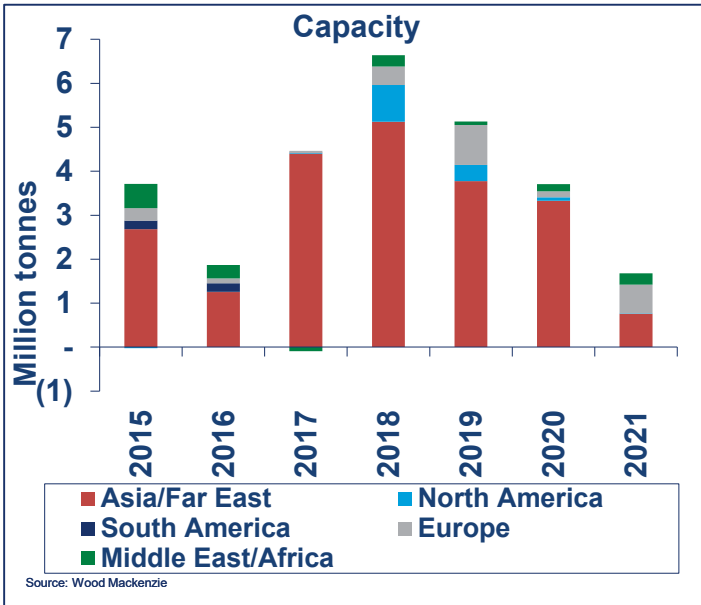


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Source: PCI Wood Mackenzie

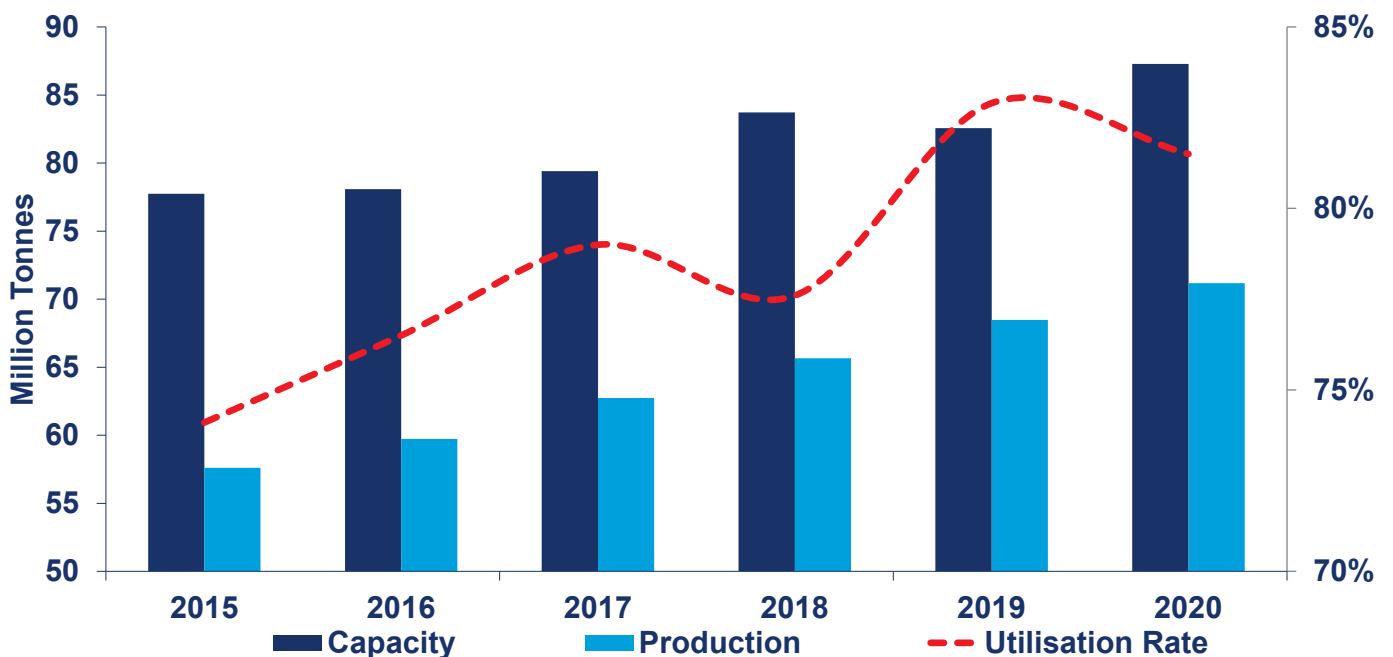


Global polyester polymer growth



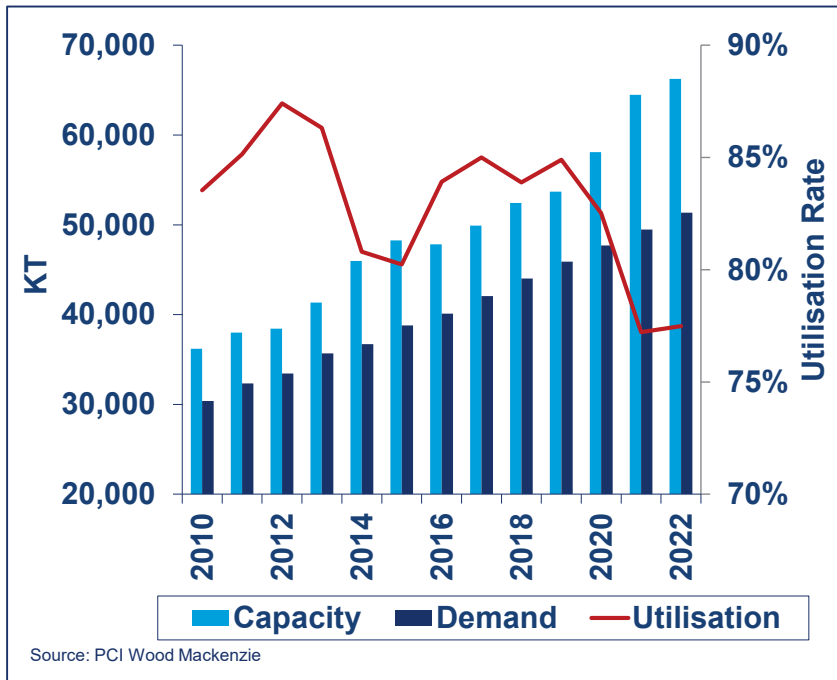
Polyester raw materials: world PTA supply demand

PTA markets may be recovering, investment continues and the surpluses persist



Polyester raw materials: world paraxylene supply demand

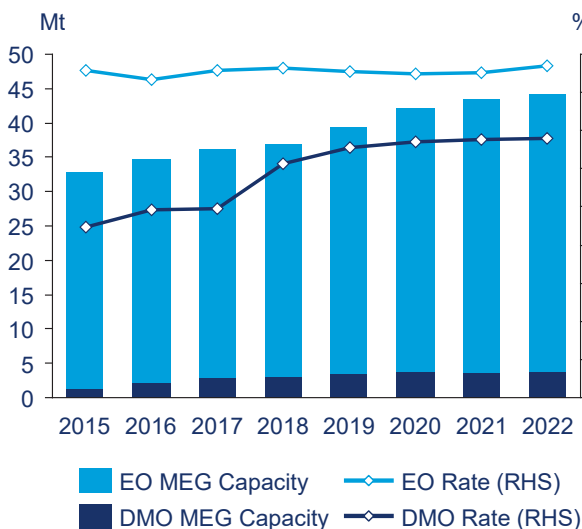
Capacity additions in China and Middle East set to add over 10 Mt of new supply by 2022



- Huge investment forecast in PX over the coming 5 years.
- Major chinese fibre and PTA producers back integrating into refining
- Peak gasoline demand in N America and Europe could see oil majors renewing interest in moving lower values surplus feedstock into the polyester sector

Polyester raw materials: world MEG supply

MEG supply remains relatively tight. Alternative supply routes are being developed and new capacities are planned.

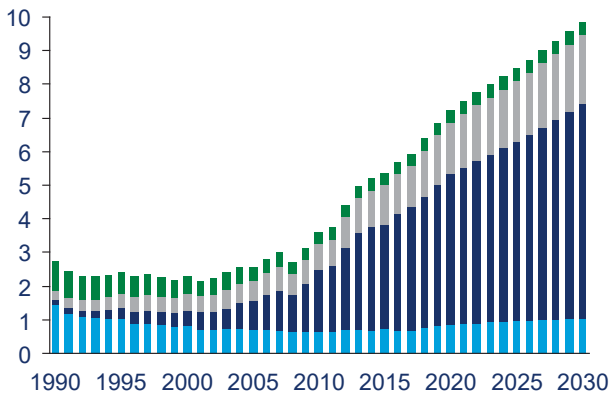


- The majority of MEG is made from ethylene oxide (EO), and EO MEG plant utilisation rates are in the high 80% range. Price spikes from EO MEG supply will disrupt pricing from time to time, but low unit consumption vs PTA means the impact on polyester pricing is moderate.
- Coal to MEG via dimethyl oxalate (DMO) may relieve supply tightness eventually, but DMO technology is still in its early days, and we have limited our forward view on capacity and production.
- India, Malaysia and Saudi Arabia are adding 1.7 Mt new supply in 2017 with US ethane-based MEG capacity and further Saudi capacity totalling 2 Mt in 2019

Synthetic cellulose production

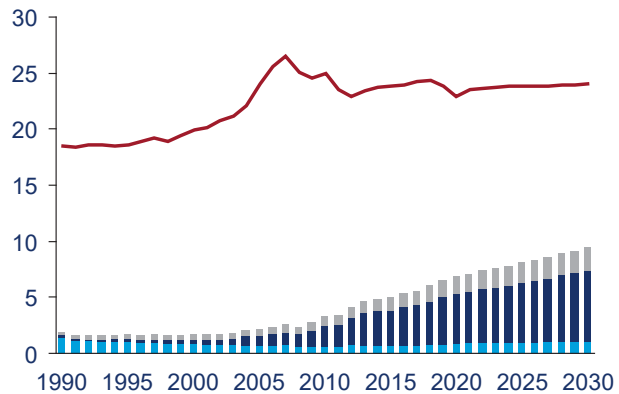
Primary growth is in viscose and lyocell staple (filament demand includes UHP tyres)

Million tonnes



global Filament
China
India + S Asia
Other

Million tonnes



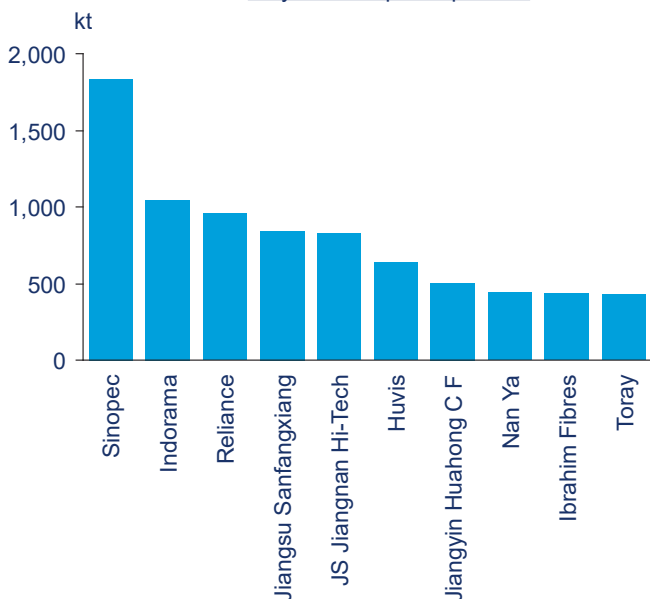
India + S Asia
China
Cotton
Other

- filament demand includes UHP tyres

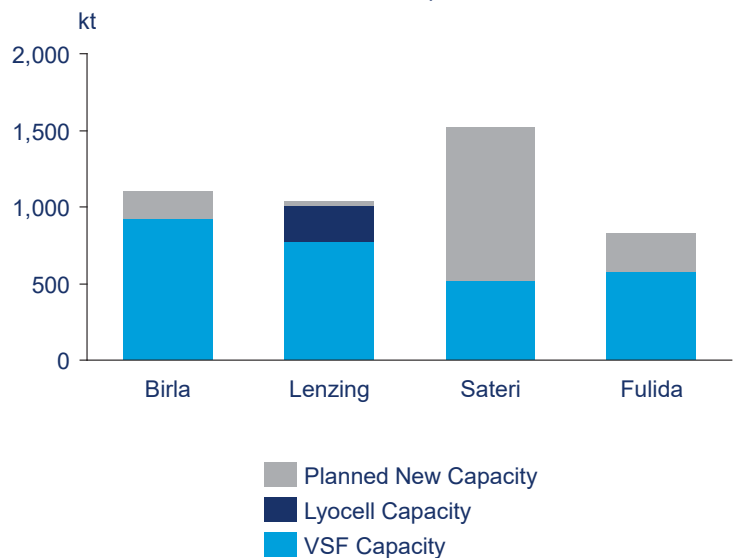
Exciting prospects drive cellulose capacity growth

Some of the key players are now as big large polyester suppliers.

Polyester Staple Capacities



Viscose Capacities



Sustainability within the Fibres Industry

Progress has been made and there is still a long way to go

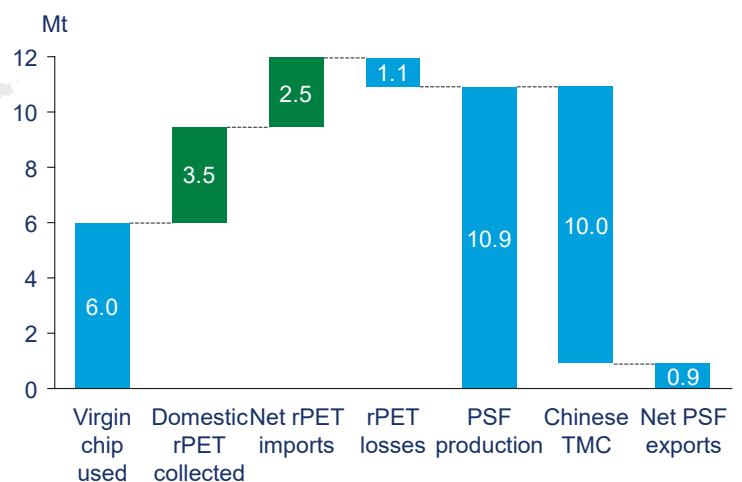
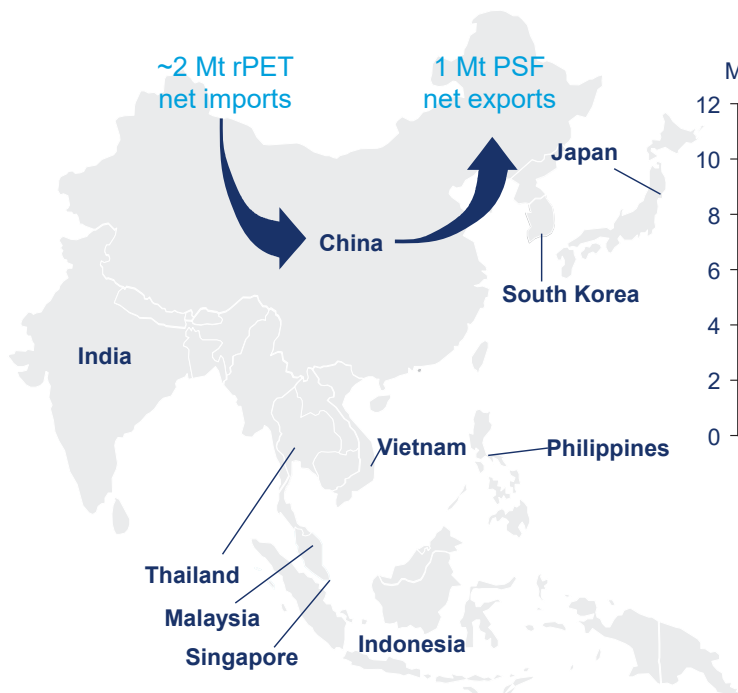
- MMFs – an essential part of the textiles mix, but with a poor image
 - » Consume fossil resources, low biodegradability, plant emissions
 - » Micro-plastics in the environment gaining media attention
- Work on sustainable feedstocks has begun but will not meet global demand volumes any time soon.
- Improved efficiencies and low emissions to make synthetic fibres
- Recycling and regeneration are well established:
 - » PET bottle resin to staple and filament
 - » Post-industrial recycling of PA into EP
 - » Post-consumer regeneration of PA6 depolymerised to CPL
- How to arrive at a “circular apparel economy”?
 - » Cotton can be recycled into viscose; collection has started
 - » Mixed fibre fabrics pose the challenge of separation.



Recyclate established as polyester staple feedstock

Chinese PSF consumes a large amount of domestic and imported rPET

Feedstock estimates for Chinese PSF production 2017



Source: PCI Wood Mackenzie

Conclusions

Demand for MMF grows as they address many of our needs well

- The main growth will come from polyester (filament and staple), cellulosic staple and PP filament.
- We do not anticipate significant growth in cotton, wool or the synthetic fibres of nylon or acrylic.
- We expect continued growth in spandex and other specialty high performance fibres; but from a small base.
- Polyester continues to lead the growth due to its flexibility to operate in high stress industrial applications as well as in fine denier apparel, nonwovens and many other end uses.
- China production continues to dominate the world of polyester, and more investment is expected.
- Relatively low cost and stable oil pricing will keep polyester raw materials and fibres competitively priced against both natural and other MMF.
- Of all the synthetic fibres polyester has the best recycling story, particularly with the use of post consumer PET bottles into fibres.
- As for the circular textiles economy, there are some bright spots, but overall it is still a long way off.

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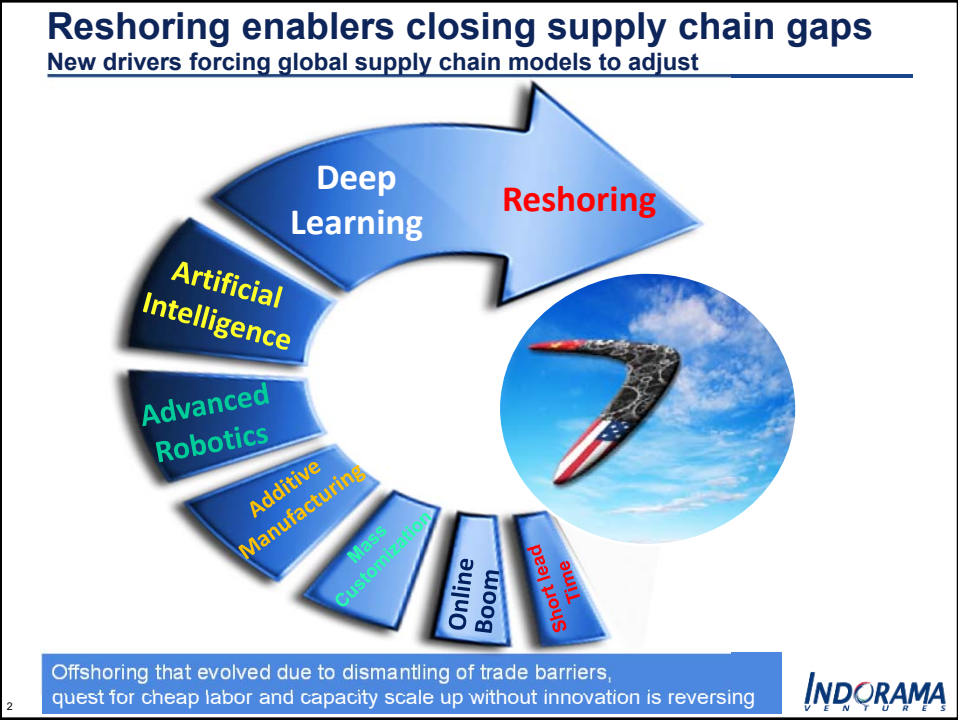


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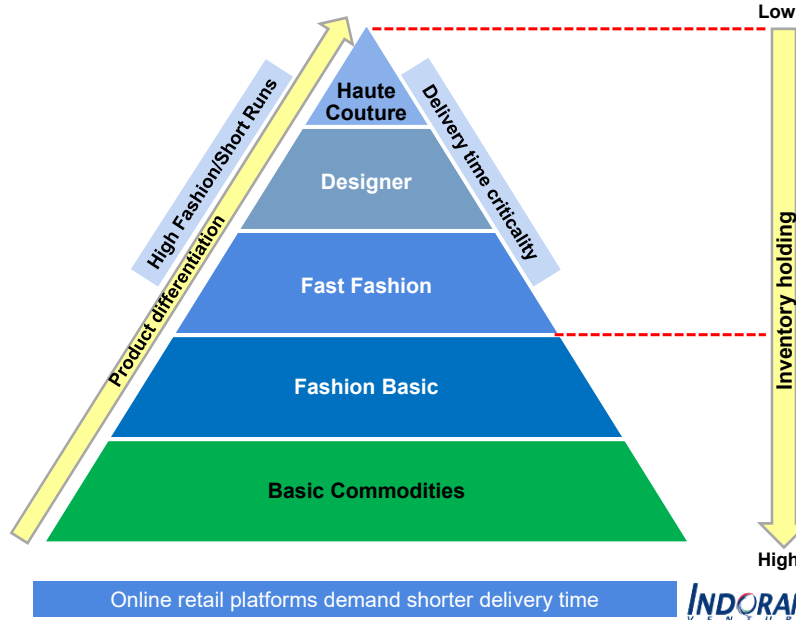
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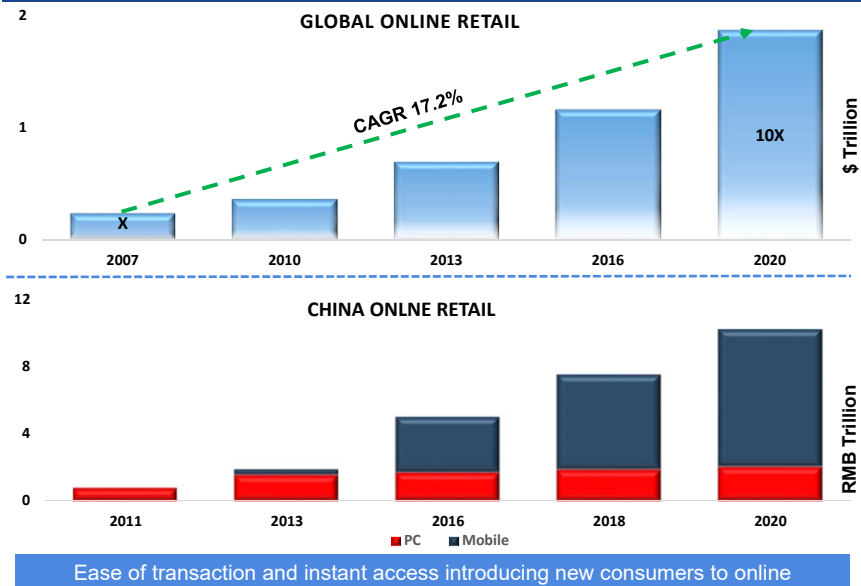
Need for shorter lead times will drive Reshoring

Increasing demand for mass customization driving local manufacturing



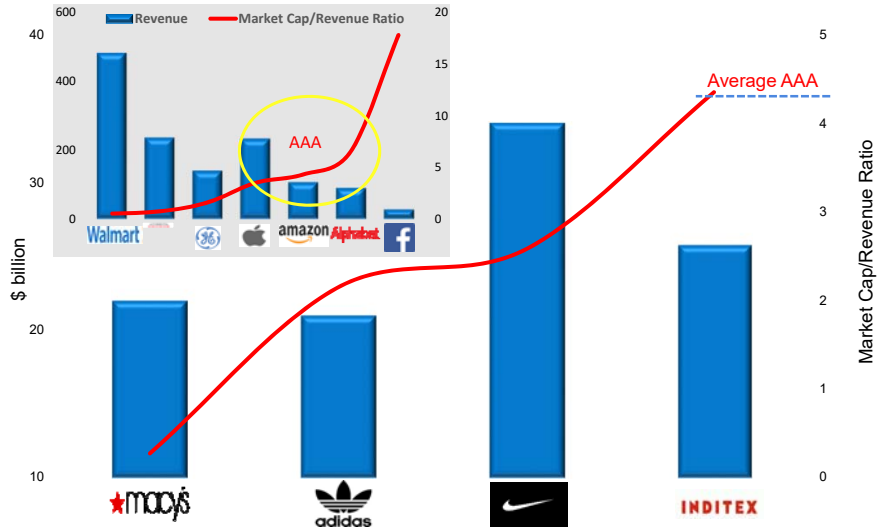
Smart phones leading to boom in online retail

The "new" economy will need to supply "on demand"



Industry 4.0 – Role models in Textiles

Traditional manufacturing and retailing struggling to generate value



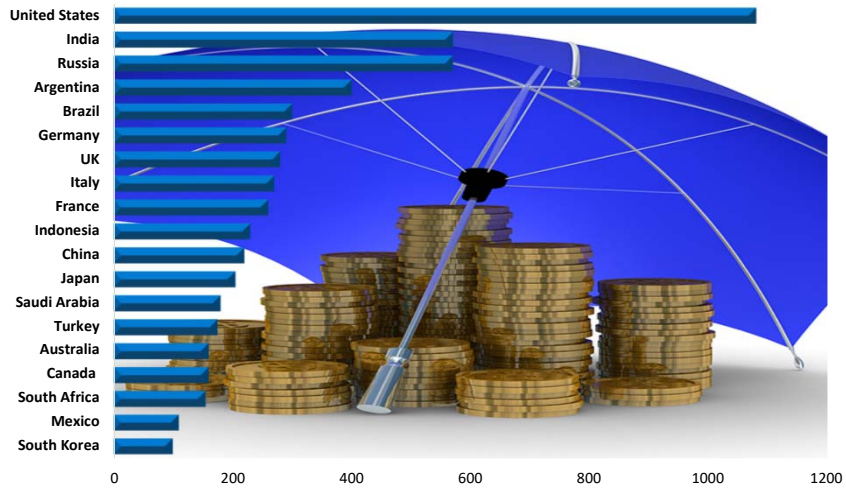
INDITEX model of proximity sourcing well adapted to the new consumer preferences

Source : Fortune Global 500 - 2016

INDORAMA VENTURES

Trade liberalization policies facing reversal

Measures to protect domestic markets encourage onshore manufacturing



Number of discriminatory trade actions by G20 nations between 2008 to 2016

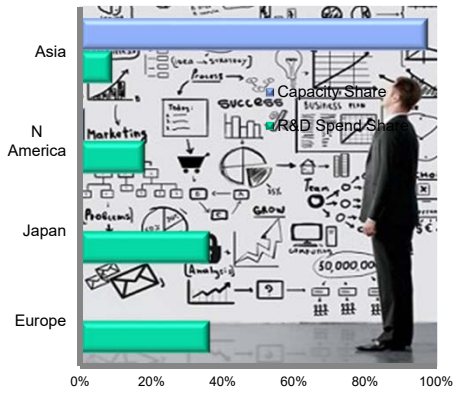
Source : CEPR

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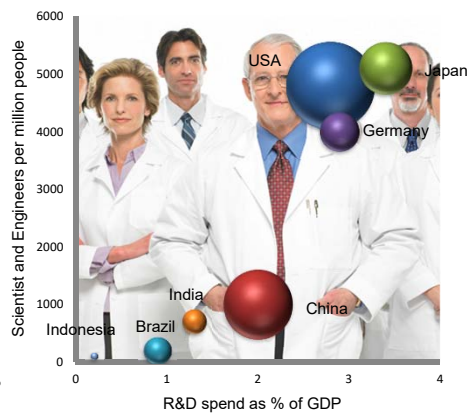
Scale-up without innovation is unsustainable

R&D infrastructure out of sync with capacities

R&D investment & capacity share : Chemical Industry



R&D infrastructure



Note: R&D spend data for chemical companies.
Source: Cefic, CMAI, IVL analysis

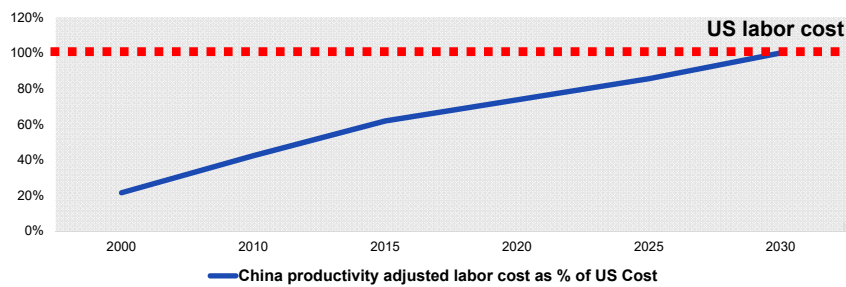
Note: Size of circle represent the relative amount of R&D spend
Source: 2014 global R&D funding forecast by Battelle

Advanced manufacturing techniques will rebalance manufacturing capacities

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Chinese rapid move to wage parity with US

Higher wages will hinder Chinese low value added export model



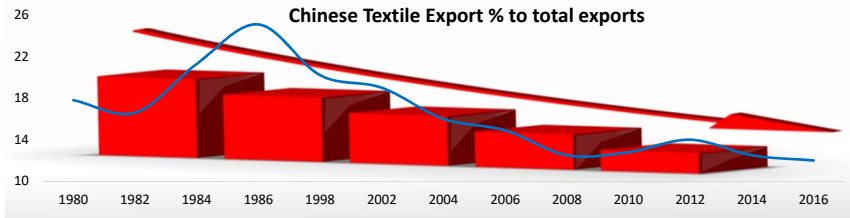
Particulars	Unit	2000	2010	2015	2020	2025	2030
China Wages	\$/hr	0.7	2.8	6.0	9.8	15.8	25.4
US Wages	\$/hr	15.8	20.7	22.9	26.0	29.4	33.3
China Productivity as a % of US	%	21%	32%	42%	51%	63%	76%
Productivity adjusted China wages	\$/hr	3.4	8.8	14.2	19.2	25.2	33.4
China labor cost as % of US Cost	%	22%	43%	62%	74%	86%	100%

China will rebalance its exports with increased internal consumption

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As China goes hi-tech textiles shift to rest of Asia

Commodity textile industry moves with labor cost



% of population living on < 3.1 \$/day

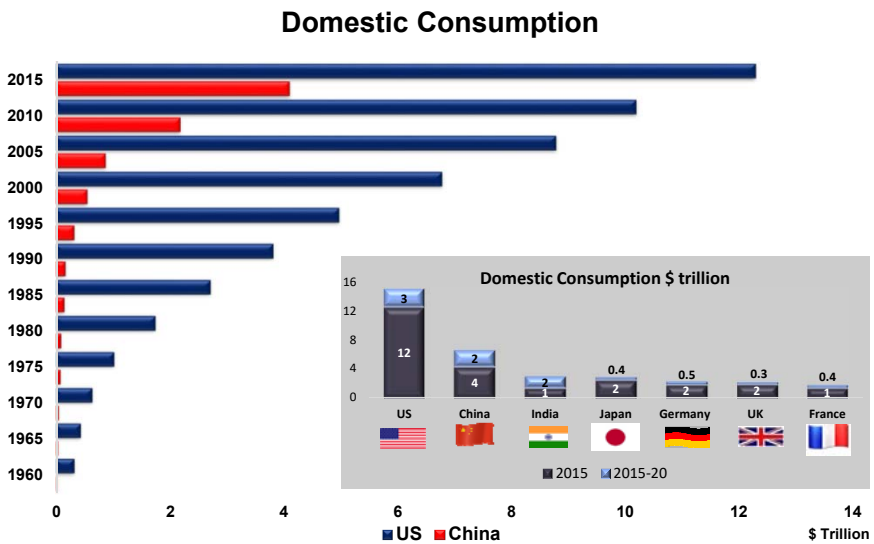
Region	1985	1995	2005	2013	2025
China	99	73	42	11	< 1
Europe & Central Asia	6	16	11	7	< 4
Latin America & Caribbean	30	27	21	11	< 5
East Asia & Pacific	87	69	43	16	< 5
Middle East & North Africa	29	25	18	12	< 6
South East Asia	81	76	70	50	28
India	80	76	72	52	30
Sub Sahara Africa	79	76	73	65	53

China's affluence will create opportunities for remaining textile export business to move to countries like India and South East Asia.



Asia consumption growth will exceed US by 2020

From 8% in 2000 to 34% in 2015 of total US domestic consumption

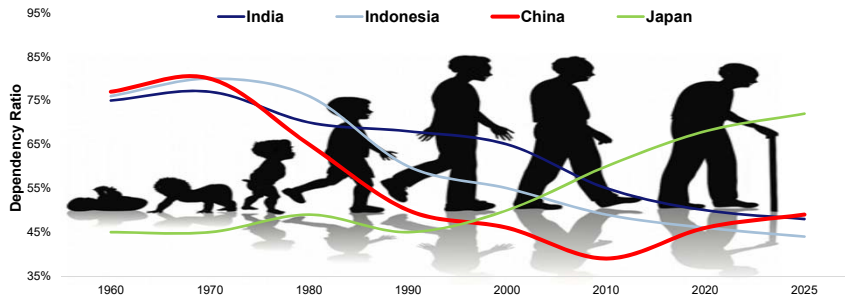


The closing of the wage gap will further propel the Chinese domestic consumption to reach 45% of US consumption by 2020



Ageing population to further increase skill gap

Countries with younger population more suitable for remaining supply chains



Mean age country wise	2005	2010	2016	2025
India	24	25	28	29
Indonesia	27	28	29	31
China	32	34	36	40
USA	36	37	37	40
Japan	43	45	46	50

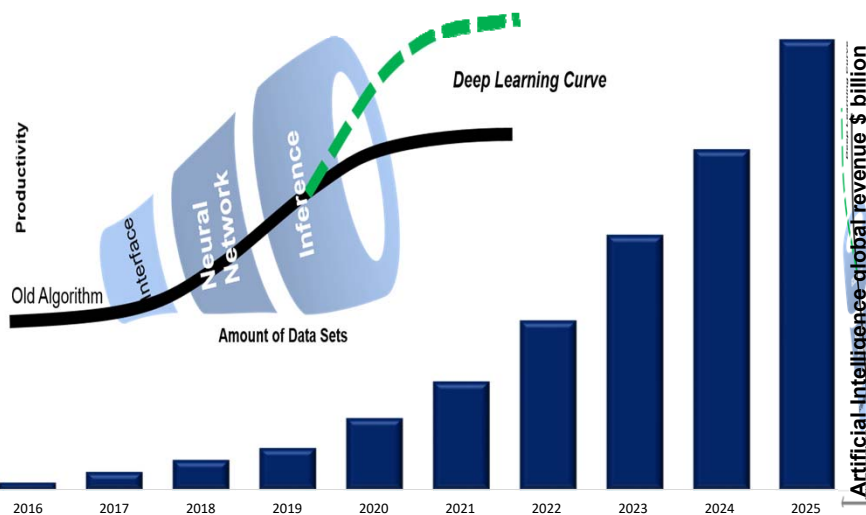
China's ageing population will change focus to producing for domestic demand

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Growth in AI will bridge skill gap

AI to create a paradigm shift by enabling new ways to manage businesses



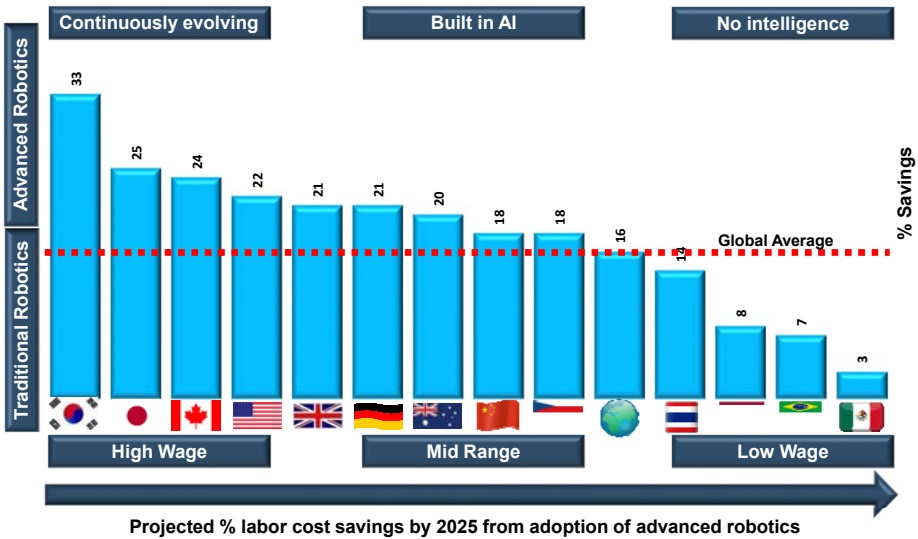
Training of machines with large datasets will create neural networks that generate inference to replace human intelligence

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Robotics to help rich economies close wage gap

By 2025, 25% jobs automated by robotics and artificial intelligence

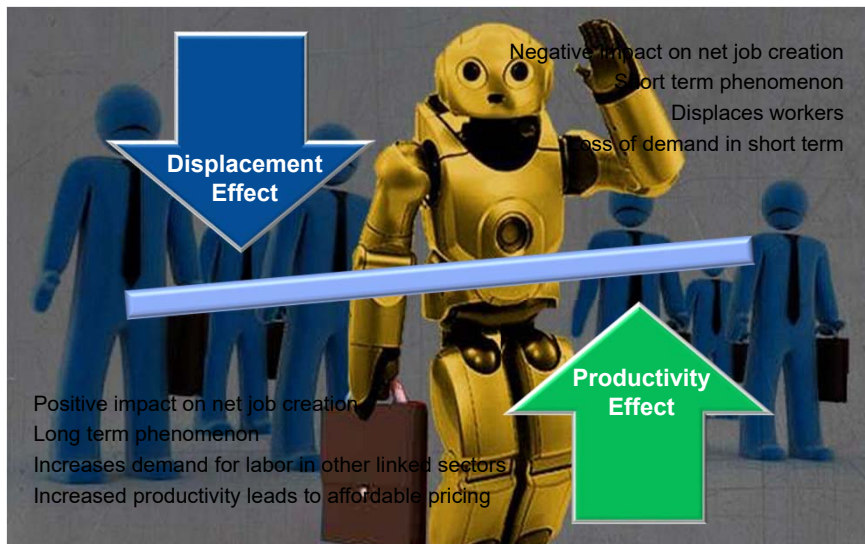


Adoption of AI and Robotics will create a new competitive advantage

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AI and robotics will improve net demand

Long term productivity effects offset any short term demand loss



Historically automation led disruption had always resulted in net job gain

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The process has already begun and will accelerate

Automation and AI underpinning smart factories will allow rapid scaling

Traditional model

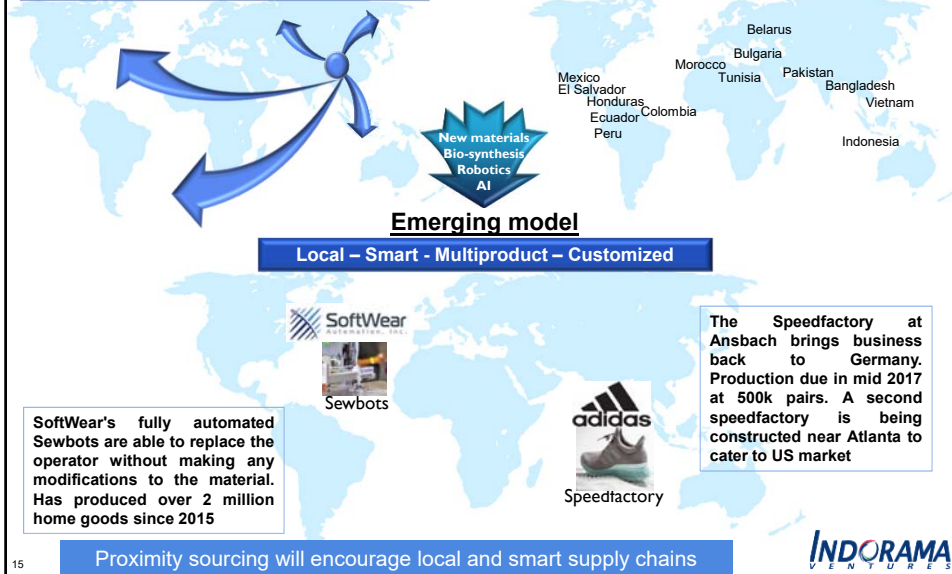
Offshore – Scale up – Rigid – Made to stock

Regional model

Regional – Smaller - Specialized – Made to order

Emerging model

Local – Smart - Multiproduct – Customized



15

China's \$1 trillion push for free and inclusive trade

New Silk Road initiative is a counter measure to growing protectionism



- Beijing says it will ultimately lend as much as \$8 trillion for infrastructure in 68 countries
- China's silk road an attempt to keep markets and to cut short lead times
- This initiative can push high tech exports from China and consumption imports from the collaborative countries.

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Indorama Ventures Ltd

World's Fiber Company



17



Our Vision

“ To be a world-class chemical company making great products for society ”

“ We commit to be a responsible industry leader leveraging on the excellence of our people, processes, and technologies to create value for our stakeholders ”

- The **CUSTOMER** is why we exist
- Our **PEOPLE** make the difference
- We see **CHANGE** as an opportunity
- **DIVERSITY** is our strength
- We are **RESPONSIBLE**

18



Touching Billions of Lives

We Are Closer Than you Think



1 in 5
plastic bottles
is made
from IVL polymers



1 in 2
premium baby diapers
is made
from IVL fibers

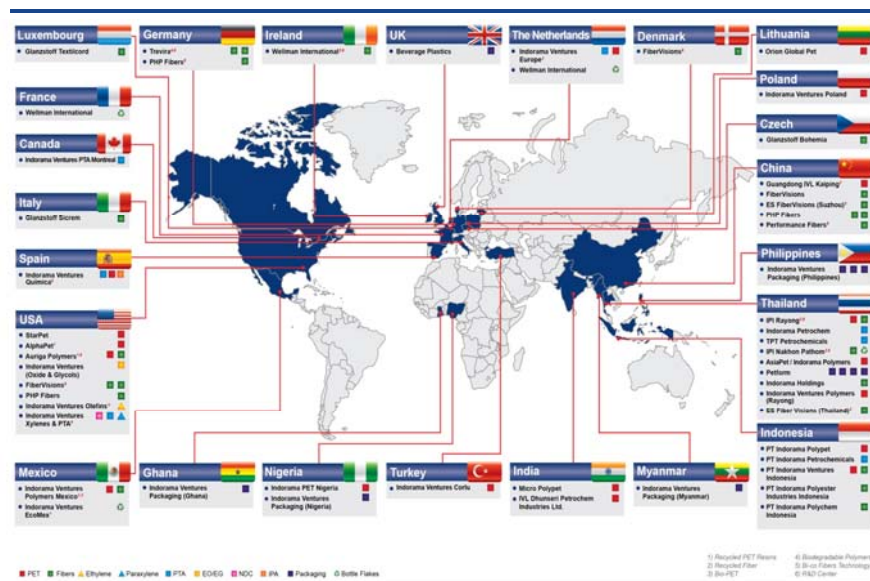


1 in 4
airbags is made
from
IVL yarns



19

70 manufacturing sites, 24 countries, 4 continents



20

Indorama Ventures, A Unique Petrochemical Play

\$7.5B
Revenue

24
Countries

15K
People

70
Sites

250+
Patents



Global Leader
#1 player in 70% of our business

Unique Global, Local Reach
>85% of sales within the region

Differentiated, High Growth Portfolio
8-10% CAGR across portfolio

Maximizing Shareholder Value

Note: 2014 financials are management estimates and they may or may not change materially when published

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Our Strong Focus on Sustainability

MEMBER OF
Dow Jones
Sustainability Indices
In Collaboration with RobecoSAM

- A member of 2017 DJSI Emerging Markets Chemicals Industry
- Ranked among **Top Five** of all global chemical companies

ROBECOSAM
Sustainability Award
Bronze Class 2017

FTSE4Good

- A constituent of:
- The 2017 FTSE4Good ASEAN5 Index
 - The 2017 FTSE4Good Emerging Index

CDP
DRIVING SUSTAINABLE ECONOMIES
2016 Climate Change Rating - B

Bloomberg
Leading in SET Index:
2017 Bloomberg ESG Disclosure Scores

MSCI
2016 MSCI ESG Rating - B

EcoVadis
Gold Recognition:
Ranked among **Top 5%** of performers and most preferred suppliers

TRANSPARENCY INTERNATIONAL
#1 Thai MNC - 2016 in Transparency in Corporate Reporting

SET
Thailand Sustainability Investment 2016

ESG100
Environmental-Social-Governance
2016

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22

Thank You



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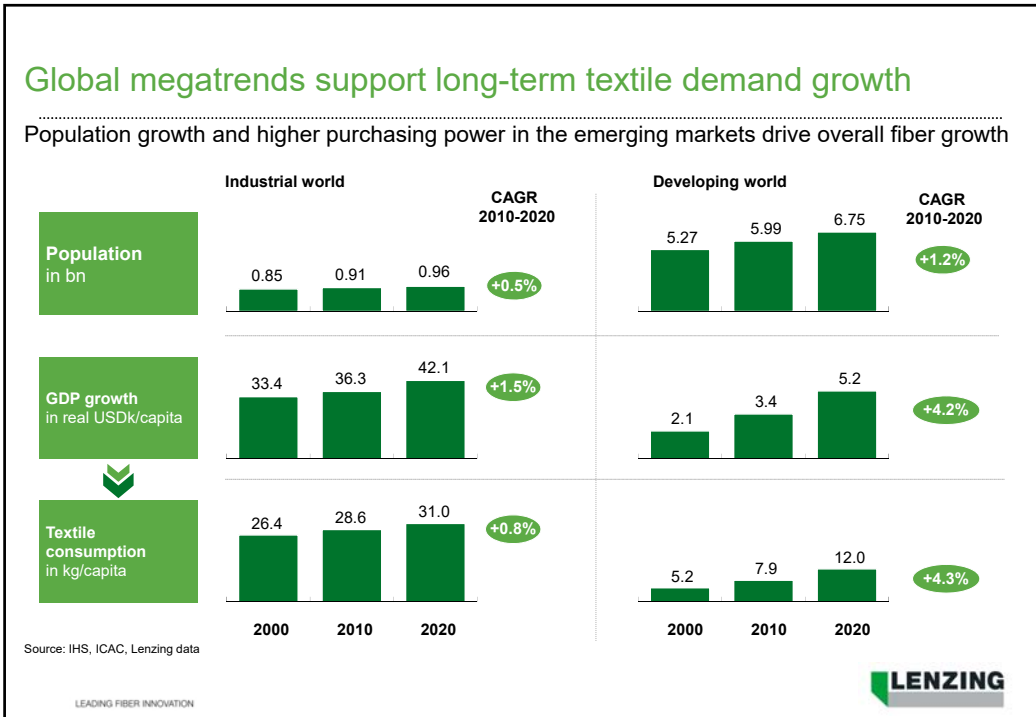
23

Navigating textile challenges and future innovations

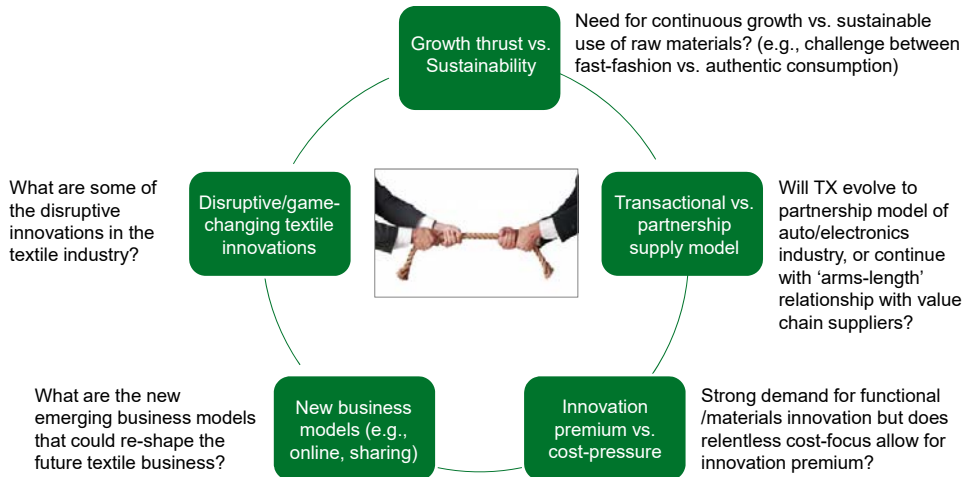
Amit Gautam
Global Vice President, Textile Business Mgmt.

LENZING

LEADING FIBER INNOVATION



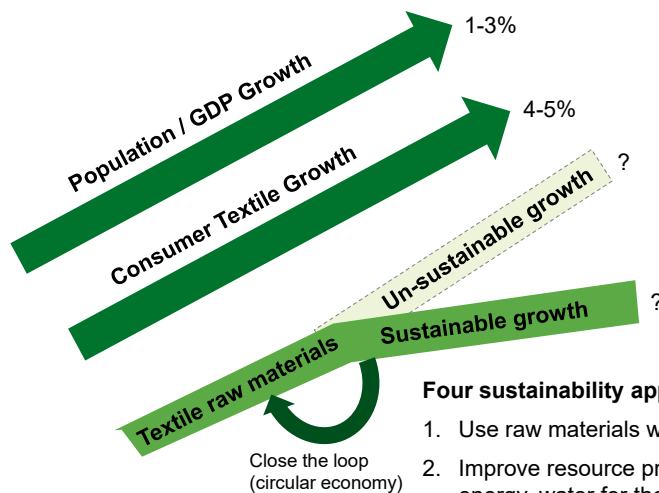
Ability of companies to navigate **five key challenges** in textile industry will likely become future winners



2 LEADING FIBER INNOVATION



Example 1: the growth in textile raw materials will be key sustainability challenge – four possible solutions

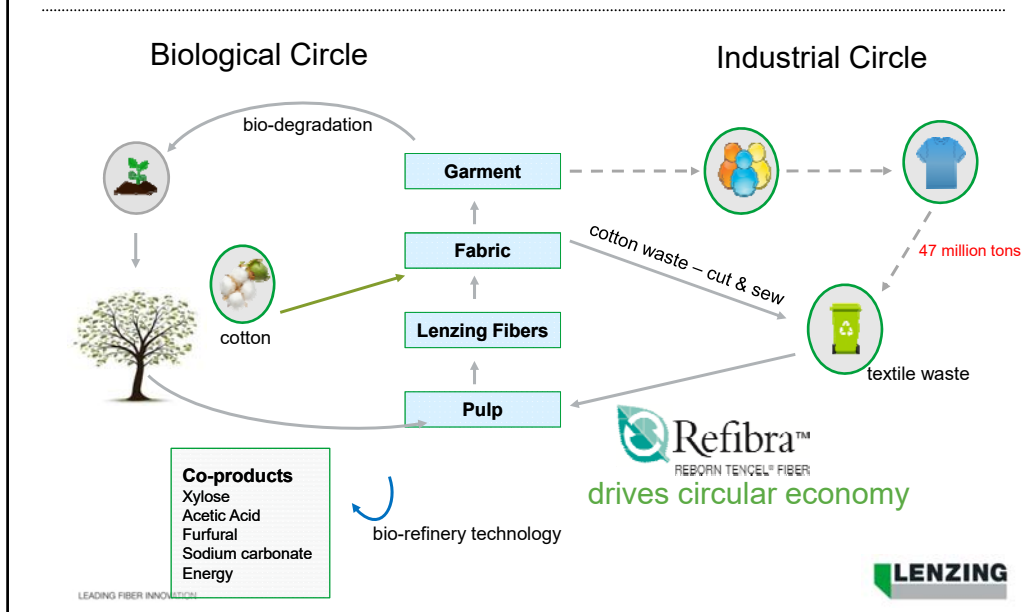


Four sustainability approaches in textile

1. Use raw materials with low eco-impact
2. Improve resource productivity (less raw material, energy, water for the same output)
3. "Close the textile loop" (re-use or recycle)
4. Change consumer behavior

3 LEADING FIBER INNOVATION

Example 2: achieving “circular economy” requires deep collaboration and transparency across the supply chain

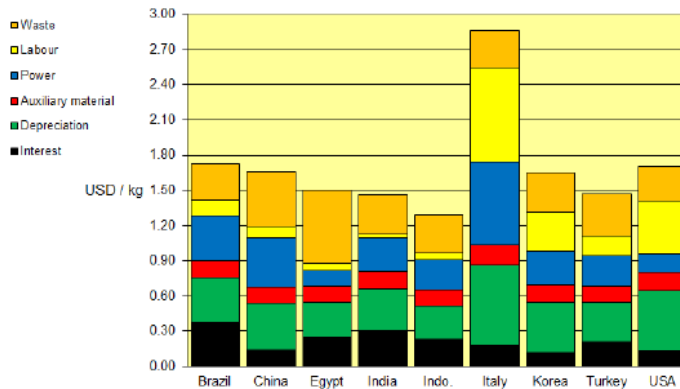


Example 3: proliferation of textile certification schemes need to be harmonized to bring more clarity



Example 4: Textile conversion costs are narrowing across countries, creating new opportunities

Fiber-to-Yarn spinning conversion costs (Ne 40)



- **Retailers are** setting up in-house teams to “nominate” suppliers for fabrics, yarns, fibers and not just garments
- **US & Central America could see revival** of textile industry due to competitive costs, trade-barriers, & shorter lead times
- As trade further increases, retailers are increasingly conscious to protect themselves **against “counterfeiting”/fake textile products**

6 LEADING FIBER INNOVATION



Example 5: Disruptive innovations: World’s first digital 3D knitting machine with ready-to-use garments



Kniterate



3D digitally knitted shirt

7 LEADING FIBER INNOVATION



Innovation will be key to future, and Lenzing has been at the forefront to solve sustainability challenges



- First textile **recycled fiber from cotton waste - Refibra™** – launched at industrial-scale
- Lenzing offers the **most sustainable viscose** with the lowest environmental impact – EcoVero™ (50% lower impact on emissions and water)
- **Spun-dyed Lenzing Modal®** to reduce downstream environmental impact, e.g.,
 - Lenzing **Modal® black** – for denim and knits
- **Micro-fibers** for even better moisture mgmt., **extra-luxury feel and softness**



GOVERNMENT'S POLICIES AND STRATEGIES FOR INDONESIAN TEXTILE INDUSTRY

By:

AIRLANGGA HARTARTO
MINISTER OF INDUSTRY THE REPUBLIC OF INDONESIA

ANNUAL CONFERENCE ITMF 2017

Bali, September, 15th 2017

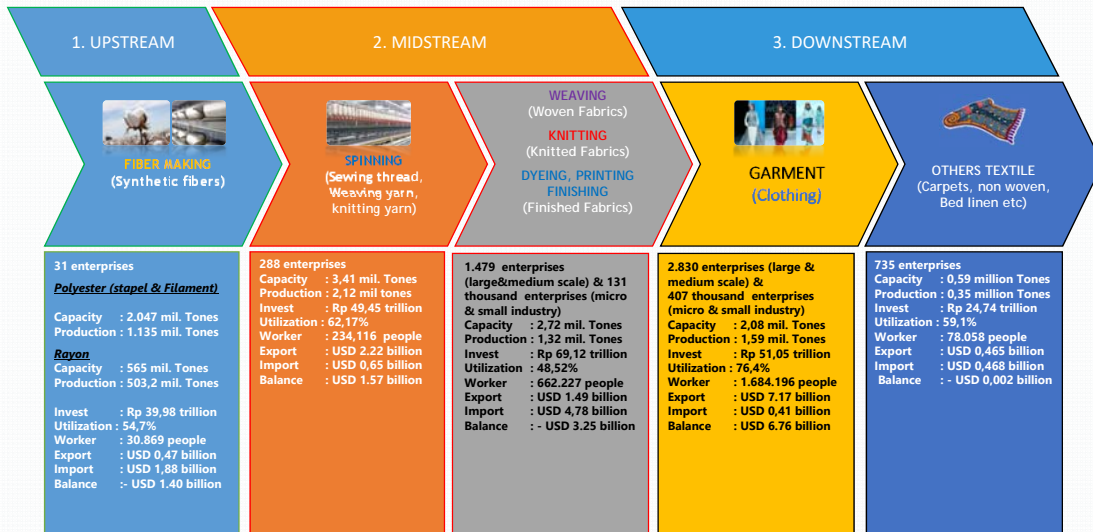
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I. CURRENT CONDITIONS & PROFILE OF TEXTILE INDUSTRY IN INDONESIA	3
II. PROSPECT OF TEXTILE INDUSTRY	9



I. CURRENT CONDITIONS & PROFILE OF TEXTILE INDUSTRY IN

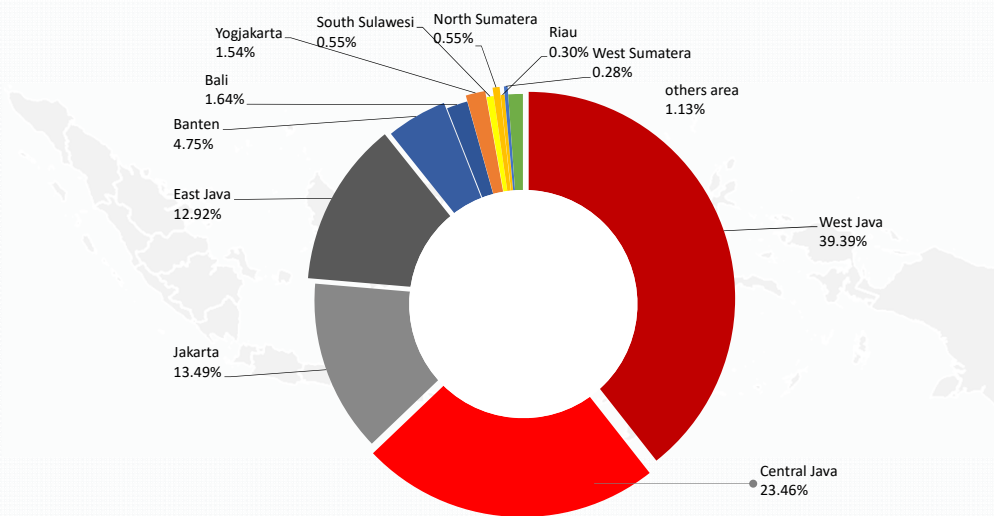
1. LINKAGE IN TEXTILE INDUSTRY



Sources : Ministry Of Industry, BPS, API (processed)
 *) preliminary data 2016



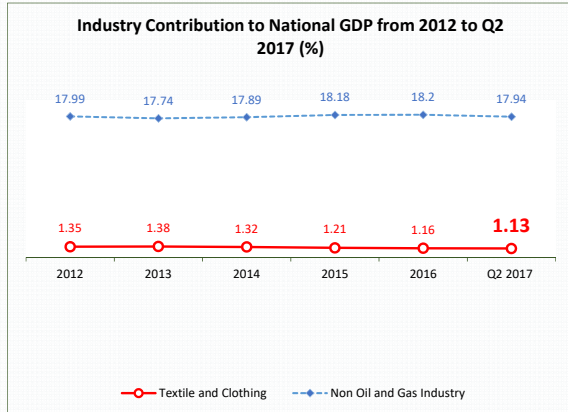
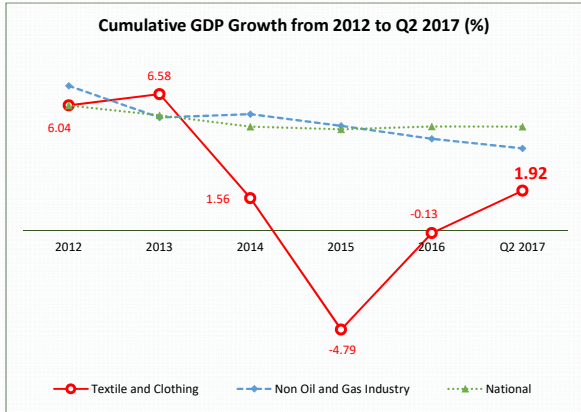
2. TEXTILE INDUSTRY DISTRIBUTION (LARGE & MEDIUM)



Sources : Ministry Of Industry, BPS (processed)



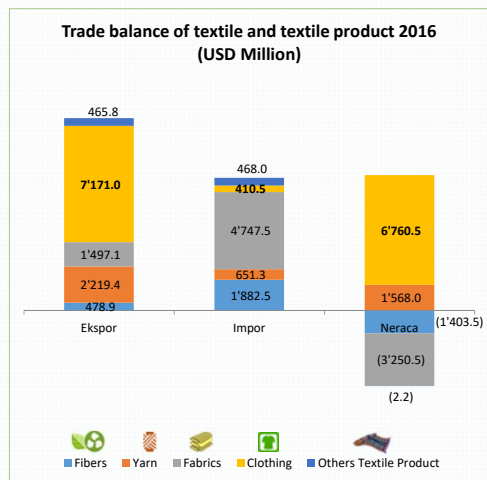
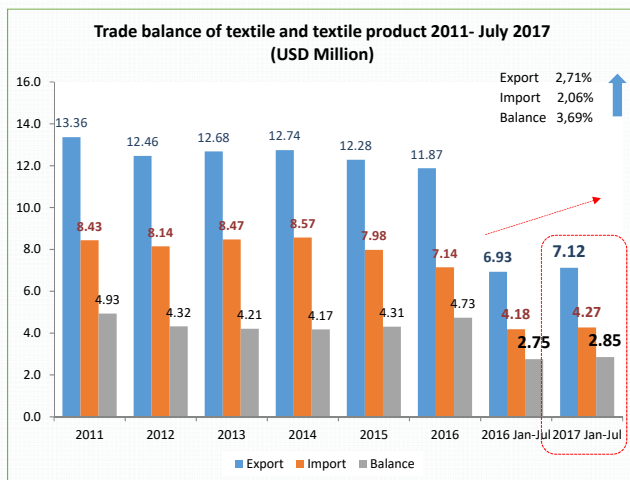
3. GROWTH RATE AND CONTRIBUTION TO GDP



Sources : BPS (processed)



4. BALANCE OF TRADE



Sources : BPS (processed)



5. GLOBAL MARKET SHARE

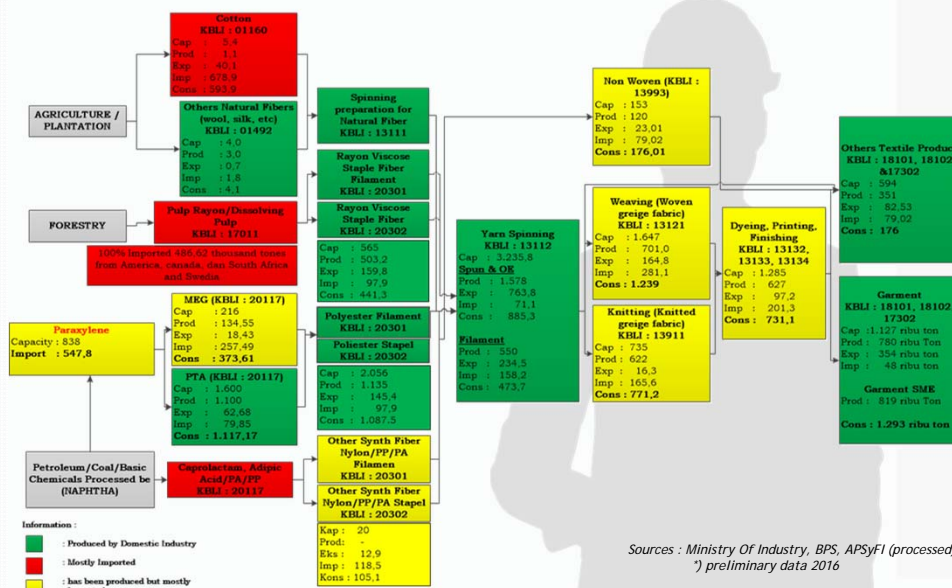


Source : trademap.org (processed)

Indonesia's market share in the world decreased due the competitors get preferential tariff to EU and US by 0% while Indonesia with normal tariff of 5-20%



5. PRODUCTION CAPABILITY OF TEXTILE INDUSTRY



Sources : Ministry Of Industry, BPS, APSyFI (processed) *) preliminary data 2016

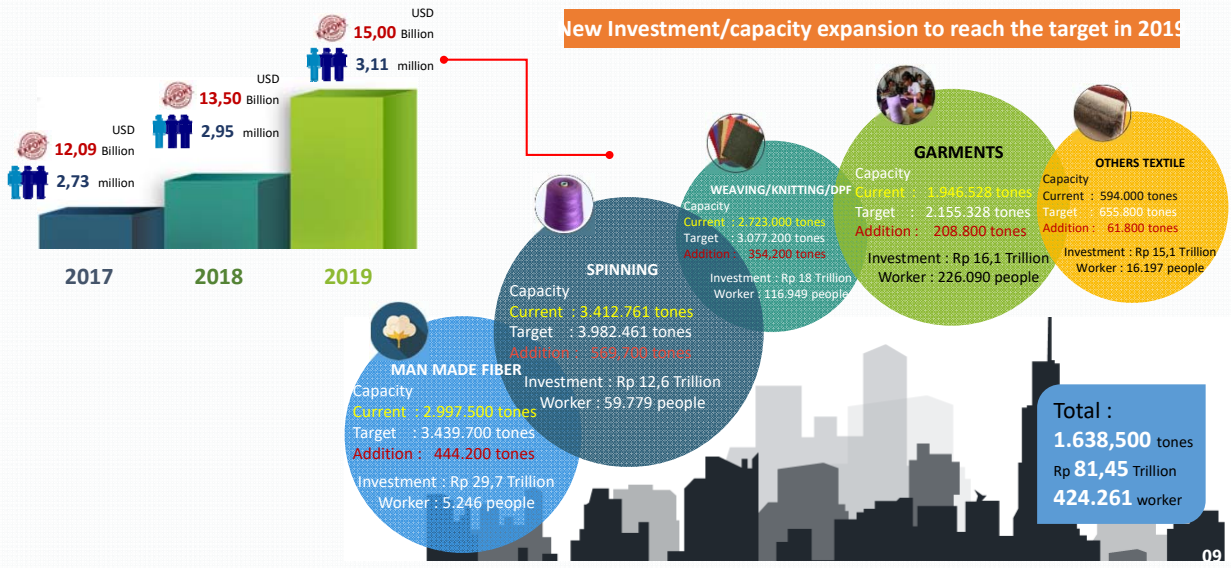
Existing conditions (2016)

- Total Production:** 6,62 Thousand Tonnes
- Export:** USD 11,78 billion
- Total Investment:** Rp 234,3 Trillion
- Worker:** 2,69 Million people



II. PROSPECT OF TEXTILE INDUSTRY

1. EXPORT, LABOR ABSORPTION & INVESTMENT TARGET



2. INVESTMENT OPPORTUNITY & POLICY SUPPORT

1 New Investment/expansion opportunity

- Investment on dissolving pulp industry with capacity of 385.000 tones to support on going viscose rayon projects (Rayon Utama Makmur, Sateri Viscose and Indo Bharat Rayon),
- Additional Investment on MEG and Para-xylene and polyester fiber industries with capacity 92.400 tones
- Cotton Plantation development to fulfill domestic demand with annual capacity 678.900 tones
- Investment on stapel and filament yarn industry with capacity 569,700 tones
- Investment on weaving and knitting industry with capacity 354, 2 thousand tons
- Investment on garment industry with capacity 208.800 thousand tons
- Investment on technical textile, carpet and non woven with capacity 61.800 thousand tones
- Investments on supporting industries such as dyestuff, machinery, textile auxiliaries and garment accessories

2 Policy/Government Support

- Investment incentives through tax allowance and tax holiday
- Control of customs facilities and prevention of high risk imports and illegal imports
- Accelerated FTA with EU and bilateral agreement with UK and US (under negotiation)
- Strengthening of Vocational training for 500.000 SMK students that link and match with textile Industry
- Continuing Machine Restructuring Program for textile industry

—
THANK YOU

INDONESIAN TEXTILE INDUSTRY: RESILIENCE IN HIGHLY COMPETITIVE GLOBAL TRADE

Assalamualaikum Wr. Wb; Good Morning to all of us,

Distinguished Guests, Ladies and Gentlemen, I am honored to stand before you and present several issues regarding Indonesia's Textile Industry. At this time, I would like to highlight several key points, which are Indonesia's textile industry performance, the global challenges, National Approach towards developing textile industry and finally some thoughts on the way forward.

Indonesia's textile industry performance

First, I want to discuss about the textile industry. Indonesia is ranked among the top ten largest textile producing countries. The textile and garment industry is one of Indonesia's oldest industries and - being labor intensive - a large source for jobs. However, I have to be honest that Indonesia is far away from threatening the domination of China globally. At present, China's market share accounted to 35 percent of global textile market, whereas Indonesia only accounted for 2% and even less. This is what I called a paradox in our global performance.

Those facts lead me to the next observation of the industry, about the performance itself. This sector is expected to become one of the main contributors for the future economy, dominated with production centers in Java (90 percent of national industry) and mostly located in West Java which accounted for 55 percent of the figure. The highly concentrated industry in Java is targeting mostly the domestic market.

However, we need to change the attitude of the industry to be more aggressive in sourcing market globally and expanding its market share

globally, later we will discuss about our challenges and strategy. It is the fact that our domestic demand is high and fulfilling such demand had drained the resources of the industry. However, if we keep maintaining this condition, we are losing our appetite to source market and compete globally. This is what brings the industry down overtime. That condition coupled with the changes of policies in our main trading partner that creates additional barriers like quota to limit the access of imported textile products from abroad.

The global challenges

At this time, I will start discussing about the second part of my discussion, the global challenges. I want to bring us to some latest facts of the industry, as follow;Indonesia is facing several challenges: the upstream sector is largely inadequate (causing a reliance on imports of raw materials) and requires an injection of investment, technology and expertise, while competition from other textile producing nations in Southeast Asia (Cambodia, Vietnam as well as Myanmar) is rising.

Even though China remains as the world's dominant player of this industry, the increase in their minimum wages had created some burdensome to their industry. This is definitely an opportunity for Indonesia to present itself as a more attractive among others in the region. I am aware that this is not as easy as words to say. Indonesia textile industry needs to cope with continuous demand of rising minimum wages, as well as higher electricity tariffs, and competition from cheap textile products imported from China (particularly after the implementation of the ASEAN China Free Trade Agreement [ACFTA], after its entry into force in January 2010.

I need to add the concern of the industry with the fact that weakening rupiah is a problem for Indonesia's textile industry because yarn, cotton, dyes and fabrics (both natural and man-made) are mostly imported

from abroad in US dollars. A depreciating rupiah (against the US dollar) makes imports more expensive and therefore causes financial turmoil for local textile companies (particularly the smaller ones that have fewer cash reserves to rely on). In 2015 many smaller and mid-sized Indonesian textile companies were on the brink of collapse due to (rupiah-inflicted) higher production costs and weaker domestic textile demand amid weaker purchasing power.

National Approach towards developing textile industry

Finding where we stand today brings us to the third part of my discussion on the industry; National Approach towards developing textile industry. In the early discussion of the topic, I highlighted the policy changes of our traditional market of textile products; US and European Union. I like to call them as “the red sea”. That market is saturated, coupled with types of demanding customers and colored with layers of restrictions and competitors.

Government of Indonesia (GoI) has the vision to bring the industry to strengthen the industry (building strong foundation of a resilient industry) and creating more market access of the products and place them in various market positioning globally. Let me discuss about the inward vision of building a strong foundation of the industry. The government had started to work with the industry in revitalizing the industry to modernize the machinery and equipment of production. Over years, this program had supported the industry in building its competitiveness. Also GoI is trying to developed local cotton production to reduce dependency over import. Several programs of industrial development, including improving skill of manpower in the industry also become the focus of GoI to improve the quality of products that match the needs of markets both locally and globally, including as part of global fashion industry value chain. For those, GoI is

working in line with the industry and GoI needs more inputs from the industry to understand its needs for future development. I need to add that government had also simplified procedures related to import to reduce unnecessary cost of business operation.

Ladies and Gentlemen, the government understand the needs of the industry to expand and secure its long term market. Therefore, the Government is actively involving in various trade negotiation to open market access of alternative markets, which I prefer to call as “blue sea”. Such market still has rooms for market development, less restrictive measures and less competitive among others. The GoI has started its exploration of trade cooperation with countries in Africa, Latin America, Middle East and some parts of Asia. Those areas are targeted due to its economic performance, economic size, its market potential and relatively relax trade policies. Outside those, the government still working on maintaining market access in existing trade partners like EU (through trade negotiation which is ongoing) and US (through TIFA). However, in order to make an effective standing on trade negotiation, the GoI needs active participation of business environment, in this case the textile industry, in providing information regarding barriers to overcome.

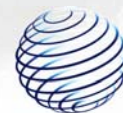
Some thoughts on the way forward

Finally, before I close my discussion, allow me to share some thoughts on the way forward.

Given the current climate in Asia's textile and garment sector, the view shared by many executives in the industry is that for the foreseeable future, China will remain the leading textile and apparel sourcing country.

Indonesia will continue to be one of the leading textile and apparel in the region with increasing competitiveness from its ASEAN neighbors and countries like India and Bangladesh. However, in order to broaden the scale of the industry, the program of revitalizing the industry needs to continue and the industry itself needs to source more investment to increase the capacity of production. Thus, government will continue to reduce cost of business by simplifying procedures, investing in manpower and supporting the industry through trade negotiation and utilizing its resources abroad for more market access. All of this requires synergy of the industry, government and all stakeholders. It is the time to build a strong foundation of the business, not just to look on the growing domestic market (inward) but to place Indonesia as the key player globally.

I thank you.



ASIA PACIFIC FIBERS

Textile Industry in Indonesia - Industry Perspective

Indonesian Fibres Industry

V. Ravi Shankar

President Director, Asia Pacific Fibers

International Textile Manufacturers Federation (ITMF) Annual Conference

Bali, September 2017

AGENDA

- 1 Fibre Consumption – Trend & Drivers
- 2 Fibre Mix
- 3 Indonesian Fibre Industry
- 4 Way Forward

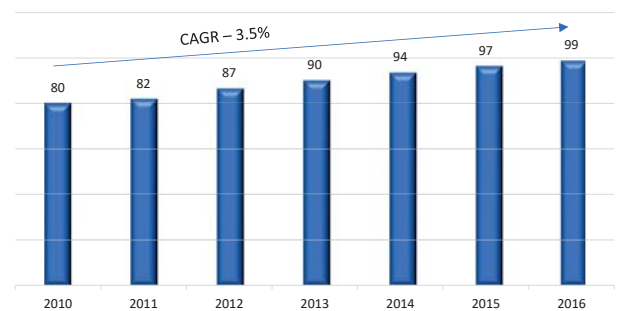
Fiber Consumption – Trend & Drivers

Global Fiber Consumption



- Global Fiber Consumption grew at a steady CAGR of 3.5% p.a. over last 6 years
- Fiber Consumption growth is driven by
 - Population Growth – 1.1%
 - Consumption Growth – 2.4% growth p.a. linked to higher per-capita consumption
- Incremental Fiber Consumption in 2016 compared to 2010 :
 - 5.5 Mil MT due to population growth
 - 13.2 Mil MT growth is due to higher per-capita consumption

Global Fiber Consumption, Mil MT



Fiber Consumption Growth Drivers, Mil MT (Base - 2010)

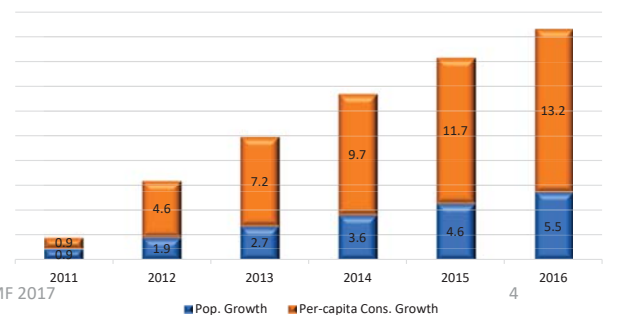


Chart 1 – Global Fiber Consumption in Mil MT – Source – The Fiber Year, Lenzing
 Chart 2 – Consumption Growth Drivers – based on Midyear Population Growth Report (US Census)

Per-capita Fiber Consumption

- GDP (Per-capita) growth in Industrial World has moderated to about 1.5% CAGR, against an almost 3 fold higher growth rate of 4.2% CAGR for Developing World
- Increase in disposable income in developing world has driven higher per-capita consumption of textiles.
- Per-capita consumption of textiles in developing countries is projected to grow at 4.3% CAGR and reach 12 kg by 2020.
- Indonesian textile consumption has grown at a CAGR of 4.5% during 2010 – 2016. Euromonitor projections show a apparel retail sale growth of 5% p.a. between 2015 – 2020.

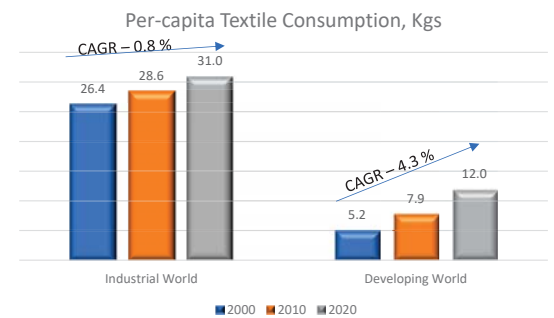
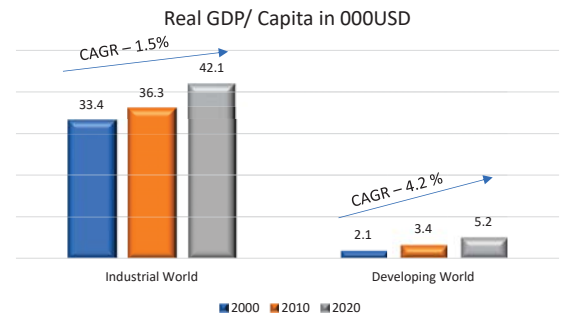


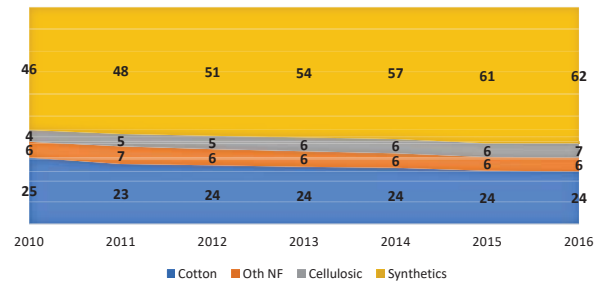
Chart 1 – Real GDP/ Capita – IHS/ ICAC, as seen in Lenzing Presentation Q2 2017
Chart 2 – Per-capita Textile Consumption – IHS/ ICAC, as seen in Lenzing Presentation Q2 2017

Fibre Mix

Fiber Mix – Sliding Cotton & Growing Man-Made Fibers

- Fiber consumption grew by 19 Mil MT between 2010 and 2016.
- About 17 Mil MT of this incremental growth was supplied by Synthetic Fibers, and the rest by Cellulosics (Rayon).
- Natural Fibers had a de-growth of about 1 Mil MT, mainly on account of shrinking Cotton share.
- Cellulosics grew at a CAGR % of 6.9, followed by Synthetics at 5.3%, while cotton shrank by 0.4%
- Future projections also show Synthetics driving future consumption, with Polyester as the dominant fiber.

SHARE BY FIBER TYPE, MIL MT



2010-16	Cotton	Oth NF	Cellulosic	Synthetics
CAGR %	-0.4	1.2	6.9	5.3

Fiber Growth in Mil MT - Base 2010

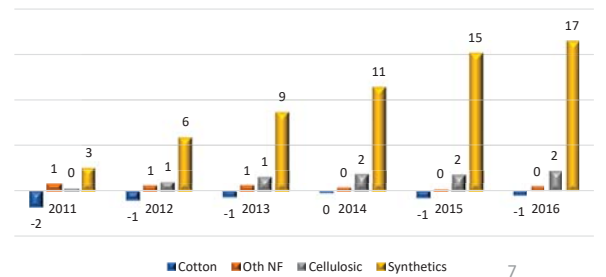
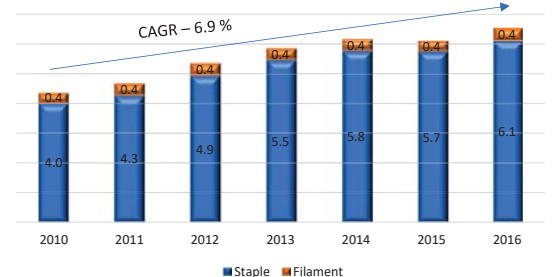


Chart 1 – Fiber Consumption by Fiber Type – The Fiber Year & Lenzing Presentation Q2 2017
Chart 2 – Fiber Growth by Type – The Fiber Year & Lenzing Presentation Q2 2017

Fiber Mix – High Growth Rate of Rayon

- Cellulosic fibers grew at the fastest pace amongst all fibers (CAGR of 6.9%) between 2010 and 2016.
- Cellulosic Staple fibers registered the entire growth, with filament production remaining almost flat.
- Indonesia has reported a steady production of Rayon, growing at 3.3% CAGR.
- With good spinning infrastructure, domestic consumption of rayon is about 360KT against the production of 470KT. 90KT is imported and 190KT of fiber is exported.

World Cellulosic Production, Mil MT



Indonesian Rayon Production, 000 MT

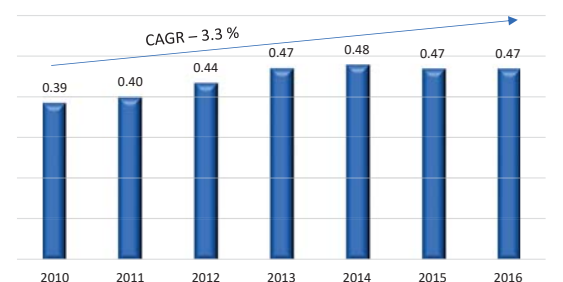
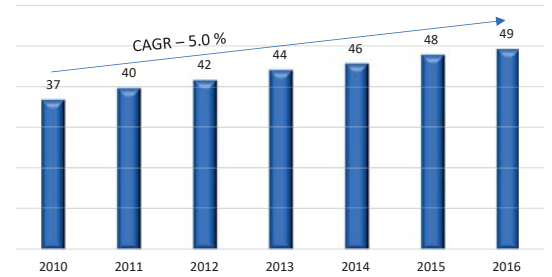


Chart 1 – World Cellulosic Production – The Fiber Year, Lenzing Q2 2017 Presentation
Chart 2 – Indonesian Rayon Production – ApSyfi Database

Fiber Mix – Dominant Polyester

- Polyester production grew at 5.0 % CAGR between 2010 and 2016.
- Polyesters met almost 75% of the incremental fiber consumption during this period.
- Polyester growth is driven by its easy availability of raw materials, wide application range, stable and affordable pricing and durability.
- With fast expanding application, Polyester is expected to maintain its leadership position, meeting most of the incremental consumption growth.

Global Polyester Production - Mil MT



Textile filament (POY/DTY/FDY)	Staple Blends cotton, wool, rayon	Industrial filament	BCF/other
Apparel Fashion Performance Commodity Career	Apparel Fashion Commodity	Automotive Tyres Hoses Belts Seat belts	Carpet Residential Rugs/mats
Household Bedding Upholstery Drapes	Household Bedding Towels	Other Roofing Coated fabrics Conveyor belts Power belts Geo textiles Ropes Nets	Nonwovens Spun bond
Automotive Upholstery Headliner	Nonwovens Disposables		Monofil Papermaking Weedwackers
Other Office furnishing Medical Luggage Industrial	Fibrefill Fill for pillows Comforters etc Carpet		

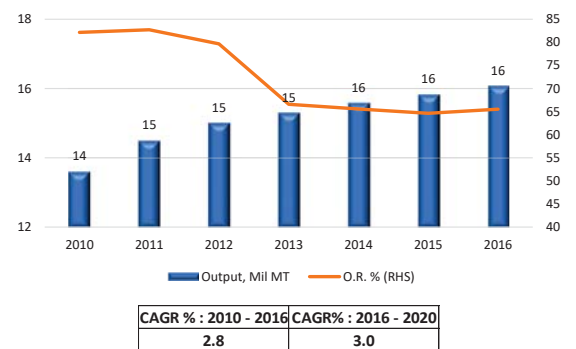
Chart 1 – Global Polyester Production – PCI
Chart 2 – Application of Polyesters

Indonesian Fibres Industry – VRS – ITMF 2017

Fiber Mix – Polyester Staple Fiber (PSF)

- Polyester Staple Fiber output grew at 2.8% CAGR between 2010 and 2016.
- Operating Rates sharply dropped from 80% levels in 2011/12 to 65% levels by 2015, due to huge capacity addition.
- With slowing new capacity addition, and steady demand growth of about 3%, Operating Rates have stabilised around 65%.
- PSF production is projected to grow at a CAGR of 3% to 18.1 Mil MT by 2020. Operating Rates are projected to improve marginally to about 70% by then.

Global PSF Output & Operating Rate



Global PSF - Projected Output & O.R.

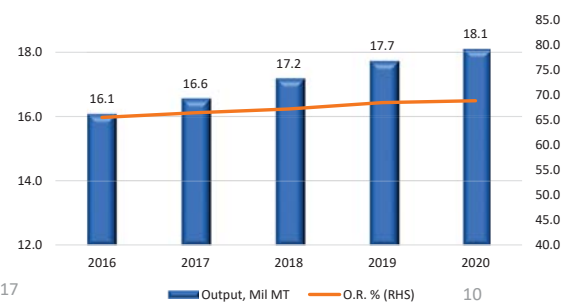


Chart 1 – World PSF Output and Operating Rate - PCI
Chart 2 – Projected PSF Output and Operating Rate - PCI

Indonesian Fibres Industry – VRS – ITMF 2017

Fiber Mix – Polyester Filament Yarn (PFY)

- Polyester Filament Yarn output grew at 6.2% CAGR between 2010 and 2016.
- Operating Rates dropped from 75% levels in 2011/12 to 70% levels by 2015, due to huge capacity addition.
- With slowing new capacity addition, and steady demand growth, Operating Rates have stabilised around 71%.
- PFY production is projected to grow at a CAGR of 4.5% to 55 Mil MT by 2020.

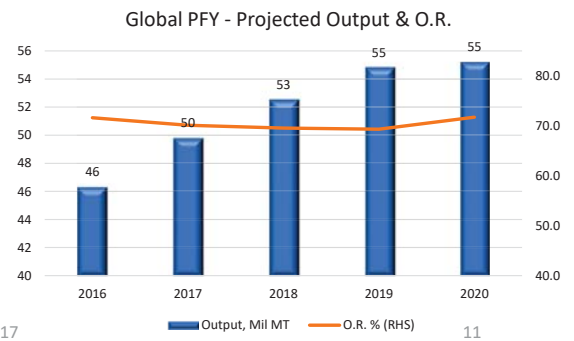
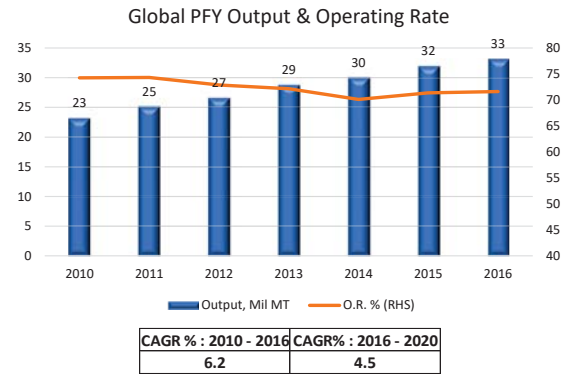


Chart 1 – World PFY Output and Operating Rate - PCI
Chart 2 – Projected PFY Output and Operating Rate - PCI

Indonesian Fibres Industry – VRS – ITMF 2017

Spun Yarn Vs Filament Yarn Production

- Global Spun Yarn production grew at a very slow pace of 0.4% CAGR between 2005 and 2015, due to shrinking share of Cotton. Spun Yarn growth was driven by Cellulosics (7.3% CAGR) and then by Polyester (2.2% CAGR)
- Filament Yarn production grew at 7.1% CAGR between 2005 and 2015, driven primarily by Polyester.
- Filament Production growth was in both Textile and Industrial applications. Filament for Textiles increased from 17 Mil MT in 2005 to 37 Mil MT in 2015. Filament for Industrial/ Carpet applications increased from 4 to 6 Mil MT during the same period.

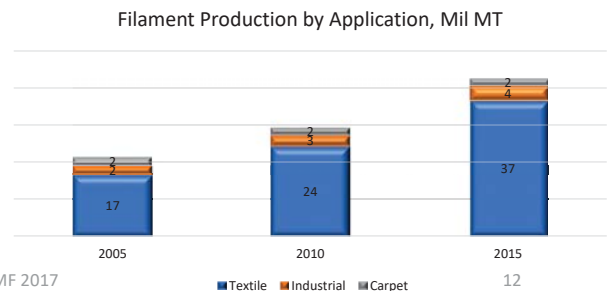
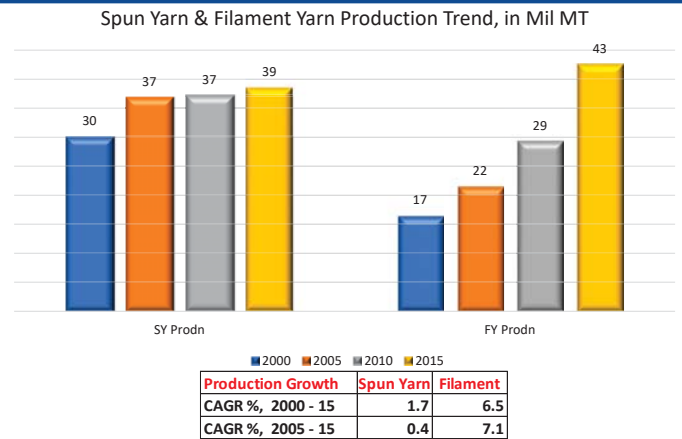


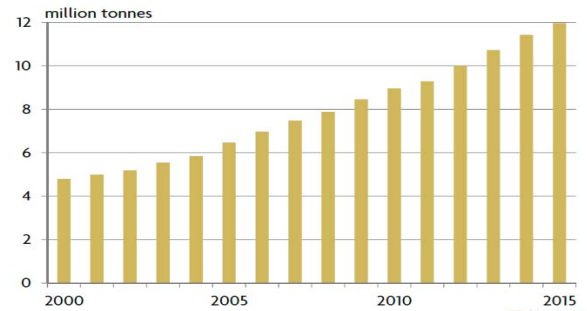
Chart 1 – World Spun Yarn and Filament Yarn Production – The Fiber Year
Chart 2 – Filament Yarn Production by Application – The Fiber Year

Indonesian Fibres Industry – VRS – ITMF 2017

Non Woven Production

- Global Nonwovens production grew at an average annual growth rate of 6.3% from 2000.
- Production in Asia showed the highest growth rate of almost 10%.
- Demand is projected to be robust, driven by multiple applications and higher demand in developing countries.
- Applications in Hygiene, Medical, Filtration, Automotive, Roofing, Building and Agriculture are the drivers of Nonwoven demand growth

World Nonwovens and Unspun Production



Average Annual Growth Rate of Nonwovens and Unspun Production

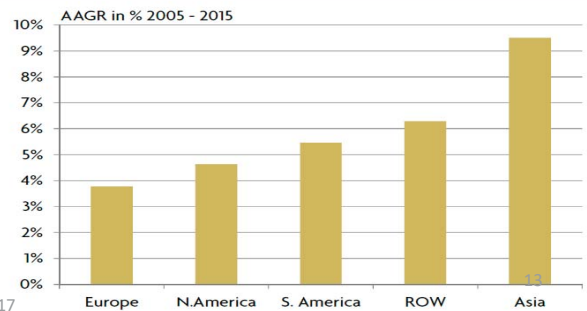
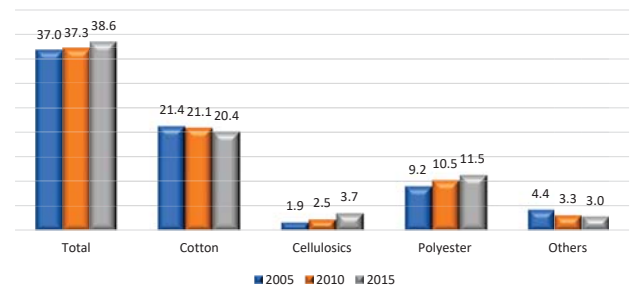


Chart 1 – World Nonwovens and Unspun Production – The Fiber Year
Chart 2 – Region wise Production Growth Rates of Nonwovens – The Fiber Year

Spun Yarn Production

- Global Spun Yarn production grew at a very slow pace of 0.4% CAGR between 2005 and 2015, due to shrinking share of Cotton.
- Spun Yarn growth was driven by Cellulosics (7.3% CAGR) and then by Polyester (2.2% CAGR).
- Future growth in Spun Yarn will be driven by Polyester and Rayon.
- Indonesian Spun Yarn production has been steady with a CAGR of 0.8%.
- Indonesia has been a net exporter of Spun Yarn, with average exports of 750KT/ year.

World Spun Yarn Production, Mil MT



2005 - 15	Total	Cotton	Cellulosics	Polyester	Others
CAGR %	0.4	-0.5	7.3	2.2	-3.9

Indonesian Spun Yarn Production, 000 MT

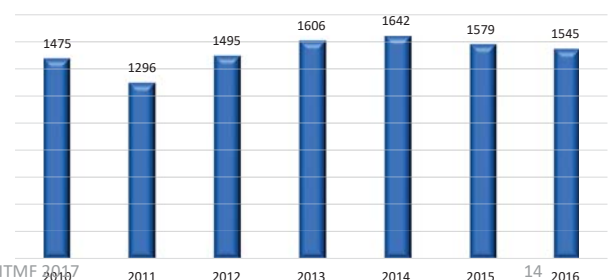


Chart 1 – World Spun Yarn Production – The Fiber Year
Chart 2 – Indonesian Spun Yarn Production – ApSyfi database

Indonesian Fibre Industry

Textile Consumption- Indonesia



- Textile Consumption in Indonesia has grown at a CAGR of 4.6% between 2010 and 2016.
- As observed in all developing countries, consumption is driven more by higher per-capita consumption (3.6% CAGR) than by population growth.
- Growing middle class families, and higher GDP is projected to propel this growth further.

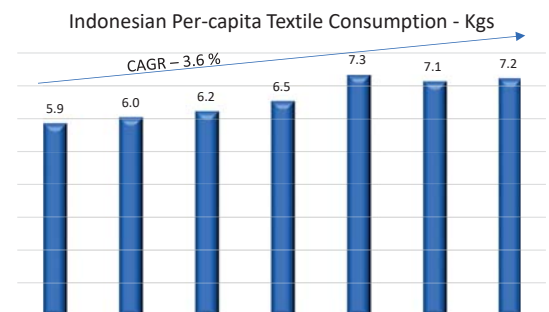


Chart 1 – Indonesian Textile Consumption – ApSyfi Database
 Chart 2 – Indonesian Per-capita Textile Consumption – ApSyfi Database

Textile Consumption vs Fiber Production- Indonesia

- While Textile consumption in Indonesia has grown at a good CAGR of 4.6%, fiber production has grown by only a small extent (CAGR of 0.5%), with a significant amount of demand growth fed by imports.
- There is virtually no production of Natural Fibers in Indonesia (current level – about 9,000 MT per year, against a total of about 1.6 Mil MT)
- Rayon production grew by 3.3%, PSF by 1.5%, while filament production went down by 2.4%.
- Tremendous potential for upstream fiber production exists in Indonesia, with increasing garment exports and growing domestic consumption.

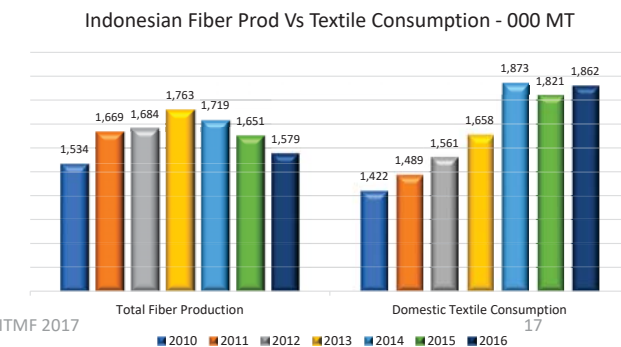
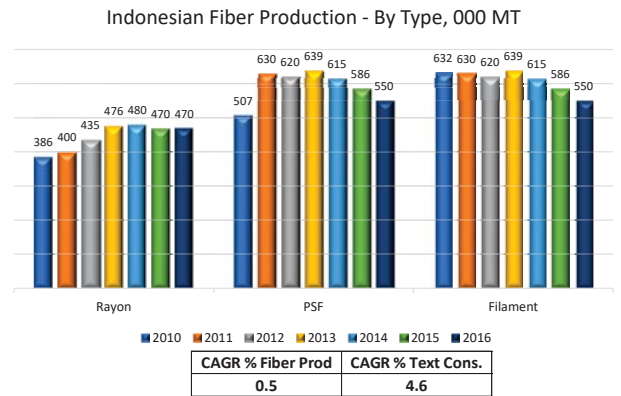


Chart 1 – Indonesian Fiber Production – ApSyfi Database
 Chart 2 – Indonesian Fiber Production Vs Textile Consumption – ApSyfi Database

Indonesian Fibres Industry – VRS – ITMF 2017

Polyester Raw Material - Indonesia

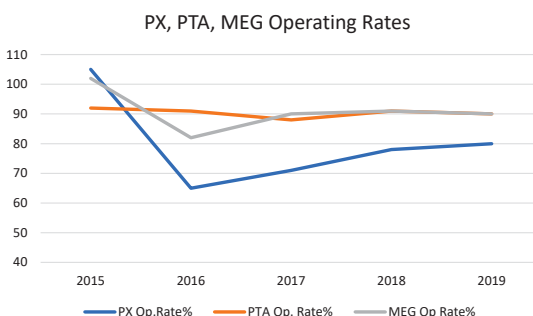
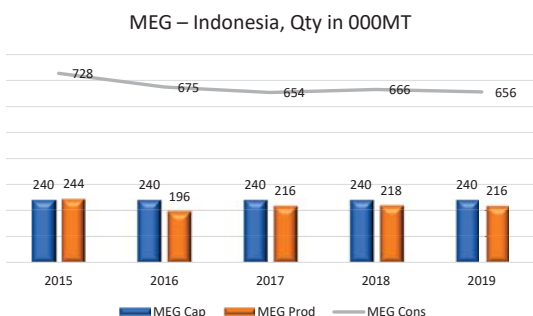
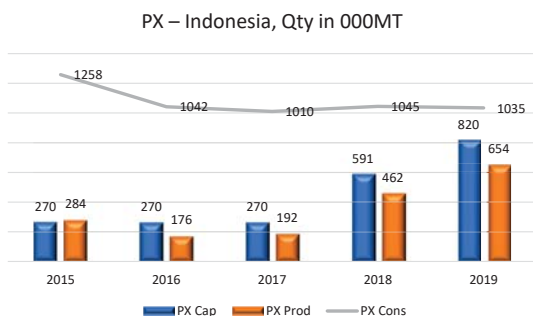


Chart 1 – Indonesian PX Position – PCI
 Chart 3 – Indonesian MEG Position – PCI

Chart 2 – Indonesian PTA Position - PCI
 Chart 4 – PX, PTA, MEG O.R. in Indonesia - PCI

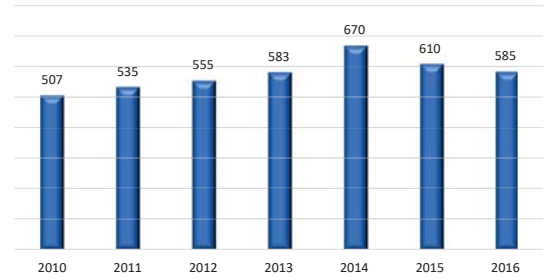
Indonesian Fibres Industry – VRS – ITMF 2017

- PX Requirement largely met through imports – stable consumption
- PTA production and consumption almost matching – stable Operating Rates of 90% forecast
- MEG – primarily met through imports with local capacity operating rates stable at around 90%

Polyester Production - Indonesia

- Polyester Staple Fiber output in Indonesia grew at 2.3% CAGR between 2010 and 2016. Filament output has dropped by about 2.4% during the same period.
- In spite of firm consumption growth of textiles in Indonesia, and new capacity addition in both PSF and PFY, Indonesian fiber and filament output has been under strain due to continuously increasing imports of both upstream fibers and downstream fabrics.
- With no new capacity addition till 2020, and steady improvement in consumption, opportunities exist for both PSF and PFY producers in Indonesia to ramp up the production and meet the higher demand, while cheaper imports remains a serious threat.

Indonesian PSF Production, 000 MT



Indonesian Filament Production, 000 MT

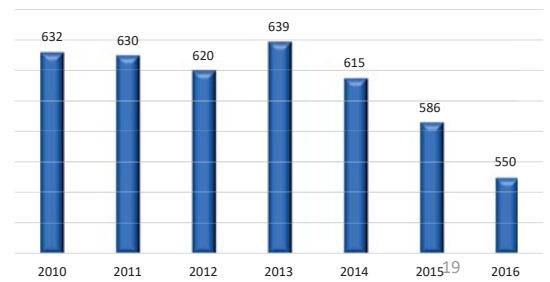


Chart 1 – Indonesian PSF Output – ApSyFi Database
Chart 2 – Indonesian PFY Output – ApSyFi Database

Indonesian Fibres Industry – VRS – ITMF 2017

PET Resin - Indonesia

PET Demand & Supply - Indonesia



- A handsome demand growth of almost 10% per annum presents a golden opportunity for Indonesian domestic producers to ramp up capacity – currently no capacity increase planned.

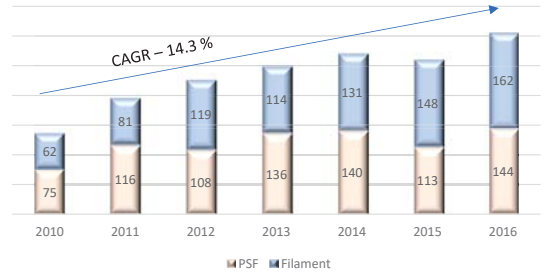
Chart 1 – Indonesian PET demand and capacity – PCI PET Packaging and Resins – Q1 2016

Indonesian Fibres Industry – VRS – ITMF 2017

Indonesian Polyesters – Growth through Import Substitution

- Import Substitution through competitive production of differentiated Fibers/ Yarns (Imports of PSF/ Filament into Indonesia have increased at a CAGR % of 14.3 between 2010 – 2016)
- Increasing Exports through value added Fibers/Yarns (PSF/ Filament exports from Indonesia hardly grew during 2010 – 2016 – CAGR of only 1.3%)
- Providing integrated support to Garment exporters by developing appropriate fabrics and yarns/ fibers – thus bringing in benefits of higher garment exports and higher domestic consumption to the entire domestic textile chain.

PSF & Filament Imports, 000 MT



PSF & Filament Exports, 000 MT

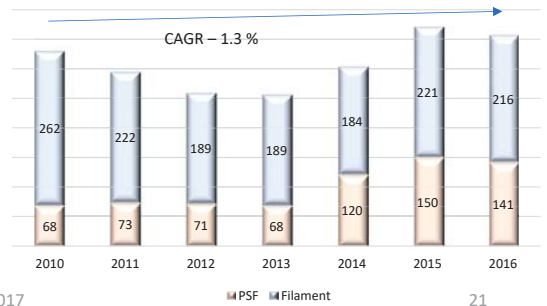
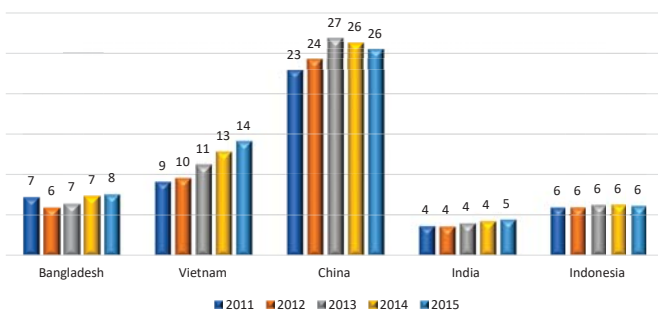


Chart 1 – Indonesian PSF/ Filament Imports – ApSyfi Database
Chart 2 – Indonesian PSF/ Filament Exports – ApSyfi Database

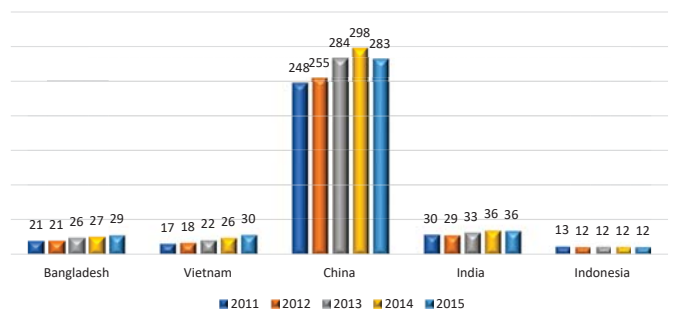
Indonesian Fibres Industry – VRS – ITMF 2017

Textiles & Clothing Trade – Opportunity for Indonesia

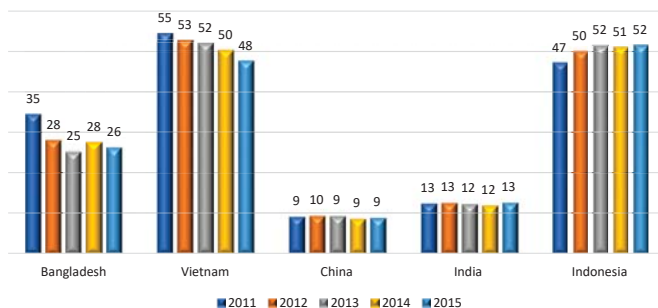
Textile & Clothing Imports - US\$ Billion



Textile & Clothing Exports - US\$ Billion



Textile & Clothing - Imports as % of Exports



- Indonesian exports and imports have remained at same levels over the last 5 years, as compared to Bangladesh, Vietnam and India whose exports have grown rapidly.
- Indonesian imports as a % of exports remain very high at around 52% amongst countries with integrated textile chain (China at 9% and India at 13%).
- Indonesia has tremendous scope to improve its domestic capacity on higher domestic consumption and through import substitution.

Charts 1 & 2 – Textile & Clothing Imports & Exports – WTO Online Database accessed in Aug 2017 – VRS – ITMF 2017
Chart 3 – Worked out based on WTO Database

Indonesian Upstream Textiles – Way Forward



- Indonesian domestic consumption growth in textiles is robust – at 4.6% CAGR.
- Consumption growth is not shared by domestic industry – mainly supplied through import growth.
- A Robust and Dedicated Textile Policy with a horizon of 10 years to be developed to support Indonesian Textile Industry – Upstream and Downstream, meeting consumption growth and also driving competitive export growth.
- Textile Policy to drive growth through integrated development:
 - Refinery led capacity augmentation of PTA/ MEG
 - Upstream capacity development – Fiber/ Filament/ PET Resin
 - Spun Yarn & Fabric Production Facilities
- With active policy implementation, ratio of imports on exports to be reduced from the current level of 52% to 32%.

Indonesian Fibres Industry – VRS – ITMF 2017

23

A grayscale photograph of a traditional Indonesian temple complex, likely Pura Besakih, situated on a peninsula overlooking a calm lake. The temple features a prominent multi-tiered pagoda and several smaller pavilions with traditional roofs. The background shows misty mountains under a cloudy sky.


ASIA PACIFIC FIBERS

Textile Industry in Indonesia - Industry Perspective

Thank you

International Textile Manufacturers Federation (ITMF) Annual Conference
Bali, September 2017

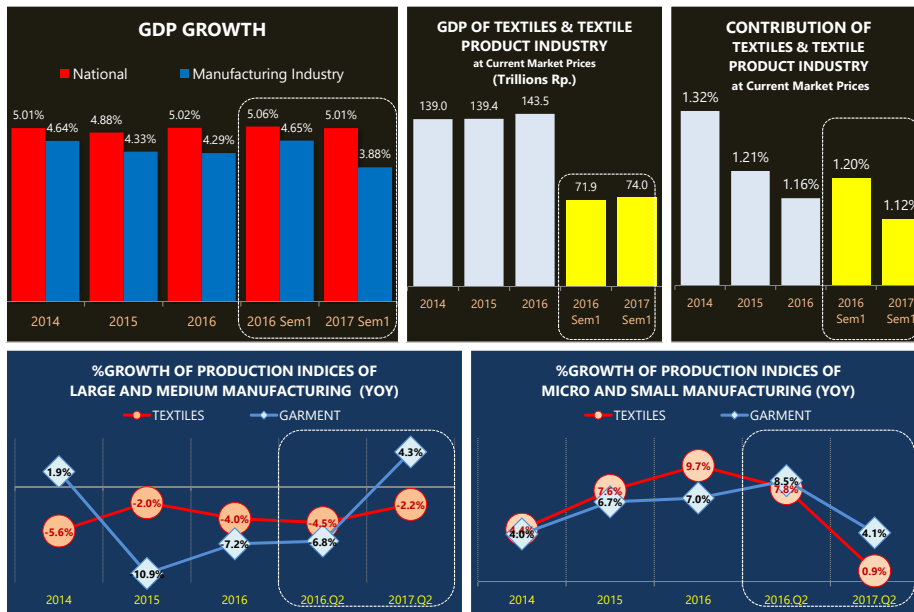
INDONESIA SPINNING & WEAVING MANUFACTURING INDUSTRY

Iwan S. Lukminto

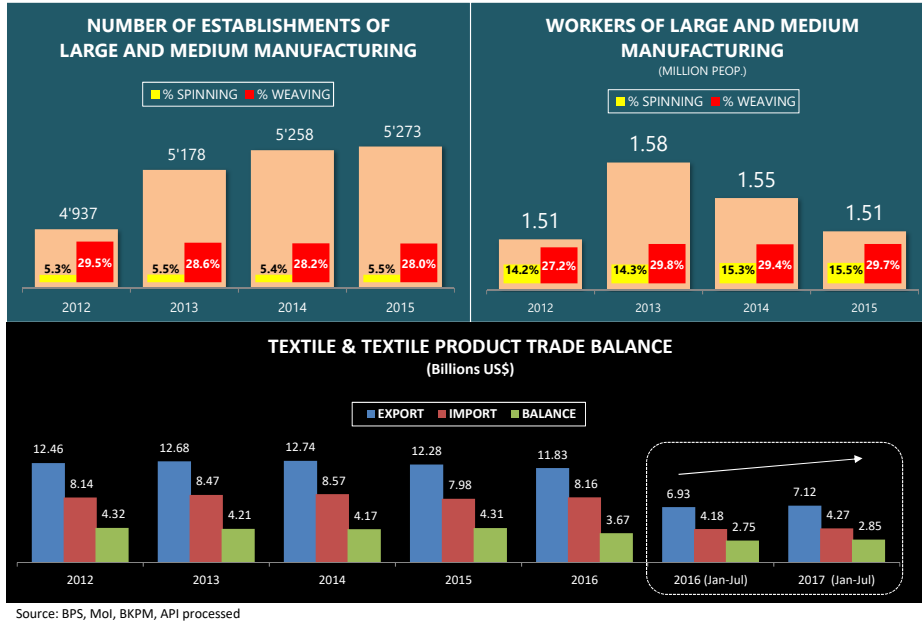
President Director – PT. Sri Rejeki Isman Tbk.



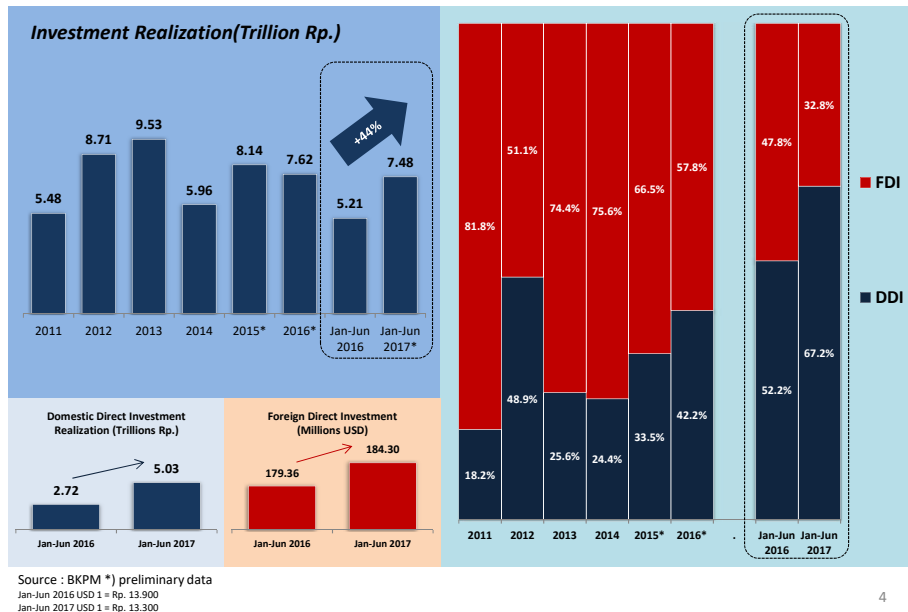
HIGHLIGHTS IN Indonesian TEXTILE & TEXTILE INDUSTRY



HIGHLIGHTS IN Indonesian TEXTILE & TEXTILE INDUSTRY

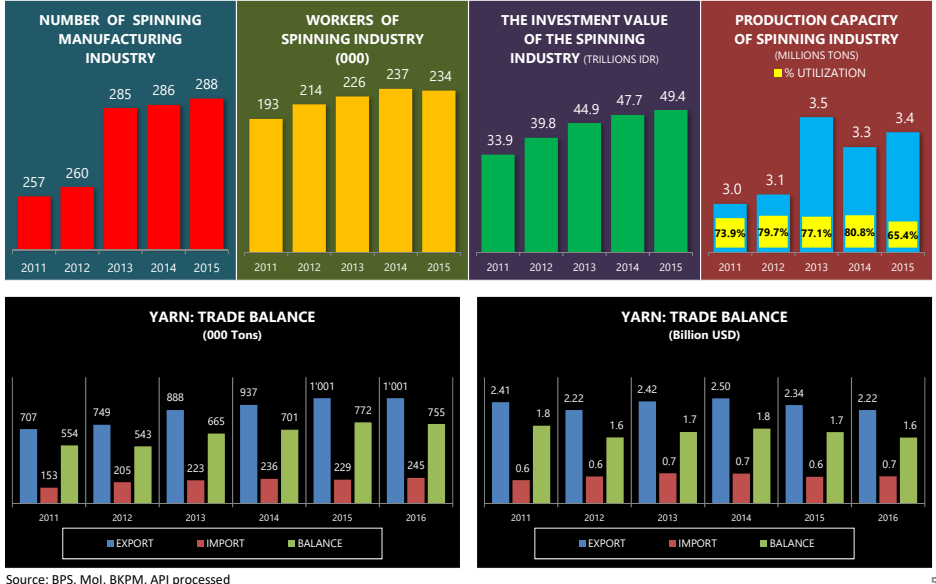


TEXTILE & TEXTILE PRODUCT: INVESTMENT REALIZATION



SPINNING

MANUFACTURING INDUSTRY



5

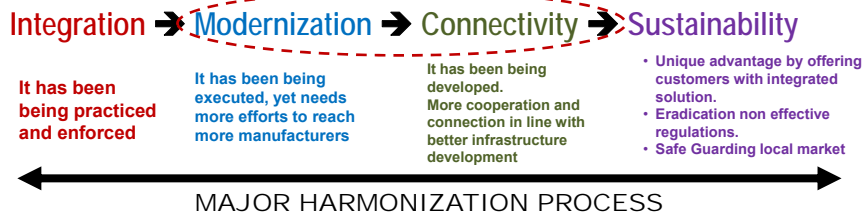
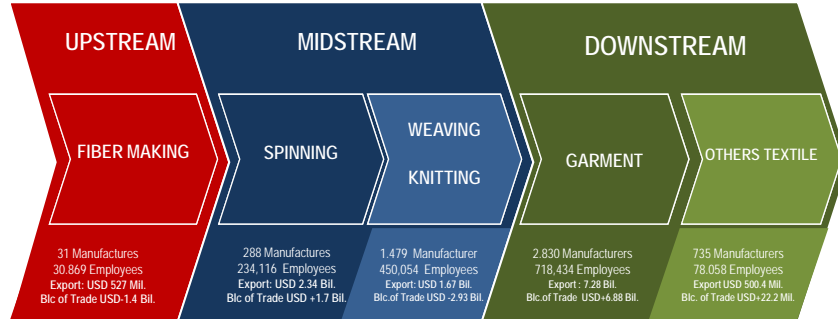
WEAVING

MANUFACTURING INDUSTRY



6

THE INTEGRATION OF TEXTILE INDUSTRY IN INDONESIA



7

*Terima Kasih
Thank You*



PT S & R Rajati Luman Tah

Jakarta

The Energy Building 20th Floor
 Jl. Jendral Sudirman Kav 52-53 Lot 11A – SCBD
 Phone : (62 – 21) 2995 1619/20
 Fax : (62 – 21) 2995 1621
 Jakarta 12190 – Indonesia

Jl. KH Wahid Hasyim 147
 Jakarta 10240 – Indonesia
 Telp: (62 – 21) 3100995, 3100996, 3106213,
 3803273, 3809114, 3809115
 Fax: (62 – 21) 3803276

Corporate & Production Complex

Jl. KH. Samanhudi 88
 Jetis, Sukoharjo
 Solo – Central Java - Indonesia
 Telp: (62 – 271) 593188
 Fax: (62 – 271) 593488, 591788

<http://www.sritex.co.id/>

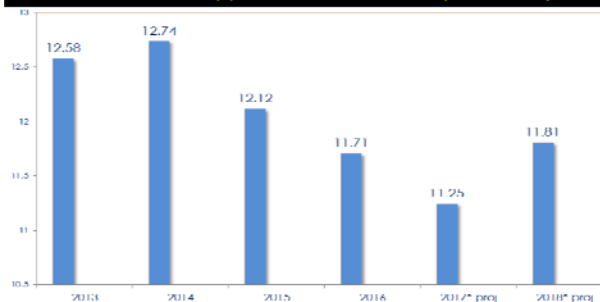
Textile Industry in Indonesia

ANNE PATRICIA SUTANTO
VICE CEO – PT. PAN BROTHERS TBK
15 SEPTEMBER 2017



Indonesia Current Apparel Growth

2013 – 2016 INDONESIA GROWTH PROFILE	
Manufacturing	Average Growth 4.33% annually
Economic	Average Growth 5.13% annually
Textile/Apparel	Average Contracted 2.73% annually



The Indonesian Textile Association (ATI) forecasts 2017 Indonesian textile and apparel exports are likely to decrease by 4.5%, as compared with the estimated 2016 export value. ATI expects the decrease in overseas demand caused by global economic downturn is unlikely to improve until 2018.

Business Contribution to Growth of Indonesia

No	Growth Areas	2016	Key %
1.	GDP Volume of Indonesia	\$892 Billions	–
2.	Total Exports Volume of Indonesia	\$144.4 Billions	16.2%
3.	Total Textile/Apparel Exports Volume of Indonesia	\$11.25 Billions	7.8%

Challenges Faced in Indonesia

VENDORS

1. Labor Conditions
2. Infrastructures (logistics, transportation)
3. Government's Trade & Economic Policies (energy cost, labor incentive, import flux)
4. Investments Climate & Environment (ease of doing business, tax incentive, allowance)
5. Talent Development (skilled labors, education)

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1. Free Trade Agreement (Trump's Policy, EU Bilateral Negotiations)
2. Labors Conditions
3. Government Business Rules & regulations (corruption, long-dwelling time, banking/financial support, incentive benefits)
4. Infrastructure (bandwidth, transportation)
5. Talent Management
6. Speed & Innovation, Research & Development

Addressing the Challenges

1. Labor Conditions – increment of wages are more regulated after PP78 Year 2015
2. Infrastructures Program on-going (Paket Kebijakan Ekonomi Jilid 9 & 15) – **“Menghilangkan persyaratan perizinan angkutan barang, Standarisasi dokumen arus barang dalam negeri, Kemudahan pengadaan kapal tertentu”**
(ex: MRT, LRT, Commuter Line, toll roads, electronic payment system for toll roads, airports and ports)
3. Government's Trade & Economic Policies (Paket Kebijakan Ekonomi Jilid 4) – **“Kebijakan kurs yang lebih murah dan meluas; Pengupahan yang adil, sederhana dan terproteksi untuk buruh”**
4. Investments Climate & Environment – one stop shopping under BKPM, KEK (Paket Kebijakan Ekonomi Jilid 6 – **“Tariff Bea Cukai masuk dengan SKA, Mempercepat Proses Waktu Perijinan”**)
5. Talent Development – vocational training school/institution would prepare both industry skill sets and management experts. Government supports the funds, export oriented curriculums and trainings materials, while Industries supports with qualified trainers, scholarships for best performers etc.

Opportunities for Indonesia

1. Textile/apparel is among government's 10 most priority industries counted on to boost the national economic growth
2. Huge labor forces – production age, demographic bonus from 2020-2035, 15.5 millions in manufacturing, 17% of which in textile/apparel
3. Textile/apparel poses to become a social safety net due to its huge labor absorbance
4. 64.29% distribution of manufacturing businesses remain heavily in Java, 13.62% in Sumatera, 8.82% in Sulawesi, 8.34% in Bali & Nusa Tenggara, 45% in Kalimantan, 1.84% in Papua & Maluku
5. Politically & economically stable
6. Product competitiveness, locally integrated raw materials manufacturing
7. Huge product capacity

My Forecast of Indonesia's Textile & Garment in the near future

1. As the largest populated country in ASEAN, Indonesia could be both a pillar for growth for textile and garment industry in terms of manufacturing base as well as customer base.
2. The demanding speed to market, could be really a great time for textile industry to grow in Indonesia for demand of huge supply chain as garment in Indonesia is growing and supplying more for Global Brands.
3. Indonesia Government has open the door policy and believe in Fair Competitions globally, thus, the free trade policies among countries which Indonesia is part of and would continue to be part of would be a great opportunity for Textile and Garment of Indonesia to grow 10-20 percent annually

THANK YOU

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Standard Audit Initiative

by



Audit Fatigue: Challenges and Opportunities

ITMF Annual Conference 2017
Bali - Indonesia

Presented by

Karim Shafei



September 2017

Background: Standard Audit Label Initiative



Social compliance requirements are becoming a major burden to textile manufacturers..

Confusing and conflicting standards

Gaps in coverage

Costs

Disruption to production

Lengthy process

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ITMF Audit Initiative – Audit Fatigue: Opportunities and Challenges – September 2017

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Conflicting standards: example from working hours and days off..

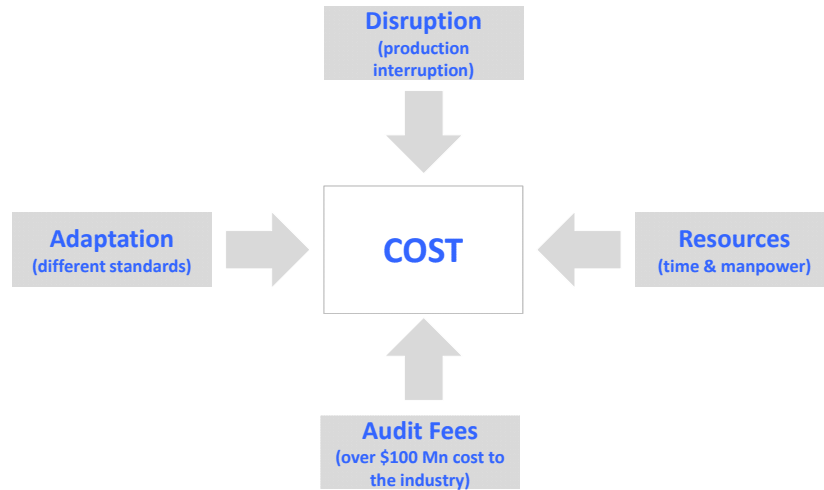
	# of hours	Overtime	Hours exceptions	Days off	Days-off exceptions
Walmart	48	12	None	1 / 7	Could be 1 / 14
Sears	48	12	72 in peak season	1 / 7	Could be exchanged
JC Penny	Local Laws	Local Laws	None	Local Laws	None
IKEA	48	12	None	1 / 7	None
Macy's	48	12	72 in peak season 14 / day max	Yes	-

Gaps in coverage: example from toilet policy

	Toilets : workers	Cleaning	Ventilation	Privacy
Walmart	-	-	-	-
Sears	1:25 – 1:40	Cleaning schedule	Yes	Yes
Macy's	1:30	Yes	Yes	Yes
JC Penny	-	Yes	-	-
Next	At least 1 male & 1 female / 2 floors	Yes	-	Yes

■ Elaborate Policy
 ■ Basic Policy
 ■ No Policy

Current practices are resulting in additional costs to manufacturers..



In 2014 the ITMF HTP committee launched the “Standard Audit Label” Initiative to unify social compliance requirements from major retailers..

1	SEARS	11	IKEA
2	WALMART	12	Otto
3	CARREFOUR	13	Tesco
4	JC PENNEY	14	Kmart
5	AUCHAN	15	Macy's
6	BBC	16	CHF
7	NEXT	17	Li & Fung
8	PRIMARK	18	Lowe's
9	Target	19	Home Depot
10	Khol's	20	PIER – 1

The outcome is a unified “Code Of Conduct” that covers the most stringent list of social compliance requirements, covering the 7 key topics..

1	General
2	Health & Safety
3	Employment
4	Environment
5	Security
6	Corruption & Business ethics
7	Required Documents

The ITMF “Code Of Conduct” covers all social compliance requirements..

1. Introduction

2. Health & Safety

- Ventilation
- Drinking Water
- Toilet facilities
- Lighting
- Temperature
- Ergonomic conditions
- Housekeeping and Hygiene
- Equipment Safety
- Protective Equipment
 - i. Foot Protection
 - ii. Head Protection
 - iii. Eye and Face Protection
 - iv. Ear Protection
 - v. Hand Protection
 - vi. Body Protection
 - vii. Respiratory Protection
- Hazardous material
 - i. Hazardous material definition
 - ii. Keeping a log of hazardous material
 - iii. Handling of hazardous material
 - iv. Storage of hazardous material
 - v. Labeling hazardous material
- First aid

- Aisles, exits and stairwells
 - i. Aisles and Stairwells
 - ii. Exits
- Electrical safety
- Emergency evacuation
- Dormitories / Living facilities / Canteen
 - i. General Requirements
 - ii. Security
 - iii. Facilities
 - iv. Material and Chemical safety
 - v. Electrical Safety
 - vi. Smoking
 - vii. First aid and emergency response
 - viii. Evacuation and Evacuation training
 - ix. Fire safety
 - o Dormitory and Canteen fixtures and equipment
 - o Travel distance
 - o Fire safety inspection
 - x. Dormitory sanitation
 - xi. Canteen sanitation
- Permits and building designs
- Smoking
- Alcohol and drugs
- Child care / Crèche
- Fire safety Committee
- Fire safety inspection
- Fire safety training

The ITMF “Code Of Conduct” covers all social compliance requirements..

3. Employment

- Hiring
 - i. Forced Labor
 - ii. Contract Labor
 - iii. Child Labor
- Labor treatment
 - i. Harassment or abuse
 - ii. Non-discrimination
 - iii. Freedom of association and collective bargaining
 - iv. Wages and benefits (labor laws)
 - v. Work hours and overtime
 - vi. Breaks
 - vii. Rest days and holidays
 - viii. Employment contracts
 - ix. Worker discipline
 - x. Pregnancy and maternity
 - xi. Accident Insurance

4. Environment

- General waste management
- Waste storage
- Waste transport and disposal
- Wastewater and effluents management
- Air emission management
- Water management

- Energy consumption and Greenhouse Gas management
- Land use and biodiversity
- Environmental management system
- Hazardous substances management and pollution prevention
- Noise pollution
- Nuisance
- Ground contamination
- Continuous improvement
- Recycling of waste

5. Security

6. Corruption and business ethics

- Gifts and entertainment
- Anti-corruption
- Limits on supplier action
- Origination of material
- Financial integrity
- Competition and anti-trust practices

7. Documentation

And an audit tool was developed to measure the degree of compliance of participating members..

I. General requirements		Answer	Score	Notes	Check	Interview	Observation	Inspected
Does the member have a written procedure for everyone of the standards?		Y	1		X			
Is there a responsible person for the implementation and documentation of standards and procedures?		Y	1		X			
Does the compliance system of the member include the following:					X			
Assigned personnel to line management and disciplinary actions to supervisors for the site	1. General requirements Does the member have a written procedure for everyone of the standards?				X			
Policy for contractors					X			
Does the member keep records of incidents and does the member review regularly the standards?					X			
Does the member have all the procedures and does the member provide training for workers?					X			
Does such a training includes the following:	Does the compliance system include the following:				X			
Interaction training? (a) Work site					X			
Minimum	Assigned person compliance?				X			
Wage law					X			
Work site	Line management				X			
Contract cases?					X			
Workplace rules?	Disciplinary actions				X			
Secretary and contract rules of applicability?					X			
Disciplinary procedure and grievance procedure?	Does the member keep records of incidents and does the member review regularly the standards?				X			
Environmental health and safety awareness? Does it include:					X			
Evacuation procedures?	Chapter				X			
Fire prevention?		1	General	28	36	78%		
Accident reporting?	Score				X			
Technical safety?		2	Health & Safety	323	333	97%		
Substance, chemical handling and waste management (when applicable)	Maximum Score				X			
Job specific training?		3	Employment	76	150	51%		
Does the member keep training records? Do they include:	Percentage				X			
Training dates?		4	Environment	31	79	40%		
Training content?	Total Score				X			
Trainers?		5	Security	18	18	100%		
Attendees?	475				X			
Are key procedures communicated in writing? Are such key procedures:		6	Corruption & Business ethics	9	9	100%		
Communicated using signage on walls?	685				X			
Communicated in manuals?		7	Required Documents	8	60	13%		
Written in a simple language using clear, legible fonts?	69%				X			
						X		
Total Score for this section								
Maximum Score for this section								
Scale percentage								

Background: Standard Audit Label initiative



3 auditing companies were selected to perform the audits and 8 ITMF members took a self imposed audit

Auditor	India	Pakistan
Bureau Veritas	x	x
SGS	x	x
Intertek	x	x

- | | |
|---------------|--------------|
| 1. Welspun | 5. Gul Ahmed |
| 2. Feroze1888 | 6. Century |
| 3. Lucky | 7. Trident |
| 4. Yunus | 8. Textrade |

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Background: Standard Audit Label initiative



Several meetings were organized with retailers and organizations to build support for the initiative..

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ORGANIZATIONS



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ITMF Audit Initiative – Audit Fatigue: Opportunities and Challenges – September 2017

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Feedback although positive has also shown several challenges..

- 1 Retailers are aware of "audit fatigue"
- 2 They are happy to cooperate
- 3 Biggest issue: agree with other retailers on methodology
- 4 Second biggest issue: cross-industry standardization
- 5 Every retailer is part of one or several initiatives / takes time

Recently Walmart switched to using 3rd party audits and other retailers seem to be following suit..

Retailer	Status
Target	<ul style="list-style-type: none"> - Target currently reevaluating their social compliance - Not clear on next steps yet but might follow Walmart steps
Walmart	<ul style="list-style-type: none"> - Rolling out their social compliance to 3rd parties (8 organizations including WRAP and BSCI) - Could evaluate our initiative if we have a program
IKEA	<ul style="list-style-type: none"> - Interest in standardizing social compliance but don't know how yet
JC Penny	<ul style="list-style-type: none"> - Recognize audit fatigue do not have a plan yet for next steps (information from 2016)
Li & Fung	<ul style="list-style-type: none"> - Founding members of GAFTI and hosting it in their premises for now

Recently Walmart switched to using 3rd party audits and other retailers seem to be following suit..

- **Walmart shifted to 3rd party audits for social compliance**
- **They scrutinized 8 social compliance programs across different industries:**
 - Best Aquaculture Practices (BAP)
 - Business Social Compliance Initiative (BSCI)
 - Electronic Industry Citizenship Coalition (EICC)
 - International Labor Organization – Better Work
 - International Council of Toy Industry CARE
 - Sedex Members Ethical Trade Audits (SMETA)
 - Social Accountability International (SA 8000)
 - Worldwide Responsible Accredited Production (WRAP)
- **Suppliers can select any one of the above 8 programs**
- **Walmart will continue to carefully review the audits and ensure that companies are compliant through those 3rd party audits**

ITMF to leverage its network of tens of thousands of manufacturers to create a unified voice for the industry..

Mission	ITMF to become the entity representing manufacturers in various initiatives
Offering	Unified voice for the industry Industry insight into the development of social compliance The infrastructure already developed
Strategy	Leverage ITMF network Create platform for communication Consolidate the industry
Scope	Join forces with existing initiatives and give them weight Consolidate industry players Engage buyers to adopt existing initiatives
Time Frame	3 years

Future strategy: overview



In order to have an active role in the representation of the industry, the ITMF will work on 3 distinct axis:



Future strategy: 1. Partner with social compliance initiatives



Identify and scrutinize various initiatives to strike a partnership and secure a voice for the ITMF..

1	Business Social Compliance Initiative (BSCI)	16	ABNT (Associacao Brasileira de Normas Tecnicas) Ecolabel	31	Fair Trade USA
2	Global Organic Textile Standard	17	Fair for Life	32	BRC Global Standards - Consumer Products
3	Worldwide Responsible Accredited Production (WRAP)	18	Good Weave	33	OFDC Organic Certification Standards
4	Fair Trade	19	Singapore Green Labelling Scheme	34	EcoVadis
5	OEKO Tex	20	Soil Association Organic Standards	35	Climate, Community & Biodiversity Standards (CCB) Standards
6	Ethical Trading Initiative	21	Thai Green Label	36	FLA Workplace Code of Conduct
7	Bluesign ag	22	China Environmental Labeling	37	Global Reporting Initiative (GRI)
8	Disha Common Code of Conduct	23	Cotton made in Africa	38	LIFE Certification
9	Fair Wear Foundation (FWF)	24	International Labour Standards	39	OECD Guidelines for Multinational Enterprises
10	Naturland	25	China Social Compliance for Textile and Apparel Industry CSC9000T	40	Sedex Members Ethical Trade Audit - SMETA
11	Better Cotton Initiative (BCI)	26	Ekolabel Indonesia	41	Social Accountability International - SA8000
12	Step by Oeko Tex	27	TerraChoice	42	UN Global Compact
13	Workplace Conditions Assessment (WCA)	28	Hong Kong Green Label Scheme - HKGLS	43	Verified Carbon Standard - VCS
14	EU Ecolabel	29	Singapore Green Labelling Scheme (SGLS)	44	WFTO Guarantee System
15	Naturland	30	Workplace Conditions Assessment (WCA)	45	Alliance for Water Stewardship

Identify other industry organizations and consolidate industry voice possibly through creating a steering committee

Ongoing discussions with:

- International Apparel Federation

Examples of other organizations:

- **Industrial organizations**

(such as: National Council of Textile Organizations, EURATEX, American Sewing Guild, European Textile Services Association, etc.)

- **Trade and retail organizations**

(such as: National Retail Federation, American Footwear and Apparel Association, European Fashion Council, etc.)

- **Fiber organizations**

(Cotton USA, ICAC, Woolmark, etc.)

There are multiple reasons why retailers would join the initiative..

1. Increase efficiency

Opportunity to reduce cost, time and effort

2. Consolidate know-how

Make available best practices from several platforms

3. Expand supplier base faster

Easier to bring new manufacturers on board

4. Visibility into the entire value chain

A unified code of conduct will facilitate auditing earlier stages of the process

5. Support a universal industry standard

Opportunity to communicate with consumers

The initiative will bring a number of benefits to ITMF members..

1. Gain access to several organizations

Information / updates / influence decision making

2. Belong to a large-scale platform

Recognized by customers / NGO's / Governments

3. Participate in decision making

Influence future developments in the sector

4. Level playing field

Especially with regards to digital retailers

5. Save costs

Avoid multiple audits

The initiative will position the ITMF as a platform for communication and playing a pivotal role in shaping the future of the textile industry..

1. Expand corporate membership

Show benefits to members

2. Potential source of additional funding

By partaking in audit fees

3. Expand ITMF role / influence

By taking an active role in the development of the industry

A taskforce headed by a steering committee will be structured to manage the initiative:

1. Define strategic direction

Manage the developments of the initiative and take strategic decisions

2. Provide support

Provide contacts to buyers, organizations and other stakeholders

3. Act as ambassadors

Help recruiting support to the initiative

4. Represent the initiative in various forums

Act as industry representatives in various relevant forums

Some factors can affect the success of the project.. However, market conditions are favourable and there are no risks to the ITMF..

1. Buyers do not join

They continue to use their own methodology

2. Inability to consolidate the industry

ITMF is not able to bring together various organizations or support from members

3. No active role in decision making

ITMF does not secure a voice (seat) in the targeted organizations

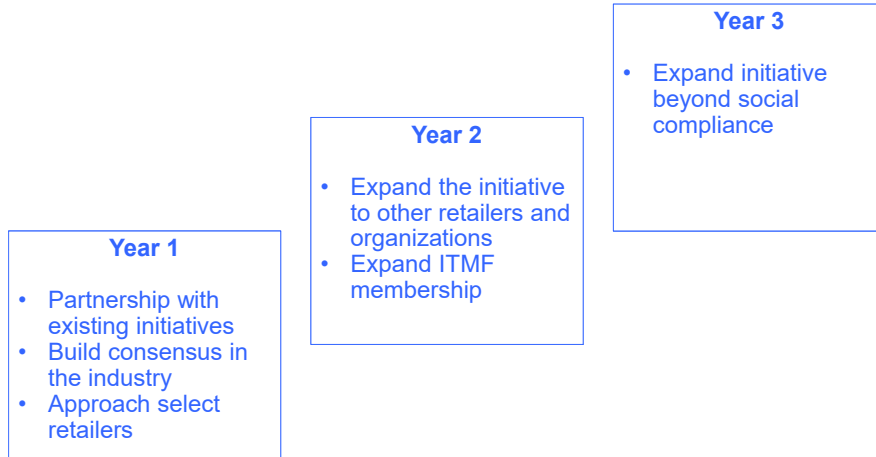
4. Too many initiatives

Inability to select winning initiatives

Future strategy: Time frame



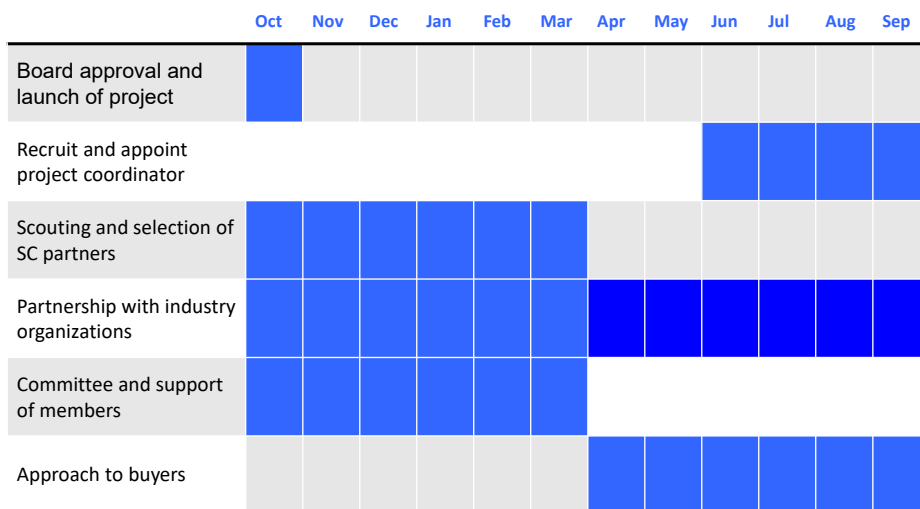
The initiative is expected to take 3 years to reach full maturity..



Future strategy: First year milestones



The first year will mark the launch of the project setting the framework for following steps..



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September 2017

An Overview of China's Textile Industry: Innovation and Development 中国纺织工业的创新与发展

Sun Ruizhe

China National Textile and Apparel Council

孙瑞哲

中国纺织工业联合会

2017-09-15

World Textiles & Clothing Trade 全球纺织品服装贸易格局

Top 10 exporters of textiles 世界纺织品出口前10名的国家和地区

排名	2016			2015		
	Country/Region 国家/地区	Exports (US\$ bil) 出口额 (十亿美元)	Share in Global Total 世界占比	Country/Region 国家/地区	Exports (US\$ bil) 出口额 (十亿美元)	Share in Global Total 世界占比
1	China 中国	106	37.20%	China 中国	109	37.4%
2	EU (28) 欧盟	65	23%	EU (28) 欧盟	64	22.1%
3	India 印度	16	5.7%	India 印度	17	5.9%
4	United States 美国	13	4.6%	United States 美国	14	4.8%
5	Turkey 土耳其	11	3.8%	Turkey 土耳其	11	3.8%
6	Korea, Rep 韩国	10	3.5%	Korea, Rep 韩国	11	3.7%
7	Pakistan 巴基斯坦	9	3.2%	Chinese Taipei 中国台湾	10	3.3%
8	Chinese Taipei 中国台湾	9	3.1%	Hong Kong, China 中国香港	9	3.0%
9	Hong Kong, China 中国香港	8	2.8%	Pakistan 巴基斯坦	8	2.9%
10	Viet Nam 越南	7	2.4%	Viet Nam 越南	6	2.1%

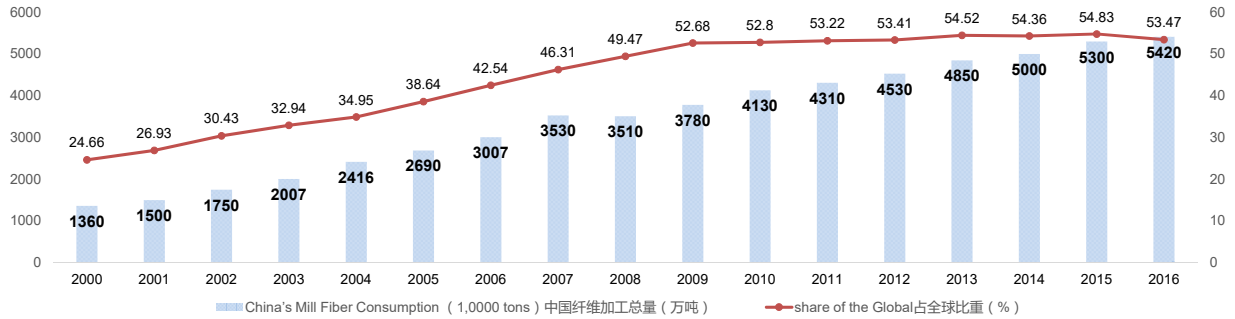
Top 10 exporters of clothing 世界服装出口前10名的国家和地区

排名	2016			2015		
	Country/Region 国家/地区	Exports (US\$ bil) 出口额 (十亿美元)	Share in Global Total 世界占比	Country/Region 国家/地区	Exports (US\$ bil) 出口额 (十亿美元)	Share in Global Total 世界占比
1	China 中国	161	36.4%	China 中国	175	39.3%
2	EU (28) 欧盟	117	26.4%	EU (28) 欧盟	112	25.2%
3	Bangladesh 孟加拉	28	6.4%	Bangladesh 孟加拉	26	5.9%
4	Viet Nam 越南	25	5.5%	Viet Nam 越南	22	4.8%
5	India 印度	18	4.0%	Hong Kong, China 中国香港	18	4.1%
6	Hong Kong, China 中国香港	16	3.6%	India 印度	18	4.1%
7	Turkey 土耳其	15	3.4%	Turkey 土耳其	15	3.4%
8	Indonesia 印尼	7	1.7%	Indonesia 印尼	7	1.5%
9	Cambodia 柬埔寨	6	1.4%	Cambodia 柬埔寨	6	1.4%
10	United States 美国	6	1.3%	United States 美国	6	1.4%

Sources : WTO 数据来源 : WTO

China's Textile Industry in the World 中国纺织工业在全球的地位

Mill fiber consumption of China's textile industry and its share in world total, 2000--2016
2000-2016年中国纺织工业纤维加工总量及其全球占比



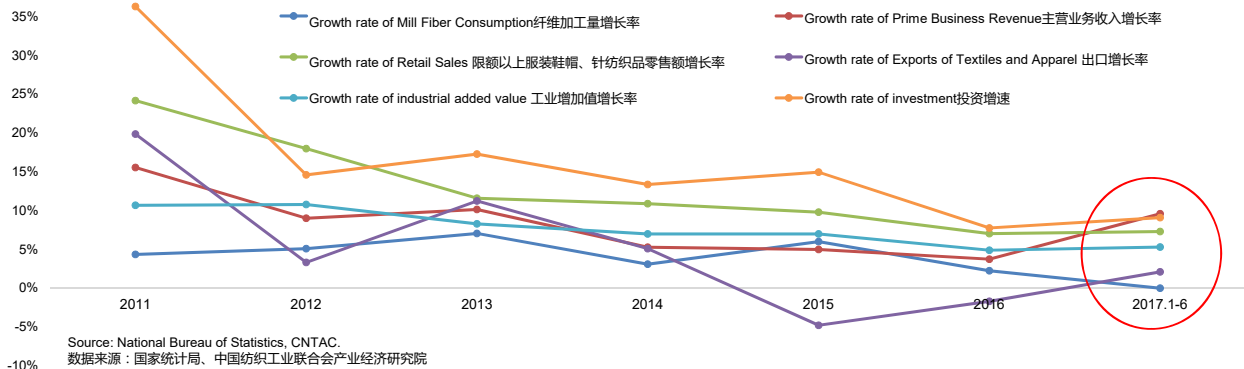
Source: "Fiber Year", CNTAC
数据来源: 纤维年报、中国纺织工业联合会产业经济研究院

	2010	2011	2012	2013	2014	2015年	2016
China's exports of textiles and garment (US\$ 100mil) 中国纺织品服装出口额 (亿美元)	2120.01	2541.23	2625.63	2920.75	3069.58	2911.48	2701.2
Share in global total 占全球纺织品服装出口额比重	34.3%	35.2%	36.0%	37.1%	37.4%	38.0%	—

Source: CNTAC, "Statistical Yearbook of Textile Industry"
数据来源: 中国纺织工业联合会产业经济研究院、纺织工业统计年报

China's Textile Industry Sees Moderate but Steady Growth 中国纺织工业的现状: 稳中向好

Changes in Major Economic Indicators of China's Textile Industry, 2011 - H1, 2017
2011-2017年上半年中国纺织工业主要经济指标变化



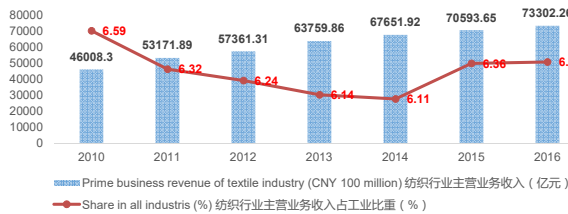
Source: National Bureau of Statistics, CNTAC.
数据来源: 国家统计局、中国纺织工业联合会产业经济研究院

- ◆ **Moderate but steady growth:** In first half of 2017, industrial value added of major enterprises above designated size saw 5.3-percent year-on-year growth; in January-July, prime business revenue rose 9.1% year-on-year to near CNY 4.32 trillion; total profits increased by 11.93% to CNY 222.29 billion.
稳中向好: 2017年1-6月行业规模以上企业工业增加值增长5.3%; 1-7月, 主营业务收入43193.8亿元, 增长9.1%; 利润总额2222.9亿元, 增长11.93%。
- ◆ **Warmer market:** In the first six months of 2017, China's exports of textiles and apparel totaled US\$ 124.05 billion, up 2.1% year-on-year; the retail sales of apparel, head & foot wear and knitwear by major retailers grew 7.3% year-on-year to CNY 717.17 billion.
市场回暖: 2017年1-6月中国累计出口纺织品服装1240.5亿美元, 增长2.1%; 全国规模以上服装鞋帽针纺织品零售额7171.7亿元, 增长7.3%。
- ◆ **Quality and performance ahead of other indicators:** In January-June of 2017, the sales margins of major textile enterprises stood at 5.1%.
质效领跑: 2017年1-6月, 规模以上纺织企业销售利润率为5.1%。

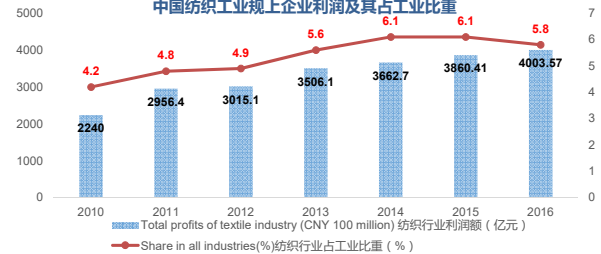


Textile Industry is One of the Main Contributors to National Economy 纺织工业是中国经济的重要力量

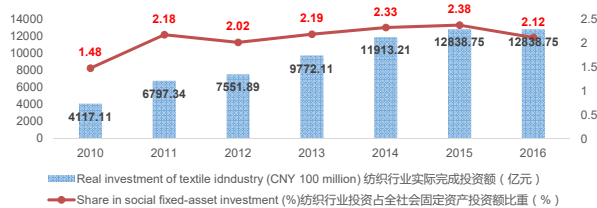
Prime business revenue above the designated scale of China's textile industry and its share in all industries
中国纺织工业规模以上企业主营业务收入及其占工业比重



Total profits above the designated scale of China's textile industry and its share in all industries
中国纺织工业规模以上企业利润及其占工业比重



Investment above the designated scale of China's textile industry and its share in the whole country
中国纺织工业规模以上企业投资额及其占社会投资额比重



T&A Export and its share in China's total export
中国纺织品服装出口额及其占全国出口额比重



Source: National Bureau of Statistics, CNTAC, "Statistical Yearbook of Textile Industry."
数据来源: 国家统计局、中国纺织工业联合会产业经济研究院、纺织工业统计年鉴



Productive Force of China's Textile Industry Undergoing Full-scale Upgrading 中国纺织工业的生产力系统正经历全面升级



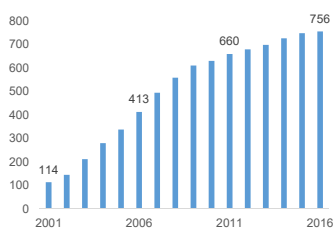
Labor (Qualified)
劳动者(优质化)

As work-tasks of textile industry become more complicated, the labor competitive advantage is shifting from quantity-intensive to quality-intensive. The rising labor cost in China is accompanied with quality improvement.

随着行业工作复杂程度提升, 劳动力竞争优势正从数量向质量迁移。中国劳动力成本上升的背后是劳动力质量的提升。

Graduates of Chinese Colleges, 2001-2016 (10,000 person)

2001-2016中国普通高等学校毕业生人数(万人)



IoT technology, sensors, intelligent manufacturing technology
物联网技术、传感器、智能制造技术



in-store technology, AI, IoT technology and social media
店内定位技术, 人工智能技术, 物联网技术, 社交媒体

Production tools (Intelligentized)
生产工具(智能化)

Design 设计

Digital design software, virtual sampling, predictive analytics and 3D printing
设计软件、虚拟采样、预测分析与3D打印

Manufacturing 制造



Distribution 配送

Robots, autonomous vehicles, RFID, NFC
机器人技术、自动驾驶、RFID技术、NFC技术

Sales 营销



Object of labor (Diversified)
劳动对象(多元化)

Scope: The object of labor is extending from atoms to bits, and data has become important resources.
范围: 劳动对象从原子延伸至比特, 数据成为重要资源。

Value: The value content of materials is increasing thanks to continuous improvement in performance, function, price/performance ratio, availability, economy and environment-friendliness.
价值: 材料价值含量不断提升, 性能、功能性、性价比、可获得性、经济性、环保性持续改善。

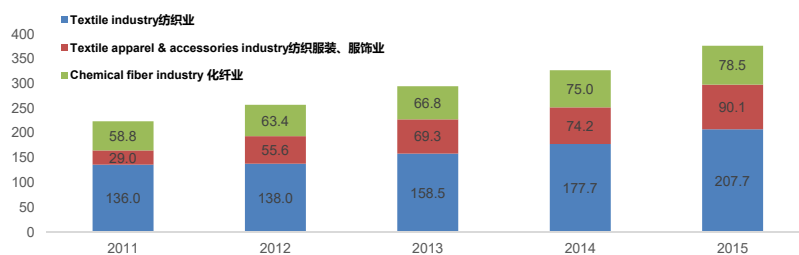
Variety: Chemical fibers cover high proportion of materials. Materials are being constantly diversified with bottlenecks at fibers and processes being broken one after another.
品类: 化纤所占比重加大, 材料不断突破原有纤维与工艺的束缚, 品类持续丰富



Innovation-driven Becomes Industry-wide Consensus 创新发展成为行业共识

- ◆ Textile patent filing maintains fast growth. From 2008 to 2015, there were 142,237 patent filings, in which, annual filings of innovation patent increased from 5,786 to 16,004, at a compound annual growth rate of 11.48%.
纺织专利申请保持快速增长。2008—2015年累计申请量达到142237件，发明专利历年申请量由5786件增至16004件，年均复合增长率18.48%。
- ◆ In 2015, major textile and apparel enterprises above designated size earned CNY 650 billion from selling new products and the investment in R&D obtained 21.4 times gain. In 2011-2015, major textile enterprises' investment in new product R&D grew 21% and their sales revenue of new products increased by 42%. The return on R&D input of textile industry is higher than the average of all industries. 2015年，纺织服装规模以上企业新产品的销售收入近6500亿元，研发投入回报率为21.4倍。“十二五”期间，行业规模以上企业新产品研发投入增长21%，新产品销售收入增长42%。行业研发投入回报率高于工业平均水平。

Expenditure on R&D of Textile Enterprises above Designated Size (CNY 100 million)
纺织行业规模以上企业R&D经费内部支出 (亿元)



Source: China Statistical Yearbook on Science and Technology (2016) 来源：中国科技统计年鉴2016

- ◆ All-personnel labor productivity of 32s pure cotton yarn rose from 56,000tons/person-year in 2000 to 270,000tons/person-year in 2015.
生产纯棉32支纱的劳动生产率2000年为5.6吨/人年，2015年达到27吨/人年。
- ◆ Labors per 10,000 cotton spindles reduced from 250 labors/10,000 spindles in 2000 to 60 labors/10,000 spindles in 2015.
棉纺万锭用工人数2000年为250人/万锭，到2015年平均用人整体水平降到60人/万锭。
- ◆ Share of cotton shuttle-less looms increased from about 7.69% in 2000 to 68.64% in 2015.
棉纺无梭织机占比2000年约为7.69%，2015年达到68.64%。
- ◆ Share in total fiber consumption of technical textiles sector increased from 12.78% in 2000 to 26.75% in 2016.
产业用纺织品纤维加工量占比从2000年的12.78%，上升到2016年的26.75%。



Great Potential for Collaborative Innovation Thanks to the Complete Industrial System 依托规模化、体系化优势，行业协同创新潜力巨大

China's Textile Industrial System (Prime Business Revenue in 2016) 中国纺织工业体系 (2016年主营业务收入)

单位：10亿元 (Unit: CNY billion)



数据来源：中国纺织机械协会
Source: China Textile Machinery Association



The "Blue Ocean Strategy" for China's Textile industry 新格局下中国纺织工业创新发展的“蓝海”

- **The inclusive development pattern: joint development, sharing achievements.**
 - To satisfy multi-level demand through diversified innovation
 - 普惠发展的格局：共同发展，共享成果
 - 多层次需求带来多元化创新的“蓝海”

- **The green development pattern : green hills and clear waters are invaluable assets.**
 - To achieve sustainable development by sustainable innovation.
 - 绿色发展的格局：“绿水青山，金山银山”
 - 可持续发展带来可持续创新的“蓝海”

- **The open development pattern: quality imports & exports, mutual benefits and win-win result.**
 - To develop an open economy with collaborative innovation.
 - 开放发展的格局：优胜劣汰，互利共赢
 - 开放式经济带来协同化创新的“蓝海”



To Satisfy Multi-level Demand through Diversified Innovation 多层次需求带来多元化创新的“蓝海”

The gap between different regions, between urban and rural areas, between different industries and between different generations has prompted consumption stratification and demand differentiation. To share the achievements of textile industry among a larger crowd of people, it is necessary to diversify innovation to satisfy different demands, play emphasis not only on cost and efficiency, but also on experience and service, so as to enhance the extensiveness and adaptability of innovation.
区域差距、城乡差距、产业差距、代际差距加深了消费分层、需求异化。要使更广泛的人群分享行业发展成果，需要进行多元化创新满足多层次需求，既要关注成本与效率，也要注重体验与服务，提升创新的广泛性与适用性。

More than 70 million poverty-stricken population in rural areas
7000多万农村贫困人口

Subsistence consumption 生存消费
Keeping warm and covering the body 保暖遮羞

Living consumption 生活消费
Quality products at affordable price 物美价廉

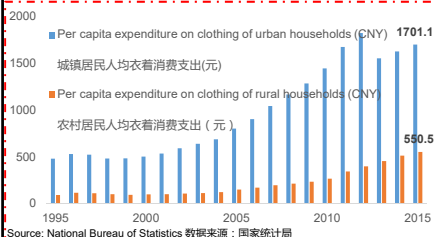
Quality consumption 品质消费
Excellent quality 品质卓越

Experience consumption 体验消费
Diversified experiences 体验丰富

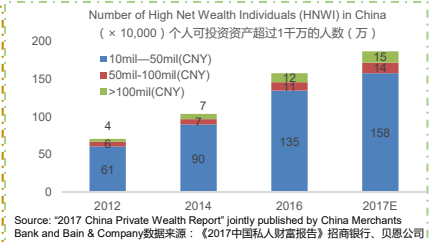
Progress in urbanization 新型城镇化推进

Growth of resident income 居民收入增长

Growth of resident income 居民收入增长



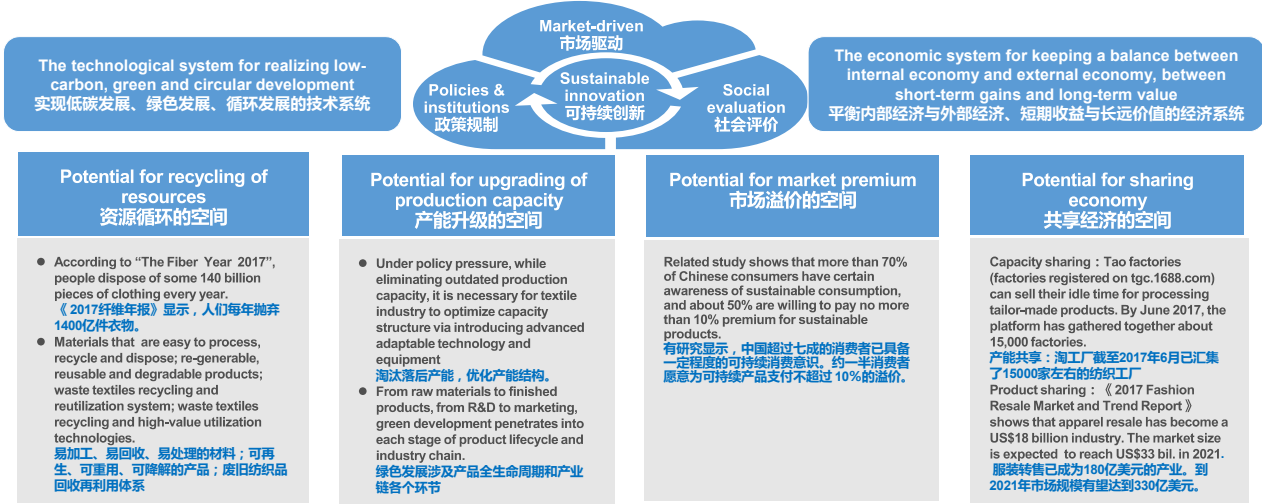
Unit (CNY) 单位 (元)	2014	2015	2016
Per capita disposable income of residents 全国居民人均可支配收入	20167.1	21966.2	23821.0
Per capita expenditure on clothing of residents 全国居民人均衣着消费支出	1099.3	1164.1	1203.0





To Achieve Sustainable Development by Sustainable Innovation 可持续发展带来可持续创新的“蓝海”

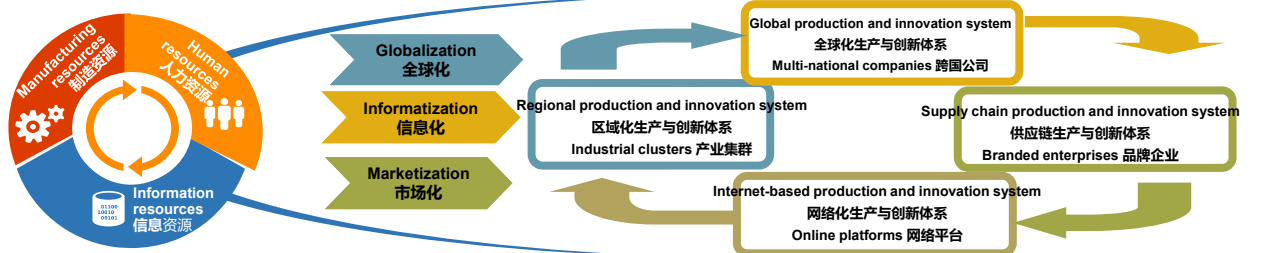
China is a staunch advocate and facilitator of global inclusive development and climate governance. The construction of ecological civilization has become a national strategy. The textile industry has huge potential for developing sustainable innovation.
中国是全球包容性发展与气候治理的坚定维护者和推动者。生态文明建设上升为国家战略。纺织行业可持续创新具有巨大发展空间。



To Develop an Open Economy with Collaborative Innovation 开放式经济带来协同化创新的“蓝海”

The further implementation of the "Belt & Road" Initiative, the formation of a flying-geese model of "1+3+7" free-trade zones, and the signing of more bilateral FTAs will open wider space for the development of China's textile industry, and promote the complementation of resource endowments and synergy of innovation capabilities.
“一带一路”倡议的推进、“1+3+7”自贸区雁阵的形成、双边多边自由贸易协定的签署，将拓展中国纺织工业的发展空间，促进资源禀赋的互补与创新能力的协同。

In 2016, the foreign direct investment (FDI) of China's textile industry hit a record high. It rose 89.3% year-on-year to US\$ 2.66 billion. Since 2008, it has been growing at an annual average of 30.88%. 2016年中国纺织工业对外直接投资创历史新高，同比增长89.3%，达26.6亿美元。2008年以来，年均增速达30.88%。





What Kind of World Does Textile Industry Settle in? 纺织工业正处于一个怎样的世界？

- **Virtual & Reality: The world is composed of not only atoms but also bits & bytes**
虚与实：世界是原子的也是比特的
The relationship between intelligent manufacturing and labor
智能与人工的关系
- **Flat & zigzag: The world is both flat and zigzag**
平与折：世界是平坦的也是波折的
The judgement for competition and cooperation
竞争与合作的关系
- **Similarity & disparity: The world has both common places and differences**
同与异：世界是趋同的也是多元的
The coordination among standard and personalization
标准与个性的关系



Establish "New Position" of China's Textile Industry 树立中国纺织工业的“新定位”

Cognition restart 认知重启：

An innovation-driven sci-tech industry
创新驱动的科技产业

A responsible green industry
责任导向的绿色产业



A culture-inspired fashion industry
文化引领的时尚产业

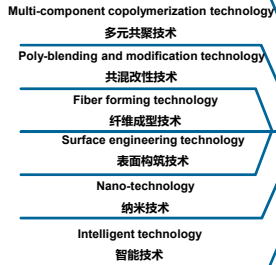
Value reconstruction 价值重构：





New Materials: Fiber Development + Material Application 新材料：纤维开发 + 材料应用

Developing material technology towards high-performance, differential, scale production, low-cost and eco-friendly
以高性能、差异化、规模化、低成本、绿色化为方向，发展材料技术



Nano-fibers 纳米纤维：

- carbon nanotube reinforced fiber
碳纳米材料增强纤维
- industrial production of flexible ceramic nanofibers
柔性陶瓷纳米纤维产业化技术；

High-performance fibers 高性能纤维：

- high-modulus carbon fiber; 高模量碳纤维技术
- high-output, low-cost production of polyimide fiber; 高强度、低成本聚酰亚胺纤维制备

Fiber technology 纤维技术

Natural and regenerated fibers 天然与循环再生纤维：

- molecule design and directional transformation of silk fiber
蚕丝纤维的分子设计与定向改造；
- technologies for processing recycled and regenerated fibers 循环再生纤维技术

Bio-based fibers 生物基纤维：

- high-efficient synthesis and preparation of bio-based raw materials 生物基原料高效合成制备技术；
- industrial-scale production of marine bio-based fibers 海洋生物基纤维产业化技术

Ever-enlarging application fields 不断丰富材料的应用领域

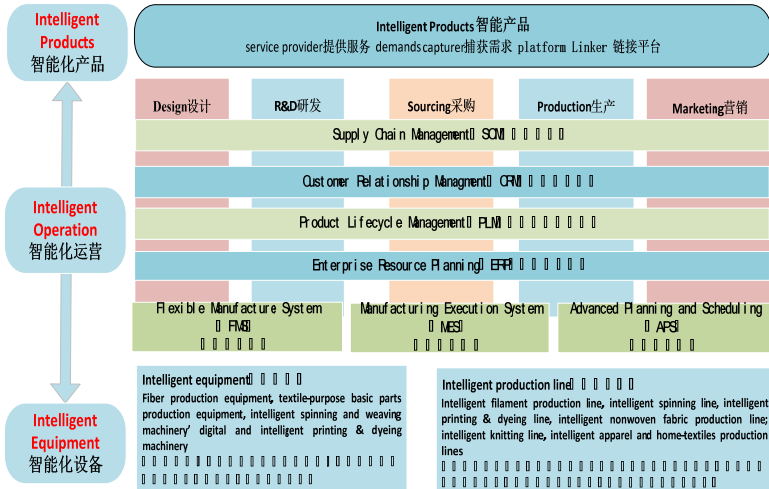


New Tools: Intelligent Manufacturing + Social Responsibility 新工具：智能制造 + 社会责任

Production tool: intelligent manufacturing 生产工具：智能制造

Management tool: social responsibility 管理工具：社会责任

(Mobile) Internet, big data, cloud computing, Internet of Things (移动) 互联网、大数据、云计算、物联网



Responsible for people 人本责任

Management System 管理体系

Disclosure Mechanism 披露机制

- Responsibility transparency 责任透明化
- Responsibility capitalization 责任资产化





New Connotations: Cultural Confidence + Cultural Empowerment
新内涵：文化自信+文化赋能

Build the industry's cultural confidence, increase added value of products and have a say in fashion
 树立产业文化自信，提升**产品附加值与时尚话语权**



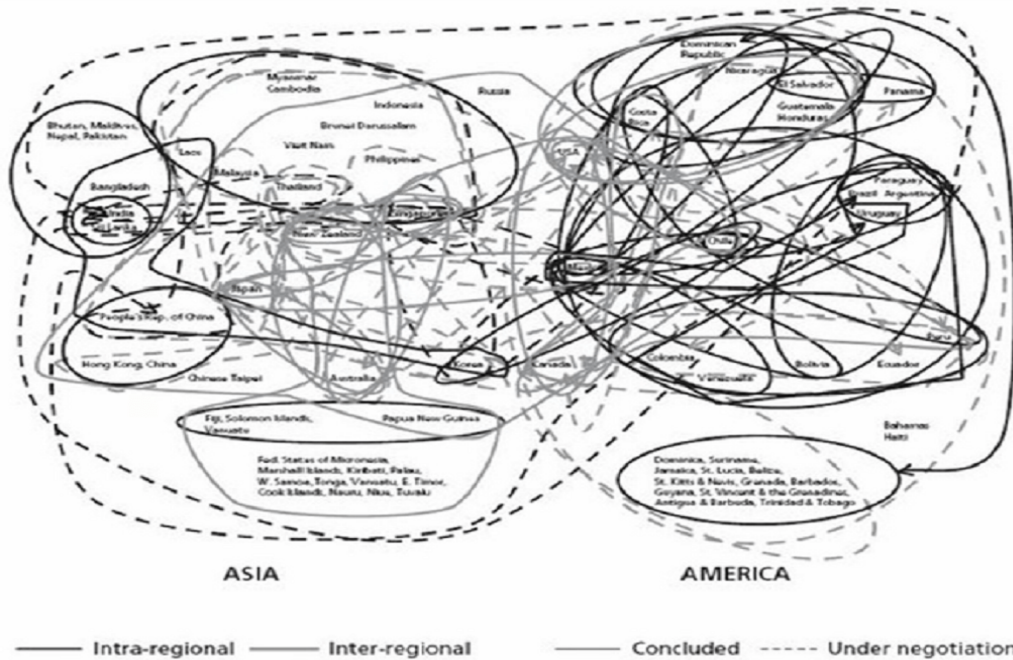
Thanks!

谢 谢！

Textile & Trade Policy in the Trump Era: It's Impact on the Global Textile Markets

September 15, 2017

ITME Annual Meeting



November 8, 2017



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Greater Domestic Protection and Trade Renegotiation

- Renegotiate NAFTA
- Withdraw from TPP
- Label China as currency manipulator
 - impose tariffs
- Build a wall on Southern Border
 - impose tariffs
- Rip up FTAs
- Withdraw from WTO
- Impose a hiring freeze on Federal Agencies
- Rescind Executive Orders
- Negotiate mostly on a bilateral basis



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4



Donald J. Trump ✓

@realDonaldTrump

Follow



The United States made some of the worst Trade Deals in world history. Why should we continue these deals with countries that do not help us?

7:14 AM - 5 Jul 2017



5

Trump: Renegotiate/Withdraw NAFTA/KORUS/WTO

- All FTAs have an exit clause which generally requires a six month prior notification, and notification to Congress
- President cannot raise tariffs above MFN rates under FTA withdrawal, but could do so under other laws
- Additional duties may be imposed following consultations (not acquiescence) with Congress



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ADMINISTRATION'S TEXTILE AND APPAREL SPECIFIC NAFTA OBJECTIVES

- General objective is same as 2015 Trade Promotion Authority Act: “Maintain *existing duty free access* to NAFTA country markets for U.S. textile and apparel products and seek to improve competitive opportunities for exports of U.S. textile and apparel exports **while addressing U.S. import sensitivities.**”



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ADMINISTRATION'S RULES OF ORIGIN NAFTA OBJECTIVES

- Update and strengthen the rules of origin, as necessary, to ensure that the benefits of NAFTA go to products genuinely made in the United States and North America
- Ensure the rules of origin incentivize the sourcing of goods and materials from the United States and North America
- Establish origin procedures that streamline the certification and verification of rules of origin and that promote strong enforcement, **including with respect to textiles**
- Promote cooperation with NAFTA countries to ensure that goods that meet the rules of origin receive NAFTA benefits, prevent duty evasion, and combat customs offenses



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Trump: Trade Negotiations - NAFTA

- Two Rounds of Negotiations held (Washington DC, Mexico City)
- Next Round Ottawa September 23-27



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Trump: Trade Negotiations - KORUS

- Mi
- US
Ja
- Re
- No
- **Threats to withdraw from KORUS**



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President May Impose New Tariffs Under -

- **Trading with the Enemy Act of 1917, Sec 5(b)(1)(B)**
 - “Time of War”
 - Virtually all trade powers vested to President
- **Tariff Act of 1930, Sec 338**
 - “Country discriminates against US Commerce”
 - Additional duties up to 50% of the product’s value
- **Trade Expansion Act of 1962, Sec 232(b)**
 - “Adverse impact on national security”
 - Tariffs or Quotas as needed



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President May Impose New Tariffs Under -

- **Trade Act of 1974, Sec 122**
 - “Balance of payments deficit”
 - Increase tariffs to 15%, or quantitative restrictions, or both, for 150 days
- **Trade Act of 1974, Sec 301**
 - “Foreign country carries out discriminatory practices against US”
 - Potential Tariff and Quotas
- **International Emergency Economic Powers Act of 1977**
 - “National emergency”
 - Virtually all trade powers vested to President



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Action Under Section 232

Requesting Section 232 Report on Steel Imports into the US

- No action taken contrary to reports recommendations were made
- Possible sign industry not confident action will be taken given filing of AD/CVD cases on stainless steel flanges from China and India and on steel pipe from Germany in August

Requesting Section 232 Report on Aluminum Imports into the US

- Still delayed no report yet



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Action Under Section 301

- August 14, 2017 President Memo to USTR to Determine whether China is being unreasonable or discriminatory and has taking or taking actions that may be harming American intellectual property rights, innovation, or technology development.
- August 18, 2017 Investigation Initiated by USTR/Notified China
- September 28, 2017 – Written comments & request to appear at hearing
- October 10, 2017 – Public hearing
- October 20, 2017 – Post hearing briefs due
- August 17, 2018 – Decision due (could take longer)



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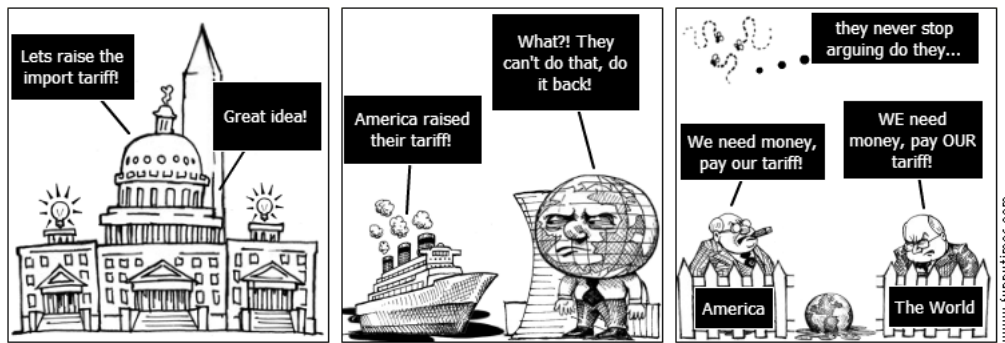
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Smoot-Hawley Tariff by Eric DeVico



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Globalism

Protectionism



Questions?



Nicole Bivens Collinson

President,
International Trade & Government Relations
Sandler, Travis & Rosenberg, P.A.

Phone: 202.730.4956
Email: NBC@strtrade.com



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McKinsey&Company

The apparel sourcing caravan's next stop: Digitization

Benjamin Durand-Servoingt

ITMF Conference Presentation | September 2017

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CONTENTS

The future of apparel sourcing

Digitization of core apparel sourcing process

Digitization beyond core sourcing process

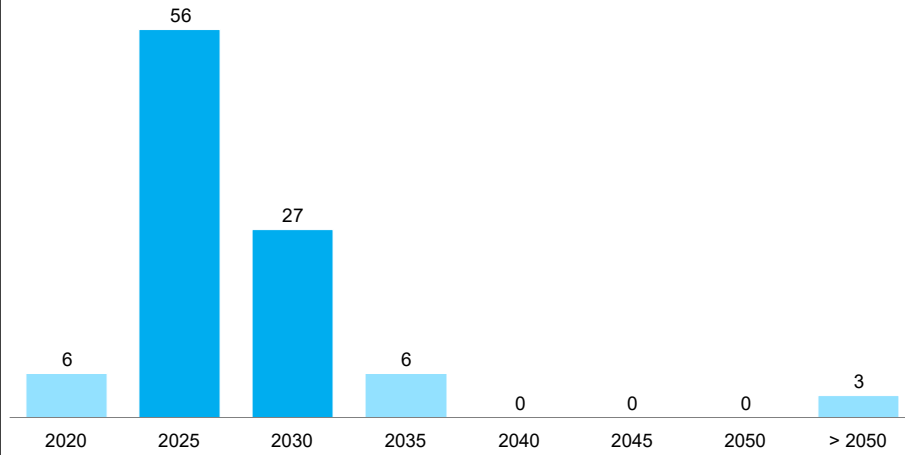
How to initiate the sourcing digitization

OUTLOOK

As a result the majority of respondents believe that sourcing decisions changes from cost considerations to automation within the next 10 years

"By when will automation in manufacturing reach a significant enough level and becomes the major driver for sourcing decisions instead of labor cost?"

Percent of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

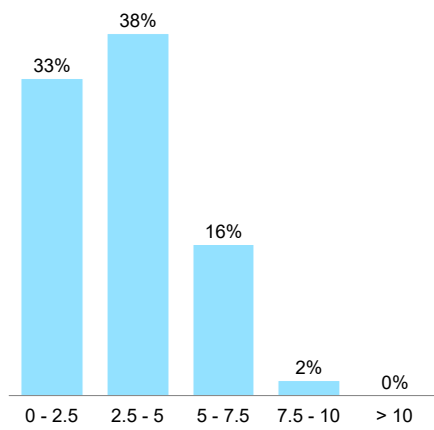
McKinsey & Company 5



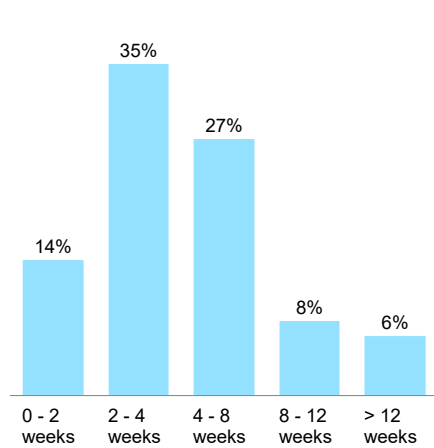
Executives are targeting to reduce FOB price up to 5% and lead-time by 2-8 weeks through digitized apparel sourcing

"What is the aspired impact of your digitization of sourcing investments regarding ..."
 Percent of respondents, n = 63

... cost reduction (percent of FOB price)



... lead time reduction



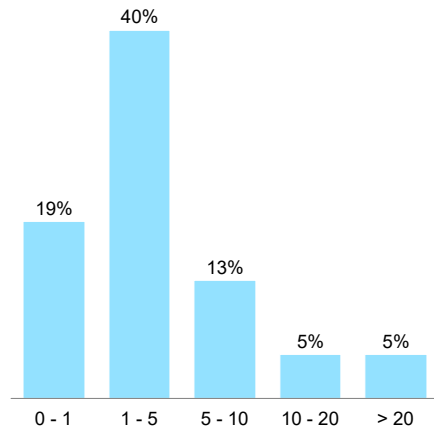
SOURCE: McKinsey Apparel CPO Survey 2017

McKinsey & Company 7

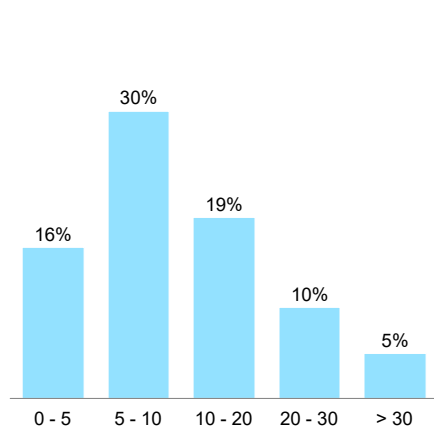
... while at the same time, achieving higher on-time delivery and planning accuracy

"What is the aspired impact of your digitization of sourcing investments regarding ..."
 Percent of respondents, n = 63

... on-time in-full delivery (pp)



... demand planning accuracy (pp)



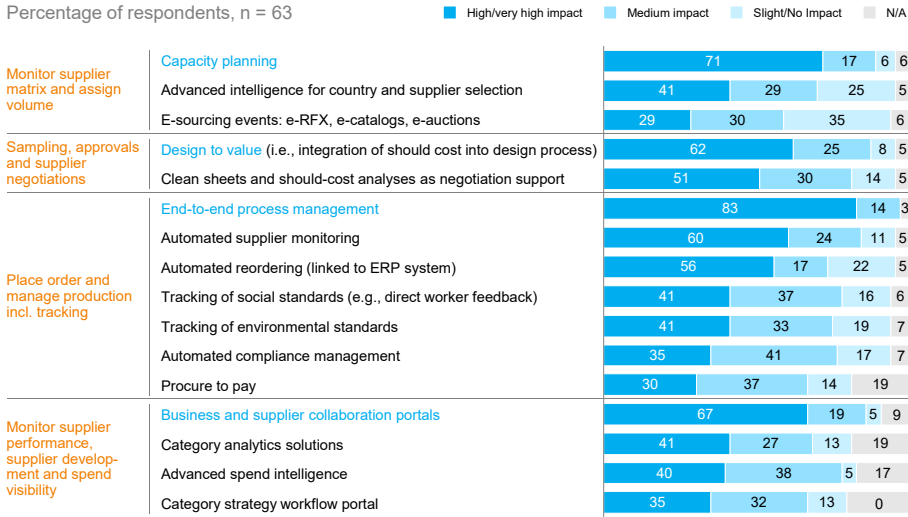
SOURCE: McKinsey Apparel CPO Survey 2017

McKinsey & Company 8

Digitization is expected to have the greatest impact on end-to-end process management, design-to-value, and capacity planning ...

"Over the next 5 years, what level of impact will the following digitization opportunities have on apparel sourcing?"

Percentage of respondents, n = 63

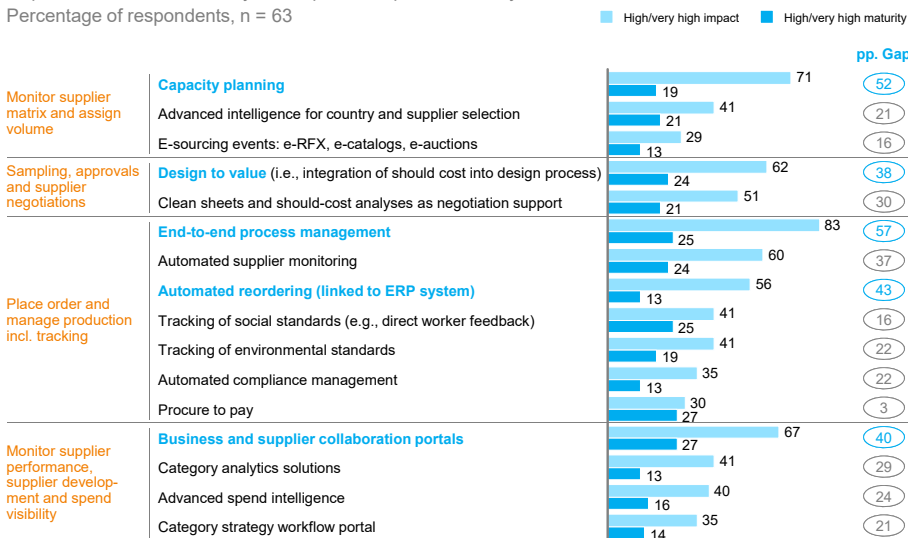


SOURCE: McKinsey Apparel CPO Survey 2017

... while at the same time, these are also the areas with the largest gaps to achieve the future impact

Gap between current maturity and expected impact in next 5 years

Percentage of respondents, n = 63



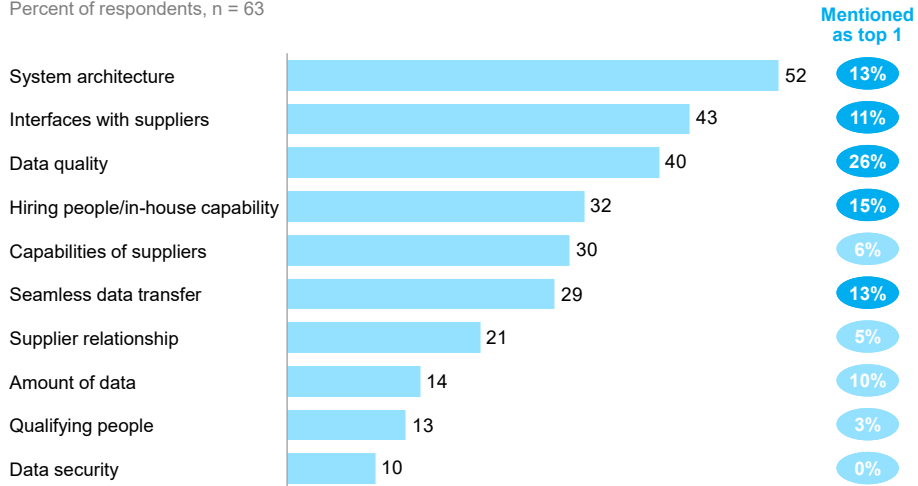
SOURCE: McKinsey Apparel CPO Survey 2017

DIGITIZATION OF SOURCING

On both the technical side and the people side, there are significant barriers to digitization of apparel sourcing

"What are the top 3 challenges your organization faces in achieving the full/aspired impact of investments in digitization of apparel sourcing?"

Percent of respondents, n = 63

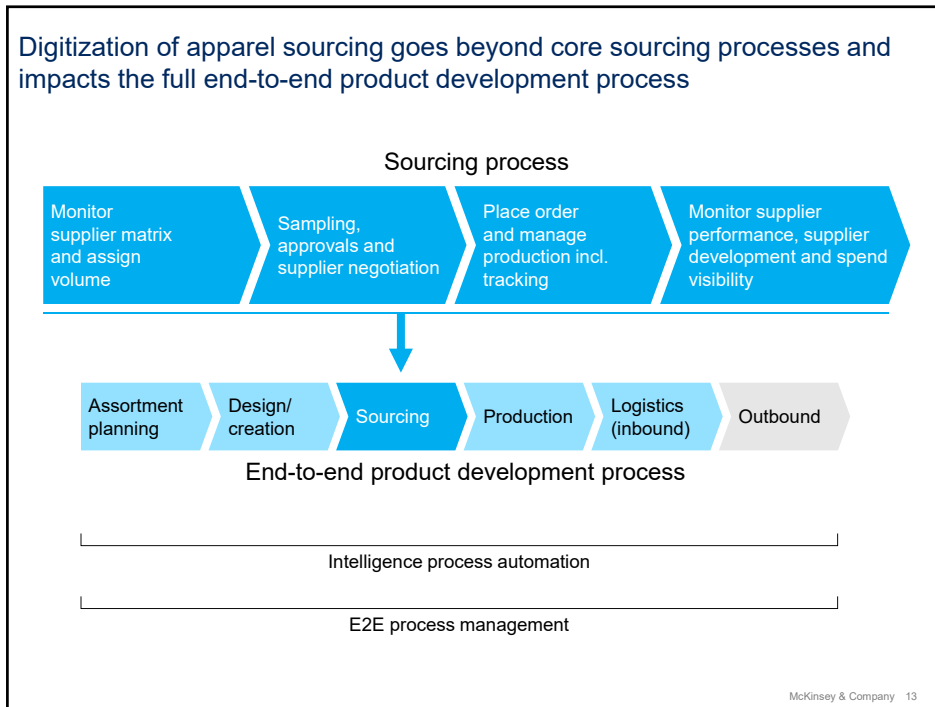


SOURCE: McKinsey Apparel CPO Survey 2017

McKinsey & Company 11



Digitization of apparel sourcing goes beyond core sourcing processes and impacts the full end-to-end product development process

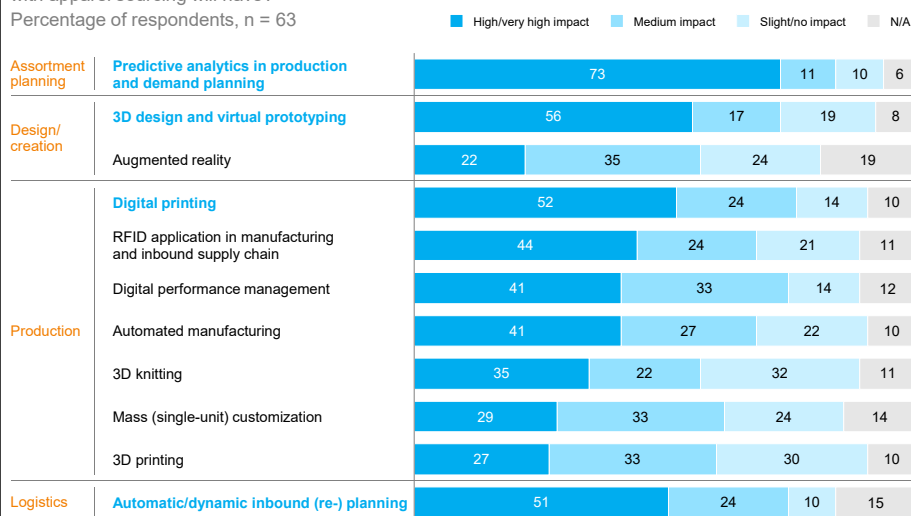


DIGITIZATION OF RELATED PROCESSES

Sourcing executives identified predictive analytics as the area where digitization could have the highest impact

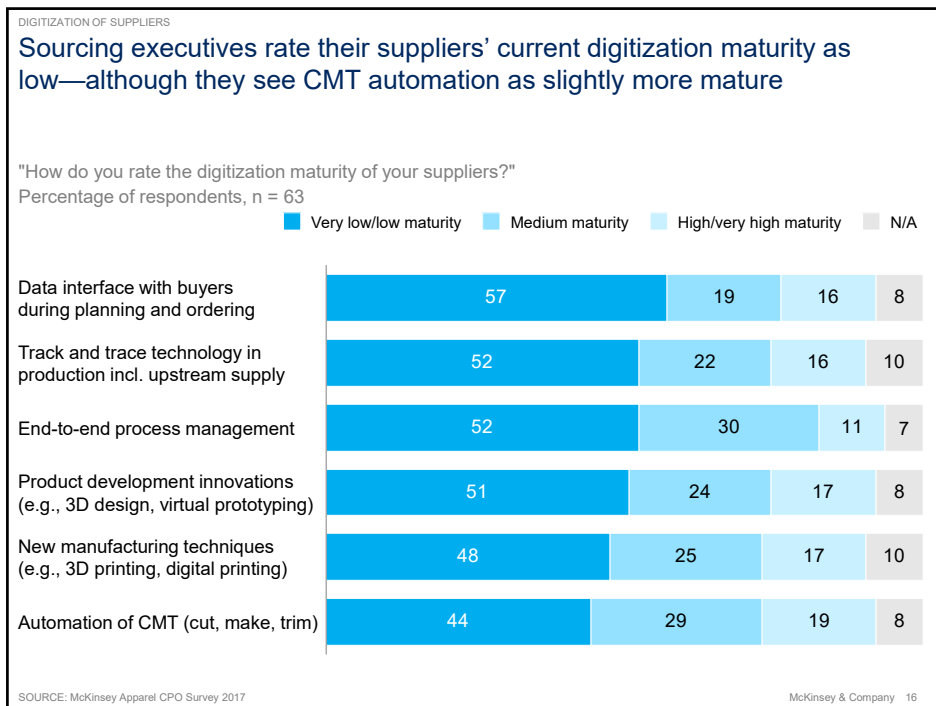
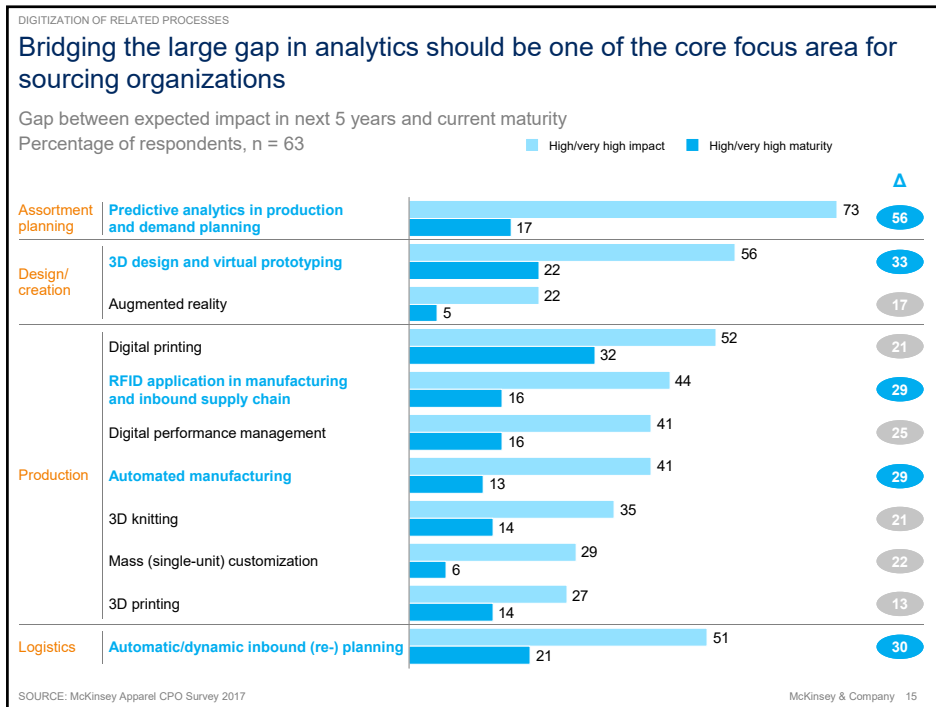
"Over the next 5 years, what level of impact will the following digitization opportunities interfacing with apparel sourcing will have?"

Percentage of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

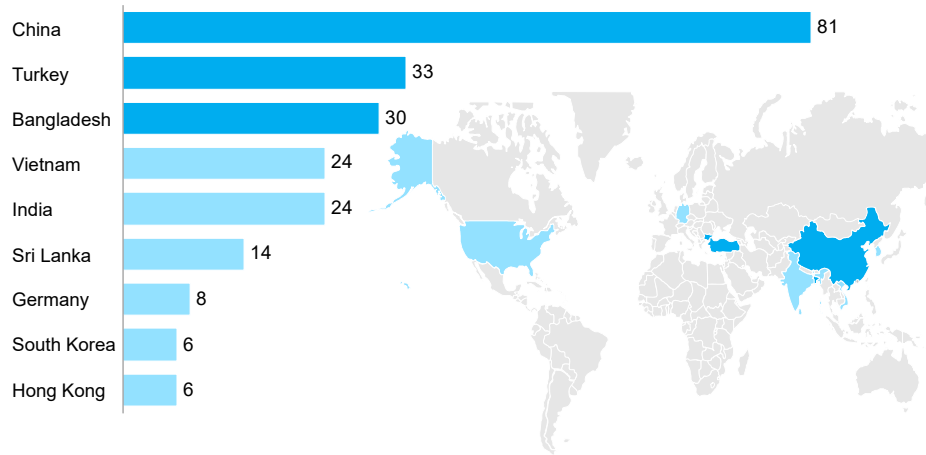
McKinsey & Company 14



DIGITIZATION OF SUPPLIERS

China is the clear leader in digitization of sourcing in the eyes of sourcing executives

"Which 3 countries do you see as the best performers in terms of the sourcing digitization maturity today?"
Percent of respondents who ranked the respective countries within top 3, n = 63



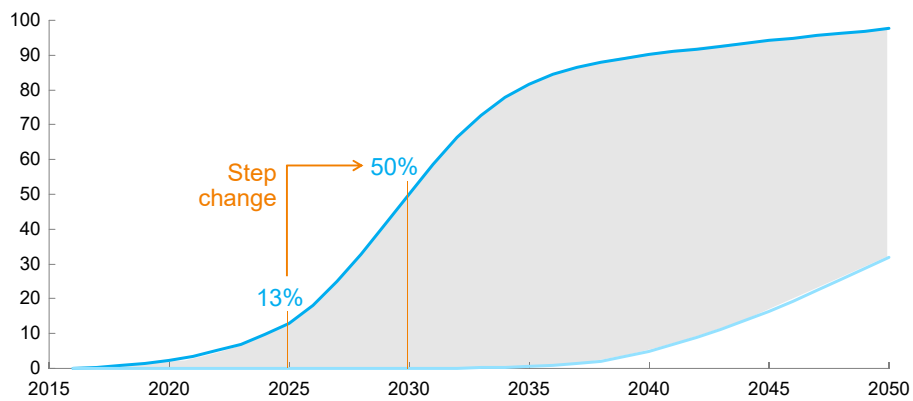
SOURCE: McKinsey Apparel CPO Survey 2017

McKinsey & Company 17

IMPACT OF AUTOMATION

Automation of garment manufacturing in China could achieve an adoption rate of up to 50% by 2030

Percent of time spent on current work activities

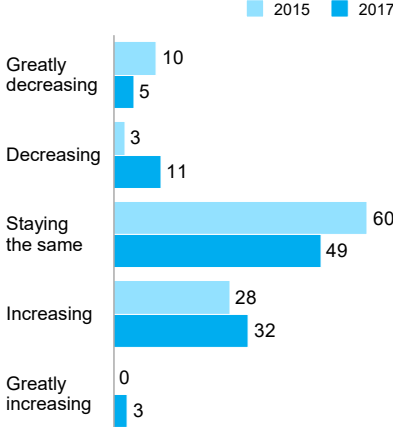


SOURCE: Expert Interviews, BLS; O'Net; FDI Benchmarks, Oxford Economics United Nations Population Division; McKinsey Global Institute analysis "Future that works"

McKinsey & Company 18

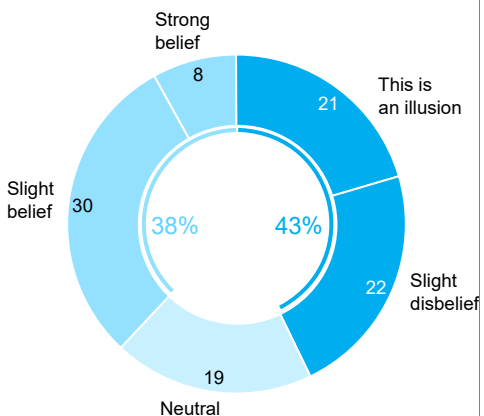
Respondents remain skeptical about automation's potential to drive re-shoring

Trend of engaging in re-shoring in own company



"Given the trend towards automation, to what extent do you believe manufacturing will return to the US/Europe within the next 5 years?"

Percent of respondents, n = 63



SOURCE: McKinsey Apparel CPO Survey 2017

CONTENTS

- The future of apparel sourcing
- Digitization of core apparel sourcing process
- Digitization beyond core sourcing process
- How to initiate the sourcing digitization

OUTLOOK

Sourcing executives should start today to build the 5 required foundations to digitize apparel sourcing

McKinsey & Company 21

OUTLOOK

Sourcing executives should start today to build the 5 required foundations to digitize apparel sourcing



Talent and mindset

Acquire and develop savvy talent internally and externally

- Overcome silos along the end-to-end process from design to delivery
- Bring new people in, with Tech/Analytics background and business acumen
- Increase risk appetite and the external orientation

McKinsey & Company 22

Sourcing executives should start today to build the 5 required foundations to digitize apparel sourcing



Talent and mindset

Acquire and develop savvy talent internally and externally

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External collaboration and engagement models

Build alliances and strategic partnerships

- Connect and partner with strategic suppliers to build up a competitive ecosystem
- Experiment new collaboration models with suppliers, start-ups and fashion schools

Sourcing executives should start today to build the 5 required foundations to digitize apparel sourcing



Talent and mindset

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Digital infrastructure






Design target infrastructure and roadmap to allow faster, more and sustainable impact

- Prioritize areas to invest in based on solid business cases
- Do not wait for the all-encompassing solution
- Leverage internal talent and external communities

Sourcing executives should start today to build the 5 required foundations to digitize apparel sourcing

 <p>Talent and mindset</p>	 <p>External collaboration and engagement models</p>	 <p>Digital infrastructure</p>	 <p>Advanced analytics</p>
<p>Acquire and develop savvy talent internally and externally</p> <ul style="list-style-type: none"> Overcome silos along the end-to-end process from design to delivery Bring new people in, with Tech/Analytics background and business acumen Increase risk appetite and the external orientation 	<p>Build alliances and strategic partnerships</p> <ul style="list-style-type: none"> Connect and partner with strategic suppliers to build up a competitive ecosystem Experiment new collaboration models with suppliers, start-ups and fashion schools 	<p>Design target infrastructure and roadmap to allow faster, more and sustainable impact</p> <ul style="list-style-type: none"> Prioritize areas to invest in based on solid business cases Do not wait for the all-encompassing solution Leverage internal talent and external communities 	<p>Step-up the use of big data and analytics</p> <ul style="list-style-type: none"> Define value drivers and use cases Build relevant point solutions Create success cases and embed into the broader roadmap Enhance overall analytics posture

Sourcing executives should start today to build the 5 required foundations to digitize apparel sourcing

 <p>Talent and mindset</p>	 <p>External collaboration and engagement models</p>	 <p>Digital infrastructure</p>	 <p>Advanced analytics</p>	 <p>Process redesign and End to End digitization</p>
<p>Acquire and develop savvy talent internally and externally</p> <ul style="list-style-type: none"> Overcome silos along the end-to-end process from design to delivery Bring new people in, with Tech/Analytics background and business acumen Increase risk appetite and the external orientation 	<p>Build alliances and strategic partnerships</p> <ul style="list-style-type: none"> Connect and partner with strategic suppliers to build up a competitive ecosystem Experiment new collaboration models with suppliers, start-ups and fashion schools 	<p>Design target infrastructure and roadmap to allow faster, more and sustainable impact</p> <ul style="list-style-type: none"> Prioritize areas to invest in based on solid business cases Do not wait for the all-encompassing solution Leverage internal talent and external communities 	<p>Step-up the use of big data and analytics</p> <ul style="list-style-type: none"> Define value drivers and use cases Build relevant point solutions Create success cases and embed into the broader roadmap Enhance overall analytics posture 	<p>Shift to a demand focused model</p> <ul style="list-style-type: none"> Optimize end-to-end process efficiency and SC flexibility Identify high value cases for digitization and develop a roadmap Identify available solutions/partners Test, partner and scale fast





HKRITA

香港紡織及成衣研發中心

The Hong Kong Research Institute of
Textiles and Apparel

ITMF Sept 2017

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Fashion Industry 4.0



"Court Ladies Preparing Newly Woven Silk" Museum of Fine Arts Boston in the United States. A copy rendered by Emperor Huizong (1082-1135).

2006-2016

It doesn't work anymore...

BRICK & MORTAR RETAILER MARKET VALUE (2006* VS. TODAY)

Item	Market Value 2006	Market Value Today	% Change
	\$28.4B	\$14.5B	(49%)
JCPenney	\$18.1B	\$3.0B	(83%)
KOHL'S	\$24.2B	\$9.9B	(59%)
	\$24.2B	\$13.0B	(46%)
NORDSTROM	\$12.4B	\$9.8B	(21%)
sears	\$27.8B	\$1.3B	(95%)
	\$51.3B	\$43.8B	(15%)
Walmart	\$214.0B	\$219.3B	2%
	\$17.5B	\$351.8B	1,910%

Source: Yahoo Finance
*Peak Market Value 2006

Mid-August 2017



Source: Google Finance

**Mid-
August
2017**

Amazon.com, Inc. (NASDAQ:AMZN) Add to portfolio

956.92 -25.09 (-2.55%) G+
 After Hours: 954.00 -2.92 (-0.31%)
 Aug 10, 7:59PM EDT
 NASDAQ real-time data - Disclaimer
 Currency in USD

Range 954.68 - 979.86 Div/yield -
 52 week 710.10 - 1,083.31 EPS 3.96
 Open 976.29 Shares 480.38M
 Vol / Avg. 5.68M / 3.86M Beta 1.47
 Mkt cap **459.68B** Inst. own 63%

Alibaba Group Holding Ltd (NYSE:BABA) Add to portfolio

151.77 -5.72 (-3.63%) G+
 After Hours: 151.55 -0.22 (-0.14%)
 Aug 10, 7:59PM EDT
 NYSE real-time data - Disclaimer
 Currency in USD

Range 151.25 - 156.50 Div/yield -
 52 week 86.01 - 160.39 EPS 2.55
 Open 156.20 Shares 2.56B
 Vol / Avg. 19.30M / 14.14M Beta -
 Mkt cap **388.71B** Inst. own 38%

Wal-Mart Stores Inc (NYSE:WMT) Add to portfolio

80.66 -0.95 (-1.16%) G+
 After Hours: 80.57 -0.09 (-0.11%)
 Aug 10, 7:44PM EDT
 NYSE real-time data - Disclaimer
 Currency in USD

Range 80.55 - 81.40 Div/yield 0.51/2.53
 52 week 65.28 - 81.99 EPS 4.41
 Open 81.07 Shares 3.03B
 Vol / Avg. 8.04M / 7.16M Beta 0.29
 Mkt cap **244.53B** Inst. own 30%

Source: Google Finance

Walmart preparing to make 1,000 job cuts

Stressed retailers like J. Crew and Neiman Marcus are doing something unusual to manage debt

Payless SHOESOURCE
 By Clara Linnane
 Published: June 3, 2017 4:44 p.m. ET

Abercrombie & Fitch Co. (ANF) Considerable Downside Risk Should Sales Not Materialize As Planned
 Source: Just-Style.com

Macy's to slash 10,000 jobs amid poor holiday sales
 By Beth Wright | 5 January 2017
 Font size [icon] [icon] Email Print

US retail giant **Macy's** has slashed its full-year profit outlook and says it plans to cut more than 10,000 jobs through store closures and moves to streamline its management team.

The Limited Is Closing All Its

ONLINE EXCLUSIVE
UP TO 50% OFF* EVERYTHING

Prices as marked. Not valid on GiftCards

EXTRA 20% OFF YOUR PURCHASE**
Exclusions apply. Code **EXTRA**



FOR THAT

**LIVED-IN
LOOK**



**40%
OFF***

Everything

NO EXCLUSIONS
at gap.com, gapfactory.com,
and Gap Factory Stores.

**50%
OFF****

Your Purchase

at Gap Stores Only.
Excludes Markdowns.

ALL ONLINE ORDERS SHIP FREE ‡

SUMMER SALE

We've got a few fireworks of our own.



MEN

WOMEN

PETITES

HEAD-TO-TOE STYLE

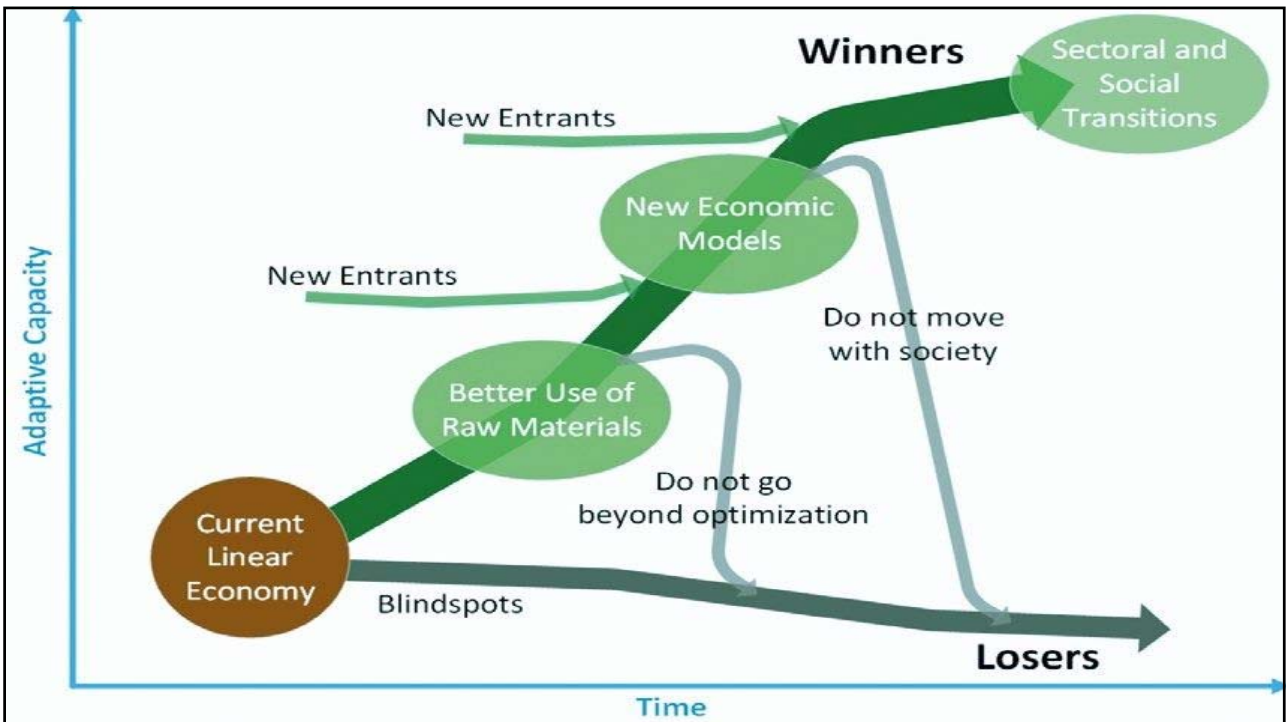
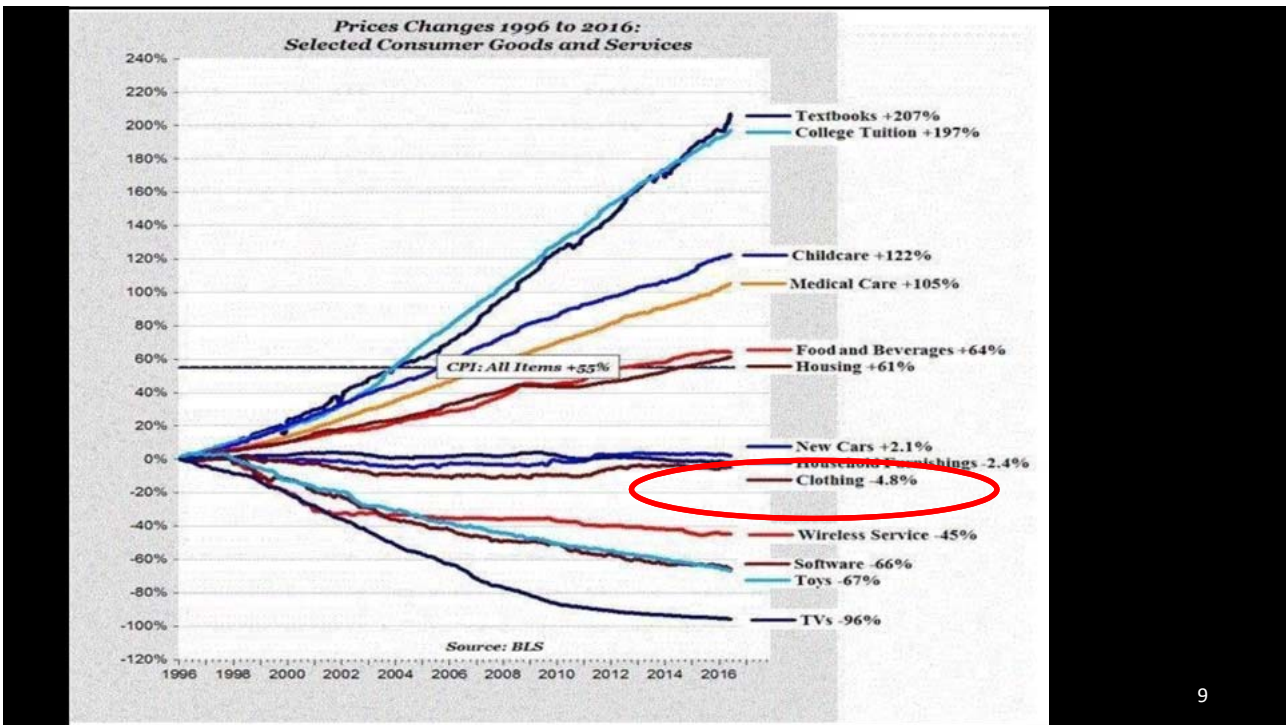
up to
40% OFF*

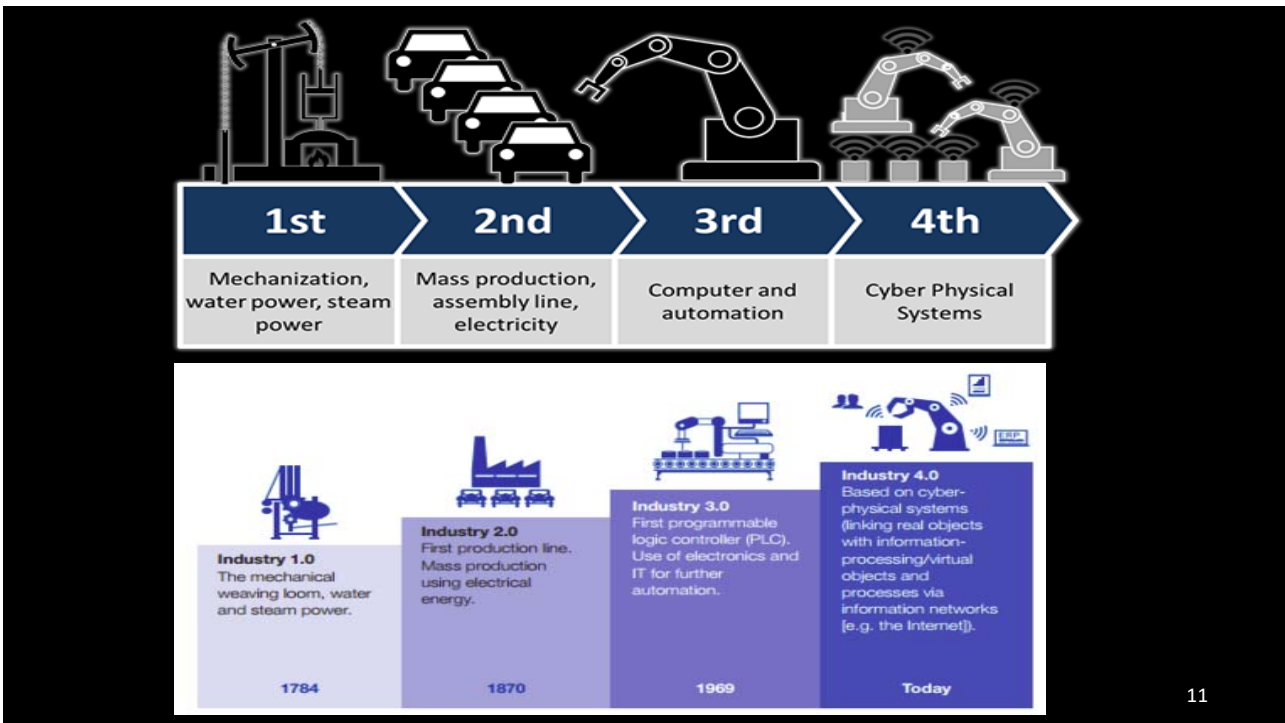
YOUR FAVORITE STYLES FOR FALL
No code needed.

SHOP NOW

**NON-IRON
DRESS SHIRTS**
(WITH STRETCH)

8





11



On Demand Manufacturing Systems

Apparel as Intelligent Systems

Green, Infinitely Recyclable Materials

“What will sell 90 days from now?”

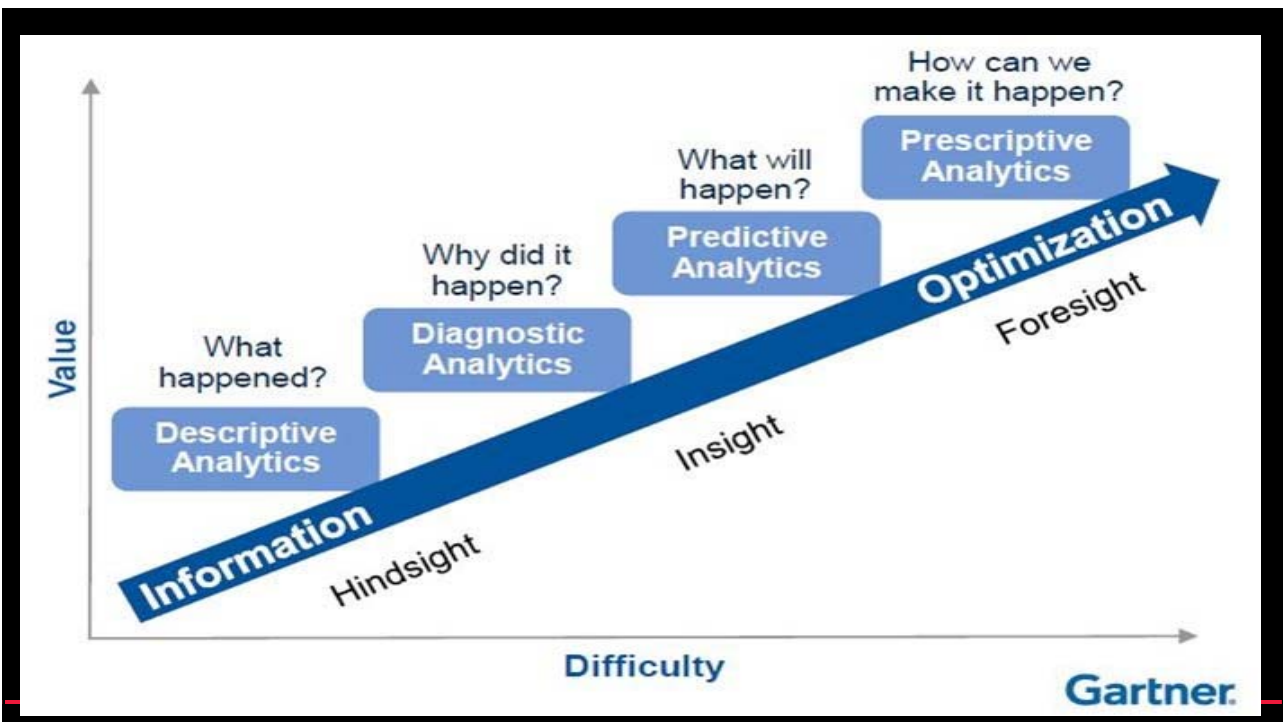
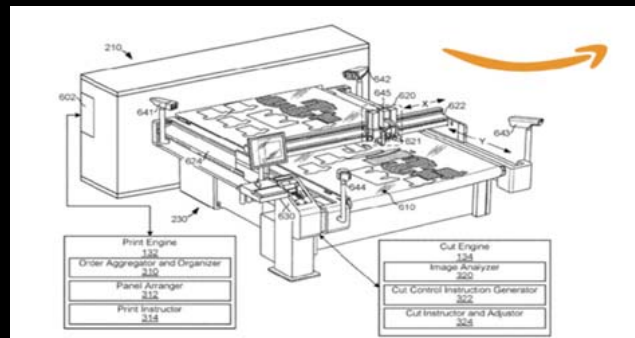
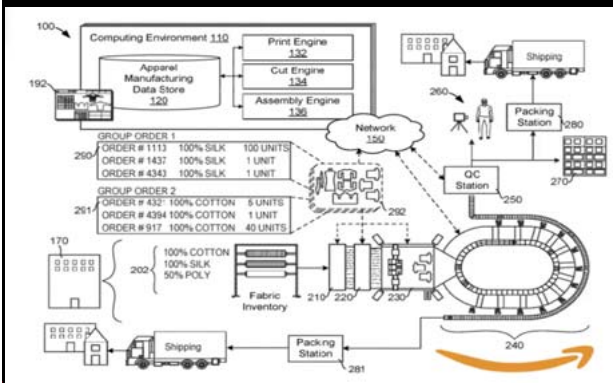
12

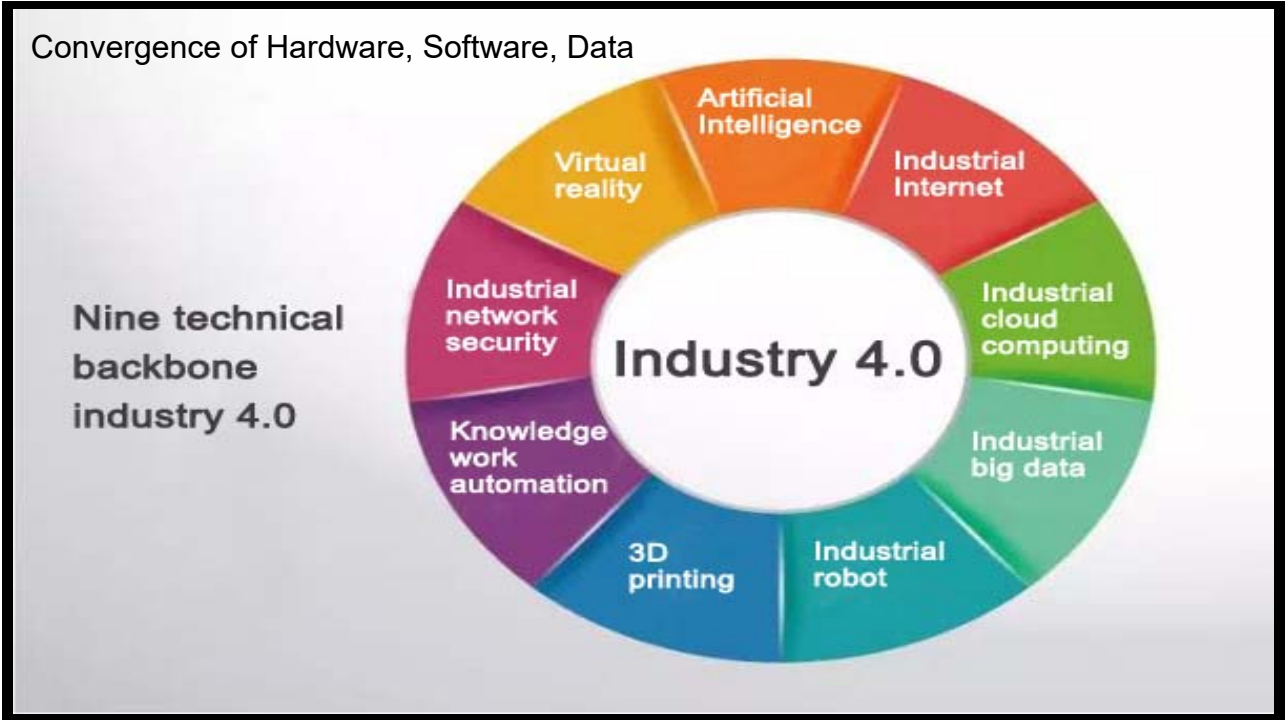
C2B

Amazon Prepares for On-Demand Fashion Production With Patent

On-demand is coming to apparel manufacturing, if Amazon has its way.

By [Kali Hays](#) on April 18, 2017





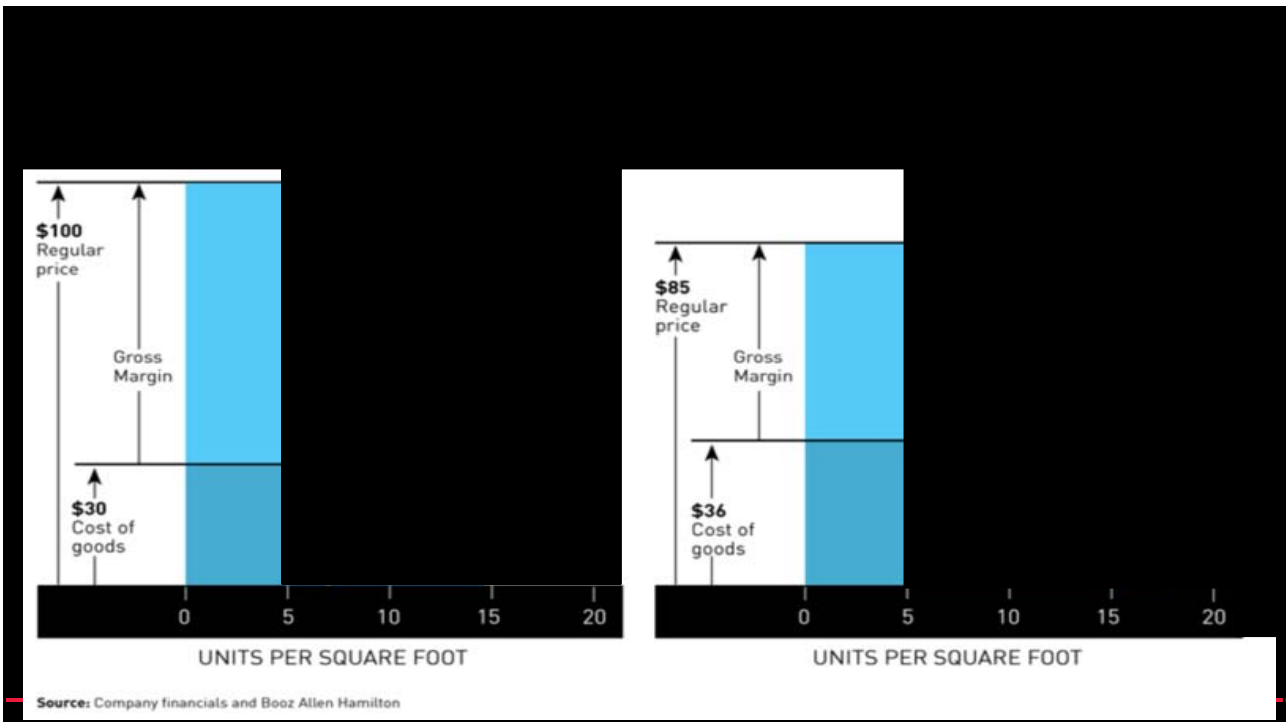
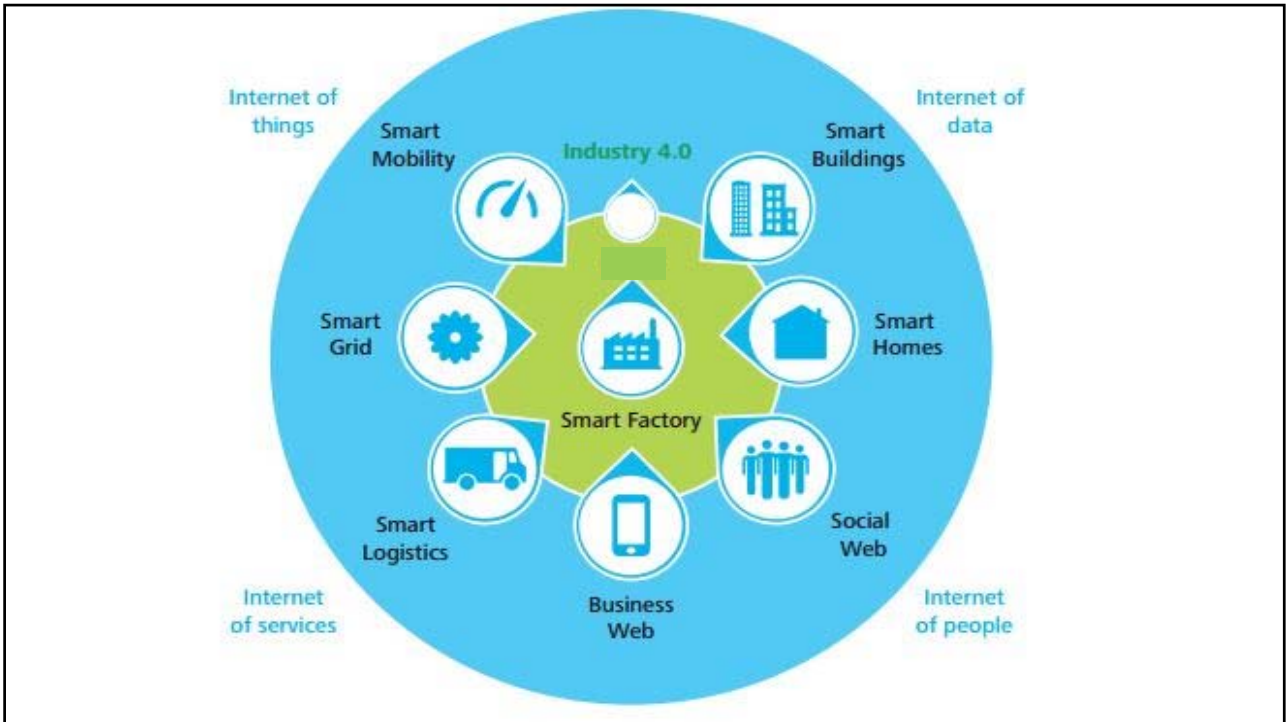
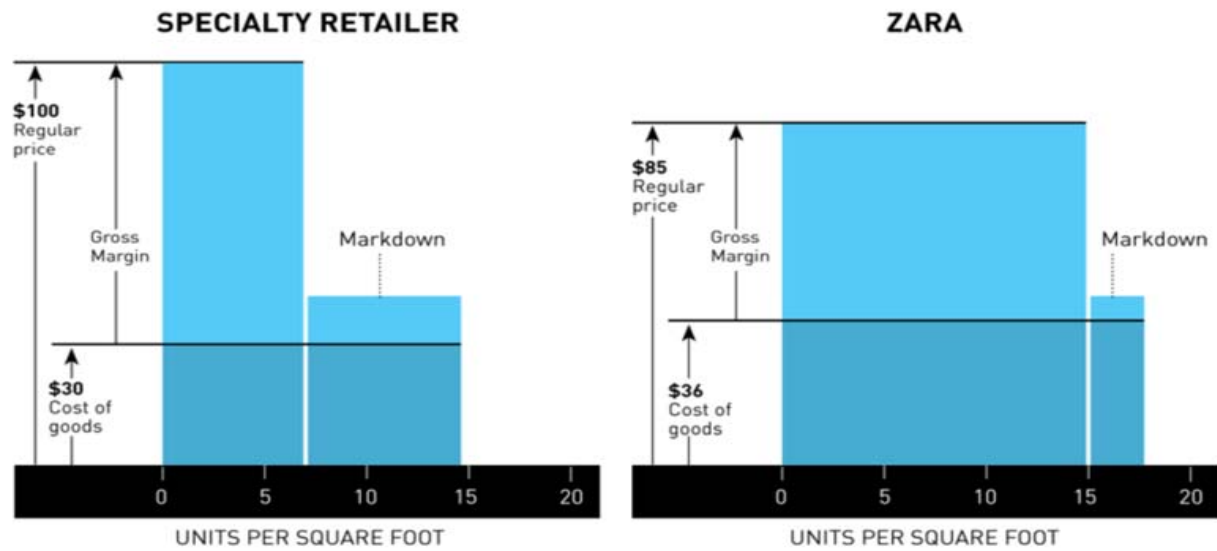


Exhibit 2: Zara's Competitive Economics

Compared to an unnamed but real specialty retailer, Zara (a fashion retailer owned by the Inditex Group) has lower prices and higher production costs. Its advantages: gross margins (light blue areas) that are 55 percent greater and sales of approximately 20 percent more units per square foot.



Source: Company financials and Booz Allen Hamilton

The screenshot shows a website layout for CES 2017. At the top, there are navigation links for 'News', 'Reviews', 'Smartwatches', 'Fitness trackers', 'Running', 'VR', 'Smart Home', 'Forum', and 'Sign In'. Below this is a 'HOT WEARABLES' section with links to various product reviews. The main content area features a large article titled 'The best wearable tech at CES 2017' with a sub-headline 'CES 2017: The hottest connected self tech on show in Vegas this week'. To the left, there is a 'Wearables' marketplace section with a sidebar listing categories like '3D Printing', 'Accessibility', 'Augmented Reality', 'Baby Tech', 'Beauty Tech', and 'Cyber & Personal'. Below the main article, there is a 'Men'sHealth' banner and another article titled 'The Best Wearable Fitness Tech We Saw At CES 2017'. The page also includes social media sharing options and a comment count of '10 Comments'.

Samsung's smart clothes are wearables you'd actually wear

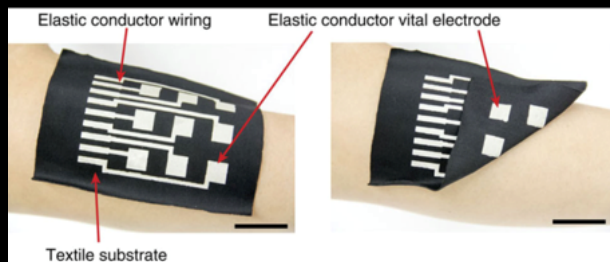
2.8k
SHARES

Share on Facebook

Share on Twitter



21



22

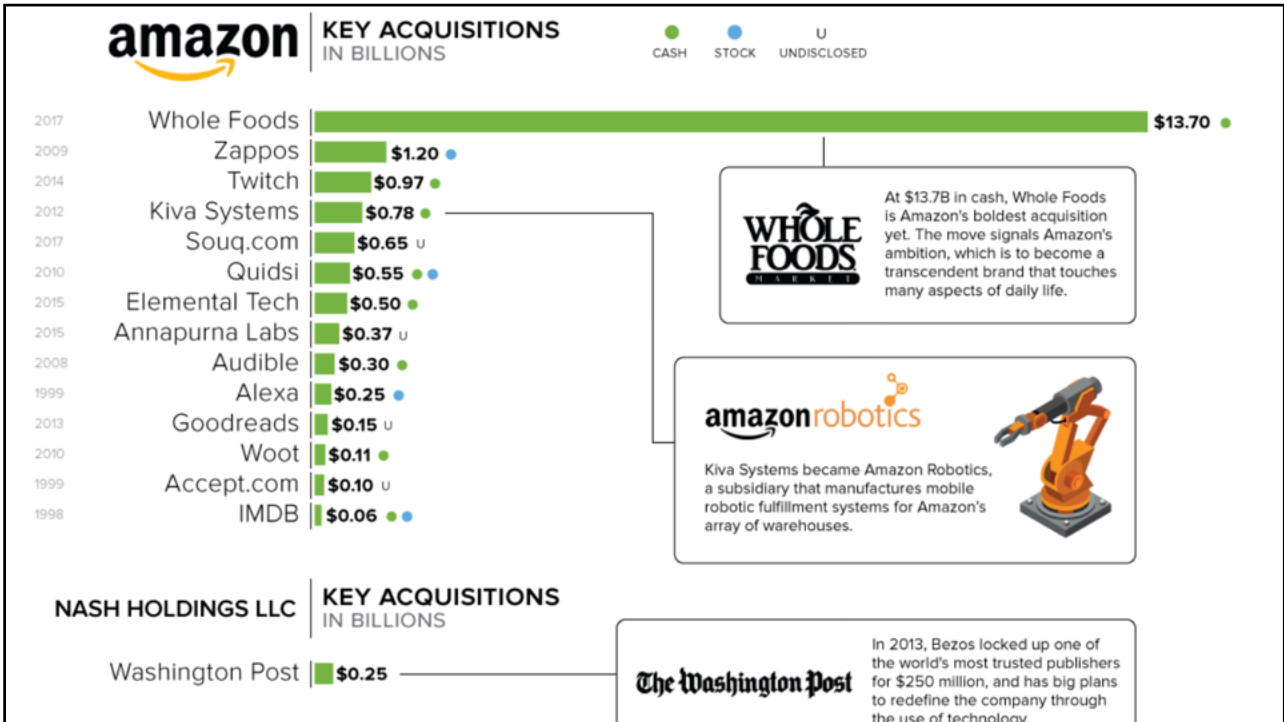
OCTOBER 14, 2015

NIKE'S MANUFACTURING REVOLUTION ACCELERATED BY NEW PARTNERSHIP WITH FLEX

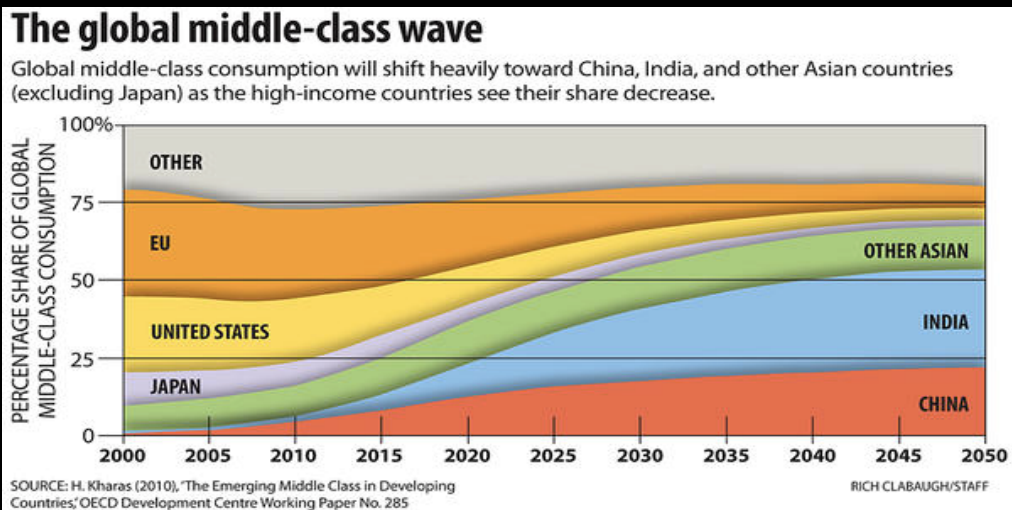
NIKE, Inc. announced today a partnership with Flex (Nasdaq: FLEX), a world-class global manufacturer, to accelerate NIKE's vision to bring advanced innovation to its manufacturing supply chain. Working together, NIKE and Flex will deliver footwear innovation that enables product to reach consumers more quickly, with customized solutions and increased performance innovation.

NIKE has been actively developing new technologies to enhance its manufacturing business model for the past few years with investments in automation, modernization, sustainability, and innovative new methods of manufacturing such as Flyknit. The partnership with Flex advances





Reengineering the Global Supply Chain for the 21st Century



The new Global urban consumer



HOW DO WE SEE THE FUTURE...

29

The Manufacturer of the future...

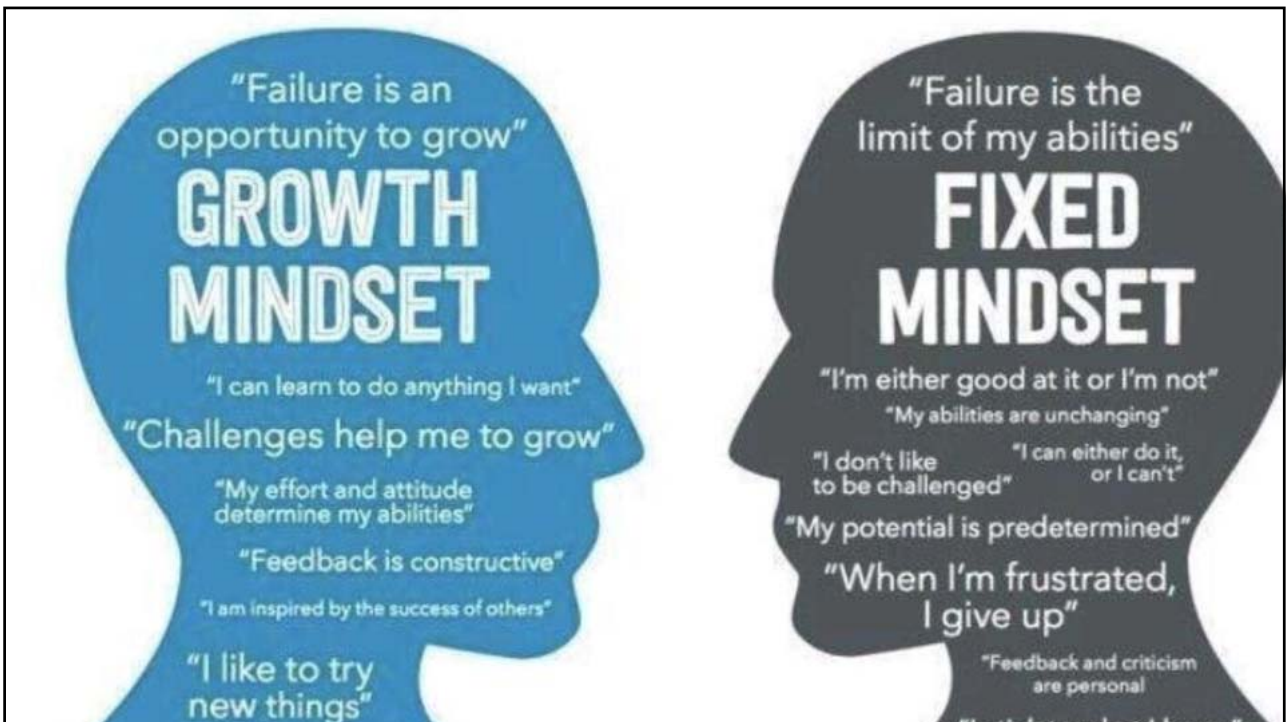


Founded 2003, 1st car 2008
Market cap US\$62B



Founded 1916
Market Cap US\$54B

30



It is about changing the culture



Optimist

The glass is half full!



Pessimist

The glass is half empty!



Lean Thinker

Why is this glass twice as big as it should be?



edwinkeh@hkrita.com


香港紡織及成衣研發中心
The Hong Kong Research Institute of Textiles
and Apparel

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Fashion Disrupted
How Technology, Innovation, Consumers & Politics are changing the future of fashion

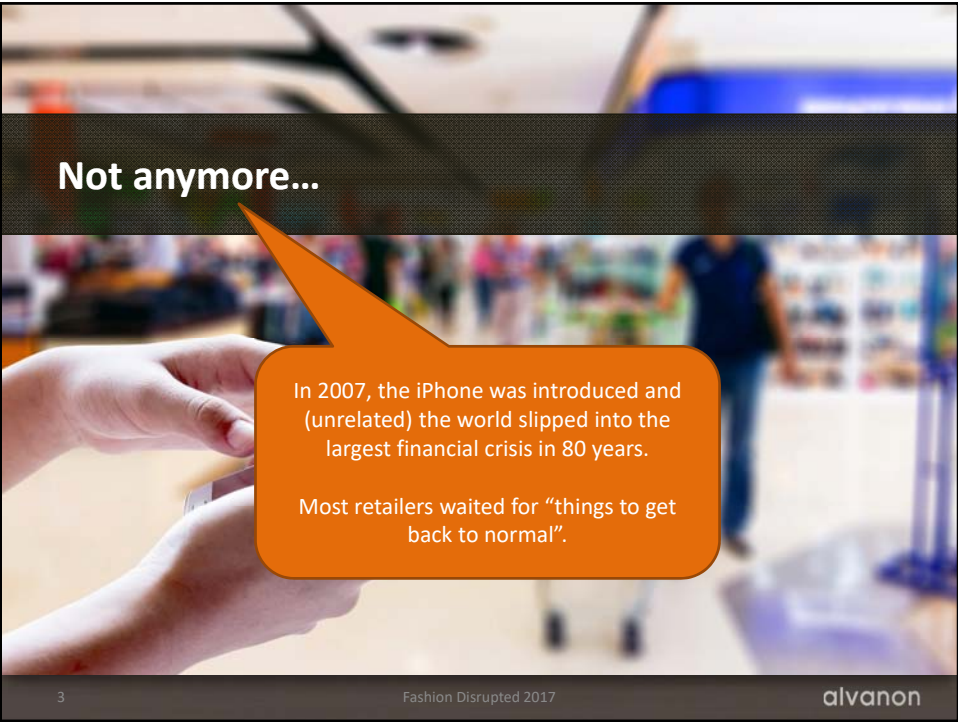
1 Fashion Disrupted 2017 alvanon



Fashion retail, for over a hundred years, owned the customer...



2 Fashion Disrupted 2017 alvanon

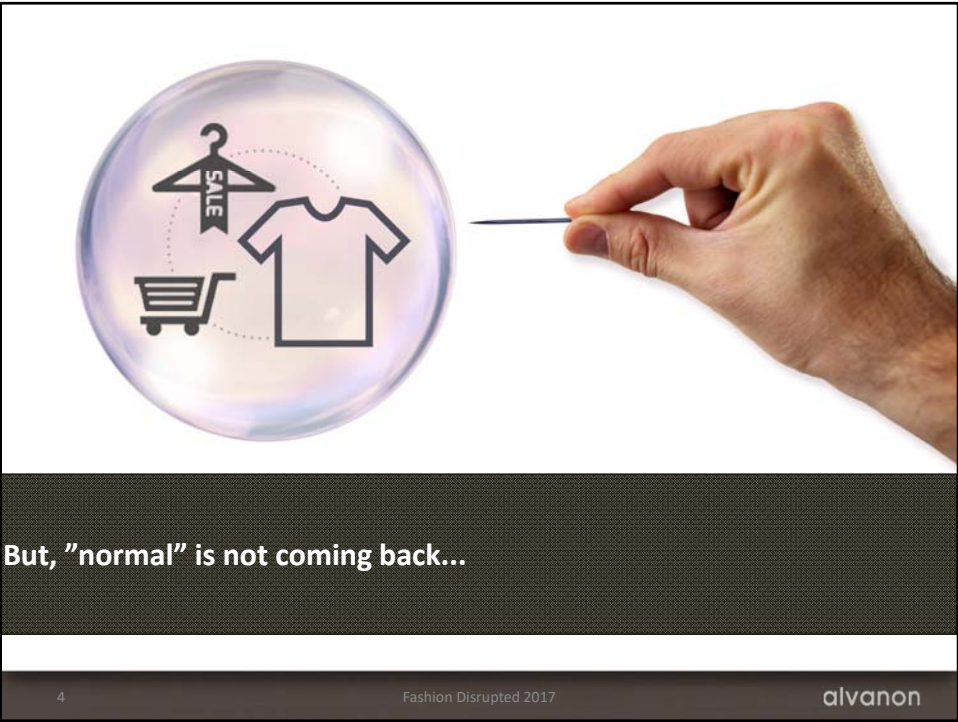


Not anymore...

In 2007, the iPhone was introduced and (unrelated) the world slipped into the largest financial crisis in 80 years.

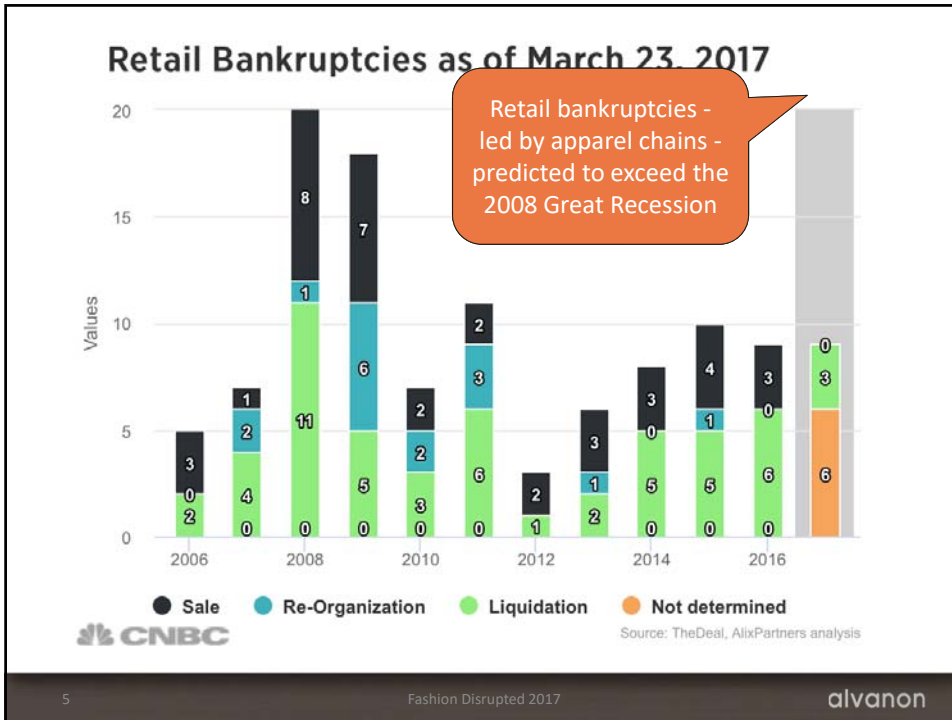
Most retailers waited for "things to get back to normal".

3 Fashion Disrupted 2017 alvanon



But, "normal" is not coming back...

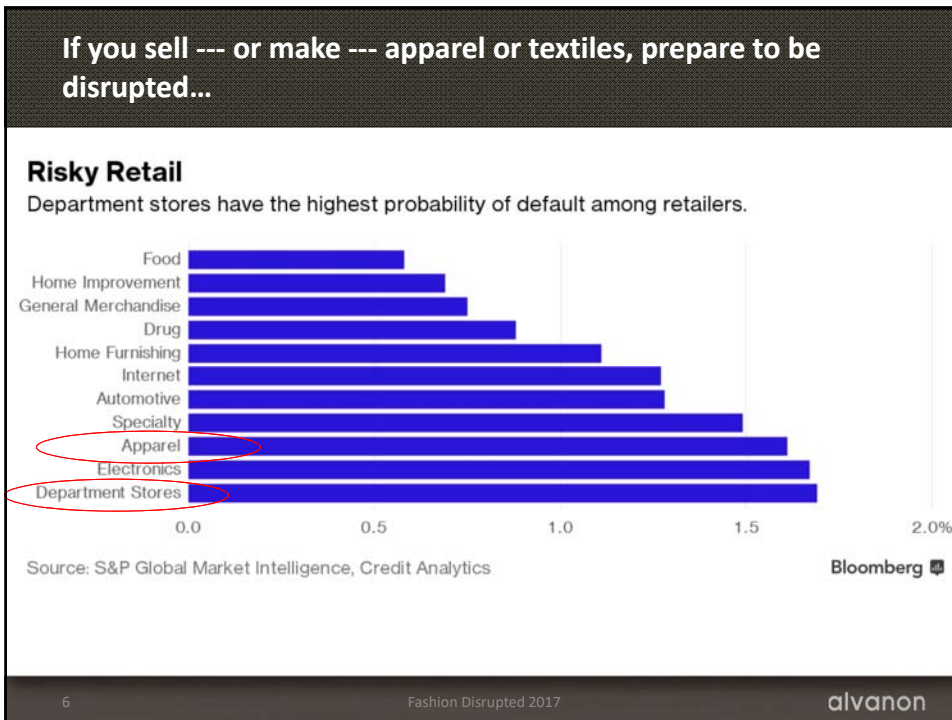
4 Fashion Disrupted 2017 alvanon



5

Fashion Disrupted 2017

alvanon



6

Fashion Disrupted 2017

alvanon

We have too many stores, too many malls, and too little control or visibility of inventories



7

Fashion Disrupted 2017

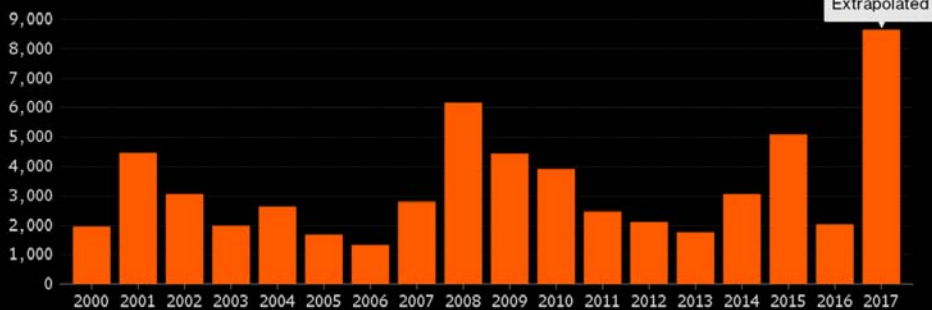
alvanon

Bloomberg projects over 8,600 retail store closings in 2017

Closing Time

The shuttering of U.S. retail stores is on a record pace so far this year

Locations targeted for closure



Source: Credit Suisse

Bloomberg

8

Fashion Disrupted 2017

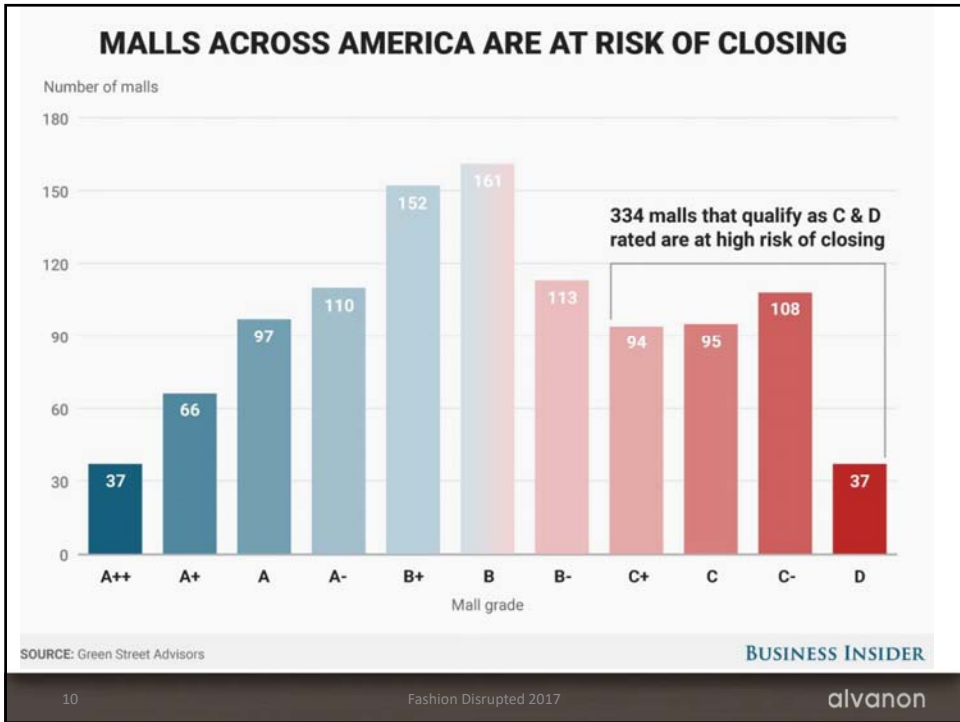
alvanon



9

Fashion Disrupted 2017

alvanon




10

Fashion Disrupted 2017

alvanon

RETAIL STOCKS IN RETREAT WWD August 22, 2017




S&P 500 YTD gains:
+24.14%

S&P Apparel/retail subset:
-17%

11 Fashion Disrupted 2017 **alvanon**

Threat or opportunity?either way significant disruption



12 Fashion Disrupted 2017 **alvanon**

Amazon is now the largest US apparel retailer

US sales of apparel and accessories



Source: Cowen & Co.

13

Fashion Disrupted 2017

alvanon

Machine learning and AI will let Amazon know exactly what to sell us.

64%

36%

14

Fashion Disrupted 2017

alvanon

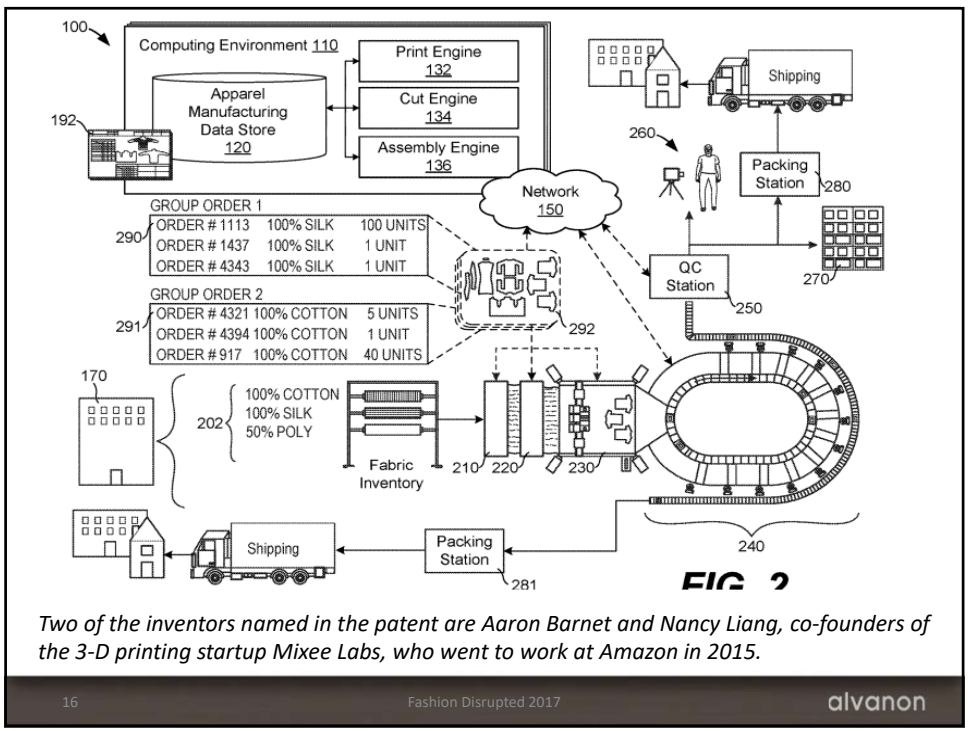
prime wardrobe

Introducing your most fashionable Prime benefit yet.

- Try before you buy
- Free, easy returns
- Save up to 20%

And enough power and money to lose millions building share.

15 Fashion Disrupted 2017 alvanon





What's really threatening retail is not Amazon or Zara...

It's

- Sameness
- Indecisiveness and risk-aversion
- Over-promotion and discounting
- Over-storing for the sake of short-term growth
- Lack of personalized service

18

Fashion Disrupted 2017

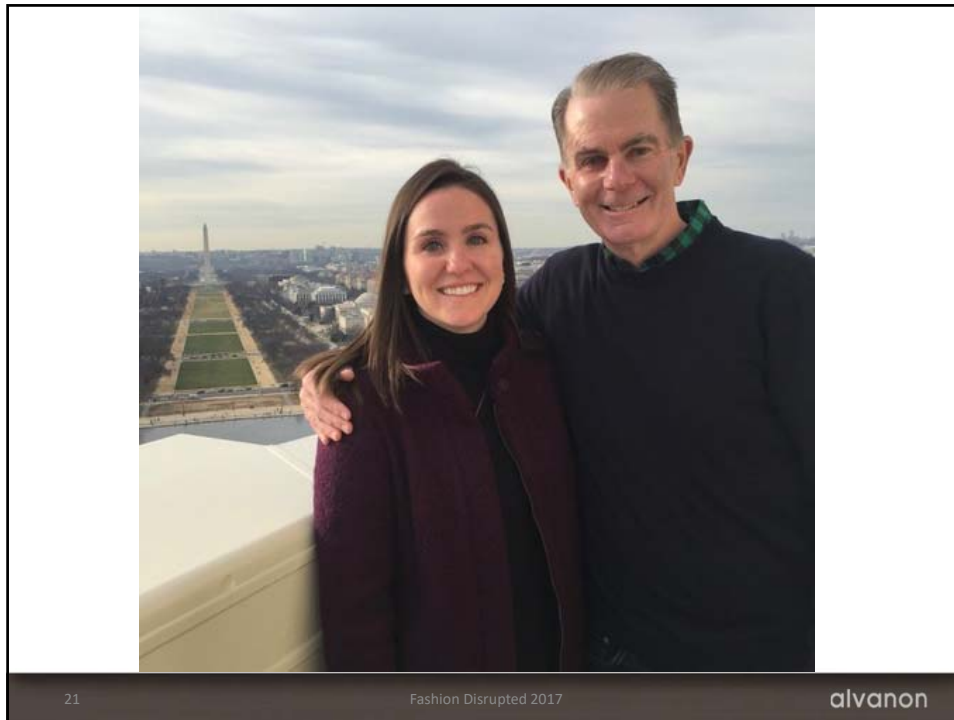
alvanon

The takeaway: TRANSFORM OR DIE

19 Fashion Disrupted 2017 alvanon

Besides newly empowered consumers, we have an increasingly unpredictable, volatile global political climate

20 Fashion Disrupted 2017 alvanon



We don't know what we don't know yet...

- Trade policy by executive order?
- Renegotiation of NAFTA?
- Tax reform?
- TPP without us?
- Brexit/TTIP?
- Raw material & labor costs?
- Regulatory uncertainty?

22

Fashion Disrupted 2017

alvanon

The takeaway: GET POLITICALLY ACTIVE

23

Fashion Disrupted 2017

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Consumer habits ---- and consumers themselves --- are changing

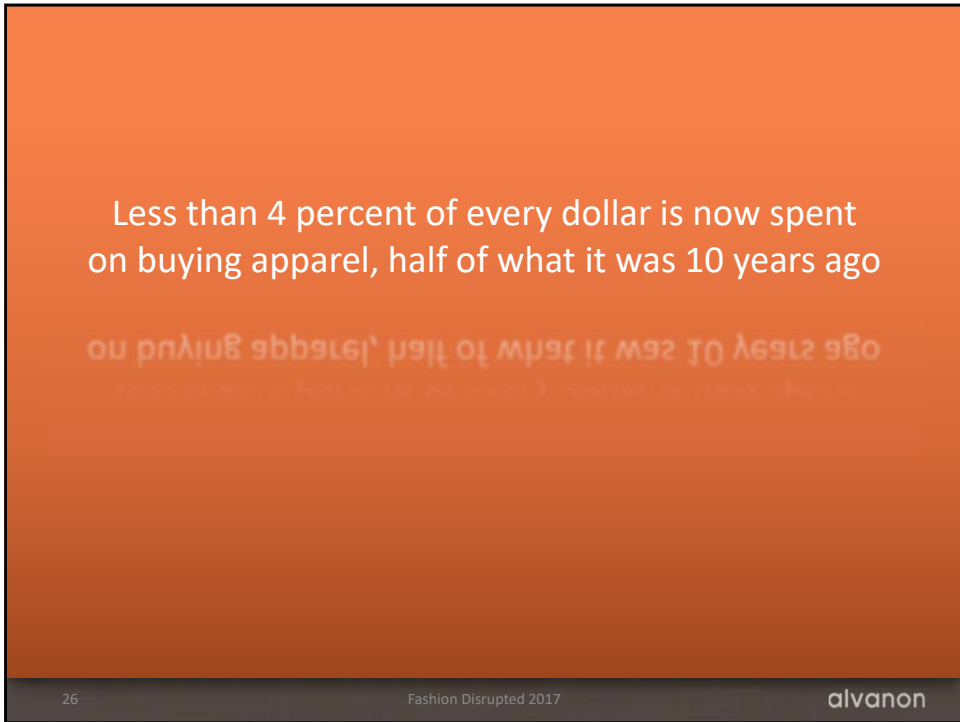


The largest generation in history, now representing almost half of all retail spending...

24

Fashion Disrupted 2017

alvanon






According to a Fung and First Insights study, on average today, consumers are willing to pay only 76% of full price (MSRP).



THE 'GOOD' NEWS?


We are well into the age of data and advanced analytics...

- *Descriptive analytics*
- *Predictive analytics*
- *Prescriptive analytics*



amazon

Google



They know more about us than we do....

29 Fashion Disrupted 2017 alvanon

The new winners will leverage data, innovation
and technology to continuously engage
customers

customer
and technology to continuously engage

30 Fashion Disrupted 2017 alvanon

Intimate personalization...combined with 'subscription retail'

SIGN IN TRUNK CLUB MENU

Men Women

31 Fashion Disrupted 2017 alvanon

Customization...perfect fit...& speed!

STANTT SHOP FREE MEASURING KIT HOW IT WORKS ESSEX (0)

DRESS SHIRTS
Staple shirts for the office and after hours.

SHOP DRESS

**YOUR SIZE IS:
ESSEX™**

As a homage to Stanttt's birthplace, we've named each size after a street in New York City.

SAVE SIZE

SHOP MY SIZE

[Change Size](#)

[Need a free measuring kit?](#)

32 Fashion Disrupted 2017 alvanon

Rent instead if buy...sustainable? Fashionable? Or, both?

UNLIMITED DRESSES CLOTHING ACCESSORIES OCCASIONS LOCATIONS Q SIGN IN

20% off your first order with FIRSTTR20P DETAILS

Own the moment.
Rent the dress.

A FEW DAYS UNLIMITED DAYS

Delivery Date Sizes SEARCH

33 Fashion Disrupted 2017 alvanon

BONOBOS SIGN IN 2

BONOBOS
MENSWEAR FOCUSED
ON A BETTER FIT

SHOP NOW

SHOP NEW

Showrooming...and logistics excellence...oh, and throw in great fit

34 Fashion Disrupted 2017 alvanon

The takeaway: ANTICIPATE, PREDICT, CUSTOMIZE

THE TAKEAWAY: ANTICIPATE, PREDICT, CUSTOMIZE

35

Fashion Disrupted 2017

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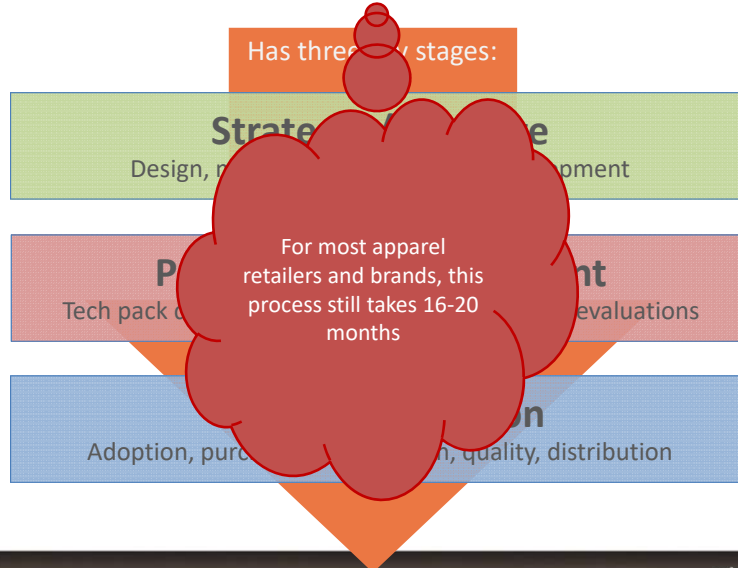
Start by blowing up the traditional product development process!

36

Fashion Disrupted 2017

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A typical product development process...

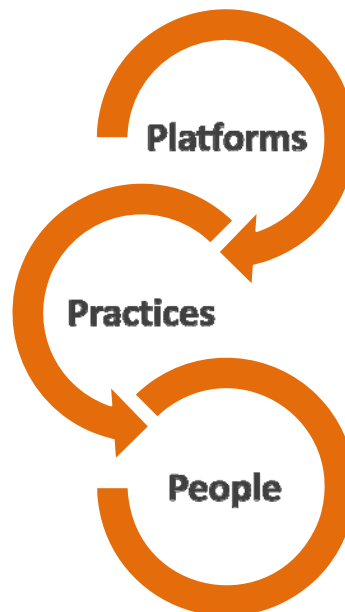


37

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In re-thinking the product development process...you should focus on three major areas:



38

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Embrace 3D in Design, Planning, Development, and Selling



3D is already transforming how truly innovative brands design, develop, buy and sell product and is radically improving:

- > Accuracy
- > Consistency
- > Speed

39

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alvanon

Virtual prototyping and line planning are cutting the time from design to delivery from months to days

BROW|ZWEAR

optitex
software that fits



CLO 3D

GERBER
TECHNOLOGY

Lectra

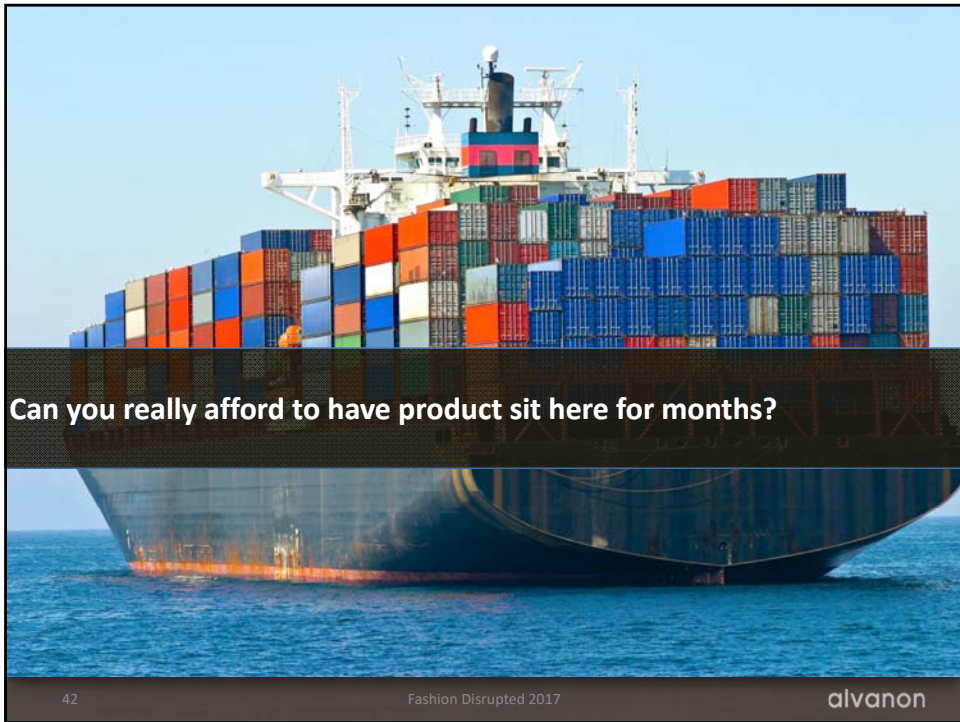
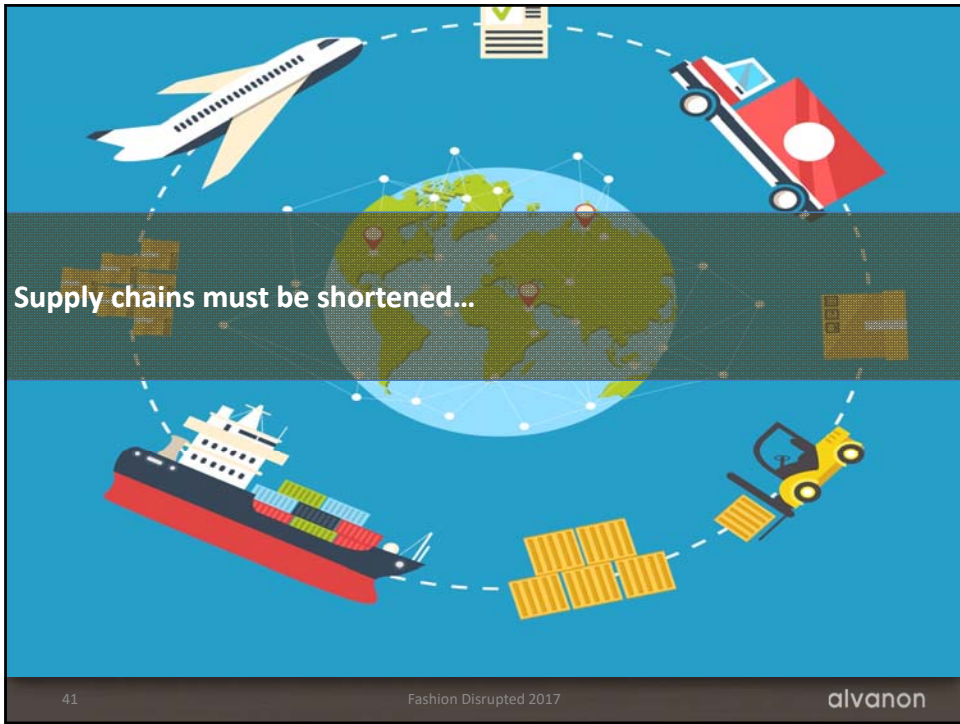
assyst



40

Fashion Disrupted 2017

alvanon



Combining speed, customization and localization...*adidas Speedfactory*



43

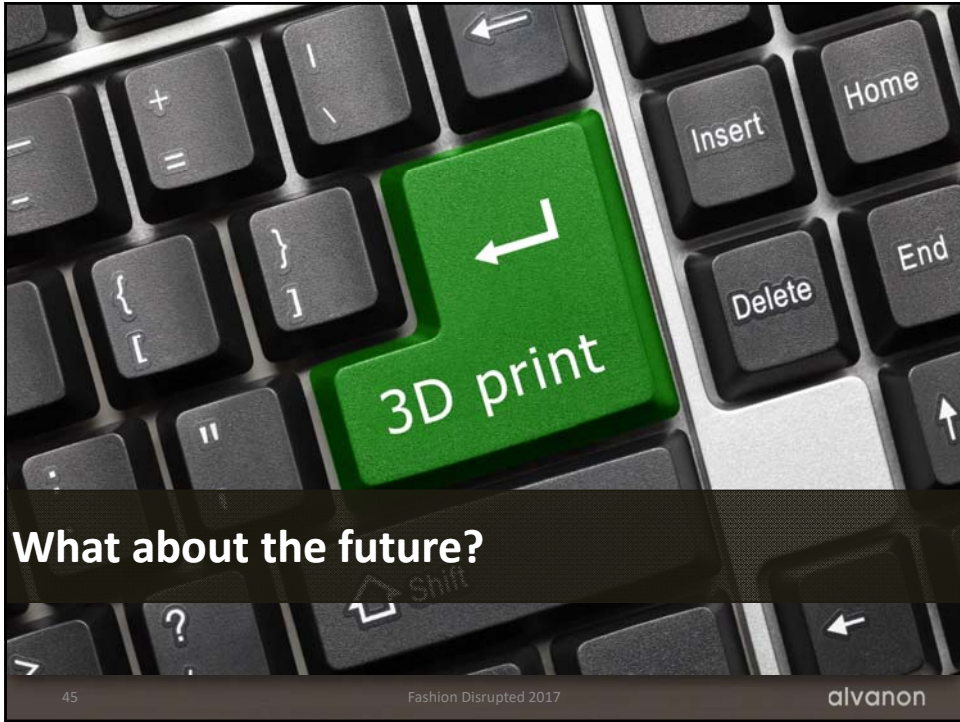
Fashion Disrupted 2017

alvanon

and Under Armour's 'Lighthouse'



44



What about the future?

45

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A presentation slide with a dark grey background. On the left, there is a stylized world map composed of white lines connecting various points. In the top left corner, the 'alvanon' logo is displayed in white. On the right side, the text 'Thank you.' is written in a large, white, sans-serif font. Below this, the name 'Ed Gribbin' and email address 'ed.gribbin@alvanon.com' are listed in a smaller white font. At the bottom center, an orange horizontal bar contains the text 'FIT IS OUR FOUNDATION' in white, uppercase letters. In the bottom right corner, there are small icons for the website 'www.alvanon.com', Facebook, Twitter, LinkedIn, and YouTube.



SHOPPING FOR FASHION: A GLOBAL OVERVIEW

ITMF ANNUAL CONFERENCE 2017

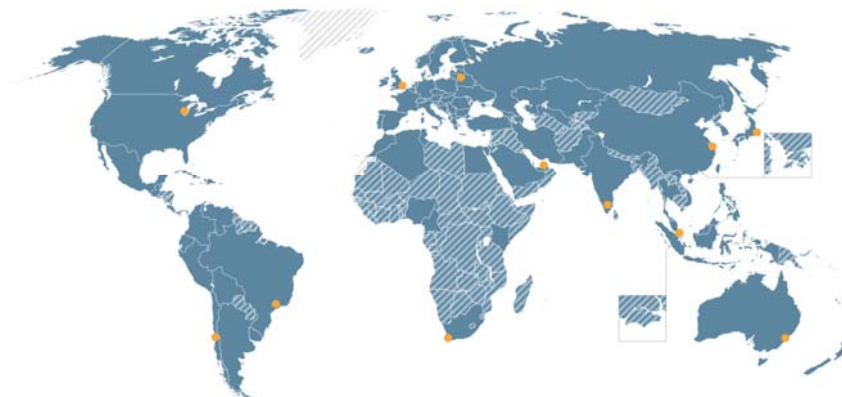
3RD GENERAL SESSION: RETAIL / E-COMMERCE
BALI, INDONESIA, SEPTEMBER 2017



EUROMONITOR INTERNATIONAL

2

Euromonitor International



● **12 OFFICE LOCATIONS**

London, Chicago, Singapore, Shanghai, Vilnius, Santiago, Dubai, Cape Town, Tokyo, Sydney, Bangalore, and São Paulo

■ **80 COUNTRIES**

in-depth analysis on consumer goods and service industries

■ + ■ **210 COUNTRIES**

demographic, macro- and socio-economic data on consumers and economies

© Euromonitor International



Apparel Global Distribution

Digitalisation & Physical Reinvention

A Peak into the Future

Implications for Textile Manufacturers



85%

Of global sales take place via store-based retailing

10

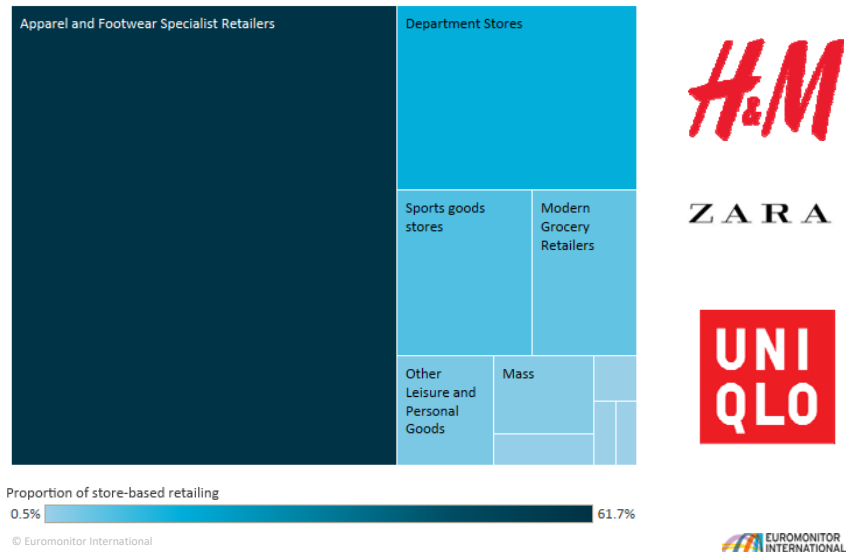
Percentage points less than in 2002

Half

Of Internet Retailing sales are originated in Asia Pacific in 2016

Specialists dominate store-based landscape...

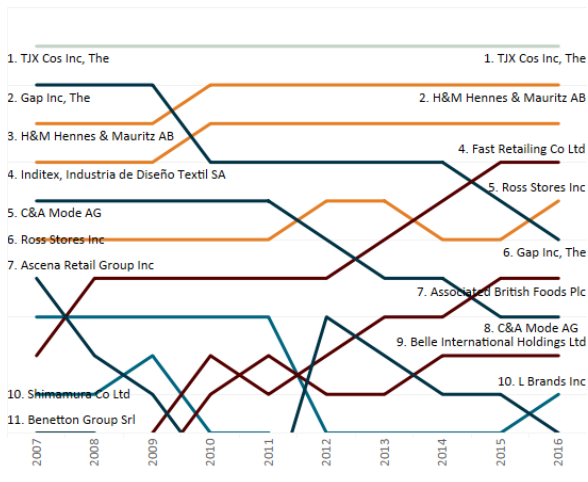
Apparel and Footwear by Store-Based Retailing 2016



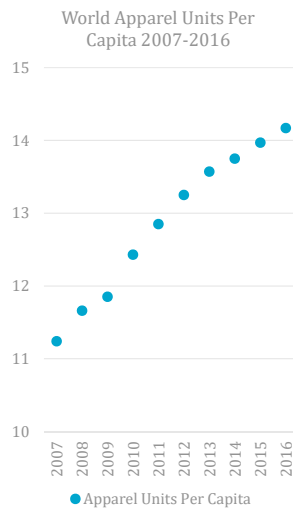
Volume-based businesses lead the way



Global Apparel and Footwear Specialist Retailers Top Companies 2007-2016

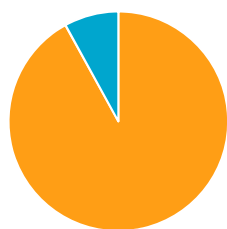


So what?: Lower prices and higher volumes



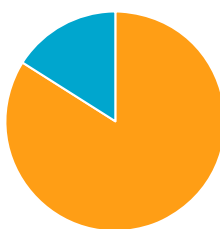
Increasing Digitalisation...

Global Apparel Distribution 2012



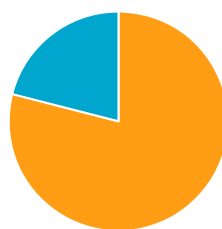
Offline Online

Global Apparel Distribution 2017



Offline Online

Global Apparel Distribution 2021



Offline Online

26%



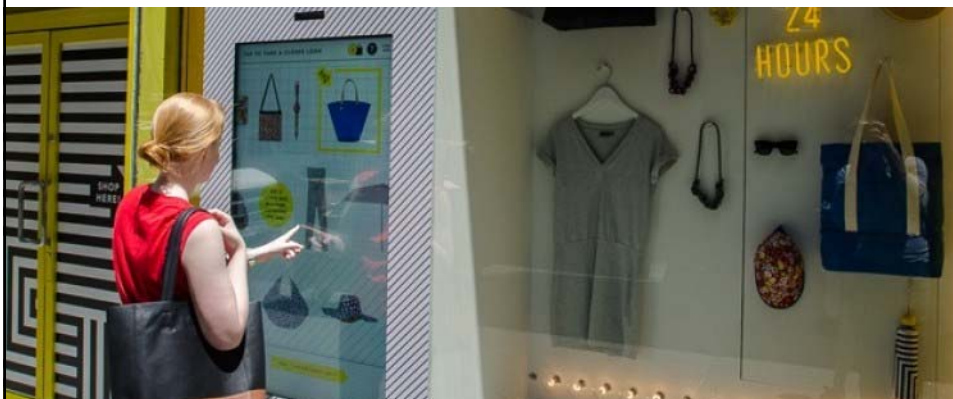
Pushes for Physical Reinvention



© Euromonitor International



A step beyond omnichannel



Integration Experience **Branding**

Integration: Farfetch concept store



© Euromonitor International



Experience: House of Vans



© Euromonitor International



Branding: Adidas HomeCourt



© Euromonitor International



Implications and key takeaways

- Physical retail remains the cornerstone of textile distribution
- Its role has changed and it is expected to keep evolving further
- Putting the fun in functional is key to keep customers engaged and entertained while at the store and beyond
- Volume driven formats (off-price and fast-fashion) is good news for textile manufacturers within the low-price range/materials space
- Suppliers are now better able to connect directly with end-users and disintermediate the traditional retailing framework

© Euromonitor International





THANK YOU FOR LISTENING

Jorge Martin | Head of Research

Jorge.Martin@euromonitor.com

Euromonitor International Ltd.




How to develop the digital market

Hartmut Molzahn – CEO / Co-Founder 88Spares Pte. Ltd.



ITMF Annual Meeting Bali
16.09.2017



www.88spares.com

**LIFE WAS
MUCH EASIER
WHEN  AND 
WERE JUST**



LIFE WAS
MUCH EASIER
WHEN
AND  
WERE JUST
FRUITS

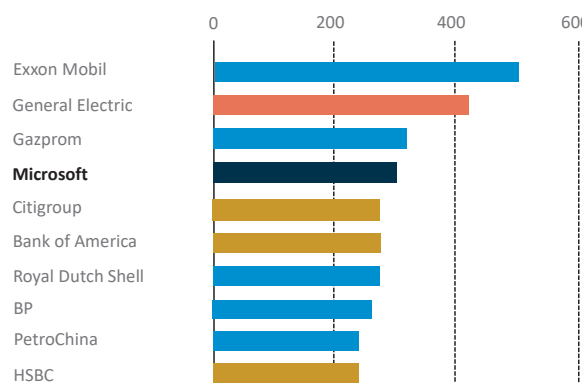
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A virtually new world

World, largest listed companies by market capitalization, \$bn

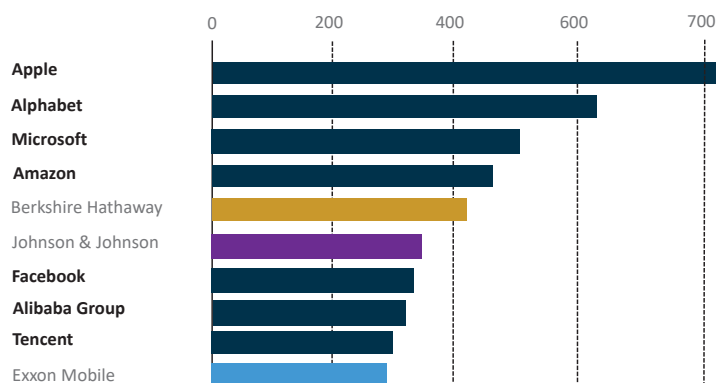
Sector: ■ Energy ■ Financials ■ Health Care ■ Industrials ■ IT ■ Telecoms

End 2006



Source: The Economist

2017



Source: Bloomberg

How the world is changing

The world's largest bookseller today ...



The largest marketing & advisement companies today...



The music landscape



Content provider for



2017
↑
Lost over 300 bln USD
2012



WhatsApp

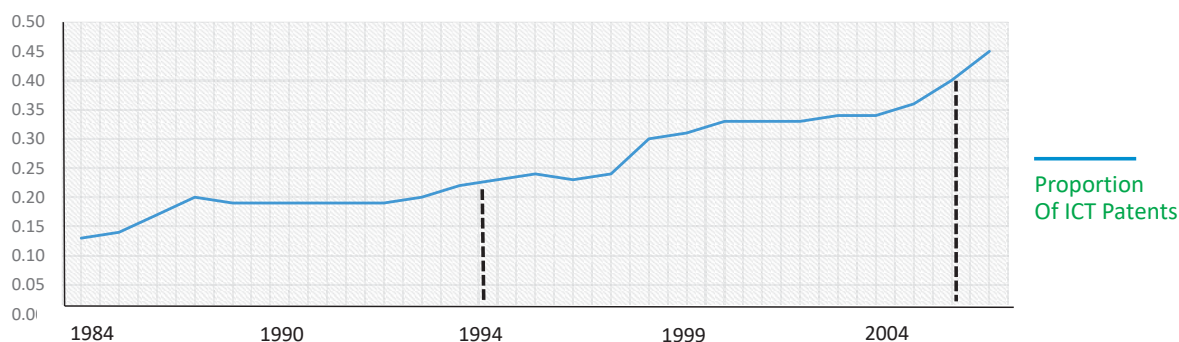


OLD TELECOM

Not only services but also products and RD becomes more digital

Products of diverse firms across a wide array of industries are being digitized

Greater Digitization of Products



Example: Automotive Industry

- Software guides you (Navigation)
- Software helps parking, supports security systems and runs your engine
- In the future software will be your driver

“We believe that every industrial company will become a software company.”



Jeffrey Immelt - Chairman of GE

How the internet disrupted Industries

- 2002
- What happened during the last 15 years**
- **Travel agencies** – The world biggest “travel agency” is **booking.com**
 - **Retail** -The worlds most valuable retailer is **Amazon**
 - **Advertisement Market** – The biggest advertisement companies are **Google** and **Facebook**
 - **Transportation** – The worlds biggest Taxi company is **Uber**
 - **Hotel** - The worlds largest accommodation provider is **Airbnb**
 - **Banking** - The worlds fastest growing banks are online ones like **SocietyOne**
- 2017

And do you think it will stop here? Industry 4.0 is just starting....



How to get your company ready for the digital market

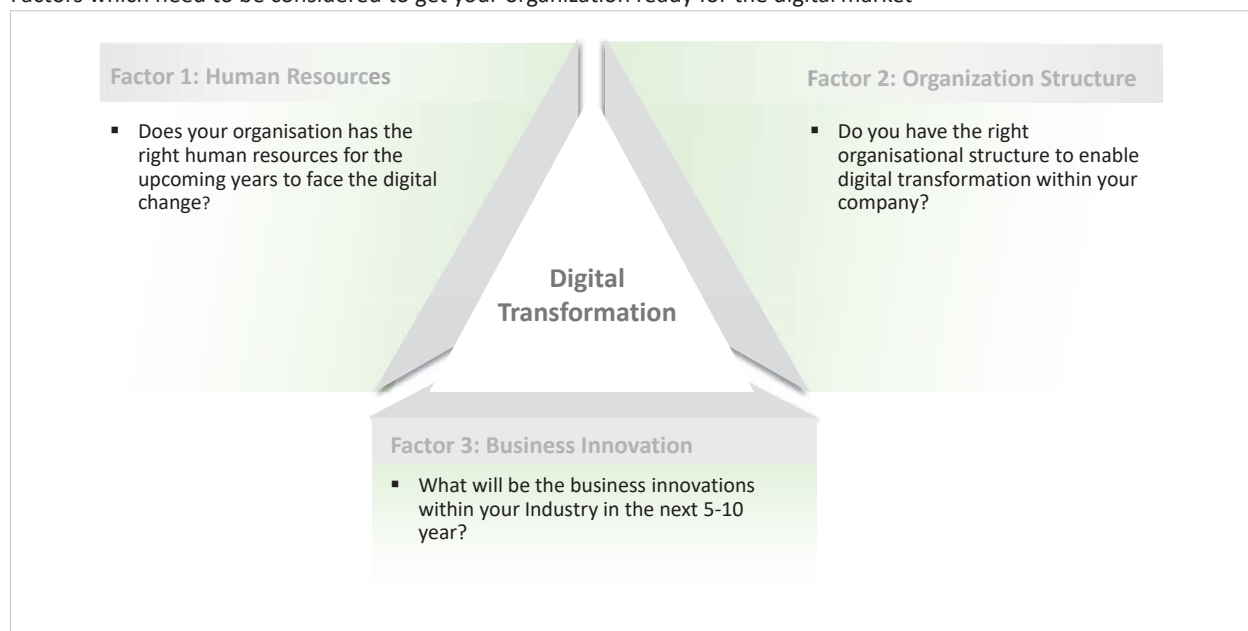


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The Triangle of Digital Transformation



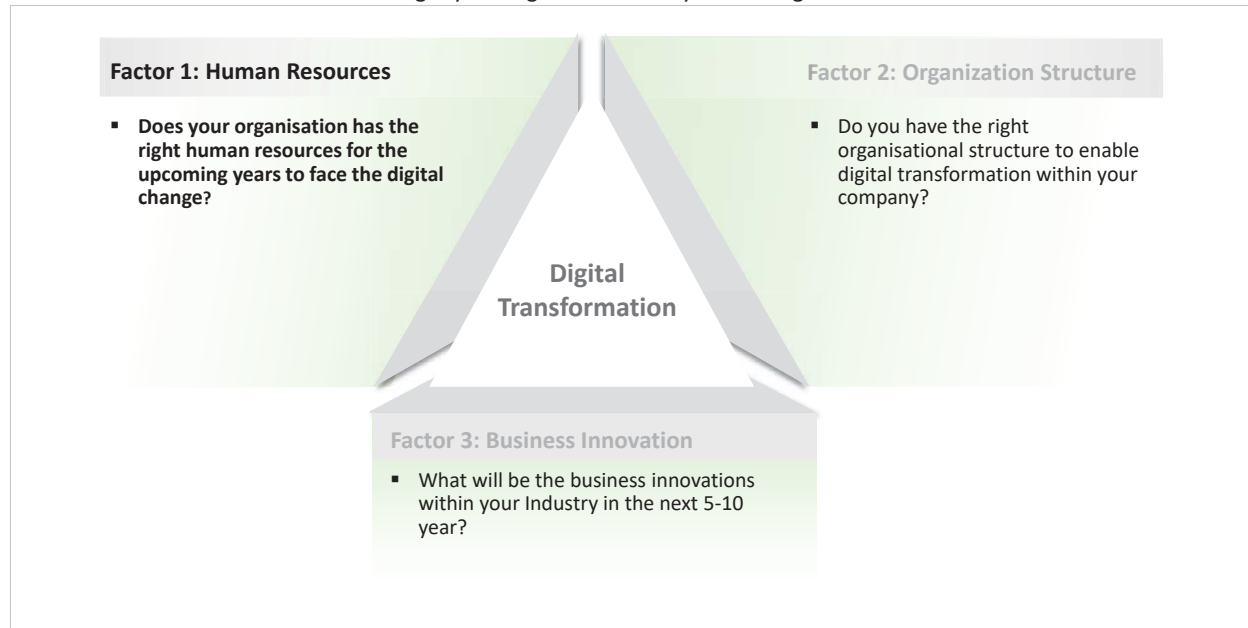
Factors which need to be considered to get your organization ready for the digital market



The Triangle of Digital Transformation



Factors which need to be considered to get your organization ready for the digital market



ITMF Annual Meeting 2017 – 16.09.2017

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Will digital trends disrupt your industry and do you have the right people for this challenge?



Lets see how other companies answered these questions:

“Almost 90% of managers and executives surveyed anticipate that their industries will be disrupted by digital trends to a ‘great or moderate’ extent.

Only 44% think they are adequately prepared for the disruptions to come.”

“70% of the respondents said their organization needs a new or different talent base to compete in the digital economy.”

- MIT SMR / Deloitte Global Business Executive Study and Research Project, 2016

“Ninety-one percent of the surveyed are in no doubt that they have a role to play in their organization’s digital transformation.

However, 59 percent added that their IT organization is unprepared For the digital business of the next two years.

- Gartner, 2016

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12



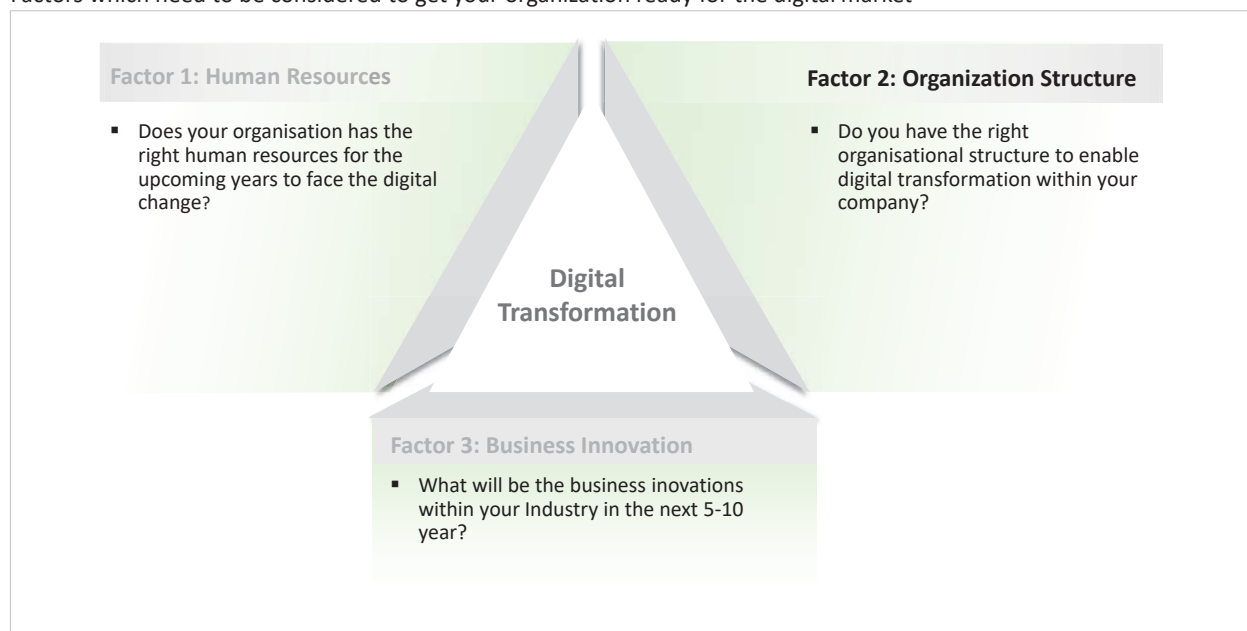
Well, the result showed that:

You don't need a technologist to lead the company but you need:

- Somebody in the C-Level has to be responsible for the digital transformation program and has to push this topic
- A CEO / CIO / CDO who has is a forward thinker, has a change oriented mind set and a transformative vision
- If you don't have the right people yet, get new talents with the required skill set to join your company

The Triangle of Digital Transformation

Factors which need to be considered to get your organization ready for the digital market



Organization Structure



Function and role of the IT has to change

IN THE PAST

1. Support function
2. Technology a separate function
3. Automation
4. Cost center

MOVING FORWARD

1. Strategic partner
2. Integrate technology into business strategy
3. Information and innovation
4. Competitive asset

Establish a company culture which supports Corporate Entrepreneurship



How do you enable employees to be entrepreneurial?

1. Cultivate their entrepreneurial mindset, motivations, and behaviors
2. Enable them to see entrepreneurial opportunities in the industries and markets
3. Allocate resources, Innovation doesn't come for free
4. Provide encouragement and support from the senior leadership of the company
5. Offer reassurance that even if the ideas fail, the individual will not be unduly penalized

Corporate Entrepreneurship in Action

Examples of Corporate Entrepreneurship

- Google allows 20% time for personal projects.
- The Facebook “Like button” and the Facebook chat was first prototyped in one of Facebook’s regular hack-a-thons.
- Shutterstock hosts an annual hack-a-thon over the span of 24-hours.
- W.L. Gore gives employees 10% of their work day to develop new ideas and work on personal projects.
- Lockheed created Skunk Works in 1943 as an autonomous organization with a small, focused team.



Give your employees time. If you squeeze them like lemons you might get lemon juice, but no innovations!

Set up an Infrastructure for corporate Entrepreneurship

Don't forget to create the create a formal structure for corporate Entrepreneurship and communicate it

Why stay?

- Corporate entrepreneurs tend to be mavericks whose philosophies and ideas are at odds with those of the organization
- Many may quit to form their own businesses, and take their ideas and innovative spirit with them

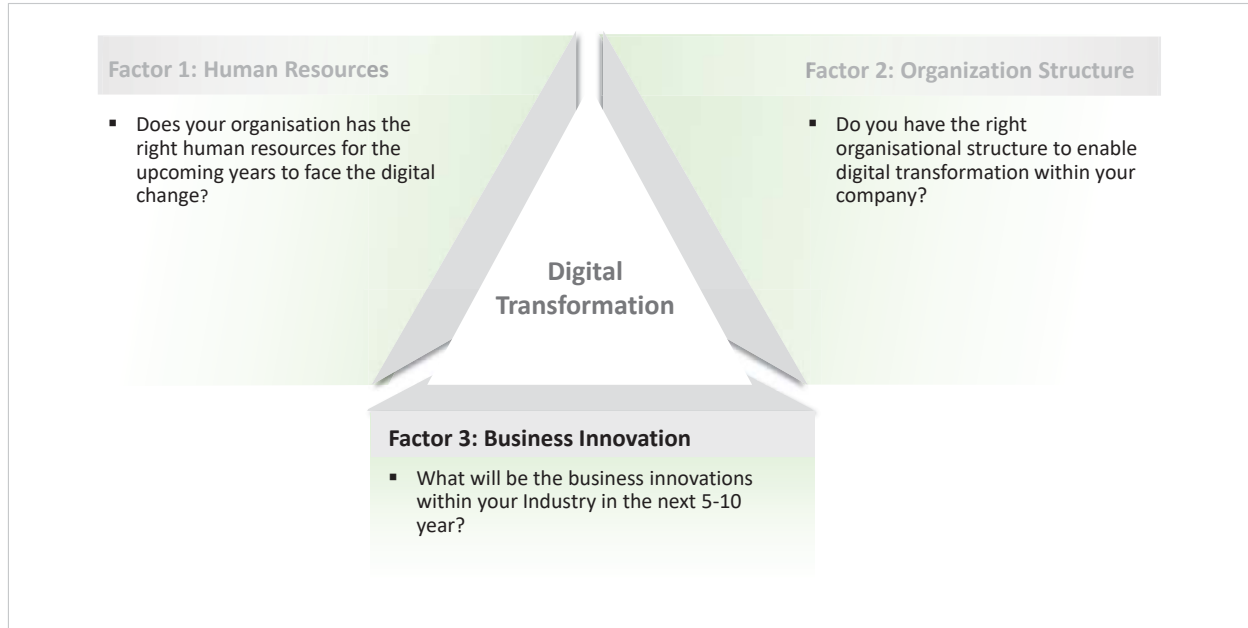


Design a career path for corporate Entrepreneurs!



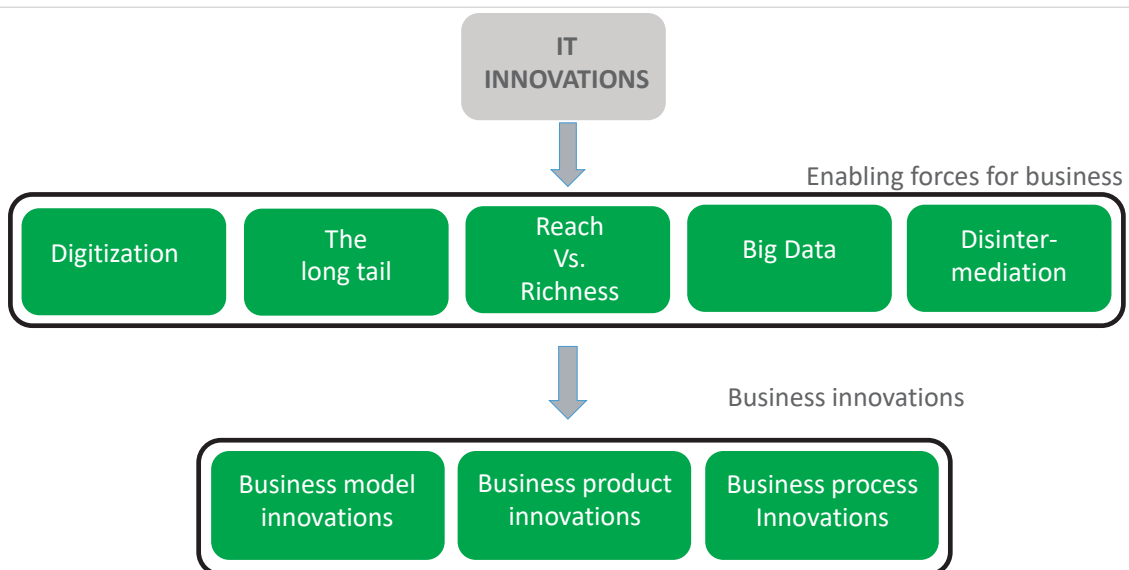
The Triangle of Digital Transformation

Factors which need to be considered to get your organization ready for the digital market



Business Innovation

Driver and enabling forces of digital innovations



Contact



88Spares Pte. Ltd.

28 Bukit Pasoh Rd
089842 Singapore

One Pacific Place Sudirman Central Business District 15th Floor
Jl. Jend. Sudirman Kav. 52-53 Jakarta 12190 Indonesia



+ Hartmut Molzahn

CEO / Co-Founder

- Cell: +62 8111 752 321
- Landline: +65 6221 2440
- E-Mail: hartmut.molzahn@88spares.com



Digital
Technologies
For the Factory of
the Future

Prof. Dr. em. Marc Van Parys
ITMF-Congress 2017 Bali - Indonesia



Global **warming** of earth

WE HAVE **ONLY ONE** EARTH

WAR AGAINST **P**OLLUTION

Scarcity of natural of Resources

Re-inventing our textile industrie
is a ... **MUST FOR the**
Factory of the
Future

*Out with the old
In with the new !*

Who seeks shall
find, who
investigates shall
expercience





DISRUPTIVE TECHNOLOGIES



Digital Technologies



FACTS

> 1.5 billion
m²

Number of
printers
> 36.000

CAGR: > 4%

Source: WTIN - Dystar

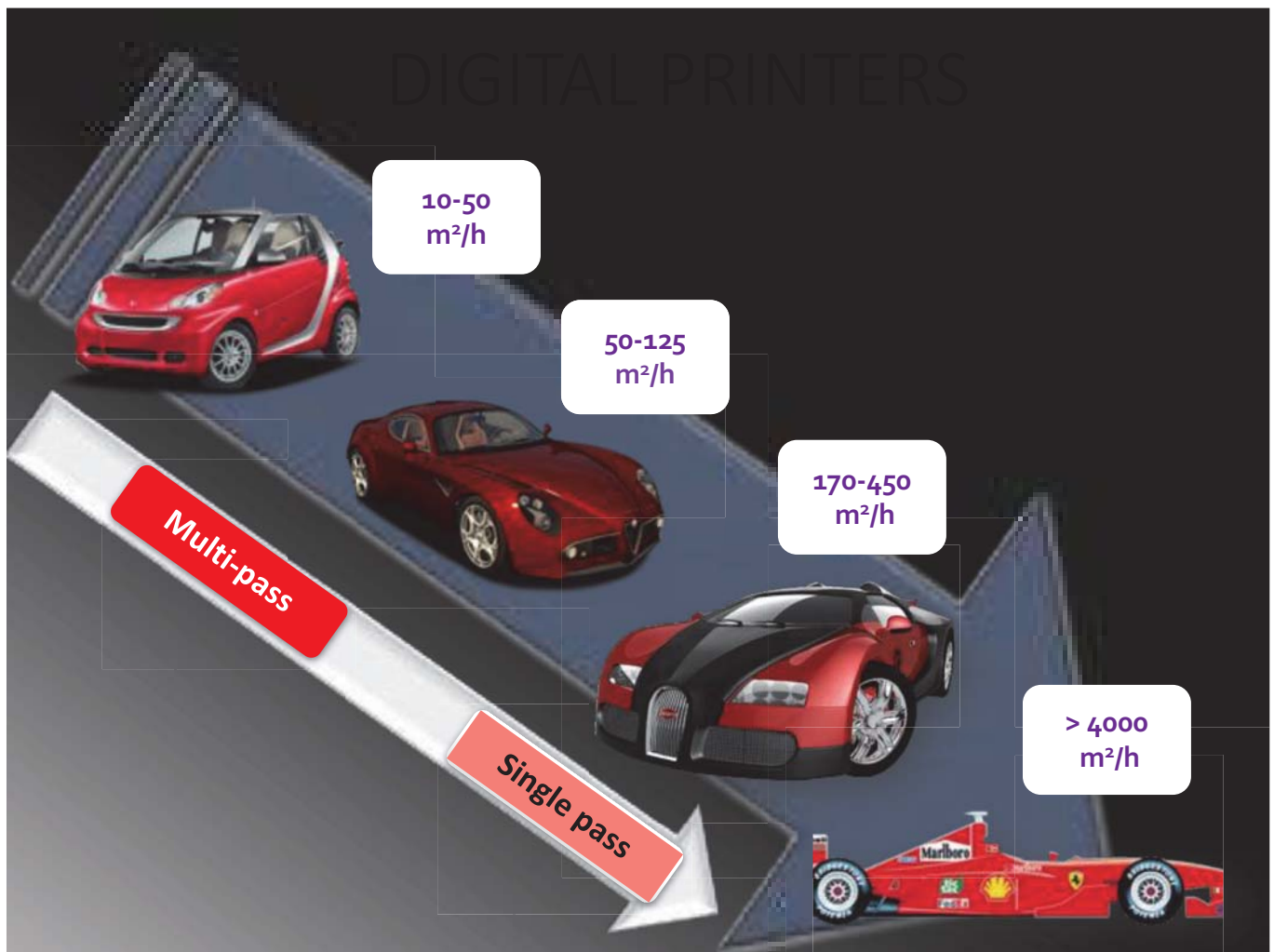


Investments in Digital Technologies - TOP 6 countries



Source: WTIN

DIGITAL PRINTERS



More developments on hardware

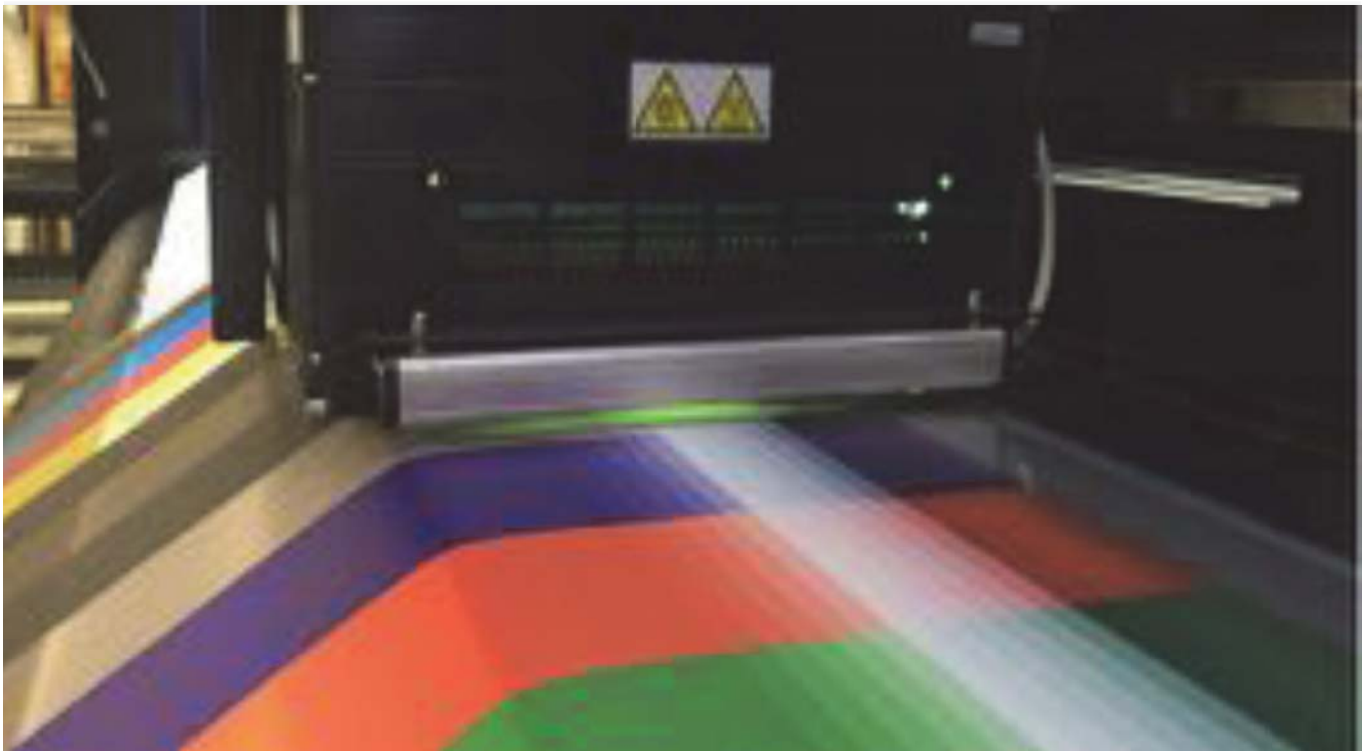


- **EXTRA broad printers (5-12 m)**
- **Double sided printer**
Same ink – Different ink

DP-printer 12 m width



Double-sided Printers





Double-side Printer

BENEFITS

1. Creative

2. Technical

3. Future proof



Digital Printing **BENEFITS**



Min. set-up
costs



Minimum
waste



Personalisation
Mass
Customization

NEW Business Models

Fashion says
"me too"

Style says
"only me"
(Geraldine Stutz)



DIGITAL TECHNOLOGIES fulfil the need for personal
expression

Kornit_{222/303}



Testimonial Screen versus Digital printing

Rotary 6 colour
printer 50 – 60 liter
water/lm

Digital for fashion
designs 14-20 liter
water/lm

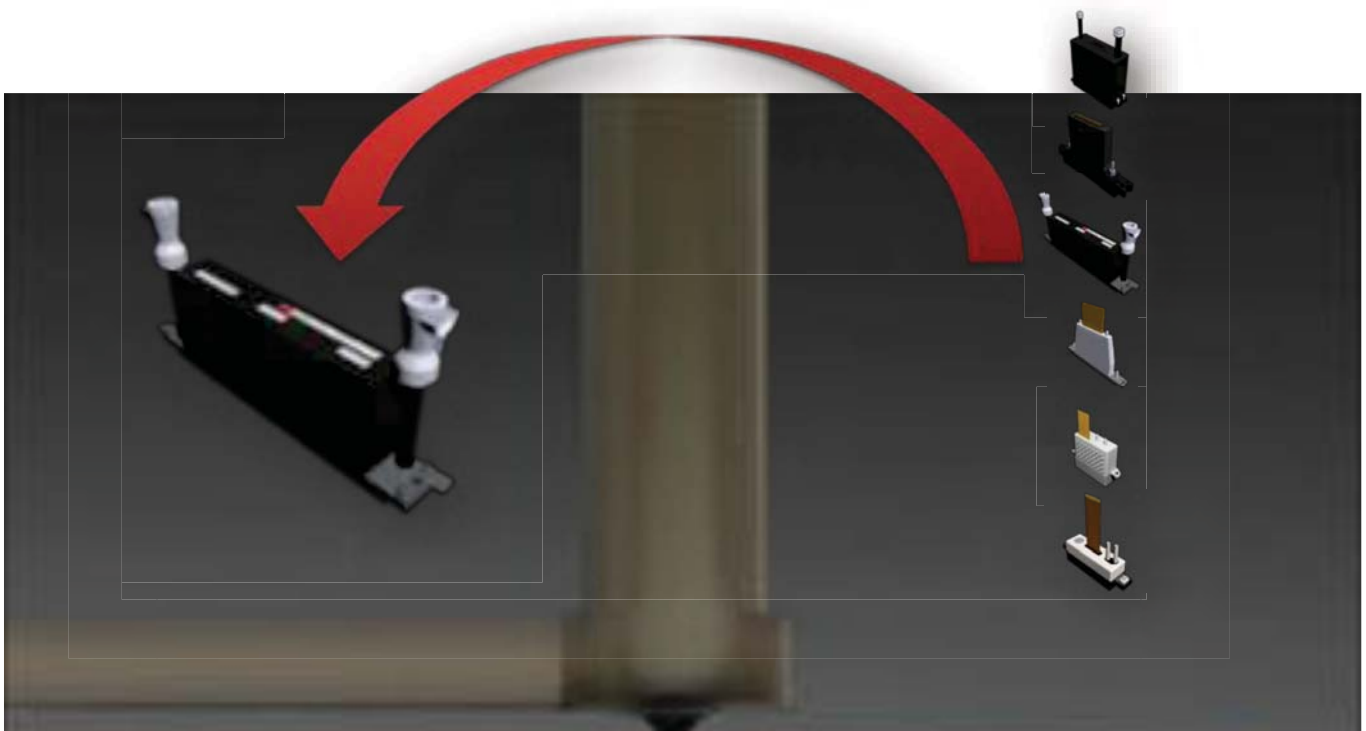
Saving of 60-70%

**Water
consumption**

Suspose all linear
meters printed change
from rotary to digital

Saving of 760 billion liters of
water

Equals 300.000 olympic
swimming pools



**Development of new Printheads:
Variable droplets/higher volumes**



MORE POTENTIAL FOR JETTING
VISCIOUS DISPERSIONS WITHOUT
CLOGGING THE NOZZLES

New Piëzo-based print head
drop volumes from pico litres up to 100 micro litres per second



Digital Finishing/Coating

Are you following Trends?



Better being a TRENDSETTER !

KEYWORDS ARE:

CREATIVITY

SMARTNESS

FUNCTIONALITY

Ceativity

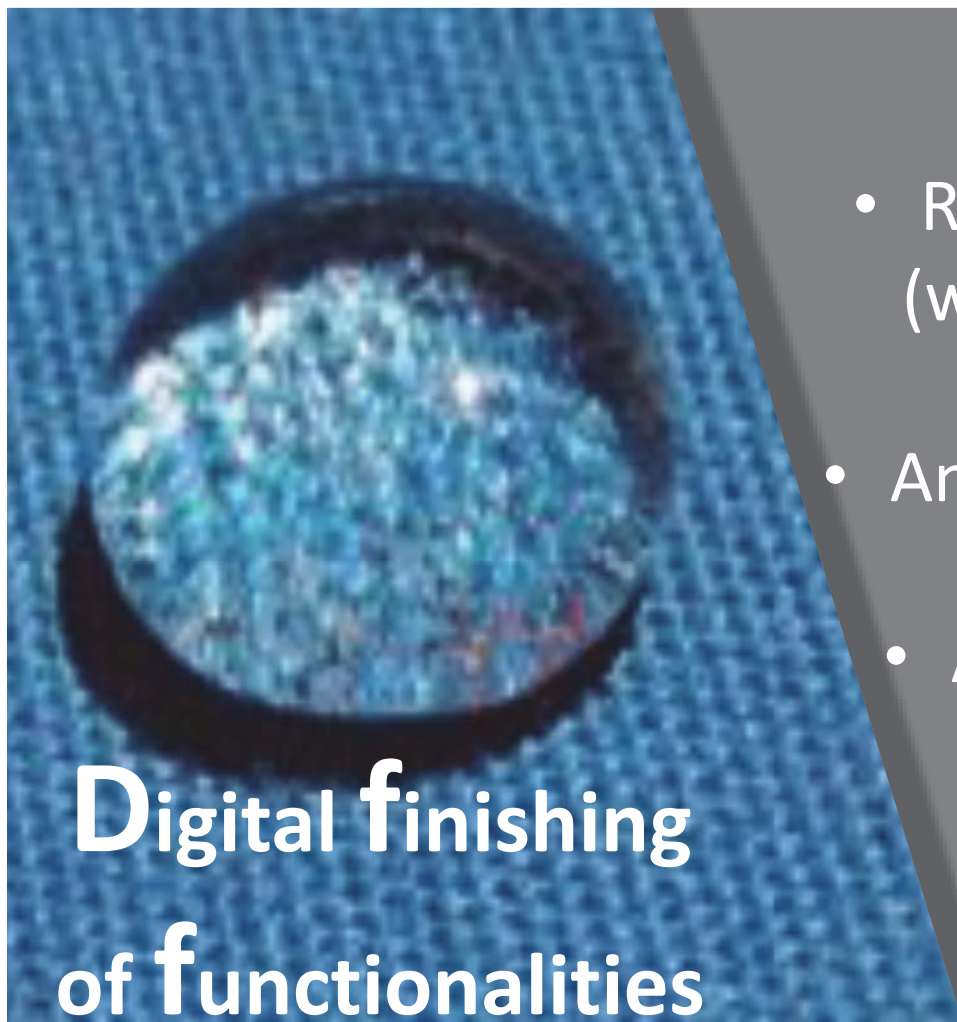
COLOUR = PROFILING

Ceativity

COLOUR = INSPIRATION



Creating illusions

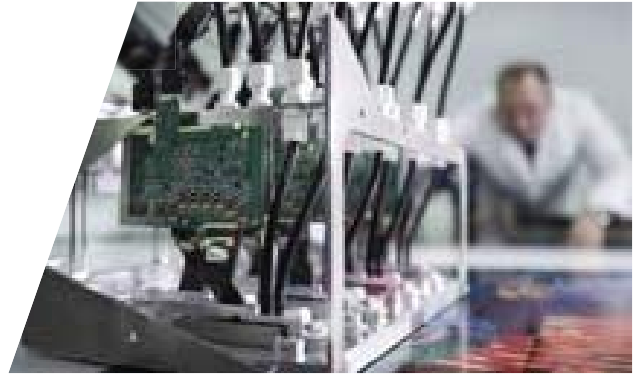


- Repellency (water – oil)
- Antimicrobial
- Antistatic

Digital finishing of functionalities

Digital Finishing/Coating

- Uniform application
- **Local or selective patterning**
- Deposition on ONE side
- Deposition on BOTH sides
 - SAME product
 - DIFFERENT product



Local Functional Deposition

Smart Textile

Smartness

- *Responsive*
- *Interactive - Communicative Textiles*





COLOUR = COMMUNICATION



COLOUR = RESPONSIVE



- **DESIGNING with:**

- **Electroluminescence inks**
- **Conductive inks**
- **Chromic sensors**

Electroluminescence inks

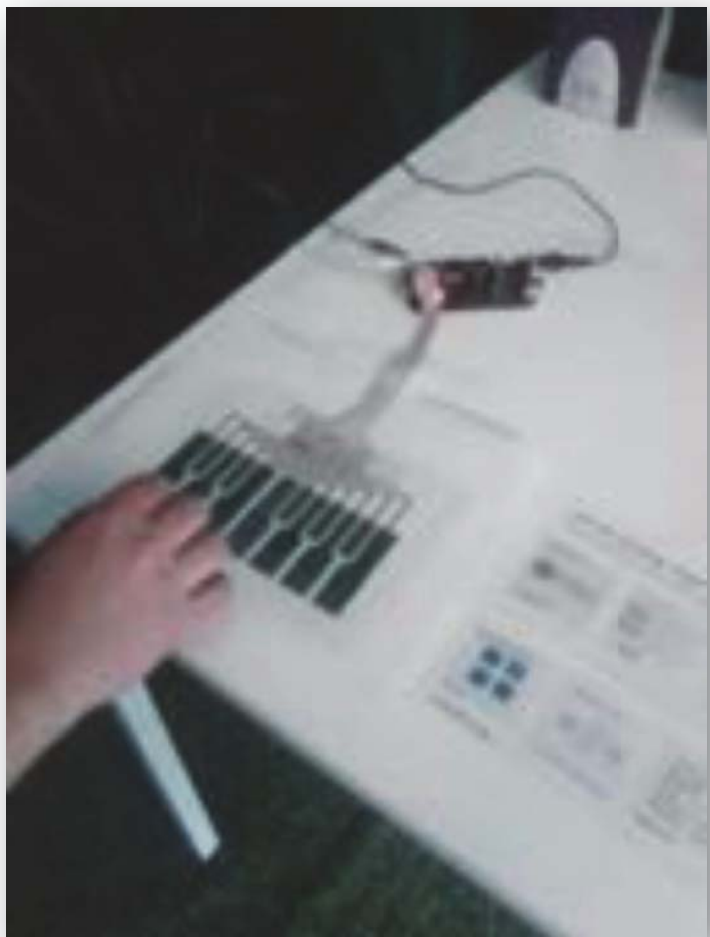
Textile materials emitting light in response to an electric current passing through them or to a strong electric field being applied to them.



**And then
there was light**



**Musical
Textile**



Interactive textile



Can we change people's attitude? and get more people to take the stairs over the escalator?

Answer: by making it fun to do !



Invisible encoding

Development of waterborne and
100% UV LED-curable encoding inks

- Anticounterfeiting fabrics
- For tracking and tracing



Playing with UV-inks



Textile **HERE** is **ART**



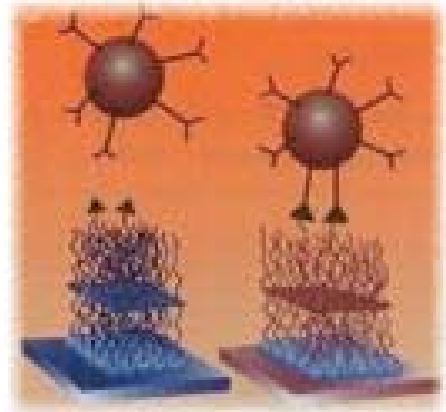
Specialty inks: Bacteria markers



E.coli



Salmonella



Sensing:

1. Microbial contamination
2. Durability of AM-treatment

*Interaction between printed textile
and e-devices (ipad, iphone ...)*

‘LIVING TEXTILE’



Daily exercise



Every morning in Africa a antelope wakes up, it knows it must outrun the fastest lion, or it will be killed.

Every morning a lion wakes up, it knows it must run faster than the the slowest antelope, or it will starve to die.

It doesn't matter if you are a antelope or a lion, when the sun comes up, you'd better be running!

Digital Technologies

transform even SMEs
in 'big' successful companies



Prof. Dr. Em. Marc van Parys
info@unitex.be
Mobile: +32 475 68 75 05

Many thanks



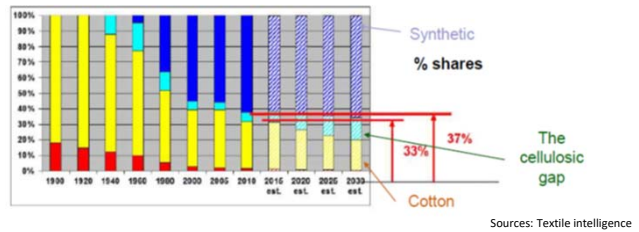
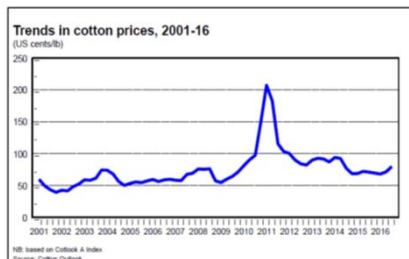
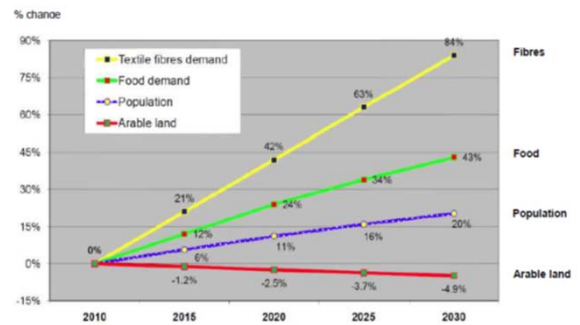
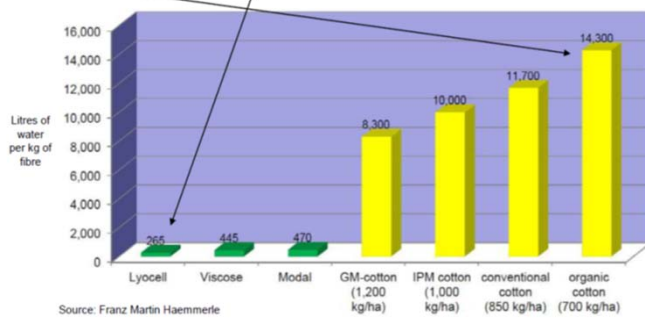
FIBERS and sustainability

Fibers evaluation regarding respect of the Environment

Solutions to increase sustainability : Bio-based polymers and friendly environmental fibers



KEY FIGURES



A TO DO LIST AND NOT A WISH LIST

- Improving the sustainability of cotton textiles
- Improving the sustainability of man- made fibers
 - Man-made cellulosic fibers
 - Synthetics
- Looking at friendly environmental fibers (like flax)
- Re-engineering the textile processes, labelling
- Upcycling initiatives



ECO-DESIGN & Collaborative Design

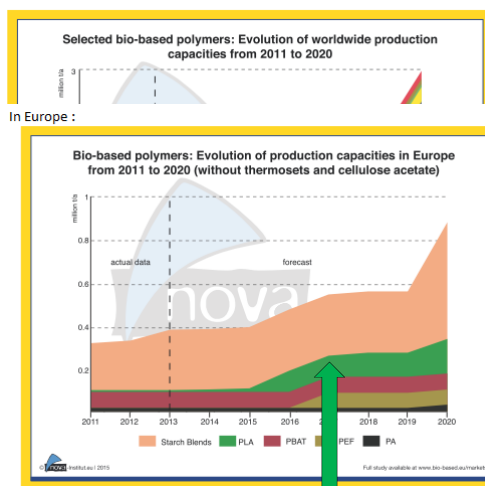
How to reduce the impact of your products and develop them with your value chain

Eco-design business case: The eco-design of a bio-based, biodegradable WIPE using a “*Business design*” process.





The **eco-design** of a bio-based, biodegradable **WIPE** using a “*business design*” process.



Produced by numerous companies worldwide, with NatureWorks as market leader, PLA is the most well established new bio-based polymer.

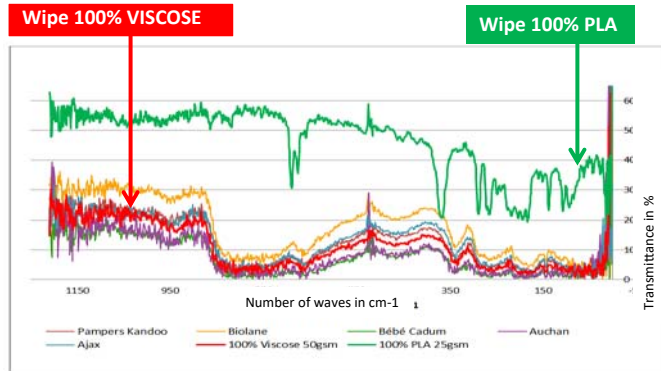
PLA market is still expected to grow further, with a projected fourfold growth between 2013 and 2020.

PLA can already be found at near-comparable prices to fossil-based polymers.

PLA

WIPES BENCHMARKING ON THE FRENCH MARKET

Identification of raw materials in of 4 wipes brands : Pampers, Kandoo, Biolane, Bébé Cadum, AUCHAN



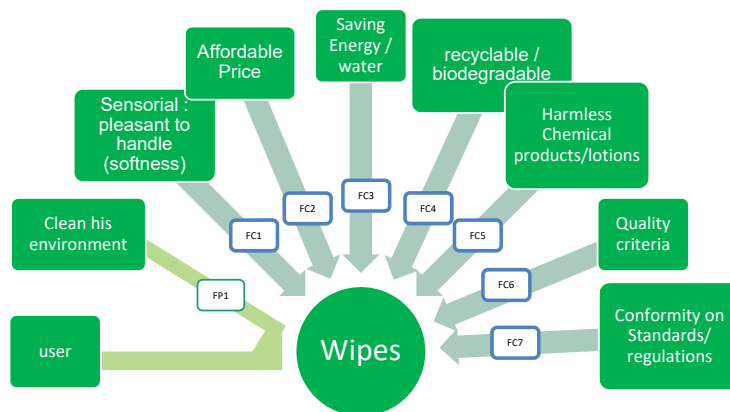
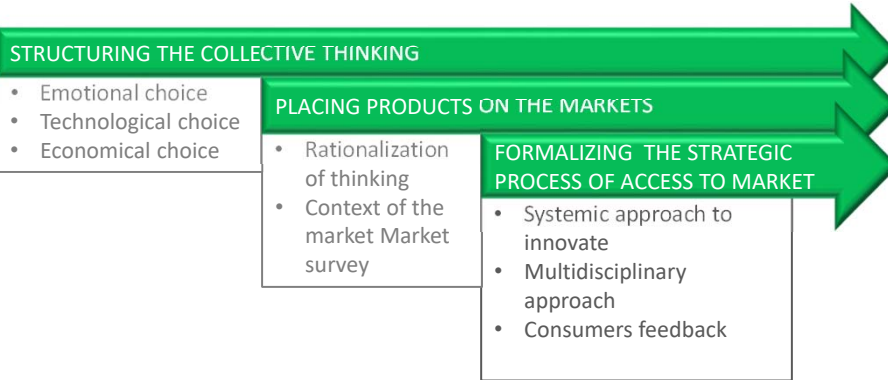
Infrared tests made by HEU/SEN/SA November 2014 - Spectrum of wipes currently in the market

Infrared Analysis: No wipes using 100% PLA are available on the French market actually

INTEGRATE THE HABITS OF FINAL USERS IN THE CENTRE OF THE REFLEXION

Access to a business design methodology through a software based on 5 keys values





- FP1 : allows the user to clean his environment
- FC1 : is pleasant to handle (softness)
- FC2 : is FC3 : consumes little energy and water when manufactured and used
- FC4 : is recyclable / biodegradable
- FC5 : is healthy and without danger for the user
- FC6 : has qualitative criteria that validates the product and facilitates its use
- FC7 : respects environmental and security standards

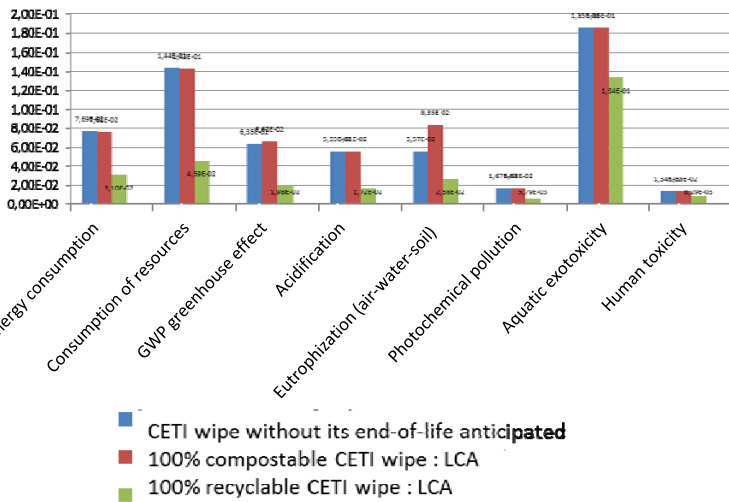
PROTOTYPING OF A BIODEGRADABLE, BIO-BASED WIPE

- **PROCESS 1** : Nonwoven Drylaid process with 1Xhydro entanglement for web consolidation
- **PROCESS 2** : Nonwoven Drylaid process with 2Xhydro entanglement for web consolidation

Trial	Composition	Process	g/m ²	MD Resistance N/5cm	MD Elongation %	CD Resistance N/5cm	CD Elongation %	Permeability 196 Pa l/m ² /s	Thickness 0.5 kPas (mm)	Compositions made of 100% biodegradable materials (PLA base) have characteristics similar, if not better, to those made with petro-chemicals (PP base)
1	V 100%	1	50	35	42	18	112	3846	1.25	
2	V/PP 70/30	1	48	30	70	13	148	4204	1.05	
3	V/PLA 70/30	1	48	31	45	13	130	4486	1.49	
4	V 100%	2	61	108	15	37	84	2180	0.52	
5	V/PP 70/30	2	65	88	24	36	115	2354	0.65	
6	V/PLA 70/30	2	63	94	23	42	78	2588	0.6	

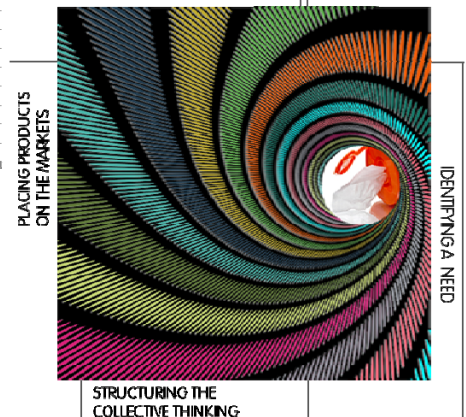
MIXING BUSINESS DESIGN AND VIRTUOUS PROCESS: THE KEY FOR SUSTAINABLE TEXTILE

Point(s) – in the CO2 equivalent one a day of an average European



BUSINESS DESIGN APPROACH

LCA ANALYSIS



CIRCULAR ECONOMY in the textile industry/ Sustainable Fashion

**Big brands and their
sustainable strategies**

Key points about Sustainable
Fashion



KEY POINTS ABOUT SUSTAINABLE FASHION

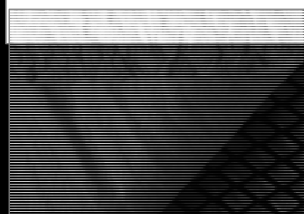
NEW MARKETS & NEW IDEAS

Diversity - Creativity

Use of
**bio-sourced
materials**



**Lightening of
textile structures**



**Recyclability &
UPCycling**



ADIDAS AND “THE SPORT INFINITY INITIATIVE”

Creating new fibers from recycled raw materials in football sporting goods, a research project « Sport Infinity » realized in the context of the H2020 European Commission.



DECATHLON AND THE “REWIND INITIATIVE”



Identify a new business model adapted to commercialize textile made from post-consumer recycled cotton for woven or knitted products.



Structuring a local textile chain: collecting, sorting, dismantling raw material preparation and article production from recycled fibers. This sustainable project is a model that is economically viable and therefore can also be reproduced elsewhere.

THE DECATHLON/TDV INITIATIVE



Conception of a pilot Recycling/Upcycling technological platform at CETI for the R&D (sorting/fraying/Carding/open-end spinning) and industrial transfer of the fraying equipment at TDV Industries

Expansion of textile deposit ; sorting and demantling selected products; transformation into yarn (higher added value), maximise percentage of recycled fibres in article composition, reduce environmental impact.



SNCF AND THE “POLYCOTTON + INITIATIVE”

A French green deal : a new polyester / cotton recycling solution for professional clothing and workwear



De gauche à droite : Laurence MONNOYER-SMITH – Commissaire générale au développement durable, Sophie-Noëlle NEMO – Directrice de la Délégation à la Transition Energétique La Poste, Richard PAPIN – Président Innortex/Moncorgé, Christian DUBOST – Directeur du Développement Durable SNCF, Antoinette GUHL – Adjointe à la Maire de Paris en charge de l’Economie sociale et solidaire, de l’Innovation sociale et de l’Economie circulaire, Hervé CLERBOUT – Directeur Sympatex, Hélène DE LA MOUREYRE – Fondatrice de bilum, Emmanuel MACRON – Ministre de l’Economie, de l’Industrie et du Numérique, Nathalie BOYER – Déléguée générale d’ORÉE, Michel LOPEZ – Vice-Président « Clubs Métiers Recyclage » d’ORÉE.

SNCF AND THE “POLYCOTTON + INITIATIVE”

Placing on the market a new polyester / cotton recycling solution for professional clothing

OBJECTIVES:

- Control the flow of the deposits (pools of materials) to be recycled by fine sorting according to materials and colors assisted by an automated device allowing its industrialization
- Automatically eliminate non-textile hard contaminants using a Jumbo Picker shredder placed at the entrance of *the fraying line*
- Develop and improve fraying and spinning equipment to optimize the quality and cost of fabrics or knits made from recycled polyester / cotton fibers



Fraying

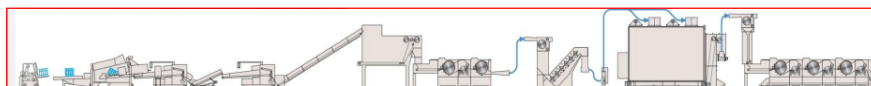
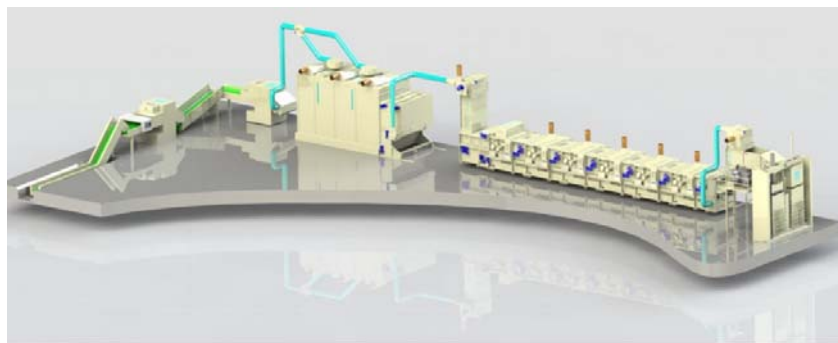


Opening fibre



Open-end spinning => recycled yarn

A UNIQUE UPCYCLING PILOTE LINE AT CETI IN 2018



Automatic
sorting

Baling Press

Fraying

Cutting

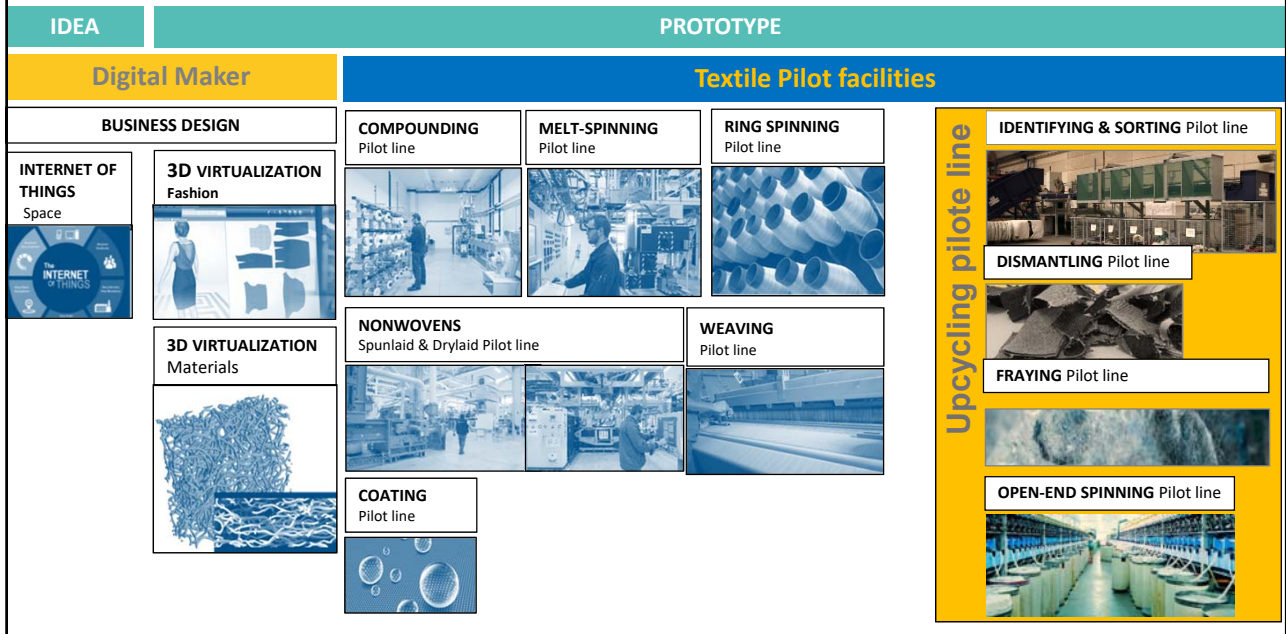
Loading &
blending fibers

Opening fibre

Carding

Open-end
spinning

CETI –UNIQUE PILOTE LINE IN THE WORLD



Training course



TEXTILE AUTUMNCAMPS
PARIS

From November 29th
to December 1st,
2017

The metamorphosis of textiles
for an environmentally sustainable future

MORE INFORMATION CONTACT@CETI.COM

CETI CENTRE EUROPEEN DES TEXTILES INNOVANTS



THANK YOU FOR YOUR ATTENTION

Pascal Denizart

CEO

Pascal.denizart@ceti.com

+33 3 62 72 61 00

41 rue des Métissages
59335 Tourcoing - France

– GHERZI PRESENTATION –

ITMF

ITMF Annual Conference 2017 / Bali, Indonesia

**A New Era for Nonwovens:
Drivers and Opportunities**



Laurent Aucouturier

Gherzi Textil Organisation AG

16th September 2017

About GHERZI

We are a global Management Consulting and Engineering company.

Gherzi is a leader for strategic development and expansion of companies in the textile industry, from production to retail.

Our services range from Engineering of new factories to strategy consulting as well as corporate finance.



Content of this Presentation

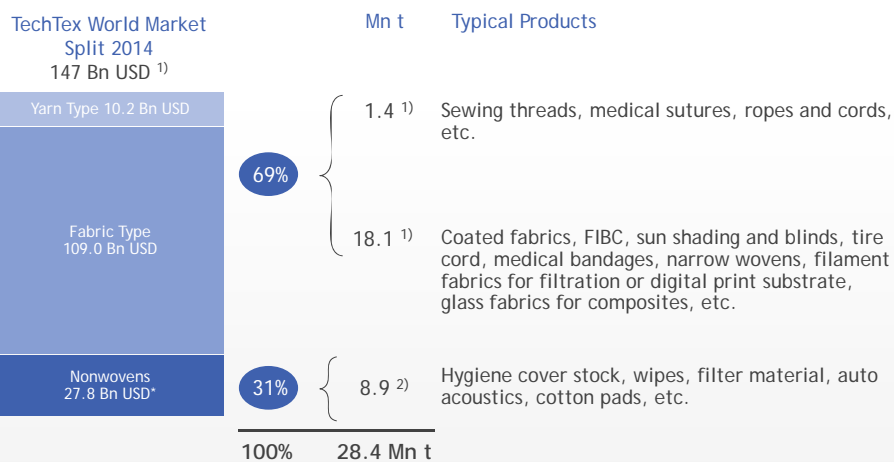
Above average
Growth of
Nonwovens

Drivers and
Opportunities

Conclusions

Above average Growth of Nonwovens

In 2014, 31% of world Technical Textiles ('TechTex') consumption in volume (tons) concerned Nonwovens



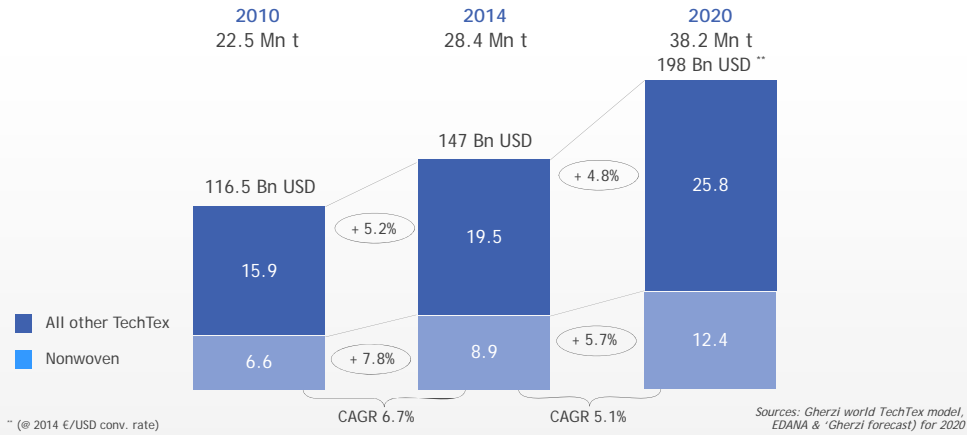
*nota bene.: 35.6 Bn USD as of EDANA (Gherzi world TechTex market model has different average prices)

Sources: ¹⁾ Gherzi world TechTex consumption Model, ²⁾ EDANA

Above average Growth of Nonwovens

On a global scale, Nonwovens are outgrowing yarn type and fabric type Technical Textiles

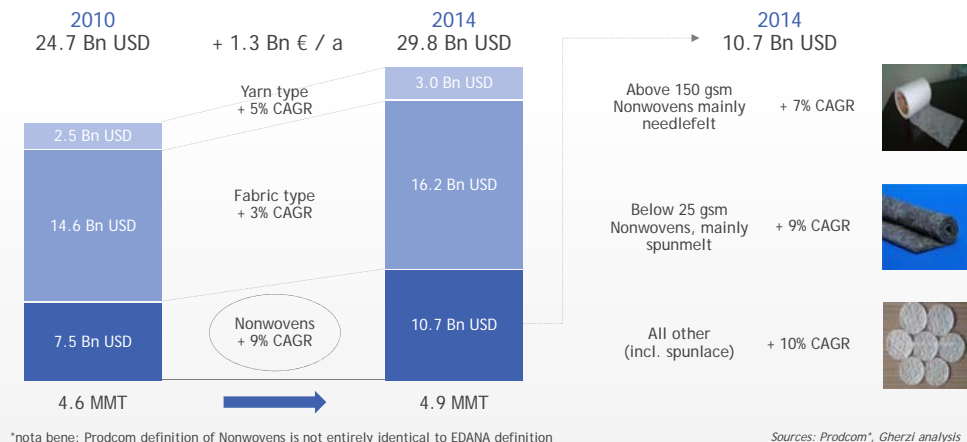
World TechTex Market Growth



Above average Growth of Nonwovens

EU TechTex production has grown at 1.3 Bn USD p.a. between 2010 and 2014. 62% of this growth has been generated by Nonwovens (+ 0.8 Bn USD/a)

EU28 TechTex Production



Content of this Presentation

Above average
Growth of
Nonwovens

Drivers and
Opportunities

Conclusions



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Drivers and Opportunities

Three Nonwoven Growth Drivers

1. Nonwovens becoming an
increasingly global business

2. Nonwovens eating into the
share of wovens and opening
up new so far non-existing
markets

3. Growth through 'new'
Nonwoven technologies
or functions



GHERZI

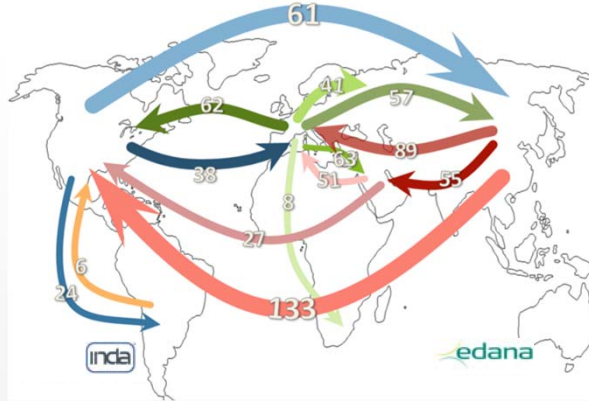
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Drivers and Opportunities - Increasing Globalisation

... not only but also FTAs have been supporting the globalisation of Nonwoven sales

International trade flows of nonwovens roll goods in 2014 (k tons)

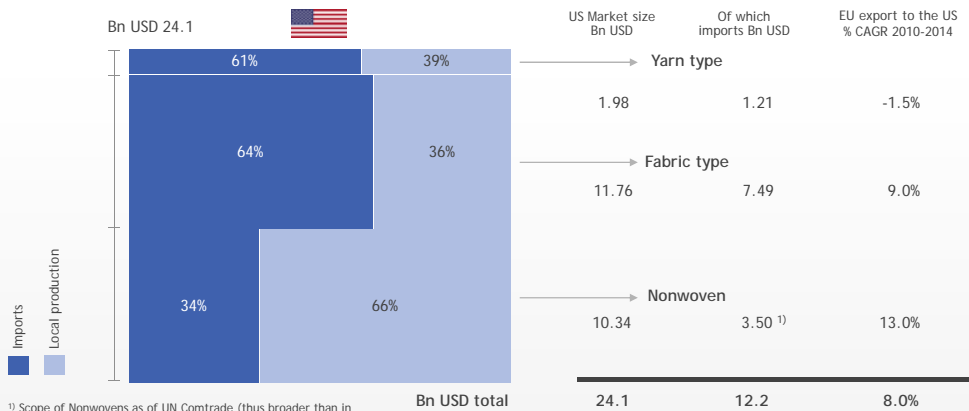


Source: National statistical institutes

Drivers and Opportunities - Increasing Globalisation

In general, the USA is an 'import friendly' market with 12 Bn USD Technical Textiles being imported in 2014

US TechTex market scenario 2014

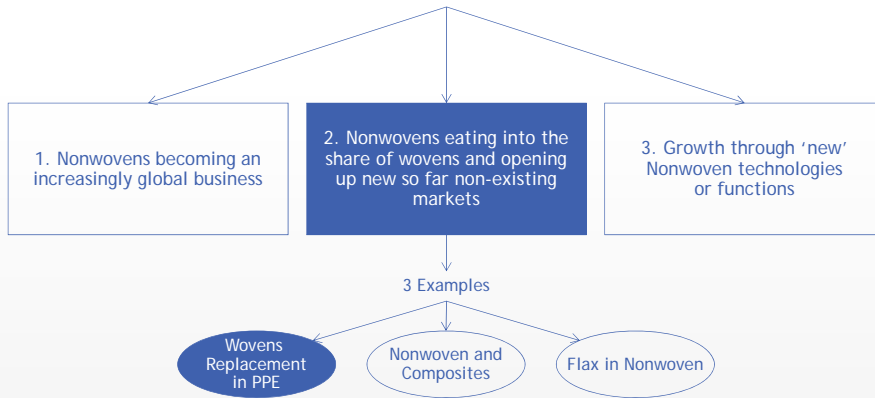


¹⁾ Scope of Nonwovens as of UN Comtrade (thus broader than in the EDANA (Inda) definition), e.g. including HS code 961900 (sanitary towels, tampons and napkins + napkin liners for babies and similar articles of any material)

Sources: Gherzi world and regional market model, UN Comtrade, Gherzi estimates

Drivers and Opportunities

Three Nonwoven Growth Drivers



Drivers and Opportunities - Wovens replacement in PPE

The vast majority (est. 70%) of the world PPE fabric market is still occupied by wovens. The Nonwoven share has risen to > 20%, though

World PPE Fabric Market 2015

8.0 Bn USD



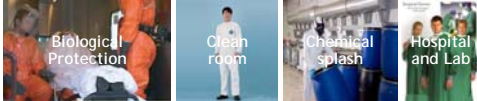
■ Wovens
■ Knits + other
■ Nonwoven

End-Use	Mill US \$ 2015 (est.)	Main technology employed				Main raw material employed
		woven	knitted	Nonwoven	Unspun	
Protech FR clothing	1095	***				PES FR or FR treated cotton
Protech NBC	15	***				activated carbon coated (PES) fabric
Protech cut / slash protection	550	**	***	*		Para-Aramide (Kevlar)
Ballistic protection	290	***			**	Para-Aramide (Kevlar) plus ceramic inserts
Face masks	265			***		PP spunbond / SMS
Dust protection	365	**		***		PP spunbond or PES filament woven
Chemical protection	730	*	*	***		PP or PES spunbond possibly with coating (silicone)
FWC (foul weather cloth)	4400	***				PES filament woven PU coated / with breathable membrane
Hi-visibility fabric	235	***	**			dope dyed PES filament warp-knit or woven
Harnesses	55	***				narrow wovens from dope dyed PP or PES filament
Total world fabric Market	8.0 Bn USD (100%)	70%	8%	21%	bel. 1%	


Sources: Gherzi estimates and analysis

3 examples of nonwovens development in the PPE sector

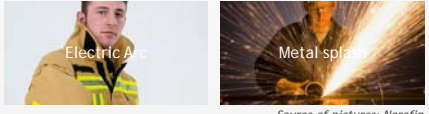
- 1** | Traditional Nonwoven applications in PPE include hospital, clean room and laboratory wear as well as chemical and biological protection (all chiefly based on spunmelt Nonwovens)



Source of pictures: Du Pont (Tyvek) and Dach Schutzbekleidung GmbH
- 2** | Spunmelt Nonwovens have also started to eat into the woven shares in oil and gas (against plain Poly-Cotton and FR treated cottons) as well as FWC (against coated or membrane laminated wovens)

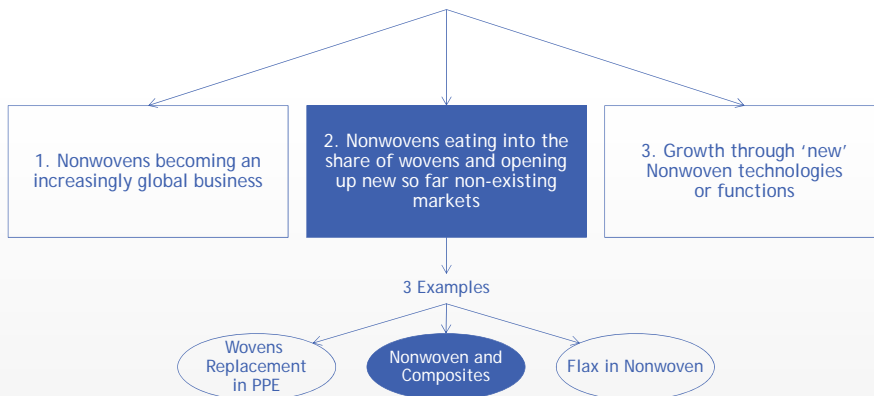


Source of pictures: Du Pont (Tyvek)
- 3** | The carded - spunlace Nonwoven technology route has opened further PPE fabric markets to Nonwovens outside of the spunmelt occupied applications and product segments



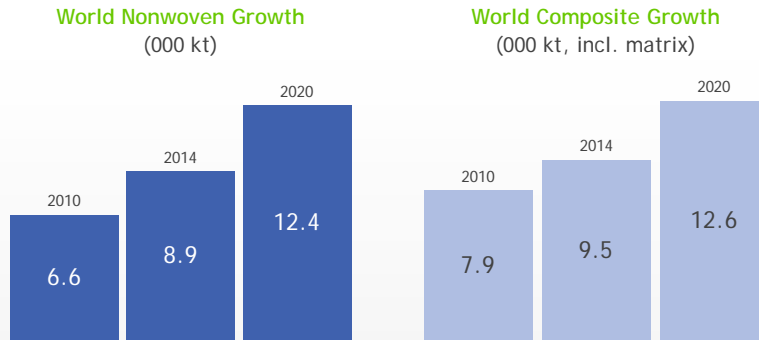
Source of pictures: Norafin

Three Nonwoven Growth Drivers



Drivers and Opportunities - Nonwovens and Composites

Nonwovens & Composites - Convergence of two fast growing sectors



Sources: JEC, EDANA, Gherzi estimates

Drivers and Opportunities - Nonwovens and Composites

5 examples of nonwovens and composites interdependencies

- 1 | Carbon Fibre waste recycling (carded stichbonded nonwoven)

SGL
SGL GROUP
Germany


 - Mobiltech
- 2 | PET needlefelt nonwoven as GFRP or CFRP improvement media

LANTOR
Germany


 - Composites
- 3 | Spunlace carded nonwovens as composite reinforcement substrate


Norafin
Germany


 - Protech
 - Buildtech
 - Sporttech
- 4 | Spunbond PA Nonwoven as surface quality improvement

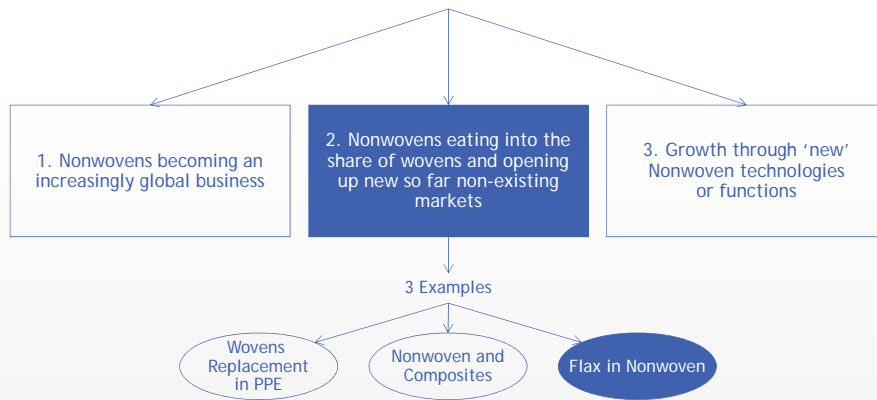
Asier
USA


 - Sporttech
- 5 | Wet Laid Nonwoven as surface quality improvement

Optiveil
UK


 - Composites

Three Nonwoven Growth Drivers



Non-carbon fibers for composite nonwovens: Flax appears as one of the currently most interesting fiber

Why?

45% lighter as glass fiber



Mechanical strength similar to glass

Cradle-to-Cradle compatible (with corresponding matrix)

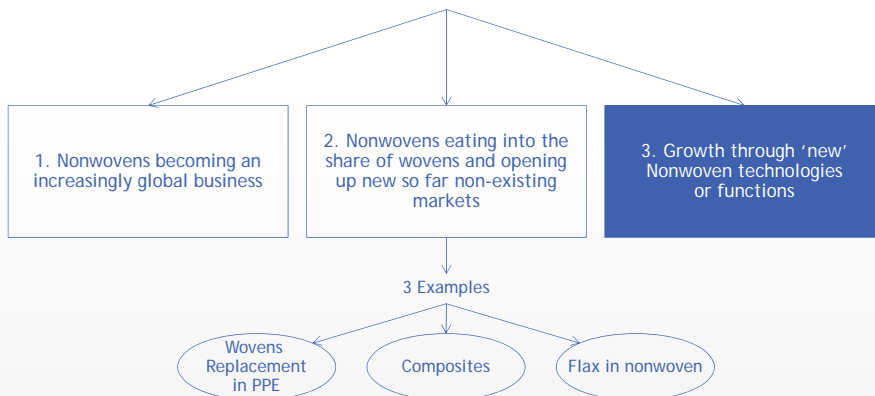
Sustainability image und eco-look

Cost-effective (suitable for cars)

3 examples of flax nonwovens development

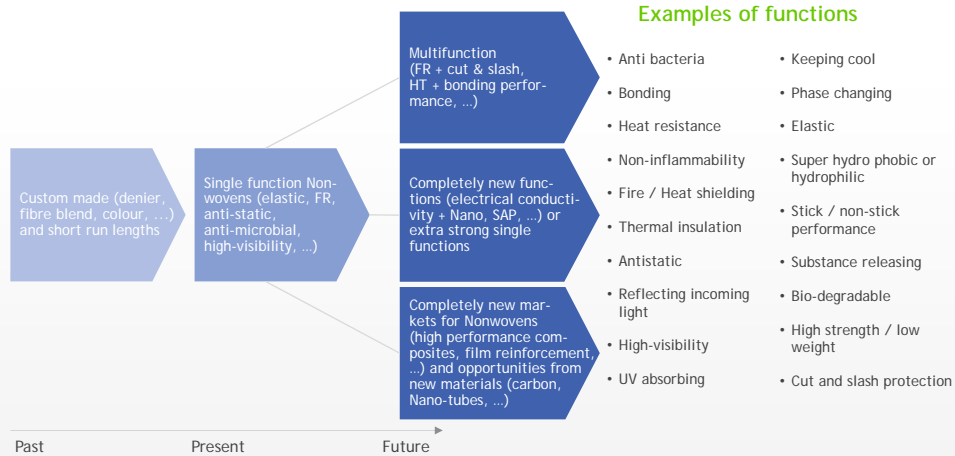
1	 France	Ecotechnilin, France (www.ecotechnilin.com) produces 6.5 kt flax nonwoven p.a. and other natural fibre for composites - compression moulding. (With suitability for semi-structural components)	
2	 France	Lineo, France (www.lineo.eu) has developed a polyester/ flax unidirectional prepreg with Faurecia for passenger car composite interior structures	
3	 Germany	Isowood, Germany (www.twe-group.com) runs tests with STFI Flachs / CF for lightweight passenger car door linings	

Three Nonwoven Growth Drivers



Drivers & Opportunities - Functionality

High value added (per kg) product trends in Nonwovens: from custom made to Multifunction



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Content of this Presentation

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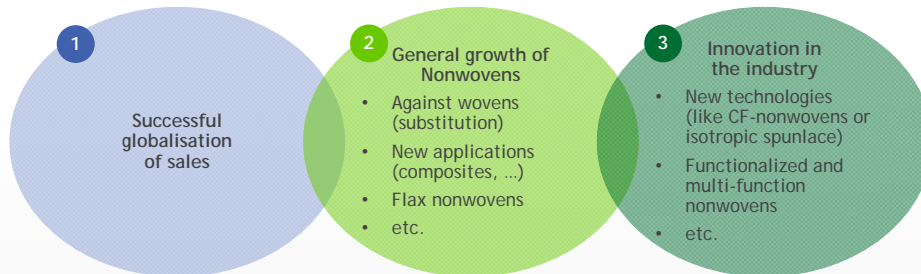
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Conclusions

Nonwoven production is and remains a growth industry



Future growth depends on

1 | Continuing high investments into manufacturing technology and R&D

2 | Possibly more and more delocalised plants closer to the final user (ex. in the USA)

Thank you

for your interest and attention



Gherzi Textil Organisation AG
Advisors to industry

Dr. Christian Schindler
Director General
ITMF

«The Global Textile (Machinery) Industry in Disruptive Times»

ITMF Annual Conference 2017
September 15, 2017
Bali / Indonesia

03.10.2017

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- 1) Situation & outlook for the global textile/apparel industry for manufacturing
- 2) New disruptive technologies and innovation in textile manufacturing
- 3) Where are currently the areas of investments in manufacturing?
- 4) Implications for the global textile industry

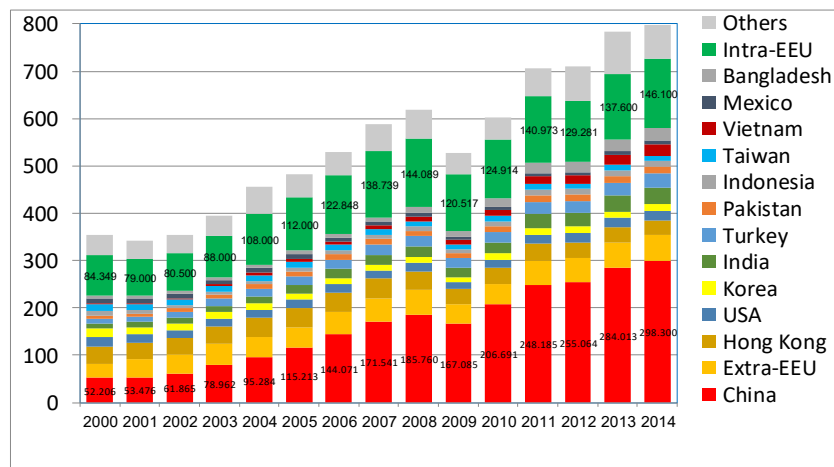
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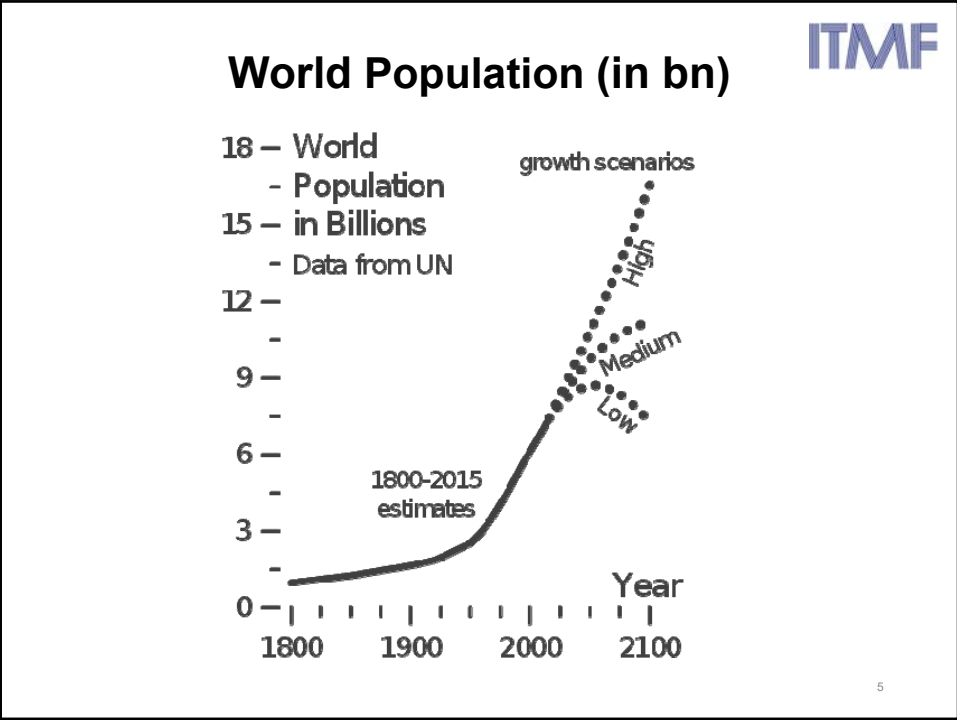
- 1) Situation & outlook for the global textile/apparel industry for manufacturing
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Textiles & Clothing Exports 2000 – 2014

by exporters -



Quelle: World Trade Organization, International Trade Statistics



Apparel Market Size of Selected Countries 2015 to 2020

ITMF

Region	Retail value in USD bn, constant 2015 prices, fixed exchange rate		Mean annual growth rate 2015 to 2020 (%)
	2015	2020	
China	276	341	4.3
India	50	70	7.2
Indonesia	8	10	5
Vietnam	2	3	5
Subtotal (C+I+V)	336	424	4.8
Egypt	2.5	2.6	1
Morocco	1.3	1.4	2.3
Nigeria	3.9	4.7	3.6
South Africa	8.9	9.6	1.6
Subtotal (E+M+N+SA)	16.5	18.3	2.1
USA	267	289	1.6
EU	299	303	0.3
USA and EU combined	566	592	0.9
World	1'306	1'475	2.5

Source: Euromonitor

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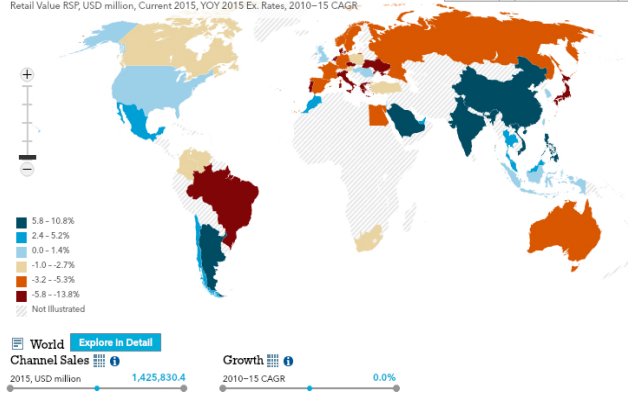
Store-based retailing remained flat while ...

ITMF

Apparel and Footwear Store-Based Retailing

Historic Growth

Retail Value RSP, USD million, Current 2015, YOY 2015 Ex. Rates, 2010-15 CAGR



Global Figure

2010-15 CAGR

0.0

Regional Comparison

2010-15 CAGR

Asia Pacific
Australasia
Eastern Europe
Latin America
Middle East & Africa
North America
Western Europe

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... internet retailing grew strongly since 2010.

Apparel and Footwear Internet Retailing

Historic Growth

Retail Value RSP, USD million, Current 2015, YOY 2015 Ex. Rates, 2010-15 CAGR

Currency Highlight Countries

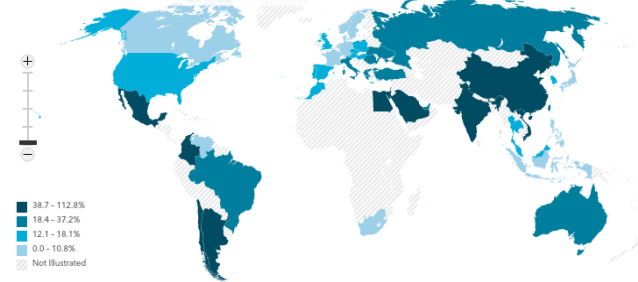
Global Figure

2010-15 CAGR

24.2

Regional Comparison

2010-15 CAGR



World Channel Sales

2015, USD million 199,682.2

Growth

2010-15 CAGR 24.2%

© Euromonitor International 2016

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Competitiveness of the textile and apparel industry

- Textile and apparel manufacturing in constant search for higher productivity:
 - Faster
 - Less labour-intensive
 - Less energy-intensive
 - Less water-intensive

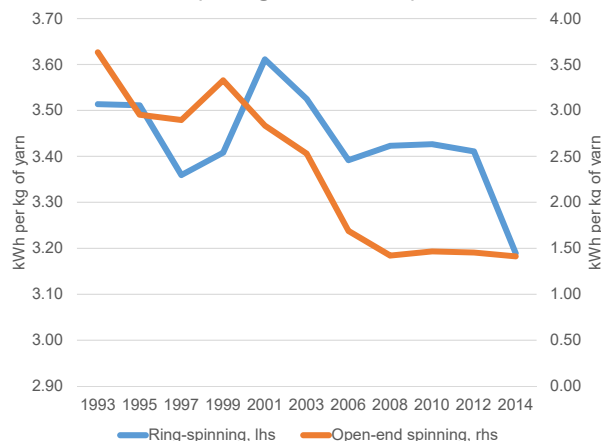


This results in high demand for ever more automated and ever more energy- and water-efficient textile machines

- Necessities for the industry:
 - Increase of R&D activities
 - Networking with suppliers and customers to develop new products (e.g. technical textiles or functional textiles) and processes (e.g. digitization of the textile value chain)
 - Monitoring of market for technological innovations
 - Monitoring of market trends

Energy efficiency has improved constantly

Energy consumption in spinning (average of countries)

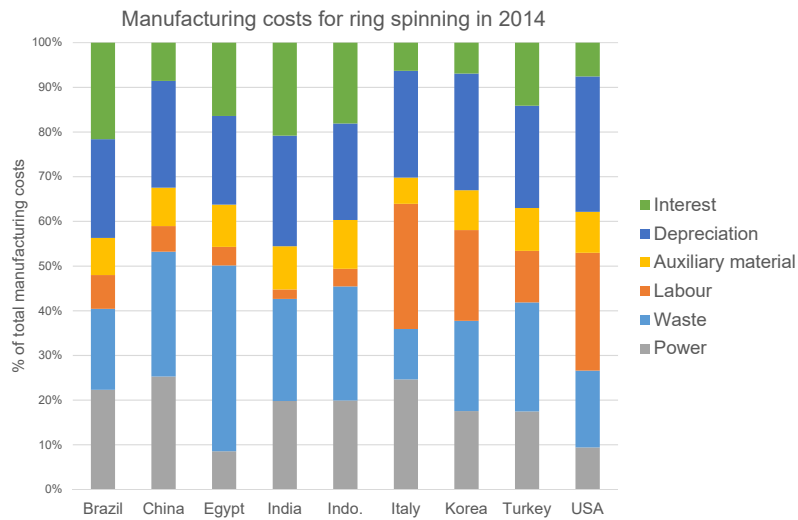


Over the last two decades the energy consumption of **ring-spinning** machines on average of Brazil, India, Italy, Korea and the USA – these countries continuously took part in IPCC since 1993 - **fell by over 9%** from 3.5 to 3.2 kilowatt hour (kWh) per kilogram (kg) of yarn.

The energy efficiency of **rotor spinning** machines improved even more, whereby consumption **dropped from 3.6 to 1.4kWh per kg, a drop of 61%**.

Energy costs in ITMF's survey include the costs relating to the actual power consumption of the machines, the illumination and the air conditioning.

Power Costs: A Relevant Cost Factor



Source: ITMF

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New disruptive technologies & processes

- Digital printing & finishing
- Internet



1) Mass Customization !!!

"... use of flexible computer-aided manufacturing systems to produce custom output. Those systems combine the low unit costs of mass production processes with the flexibility of individual customization." (Wikipedia)

"Producing goods and services to meet individual customer's needs with near mass production efficiency." (Tseng, M.M.; Jiao, J. (2001)

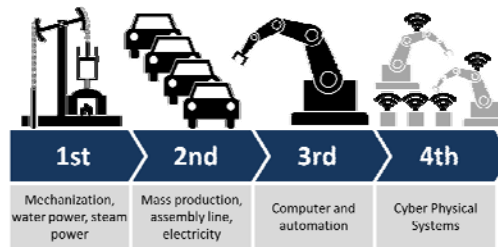


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New disruptive technologies & processes (continued)

ITMF

- Internet of Things (IoT)
- Big data



2) Industry 4.0 !!!

"The fourth industrial revolution, is the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of Things and cloud computing. ..."

The basic principle of Industry 4.0 is that by connecting machines, work pieces and systems, businesses are creating intelligent networks along the entire value chain that can control each other autonomously.

Some examples for Industry 4.0 are machines which can predict failures and trigger maintenance processes autonomously or self-organized logistics which react to unexpected changes in production."

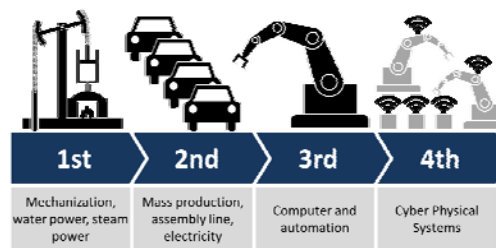
(Wikipedia)

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New disruptive technologies & processes (continued)

ITMF

- Internet of things
- Big data



2) Industry 4.0 !!!

*The fact that **costs** for sensors, communications, data storage and data analytics have dropped significantly in the past, have made it possible to record and process data about physical systems.*

According to Gartner there were 2.4 billion connected devices. By 2020 this number will reach 7.6 billion.

"Data analytics and machine connectivity are the way to get to the next level of productivity."

Mr. Bill Ruh (Chief Digital Officer, General Electric)

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New disruptive technologies & processes (continued)

ITMF

“We always overestimate the change that will occur in the next two years and underestimate the change that will occur in the next ten.”

Bill Gates

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New disruptive technologies & processes (continued)

ITMF

- Increase of Population
- Higher Energy Demand
- Higher Fiber Demand
- Climate Warming



3) Sustainability !!!

*Global population will increase to around 10 billion people.
Energy consumption will increase by more than 50% by 2040.
More fibres will be needed (up to around 115 million tons by 2030).
Fast Fashion intensifies demand for fibres.*

- *Circular Economy*
- *Recycling*
- *Bio-based Textiles*

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New disruptive technologies & processes (continued)

- New Infrastructure Projects
- New Markets
- New Consumers



4) Infrastructure Projects

- 1) One Road, One Belt Initiative**
- 2) Panama Canal**
- 3) Suez Canal**

Improving existing infrastructure.

Developing and building new infrastructure.

Creating more regional economic integration.

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Global Shipments of New Textile Machinery (2007-2016)

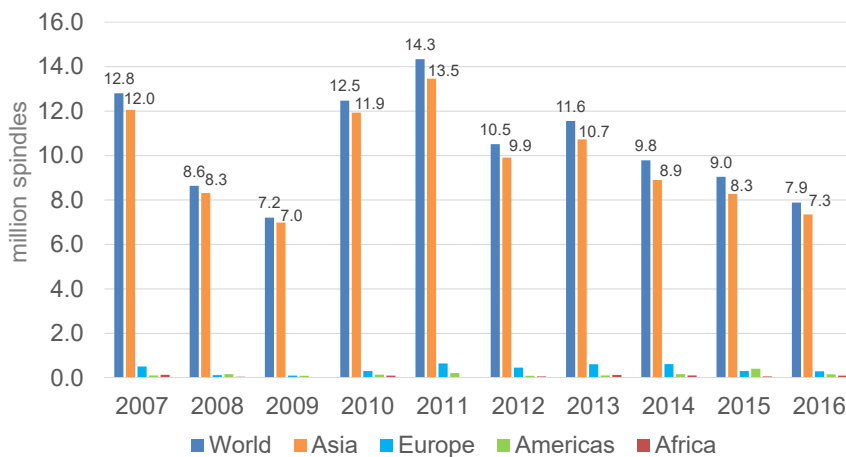
- Spinning Machines
- Texturing Machines
- Weaving Machines
- Circular Knitting Machines
- Flat Knitting Machines
- Finishing Machines

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1. Shipped Short-staple Spindles (2007– 2016, World & Regions)

↓
- 12%



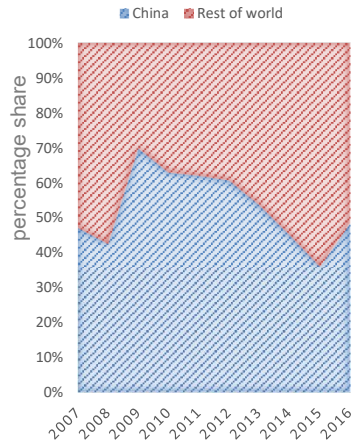
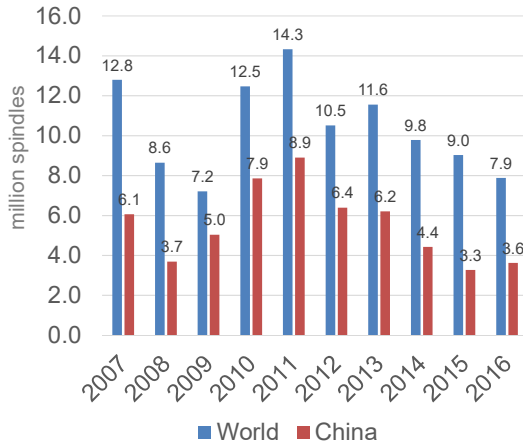
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1. Shipped Short-staple Spindles (2007–2016, China's Share)



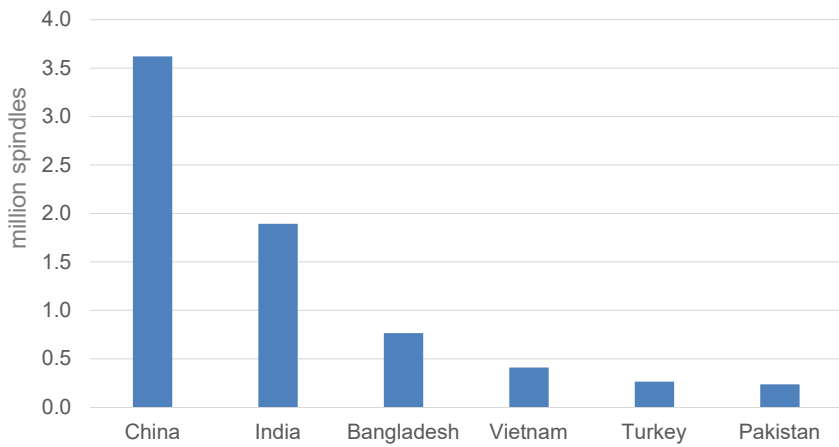
Chinese Investments
 +9%



03.10.2017

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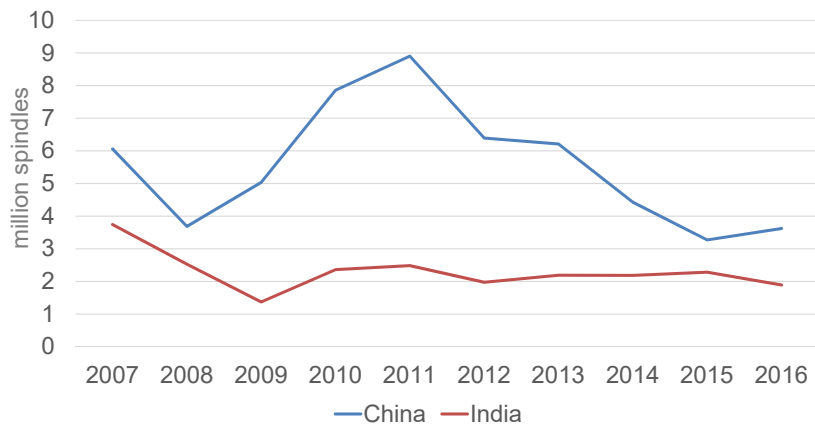
1. Shipments of Short-staple Spindles (2016, 6 Biggest Investors)



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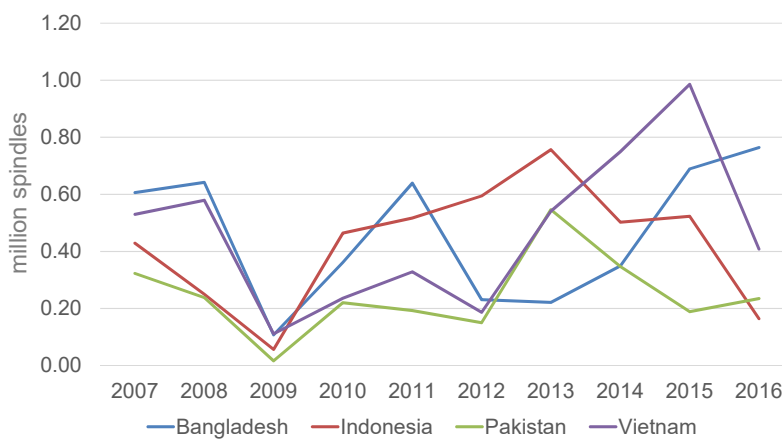
1. Shipments of Short-staple Spindles (2007 – 2016 - China & India)



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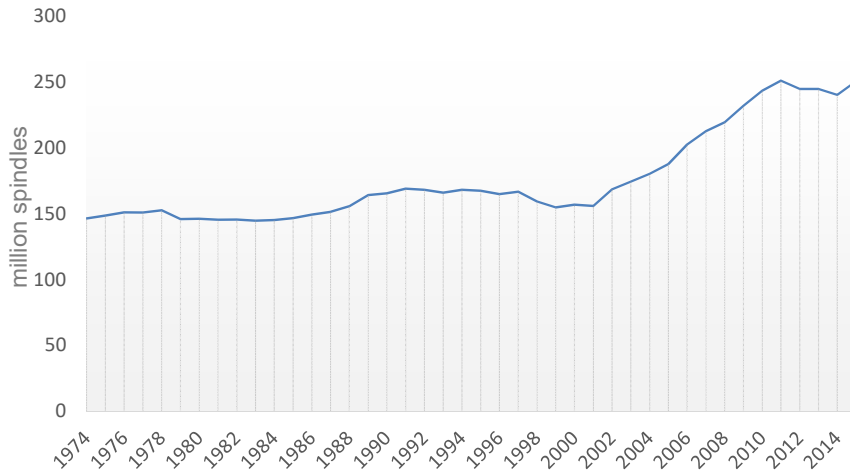
1. Shipments of Short-staple Spindles 2007 (2016 - Bangladesh, Indonesia, Pakistan, Vietnam)



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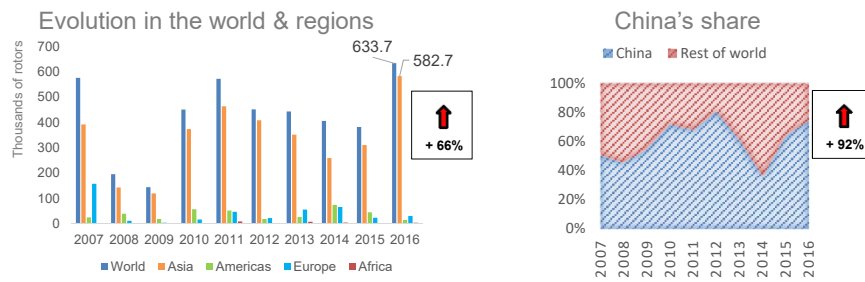
1. Installed Short-staple Capacity (1974 – 2015)



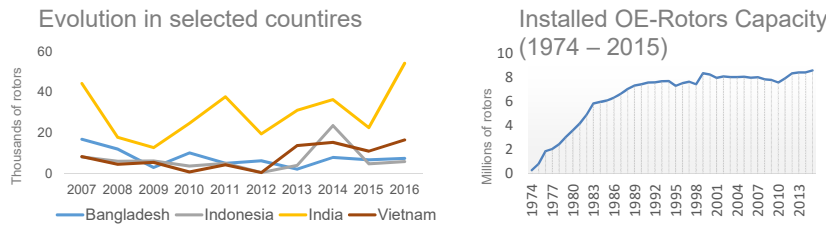
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2. Shipped Open-end Rotors



5 Biggest Investors 2016 : China, India, Turkey, Vietnam, Pakistan



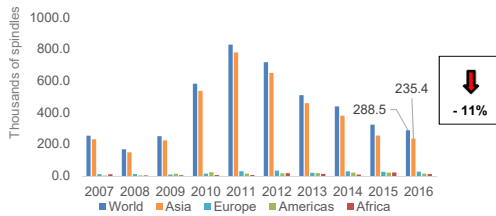
27.06.2011

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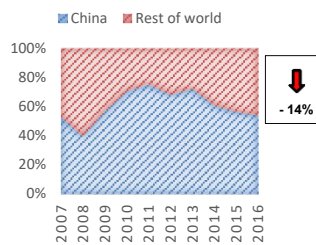
3. Shipped Texturing Spindles



Evolution in the world & regions

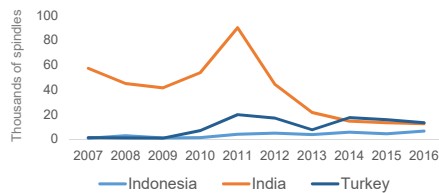


China's share



5 Biggest Investors 2016 : China, Japan, Turkey, Chines Tapei, India

Evolution in selected countries



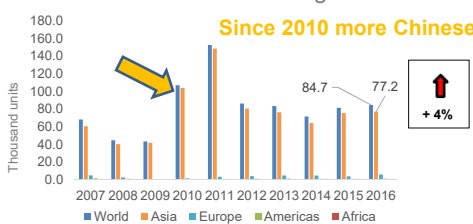
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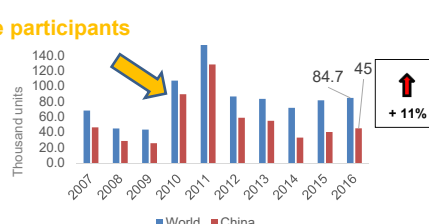
4. Shipped Shuttle-less looms



Evolution in the world & regions



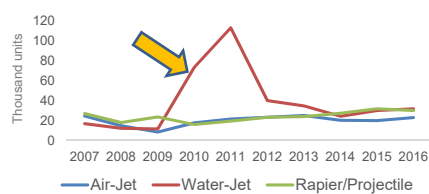
China's share



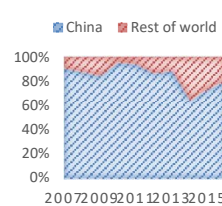
Evolution in the world per product

5 Biggest Investors 2016 : China, India,, Bangladesh, Turkey, Pakistan

Evolution in the world per product



China's share in Water-Jet looms



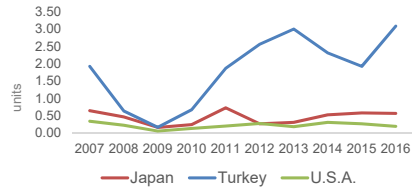
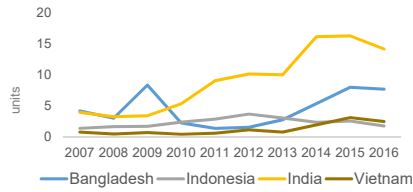
27.06.2011

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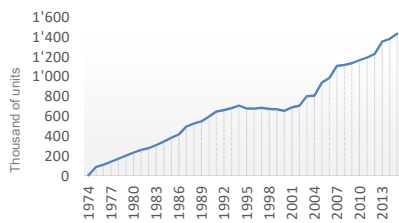
4. Shipped Shuttle-less looms

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Evolution in selected countries



Installed Shuttle-less looms Capacity



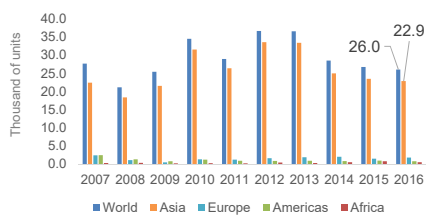
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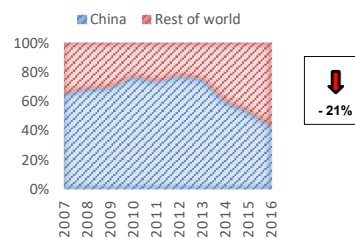
5. Shipped Circular Kniting Machines

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Evolution in the world & regions

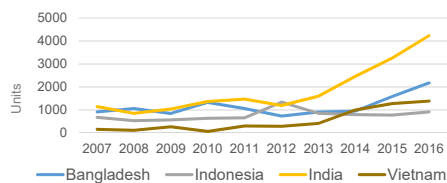


China's share



5 Biggest Investors 2016 : China, India, Bangladesh, Vietnam, Turkey

Evolution in selected countries



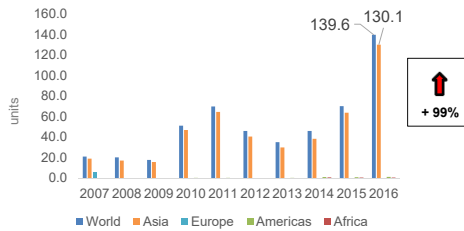
27.06.2011

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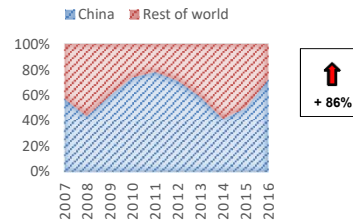
6. Shipped electr. Flat Knitting Machines



Evolution in the world & regions

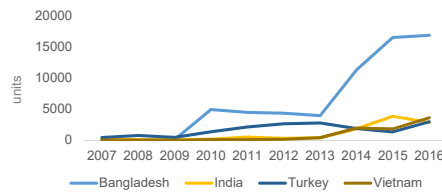


China's share

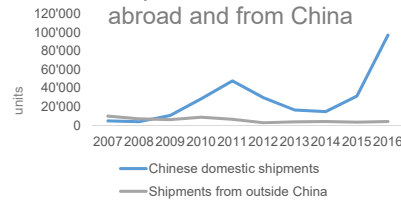


5 Biggest Investors 2016 : China, Bangladesh, Vietnam, Turkey, India

Evolution in selected countries



Shipments to China from abroad and from China



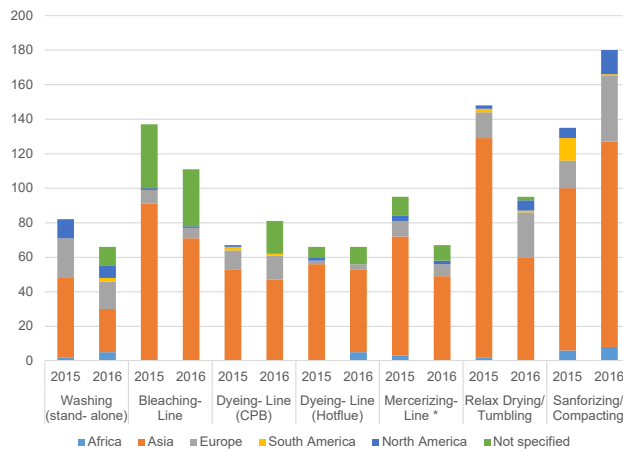
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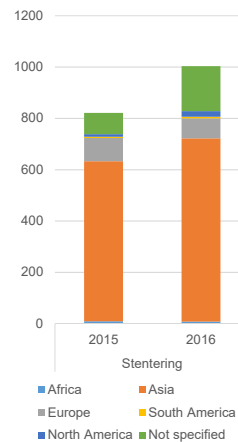
7. Shipments of Finishing Machinery (2016, Fabrics (Woven & Knits) Continuous)



machines



machines



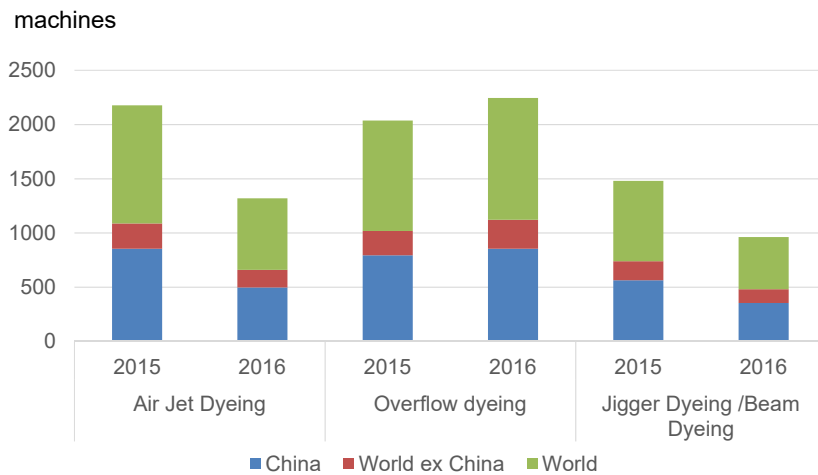
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7. Shipments of Finishing Machinery

(2016, Fabrics (Wovens & Knits) Discontinuous)

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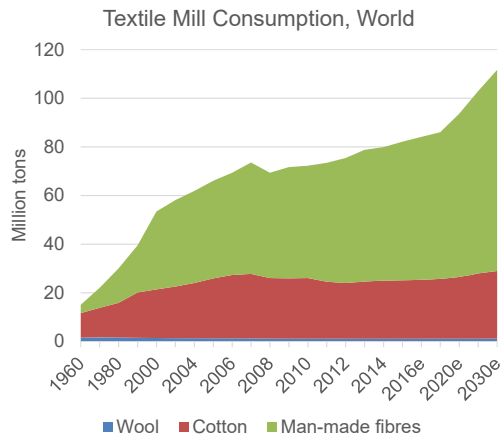
Contents

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- 1) Situation & outlook for the global textile/apparel industry for manufacturing
- 2) New disruptive technologies and innovation in textile manufacturing
- 3) Where are currently the areas of investments in manufacturing?
- 4) Implications for the global textile industry

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Textile Mill Consumption



- Advent of synthetic fibres
 - Wearing comfort improves
 - Functional clothing
 - Technical textiles
 - Easy to control quality and quantity
- Cotton consumption stagnated in recent years due to both volatile and relative high cotton prices since 2010.
- While on paper there are huge cotton stocks, in reality most of the cotton is not freely available (China).

Source: PCI Fibres (2015)

Fiber Production - World (in million tons)

	2015	2020 **	%-change
Cotton *	24.055	25.467	5.9
Wool *	1.131	1.147	4.3
Acrylic	1.705	1.701	-1.8
Nylon (filament)	3.955	4.3	10.4
Nylon (staple)	0.144	0.149	2.1
Polypropylene (staple)	0.797	0.787	-2.0
Polypropylene (filament)	2.735	2.844	3.7
Polyester (staple)	15.868	17.262	11.3
Polyester (filament)	32.162	40.064	32.2
Cellulosic (staple)	4.935	5.736	20.3
Cellulosic (filament)	0.39	0.421	9.1
Total MMF	62.691	73.264	21.5
Total Fibre Production	87.877	99.878	17.3

* Consumption figures

** Forecast

Source: PCI Fibres (2015)

World Man-made Fibre Production by Country/Region (million tons)

	2015	2020 *	%-change
China	40.000	48.097	20.24
Western Europe	2.295	2.232	-2.75
Eastern Europe	0.602	0.654	8.64
Turkey	1.241	1.392	12.17
Africa/Middle East	0.702	0.782	11.40
Chinese Taipei	1.965	1.700	-13.49
North America	2.836	3.091	8.99
India	5.259	6.775	28.83
Japan	0.681	0.641	-5.87
South Asia	4.600	5.322	15.70
S. Korea	1.698	1.552	-8.60
Australasia	0.035	0.038	8.57
Total Fibre Production	61.914	72.276	16.74

* Forecast
Source: PCI Fibres (2015)

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World Polyester Production by Country (million tons)

	2015		2020 *		% -change	
	Polyester (staple)	Polyester (textile filament)	Polyester (staple)	Polyester (textile filament)	Polyester (staple)	Polyester (filament)
China	9.600	22.000	10.270	28.150	6.98	27.95
India	1.375	3.275	1.700	4.180	23.64	27.63
USA	0.657	0.181	0.700	0.188	6.54	3.87
Turkey	0.245	0.196	0.261	0.206	6.53	5.10
Chinese Taipei	0.525	0.820	0.495	0.645	-5.71	-21.34
South Korea	0.660	0.585	0.655	0.470	-0.76	-19.66
Indonesia	0.715	0.795	0.790	0.940	10.49	18.24
Thailand	0.315	0.355	0.340	0.374	7.94	5.35
Malaysia	0.106	0.255	0.107	0.255	0.94	0.00
Vietnam	0.165	0.090	0.225	0.145	36.36	61.11
Bangladesh	0.062	0.062	0.073	0.064	17.74	3.23
Others	1.443	0.352	1.646	0.588	14.07	67.05
Total	15.868	28.966	17.262	36.205	8.78	24.99

* Forecast
Source: PCI Fibres (2015)

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Economic catch-up in Asia continues

Growing global GDP, current prices (billion USD)

Year	World	USA	China	India	Middle East & North Africa	Sub-Saharan Africa
2015	73'600	18'037	11'182	2'073	2'843	1'504
2021	98'632	22'767	18'033	3'650	3'975	1'855
Growth %	34.0	26.2	61.3	76.1	39.8	23.3

- Global GDP is expected to increase by over 31% from 2015 to 2021

- Economic growth in emerging and developing countries will be strong

- Asian retail markets for textile and apparel become more and more important

- Customer preferences in Asian countries change towards Western-style. On the other hand, Asian-style will influence textile industry

GDP per capita, current prices (USD)

Year	World	USA	China	India	Middle East & North Africa	Sub-Saharan Africa
2015	10'014	56'084	8'141	1'600	6'704	1'563
2021	12'713	67'940	12'857	2'611	8'478	1'651
Growth %	27.0	21.1	57.9	63.2	26.5	5.6

Sources: IMF, UN

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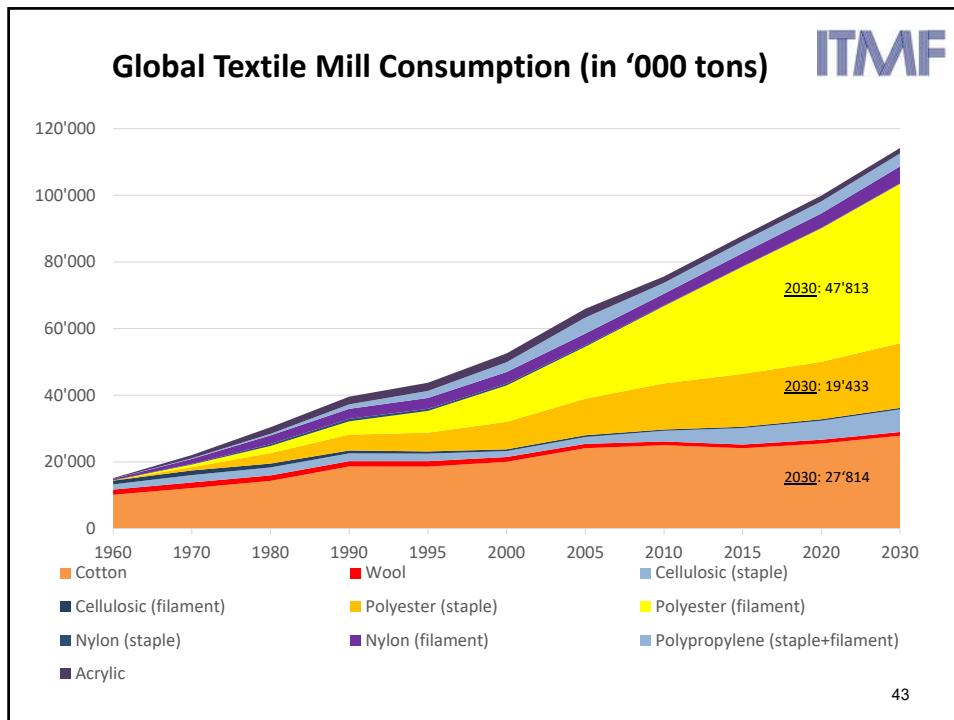
Strong increase in fibres consumption in China and India

Higher per capita fibre consumption (kg per capita)

Year	World	West Europe	Turkey	North America	China	India	Africa / Middle East
2016	11.5	23	11.5	39.8	15.5	5.4	5.0
2020	12.2	24.2	13.4	40.4	18.3	5.9	5.7
2030	13.4	24.5	16.2	40.0	20.1	7.9	6.9

Source: PCI-Fibres (2015)

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- ### Summary
-
- Growing Global Textile & Apparel Market
 - E-Commerce share is on the rise
 - New technologies allow mass customized production
 - Internet of Things (IoT) offers new potential to increase productivity
 - Sustainability is a trend and an integral part of business (CSR)
 - Infrastructure Projects (OR,OB-Initiative) – Creating new opportunities
 - Textile production concentrated in Asia (especially in China)
 - Certain shift of textile production to other Asian countries
 - Production in other regions (Africa, Americas, Europe) has more potential due to
 - Technologies (digital and 3-D printing, automation)
 - Fashion trends (fast fashion)
 - Reduced cost differentials
 - Sustainability (traceability, circular economy)
 - Global fiber consumption is on the rise (GDP and population)
 - Man-made fibers (mmf) are benefiting most
 - Within mmf, polyester filaments are growing strongly
 - Wool has become a «luxury» fibre
 - Is cotton is becoming a «luxury» fiber as well?
- 44

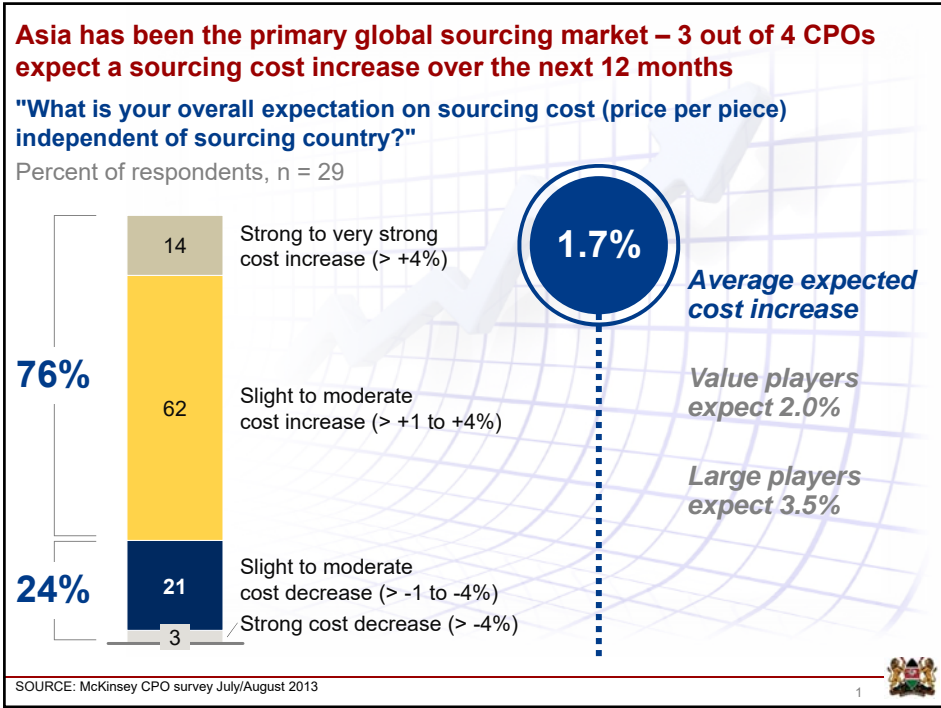
THANK YOU
FOR YOUR ATTENTION!

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Africa's opportunity in sourcing – the global dynamics and why it is important now

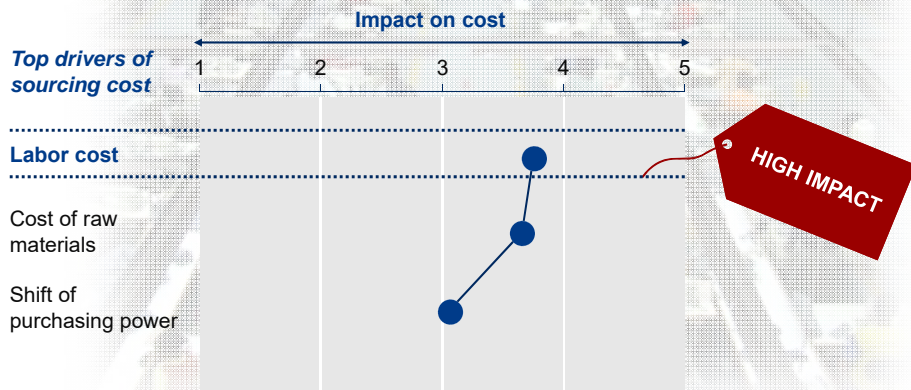
ITMF Annual Conference, Bali
September 2017



Labor cost is seen as the most impactful driver by most apparel companies

"Which drivers do you expect to have the highest impact on sourcing cost development (price per piece) within next 12 months?"

Assessment of respondents, 1 = no impact, 5 = very high impact



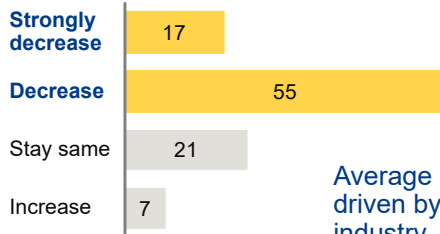
SOURCE: McKinsey CPO survey July/August 2013

2

While China will always be a major player in the sourcing game, big players are looking elsewhere to diversify

"How do you expect your sourcing share (value) from China to develop during the next 5 years?"

Percent of respondents, n = 29



Average 5.7% expected reduction in China driven by increased sophistication of the industry, cost increase, and infrastructure issues

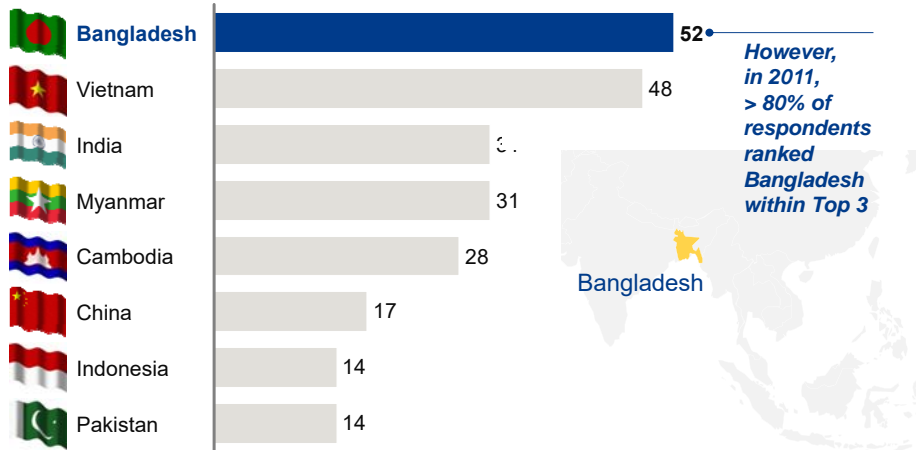
SOURCE: McKinsey CPO survey July/August 2013

3

A number of other Asian countries have been top of mind as alternative sourcing destinations

"What will be the Top 3 country hotspots over the next 5 years?"

Percent of respondents who ranked the respective countries within Top 3, n = 29



SOURCE: McKinsey CPO survey July/August 2013

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The potential for Africa is tremendous

Africa today

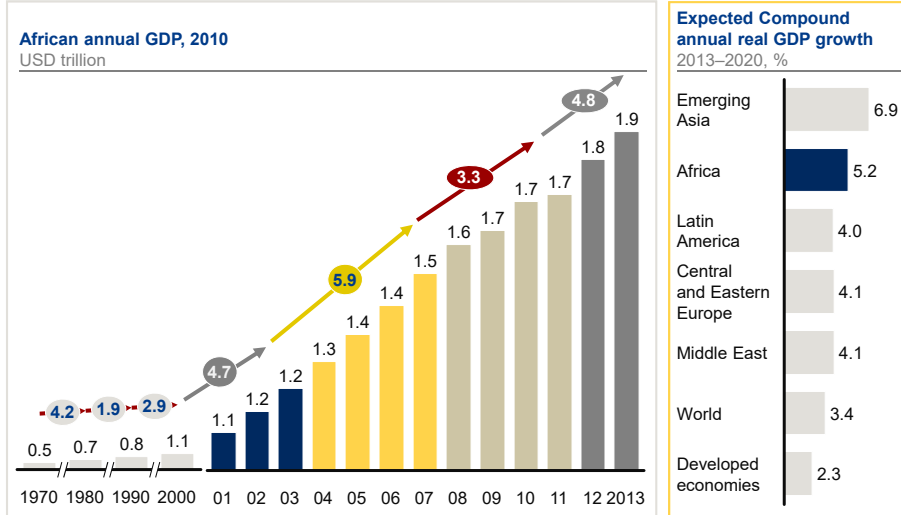
2020

GDP	= Brazil or Russia	\$2.4 trillion → \$3.9 trillion
Consumer spend	= 1.45 x Russia	\$1.8 billion → \$2.4 trillion
Households > \$5 000 income	= 55% of India	134 million → 166 million
Urbanisation	= China	40% → 45% (2025)
Working-age population	= 1.3 x Europe	628 million → 1.2 billion (2040)

SOURCE: IHS economics, McKinsey City Scope, C-GIDD

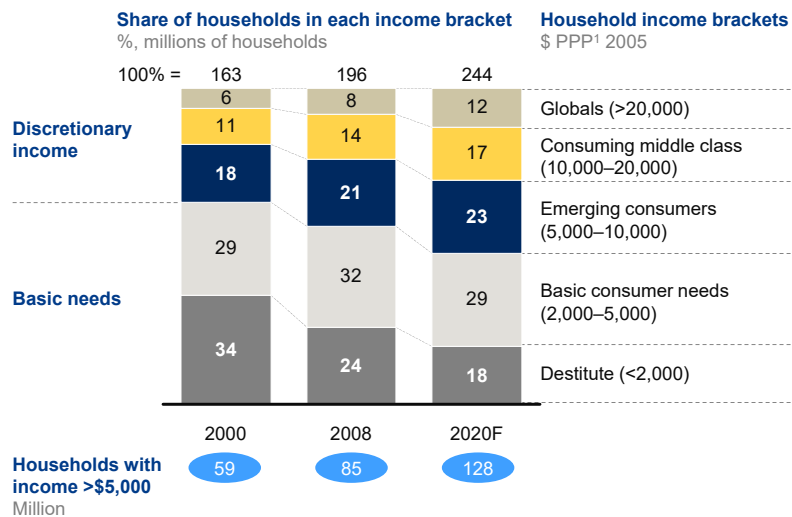
5

Since 2000, Africa has seen strong economic growth and is projected to be the world's second-fastest growing region to 2020



SOURCE: Global Insight GDP data and forecasts; International Monetary Fund region definitions; World Bank region definitions; McKinsey Global Institute

By 2020, more than half of African households will have discretionary spending power



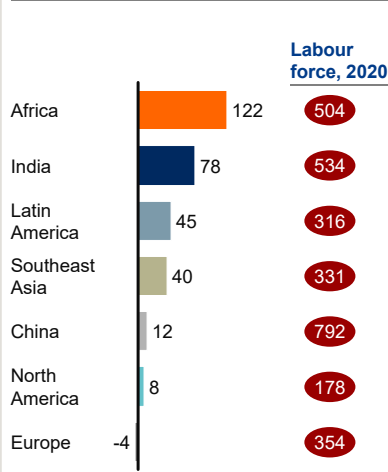
¹ Purchasing power parity adjusts for price differences in identical goods across countries to reflect differences in purchasing power in each country

SOURCE: Canback Global Income Distribution Database (C-GIDD); McKinsey Global Institute

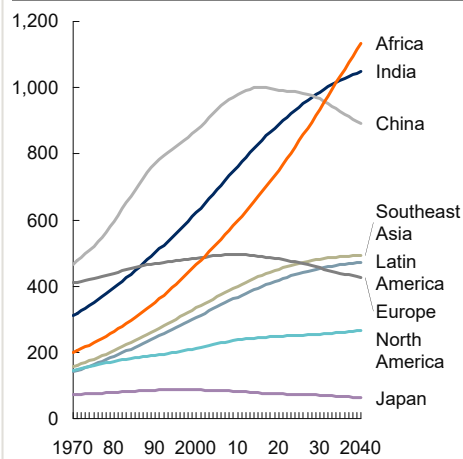
Africa's labour force will grow by 122 million during this decade, and will be the largest in the world by 2035

Million people

Growth of the labour force, 2010–20



Size of the working-age population (15–64 years)



SOURCE: International Labour Organization; United Nations World Population Prospects; McKinsey Global Institute analysis

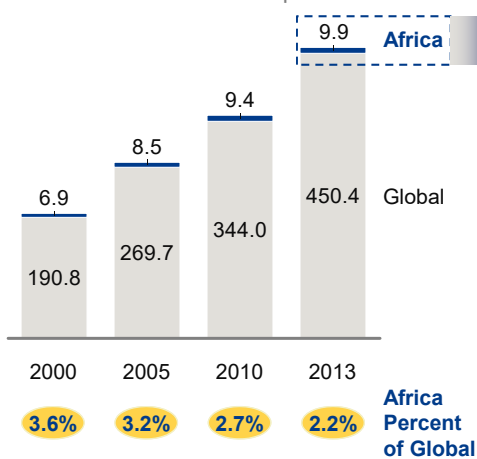
8



The Sub-Saharan export market for apparel has been growing

Export value of clothing

Billions of USD at current prices



Africa's largest suppliers

Growth¹ USDm

Supplier	Growth ¹ USDm
Sub-Saharan	
Kenya	90.3
Madagascar	33.3
Ethiopia	24.3
Tanzania	5.3
Swaziland	3.6
Lesotho	-15.1
Botswana	-72.2
North African	
Morocco	114.9
Egypt	87.7
Tunisia	-286.9

¹ Absolute growth 2010 - 2013

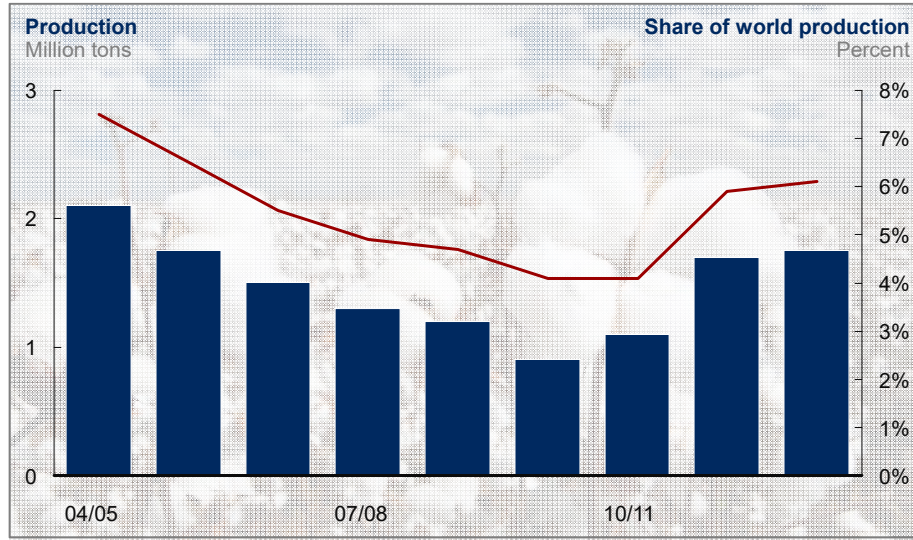
SOURCE: WTO database

9



Cotton production from Africa is increasing in the share of World production

— Share of world production
 ■ Production



SOURCE: ICAC

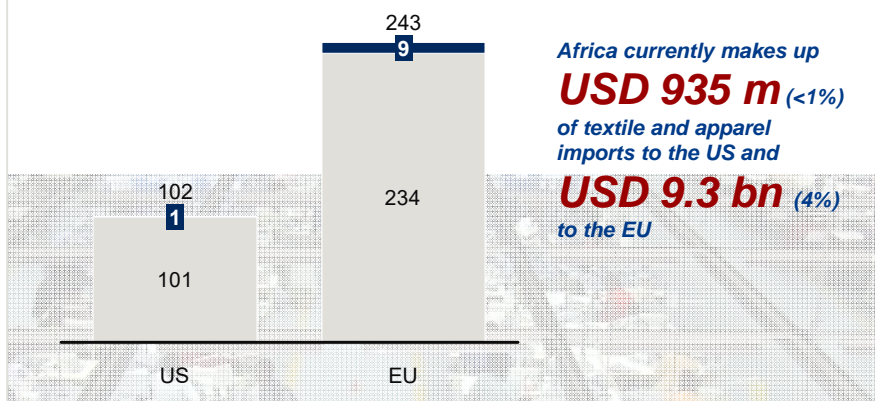
10



Africa enjoys duty free access to the US through AGOA and to the EU through the Economic Partnership Agreement

■ Africa
 ■ ROW

Textile and apparel imports
 USD billions



SOURCE: OTEXA, 2012, ACT 2013, ITC calculations based on UN Comtrade

11



We believe in a bright future for Africa – and for Kenya in particular

Kenya is the largest apparel exporter under AGOA in Sub-Saharan Africa

The sector has seen over 12% export growth per year and has emerged as a prominent focus for Kenya's economic development programme



Kenya has a number of advantages that give us leverage in global and regional markets

Advantages		
Global	+ Agricultural potential	
	+ Favorable trade agreements	
	+ Cheaper labour than Asia	
Regional	+ Mombasa port	
	+ Educated labour force	
	+ Highly developed ICT / telecom	
	+ Advanced banking sector	
	+ Most sophisticated private sector	

SOURCE: World Bank Indicators, Ease of Doing Business 2015, Enterprise Survey 2014, ILO minimum wage database



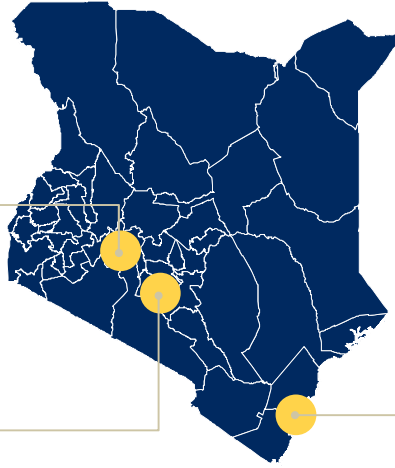
We have three industrial parks dedicated to the development of textiles and apparel

Naivasha textile cluster

- Close to geothermal power and steam
- Skilled labour from Naivasha town
- Competitive cost base

Athi River Industrial park

- Close to skilled labour in Nairobi
- Best trained managers in the region
- On site training
- Connected to major highway and railway to port



Mombasa Industrial park

- Close to Mombasa port
- Skilled labour from Mombasa town
- Established garment manufacturing companies
- Nearby training facilities
- Competitive cost base and incentives



As a Government, we are making strides towards creating a competitive environment to support the growth of this industry



Labour

- **Large and capable labour force** of over 17 million people
- **Labour cost is competitive:** minimum wage rates in from \$92 to \$130 per month for a typical sewing machine operator



Raw materials

- **80% of land (about 350,000 h.a.) in Kenya are suitable for cotton production** with the potential to yield long staple cotton harvests



Energy

- **Green power** - eighth largest producer of geothermal power in the world
- **Steam is a major advantage** - low costs of \$2 - \$3 per tonne
- **Access to zones with power between \$0.05-0.09 kw/h**



Infrastructure

- **Two strategic ports**, Mombasa and Lamu, connect East African region and the world
- **New railways, in addition to existing high quality roads**, will allow quick and easy transport to the sea



Sourcing from Kenya is best achieved by direct contact with our
Export Processing Zones Authority

Tel: +254 45 662 1000

Email: information.desk@epzakenya.com



Managing Innovation Risks

Workshop Presented by:

Bill Humphries – Humphries Scientific

Peter Kreitals – Kreitals Progressive Business Advice

Innovation

Joseph Schumpeter (Theory of Economic Development 1911) was the first economist to recognise the importance of innovation in economic development. He defined innovation as the development of new ideas into products and processes, which are then spread across the market in a process he called diffusion. Innovation leads to “creative destruction” whereby old established industries are destroyed and replaced by new more productive industries.

The OECD estimates that as much as 50 per cent of economic growth in its member countries can be accounted for by innovation activity, and that this contribution will grow. Innovation has been demonstrated to drive productivity growth and the competitive advantage of businesses.

Innovation Risk

Although successful innovation creates competitive advantage, investment in innovation is risky. According to an Accenture report (2013) “despite increased business investment in innovation, only 18 percent of executives believe their company’s innovation efforts deliver a competitive advantage.” Also, the Start-up Genome Project found that 90% of Tech Start-ups fail in the first 3 years.

Accenture concluded that because of the risks involved, if investment in new technology innovation is being considered a careful assessment and management of risk should be undertaken. It is important, however, that the risk management process does not stifle creativity but rather provides a framework where creativity can flourish but risks are managed.

What gives rise to innovation risk? The following are possible reasons for project failure:

- There is no market for the outcomes of the innovation
- Another company beats you to the market with the same or similar innovation
- Cannot overcome technical hurdles to achieve target performance, price or scale

It is important therefore to minimise the probability of any of these outcomes occurring.

Innovation in a Competitive Market

It can be shown theoretically that in a competitive market that for:

- High risk projects - No R&D is undertaken by firms (left to Universities)
- Medium risk projects – R&D by one firm and pre-emption of the market can lead to competitive advantage
- Low risk projects - R&D is carried out by all firms

Therefore, to gain competitive advantage companies should target some medium risk projects and try to pre-empt the market by managing commercial and technical risks better than their competitors. To provide a framework to ensure risks are managed, a three-step risk management process has been developed and is described in the following sections.

Three Step Risk Management Process

The process consists of:

1. Opportunity Analysis – choosing the right project
2. Risk Analysis – quantifying and reducing the up-front risks
3. Risk Management during the execution of the innovation project

Opportunity Analysis

To identify opportunities for innovation it is important to consider prospective innovation activities in the context of a company's business model. To ensure that business risks are minimised it is important that any investment should either enhance the existing business model or develop a new more attractive business model. The key is to make sure the investment enhances the customer value proposition. A simple way to describe your business model is by using the "Business Model Canvas" developed by Alex Osterwalder (see strategyzer.com).

For companies that manufacture a product, the innovation should:

- Decrease the chance of product substitution
- Increase barriers for other companies to enter your market
- Improve your bargaining power with buyers and suppliers

To develop candidate innovation projects, it is recommended that a brainstorming activity should be carried out to analyse your company's business model, in particular your customer value proposition and identify potential innovations that will enhance the customer value you provide. Once identified the projects need to be analysed in terms of risk.

Risk Analysis

Before investing in innovation, it is important to consider the risk-return profile of the investment. Measuring risk is subjective but some level of objectivity can be introduced by considering the level of performance improvement the project aims to achieve compared to existing technology. The bigger the improvement that is targeted the higher the risk. Also, the company's knowledge of the market or customer is an important risk determining factor. If the innovation is aimed at the company's existing market the risk is relatively low but if it is a new market the risks can be high.

The potential return from the successful innovation is somewhat easier to quantify although it should be remembered that it is based on estimates rather than exact numbers.

The most common method is using net present value (NPV) defined as the difference between the present value of cash inflows and the present value of cash outflows. It is thus:

$$NPV = -C_0 + C_1/(1+r) + C_2/(1+r)^2 + C_3/(1+r)^3 \dots C_t/(1+r)^t$$

Where C_0 = initial investment

C = net cash flow

r = discount rate

t = time period

To calculate net cash flows an estimate of market size, margin etc. is required. These will be estimates only and it is recommended to carry out a sensitivity analysis to test the robustness of your findings.

An alternative is to use methods developed by venture capitalists. A venture capitalist (VC) invests in an innovative company with the aim of selling out of the company at some stage in the future and making a significant profit on the original investment. Therefore, the VC requires that:

$$\text{Future value of investment} = (1 + IRR)^t \times \text{Investment}$$

Where IRR is required internal rate of return (often between 30 and 50%)

t = time in years (say) 5 years

The VC calculates the value of the investment at the target exit date based on a simple price/earnings ratio (PER) i.e.

Value at exit = PER x Terminal net income \geq Required future value of investment

Where PER = Price of shares/net income pa - is a typical price earnings ratio in a representative industry (benchmark is 15).

This method only requires an estimate of the investment required and the future net income generated by the innovation to calculate whether a suitable return on investment can be achieved. This method can be used for any project. It is not limited to projects that seek venture capital it can be used to measure the value created by any project within a company.

After estimating risk and return it is important to establish whether there is customer Information or technology information that can reduce the risk associated with undertaking the innovation activity.

We are in the era of big data and If you have more information than your competitors this can give you a competitive advantage. Before you start a project, you should source:

- Industry intelligence (websites, news articles, consulting reports, white papers)
- Technical/scientific papers, citations (Google Scholar)
- Patents, patent citations (Google Patents, Free Patents On-line)

Most important – talk to customers.

Risk Management

Innovation project plans should be based on carrying out tasks that will reduce the most risk as early as possible within the plan.

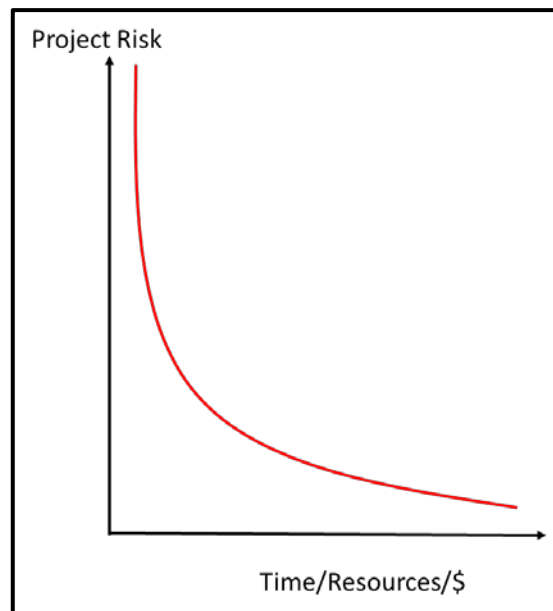
At the start of any true innovation project, aimed at bringing a world first to market, the risk is high and the probability of a successful outcome is relatively low.

Ideally risk should exponentially decay over time as resources are used on the project. If risk isn't reducing the project should be reviewed and redirected or terminated.

Project management needs to be continually looking for downward trends in risk over time.

For each project, there should be clear target specifications for:

- Performance
- Cost
- Scale



At the start of the project there is a risk of not achieving each of these targets.

Stage gates should be set up to track the project to monitor if the risk has decreased for each of these measures before proceeding to the next stage of the project.

Generally, there are three phases within a project – proof of concept, development and demonstration. However, it should always be remembered that the task that reduces risk the most should be tackled first, if possible.

Progress can be monitored using Technology Readiness Levels (TRL), originally developed by NASA, which are a type of measurement system used to assess the maturity level of a particular technology. Each technology project is evaluated against the parameters for each technology level and is then assigned a TRL rating based on the project's progress. The higher the TRL the less is the risk of not achieving an outcome.

TRLs provide a useful means to monitor project risk. If the project is moving up the TRL levels the risk is reducing but if projects are not moving up the TRLs, despite the expenditure of resources, the project should be reviewed.

In Summary

To gain competitive advantage:

- Target some medium risk projects and try to pre-empt the market
- Manage commercial and technical risks better than your competitors

The Innovation Risk Management process presented addresses:

- Market/business risks
- Technical risk

and helps firms pursue a prudent and disciplined investment approach that specifically addresses innovation risk management.

Speakers Contact Details

Aucouturier
Mr. Laurent

Partner
Gherzi Textil Organisation AG
Gessnerallee 28
CH - 8021 Zürich, Switzerland
Tel: (+41-44) 219 6000
Email: l.aucouturier@gherzi.com

Bedi
Mr. Jas

Chairman
African Cotton + Textile Industries Federation (ACTIF)
PO Box 230
Nakuru - 20100, Kenya
Tel: (+254-51) 221 2320
Email: jas@bedi.com

Bivens Collinson
Ms. Nicole

President, International Trade & Government Relations
Sandler, Travis & Rosenberg, P.A.
1000 NW 57th Court, Suite 600
Miami, FL 33126, USA
Tel: (+1-305) 894 1001
Email: nbc@strtrade.com

Denizart
Mr. Pascal

CEO
CETI (Centre Européen des Textiles Innovants)
41, rue des Métissages
FR - 59200 Tourcoing, France
Tel: (+33-3) 6272 6100
Email: pascal.denizart@ceti.com

Durand-Servoingt
Mr. Benjamin

Associate Partner
McKinsey & Company
Ark Hills Sengokuyama Mori Tower
9-10, Roppongi 1-chome Minato-ku
Tokyo, Japan
Tel: (+81-80) 92 07 8013
Email: benjamin_durand-Servoingt@mckinsey.com

Gautam
Mr. Amit

Vice President, Global Business Management Textiles
Lenzing AG, Lenzing Fibers (Hong Kong) Limited
8th Floor, Lu Plaza, 2 Wing Yip Street, Kwun Tong
Kowloon, Hong Kong, Hong Kong, China
Tel: (+43-767) 2701 4022
Email: a.gautam@lenzing.com

Gill
Mr. Uday
CEO
Indorama Ventures
Graha Irama Building 17th Fl.
Jl. H.R. Rasuna Said Blok X-1 Kav. 1-2
Jakarta - 12950, Indonesia
Tel: (+62-21) 526 1555
Email: uday.gill@indorama.net

Gribbin
Mr. Edward
President
Alvanon
145 W., 30th Street
New York, NY - 10001, USA
Tel: (+1-212) 868 4318
Email: ed.gribbin@alvanon.com

Hartarto
Mr. Airlangga
Minister of Industry
Ministry of Industry Republic of Indonesia
Gedung Kementerian Perindustrian RI, Jl. Gatot Subroto Kav. 52-53
Jakarta - 12950, Indonesia
Tel: (+62-21) 5200700
Email: ses.menperin2014@gmail.com

Hoop de Scheffer
Mr. Jaap
Former Nato Secretary General, Former Minister of
Foreign Affairs
Netherlands

Humphries
Mr. William
Principal
Humphries Scientific
64 Balcombe Road
Newton
Victoria – 3220, Australia
Tel: (+61-3) 5200 0029
Email: billhumphries@humphriesscientific.com

Jenkins
Mr. Steve
VP Consulting Chemicals, Polymers & Fibres
PCI Wood Mackenzie
1208 Menara PJ, Amcorp Trade Center
Jalan Persiaran Barat
Petaling Jaya, Selangor, 46050, Malaysia
Tel: (+60-3) 7954 8202
Email: steve.jenkins@woodmac.com

Kariuki
Ms. Carole
CEO
Kenya Private Sector Alliance - KEPSA
Nairobi – 3556 00100, Kenya
Tel: (+254-720) 340 949
Email: ceo@kepsa.or.ke

Keh
Mr. Edwin Yee Man
Chief Executive Officer
The Hong Kong Research Institute of Textiles and Apparel
R906, 9/F Shirley Chan Building
The Hong Kong Polytechnic University
Hungghom, Kowloon, Hong Kong, Hong Kong, P.R. China
Tel: (+852) 2627 8181
Email: edwinkeh@hkrita.com

Lukminto
Mr. Iwan Setiawan
President Director
PT. Sri Rejeki Isman Tbk
Jl. KH. Samanhudi 88 Jetis, Sukoharjo, Solo
The Energy Building 20th Floor, SCBD Lot 11, Jl. Jend. Sudirman
Kav. 52-53, Jakarta
Central Java - 57511, Indonesia
Tel: (+62-271) 593188
Email: iwan.lukminto@sritex.co.id

Martin
Mr. Jorge
Head of Research
Euromonitor International
60-61 Britton Street
UK - London, EC1M 5UX, United Kingdom
Tel: (+44-207) 251 80 24
Email: jorge.martin@euromonitor.com

Molzahn
Mr. Hartmut
Chief Executive Officer / Co-Founder
88Spares Pte Ltd
One Pacific Place Sudirman Central Business District 15th Floor, Jl.
Jend. Sudirman Kav. 52-53
Jakarta - 12190, Indonesia
Tel: (+62-21) 2550 2473
Email: hartmut@88spares.com

Nurwan
Mr. Oke
Director General
Ministry of Trade Republic of Indonesia
Jakarta, Indonesia

Reinhart
Mr. Jürg
President
The International Cotton Association Ltd.
6th Floor, Walker House
Exchange Haus
UK - Liverpool L2 3YL, United Kingdom
Tel: (+44-151) 236 6041
Email: j.reinhart@reinhart.ch

Shafei
Mr. Karim
International Partner (USA)
Gherzi Textil Organisation
Gessnerallee 28
CH - 8001 Zürich, Switzerland
Tel: (+1-732) 407 4547
Email: k.shafei@gherzi.com

Spellson
Mr. Arthur
Marketing Manager
Auscott Limited
Level 3,
56 Pitt Street
Sydney NSW 2000, Australia
Tel: (+61-2) 9295 4809
Email: aspellson@auscott.com.au

Sudrajat
Mr. Ade
President
Indonesian Textile Association
Graha Surveyor Indonesia 16th fl, Jl. Jend. Gatot Subroto Kav. 56
Jakarta - 12950, Indonesia
Tel: (+62-21) 5272171
Email: adesud18@gmail.com

Sun
Mr. Ruizhe
President
China National Textile and Apparel Council
16, Middle Road, East 3rd Ring, Jingliang Building
Beijing - 100022, China P.R.
Tel: (+86-10) 8522 9001/9205
Email: srz@cntac.org.cn

Sutanto
Ms. Anne Patricia
Vice CEO
PT. Pan Brothers Tbk
Jl. Raya Siliwangi Km. 1 No. 178, Pasar Kemis, Ds. Alam Jaya,
Jatiuwung Tangerang
Banten - 15133, Indonesia
Tel: (+62-21) 5900762
Email: anne@pbrx.co.id

van Parys
Prof. Dr. em Marc
Prof. Dr. em, President, Owner
UNITEX - TexZeppelin
Ketelstraat 38
BE - 9800 Deinze, Belgium
Tel: (+32-9) 386 53 12
Email: info@unitex.be

Vasudevan
Mr. Ravi Shankar
President Director
PT. Asia Pacific Fibers Tbk
The East 35th floor, Jl.DR Ide Anak Agung Gde Agung Kav.E3.2 No.
Jakarta - 12950, Indonesia
Tel: (+62-21) 57938555
Email: ravishankar@apf.co.id

Wang
Prof. Xungai
Director of Institute for Frontier Materials
Deakin University
Building Na, 75 Pigdons Road, Waurnd Ponds
Victoria 3216, Australia
Tel: (+61-3) 5227 2894
Email: xungai.wang@deakin.edu.au



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