

international apparel journal

April 2019

Velcome to the International Apparel Journal, created to serve our unique industry. The main focus of this issue is to provide information on market intelligence, fashion and design, technique, supply chain and the sustainability issues that affect us all.

Our mission statement:

To make the IAJ an invaluable tool for the intimate apparel industry for learning, training, sharing and assisting one another.

IAJ is issued 4 times a year, and is available as a pdf. Individual articles are also available for purchase. The journal is distributed to select educational institutions for the use of students of fashion design and production.





Included in this issue are two articles submitted by David Morris:

- Weaving Lingerie by David Morris
- Who Needs a Smart Bra? by David Morris



Andrew SiaPublisher



David Morris

Editor

April 2019

international apparel journal

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SPECIAL REPORT



iApparel Journal 2019 April





FROM THE DESK OF THE PUBLISHER



This issue marks a new era for IAJ. We are changing our name to the International Apparel Journal in order to expand our scope. We are also creating a new website and we will use more social media to boost our readership.

We've expanded into new territory, China, and have launched the IN-Digest in both English and Chinese. We have another editorial team that will contribute to the contents of the articles that we run parallel to the IAJ, with an added twist of flavor geared more to the great Chinese market.

We hope the two journals will learn and grow together and eventually the twain, the west and east, shall meet.

Special Report

Global Exhibition Calendar - April to December 2019 - I hope this calendar is useful for your yearly planning and you use it to organize your business trips to coordinate with the trade shows. Many of these shows have been around for many years and have been very helpful in promoting the fashion trade, showcasing innovation and boosting designs and trends.

The scope of these shows is very broad and covers lingerie, sportswear, ready-to-wear, swimwear, and occur in different parts of the world.

Please check our website to find the latest on the shows. What we have currently on the site may not be complete as dates may change. Please stay tuned.

Market Intelligence

How Millennials Shop in a Sustainable Way by Simone Gerschitzka – I learned about millennials and their concerns and shopping behaviors. They are so different from us. There's no question that they care more about the products they're buying and they want them to be environmentally-friendly. I read about one of these tiny brands in the UK that only has four employees. They even refuse to sell through any wholesale channel as what they are doing can't be executed through mass production. This is understandable.



Something handcrafted and made-to-order is artisan and goes back to the days of tailor shops. I don't know how this business can be sustainable in today's world of fast fashion, the mainstream of the fashion business. And let's not forget that it was the millennials who put them where they are today.

During my career, there was talk of sustainable fashion and the use of recyclable materials. The result is you'll end up paying more but with a very limited selection of materials you can use. When you start to talk about higher pricing, you'll lose customers. These new, smaller brands are meant for just a few and perhaps minimalists will be your only audience.

Anyway, this is not an easy article to read and it might leave you with more questions at the end.

Technology Dominates at Shoptalk 2019 by Terri Fisher – This is Terri's second year covering the show. It's very brave to say "It's an incredibly exciting time to be working in the retail industry." That statement can only come from the organizers of the Shoptalk conference.

Algorithms, data analysis, artificial intelligence (AI), robots, virtual reality (VR), social media influencers are all supposed to be the technological advances that help you to maximize your profitability and to be successful in retail today. I see now that many of us will have to take classes to understand more about data analytics.

The article is very inspiring and this is only the beginning of a new journey that we'll all have to take.

The Evolution of Activewear - Part 2 - This is our second attempt to cover this business. This time we focus on the U.S. market, the world's largest.

In our next issue, we'll introduce the second largest market, China. We will be asking our correspondent in China to write the article on this.



Fashion & Design

Fashion Quote: "Talents and Tastes are Not Enough. Only Styles Count" by Pierre Cardin - I came across his name in my youth as you could see it on almost everything. I was also able to buy shoes in his name. It was also available on ballpoint pens and disposable lighters and the name "Pierre Cardin" was big in India.

In those days there was no mass market but his name was everywhere. Other designers were less known because they did less traveling and were generally out of reach and out of touch, unlike Pierre Cardin.

We could probably update his quote to reflect today's situation: "Talents, tastes and styles are not enough. Only what is selling counts."

Weaving Lingerie by David Morris - This article demonstrates what can be done by interlacing. With knowledge of pattern making, weaving ribbons in different widths can create something three-dimensional.

Technical

Who Need a Smart Bra? by David Morris - The answer is whoever is seriously into training or working out and would like to record their performance and keep track of their heart rate. It's already out there in the market. Smart devices are only getting thinner with more functions that can be incorporated.

Interview

The Mayor of Madison Avenue - An Interview with Walter Costello by Camille Block - Walter has been in the industry since the early 1980s. Camille's interview also includes comments by Suzanne Beck, Victor Vega, Deborah Eaton and Clelia Parisi.

Walter is certainly part of intimate apparel's history. He recently moved out west and started a new life and I hope we'll be hearing from him. I wish him well and much happiness.



Market Report

Industry 4.0 - First initiated by the Germans in 2012, the movement adheres to four design principles. I found them to be mind-boggling and even too advanced for us to comprehend. But this will motivate us to go back and study this idea more so we don't get left behind.



I hope we can find writers who can contribute in this area. It's definitely where the future is.

The Technology War Between the U.S. and China – It's all about the leader in 5G, which runs on high-frequency millimeter waves, or nanometers, and transmits them through cell sites. Over the past five years, Huawei has built close to 500,000 cell towers across the world.

The U.S. is trying to convince its allies to be cautious with Huawei, as the company is controlled by the Chinese government and national security will be at risk if one were to use their technology.

The UK was the first to work with Huawei's telecom technology. It uses the Government Communications Headquarters (GCHQ) to vet its facility and has detailed insight into the company's hardware, code, processes and policies.

Lately, the UK is concerned about the shortcomings of the technology. It will take Huawei five years to overhaul its software and engineering processes to address these concerns.

Huawei has sold equipment to 1,500 telecom companies for more than 30 years in over 170 countries across the world.

It looks like the U.S. is going for a blanket ban on Chinese tech companies without accepting China as a future tech power. The U.S. is starting to lay down the ground rules for coexistence and managing risk.



Huawei Technologies in the News - Huawei was caught shipping telecom equipment to Iran in violation of sanctions against doing business with the country.

On top of this, criminal charges for stealing trade secrets from U.S. companies were filed in both Washington State and New York State.



Huawei is known for supporting research programs in U.S. universities, but the company is now banned from any involvement.

Huawei, together with Ericsson and Nokia, hold close to 80% of the market share in telecom equipment.

The World Economic Forum, Davos - January 21, 2019 - This World Economic Forum is the most prestigious club for players in the world economic arena.



Those countries that didn't show up this year are obviously dealing with very big issues domestically. As a result, the Forum may have lost some of its luster but the show must go on.

CPTPP - The II-Country Agreement Going Forward – The CPTPP was previously known as the TPP. I don't think you can say the new name, "Comprehensive and Progressive Agreement for Trans-Partnership Partnership" in one breath.

It was a nuisance when President Trump decided to withdraw from this organization right after being sworn into office.

The new multilateral trade agreement, especially one of such enormous scale with eleven countries involved, can effectively put in place protections for intellectual property and cyber security.



Knowing that many of these countries are part of the global manufacturing hub, the agreement will be beneficial to future trading and commerce.

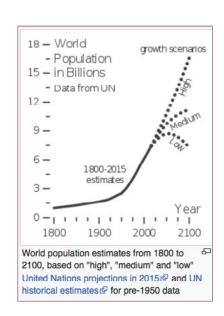
The World Panic Over the Chinese Takeover of High-Tech Companies - First, the Germans are taking precautions to protect their tech companies from a Chinese takeover.

The U.S. is also in panic mode. But since we've introduced globalization, the supply chain has been established, leading to technology becoming borderless.

China's Multi-Faceted Belt and Road Initiative - China's Belt and Road Initiative has expanded into the Pacific Silk Road, the Maritime Silk Road, and the Silk Road on Ice. It will eventually expand to the Cyber Belt with the expansion of technology.

More on Climate Change – It's a very controversial topic today. With the increase in the world population, by 2050 it will reach 9.4 billion, it's been proven that global warming is caused by human activity.

The median figure of the World population will be 10.5 billion by the year 2100. Currently, it's estimated at 7.7 billion, so this will mean an increase of 36%, which warrants immediate plans for crisis management.



Evidence of Global Climate Change - In this article we further discuss the subject

of global warming. Through NASA, we've come to know that climate change is triggered by multiple areas. NASA records indicate that carbon emissions fluctuated in a band width of 160,000 parts per million to 300,000 million parts per million. This has occurred over a long period of time, from 400,000 years ago to 1950, and since then the numbers have started to rise drastically.



American Awareness of Climate Change - After the devastation in 2018 caused by the wildfires in California and the hurricanes in Florida, climate change has gained recognition through both conversation and the news media.

Global Warming and Hurricanes - More evidence of the association between global warming and the increasing intensity of hurricanes and the effect they have on the environment. Hurricanes are becoming stronger than ever.

Alternative and Renewable Energy in Germany - As early as 2000, Germany set a target for reducing carbon emissions by introducing wind and solar power as renewable energy. But the economy relies heavily on the car industry and the transportation sector, and emissions today are higher than in 1990.

The problem is Germany's overdependence on lignite as its fuel source. This brown coal is the dirtiest fossil fuel.

The German government set 2038 as the target for discarding coal and lignite but it's going to be a challenge for the largest economy in Europe.

Alternative and Renewable Energy in China - In this article we bring up Hubei, where the XXIV Olympia Winter Games will take place. Again, it's about the struggle to switch from coal to gas for heating, and both the industry and population will suffer.

The Latest Trade Negotiation Between the U.S. and China – We've already seen the threat to a normal trade relationship between the world's two largest economies. Trade is stalling due to uncertainty and it's been mentioned that Trump and Xi will meet in June. This is typical of many policies under the Trump administration. It's hard to keep track and people are either losing confidence or interest.

Brexit - The Last Rites - The title may seem a bit too harsh. But it reflects the pain that I feel for this totally incomprehensible act by Eurosceptics, whose irresponsible acts have haunted Britain over the past two years. I can still recall Queen Elizabeth muttering something about what a mistake it was for Britain to join the EU in the first place. Now it's a sad story and no one knows how it will end.



I cropped this picture from the The New Yorker's March 25th issue. It's a bit sarcastic.

Progress Report on the Paris Climate Agreement and Study of Alternative and Renewable Energy - Part 4 - The world is divided when it comes to talking about carbon dioxide emissions.

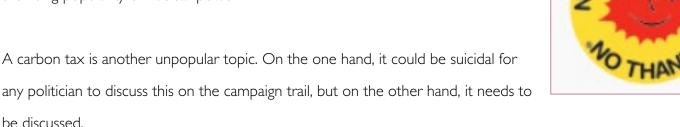


200 countries signed the Paris Climate Accord, with the backing of the United Nations, but you can still find countries like the U.S., Saudi Arabia, Kuwait and Russia standing against it. These countries are joined by China and Brazil in a display of selfishness.

The use of alternative energy can be costly and will be a burden on the population, especially those with middle or low income. This is an area that politicians don't want to push too much for fear of losing votes.

Anyway, it's an uphill battle and we'll continue to bring it to your attention. Hopefully there'll be a breakthrough.

A Study of Alternative and Renewable Energy – We've elaborated more on alternative and renewable energy by giving you more definitions. The article discusses the rising popularity of nuclear power.





Supply Chain

Insight into Africa - Part 4 - For a change, we're showing the African continent using a series of maps. "A picture is worth a thousand words" and so we hope this will help you better understand this continent.



We initially found these pictures on Pinterest. This led us to the original websites that contained them. We found the information very comprehensive and we hope you'll find the maps useful.

A Roadmap of Bangladesh - We first featured Bangladesh in a 2014 issue. The country is still interesting to us and so we report on it again.

Unfortunately, after we wrote this article, we found that it was again in the world news. This time a fire broke out on February 20 in a tightly congested residential area caused by hazardous chemicals that caught fire and exploded. The lack of regulatory measures and safety enforcement claimed 70 lives.

Bangladesh is located in a hostile area where Mother Natural is unkind. Monsoon season arrives in June and lasts until October when torrential rains lead to flooding and other natural calamities.

The country is the second largest garment exporters after China, but with Vietnam at its heels it will really need to get its act together and avoid any large scale industrial disasters.

I look forward to hearing more about Digital Bangladesh and hope it can lead to improved work safety conditions.

Country Report: Tanzania – I found the country very interesting when I was doing research for this article. It's nice to write about the wildlife, the national parks and World Heritage Sites. Approximately 38% of its land is set for this purpose and this brings in \$2.3 billion in tourism per year for Tanzania.

I ask that you visit those websites I have listed at the end of the article. This country is promoting manufacturing and has a lot of potential.



killed, Equipped, DigitalReady,



Book Report

The Art of Manipulating Fabric by Colette Wolff – I've kept this book in my library for quite some time and am now finally introducing it to you. There are so many things that we can do with our hands and I hope this will open up a whole new world. This very unique fabric treatment has been missing from the fashion world.

Besides it could lead to another category like home furnishing. This unique treatment will bring a new aspect to merchandising. Why not give it a try?



GLOBAL EXHIBITION CALENDAR - APRIL TO DECEMBER 2019

ANDREW SIA



For our April issue, we're publishing the exhibition calendar for the rest of the year. We've filled in a lot of dates that were not available in the last issue.

We included holidays for countries such as the United States and Hong Kong so that you can avoid those dates for business traveling and plan your stay more efficiently. For those U.S. holidays we colored them in green and for Hong Kong holidays we colored them in blue.

APRIL

5 April, Friday - Ching Ming Festival

19 April, Friday - Good Friday

21 April, Sunday - Easter Sunday

22 April, Monday - Easter Monday

22 April, Monday - Earth Day

Prime Source Forum 2019

2-3 April 2019

www.primesourceforum.com

The Forum started in Hong Kong in 2006, Hong Kong is the most important international fashion hub, and the forum is attended by 350 executives from around the world.



Global Sources Fashion

11-14 April 2019

www.globalsources.com

Global Sources is a Hong Kong based business-to-business media company founded in 1971. Using media and the Chinese language, it facilitates trade between Greater China and the rest of the world.





Shenzhen International Underwear Fair (SIUF)

19-21 April 2019

www.siuf.com



SIUF promotes itself as the most important intimate apparel show in the southern part of China. It occupies 73,000 square meters of fairground with 800 exhibitors and 130,000 visitors. This is the Forum's 14th year.

Canton Fair Spring 2019, aka 125th China Import and Export Fair 2019

15-19 April 2019 - Phase I for electrical and electronic products and industrial products

23-27 April 2019 - Phase 2 for groceries, ornaments and gifts

1-5 May 2019 - Phase 3 for clothing, footwear, bags, health food and supplements

May 2019

www.cantonfair.net

Since 1957, the famous Canton Fair has been held biannually in Guangzhou. It's a trade fair with the widest range of products and the longest history. It's been used as the gateway to China for foreign trade. At one time the fair was held for a whole month, from the middle of April to mid-May, but now it's broken up into three phases.

MAY

I May, Wednesday - Labor Day

12 May, Sunday - Mother's Day

13 May, Monday - The day following Buddha's Birthday

May Market Week - New York

5-10 May 2019



JUNE

7 June, Friday - Dragon Boat Festival

16 June, Sunday - Father's Day

21 June, Friday - Summer begins

ITMA 2019 Barcelona

20-26 June 2019

www.itma.com

ITMA 2019 features multiple industry conferences and forums and 16,000 exhibitors in

220,000 square meters of exhibition space. Approximately 120,000 international visitors are expected at the event.



Paris Haute Couture

30 June - 4 July



Flora Miranda's latest spring/summer couture collection

JULY

I July, Monday - Hong Kong Handover Day

I July, Monday - Canada Day

4 July, Thursday - Independence Day

ISPO Shanghai

5-7 July 2019

www.ispo.com



Mode City Paris 6-8 July 2019

www.eurovet.com

This echoes the Paris Salon International de la Lingerie.

Interfiliere Paris

6-8 July 2019

www.eurovet.com

The July show for Interfilière, held twice in Paris.

HKTDC Hong Kong Fashion Week Spring/Summer

8-11 July 2019

www.hktdc.com

The second edition of the year and the 52nd year overall.



13-16 July 2019

www.swimshow.com



Known as the world's biggest and best swim show. It's been around for more than three decades. It covers swimwear for men, women, kids, resort wear, beachwear, lifestyle, activewear and accessories.

Premiere Vision New York

16-17 July 2019

PREMIÈREVISION NEW YORK



HKTDC Hong Kong Sports and Leisure Expo 17-23 July 2019

www.hktdc.com



Covering products for camping, hiking, climbing, cycling, fitness and gymnastic training, health and wellness products, racket sports and ball games, skating, skateboarding, skiing equipment, sports electronic gadgets, sports safety and protection gear, sportswear and accessories, water sports and fishing, yoga clothing and accessories.

Texworld

22-24 July

www.texworld-usa.us.messefrankfurt.com

Colombiamoda Medellin

23-25 July 2019

www.colombiamoda.inexmode.org.co

Swim Collective, Anaheim, CA

31 July - 1 August 2019

www.swimcollective.com

AUGUST

August Market Week - New York

4-9 August 2019

CURVE NY

4-6 August 2019

www.eurovet.com









Magic Las Vegas/Curve Las Vegas

12-14 August 2019

www.ubmfashion.com

SEPTEMBER

2 September, Monday - Labor Day

13 September, Sunday - Mid-Autumn Festival

14 September, Monday - the day after Mid-Autumn Festival

23 September, Monday - Autumn begins



Premiere Vision Paris

17-19 September 2019

www.premierevision.com

New York Fashion Week

5-11 September 2019

www.fashionweekdates.com

London Fashion Week

13-17 September 2019

www.londonfashionweek.co.uk

Milan Fashion Week

17-23 September

www.fashionweekdates.com





Interfiliere Shanghai

26-27 September

www.eurovet.com

InterTEXTILE Shanghai

September 2019

www.intertextile-shanghai-apparel-fabric-autumn.hkmessefrankfurt.com



Paris Fashion Week

23 September - October I

www.fashionweekdates.com

Canton Fair Autumn 2019 aka 126th China Import and Export Fair 2019

www.cantonfair.com

OCTOBER

I October, Tuesday - Chinese National Day

7 October, Monday - Chung Yeung Festival

14 October, Monday - Canadian Thanksgiving

Interfiliere New York

Mid-October 2019

www.eurovet.com

Canton Fair Autumn, aka 126th China Import and Export Fair 2019

October 2019

www.cantonfair.net



NOVEMBER

I November, Friday - All Saints Day

3 November, Sunday - Daylight Saving Time ends

5 November, Tuesday - Election Day

28 November, Thursday - Thanksgiving

November Market Week - New York

3-8 November 2019

2019 HUG Award Gala

6 November 2019

DECEMBER

21 December, Saturday - Winter begins

25 December, Wednesday - Christmas

26 December, Thursday - Boxing Day

31 December, Tuesday - New Year's Eve

2020 Calendar

We know it's kind of early, but we'd like to give you a glimpse of what's ahead for next year, especially those key players in sportswear.

The most important show is in Munich, and there is ISPO Beijing and ISPO Shanghai as well. We've listed the dates for your planning.

ISPO Munich

26-29 January 2020

www.ispo.com





We've listed New York Fashion Week for those dedicated fashion followers. It's divided into six events over the course of the year.

New York Fashion Week

For Men's Fall-Winter 2020

3-5 February 2020

New York Fashion Week

For Women's Fall-Winter

6-12 February 2020

New York Fashion Week

For Resort & Spring-Summer

31 May to 4 June 2020

New York Fashion Week

For Men's Spring-Summer 2021

2-4 June 2020

New York Fashion Week

For Women's Spring-Summer 2021

10-16 September 2020

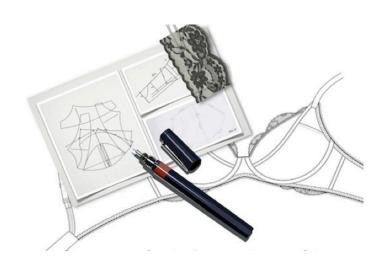
New York Fashion Week

December, Pre-Fall & Fall-Winter

6-10 December 2020

- Technical ×
- Supply Chain
- Sustainability
- Fashion & Design
- Market Intelligence
- Entrepreneurship

MARKET INTELLIGENCE



ntimate apparel

HOW MILLENNIALS SHOP IN A SUSTAINABLE WAY

SIMONE GERSCHITZKA

international apparel journal

Quite some time ago the IAJ decided to cover this rather complex area in an article for you. Since the whole world is talking about sustainability, climate change, health, nature, less is more, back to the roots and so on, it is pretty obvious that not only the younger generation(s) but in particular the millennials have a different approach to consumerism, are discerning customers, are different shoppers, also due to technological options nowadays, and very often are well-informed about environmental awareness, which has drastically changed in the last 10 years. So let's take a look at this issue and how it affects the intimate apparel industry, stating a few points below. This article aims to offer you a quick insight into retail, a few brands, product preferences, market intelligence, spending behavior and motivation in general toward sustainability.

Lingerie retailers that fail to respond to a generational change in bra-buying habits could find themselves losing out to more agile competitors for business.

That's because new research reveals that the way millennial women shop for and select bras differs "significantly" from the behavior of older generations.

A report from the NPD in the U.S. shows that among consumers of all ages, 80% of bra purchases are planned, and the need to replace is their top reason cited for buying a new one.

At the end of the shopping process, over 50% of women buy three or more bras at a time, try them on at home, and don't return them.

However, millennials are starting their engagement with the category differently than previous generations in terms of styles, brands, and the way they shop, according to a global information company.

"The intimate apparel industry needs to embrace the differences while finding the common currency among today's bra shoppers," said Marshal Cohen, Chief Industry Analyst at The NPD Group. "Although their definitions of comfort may differ, millennials and non-millennials will buy more than one bra when they find the one that suits their lifestyle."



In general, millennials have a more diverse bra wardrobe than non-millennials. When asked about bra styles worn in the last seven days, millennials cited wearing multiple styles more than non-Millennials.

Millennials also indicated newness and change in size as top reasons for purchase more often than non-millennials did.

"All bra consumers seek comfort, but differences in their bra introduction and life-stage timeline have impacted how millennials and non-millennials arrive at comfort throughout their lives," added Cohen.

"The comfort and wearability of the athleisure apparel trend, that is embedded in the millennial style vocabulary, will compel them to seek the same type of comfort and ease of movement throughout their bra journey; this ultimately drives them toward different shopping behaviors than those of boomers and older generations."

The NPD Group, which carried out the study in the U.S., concluded that innovation and targeted variety in product, promotion and placement will continue to serve lingerie retailers as they encounter an ever-diverse consumer base.





Let's look at the UK. As the Environmental Audit Committee released the names of the least sustainable brands in the UK, we're not surprised to see fast fashion brands such as Missguided and Boohoo, both of which mainly offer inexpensive party wear, top the list.

Good news: there are many other brands offering garments just as trendy, minus the environmental and human cost. Let's take a look at underwear - one of the most thrown away pieces of clothing. With the four brands and shops below there is no need to choose between sophistication, comfort or sustainability since all of them care about this very much.

Brighton-based lingerie boutique Ayten Gasson produces high-quality luxury pieces, available in store and online. Designer Ayten Roberts is gaining popularity in the UK for her use of upcycled vintage Nottingham lace: "I like using vintage English laces because it highlights the wonderful skill that Nottingham was once famed for. The detail and feel of these laces are exquisite and sit beautifully with the silk," said Roberts.

Beyond her strong commitment to supporting the UK manufacturing industry (she works with many local factories from lace mills to printers) the designer is also working hard to limit her environmental impact. "Our lingerie has minimal carbon footprint. Online orders are sent out to customers in ethically sourced packaging, which is biodegradable and recyclable. We use UK suppliers as much as possible and natural fibers such as silk and cotton, which reduces plastic pollution," Roberts adds.

In fact, most pieces are made of 100% silk, 100% cotton tana lawn, and organic ethical bamboo and modal mix. The brand takes a strong stance against waste by using traditional sewing methods such as French seams and roll hems, instead of the types of seams used in mass production. This allows the lingerie items to last longer. "We also only make a couple of each style in each size, to limit wastage. We try to use reclaimed fabric, which is dead stock from larger factories and design houses so these beautiful materials do not end up in landfills," Roberts explains.

The challenge ahead: making this type of fashion available to everyone. Sourcing ethical raw materials and trims often comes at a high price, which makes the end product more expensive.



Nude Label from Spain

From cute bodies to colorful bras, new comer Nude Label has become successful in its four years of existence.

"We created Nude Label because we realized there was a gap in the market when it comes to underwear.

There weren't many options of basic and comfy, but also nice and well-made undies. We found they were either uncomfortable but appealing with lace and bows or unappealing but comfy and basic. That's when we decided to create simple, natural, underwear for women who want to feel confident and comfortable," says Alemany, one of the designers.

When it comes to reducing their environmental and social impacts, the designers of the brand think the key word is "local." Everything is produced in Valencia to support the local economy. "The factory is very close to our studio so we can ensure the quality of the garments and the working conditions are the right ones," the company adds.

The underwear is made with organic cotton. The cotton, accessories (fasteners, sliders and rings) and elastics band have received the Oeko-tex 100 certificate. This is an independent product label, recognized internationally, that guarantees textiles of all sorts within the product have been tested and certified free from toxic compounds.

"We believe the most important thing to care about is where the garments are coming from. It is good to know not just the country of origin but also the factories they have been made in. It is important to know the people working behind the clothes and that's why all the brands should compromise on being more transparent and giving more information about our production and environmental practices," Nude Label states.

U.S.-based lingerie brand Naja has always had a strong focus on minimizing its environmental impact. The brand's main goal is to create lingerie items with minimal water usage. "We wanted to have a goal that we could focus on and ours is water and the oceans. So, we're mainly using less water than a regular brand and making products from post-consumer recycled plastic that could end up in our seas," explains CEO Catalina Girald.



For example, the print items are made digitally instead of using rotary wet dyeing processes. This method allows them to keep an important amount of water as simply none of it is used in sublimation or digital printing. Naja's fight against waste is also sensible in her choice of fabric. Although materials vary, the brand strives to make most things out of recycled PET or scrap fabrics from large productions that would have gone into landfills otherwise.

Educating consumers about these practices and promoting the idea of sustainability in the fashion industry is an important objective for those working at Naja. "The apparel industry as a whole has a long way to go in sustainability and in ensuring ethical practices. It's more expensive to make and consumers are always looking for a deal, so this attitude doesn't help further ethical and sustainable goals. As consumers we should really try to focus on owning less and being willing to pay more for things that are well-made with good practices behind them," Girald concludes.

UK-based brand Luva Huva is a niche ethical lingerie label that refuses mass production and wholesale of its products, and chooses instead to focus on a range of initiatives that promote local work and reduce environmental issues.

"We hand-craft all our clothes on a made-to-order basis and send directly to the customer instead of ordering in bulk to factories. This way, we support the UK manufactures of elastic, source dead stock and factory end of line laces and fabrics," says one of the founders of the company.

"We make everything in house. We are a small team of four women. We work on all aspects of production, from design, pattern making and sewing to the final wrapping and packing of the finished garments."

Environmentally friendly fabrics are also used to create different pieces, such as bamboo, organic cotton, soy and hemp grown without genetically modified seeds. Recycling is also a top priority, and the team donates any waste fabrics to local schools and colleges.

Although improvements need to be done in the lingerie industry (and in the fashion industry as a whole) to make it more sustainable, there are still reasons to be optimistic as changes are gradually taking place. "If more companies change and the consumer's awareness changes it will make a big positive impact. When starting over 10 years ago



there were very few brands using sustainable fabrics for lingerie and that has changed dramatically over the years which is a great thing," the business remarks.

All the above insight takes us to the eco-friendly millennial shopper, and the sustainability thought behind it. The following mood focuses on the subject of sustainability.

An evolving role of fashion as a commodity, art form, and sustainability movement: Opinions, consumption habits, behaviors, priorities and lifestyle choices are the raw expression of a millennial generation's mentality.

Certainly, what is considered fashionable today is radically different than in the twentieth century, since consumption patterns and social norms always evolve. According to a global data analytics company, "66 percent of global consumers say they're willing to pay more for sustainable brands—up 55 percent from 2014." Buying sustainable products is a growing trend for the average millennial shopper. And this is not only limited to fashion; it encompasses several areas of many millennial's lives.

This takes me to the next finding: The book "Fashion Marketing: Contemporary Issues" by Professor of Marketing Tony Hines and Professor of Design Management and Marketing Margaret Bruce. They explained that, "The turbulent economic environments of the 1970s and 1980s ... revolutionized the fashion industry as it began importing and exporting at a global level and the market was no longer constricted to the local economy." You can see that nowadays we find the very same turbulence, resulting in sustainable millennial shopping evaluations and patterns.

Another example: Consumers Take the Lead. An industrial building in the Mile Ex opens into a short corridor leading to Marilyne Baril's atelier. Sunbeams glimpse through the window, giving more life to the already cozy space. The walls lined with two rows of superimposed clothing racks, reaching the ceiling.

Trousers with scalloped edges, striped blouses and winter coats are among the garments in a range of solid neutral tones or simple prints tightly packed onto the racks.



Baril is a fashion designer based in Montreal who launched her brand Marigold in 2013. She began the project after realizing she wanted to contribute to the local economy by creating ethically manufactured products that offer a sustainable "chic urban" alternative for the modern woman, which is how she described her customers.

One of the most significant shifts about the fashion consumption culture Baril has noticed pertains to the consumer-producer dynamic. "The market changed just because the consumer changed," she said.

"Before the opening of the market in approximately 2000, we didn't have Zara and H&M and big international brands, there were less choices. Seeing the 'Made in Canada' label was normal, and higher prices were normal," she explained.

Baril learned through her attendance and participation at a conference in New York City that manufacturers were pressed to conduct research about biological fabrics to supply the increasing demand of their customers.

"The designers, like me, we have to listen to them, and then we ask our manufacturer to produce biological fabrics," she explained.

In previous generations, the freedom of choice was limited, and the consumer had to buy whatever was available, said Baril.

Many millennial shoppers are well-informed about certain realities regarding health issues, environmental standings and fashion consumption due to the globalization and the abundance of information available on the web.

Norma Rantisi, professor in Concordia's geography, planning and environment department, said that the 1990s brought on, "The adoption of fashion [as] part of an individualistic kind of expression of your personality rather than following a collective lead."

The average consumer relies less on magazines to tell them what they should be wearing, Rantisi said.



"A lot of consumers want to pick their own styles to mix and match rather than to have kind of a complete seasonal style suggested to them," said Rantisi.

Consumers seem to have stepped away from always following a mold created by fashion magazines and are starting to personalize their projected personas.

Indeed, more and more Hollywood celebrities, as well as the average person, are seen pairing heels with sweatpants, designer pieces with old sneakers, or a pair of jeans with ... well anything.

Fashion Accommodates a Lifestyle

With the accelerating pace of life, the overwhelmingly busy schedules and the rising expectations for women, especially after they joined the workforce, Rantisi said different aspects of women's lives have amalgamated.

"I think fashion has strived through the 1990s to become more about lifestyle, so you started to see the cross-marketing of clothing, lounge and underwear, with home furnishing or with other things that embody someone's total package," she said.

The 90s also popularized the trend of casual dressing, which Rantisi said is an extension of the lifestyle approach to fashion.

Sustainability occupies an increasingly significant portion of today's generation's discourse, leading people to select their wardrobe according to their personal values and life choices.

The importance of ethical manufacturing and sustainable production bypasses the shoppers who look for the cheapest price tags. However, Baril's brand speaks to a clientele who recognize the values that Marigold embodies and brings to the fashion market.



What It Means to Be Fashionable

Pierre-Yann Dolbec, an assistant professor in Concordia's marketing department, pointed out that "the logic of accessibility" present in the fashion industry has changed the consumer's perception of what it means to be fashionable. "You can mix and match fast fashion brands, second-hand clothes, and designer items and still come out as being fashionable and stylish," he said.

Dolbec explained that this type of "mix and match" accessibility allows for the development of a more sustainable alternative, all the while giving people the chance to develop and diversify their personal style.



Money, Money, Money

Aside from second-hand shopping, the affordable alternatives consist of fast-fashion brands known for their unethical standards of production. Rantisi suggested a solution to improve labor conditions in the garment production industry by re-proportioning the costs.

Rantisi explained that fair wages for laborers result in the production of higher quality garments, while operating under sustainable and ethical standards, creating a "virtuous cycle."

At the beginning of her career, when Baril worked for fast-fashion companies, she noticed the way they operate was based on a high turnover rate, prioritizing the quantity produced rather than its quality.

In order to promote a conscious consumption habit, Baril believes it is crucial to educate people to look for ethical



clothing choices. She explained that many of her customers do research before shopping in order to find clothing that has been ethically produced, because it is important to them.

Cycle of Overconsumption

Overconsumption is an undeniable characteristic of the North American lifestyle. The U.S. Environmental Protection Agency reported that around 11 million tons of textiles, a category within municipal solid waste, were landfilled a few years ago, up from around 1.7 million tons in 1960.

With the influence of platforms like Instagram that prompt their users to present their ideal life to their virtual followers by showing off belongings as well as experiences, users are often pushed towards a materialistic lifestyle to sustain their brand. Dolbec suggested that consumers are unconsciously pursuing an ideal.

"Somehow, you are geared towards finding where you have an edge towards others, and it's not in an evil competitive kind of way but more of wanting to feel special," he said.

He believes that part of the destructive consumption patterns is associated with ideologies promoted all around us that we subconsciously implement into our own lives.

Rantisi explained that "It's important to understand the structure of industry and the role it plays in driving consumption too. There are these general changes, demographic changes, changes in work and life boundaries, but it's also important to consider the role of the industry. With globalization, which can be traced back to the 1970s, what you started to have was an outsourcing of production to overseas and there was a real decline in the industry because of competition."

Rantisi went on to say that the restructuring of the clothing industry's entire operating system constituted a struggle for North American companies in regards to higher costs allocated to workers' salaries, compared to their competition. This pushed them to cut their expenses elsewhere.



She said this led to a proliferation of competition based on innovation, which in fashion translates into multiple offerings rather than on one quality product.

Identity Projection

According to Rantisi, social media has become an outlet to project an idealized identity. Dolbec goes on to explain that the greater the chance we have to socially compare ourselves to others, the more likely we are to purposely engage in behavior that we perceive as an elevation of our status, which can lead to dissatisfaction with life.

Social media platforms have given ways for their users to show off a lifestyle. Some, as Dolbec said, use it as a tool for competition and comparison. Others, however, want to advertise their lifestyle through their fashion choices that support a wholesome approach to life.

"People decide to show off what they want to show off," Baril said. She added that her clientele wants it to be known that they are wearing Marigold, since it is a sustainable and locally produced brand. As a response to her customers' request, Baril designed t-shirts with the word "Marigold" centered on the front in her brand's font. "Montreal" appears right under it, in a smaller font size. She even made an elastic trimming repeating the word "Marigold," which she plans to include on upcoming undergarments designs.

Baril hopes that sustainable fashion will outlive its current status of being a trend for some consumers, leading to it becoming a permanent choice.

Leaning Towards Sustainability

With the rise in popularity of sustainable consumption, the thrifting market has gained a newfound fame. Although some thrift stores still adhere to their original purpose of simply providing an affordable option for the less fortunate, many in Montreal are part of a trendsetting market.

Dolbec pointed out that the way, "Second hand is being pushed at the moment is very well-embedded into social distinctiveness, like logic, because [consumers] can go to a second hand shop and buy clothes that would be the



same price as they would be at H&M. I don't think it's outside of a neoliberal capitalist system, I think it's very well-embedded in it."

Rantisi said that, "Thrifting is itself now, in response, becoming appropriated as also a new means of market niche or market advantage and finding ways of ensuring that sustainability is conceived not only in terms of environment impacts but also social considerations and affordability. My only concern is that thrifting itself is becoming an industry."

Nevertheless, thrifting is an option that works with the model of recycling and reusing clothes and does not require new production. Please note that reusing does not apply to intimate apparel of course.

While the debate around its economic future in the fashion scene continues, the principles of thrift shopping resonate with today's consumers, who have grown conscious about environmental issues and their own sense of individualism. Having said that, the well-known underwear brand Hollister very much fits in here and appeals to the sustainability-conscious millennial shopper.

Moving Forward

Despite the consumer's efforts to make conscious decisions, Baril pointed out that often, the entirety of the fashion industry is reduced to the final product people see in stores or in magazines.

"When it comes to fashion and textile industry, because we don't see its production and it's far away; we don't see the condition of the working people and we don't want to see it," she said. Still, thinking about the whole global warming debate etc., sustainable shopping habits of the millennials are a fact and a fantastic beginning of change.

TECHNOLOGY DOMINATES AT SHOPTALK 2019

TERRI FISHER



I have just returned from another mind-blowing four days of ALL RETAIL, ALL OF THE TIME in Las Vegas at Shoptalk's 4th annual Shoptalk conference and it certainly did not disappoint. To quote Shoptalk's founders, "It's an incredibly exciting time to be working in the retail industry." It is a time of great change, great opportunities, and great challenges for us all.



The transformation of retailing will be defined partly by retailers and brands – some of whom are considered to be the "establishment" and some from companies that are yet to be created, as well as everything in the middle of the two ends of the spectrum. So much of this transformation will come however from outside the industry by advances in TECHNOLOGY as well as by ongoing shifts in consumer preferences and higher expectations.





Algorithms, data analysis, artificial intelligence (AI), robots, virtual reality (VR), social media influencers, and literally thousands more technological advances are all necessary to maximize profitability and to succeed in retail today. You might think there is one very critical piece to this consumer-driven puzzle that has been unfortunately overlooked in the past few years while we have all been obsessed with technology, and that is gut, instinctive merchandising. Where have all the merchants gone?

This gut merchant went to Shoptalk to subsidize my experience and knowledge with that of hundreds of speakers, most in the C-suite (CEOs, CMOs, CFOs etc.) in many different slices of retail. These organizations that lead the way with disruptive propositions will reap oversized rewards. Some retailers and brands will successfully follow the leaders and secure key benefits, but many will fail to keep up and will decline or even shut down. Shoptalk tells us that simply put, "those that try to address exponential change with incremental innovation stand to lose the most."

By bringing together the industry's largest and brightest community of innovators and shaping an intellectually honest dialogue, Shoptalk will play a pivotal role in helping the broad ecosystem "Create the Future of Retail."









There were 10 overriding themes across all the presentations, keynotes, seminars, and discussions which I will address one by one as best I can.

THE NEW DIGITAL RETAILERS

Running a retail organization – whether digital or brick & mortar – will increasingly mean running a technology company, forcing changes in skill sets, hiring, culture, and more. Digital expertise will be a hiring factor in every role across organizations. If you have not already done so, you need to get yourself to a Data Analytics class as soon as possible in order to compete in today's new world.

In the November/December issue of Harvard Business Review, an article on "Better People Analytics" states as follows: "We have charts and graphs to back us up. So f*** off." New hires in Google's people analytics department began receiving a laptop sticker with that slogan a few years ago, when the group probably felt it needed to defend its work. Most people analytics teams rely on a narrow approach to data analysis. They use data only about individual people, when data about the interplay among people is equally or more important. So now we are learning there are not just data analytics, but people analytics and many more unique ways to slice the retail pies.

THE TRANSFORMATION OF THE RETAIL INDUSTRY

This one is very important and hits close to home: The next generation of retail leaders will be more likely to come from digital or startup backgrounds and will be more FEMALE and more DIVERSE than ever. Rental and preowned product options (Baby Boomers might cringe here) will increase as consumers regularly update their product wardrobes for social media and as consumer attitudes toward sustainability and ownership change. Chinese companies will remain at the forefront of global innovation, outpacing both their American and European counterparts.





THE NEW ERA OF MARKETING ROLAND ATTRIBUTION

Lines between social media and other forms of marketing will blur. Marketers will become more adept at measuring the value of social media influencers that they work with. Mass media campaigns will become less and less important. Direct-to-consumer startups will look for new ways to scale up as customer acquisition costs continue to rise. There is a difference between marketing ROI and innovation ROI. Innovation ROI must not be measured in its earliest stages or else face being shut down. You must fail in order to succeed.

NEXT GENERATION E-COMMERCE AND OMNI-CHANNEL RETAIL

Visual search will become widespread. Buying right from Instagram. Mobile-enabled shopping experiences will play a bigger role in stores as they allow shoppers to learn more about products and put products in their digital shopping carts while shopping in stores. Technologies that enable shoppers to visualize products on their faces and bodies, in or out of the fitting rooms, will become extremely important in categories like beauty, apparel, and even furniture and home improvement. Adore Me, a new digitally-native intimates brand has already started to utilize some of this technology. Pickup options will become more diverse and widespread, and there will be greater focus on drive-through offerings.





TECHNOLOGIES CREATING NEW RETAIL EXPERIENCES

Every aspect of the store will become more "intelligent." Robots will become commonplace in store aisles. Facial recognition will be more widely used to identify shoppers. Consumers will expect more personalized experiences both offline as well as online. Cashier-less check out, such as Amazon-Go, will become far more common, contributing to more frictionless (an over-used word at the show) retail experiences. Voice will be used far more extensively as a communication vehicle. Sounds a lot like science fiction, right? Well it is here and it is here now.

ARTIFICIAL INTELLIGENCE AND "MACHINE LEARNING"

They will both be deployed across the supply chain, optimizing the most inefficient parts of the retail experience. Al will assist in-store staff to give shoppers more relevant and useful guidance based on shopper preferences and past purchases. Customer service and support will become more helpful and proactive alerting customers BEFORE they are aware of problems. Demand forecasting improvements will make distribution centers more efficient and reduce out-of-stocks at physical stores. Shoppers will rely on AI to make product recommendations and will come to expect extremely relevant suggestions. They want more and it's up to you to provide it with help of AI and machine learning.

ADVANCES IN STORE DESIGN

Store success will be measured in "experiences per square foot" as retailers leverage specific metrics like dwell times, engagement, and social sharing. Experiential retail will continue to expand and evolve, but will not be a replacement for outstanding products that meet consumer demands. Retailers will no longer use cookie-cutter store design, but instead will customize each location for its specific market.

IMPROVING OPERATIONAL EFFICIENCIES

Shortened supply chain lead times will mean faster access to cutting edge products and design. Retailers will find ways to limit waste throughout the supply chain as consumers grow more and more concerned about sustainability. The supply chain will become increasingly transparent as consumers demand more information on where their products come from and how they are produced.



INNOVATION STRATEGIES FOR BRANDS AND RETAILERS

Brands and retailers will strike unlikely partnerships with competitors to capture new customers. In-house startup incubators will become a form of R&D for large brands. There was still a lot of talk about innovation. Not going away! EVER! Opportunities to innovate will spread to every role within retail organizations, empowering employees and creating more useful offerings based on field insights.



BUILDING BRANDS FOR TODAY'S CONSUMERS

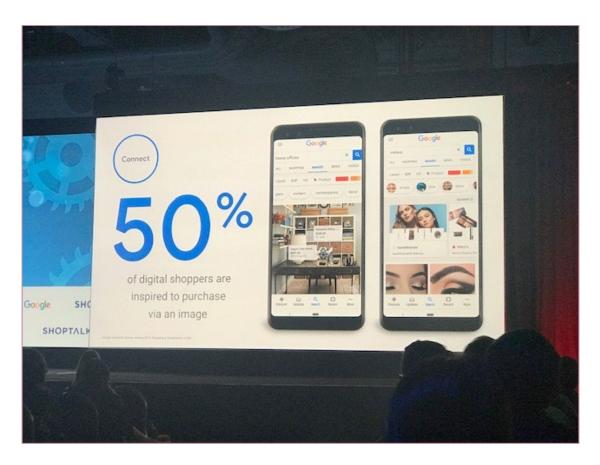
New brands will go to market faster than ever before. Retailers will invest more in the development and marketing of their own private label brands, which will claim a larger share of sales and floor space. Customers will play a bigger role in product design. The number of new brands will increase exponentially. Brands will create new products and experiences for a generation of health and wellness obsessed consumers. A growing number of brands will take a stance on social issues that are important to consumers.



Retailers and brands today must increasingly operate outside their comfort zones. The last thing retailers need is a return to a state of inaction and belief that innovation can be marginal and incremental. The industry will risk missing the much bigger picture. Massive changes are taking place that will transform everything about how we discover, shop, and buy. The Shoptalk team explains that "consumption, shopping and stores obviously are not going away – but with retail's NEW NORMAL well underway, the shopping experience of today is continuing through a tectonic shift that cannot be underestimated."







THE SESSIONS

I will now take you briefly through seven of my favorite sessions attended and the powerful leaders that spoke to the many topics covered.

GREAT'S SNEAKERS

Great's founder and CEO, Ryan Babenzien spoke about the currently hot sneaker industry. Great's brand sneakers are the first digitally-native sneaker brand. They have a Soho, NY flagship that does \$2000 per square foot in sales. It is a culture hub where sneaker junkies share experiences. Ryan talked about educating their customers rather than selling to them. They have many events at the store and always have a vehicle for "instagrammable moments." For example, in the Soho store they have a swing that everyone wants to have an Instagram photo on. He also believes strongly that happy employees create happy customers. He closed with "Be one of the Great's."





The REAL REAL

Mike Groffenberger, the Managing Director of Retail, spoke about how his company as well as other consignment, gently-used companies, are revolutionizing retail. They are an Authenticated Luxury Consignment Company creating a circular economy. A product that is MADE WELL gets BOUGHT WELL and then gets RE-SOLD WELL. This company started offline with pop-ups in Soho. Lesson? Pop-ups are a great way to see if a concept "has legs."

LULULEMON

Celeste Burgoyne is the EVP of the Americas for Lulu. She gave an inspiring presentation about creating and fostering a culture of innovation. The company is on track to do \$4 billion in sales by 2020. They started with a group of core values that everyone in the company lives by. Her message? It takes courage to innovate. The key to innovation success is HONESTY. "Without a strong culture, innovation is impossible."



BARNEY'S

Daniella Vitale is the President and CEO of Barney's who spoke about building brands for today's consumer. She feels strongly that it is not just about product anymore. It's about the EXPERIENCE (especially for Millennials and Gen Z consumers). Social media happens in a physical store, for example in fitting rooms, with DJs and events, etc. It's all about UNIQUENESS AND PERSONALIZATION. It's about being RELEVANT to your customer. She spoke about Loyalty programs and how they are key with all customers, not just through credit cards. By the way, did you know Barney's is 100 years old?



thredUP

The founder and CEO of this "Re-Commerce company" is James
Reinhart. thredUP is 11 years old and has processed 60 million pieces
of clothing since their inception. They re-sell 35,000 brands across
100 categories. Re-commerce is growing fast! This company does \$25



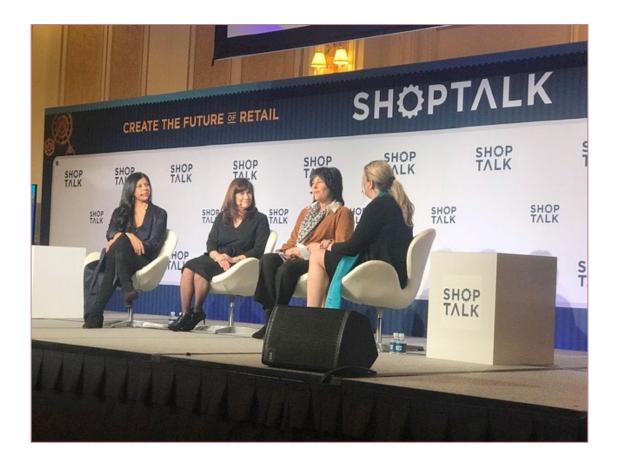
billion in resale retail apparel and thinks they can grow to \$50 billion. Over 50 million women bought used clothing last year alone. This customer is younger, smarter, and more conscious. The average income of this resale customer is over \$100k. They have fresh new arrivals every hour. Repeat customers account for 85% of their sales. This is an industry to watch!

LIVELY

This was one of my favorite sessions given my passion for intimate apparel. Michelle Cordiero Grant, Founder and CEO was amazing. I instantly liked her and ended up looking up her site and buying product. LIVELY feels that community can BE your marketing and is their secret weapon. LIVELY started in 2016 and has over 65,000 brand



ambassadors today. This is a very grassroots company. Each brand needs a reason to exist and LIVELY really listens to their customers and educates them. They have had two podcasts so far, which have been very successful. Michelle believes that success equates to 75% skills and 25% passion. Be curious! Build internal relationships! What's your big idea? (Michelle is the confident, beautiful, smart brunette on the left side of the stage below).





COSABELLA

We all know this Miami-based company but I'm not sure you have all met the powerhouse behind the brand, Guido Campiello. Guido is not only the CEO but also the creative director. He talked about product personalization on the site and in the fitting rooms. Fitting rooms are where relationships with customers happen. Cosabella utilizes bloggers and influencers to a large extent. Their core customers are aged 35-50 but they did not stop there. Last April they launched a tween collection. Their ideas come from the market: consumers and data. They also launched Eloquii in January. This company just keeps on innovating. And if you meet Guido you will know why and how.

What this all comes down to is that merchants are not dead, they have just morphed into DIGITAL MERCHANTS. If you have not yet "morphed" you need to do so at once or be left behind.





Shoptalk is one incredible show that is not to be missed in the future. You will learn about all the things you know nothing about and be a smarter, more successful person because of this show.

Shoptalk 2020 will be held in March at Mandalay Bay Resort in Las Vegas. I'll see you there!

With warm regards,

Terri



THE EVOLUTION OF ACTIVEWEAR - PART 2

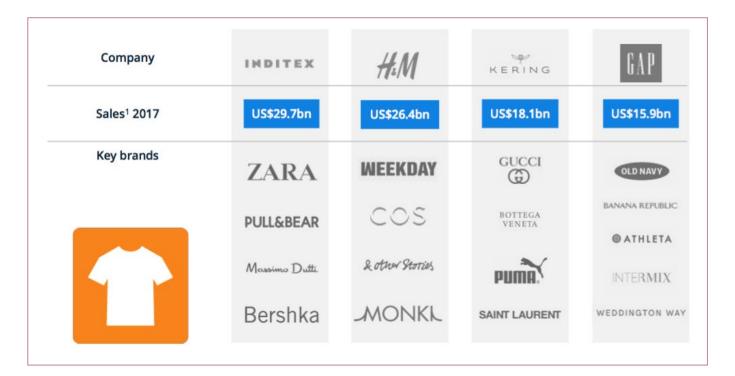
ANDREW SIA



The apparel market is the most important non-food consumer market within the worldwide retail sector. The market increase in online shopping and the continuing expansion of major clothing chains put pressure on the price levels of a growing market.

In 2017, the global total apparel sales reached \$1.475 trillion, a growth of 4.4% from 2016. In terms of volume, it reached 154 billion pieces in 2017, a growth of 2.3%. The forecast for the compound annual growth rate (CAGR) of revenue from 2017 to 2021 is again 4.4%.

Today, the most valuable fashion brands in the retail industry are Inditex, H&M, Gap and Kering. Let's take a look at these four mega-brands and see where they are today in the apparel market.





Sports and swimwear

As of 2017, the market segment of sports and swimwear accounted for 3% for both revenue and volume sales.

The growth in the sports and swimwear markets are due to a change in lifestyle. In recent years, more and more people have become interested in swimming and watersports. Furthermore, people prefer to go to the beach for vacation. Altogether, the market is growing annually by 4.2% with a compound annual growth rate (CAGR) from 2017 to 2021.

The world's most valuable sports brands are Nike, Adidas, Under Armour and Puma. Sales in 2017 were the following:



• Nike - \$34.35 billion



• Adidas - \$24.11



• Under Armour - \$5 billion



• Puma - \$4.7 billion



But according to Huffington Post Sports, the ten best sports brands based on affordability, quality, availability, style points and street cred are:



- 9. Gap
- 8. Under Armour, with 6.9 million followers
- 7. Eysom, with 15,200 followers
- 6. Puma, with 9.2 million followers
- 5. Adidas, with 23.2 million followers
- 4. Nike, with 84.8 million followers
- 3. Ten Thousand
- 2. Rhone
- I. Champion Sportswear

Ranker has rated their top ten brands:

- 10. Jordans
- 9. Asics
- 8. Jordan
- 7. EA Sports
- 6. Gatorade
- 5. Reebok
- 4. Puma
- 3. Under Armour
- 2. Nike
- I. Adidas



Sports and swimwear accounted for 3% of global apparel sales in 2017.



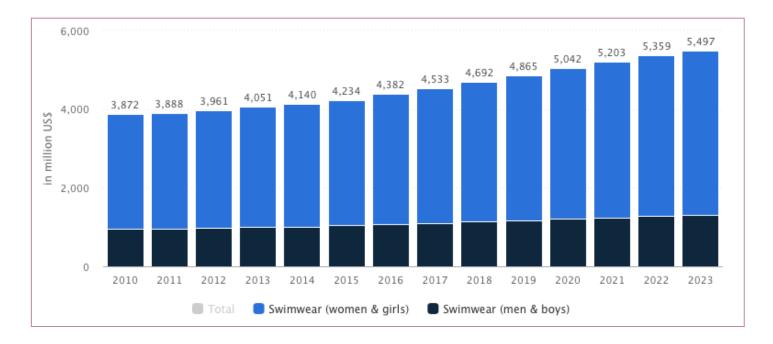
In this issue we're going to focus on swimwear. We'd like to walk you through the information we've found.

Swimwear

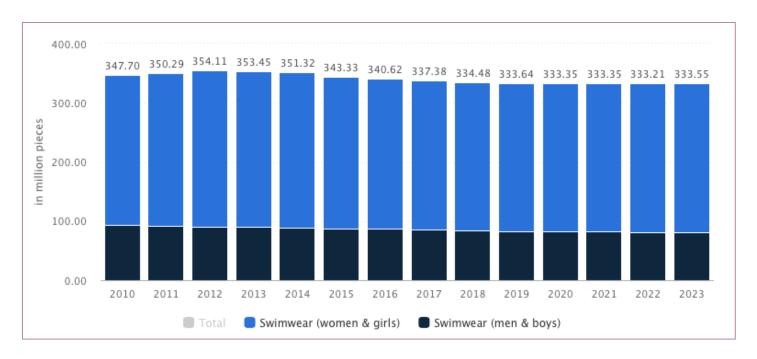
Revenue in the global market for the swimwear segment is predicted to reach \$4.865 billion in 2019. This market is expected to grow annually by 3.1%, from 2019 to 2023. Most of this revenue, \$3.776 billion, comes from the U.S., nearly 80% of the global market. In terms of volume, that's 333,640,000 pieces at an average price of \$14.58 at retail.



The following chart shows the steady growth of this business in terms of revenue. The business for men and boys is steady, while the growth is in women's and girl's swimwear.

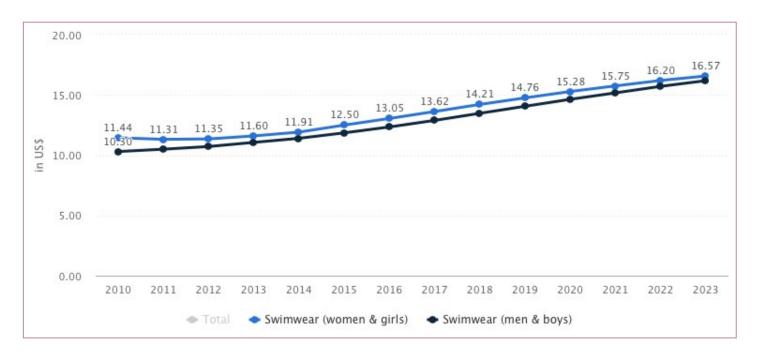


Volume wise, it's quite steady, and the average price of \$16.48 at retail is still relatively modest.

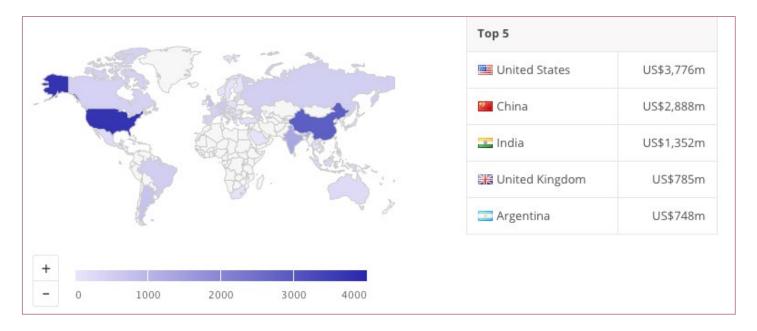




The following chart shows the average price per unit. To our surprise, the price for women's swimwear is only slightly higher than men's.



In terms of global revenue, as mentioned earlier, the U.S. holds 77.6% followed by China, India, the UK and Argentina.





Conclusion

We see a lot of longevity in this apparel segment due to the increased popularity of physical fitness and a healthier lifestyle.

- Technical
- Supply Chain
- Sustainability
- Fashion & Design
- Market Intelligence
- Entrepreneurship

FASHION &

DESIGN



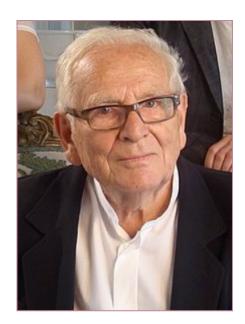
FASHION QUOTE: "TALENTS AND TASTES ARE NOT ENOUGH. ONLY STYLES COUNT" BY PIERRE CARDIN

ILLUSTRATION BY TINA WILSON



French fashion designer Pierre Cardin was born Pietro Cardin in Treviso, Italy on July 2, 1922. His parents were wealthy landowners who, in 1924, left Italy to escape fascism and settled in France.

He was educated in central France and, at the age of 14, began as a clothier's apprentice. At 17 he left home to work for a tailor. There he started to make suits for women. During WWII, he worked for the Red Cross, helping with the humanitarian activities that continue to this day.



Cardin moved to Paris in 1945 and worked there until he became the head of

Christine Dior's tailleure atelier in 1947. Cardin founded his own house in 1950. He made his name when he designed 30 costumes for "the party of the century," a masquerade ball at Palazzo Labia in Venice in 1951. He started his haute

couture in 1953.

In 1959, Cardin began travelling to Japan, turning it into a high fashion market.

During the 1960s he began the system of licensing. At the same time, he democratized high fashion, with his ready-to-wear label "Pierre Cardin." This proved the right decision and he gained great success.

Of Pierre Cardin's many endeavors, I'd like to mention his passion for NASA and its success in putting the first man on the moon. He loved the space suit so much that he opened his "Espace Cardin" to show his own collections.

The Pierre Cardin brand was initially a prestigious fashion brand. In the 1960s, he expanded successfully into perfumes and cosmetics. It was said that success was the premium nature of the brand and at the time it was estimated that his annual income from licensing alone was \$10 million. But he sold his name to anything. You could find it on everything from key chains to cigarette lighters and that dented the name's cachet.



He bought Maxim's restaurant in 1981 and opened branches in New York, London and Beijing. I visited his restaurants in Paris and Beijing quite frequently. And then by accident I checked into his hotel, the Residence de Maxim in the center of Paris, and was totally taken in by its decor. This was 1983. ITMA was being held in Paris at the time and I was using the Michelin guidebook to find a hotel and found Residence de Maxim. At first I was given only one night to stay but luckily they extended our stay for the full period we were in Paris.

The room was a suite with totally different decor in every room. The bathroom wall was all hand painted by an artist. It was spectacular and for many years it became my residence whenever I traveled to Paris.

Every now and then I was able to catch a glimpse of Pierre Cardin because he was living in another section of the building, which he held privately. I met him once or twice and was able to have a conversation with him.

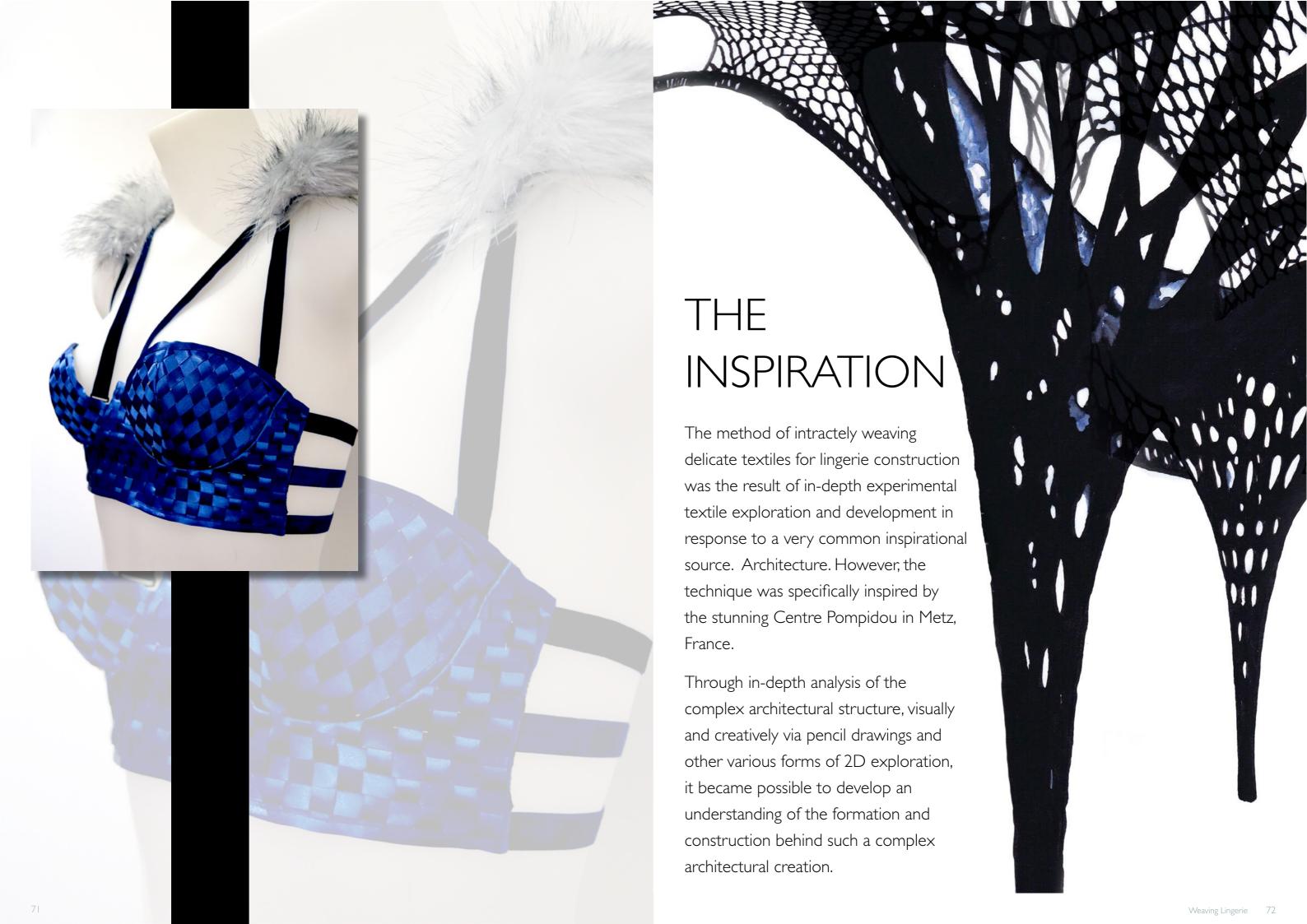


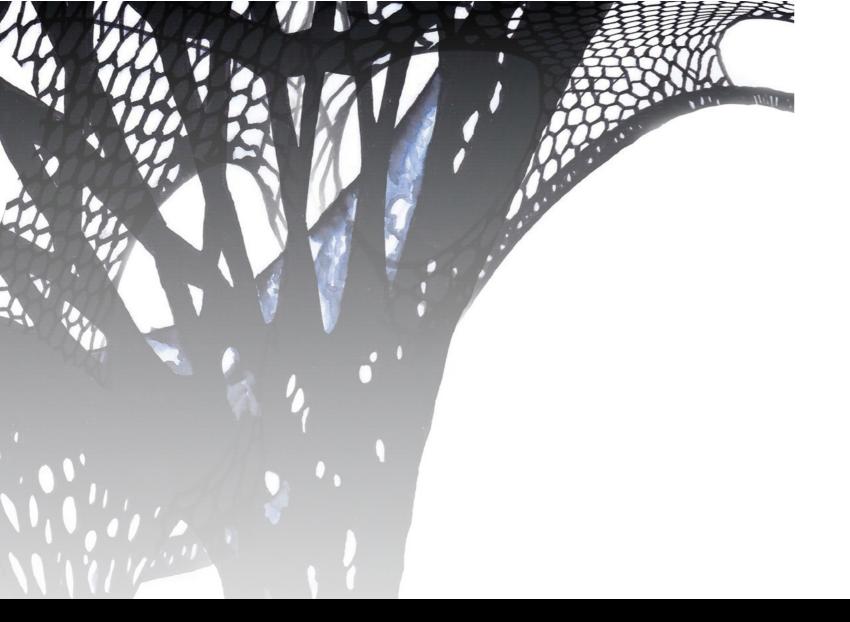
He was the designated UNESCO Goodwill Ambassador in 1991 and was nominated as the Goodwill Ambassador of the Food and Agriculture Organization of the United Nations in 2009. He is a living legend.



WEAVING LINGERIE

DAVID MORRIS





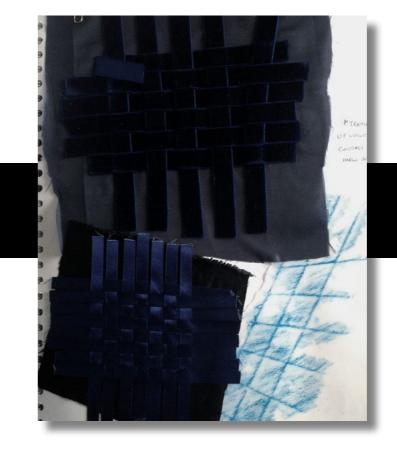


TEXTILE REINTERPRETATION

The instinctive response to this research was to creatively reinterpret these graphic forms and shapes using a variety of textiles. Through this experimentation it became evident that the traditional technque of weaving offered the potential for reinterpretation and most importantly, innovation.









TEXTILE DEVELOPMENT & EXPERIMENTATION

The above images detail the explorative and experimental stage of the design process in developing new textiles. The process explores textures and interesting surface structures through experimentation with contrasting fabric textures and structures while considering the impact of scale and varying scale in addition to confirming the colour palette.

TRANSFERRING ONTO THE BODY

In the next development stage of the process, the selected fabrics and textile construction techniques (in this case a loose and tight weave using 16mm and 9mm ribbons) are explored within garment shapes on the body. The selection of the final designs is based on the garment shapes and fabric/weaving technique working together successfully, enhancing each other.



VELVET SKIRT CONSTRUCTION

Begin pinning ribbons vertically onto toile of garment shape.

Start to weave horizontally, pinning at 'anchor points.'



VELVET ROBE CONSTRUCTION



81 Weaving Lingerie 82



Technical Drawings, front and back of bralet with stitch detail.

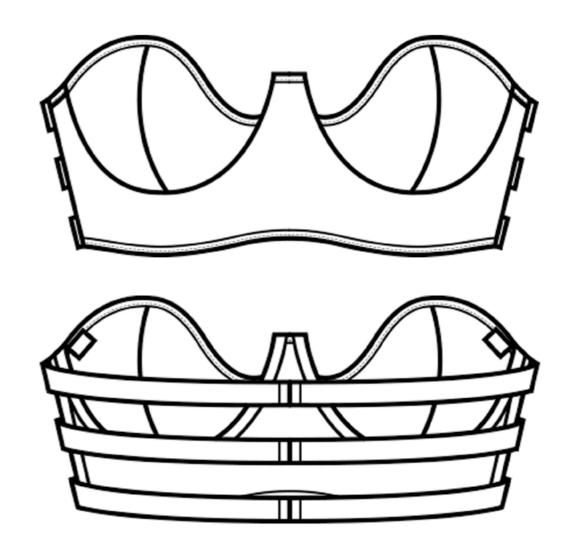


STRAPLESS WOVEN BRALET WITH SHAPED CUPS & STRAP BACK

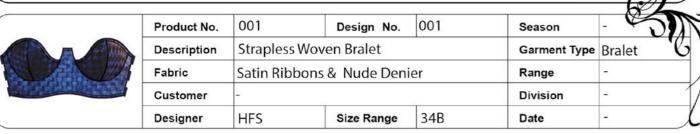
The following pages detail the pattern and construction method for the woven bralet. Although the weaving element is fairly complex, the pattern can be easily used for any rigid fabrics

METHOD OF CONSTRUCTION

- 1. Cut out denier pattern pieces then start to weave ribbon over each pattern piece onto a flat surface, pinning at each end of each ribbon and cutting the edge allowing at least 10mm excess to pattern piece edge on either side
- 2. Begin pinning laying ribbon one way first then weave through in the opposite direction repeat with all 4 cups and cradle
- 3. Once pinned, prefix in place on lockstitch with the garment right-side facing upwards on a wide stitch removing pins as you go (you will not be able to see the edge of the denier and so it is a case of guessing)
- 4. Once prefixed trim back the excess edges and then prefix again with the denier side facing up sewing 2mm away from the edge, before removing the first stitch
- 5. Sew outer cups together and sew denier liner cups together seperately iron open the seams and then pin around the edge before prefixing the cups together then bind the edge of the cups. Then bind lower and upper edges of the cradle before sewing the cups into the cradle and binding the seam allowance
- 6. Attach American wire casing (normal wire casing used for own sample and hand stitched at 4 points)
- 7. Cut elasticated velvet to size, measure and lockstitch then sew boning onto s/a before handstitching back in place finally attach hook & eyes and attach strap loops



Pattern Specification



Ref	Pattern Piece	Name	Fabric	Cut Pieces
A	24.32 E5941 122.53 132.66	Cradle	Satin & Denier	x2
В	106.20 106.20 106.20	CF Cup	Satin & Denier	x4
С	[53.73] [53.73]	Side Cup	Satin & Denier	x4
D	E59.49 E59.49	Wing	Velvet Stretch Ribbons	

PATTERN SPECIFICATION

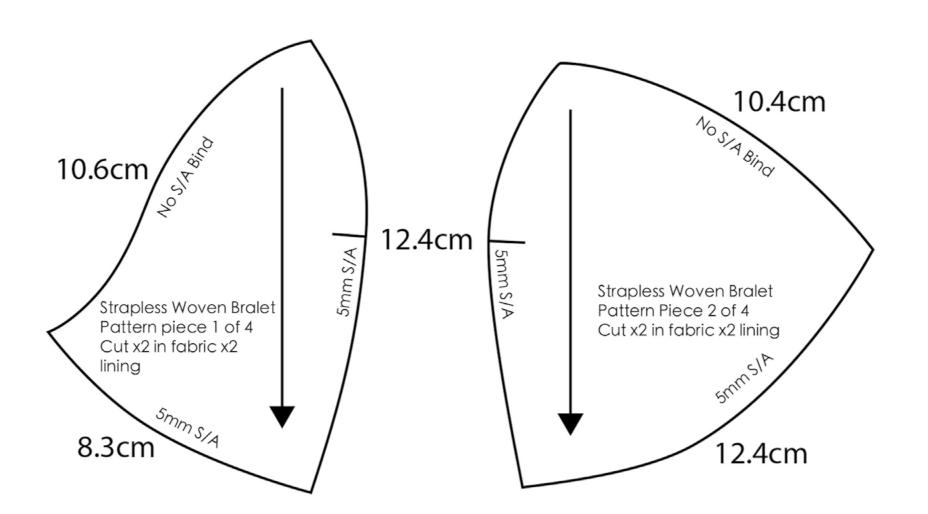
The pattern specification opposite details the pattern pieces involved in constructing the bralet, the precise pattern measurements, seam allowance, number of pieces and fabrics. A wing piece has also been included for an alternative option to the strap back.



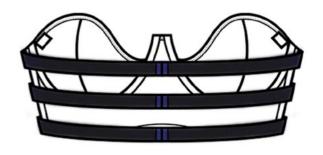
STRAPLESS WOVEN BRALET PATTERN PIECES FOR CUPS

Pattern piece are currently 34B without seam allowance added - ready to grade.

Pattern uses a strapless wire and American wire casing which means that the wire is not stitched down firmly to the cradle. This is so that no stitching disrupts the weaving on the cradle.







Match up notches on cups before lockstitching.

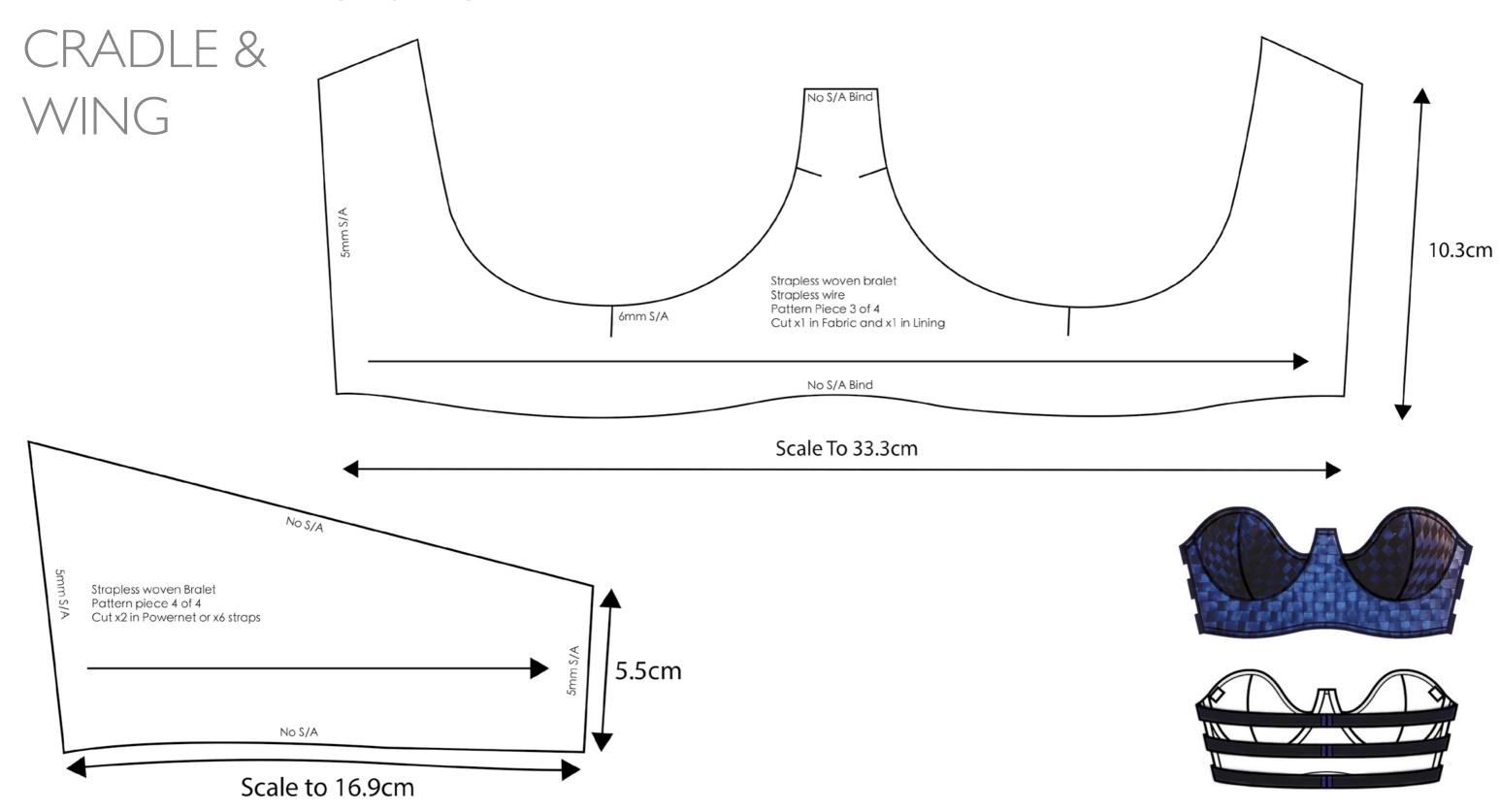
Notches on cradle match up with over bust seam and dropped cup positioning on centre front.

6mm seam allowance has been given on cradle cup edge.

Weaving Lingerie 90

STRAPLESS WOVEN BRALET

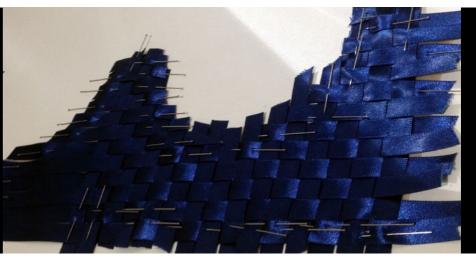
PATTERN PIECES FOR



THE PROCESS CRADLE & CUP WEAVING



Place and pin vertical ribbons before weaving and pinning horizontal ribbons.





Prefix, removing pins in the process and then trim the edges.





Construct cups and then bind before attaching to cradle.



THE FINISHED GARMENTS WITH FUR ADDITIONALS



Woven velvet skirt and robe enhanced by a velvet wrap belt with fur pom poms and oversized fur cuffs. Velvet stretch straps were added to the bralet with fur shoulder pieces, matched with an accompanying woven satin highwaisted knicker.

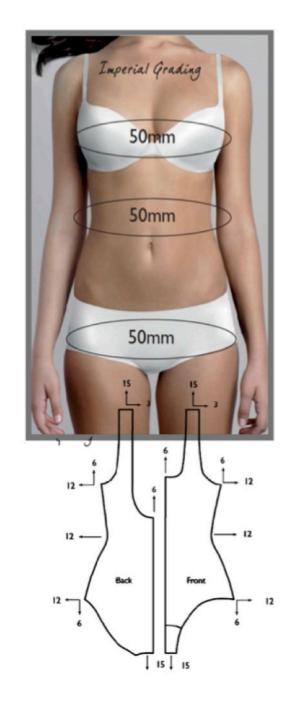
FURTHER READING

Fairbanks, J (2011). Bare Essentials: Underwear: Construction and Pattern Drafting for Lingerie Design: Volume 1. Los Angeles: Los Angeles Fashion Resource.

Haggar, A (2004). Pattern Cutting for Lingerie, Beachwear and Leisurewear. London: Wiley-Blackwell.

Loehr, N (2014). Demystifying Bra Fitting and Construction. New York: Orange Lingerie LLC.





- Technical
- Supply Chain
- Sustainability
- Fashion & Design
- Market Intelligence
- Entrepreneurship



TECHNICAL





WHO NEEDS A SMART BRA?

DAVID MORRIS

BIOMETRICTEXTILES

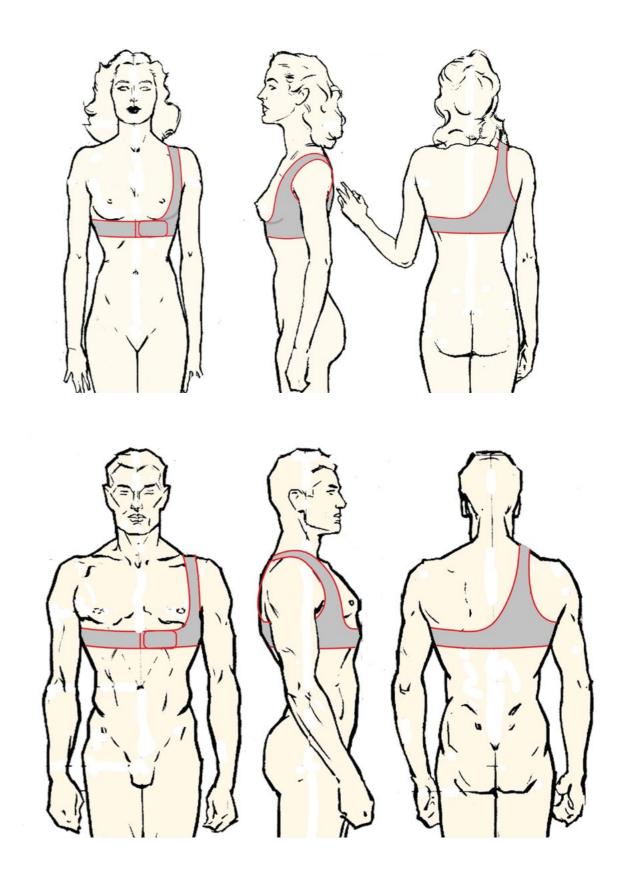
Ten years ago (2006) I was approached by an engineer from the science park in Cambridge UK, to design a harness to hold a sensing monitor that recorded and transmitted physiological data from the wearer to a receiving centre. The company was bidding on an American military contract that required the physical data of soldiers to be transmitted back to headquarters so that the well-being of troops in the battleground could be monitored.

The monitoring device was to be placed closely over the sternum, in contact with the skin of the wearer. The harness had to fit snugly or the transmission would be interrupted. The harness had to survive any operations senario, desert, extreme cold, immersion in sea water, and of course the sweat and wear and tear of its owners lifestyle.

The project took some time to complete and the feedback from the American troops was not favourable about the bra hook and eye fastenings but sampling went ahead.

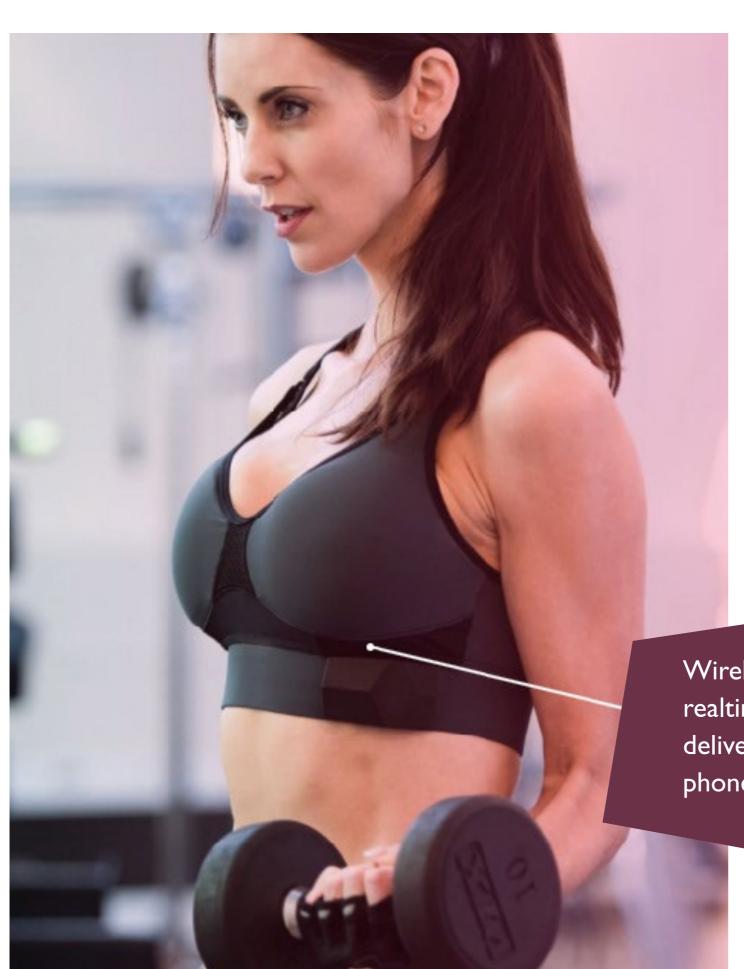
I heard little more until 2010 when the 2nd generation of the project appeared. Now female troops were to be catered for and the position of the monitor had changed due to new body armour designs. Research into suitable fabrics suggested spacer fabric, newly developed with an option to choose smart yarns that supported its fitness for purpose.

Fastening the harness was modified to Fildon's butterfly fastenings and the whole harness was bonded together. Everybody seemed happy and the final design went to a Sew Systems in Leicester for production.





102



WHO NEEDS A SMART BRA?

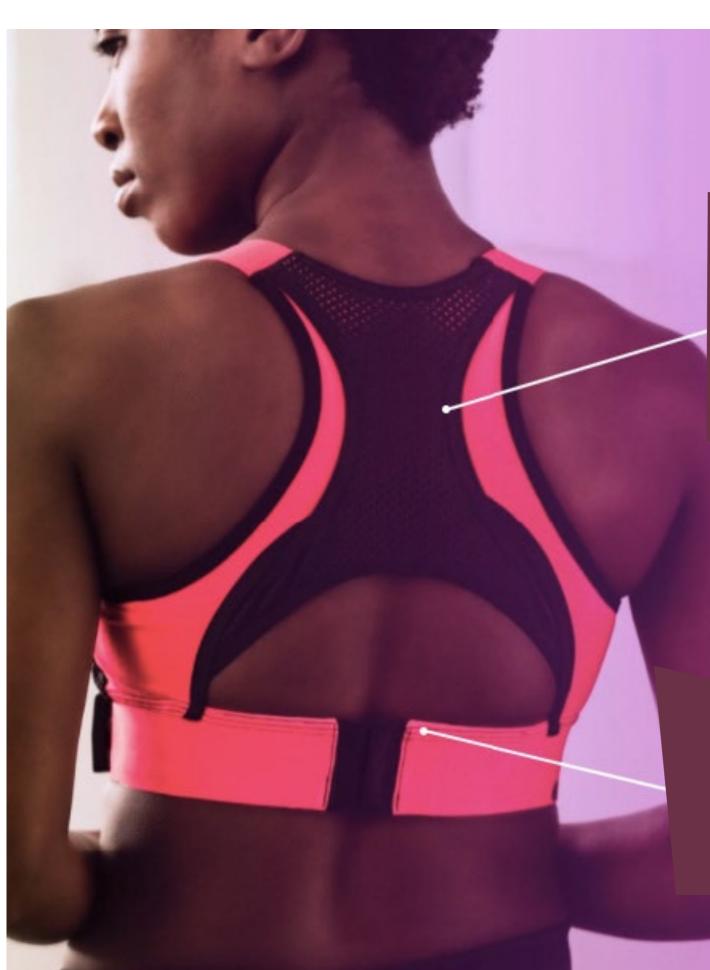
The Canadian start-up company, OMsignal revealed their GB£100 retail digital bra at the Consumers Electronic Show in Las Vegas in early Jan. 2015. But consumers' poor reaction to further developments in high-tech devices has sent Apple's share's falling to their lowest level since Oct. 2014.

Is smart technology getting boring?

Are consumers suffering from high-tech overload?

Kate Unsworth, whose London-based company Vinaya makes high-tech wearables was quoted in the Sunday Times, "we need fewer digital distractions."

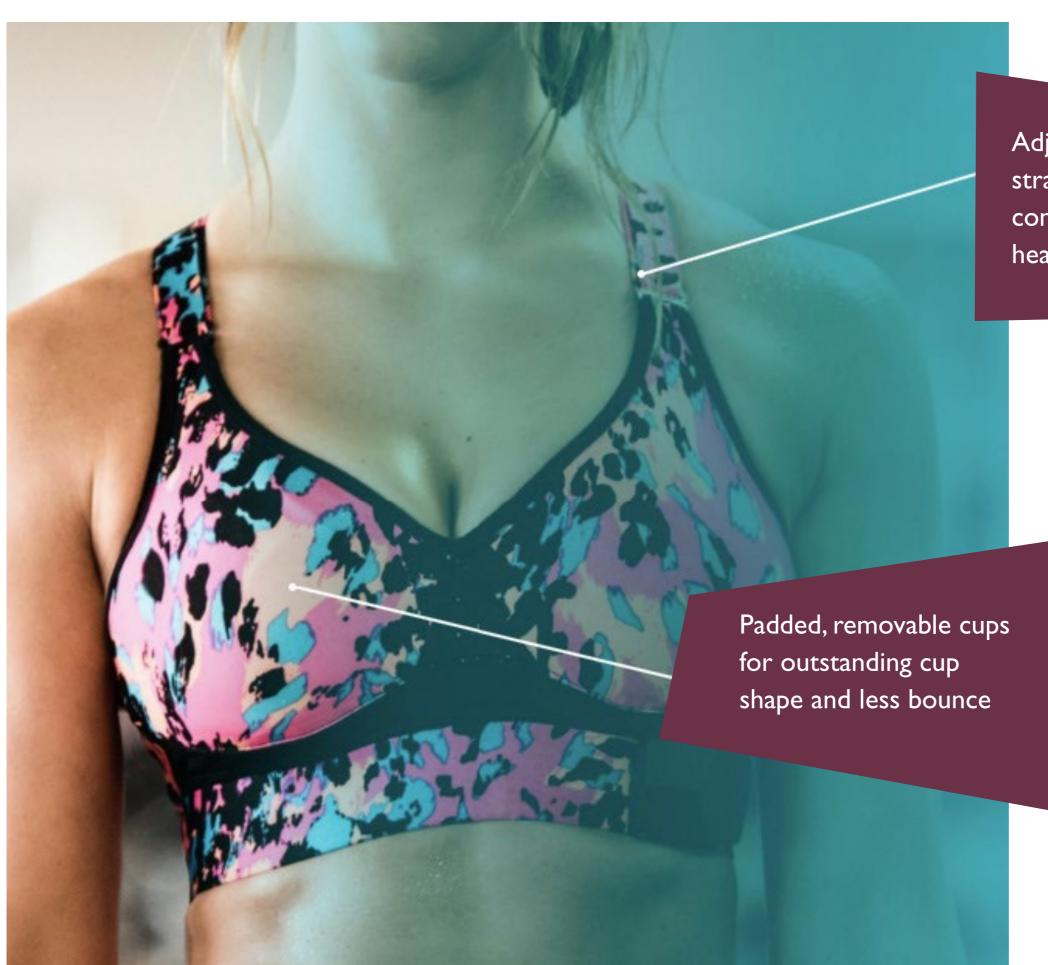
Wirelessly records realtime biometrics and delivers them to your phone



High performance, stretchable fabric absorbs pressure and reduces stress on back and shoulders

Thin, flexible sensors discreetly integrated within bra for a 'barely there feel'

The small Bluetooth module is connected to the bra with five snap fasteners, and is about the same size as a stack of 10 credit cards. It's textured and angled a little so that it somewhat bends around the contours of your body as it sits along your left side. Flip it over and there's a micro-USB port nestled among the snap fasteners and a unique PIN code on the right that you'll need to pair your device to the compatible iOS app.

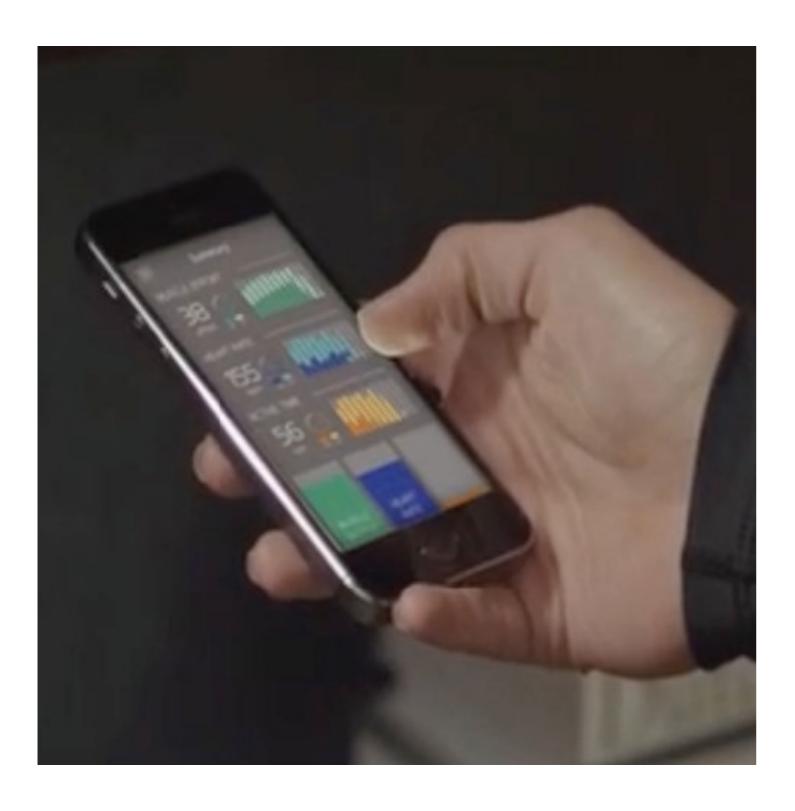


Adjustable bands and wide straps provide maximum comfort and promote healthy posture

Once you've paired the app to the little black box, you'll be asked to do a fitness test that takes around five minutes. You'll need to stand still for the first and last portions, and in the middle, a cheery Canadian narrator will order you to squat, reverse lunge and air bike your way to a heart rate of 140BPM.

In the final minute, the app tracks your recovery as you clutch at your chest and pant in agony, giving you a letter score to assess your fitness.

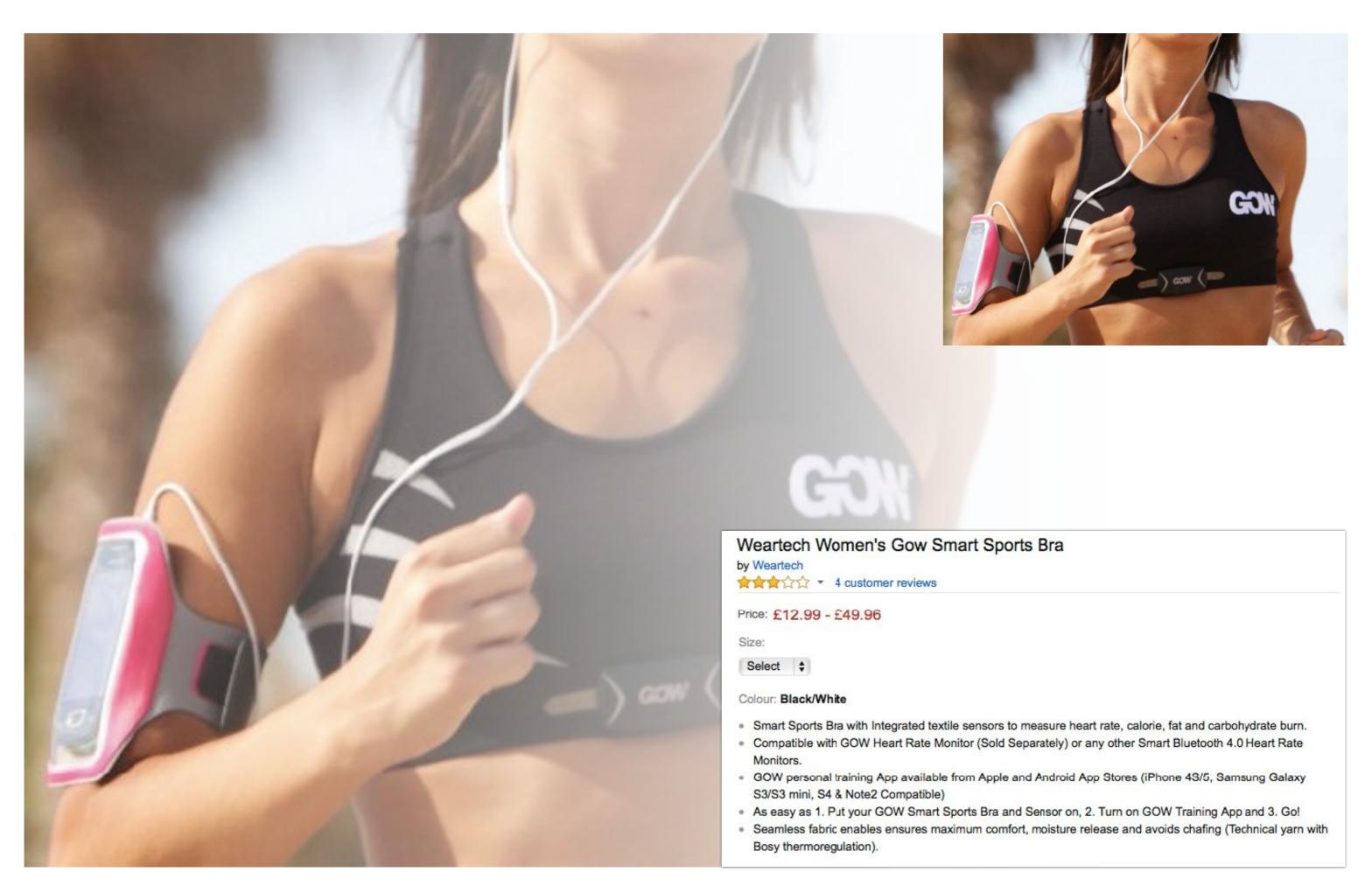
That score didn't come the first time out, I should add, because the cold climate that dries your skin out causes the conductive threads in the shirt to stop working. In the same way you're asked to run the rubber strip of a traditional chest strap under a tap before you put it on, you need to moisten the OMsignal's sensor pads with water or rub a hydrating water-based gel on your skin to improve the conductivity.

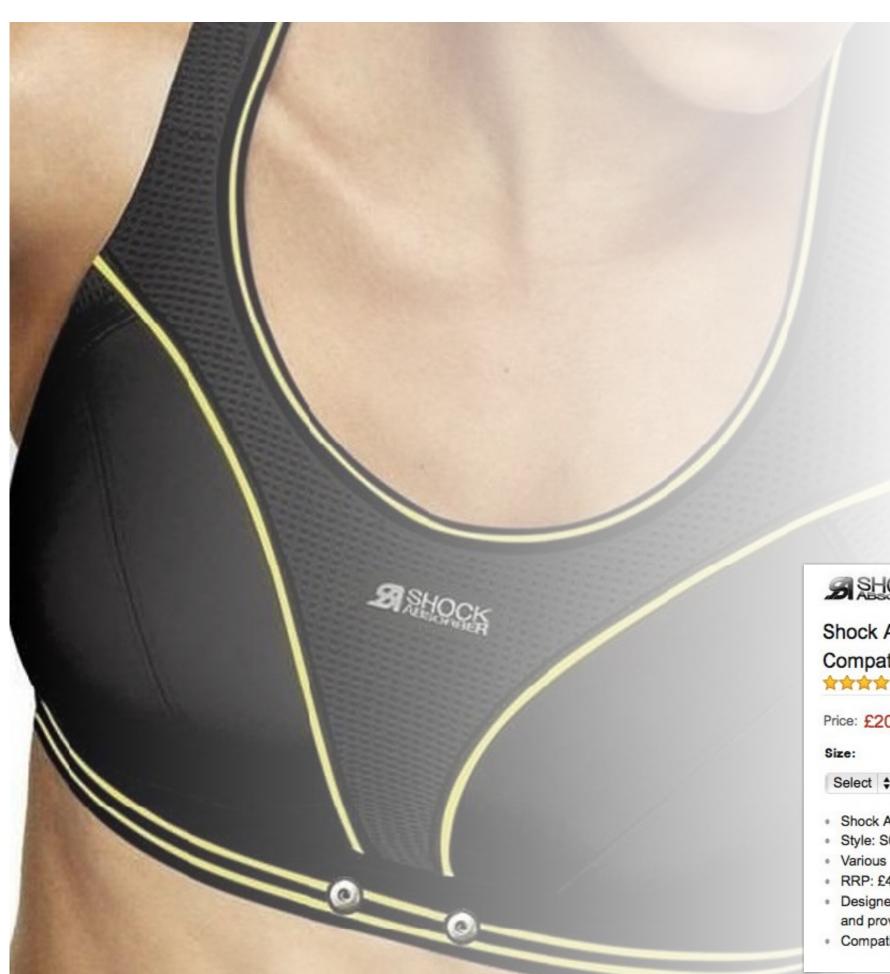


The app mostly concerns itself with three large circles that represent your heart rate (red), breath (blue) and steps/ calories (yellow). Each one is pretty large and, perhaps inexplicably, the yellow circle is held off-screen for you to swipe on and off as you see fit. I'm not entirely sure why, since there's plenty of screen real estate on your iOS device to see all three, but there has to be some logic to it. Below that is the button for the aforementioned biometric test, which you can use to test and re-test yourself as your fitness improves. Then you've got a trio of options, letting you activate the fitness-tracking module for when you go out for runs and the results page that tells you how well you've done.

The fitness option is great for real-time tracking if you're on a treadmill or other such system that lets you keep an eye on your phone. You can even configure your goals so that you have to reach a set period of time for a set heart rate zone, ranging from fitness, through aerobic and anaerobic, all the way to VO2, the last one being exercise speak for "maximum effort." Maximal oxygen uptake (VO2 max) is widely accepted as the single

best measure of cardiovascular fitness and maximal aerobic power. Absolute values of VO2 max are typically 40-60% higher in men than in women.







SHOCK

Shock Absorber 5044 Run Sports Bra S00BZ Black - Heart Rate Monitor Compatible

★★★☆☆ ▼ 17 customer reviews

Price: £20.34 - £24.34

Select \$ Size Chart | Fit: As expected (59%) *

- Shock Absorber Ultimate Run Bra with Heart Rate Monitor Compatibility
- Style: S00BZ (5044 Run Bra)
- RRP: £45.00
- Designed specifically for runners, the award-winning Ultimate RUN bra reduces bounce by up to 78%* and provides ultimate friction-free comfort.
- Compatible with most Heart Rate Monitoring Systems

Who Needs a Smart Bra?





It was only a matter of time. Lingerie brand Victoria's Secret is now selling their sports bra for around \$75 with built-in electrodes that hook up to a heart rate monitor. Sign of our wearable tech times.





Technical Supply Chain Sustainability

- Fashion & Design
- Market Intelligence
- Entrepreneurship

Interview



THE MAYOR OF MADISON AVENUE - AN INTERVIEW WITH WALTER COSTELLO

CAMILLE BLOCK

I have interviewed many individuals for the INTIMATE APPAREL JOURNAL, but I must say this was one of the most difficult, just because I knew at the time that I would be saying goodbye to Walter. But in a good way. You see, he was planning to leave the intimate apparel industry for his new life (a new chapter). Not re-inventing, but just fulfilling a yearning to do something else and to add to his many accomplishments within the industry. Knowing Walter for so many years, and interviewing him, brought back lots of memories that we shared. Of course he was one of my favorite lace salespeople (loved his expertise) but we also shared fun times being members of two clubs, THE UNDERFASHION CLUB and PROJECT HELP US GIVE.



Why do we call him MAYOR of MADISON AVENUE? That's easy. He was always around. For years, Madison Avenue was the "hub" of the intimates companies and one could always run into Walter. So, one could literally bump into Walter on the street, and he was there for many of us in many other ways, always lending a helping hand, always getting involved and being a great friend.

For this interview I have asked a few of his friends to speak about Walter in addition to my Q&A. But first, let's see what the "Mayor" has to say.

IAJ - When did you first get into the lace business?

WC- I graduated from Philadelphia College of Textiles & Science in 1981 with a degree in textile marketing and management. Peter Coppola helped me get a job at Thomas Wilson in 1982. The company was a leavers lace supplier for intimate apparel. I didn't especially look for lace but it worked out that way. I was fortunate enough to be at the right place at the right time.



IAJ — What aspect of the business do you enjoy the most?

WC – Working with Clelia. But really, it's fascinating to watch how designers use their creative minds. To see the laces sell in a retail store, they come to life for customers. With Clelia I love being involved in the process of the "creative process." Also, I was able to develop a close network of friends and colleagues.

In addition, I also loved aspects of the business such as going to the trade shows, especially in France (Paris and Lyon). When I was there, I really felt a part of the international community and it was very inspiring.

IAJ — What do you want the industry to know you for?

WC – My humanity and my honesty.

IA] – Did your family influence you in your choices to get into the textile business?

WC – Not at all as far as the business. But they supported me with whatever I wanted to be. They were very supportive.

IA] – I know you love the theater and you sing and act. Tell us more about that.

WC – Well, I started in 1995. Anne Marie and JP Brogan dragged me to a production of "Guys & Dolls" in Brooklyn. They wanted me to be in it. Ever since then, I have been involved in community theater in Brooklyn and Queens. I have had starring roles in musicals as well as plays and I have loved every minute of it. My favorite role is Audrey 2 in "The Little Shop of Horrors."

IAJ – Do you have any favorite lingerie story that you can tell us?

WC – I love this story: When I worked with Alan Fisher at WACOAL he picked out a calla lily and claimed it as his. It became WACOAL's top-selling garment for many years. I loved the way he just grabbed it and had it confined.

international apparel journal

IAJ – Do you have any advice for young designers today going into the lingerie business?

WC – Be yourself, ask questions, know your tech packs, follow your passion. Learn to find inspiration from

anywhere and everywhere. Try to learn as much as you can of every aspect of the business. Find a mentor. Join the

UNDERFASHION CLUB.

IAJ – You are very involved in the UNDERFASHION CLUB and PROJECT HELP US GIVE. How would you advise the next

generation to get involved with these two organizations?

WC – Networking and giving back to the community should be important as well, in one's career path. You never

know where a contact or a conversation will lead. It's also extremely rewarding to be involved in an organization that

helps others.

IAJ – Where do you see the intimates business going in the near future?

WC – Going forward I am seeing more online businesses and smaller stores, especially in urban areas. I also see more

diversification, plus sizes and body positivity going forward.

IAJ – A little bird told me you have new plans on the horizon. Can you tell us?

WC – Yes, I am retiring from intimate apparel after 36 years. I am joining my fiancé in Bellingham, Washington, where

we will be opening a bed & breakfast. I am looking forward to the next chapter in my life. The bed & breakfast is on a

beautifully landscaped property in the historic district of Bellingham.

Stay tuned.

NOTE: As of December, Walter and his fiancé were married!

international apparel journal

As mentioned earlier, I was able to have a few friends give their kind words about Walter.

SUZANNE BECK

Walter Costello brings a smile to my face! I can hear that rich baritone voice of his. A strong, warm greeting each time I saw him, whether at a UFC event, or in Paris, or on the street of Madison Ave! The way he could create a signature

musical saying of your name!! And that laugh!

I have watched him effectively and efficiently handle being the President of UFC, President of P-HUG (INTIMATE

APPAREL SQUARE CLUB), be responsible and impactful on the finance committee, SAIG committee, and the HSFI

team. Always fun to be around, always responsible. And of course, I remember him as a beloved lace salesperson

joining our growing younger team at Liberty Fabrics years ago. I watched him perform magic tricks at our holiday

parties. And years ago, I went with a group to hear him sing in the basement of a church in Brooklyn with JP Brogan's

wife in a play.

I am so happy that he has found Joe! And these two tall handsome "drinks of water" are off on their next Life Journey

together. I wish them only the VERY BEST!

Here's to Happy, Healthful Trails & Lots of Fun to them Both.

Much Love, Suzanne

VICTOR VEGA

I have known Walter for many years. I have known him as a member of the intimate apparel industry and as a

member of the industry clubs. Throughout all these years what has impressed me the most about Walter has been

his commitment and unwavering dedication to everything he gets himself involved. His company, his customers, the

industry clubs' causes, his friends and much more.

The Mayor of Madison Avenue - An Interview with Walter Costello



My first contact with Walter was when he worked at Liberty Fabrics and later at Macra Lace, the Underfashion Club and Project HUG industry clubs. Because of these connections, I had the opportunity to be around Walter in multiple settings and occasions, thus giving me the opportunity to appreciate Walter's strongest assets, which are his total dedication, commitment and pleasant personality in action. He was the President of the Underfashion Club, the President of Project HUG, Chair of Committees, Secretary, Treasurer and more. When he was needed, he was there. Many times he volunteered himself without being asked and when asked to step in he did it always gracefully with a smile on his face, revealing by his actions how much he cares.

His commitment to support the kids at the hospitals as part of Project HUG went beyond his participation as an active member. For many years he was Santa and the Spring Bunny when bringing gifts to the kids.

He also brought many happy smiles to the young and adults by face painting and creating incredible balloon animals at different events (one that I remember was at the Wacoal Picnic).

Another of Walter's talents is his remarkable and easily recognizable unique voice. Because of this, whenever an MC was needed at any of the events, he was there to chip in and lend his support. Always ready to help with a smile on his face, a comment or a joke to make you laugh and enjoy the moment.

Walter's innate desire to help and support others is commendable and admirable, his commitment and dedication are unmatched and unique. Because of this and much more, he leaves a void that will be very difficult or impossible to fill.

Walter, you are a very special human being that we have learned to care and enjoy to be around. You will dearly be missed.



international apparel journal

DEBORAH EATON

After joining the UFC Board back in 2001, one of the first people I connected with was Walter Costello. We were both new to the board and many years younger than most on the board. Fast forward and we are passing the Mission of the UFC onto the next generation.

Walter and I quickly became friends and shared a wonderful journey together. We became co-chairs of the SAIG committee and had the most fun with Colette Wong, FIT Retired Design Chair, as we pulled together the beginnings of scholarships and internships at FIT. Lots of love went into FIT, along with hours and of course countless cocktails with laughter as we navigated our time together.

When Walter became president, I served as his treasurer for the UFC for 4 years. At this point in our friendship, I was adopted by Walter as one of his many wives in the industry. This was quite a group of women. This was definitely "Big Love" as Walter's sisterhood of wives had a wide range of personalities. My favorite was Sarah Pederson. Some I wonder why he married them but at the end it did not matter as he is such a great friend.

My shared memories with Walter over so many years are a treasure to me and I will never kiss and tell! Will miss him terribly as he leaves NYC to his new home in Bellingham, WA. Truly wish him all the best, he will be missed so much!

Lucky for Walter, Seattle is a port of business for me, so get ready Bellingham as part "Deux" for us takes place on the West Coast. Wishing you happy travels as you drive through the USA over the month of December and continue to stay the thoughtful, fun and loving person you are.

Very best,

Deborah





CLELIA PARISI

Working with Walter for the past 16 years has been quite an experience. He is like the "mayor" of our industry; well connected and well respected.

Walter is a very thoughtful person who can always remind us to do the right thing. He is like a 6'3" moral compass.

He is a great travel companion, an even better eating companion and if you don't mind

too many shenanigans on an overnight flight, he is wonderful to fly with as well. He cares about the charity work he does very much. He has a great singing voice and oftentimes breaks out into song (or even an Irish jig) on occasion.

I have been lucky to work with Walter and cannot wait to hear about his next chapter.

Clelia



Many thanks to you Walter, for your friendship over the years and for always being there when in need, whether for laces or for speaking to my students, you were the best! I have to remember that you are only just a phone call away!

Love, Camille



- Technical
- Supply Chain
- Sustainability
- Fashion & Design
- Market Intelligence
- Entrepreneurship

MARKET REPORT



ntimate apparel

INDUSTRY 4.0

ANDREW SIA



Industry 4.0, considered the fourth industrial revolution, is the current trend of automation and data exchange in manufacturing technologies. It consists of the Internet of things (IoT), cloud computing, cyber-physical and congestive computing.



Courtesy of strategy-business.com

The first industrial revolution was the period from about 1760 to sometime between 1820 and 1840. This marked the transition from hand production to the use of

machines. This was supported by the development of machine tools and construction of a mechanized manufacturing system.

The Industrial Revolution began in Great Britain in the mid 18th century. At that time Britain was the world's leading economy and controlled a global trading empire with colonies in North America, the Caribbean, and the Indian subcontinent. Through the East India Company, they had influence over Burma and some southeast Asian countries. With industrialization at home, they were able to develop trading activities with countries from the west to the east. The country was proud to proclaim that "The Sun Never Set in the British Empire."



We published a lengthy article in our October 2016 issue, "The Industrial Revolution to Evolution and What's Ahead," which you can refer to for reference. For this issue, we'd like to discuss the next phase of development.



Industry 4.0 originated in Germany in 2012 by a group that recommended a set of Industry 4.0 implementation standards to the German government. There are four design principles of Industry 4.0:

- Interconnection: The ability to connect machines, devices, censors, and people through the Internet of Things (IoT) or Internet of People (IoP).
- Information transparency: The inter-connectivity allowing operators an immense amount of data and information from all points in the manufacturing process. This helps functionality and identifies key areas for introducing innovation and improvement in the workflow.
- Technical assistance: The support of workers by aggregating and visualizing information comprehensively for decision-making and problem-solving. Through cyber physical systems to physical support for workers in conditions that are too exhausting, unpleasant, or unsafe.
- Decentralized decisions: Through the cyber physical system to make decisions on their own and to perform the task autonomously.

The basic principle is connecting machines, work pieces and systems using the intelligent networks along the entire value chain that can control and interact with each other autonomously.

Machines can request maintenance and react to self-logistics to deal with unexpected situations in production.

It's predicted that the world of production will become more and more connected and the complexity of production and the related supply networks will intertwine. This connectivity is not restricted only to multiple factories, but to offices, and even across geographical locations to the point-of-sale (POS) in the very near future.

In the current working environment, it is definitely important to be able to work seamlessly and faultlessly in order to achieve high-quality and stellar communication standards within departments. This performance will bring profit to a business and earn the recognition of the supply chain.



To achieve all this, it's imperative that internal audits are conducted in order to detect and correct any faults that may incur during the manufacturing process. This will provide management with more insight so they make the necessary decision to delegate autonomy to different departments so they too can make their own decisions.

The ISO 9000 quality management system sets the standard for ensuring organizations meet the needs of their business relating to a product.

ISO, or International Organization for Standardization, was derived from the BS 5750 series of standards from the British Standards Institute (BSI). The most commonly used is the ISO 9001 with over one million companies worldwide certified today. The system is vital for communication and for business management.

Industry 4.0 means entering the digital era in the following areas:

- Sharing of computer software for communication and business execution.
- Real-time interconnection between design and product development teams, factory suppliers and customers from afar.
- Moving toward a new business model. Fast and more agile business processes.
- Dependence on robotic manufacturing.
- Using AI with analytical capabilities.
- Flawless manufacturing processes.
- Looking beyond one's business and finding synergy and capitalizing on it.
- Strong customization of products under the conditions of highly flexible but mass production.
- Ability to perform customization on a larger scale.

5G will transform the Internet of Things (IoT) and deliver massively increased bandwidths with speed and capacity. 5G will enable an exponentially large number of devices to connect simultaneously while sending even more data with minimal delay in transmitting.





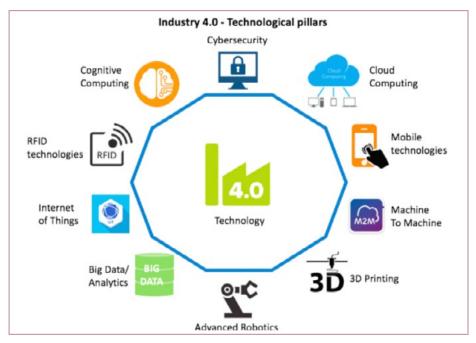
5G is set to become widely available in 2020. There will be an estimated 40 billion IoT devices in the world. IoT is a byword of everything electronic other than the smartphone.

The use of artificial intelligence algorithms will be a powerful tool in guiding our thinking and decision-making process.

Going forward, previously closely-guarded trade information will have to come out. Safeguarding one's industrial knowhow is important and a way to protect it will need to be found. Highly-skilled workers will need to be onboarded and trained. Other considerations are the following:

- Maintain trust and integrity.
- Training operators will be time-consuming and costly.
- Education level of staff will be an important factor.
- Legal issues for intellectual property (IP) and data security.
- Vulnerability to computer hacking.
- Setting up regulations, standards and certifications.
- Excessive investment with a period of recouping costs.
- Measuring correct profitability.

These are all points that will give management and stakeholders many sleepless nights.



THE TECHNOLOGY WAR BETWEEN THE U.S. AND CHINA



What's in the news

The first round of the brawl has started and the U.S. is targeting Huawei, the world's largest supplier of telecommunications network gear and the second largest smartphone brand. Huawei reached a profit of \$100 billion toward the end of 2018, up from \$1 billion 20 years ago, a 100-fold growth.



The U.S. worries about Huawei's background because of its close ties to the Chinese military even though it's still a private company, unlike ZTE, which is state-owned. The U.S. is blocking the company from network gear contracts and is convincing its allies to bar it from 5G contracts.

Huawei's founder, Ren Zhengfei, was born in the poor rural province of Guizhou in 1944. He began his career as a technical researcher for PLA. It was said that he lost his job during military downsizing, but his ties with the military brought him to where he is today.

Ren Zhengfei rules his company with an iron fist, and his military-type management scared away foreign staff whose stay was short-lived. The company's totalitarian style is even deemed hard by the Chinese staff. Having said that, the company still employs a workforce of more than 180,000, which can perhaps be described as an army of technology. It's no secret that the company is in fierce competition with ZTE.

Right now, Huawei is busy trying to convince the world that its 5G networks are safe and would not cause any problems with national security. The arrest of Ren Zhengfei's daughter, Meng Wanzhou, has only added to the problem.

The telecommunications industry has grown into a global business and many of the companies only supply a part of it. The global supply chain has been built in that way for a very long time. For instance, 33 of Huawei's 90 core suppliers are based in the U.S. Likewise, Qualcomm in the U.S., the main rival of Huawei, sources much of its supply from Asia.

Chinese companies have risen to become the world's largest suppliers of telecom equipment. But comprehensive international standards have yet to be established and agreed upon. S. and China



Looking at history can give us an idea of where we are today.

Mobile phone transmission generations

A new generation of cellular standards has been released approximately every ten years since the first generation in 1981. Each generation is characterized by new frequency bands, high data rates and transmission technology.

The set of standards for mobile devices and mobile telecommunications uses services and networks that comply with the International Mobile Telecommunications-2000 (IMT-2000) specifications by the International Telecommunication Union.

The International Telecommunication Union (ITU) is a specialized agency of the United Nations that is responsible for issues that concern information and communication technologies.



IG, the first generation of wireless telephone technology systems, was first introduced in 1979. This analog telecommunications standard lasted until the mid-1980s.

2G took over and introduced three primary benefits over their predecessor: digitally encrypted phone conversations, greater spectrum allowing for penetration levels, and the introduction of the Short Message Service (SMS) for plain text messages. Furthermore, there was an expansion of more mobile phone networks, and the unveiling of picture messages and the Multiple Message Service (MMS).

3G, introduced in 1981/1982, was the next upgrade, with a faster internet speed. It transmitted information at a rate of 200 kbit/s. The later 3G releases, 3.5G and 3.75G, provided mobile broadband and access to smartphones and mobile modems from laptop computers. 3G supported mobile phones apps, mobile internet access, fixed wireless access, video calls and mobile TV.



The current generation, 4G was first introduced in 2008. It allows mobile broadband internet access and connects laptops with wireless modems, smartphones and other mobile devices. It also includes gaming services, high-definition mobile TV, video conferencing, 3D television and cloud computing. The latest version is 4.5G. I've seen this version used less with laptop computers and more on mobile devices, and MMS taking over emails.

5G is the generation currently under development. It denotes the next major phase of mobile telecommunications standards beyond the current 4G/IMT-Advanced standards.

The Next Generation Mobile Networks Alliance (NGMIN) defines the 5G network requirements as:



- Data rates of several MB/s should support tens of thousands of users.
- I Gbit/s to be offered to many workers on the same office floor.
- Several hundreds of thousands of simultaneous connections to be supported for massive sensor deployments.
- Spectral efficiency should be significantly enhanced compared to 4G.
- Coverage should be improved.
- Signaling efficiency enhanced.
- Latency should be significantly reduced compared to Long Term Evolution (LTE).

The NGMIN believes that 5G should roll out in 2020 to meet business and consumer demands. In addition to supplying faster speeds, the alliance predicts the 5G network will also need to meet the demands of new end-users such as the Internet of Things (IoT), and broadcast-like services and lifeline communications in times of emergency.



The beat goes on

5G is by no means simply bringing higher speeds and lower lag times between network and device, but the technology has a much larger capacity to transfer data. It's expected to enable self-driving cars, Al and machine-to-machine communication that will transform everything from homes to hospitals to offices and factories.



China is ready to take the lead in the 5G arena and while it was building the 4G network, it realized that constructing base stations could help create an edge over the competition. In early 2018, China had already built 2 million cell sites, ten times that of the U.S. China has 5.3 sites for every ten square miles versus 0.4 in the U.S.

The telecommunications companies in China are supported by the government with an enormous outpouring of national capital. The country's practice of collecting data for analytics for artificial intelligence, along with its supply of equipment is causing paranoia in the western world. It's no secret that China uses AI to control its citizens.

The enormous Chinese market is running ahead of everyone. For the western world to catch up, Samsung and NEC are teaming up, as well as Ericsson and Fujitsu.

Earlier, the U.S., Canada, the UK, Australia and New Zealand placed a ban on Huawei. At the same time, Huawei admitted that 33 of its 92 core suppliers are U.S. companies, and so the ban will make it extremely difficult for the company to move forward.

If China decides to make its own way, we may see two incompatible routes in 5G operation that will leave companies, and countries, to decide for themselves whether to adopt the new system.

The beat goes on with 5G in the UK

In the UK, O2, EE and Vodafone are set to push ahead with Huawei's 5G equipment. Europe as a whole is the largest market for Huawei outside China and the UK is one of its most important markets as it has supplied telecommunications equipment to most of the country's telecom companies. As early as 2005, BT signed a deal with Huawei that helped penetrate the European market and transformed Huawei into the world's largest telecom equipment company.

Huawei already has 200 cell sites across London and the three mobile companies have signed a contract worth GBP 2 billion. Huawei has committed to spending GBP 5 billion to overhaul its systems to ensure trust in its equipment as



Huawei's equipment and software code are tested in the UK by its intelligence officials.

The latest on Huawei Technologies

U.S. prosecutors filed criminal charges against Huawei Technologies Co. for stealing trade secrets from an American rival and committing bank fraud by violating sanctions against doing business with Iran.

The charges were filed on January 29, 2019 in a 13-count indictment. Charges filed in Washington state concerned the company's stealing trade secrets from T-Mobile USA Inc. Huawei's CFO, Meng Wanzhou, is being held in Vancouver awaiting extradition to the U.S. for the trial.

So far, the countries that have stopped using Huawei products are the U.S., Australia, New Zealand, the U.K., Germany, the Czech Republic, Japan, Poland, Norway and Taiwan.

Here's a bit about the rise of Huawei. The company's founder, Ren Zhengfei, arose amidst Mao's Cultural Revolution as a young soldier who was sent to the northeastern city of Liaoyang in the province of Liaoning. He was there to help start a clothing factory equipped with French machinery. The temperatures at night were brutal and his diet consisted of sorghum and pickled vegetables. Living this primitive life among the latest technology was ironic. Perhaps this was a motivating factor for him.

Today, Huawei is one of the world's top technological companies and probably the biggest in telecom equipment. The company claims to have 87,000 patents and a \$15 billion research budget.

It now stands accused of breaking U.S. sanctions with Iran by shipping telecom equipment there. It is also accused of stealing technology from U.S. companies. It committed wire fraud, but the most important accusation is that of spying on behalf of China. Huawei denies everything.

Huawei is caught between the two powers that have come to loggerheads in a trade and political struggle. Obviously, whoever takes the lead in 5G will lead this technology for the next generation.



Conclusion

In the 1980s, it was Japan that was able to make things efficiently based on U.S. inventions, with companies like Fujitsu, Canon, Sony, and Toshiba. Now it's China emulating U.S. innovation. Except this time, China is ten times as strong as Japan was back in the day.

In 2016, Chinese investment in the U.S. was \$56 billion and is now down to \$14 billion, a quarter of what it was before.

We discussed this in our previous articles, "Hi-Tech Companies Caught in the Crossfire Between the U.S, and China" from the October 2018 issue, and "5G and More About It" from the January 2019 issue.

At this stage of great confusion and conflict, we may have to stop and think if we want to go down the route of having one new telecommunications generation every decade. We certainly need to build a better world for the future but are we really in need of 5G? Our data is already being used by Al and that has put us in an uncomfortable zone. We need to know what we can do to protect our privacy. This past year we've seen Facebook accused of harvesting our data, which is considered unethical to many of us.

We need technology as our tools but we have to protect our privacy. That should be the number one consideration.

HUAWEI TECHNOLOGIES IN THE NEWS



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Futurewei Technologies in Silicon Valley won't be allowed to transfer their research to China.

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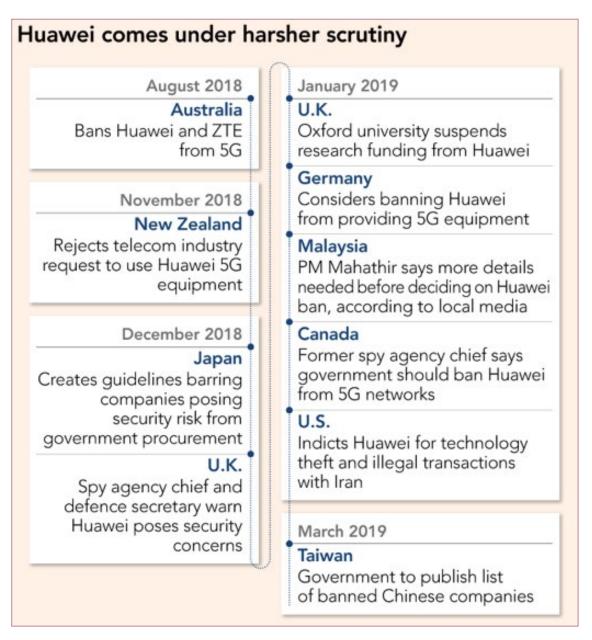
Huawei is caught between the two powers that have come to loggerheads in a trade and political struggle. Obviously, whoever takes the lead in 5G will lead this technology for the next generation.



The question now is whether the Trump administration will impose a full-scale ban on the sale of critical semiconductors and U.S.-made components to Huawei. Huawei has aimed to minimize this risk.

Huawei is reaching out to contract chipmakers to relocate their production to China. Many Asian suppliers consider Huawei to be their most valuable customer and they need the business. But there are still a lot of uncertainties. For example, ZTE was about to collapse before an agreement was reached with Washington.

The following is a chart of the countries that have banned Huawei telecommunications equipment.





Over the past 30 years, Huawei has sold telecommunications equipment to 1,500 telecom companies in more than 170 countries. They employ 180,000 workers and claim to have tens of thousands of business partners.

With the latest accusations, the company has wined and dined business associates in different countries to try to rebuild fractured relationships. The recipients of such actions remain cautious and reserved.

Below is the global mobile infrastructure market share and the key players involved.

Global mobile infrastructure market share (%)

2016	
Ericsson	28
Huawei	25
Nokia	24
ZTE	12
Others	7
Samsung	4

2017	
Huawei	28
Ericsson	27
Nokia	23
ZTE	13
Others	6
Samsung	3

THE WORLD ECONOMIC FORUM, DAVOS, JANUARY 21, 2019



The World Economic Forum, founded in 1971, almost half a century ago. is the place for the world's elite to meet and to discuss issues and hopefully lead to some breakthroughs. The forum consists of a mix of world leaders, socialites, party mongers, paparazzi, and the like.

The cost is Swiss Francs 600,000 or \$600,000 for the "strategic partners," who receive four tickets for all-access to the forum. The cost is \$27,000 for each additional ticket.

Davos, an Alpine resort town in Switzerland that hosts the event, has a population of 11,000, which grows to 30,000 during the World Economic Forum.

The forum's founder, Klaus Schwab, was a German business professor at the University of Geneva. The forum was then known as the "European Management Forum" and was intended to teach American-style management tactics. It was meant to be a non-profit with the mission of improving the world in business, politics, academics and to shape global, regional and industrial agendas.

international apparel journal

The oil crisis of October 1973 occurred when members of the Organization of Arab Petroleum Export Countries (OPEC) proclaimed an oil embargo that threw the developed countries into chaos. The conference in Davos immediately shifted its focus to include economics and social issues. The following year, the conference attracted more political attendees.

Today, the forum is definitely the place to be seen and the attendees are the powerful, rich and famous. This year's theme was "Globalization 4.0". But the tone this time among the global business and political leaders in attendance was less enthusiastic. The global elite has lost its luster and there's is nothing to talk about.

The absence of Trump's cabinet this year was due to the partial government shutdown, and the White House cancelled the trip.

British prime minister Theresa May's absence was due to her struggle to define Brexit after her deal with the EU was crushed by the MPs in parliament.

French President Emmanuel Macron was occupied with the continuous fight with the yellow jacket protestors across the country.

President Xi Jinping of China was a no-show as well. China's tarnished economy and the country's bitterness toward the U.S. over trade issues would have made him a target of the press. Prime Minister Narendra Modi of India was also missing due to the country's slow economic growth and the threat of independence by its central bank.

But the tech conglomerates from the industry have not been able to create excitement. The founder of Huawei, Ren Zhengfei, made a rare appearance in Davos to wine and dine the global media but was unable to shake the world's suspicions concerning security threats.

CPTPP THE II-COUNTRY AGREEMENT GOING FORWARD



On Sunday, December 30, 2018, a major 11-country agreement went into effect. This agreement, from the remnants of the original Trans-Pacific Partnership (TPP), was renamed the Comprehensive and Progressive Agreement for Trans-Pacific Partnership (CPATTP).

The strategy of the original TPP, set forth by the Obama administration, was to fence in Chinese economic influence. Right after President Trump was sworn into office, he withdrew from the TPP along with a string of agreements that had been in place for many years. NAFTA was replaced by the U.S.-Mexico-Canada Agreement (USMCA) and a new bilateral trade agreement with the European Union and Japan began.

With CPATP, tariffs will phase out over a 15-year period. This has left American farmers in awe, and they are eager to sell their agricultural products by way of open market policies in foreign countries.

Tyson Foods and Welch's are already complaining to the U.S. Trade Representative's Office about how their products will be at a significant disadvantage around the world if no action is taken.



Newly introduced intellectual property and cybercrime protections are the two most important elements of the agreement. Although these were included in the USMCA, they apply only to Canada and Mexico and have not been extended to other countries.

The current signatories have left the door open for the U.S. and other countries, including China, to join if they agree to the terms of the pact.

THE WORLD PANIC OVER THE CHINESE TAKEOVER OF HIGH-TECH COMPANIES



German economic minister Peter Atmaier has called for a state investment fund to pre-empt any foreign takeovers of the larger German tech companies. The proposal is part of an industrial strategy to create competitiveness between U.S. and Chinese companies and to create competency in technologies such as artificial intelligence and electric vehicles.

This may be a sign of German protectionism, which conflicts with the Christian Democrats' free market principle, but the business sector is calling for a tougher approach to China, as they've noticed that Germany's open model is falling prey to China's state-dominant economy.

The state investment fund could be used to fence off any foreign takeovers and allow for national investment before being sold off abroad.

Germany is still talking about the 2016 takeover of Kuka, Germany's leading robotic group, by the appliance maker, Midea.



China's Xi Jinping announcement of the 10-year plan, "Made in China 2025," motivated Germany to shield its assets from Chinese buyers and any takeover of 10% share from a non-EU company in defense and energy will be blocked by Berlin. It won't be surprising when this type of panic and alertness extends to other EU countries.

The U.S. is already taking a stronger stance and is calling for balancing its trade deficit with China. Punitive tariffs have been imposed on 200 items, but this is hampering U.S. companies' attempts to build their global market by putting a sophisticated supply in place.

Placing more control over IP registered by U.S. companies will have to be executed by corresponding countries and this may still involve loopholes.

Electronic manufacturing on U.S. soil is unattractive, no matter what the incentives are. Shipping chips for labor-intensive assembling, and then waiting for the electronics to be shipped back is the only way to go.



The former champion of U.S. telecom equipment, Lucent, part of AT&T, was lost in a series of mergers, Alcatel-Lucent in 2006 and then a merger with Nokia in 2016.

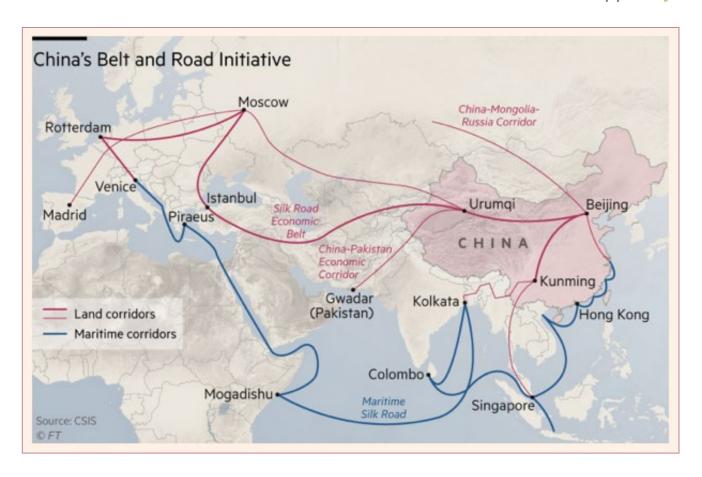


During that time, the rise of Huawei was overlooked. With its access to the state investment fund in China and its vast home market, the company became a leader in 5G technology.

The world's attempts to block Huawei are perhaps too late. But an awareness of a threat can always be useful. This time we have to know that the market, with the emergence of both China and India, has room for more international players provided that security protection measures are placed in good hands.

The U.S. is still in the lead with Artificial Intelligence. Research centers and labs have blocked foreign students from entering without proper authorization. But the smart research students are mostly from China or India and will surely become scientists. There are no boundaries when it comes to having advanced knowledge. The future of tech leadership is in their hands.

CHINA'S MULTI-FACETED BELT AND ROAD INITIATIVE



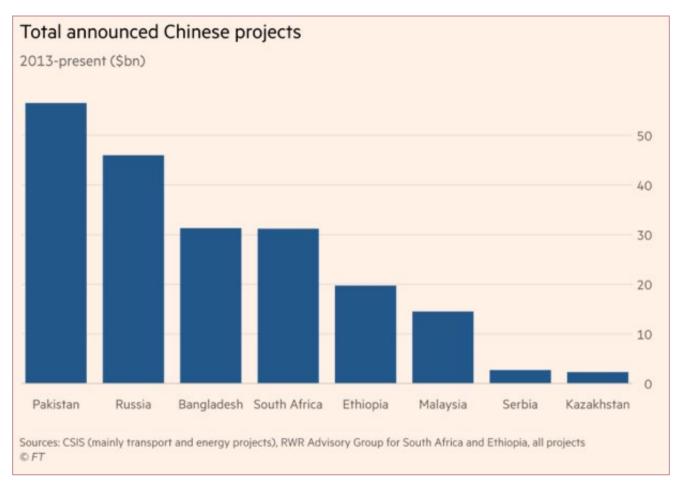
Since the announcement of the BRI by China's President Xi Jinping, the scope of the project has become limitless. It has expanded into the "Pacific Silk Road," reaching to South America. It has crossed into the Arctic and is known there as the "Silk Road on Ice." The "Maritime Silk Road" is the shipping lane that connects Chinese ports all the way to Venice. The "Silk Road Economic Belt" is a tangle of railroads and highways across the continent from eastern China to Scandinavia.

So far, China has spent an estimated \$200 billion on the BRI projects. To date, at least 68 countries are involved, accounting for nearly two-thirds of the world's population. All projects are funded partly by Chinese banks and state-owned companies. It was announced that a total of \$1 trillion will be spent on hundreds of projects around the world in the coming years. At its final stage the cost could reach \$8 trillion. The BRI project is mind-blogging.

The China-Pakistan Economic Corridor and its related projects already has a price tag of \$68 billion, making it the number one champion of the BRI.

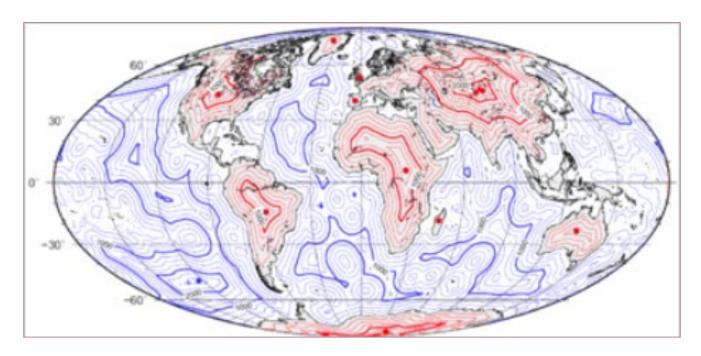


The defunct Bangladesh-China-India-Myanmar Corridor, very much on par with the China-Pakistan Economic Corridor, did not get off the ground. The world criticized China for introducing a new kind of "colonialization" and for creating a strategy known as "debt-trap diplomacy." It tried to entice the developing and the underdeveloping countries into infrastructural projects that are unlikely to generate enough cash to cover the interest on the loans, let alone repay them. These are also known as "white elephant" projects.



And because of disgruntled stakeholders in those projects, such as Sri Lanka, Malaysia, Maldives, Pakistan and some African states, the BRI is generating bad publicity.

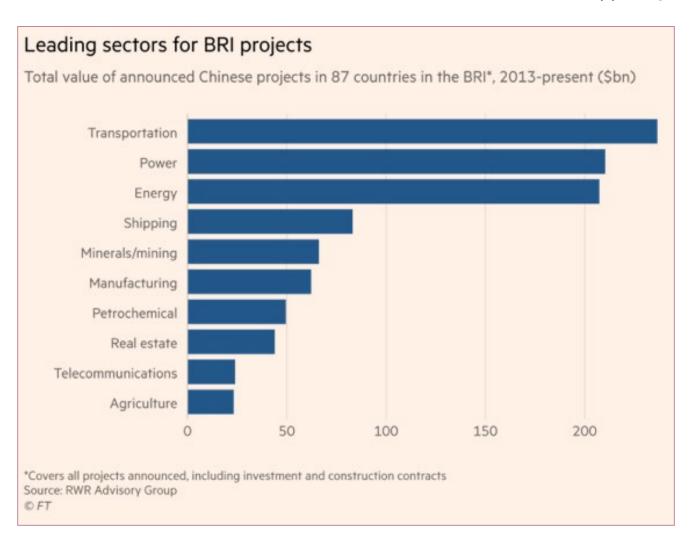
Now we bring you to a logistic center known as the Eurasian Pole of Inaccessibility, the most distant point from any sea or ocean on the planet.



Located in China just east of the border with Kazakhstan, this pole gets you at least 1,500 miles from the nearest coastline into an expansion of white steppe and blue-beige mountains, among the least-populated places on earth. It's home to the last surviving pastoral nomads in Central Asia.

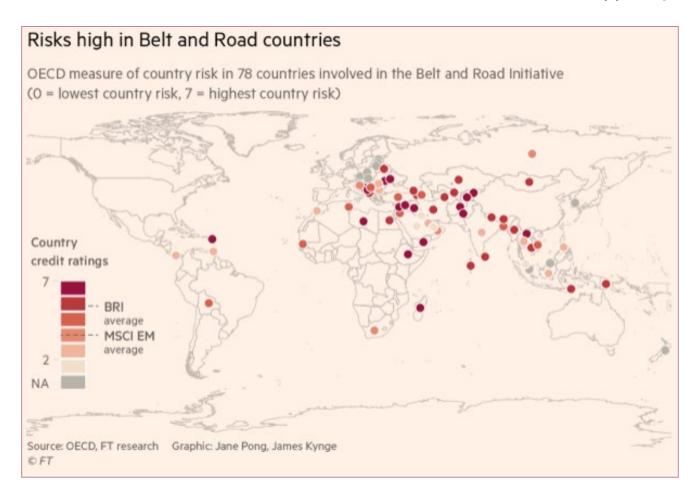
This is where the largest BRI project will take place, in a village in Kazakhstan known as Khorgos, with an official population of only 908, in the middle of nowhere. The Khorgos Gateway is going to be a central distribution center, an international shipping hub and free-trade zone. Shipping by way of railroad costs more than shipping by sea but takes one-third the time. For instance, a container can travel from a Chinese city to Europe in just about 14 days. 51% of this national railway company is owned by Kazakhstan with the remaining 49% split by Chinese state-owned companies.

The project was announced in 2013 in the Kazakh capital Astana during a ceremony attended by Xi Jinping and the president of Kazakhstan, Nursultan A Nazarbayev. In the past, the Kazakhstan economy depended on Russia but in 2007, China edged out Russia to become Kazakhstan's first trading partner.



Transportation plays a leading role in the various BRI projects, followed by power and energy. The rest are less significant.

The "Silk Road Economic Belt" penetrates countries that pose threats. Below is a map from the Organization for Economic Cooperation and Development (OECD) that illustrates this point.



If the reason is not geopolitical, I can't see the merits in taking this route. Perhaps China has found that market opportunities with developing countries are congested. The question remains: is this really in China's best interest?

MORE ON CLIMATE CHANGE



In 2015, world leaders met in Paris to discuss the goal of zero net greenhouse gas emissions by the second half of this century. Cement production accounts for 6% of the world's carbon emissions and steel production accounts for another 8%. If you factor in the lighting, heating, and cooling of a building, then homes and offices are creating a huge environmental problem.

This has led governments to urge builders to promote a "zero carbon" standard, using recycled steel and prefabricating it offsite. The use of more wood is encouraged, limiting the idea of the concrete jungle, but a jungle of buildings using wood from mature trees.

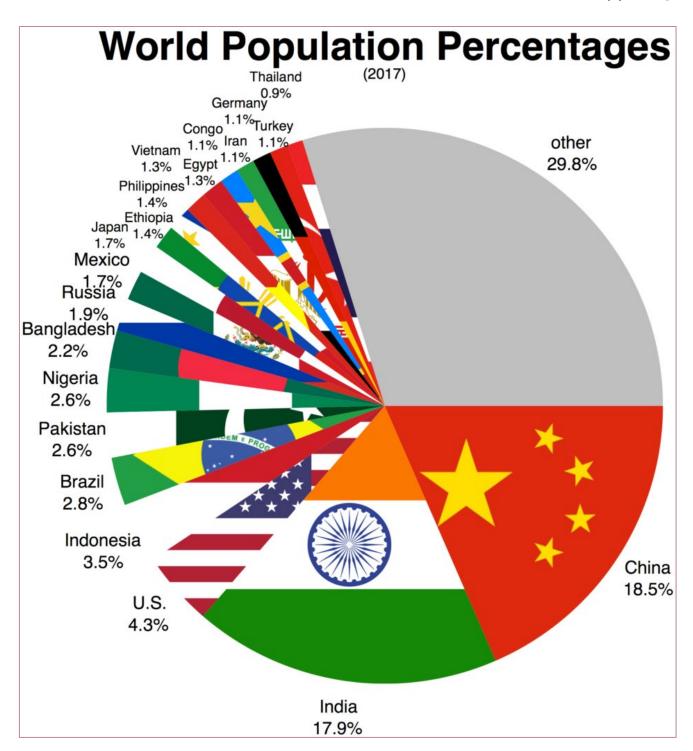
We all know that the construction industry is one that deals with high levels of pollution and steel and cement are transported from afar. The International Energy Agency (IEA), a research agency, estimates that building and maintaining buildings accounts for 36% of the world's energy and produces 40% of energy-related carbon emissions. More than 80% of that 40% relates to lighting, heating, cooling and running appliances.

The buildings in developed countries cannot be replaced easily unless there is a redevelopment scheme. The most populated cities have already outgrown original city plans and the outer areas, including the suburbs, have been rezoned into city areas.

Demographically, as of 2018 the global population reached 7.7 billion people. We are experiencing the highest growth rate in human history. By 2025, the world population will be 8 billion and by 2050 it will rise to 9.4 billion.

As with population growth, housing demand will also continue to grow at the same pace. I'm not confident that we can deal with this so easily and taxing carbon and targeting the least efficient homes would lead to unrest. We can look at France as a recent example.

The country's leaders can talk all they want but reaching a deal will become more and more difficult. Reaching a consensus on the future of climate change, be it a 2-degree or 1.5-degree Celsius increase will be very hard to contain. We will have to face this consequence very soon as time is unfortunately running out.



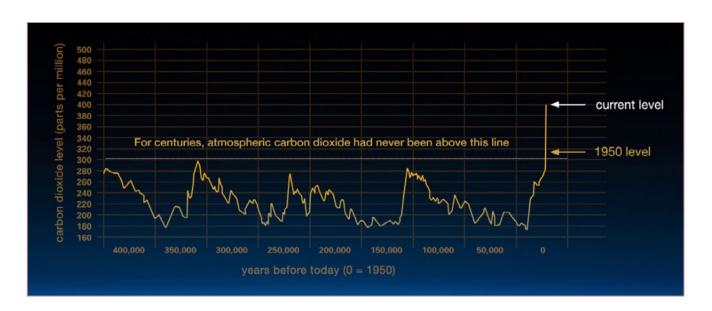
EVIDENCE OF GLOBAL CLIMATE CHANGE



According to NASA, at least 97% of active, published climate scientists think that climate-warming trends over the past century are extremely likely caused by human activities. In a recent poll conducted by Stanford University, 61% of those surveyed said that the federal government should take a great deal of action to curb global warming. Only 19% believe that government should take moderate action.

Climate.nasa.gov

Climate change has occurred throughout history. Over the last 650,000 years, there have been seven cycles of glacial advance and retreat, with the abrupt end of the last ice age about 7,000 years ago, marking the beginning of the modern climate era and human civilization. But most of these climate changes were attributed to very small variations in the Earth's orbit that changed the amount of solar energy the planet received.



But climate change today is significantly different because it's extremely likely, in fact more than a 95% probability, that climate change is due to human activities dating back to the mid-20th century. Climate change is proceeding at a rate that is unprecedented.



The evidence of rapid climate change falls into the following areas cited by scientists.

Global temperature rise

Since the late 19th century, the planet's average surface temperature has risen by 1.62° Fahrenheit or 0.9° Celsius. This is due to increased carbon dioxide emissions and other emissions caused by humans that are released into the atmosphere. Most of the warming has taken place over the past 35 years including the five warmest years on record since 2010.

Warming oceans

Oceans have absorbed much of the increased heat, with the top 700 meters of ocean showing an increase of more than 0.4° F since 1969.

Shrinking ice sheets

The Greenland and Antarctic ice sheets have decreased in mass. Greenland lost an average of 281 billion tons of ice per year between 1993 and 2016. The Antarctic lost about 119 billion tons during the same period.

Glacial retreat

Glaciers are retreating almost everywhere, including those of the Alps, Himalayas, Andes, Rockies and Alaska.

Mountain snow cover

Satellite observations reveal the amount of spring snow cover in the Northern Hemisphere has decreased over the past five decades, indicating that snow is melting earlier than usual.

Sea level rise

Over the last century, the global sea level rose about 8" and continues to accelerate.



Declining Arctic sea ice

The extent and thickness of sea ice is decreasing.

Extreme events

The number of record high temperatures has increased but the number of record low temperatures has decreased. This is the situation in the U.S.

Ocean acidification

Ocean acidity has increased since the beginning of the Industrial Revolution. This is the result of carbon emissions being absorbed by the ocean.

AMERICAN AWARENESS OF CLIMATE CHANGE



In November and December 2018, a series of surveys were carried out by the Yale Program on Climate Change Communication and the George Mason University for Climate Change Communication. The study, conducted online by Ipsos, surveyed 1,114 American adults.



The findings were the following:

American awareness of climate change

Global warming:	Mar-18	Dec-18
is happening	70%	73%
is personally important	63%	72%
is worrying as a country	61%	69%
is harming the U.S.	39%	48%
is harmful personally	42%	49%
is mainly caused by humans	58%	62%
is caused by nature	28%	23%

More and more people believe that global warming is caused by humans. About 41% of survey respondents said they discussed it among family and friends and 56% said they heard about the topic in the news at least once a month.

This is all very true, as we witnessed the wildfires in California last year, and the hurricanes Florence and Michael.

These catastrophes are all evidence of climate change influencing weather events. Global warming has led to more frequent wildfires and more destructive hurricanes.

GLOBAL WARMING AND HURRICANES



Global warming and hurricanes are associated. Hurricanes are stronger in warmer temperatures because warmer ocean waters provide more energy. The hurricane will also be wetter, because warmer air holds more moisture and the rise in the sea level adds to a hurricane's intensity.

A typical example is Hurricane Michael, which grew into a Category 4 storm with a wind speed of 155 miles per hour. Greenhouse gas emissions warmed the sea-surface temperature in the eastern Gulf of Mexico and fueled the water headed toward the land. Long-term climate warming has provided evidence that humans are responsible for the increase in the water temperature.

Researchers use computer simulations to understand ocean warming in order to determine the intensity of a storm and to learn more about the larger temperature differences that lead to increased storm energy. A theory has been established and the conclusion is that overall temperature warming cannot exceed 1.5 degrees Celsius.

Hurricanes forming in warmer temperatures also carry more water vapor, resulting in higher rain rates.

Areas along the Gulf of Mexico and the Atlantic Ocean in Florida are exceptionally vulnerable to a storm surge. The rise in the sea level threatens the coastal areas with the potential for frequent flooding.



Hurricane Michael at its peak intensity

Over the past four decades, global sea levels have risen by an average of 4 inches. Though a 15-foot storm can still be managed, a rise of another few inches toward the end of the century will be catastrophic.

ALTERNATIVE AND RENEWABLE ENERGY IN GERMANY



Germany is recognized as the largest economic power, as well as a role model in the European Union. In 2000, the country was set to be the leader in wind and solar power. When Angela Merkel became chancellor in 2005, renewable energy accounted for 10% of electricity use in Germany. Since then, that number soared to 40%. The next official target is to lift the use of renewables to 65% of the energy mix by 2030.

It's worth mentioning that Angela Merkel is a trained scientist and former environmental minister who earned the title "Climate Chancellor." Since becoming chancellor, Germany has committed to closing their nuclear plants by 2022. While the UK and France are not giving up their nuclear power plants, Germany has become paranoid since the accident in Fukushima, accelerating their desire to shut down its plants.

Germany is investing one billion Euros in renewable energy and has vowed to become the pivotal leader in combating climate change.

The German economy depends heavily on the car industry. Together with cars, trucks and the transportation sector, its emissions today are higher than in 1990 and its fuel source largely comes from lignite and coal.

Somewhere close to the Poland border, in a pine forest just east of Cottbus in Leberose, you can find the largest solar power plant in Germany. It was built ten years ago with generous green subsidies; the power plant has 900,000 photovoltaic panels producing clean power that supplies 20,000 households. And the plant only needs 10 workers to keep it running.

Next to it, there are nine cooling towers at Jänschwalde, fuming a thick white cloud that hangs permanently in the sky. It's a conventional power station that runs on lignite. Lignite is a brown coal, one of the dirtiest fossils, extracted from opencast mines that resemble moon craters. In that region of Cottbus, more than 8,000 people work in the lignite mines and the power plants use it as fuel. Altogether in Germany, more than 20,000 individuals work in extracting lignite, which accounts for 20% of electricity production. It's not only cheap but also a reliable source of energy.



We see here the sun versus coal; renewable energy versus conventional energy; climate and the environment versus jobs and the economy. There are no winners or losers as the country has set itself up as a green pioneer and has taken the steps to move from nuclear power to renewable energy.

Germany is the dirtiest carbon country because of lignite. But it is a powerhouse of the European economy and the country is unable to meet its target.

The major obstruction is Germany's powerful industries, especially the car industry where lobbying is the strongest. Talk of electric vehicles is gaining much attention.

Currently, 25% of the power comes from a mix of wind and solar, but the future goal is to increase this to 40%. The other EU countries do not consider the two technologies a reliable source of energy.

In January, the German government unveiled a plan to phase out coal and lignite by 2038. Only by eliminating coal can Germany achieve its goal, but protecting employment, securing the energy supply and controlling the cost of electricity are all very important.

Here is a bit of information about lignite, often referred to as brown coal. It's considered the lowest ranking coal due

to its relatively low heat content. Its carbon content is about 60-70% and is used almost exclusively as the fuel for steam-electric power generation. Because its difficult to transport, it's mostly used in power plants located close to the mines. It has a high content of volatile matter, which makes it easier to convert into gas and liquid petroleum products than higher-graded coals.



Because of its high moisture content and low energy density, carbon dioxide emissions are higher per megawatt generated than for comparable black coal. Its use and the process to extract it are causing environmental concerns. Furthermore, it's the coal that is most harmful to health.



In 2014, 27% of Germany's electricity came from lignite power plants, compared to Greece, which was 50%.

The following is the global lignite mining production as of 2015 (in millions of metric tons):

- Germany 178.1
- China 140
- Russia 73.2
- United States 64.7
- Poland 63.1
- Australia 63
- Indonesia 60
- Turkey 50.4
- India 43.9
- Czech Republic 38.3

This gives a total global production for lignite of 975.8 million metric tons. Germany accounted for 18.25% of that total. It's extremely important to see Germany ending the use of lignite as an energy source.

ALTERNATIVE AND RENEWABLE ENERGY IN CHINA



First of all, the Chinese government will only subsidize heating in places where there is a special need, rather than adopt a policy that applies to the general population. This is the case with the province of Hebei, where the Beijing and Tianjin municipalities share a border.

Natural gas is replacing coal as the primary heat source. But gas is more expensive than coal, and so presently the government is subsidizing the cost. This serves as a test case for the government's ability to get away from the heavily-polluted industry and move on to clean energy.

Hebei has an economy in line with that of Poland with twice the population. Its mills produce a quarter of China's steel output. The province allocates about 6% of its budget to the reduction of emissions by its heavy industry.

So far, a two-year anti-pollution campaign has claimed 170,000 factories, cement and fertilizer plants in Hebei. Employment is low due to the closing of factories. The national slowdown of the economy doesn't seem to bother the government nor does the potential for social instability.

In 2022, the XXIV Olympic Winter Games will take place in Hebei. This mega-project may help offset the economic impact of the shutdown in capacity. But how can the people benefit if industry is revived by using clean energy? We all know that gas, one form of alternative energy, is costlier than coal, but government subsidies won't last too long and eventually the country will have to come up with a solution.



We also know that the renewable energy, like wind and solar, will have to come from the coastal areas in China. It's more expensive to transport to the inner provinces. And renewable energy is considered less dependable.

China and other low cost countries will have to come up with a price that's closer to market value.

THE LATEST TRADE NEGOTIATION BETWEEN THE U.S. AND CHINA



The latest trade summit involving the U.S. and China will take place at the Mar-a-Lago resort the last week of March.

The meeting arrives after the failure of the Trump-Kim summit in Vietnam earlier this year. The notoriously unpredictable U.S. president could walk away from discussions and so it's politically crucial for China's President Xi Jinping to avoid that outcome.

Both sides will need to exercise caution. Relying on negotiators to conclude an enforceable agreement is difficult given the complexity of the issues, and a consensus will be required.

Key issues of the future summit, including industrial subsidies for state-owned enterprises (SOE), the forced transfer of technology from joint venture companies in the U.S., and the theft of U.S. intellectual property will be difficult for China to come to terms with, especially with those hawks in the conversation led by Robert Lighthizer, and congressional Democrats who will not accept a compromise.

Any deal needs to be comprehensive, self-sustaining, and enduring. And so many of the terms will need to be thoroughly discussed in order to come to a conclusion.



On the other hand, corporate America is holding its breath, waiting for the tariffs to be lifted. Earlier, the National Association of Business Economics sent out a survey which revealed that 36% of manufacturers in the U.S. have raised prices and 27% have delayed investments.

On March 6, 2019, the Commerce Department reported that the U.S. trade deficit hit a record of \$891 billion in 2018. The trade deficit grew 12%, as imports rose \$218 billion and exports climbed \$149 billion.

In China, it's equally as bad, as exports sank 20.7% in terms of U.S. dollars from February of last year. It was also the biggest fall of the month. Imports fell 5.2%, resulting in the smallest trade surplus for China in 11 months.

The Chinese stock market recorded its biggest one-day dip and both Shanghai and Shenzhen stocks slipped nearly 4%.

This is concerning, as both the Chinese and global economies are slowing down. Korean and Japanese exports have already decreased.

BREXIT - THE LAST RITES



Since the British voted for the referendum three years ago, 52% to 48%, it has been fatal. In our January issue, we reported on the 20 months of negotiations between Theresa May and leaders of the EU. In December 2018, a 585-page agreement and a 26-page political declaration were made available for Theresa May to present to Parliament. Parliament rejected both twice.

First of all, the UK leaving the EU means taking back control. When they are out of the European Union they can avoid the recent issues with France's "yellow vests" and Macron losing the popularity he once had, Italy's populists, and Germany's reluctance to spend as they are always pessimistic about a recession to come. Then, Spain has the ruling of the minority government and both Poland and Hungary are run by illiberal governments. And on top of it all, no country would want to give Brussels more power to take the lead. Britain will be free to deal with themselves so to speak.

The referendum could have made sense from the get-go, except Britain is a typical example of how democracy should run. When members of Parliament rejected Theresa May's plan, it was also because Theresa May's Brexit deal was not in their constituents' interest.

What puzzled me the most was when David Cameron, the former Prime Minister of the Conservative Party, asked voters to make the decision about Britain's EU membership in a referendum in June 2016, which failed. He stepped down without showing any grievances or regrets. The decision of 52% of the vote for Brexit was so decisive for such a major decision, it will probably go down in recent history as the most crucial decision that should have been better planned and relayed better to voters prior to the referendum. And perhaps a higher percentage, maybe 75% could have made the referendum more credible.

To me, an outsider, the consequences of taking Britain out of EU's single market, 28 minus one, are Britain leaving the customs union, loss of both freedom of movement and the European Court of Justice. The EU has become a crucial part of the regulatory and institutional framework within which both British business and the government have operated for the past 45 years. It covers airlines, the car industry, banks, pharmaceutical companies and security services. They are becoming indefensible.



Many young Britons who grew up with the expectation that they could study, work, have families across Europe found that this is no longer the case. It is a shock to them.

To recap what London means to the financial world: it is the financial center, with 40% of the global currency market, which means \$5 trillion a day traded and booked in London. It's also the \$600 trillion global over-the-counter market. This has all been jeopardized.

The EU has to plan for trade. The operational business will move out of London to cities like Paris, Frankfurt and Amsterdam. According to the Global Financial Centers Index (GFCI), London ranks number one in a ranking of the competitiveness of financial centers based on over 100 indices from organizations like the World Bank, the Organization of Economic Co-operation and Development (OECD), and the Economist Intelligent Unit. New York City is number two followed by Hong Kong and Singapore, with Tokyo at number five. Frankfurt is number 11, Paris is number 16 and Amsterdam is number 33. There is simply no better alternative than London.

Now Parliament is telling Theresa May to go back and ask for an extension. But the EU is telling Britain not to stall but to come back with a hard date.

In Britain, not only are the parties divided, the country itself is divided between Brexiteers and Remainders.

Conclusion

Writing about Brexit doesn't seem to resonate with my associates as this problem seems to be so remote. In fact, so far I've written three articles covering this topic:

- The Latest on Brexit January 2018
- Could Brexit be Good for Some British? April 2018
- Brexit in Peril January 2019



It hasn't been an easy subject as it really doesn't make sense. It's the result of Eurosceptics overruling Pro-Europeanists.

Sad or pathetic are not the words I'd use. It is suicidal, and the world has never seen such a situation. With so many mysterious situations brewing globally, none are as weird or crazy as Brexit.

PROGRESS REPORT ON THE PARIS CLIMATE AGREEMENT AND STUDY OF ALTERNATIVE AND RENEWABIF FNFRGY - PART 4



UN Climate talks in Katowice, Poland

Close to 200 countries that signed the Paris Climate Accord joined the talks in Katowice, Poland. The summit, which began on 3 December, dragged on for almost two weeks and concluded on 16 December. The two weeks of negotiations, including four all-night negotiating sessions when delegates brought along their sleeping bags, ended with a landmark deal on a set of rules that would govern the implementation of the pact.

But the rise of both nationalism and populism led to the U.S., oil producing countries such as Saudi Arabia and Kuwait, and Russia working against the UN's goal to limit global warming to 1.5 degrees C. They almost successfully sabotaged the pact. Climate change is the greatest challenge to mankind and no country can deny its mighty power.

Activists demanding a more ambitious climate deal protested inside and outside the convention center, Greenpeace International being the most significant of the groups.

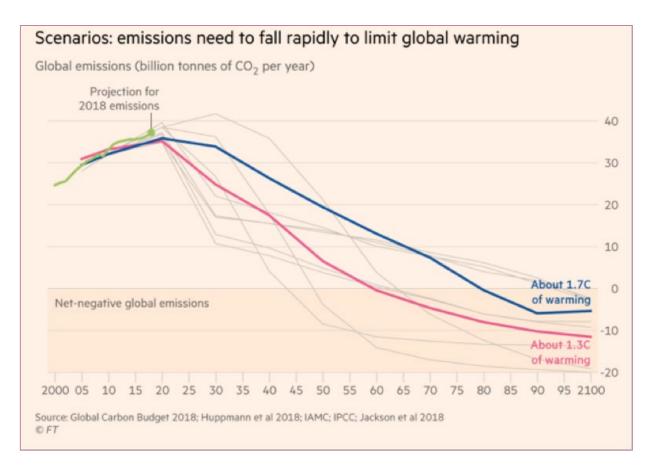
The goal of this conference is now for developed and developing countries to use the same rules and timetables for reporting emissions.

We also hear those low-lying island nations that are the most vulnerable to rising sea levels caused by climate change sounding the alarm.

The situation in general

When the global economy grows, carbon dioxide emissions grow as well. Worldwide carbon emissions rose nearly 3% in 2018, up from 1.6% in 2017 following a 5-year decline. It looks like the numbers will grow in 2019.

The worse emissions come from China, with a rise of 4.7%, followed by India at 6.3% and the U.S. at 2.5%. Emissions from the EU managed to decline by 0.7%.



Global carbon emissions have accelerated at their fastest pace in seven years and hit a record high in 2018. This was despite the pledges made as part of the Paris Climate Agreement to limit global warming to well below 2° C by the end of this century.

Global emissions reached a plateau in 2014-2016, increased 1.6° C in 2017, and then surged in 2018, which is equivalent to taking one step backward and two steps forward.

In order to limit global warming to 1.5° C, it is imperative to cut emissions by 50% by 2030 and then to reach zero emissions by 2050.

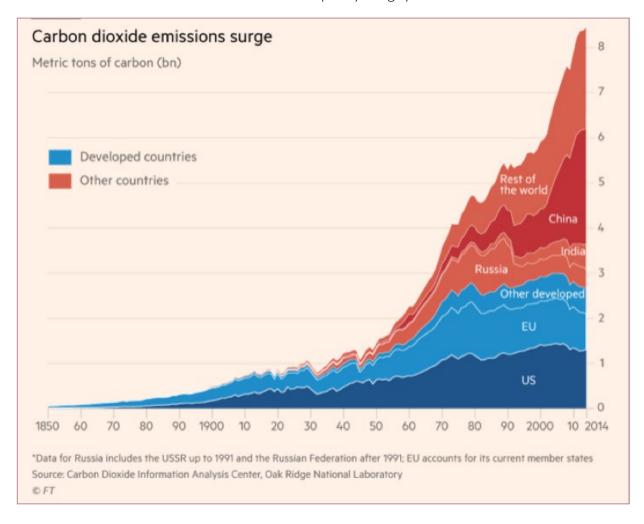
China was the single biggest driver of emissions in 2018, accounting for nearly half of the growth. Its coal consumption had grown 4.5% and natural gas another 18% as a result of their pledge to maintain a GDP growth of 6.5%.



The surge in the U.S. was due to weather calamities. In India, the growing demand for energy was high due to its growth in industry.

The French president, Emmanuel Macron, said his country would not accept trade deals with countries that didn't abide by the Paris Climate Accord.

China, before the UN Climate Talks in Poland, would not renew the significant cuts on steel production and its use of coal will create more pollution this winter, unlike 2017, when four major cities were forced by the state to halve their production output during the winter months and reduce their use of coking coal by nearly a third. Twenty-eight cities and regions were mandated to cut steel and aluminum output by roughly the same amount.



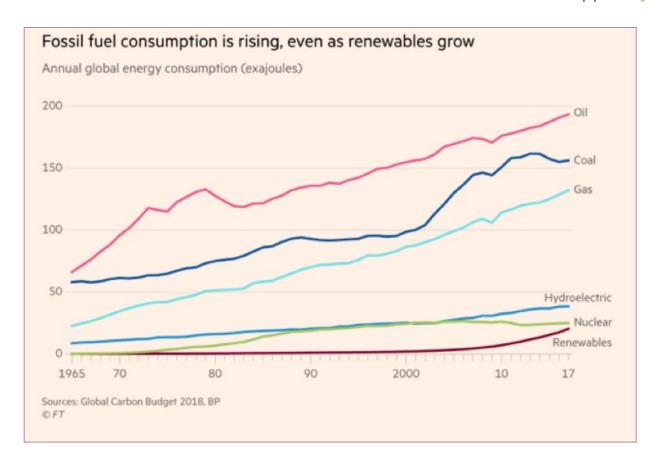
The diagram above shows global carbon emissions. Developed countries accounted for 30% of the total. China alone was 29%. India and Russia each accounted for 12%. The rest of the world contributed the remaining 17%.



In the following chart we see that China and India were responsible for the largest growth in CO emissions in 2018. The U.S. evened out and the EU was on the right track in reducing emissions.



We've discussed the use of renewable energy to replace fossil fuels, coal and even gas. We'll explore this area some more.



Coal mining in Germany

Prosper Haniel was the last remaining coal mine in Germany. It finally closed in 2018. Since 1998, it had cost taxpayers more than Euro 40 billion. It was extremely unprofitable due to the cost of labor and deals between the government, industry and unions.

In the late 1950s, coal mining provided 600,000 jobs across the country. At the end of last year, it was down to 5,700 miners.

As a country, Germany will still be consuming coal but this time it will rely on cheaper imports from countries like Russia and Colombia.

Germany will still be extracting lignite from open pit mines. It can still be produced relatively cheap and there are many lignite-fired power plants that are still operating. The only way Germany can meet its climate target is to shut down those power plants.



Earlier, Germany depended heavily on nuclear power plants, but the country saw the damage from the tsunami triggered by the earthquake in Tohoku, Japan on 11 March 2011. This caused meltdowns at three nuclear reactors at the Fukushima Daiichi Nuclear Power Plant. As a result, Germany started to close plants but added coal-fired electricity generators. The country will miss its 2020 carbon targets.

Action taken by investment funds across the world

We have seen an immediate effect on investment funds, including the U.S. pension funds of the California Public Employees Retirement System, the California State Teachers' Retirement System, Standard Life Aberdeen and Fidelity International, Schroders, and Legal & General Investment Management. Collectively, they oversee more than \$11 trillion in assets. The companies are calling on power companies to commit to ending the use of coal by 2030 and to come up with preparations for a global shift toward low-carbon fuels.

The Investors Group on Climate Change and members of the Climate Action 100+ Organization have urged the European utilities to set timelines for eliminating coal-fired power generation in the EU and industrialized nations. At the same time, they demand companies limit the global temperature to below 2 degrees C.

On the other hand, investors are beginning to worry that the assets and the equipment operated today by the major energy companies could become uneconomical and even obsolete. But extreme weather could bring other catastrophic financial losses such as flooding and wildfires and further affect their investment portfolios.

This two-edged sword is becoming an immediate challenge and the pressure is now on the power stations to shift away from the use of coal. Not too long ago they were the powerhouses behind industrialization.

Liquefied natural gas (LNG)

Over the past decade, the U.S. has soared with its production of LNG. LNG is a gas that is super-cooled so it can be transported in ocean tankers.

Sempra Energy in Texas has an objective to export 45 million tons of LNG per year, the equivalent of 6 billion cubic feet of gas per day. This is almost equal to the yearly consumption of the state of California.



This export is not only going to reduce the trade deficit but increase employment. In December 2018, Poland signed a 20-year contract with Sempra Energy for 2 million tons per year starting in 2023. Poland seeks to cut its dependence on supplies from Russia.

LNG can be cooled down to a liquid form for ease and safety of non-pressurized storage and transport. Because of the high reduction in volume over compressed natural gas (CNG), its energy density is 2.4 times greater than that of CNG or 60% of diesel oil, making it more economical to ship.

LNG's relatively expensive price tag and the need to store it in expensive cryogenic tanks has stopped it from widespread commercial use. It is expected to become 10% of global crude production by 2020.

LNG can be considered the most environmentally-friendly fossil fuel because it has the lowest carbon dioxide emissions per unit of energy. For an equivalent amount of heat, burning natural gas produces about 30% less carbon dioxide than burning petroleum, and 45% less than burning coal. The emissions during transportation are also significantly low because of the compression of its volume.

It's been reported that China has turned away from coal and is buying more LNG. This resulted in the commodity's price rising 40% than the same time last year. Its total import in 2017 was 38 million tons, up 40% from 2016. China overtook South Korea to become the world's second largest buyer of LNG after Japan.

Over the first eight months of 2018, China imported 33 million tons of LNG, up 50% over the same period last year. For the whole year, that amount is predicted to rise 37%, to 52 million tons.



Renewable energy

Below are forms of renewable energy, We'll discuss them in the next issue.

- Biofuel
- Biomass
- Biogas
- Geothermal
- Hydropower
- Solar energy
- Tidal power
- Wave power
- Wind power

Sustainable energy

We'll discuss these as well in future issues.

- Energy conservation
 - o Cogeneration
 - o Efficient energy use
 - o Energy storage
 - o Green building
 - o Heat pump
 - o Low-carbon power
 - o Microgeneration
 - o Passive solar building design
- Sustainable transport
 - o Carbon-neutral fuel
 - o Electric vehicles
 - o Fossil fuel phase-out
 - o Green vehicles
 - o Plug-in hybrids



Conclusion

Climate change is a global phenomenon that we've been talking about for far too long since the Kyoto Protocol and the Paris Climate Pact. Donald Trump, Vladimir Putin, and Xi Jinping of China and Jair Bolsonaro of Brazil, all because of their selfishness, are not sympathetic to multilateral policies driven by the United Nations and ignore the fact that crucial circumstances such as climate change need the leadership of the UN.

The Kyoto Protocol was adopted in Kyoto, Japan on 11 December 1997 and entered into force on 16 February 2005 with 192 nations, although Canada withdrew in December 2012. This was superseded by the Paris Agreement, which gained the consensus of 196 states on 12 December 2015. The Paris Agreement has a long-term goal of keeping the increase in the global average temperature to well below 2 degrees C above pre-industrial levels and to limit the temperature increase to 1.5 degrees C. This would substantially reduce the risks and effects of climate change. A lot of time has passed and lots of money has been spent, but we are not heading anywhere, and the risk is increasing. Even though agreements have been signed recently, nobody thinks this is actually going to happen.

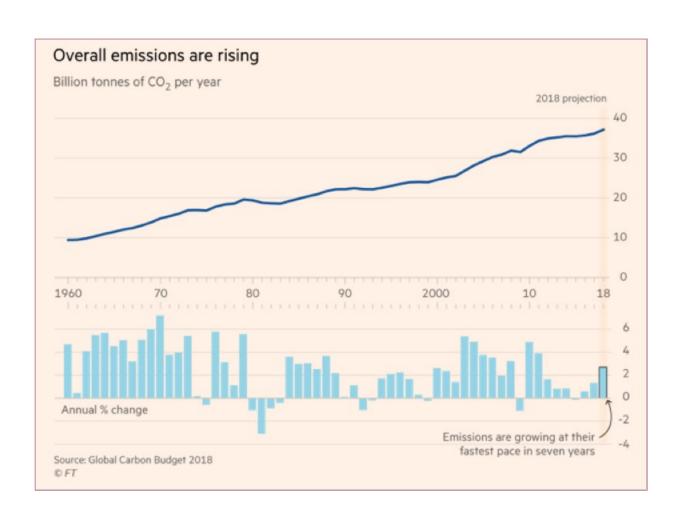
Switching from a carbon to a non-carbon-based economy in just two to three decades is going to be expensive. For Germany, it's roughly Euro 25 billion a year. In Britain, it is a 20% premium on household electricity bills. In France, the rising cost of diesel driven by a carbon tax caused recent protests. The fact is people tell the government that they care about climate change, but their concern fades when they see an increase in their electricity bills.

Curbing carbon production at home is not enough but is necessary to cut the carbon footprint on imported goods as well. If we don't take a hit now and address this at border checkpoints, all the efforts will be wasted. We've talked about blockchains, which can probably become a useful tool to keep track of carbon transactions.



We've also come to realize that none of the existing renewables technologies are going to do the job. We will need to look for new technologies. One good thing is that our economy is going digital. Engaging in robots, 3D printing, and artificial intelligence can solve part of our problem. On top of this, we will need new technology. Really big R&D budgets and \$20-30 billion will certainly help in this aspect. We need to have new technologies that can actually make a difference.

That leads us to the alarming fact that overall emissions are rising. We need to be alert and start to do something.



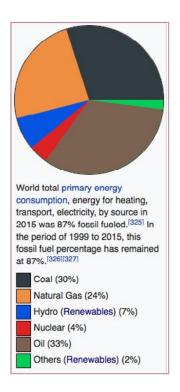
A STUDY OF ALTERNATIVE AND RENEWABLE ENERGY



Since the early stages of civilization, 790,000 years ago, humans began burning wood and biomass. It wasn't until deforestation became a threat that people began to move to burning fossil oil.

The use of fossil oil and coal will one day end when mining is exhausted. A return to wind power, water power, and solar power, which began thousands of years ago, will once again become important, although it remains to be seen if this will be very dependable.

Below is the world's total primary energy consumption:



Alternative energy

This is an energy source that is an alternative to fossil fuel due to the latter's high emission of carbon dioxide and effect on global warming. Alternative energy sources include geothermal, hydropower, solar energy, tidal and wave power, and wind power.



Renewable energy

This is an energy that is collected from renewable resources. Normally, when we mention alternative energy, we are also referring to renewable energy. The line between the two is quite blurred.

Renewable energy accounts for 19% of global energy consumption:

9% from traditional biomass

4.2% from non-biomass

3.8% from hydropower

2% from solar, wind and geothermal

Nuclear energy

Nuclear energy is also considered an alternative energy although people tend not to mention it due to the accidents that took place at Chernobyl in the Soviet Union, The Three Mile Island accident in the United States and the more recent Fukushima nuclear disaster that have all brought very bad publicity.

Nuclear energy is still being debated. The World Nuclear Association and Environmentalists for Nuclear Energy contend that nuclear power is sustainable and safe.



The opponents, Greenpeace and the Nuclear Information and Resource Service, an anti-nuclear group, have concerns over radioactive waste, radiation and sustainable energy issues.







But in light of increasing carbon dioxide emissions, the rise in use of nuclear energy has increased.



As of April 2018, there were 449 civilian fission reactors in the world with a combined electrical capacity of 394 gigawatt (GW). There are a further 58 power reactors under construction and 154 being planned, all with a combined capacity of 220 gigawatt (GW).



As of January 2019, 337 more reactors were proposed. Most of the reactors under construction are generation III reactors located in Asia.

The UK plans to double its nuclear power generation by 2035. But the use of nuclear power to generate electricity is still very limited. The percentage of power from nuclear energy by country is the following:

- France 70%
- Korea 25%
- Spain 20%
- US 20%
- Russia 19%
- UK 18%
- Canada 17%
- Germany 12%
- Japan 20%

The UK government pledged zero carbon emissions for delivering power, but the cost could be pricey.

For instance, for a nuclear plant to produce I gigawatt (GW) of electricity, the reactor will have to work at 90% capacity.

A wind farm's efficiency, on the other hand, is only 50% so you'd need to double it to match the nuclear output. There is another problem: when the wind doesn't blow for a long period of time, using a battery for storage can be prohibitively high. The only way to counter this is to use a back-up generation of another I GW. You are looking



roughly at a capacity of 3 GW to generate 1 GW of wind power. You could perhaps invest in two wind generators, each at GBP 3,000 per kW as the average cost, a total of GBP 6,000 for an effective kW. You would then need a back-up gas plant at a cost of GBP 1,200 per kW. The total cost? GBP 7,200 per kW.

At Hinkley Point in England, nuclear power will cost GBP 6,400 per kW with a finance cost of GBP 3,000 or 4,000 per kW.

A nuclear power plant has a lifespan twice that of a wind farm and so may actually be cheaper to operate.

Carbon tax

How do you tackle the very pressing issue of climate change? If taxes become involved, what is the right amount? People in general are put off whenever the subject of taxes comes up and politicians eventually back down due to the pressure.

There is a proposal for taxing carbon emissions by the Climate Leadership Council together with economists and academics, that has collected 3,300 signatures. The proposal is to tax carbon-intensive goods entering the U.S.

Janet Yellen, former chair of the U.S. Federal Reserve, is an advisor at the Climate Leadership Council. The council is backed by ExxonMobil, BP, Shell, General Motors and Unilever as well as the environmental group, World Wildlife Fund.

Yellen suggested imposing a tax of \$40 per ton of emissions and raising it over time. Using a number higher than inflation would be effective to drive emissions down. The monies collected would be given back to the public in an effort to relieve the pressure on low-income individuals.

On the other hand, the Green New Deal, headed by New York congresswoman Alexandria Ocasio-Cortez, pushes to reduce greenhouse emissions. Ocasio-Cortez is using this as a platform for the 2020 election.



A carbon tax is unpopular for any political party as the public considers it an additional tax that the government is extorting from them. Environmentalists have their own arguments over how to cap carbon output, a fair carbon trading scheme that can be applied around the world to control emissions. Both scientists and environmentalists will have to put aside their differences to come up with a solution.

Final remark

Here's a story told to me many years ago. This happened in 1948. A tiny country called the Netherlands discovered natural gas. In 1959, a large gas field was discovered 2-4 km under the earth. The quantity was so huge that every family in the Netherlands was connected to gas for heating and cooking as well as to heat industrial complexes.

Then the country began to export the gas supply, bringing in Euro 265 billion through 2013.

But now there's a problem. Extracting the gas from underground is leading to earthquakes. The vacuum is getting so big and the differences in pressure of the earth so great that the ground is trembling. The government has to scale back its use of gas and use other means of energy for their supply.

I was told by another source that the country has exhausted its underground gas content and are now filling the vacuum with carbon dioxide that they collect from the atmosphere. This story could have ended better and been more to the liking of environmentalists.

- Technical ×
- Supply Chain
- Sustainability
- Fashion & Design
- Market Intelligence
- Entrepreneurship

SUPPLY CHAIN



ntimate apparel

INSIGHT INTO AFRICA - PART 4

Introduction

In this issue, we're going to use various maps of Africa to illustrate the continent. We believe a picture is worth a thousand words, and there is no better way to describe Africa than by using maps to give you more information.

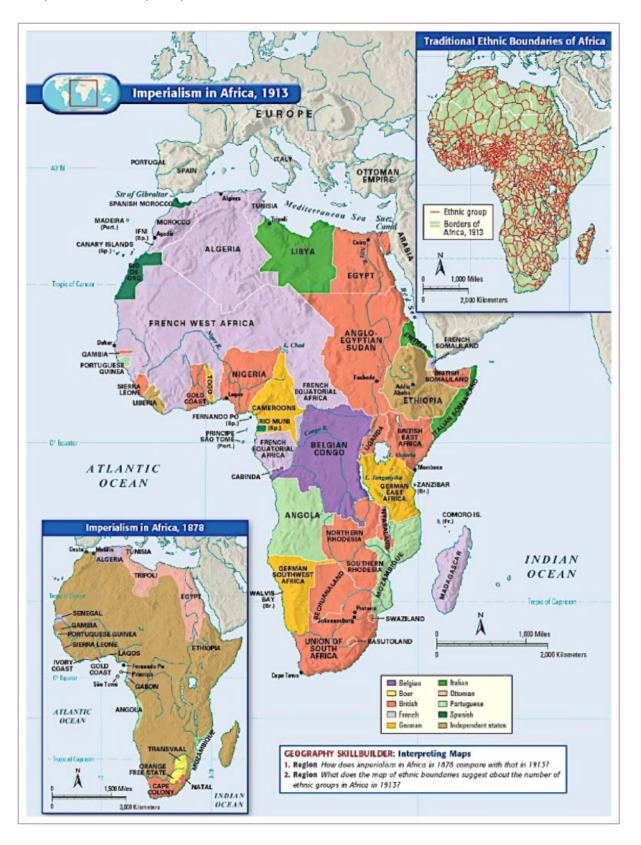
Occupation by European powers from 1880-1914

Both the British and the French occupied most of the states during this time. The rest of the European powers were also present in other African states. In total there were seven European nations in Africa.



Imperialism in Africa, 1913

After the occupation, the European powers named the areas after themselves. This continued until WWII.



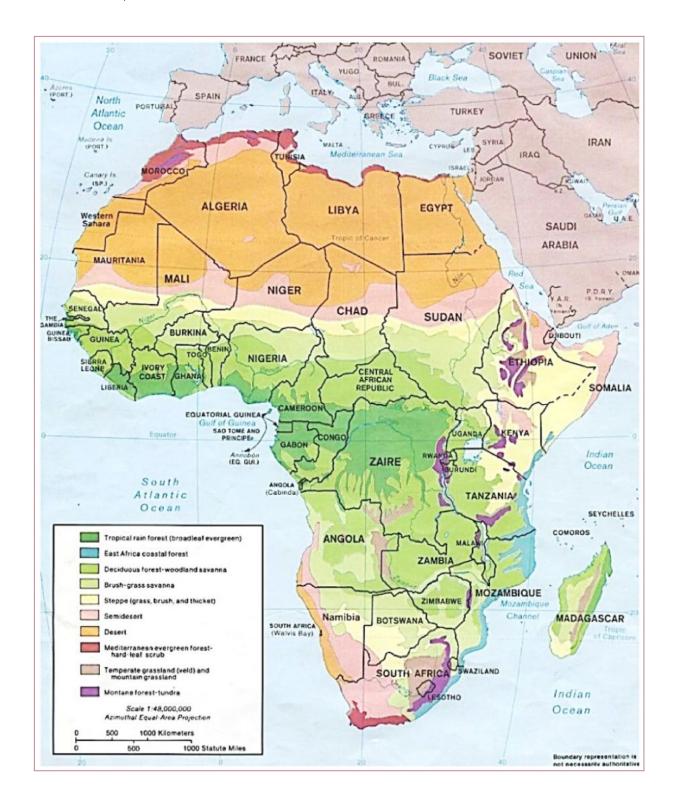
Exploitation of Africa

This map shows you resource-rich Africa and the commodities found on the continent.



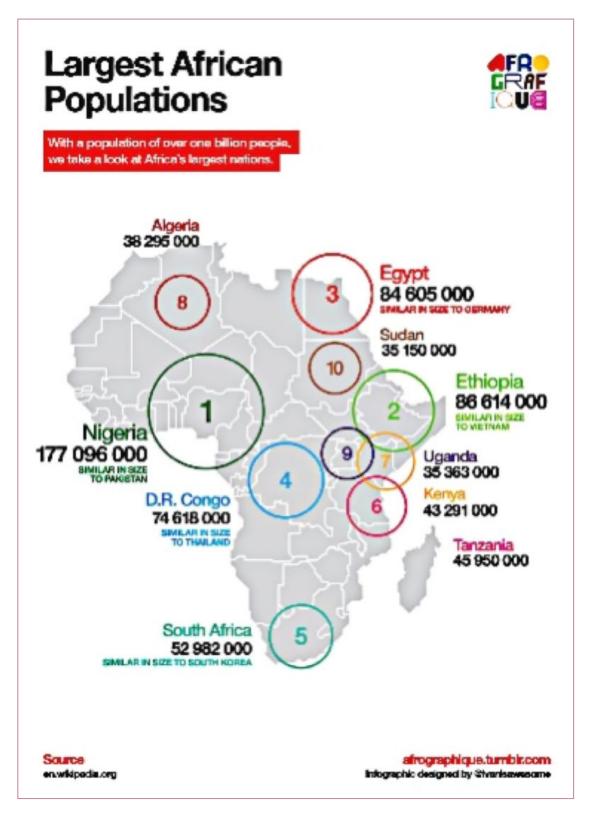
Great nature of Africa

This map shows the natural belts of Africa, which start with the desert to the north, extending to the south where the land becomes more hospitable.



Population layout of the African continent

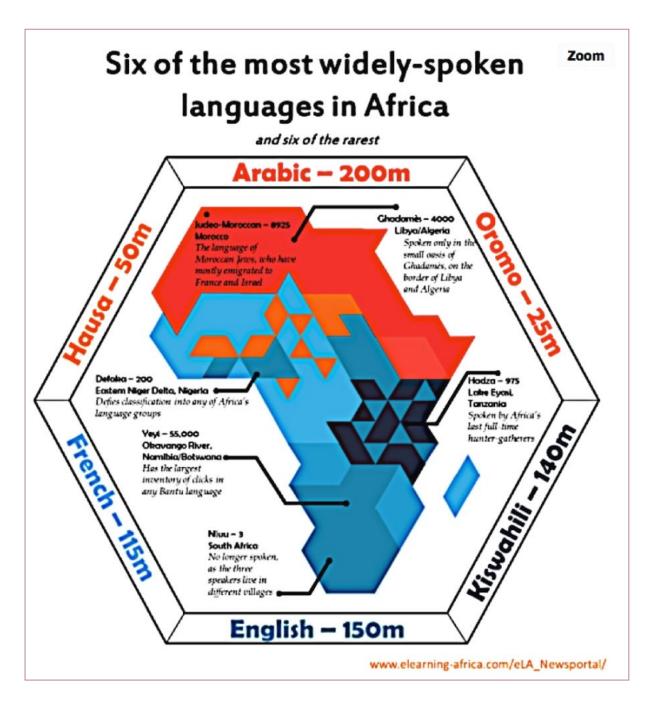
Africa has a total population of 1.2 billion, the second most populated continent. This map shows us the most populated areas.





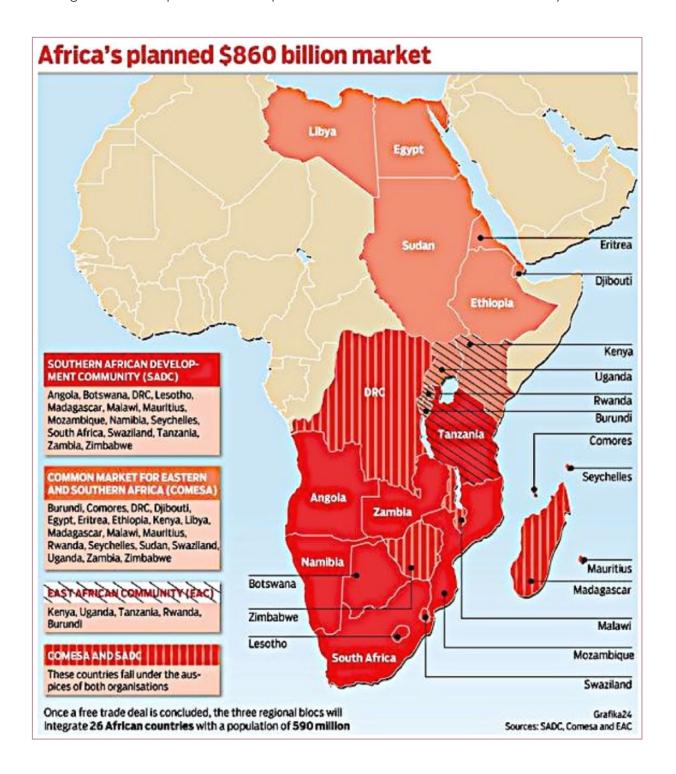
Languages

This is a continent where many languages are spoken. It's estimated that over one thousand languages are used. But due to the colonization of the Europeans, you can still find both French and English used alongside the native languages.



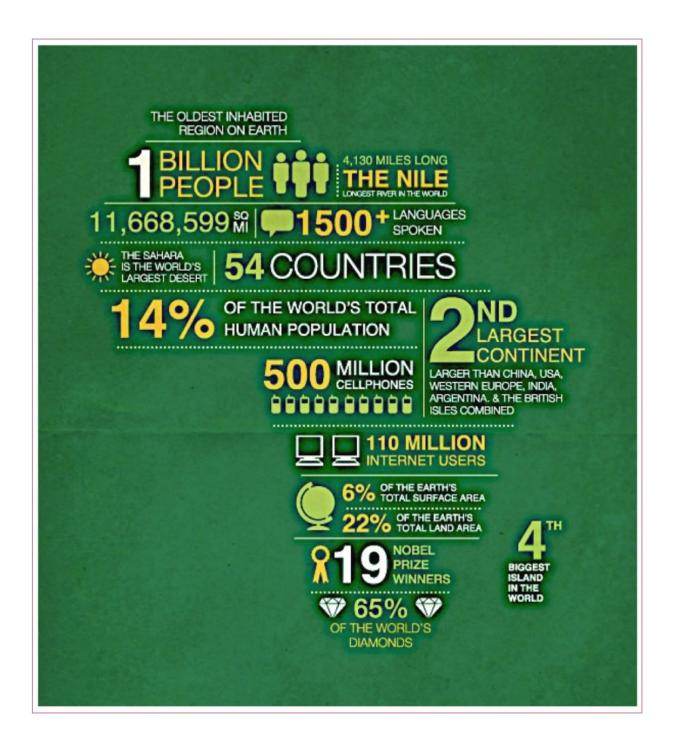
Regional trade agreements

Most of the African states have formed alliances and multilateral trade agreements are signed among members. These agreements are good for trade practices and help establish rules for trade and national security.



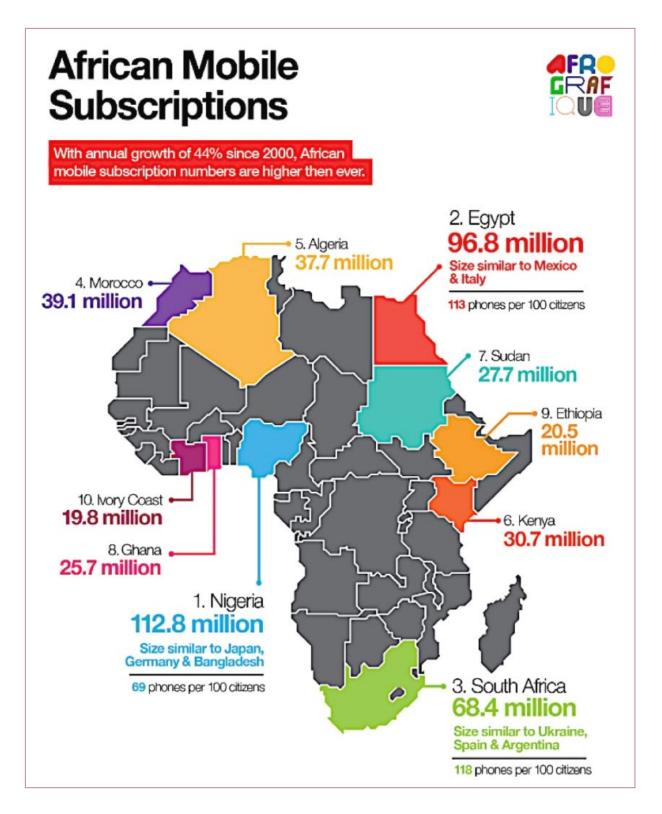
Snapshot of Africa

You'll find the following map the most informative.



Modern telecommunication in Africa

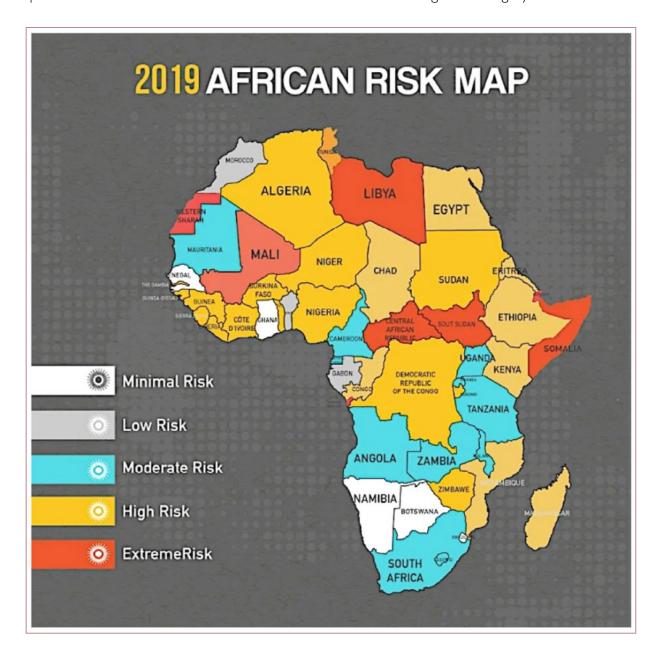
The availability of mobile communications brings people closer. Africa has the largest potential for growth in the number of users. Here's a glimpse of where those users are.



Risk report on Africa

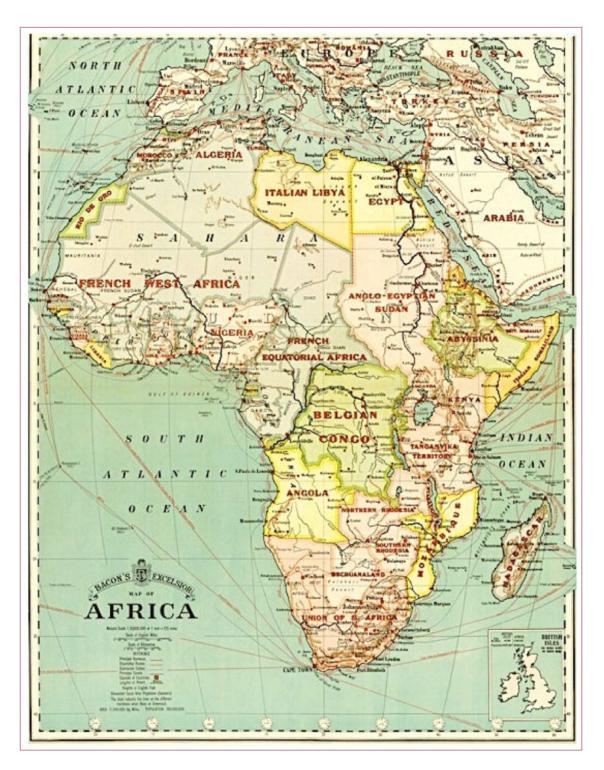
The following map makes this report simple but handy. Unfortunately, there are only a few countries with a low risk.

There are quite a few countries with a moderate risk but most are in the high risk category.



An old map of Africa

We finish the article with an old map we found from Africa. We see that the African continent is surrounded by the North Atlantic Ocean to the northwest. To the north is the Mediterranean Sea and to the southeast is the Red Sea. The Indian Ocean runs along the eastern coast. Around the Cape of Good Hope you enter the South Atlantic Ocean.



A ROADMAP OF BANGLADESH

ANDREW SIA



Introduction

We remember Bangladesh when Dhaka, its capital, was in the headlines on April 24th, 2014 when the Rana Plaza collapsed, leaving more than 1,130 dead and more than 2,500 injured. It was also the first time we heard about the term "least developed country," which is one level below "underdeveloped country." But now, according to the United Nations, Bangladesh will graduate by 2024. I think their status is still "underdeveloped country" due to situations they are still dealing with.



City of Dhaka

We already did a report on Bangladesh for our January 2016 issue. We pick up this country again to fill in some more information that we hope will be useful to you.

Key facts

- Official name People's Republic of Bangladesh
- Capital Dhaka
- Government type Unitary parliamentary republic
- Population 157,826,578
- Land area 148,460 square kilometers or 57,321 square miles





- GDP (nominal) \$285.817 billion
 - o Per capita \$1,751
- GDP (PPP) \$751.949 billion
 - o Per capita \$4,561

Currency

• Bangladesh Taka - 83.94 to U.S. \$1.00

Geography

Bangladesh is a country in Southern Asia. It's bordered by India to its west, north and east, and Myanmar to its southeast. Its separated from Nepal and Bhutan by the Sillguri Corridor or Chicken Neck. It faces the Bay of Bengal to the south.

The country is divided among three regions. It's dominated by the fertile Ganges-Brahmputra delta. The northwest and central part of the country are formed by the Madhupur and the Barind plateaus and the northeast and southeast by the evergreen hill ranges. The Ganges delta is formed by the flowing of the rivers and their respective tributaries, which eventually flow into the Bay of Bengal.

Bangladesh has 57 transboundary rivers. Water issues created political complications with India as the country is a lower wetland state to India.

Administrative geography

Bangladesh is divided into eight administrative divisions, each named after their respective divisional headquarters. Divisions are subdivided into 64 districts.



Administrative Divisions of Bangladesh

Division	Capital	Area in km2	Population		
Barisal	Barisal	13,297	8,325,666		
Chittagong	Chittagong	33,771	28,423,019		
Dhaka	Dhaka	20,593	36,054,418		
Khulna	Khulna	22,272	15,687,759		
Mymensingh	Mymensingh	10,584	11,370,000		
Rajshahi	Rajshahi	18,197	18,484,858		
Rangpur	Rangpur	16,317	15,787,758		
Sylhet	Sylhet	12,596	9,910,219		

Weather

Bangladesh spans the Tropic of Cancer. Bangladesh's climate is tropical with a mild winter from October to March, and a hot, humid summer from March to June. A warm and humid monsoon season lasts from June to October and supplies most of the country's rainfall.

Natural calamities such as floods, tropical cyclones, tornadoes and tidal bores occur almost every year.

The country is recognized as one of the countries that is most vulnerable to climate change. Natural hazards that come from increased rainfall, rising sea levels, and tropical cyclones are expected to increase due to climate change, each occurrence seriously affecting agriculture, water and food security, human health and shelter.

It's estimated that by 2050, a three-foot rise in sea levels will flood 20% of the land and displace more than 30 million people.

The evidence that earthquakes pose a threat to the country will cause rivers to shift course and push the underlying crust down by as much as 6 centimeters.

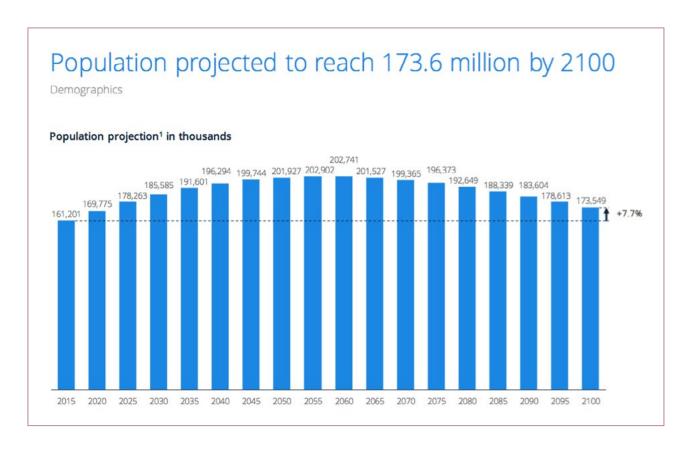


Water is frequently contaminated because of the high arsenic content of the soil and up to 77 million people are exposed to this toxin by drinking the water.

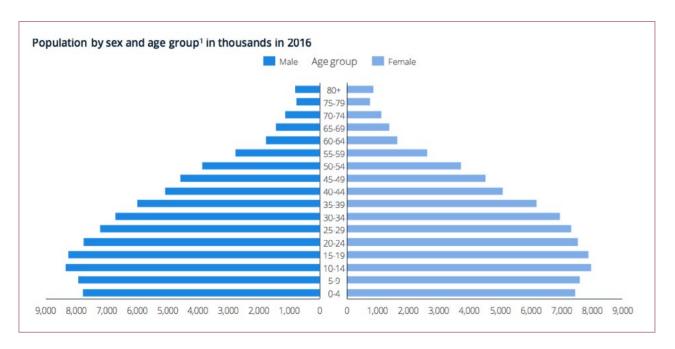
Demographics

In 2017, Bangladesh was the 8th highest in total population. With a population of 36 million, the capital of Dhaka is the most populated of the urban areas, followed by Chittagong. Population growth was 1% as of 2017.

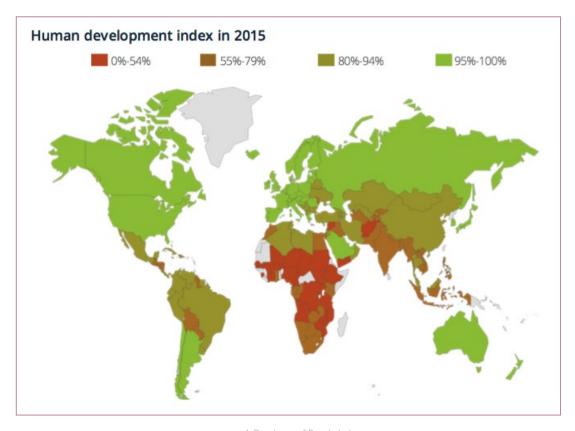
The population is projected to reach 173,549,000 by 2100.



Population growth is the combination of a high birth rate and a declining death rate combined with an increase in life expectancy.



Compared to the rest of the world, Bangladesh has a medium level of human development at 57.9%, a rank of 139 out of 188 countries in the world. This index is a summary measure of average achievement in key dimensions of human development, a long and healthy life, being knowledgeable, and having a decent standard of living. This index is created to emphasize that people and their capabilities should be the ultimate criteria for assessing the development of a country, not just GDP growth alone.





Other facts

The following information was taken from the World Almanac 2018.

	Population	157,826,578					
	A Distribution	<15	27.8%				
Panala	Age Distribution	65+	6.2%				
People	Growth	1.0%					
	Urban Population	35.8%					
	Ethnic Group	Bengali	98.5%				
	Total Area	57,32	I square miles				
Geography	Arable Land		58.90%				
	Capital		Dhaka				
Major cities' population	Chittagong	4,751,049					
Major cities' population	Khulna	1,009,908					

		Jute					
		Cotton					
		Garments					
		Paper					
		Leather	`				
	Industries	Fertilize					
		Iron and st					
		Cement					
		Petroleum pro	oducts				
		Tobacco					
		Pharmaceut	ticals				
		Rice					
		Jute					
		Tea					
		Wheat					
_		Sugarcane					
Economy		Potatoe					
	Chief agriculture	Tobacco)				
		Pulses					
		Oilseed: Spices	S				
		Beef					
		Milk					
		Poultry					
		Natural g					
	Natural resources	Timber					
		Coal					
	Crude oil reserves	28 million b	pales				
		Agricultural	47%				
	Labor force	Industry	13%				
		Services	40%				
	Linempleyment						
	Unemployment	4.10%					

	GDP (billions)		\$628.4				
	Per capita		\$3,900				
	GDP growth	GDP growth 6.90%					
			China 22.4%				
	Imports (billions)	\$39.2	India	14.1%			
			Singapore	5.2%			
Finance			US	13.9%			
	Exports (billions)	\$33.30	Germany	12.9%			
	Exports (billions)	φυυ.υυ	UK	8.9%			
			France	5.0%			
	Tourism (millions)	\$175	2.3	2.30			
	Budget (billions)	\$35.30	\$9.30				
	Inflation	5.5%)%				
	Railways	I,529 miles					
Transportation	Motor vehicles		2.6 per 1,000				
	Airports		16				
	Telephone						
	Mobile	77.9 per 100					
	Broadband	13.5 per 100					
	Internet	18.20%					

	Expenditure	2.809	%				
	1.00	Male	71.3				
	Life expectancy	Female	75.6				
	Births	18.8 per	1,000				
Health	Death	5.4 per	1,000				
	Infant mortality	31.7 per	1,000				
	Undernourished	15.19	%				
	HIV	<0.1%					
	Compulsory	age 6-10					
Education	Literacy	72.8%					
Policion	Muslim	%					
Religion	Hindu	10.0%					
	<u> </u>						
Languages		Bengali					

Politics and Government

Bangladeshi politics have been dominated for years by the bitter rivalry between Prime Minister Sheikh Hasina and former Prime Minister Khaleda Zia, whose family history goes back to the days when they were in opposition to the liberation of Bangladesh, then known as East Pakistan.

Since 1981, Hasina has headed the ruling Awami League, which was founded by her father who in 1975 was killed by army personnel along with most of his family.

Khaleda Zia, who chairs the opposition Bangladesh Nationalist Party, was in jail on corruption charges.



Like other developing countries, both parties have activists and human rights groups speaking out against voter fraud and engaging in intimidation. Hasina received both local and international accusations of authoritarianism, but economic development relies on political stability and both parties' coexistence is vital to show the world that Bangladesh Is a semi-democratic nation.





But Bangladesh is politically unstable and its control of corruption is rather weak. The rule of law is rather low compared to the rest of the world. There are high risks of political instability that can lead to the threat of violence and terrorism. The regulatory quality in Bangladesh is low, which doesn't help.

High risks from political instability and threat of violence or terrorism

Political environment

Governance against political instability and threat of violence/terrorism in 2016 ranked from strong (1.5) to weak (-3)1

# Country	Estimate	#	Country	Estimate	#	Country	Estimate	#	Country	Estimate	# Country	Estimate
1 Singapore	1.5	31	Namibia	0.7	61	Belarus	0.1	91	Indonesia	-0.4	121 Burkina Faso	-0.9
2 New Zealand	1.5	32	Hungary	0.7	62	Malaysia	0.1	92	Bosnia and Herzeg	-0.4	122 Cameroon	-0.9
3 Luxembourg	1.4	33	Estonia	0.7	63	Belize	0.1	93	Macedonia	-0.4	123 India	-1.0
4 Iceland	1.3	34	Croatia	0.7	64	Serbia	0.0	94	Angola	-0.4	124 Colombia	-1.0
5 Switzerland	1.3	35	Slovakia	0.6	65	Kazakhstan	0.0	95	Tanzania	-0.4	125 Tunisia	-1.0
6 Brunei Darussalam	1.3		Cuba	0.6		Bulgaria	0.0		Brazil	-0.4	126 Venezuela	-1.0
7 Canada	1,2	37	Cyprus	0.6	67	Guyana	0.0	97	Saudi Arabia	-0.5	127 Mozambique	-1.0
8 Norway	1.2	38	Chile	0.5	68	Rwanda	-0.1	98	Gambia	-0.5	128 Niger	-1.1
9 Uruguay	1.1	39	Poland	0.5	69	Malawi	-0.1	99	China	-0.5	129 Algeria	-1.1
10 Botswana	1.1	40	Laos	0.5		El Salvador	-0.1	100) lordan	-0.5	130 Chad	-1.2
11 Malta	1.1	41	Spain	0.5	71	France	-0.1	101	Guatemala	-0.5	131 Bangladesh	-1.2
12 Portugal	1.0	42	Belgium	0.5	72	Gabon	-0.1	102	Rep. of the Congo	-0.6	132 Philippines	-1.3
13 Japan	1.0	43	UAE	0.4	73	Timor-Leste	-0.1	103	3 Armenia	-0.6	133 Kenya	-1.3
14 Slovenia	1.0	44	Panama	0.4	74	Ecuador	-0.1	104	Zimbabwe	-0.6	134 Egypt	-1.4
15 Czech Republic	1.0	45	Latvia	0.4	75	South Africa	-0.1	105	Djibouti	-0.5	135 Mali	-1.5
16 Bhutan	1.0	46	United Kingdom	0.4	76	Greece	-0.1	106	Myanmar	-0.6	136 Lebanon	-1.6
17 Sweden	1.0	47	United States	0.4	77	Kuwait	-0.1	107	7 Kyrgyzstan	-0.7	137 Ethiopia	-1.6
18 Australia	1.0	48	Italy	0.4	78	Peru	-0.2	108	3 Haiti	-0.7	138 Nigeria	-1.9
19 Finland	1.0	49	Dominican Republic	0.3	79	Sierra Leone	-0.2	109	North Korea	-0.7	139 Ukraine	-1.9
20 Netherlands	0.9	50	Suriname	0.3	80	Ghana	-0.2	110) Uganda	-0.7	140 Turkey	-2.0
21 Ireland	0.9	51	Romania	0.3	81	Nicaragua	-0.2	111	Iran	-0.7	141 Congo (Dem Rep)2	-2.2
22 Qatar	0.9	52	Albania	0.3	82	Equatorial Guinea	-0.2	117	Mexico	-0.8	142 Libya	-22
23 Denmark	0.8	53	Jamaica	0.2	83	Bolivia	-0.2	113	3 Tajikistan	-0.8	143 Iraq	-2.3
24 Hong Kong	0.8	54	Argentina	0.2	84	Senegal	-0.3	114	Nepal	-0.8	144 Somalia	-2.3
25 Mongolia	0.8	55	Paraguay	0.2	85	Moldova	-0,3	115	Sisrael	-0.8	145 Sudan	-2.4
26 Austria	0.8	56	Zambia	0.2	86	Morocco	-0.3	116	Bahrain	-0.9	146 South Sudan	-2.4
27 Oman	0.8	57	Cambodia	0.2	87	Georgia	-0.3	117	7 Azerbaijan	-0.9	147 Pakistan	-2.5
28 Lithuania	0.8	58	South Korea	0.2	88	Turkmenistan	-0.3	118	Russia	-0.9	148 Afghanistan	-2.7
29 Germany	0.8	59	Vietnam	0.2	89	Uzbekistan	-0.3	119	lvory Coast	-0.9	149 Yemen	-2.8
30 Costa Rica	0.7	60	Montenegro	0.2	90	Honduras	-0.4	120) Thailand	-0.9	150 Syria	-29



The situation with corruption in Bangladesh is high and like other underdeveloped countries, it's the general situation they're facing.

Control of corruption in Bangladesh is estimated as rather weak

Political environment

Efficiency of corruption contro	l efforts in 2016 ranked from strong	g (2.5) to weak (-2.5) by country ¹
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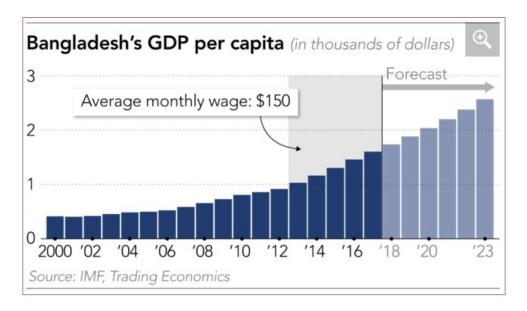
# Country	Estimate	#	Country	Estimate	#	Country	Estimate	#	Country	Estimate	# Country	Estimate
1 New Zealand	2.3	31	Cyprus	0.8	61	Burkina Faso	-0.1	91	Philippines	-0.5	121 Nicaragua	-0.9
2 Finland	2.3	32	Slovenia	0.8	62	Morocco	-0.1	92	Ivory Coast	-0,5	122 Kenya	-0.9
3 Denmark	2.2	33	Poland	0.7	63	Jamaica	-0.2	93	El Salvador	-0.6	123 Laos	-0.9
4 Sweden	2.2	34	Malta	0.7	64	Bulgaria	-0.2	94	Armenia	-0.6	124 Moldova	-1.0
5 Norway	2.2	35	Costa Rica	0.7	65	Ghana	-0.2	95	Egypt	-0.6	125 Lebanon	-1.0
6 Luxembourg	2.1	36	Rwanda	0.7	66	Turkey	-0.2	96	Niger	-0.6	126 Nigeria	-1.0
7 Singapore	2.1	37	Georgia	0.7	67	Kuwait	-0.2	97	Myanmar	-0.6	127 Uganda	-1.1
8 Switzerland	2.1	38	Lithuania	0.7	68	Belize	-0.2	98	Diibouti	-0.7	128 Tajikistan	-1.1
9 Iceland	2.0	39	Brunei Darussalam	0.7	69	China	-0.3	99	Mali	-0.7	129 Kyrgyzstan	-1.1
10 Canada	2.0	40	Spain	0.5	70	Belarus	-0.3	100	Ecuador	-0.7	130 Cameroon	-1.1
11 Netherlands	2.0	41	Czech Republic	0.5	71	India	-0.3	101	Honduras	-0.7	131 Uzbekistan	-1.2
12 United Kingdom	1.9	42	Latvia	0.5	72	Macedonia	-0.3	102	2 Algeria	-0.7	132 Rep. of the Congo	-1.2
13 Germany	1.8	43	South Korea	0.4	73	Argentina	-0.3	103	3 Bolivia	-0.7	133 Zimbabwe	-1.3
14 Australia	1.8	44	Oman	0.4	74	Serbia	-0.3	104	1 Iran	-0.7	134 Cambodia	-13
15 Ireland	1,6	45	Namibia	0.4	75	Guyana	-0.3	105	Guatemala	-0.7	135 Congo (Dem Rep)2	-1.3
16 Belgium	1.6	46	lordan	0.3	76	Suriname	-0.3	106	Paraguay	-0.7	136 Halti	-1.3
17 Hong Kong	1.6	47	Slovakia	0.2	77	Colombia	-0.3	107	7 Gabon	-0.7	137 Venezuela	-1,4
18 Austria	1.5	48	Saudi Arabia	0.2	78	Peru	-0.4	108	3 Malawi	-0.8	138 Iraq	-1.4
19 Japan	1.5	49	Croatia	0.2	79	Indonesia	-0.4	109	Nepal Nepal	-0.8	139 Angola	-1.4
20 France	1.4	50	Malavsia	0.1	80	Zambia	-0.4	110) Mexico	-0.8	140 North Korea	-1.4
21 United States	1,3	51	Hungary	0.1	81	Vietnam	-0.4	111	Dominican Republic	-0.8	141 Chad	-1.5
22 Uruguav	1.3	52	Cuba	0.1	82	Albania	-0.4	117	2 Gambia	-0.8	142 Turkmenistan	-1.5
23 UAE	1.3	53	South Africa	0.0	83	Thailand	-0.4	113	Bangladesh	-0.8	143 Afghanistan	-1.6
24 Estonia	1.2	54	Italy	0.0	84	Ethiopia	-0.4	114	4 Kazakhstan	-0.8	144 Libva	-1.6
25 Bhutan	1,1	55	Romania	0.0	85	Brazil	-0.4	115	Sierra Leone	-0.8	145 Svria	-1.6
26 Chile	1.1	56	Senegal	0.0	86	Bosnia and Herz.	-0.5	116	Ukraine	-0.8	146 South Sudan	-1.6
27 Israel	1.1	57	Greece	-0.1	87	Panama	-0.5	117	7 Pakistan	-0.9	147 Sudan	-1.6
28 Portugal	1.0	58	Bahrain	-0.1	88	Mongolia	-0.5	118	Russia	-0.9	148 Yemen	-1.7
29 Botswana	0.9	_	Montenegro	-0.1	_	Tanzania	-0.5	_) Mozambique	-0.9	149 Somalia	-1.7
30 Oatar	0.9		Tunisia	-0.1		Timor-Leste	-0.5) Azerbaijan	-0.9	150 Equatorial Guinea	-1.8

Economy

Bangladesh struggles both economically and politically and since the country's independence in 1971, a string of tragedies has struck the country including poverty, natural disasters and now the world's largest refugee crises, with an influx of 750,000 Rohingya Muslims fleeing persecution from neighboring Myanmar.

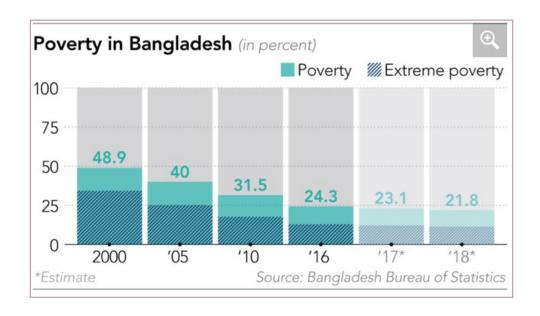
It hasn't been easy, especially with limited international intervention and help, but Bangladesh still manages to build economic growth. Its garment manufacturing is a fast-growing area, second only to China. As a result, the country has averaged above 6% through the decade. In fact, the GDP has reached 7.86% growth each year through June 2018.





The country has also achieved near-sufficiency in food production for its 166 million people. This comes after the mass starvation of 1974.

The per capita income is now reaching \$1,750, a nearly three-fold increase since 2009. Since that same year, the number of people living in extreme poverty, which is classified as those making under \$1.25 per day, has shrunk from about 19% of the population to less than 9%. These are all important economical accomplishments for this South Asian country.





Prime Minister Sheikh Hasina has even mentioned that the annual growth over the next 5 years will exceed 9%, and even should reach 10% by 2021.

The country's national strategy is focused on manufacturing, primarily dominated by the garment industry. Garment exports alone have soared by an average annual rate of 15-17% in recent years and reached a record \$36.7 billion through June 2018.

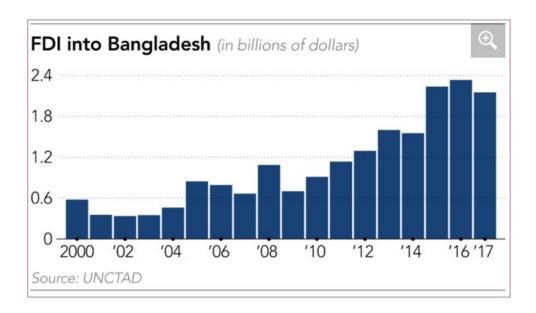
Bangladesh has a vast community of about 2.5 million Bangladeshi workers overseas and in 2018, the annual remittance reached \$15 billion, a significant boost to its economy.

The country is also aware of the need to boost its industrial value chain. In 2018, the Prime Minister launched "Digital Bangladesh" and a shift from operating as an old, low-cost manufacturing hub has been widely discussed. Pharmaceuticals and the outsourcing of business processes are two areas that neighboring India is dominating in the region. Dhaka can provide hubs in this area. It's already the second largest generic drug maker with exports to 60 countries throughout the world.

The government has a very ambitious scheme to build 100 special economic zones around the country. Eleven have been completed with 79 still under construction. Out of these 100 special economic zones, there will be 12 high-tech parks across the nation.



Foreign Direct Investment (FDI) is not Bangladesh's strong suit, but this has tripled during Hasina's nine years in office. It grew from \$961 million in 2008 to nearly \$3 billion in June 2018, but Vietnam and Myanmar are faring better than Bangladesh.



The World Bank's rank for ease of doing business in Bangladesh is 176th out of 190 countries because of red tape, poor infrastructure and transportation.

Bangladesh is turning to China for help in improving infrastructure. This suits China's Belt and Road Initiative and so China is financing several megaprojects there. This includes most of the nearly \$4 billion Padma Bridge rail link, which connects the country's southwest with the northern and eastern regions. In total, China has committed \$38 billion in loans, aid and other assistance for Bangladesh.

Under Hasina's government, Bangladesh's foreign exchange reserves have grown from \$7.5 billion to \$32 billion over the past ten years. The government is also contributing financing alongside international partners like China, Japan and various international financial institutions. It's using its own sovereign fund, about \$10 billion, for long-term infrastructure development.

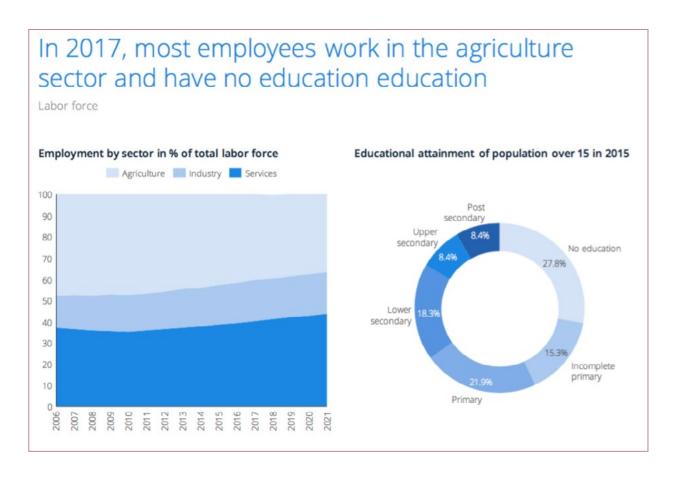
In 2018, Chinese investors bought 25% of the Dhaka Stock Exchange, the second largest importer of Chinese military hardware after Pakistan.



Bangladesh is attempting to maintain a friendly relationship with the U.S. and China.

Labor market

The unemployment rate is 4.1% with agriculture as the main employer.



47% of employment is in agricultural, and 40% in the service sector. It's still very much an agricultural country with a very large population to feed and provide service. That has left only 13% in manufacturing, which brings in all the income from foreign manufacturing due to garments mostly meant for export.

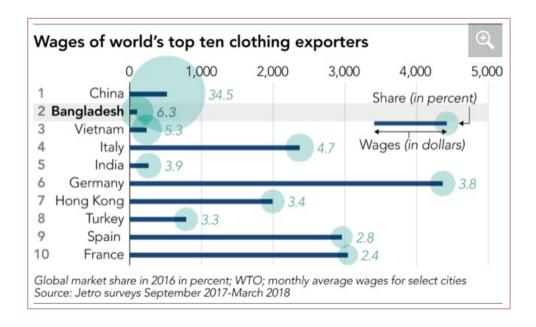
The population is barely educated, which prevents the country from moving forward.

Although manufacturing only represents 13% of the total workers, it provides 4.5 million jobs for garment manufacturing. Before the country introduced the garment export business, it was similar to all underdeveloped countries, in that garment manufacturing was reduced to small tailor shops operating as mom and pop shops.



Over the last five years, the number of factories has shrunk by 22% and the number is now down to 4,560 factories. The garment industry is still booming because it offers the lowest wages among the top ten clothing exporters.

Here's a look at average wages:



The garment industry in Bangladesh

According to data from the WTO, Bangladesh shipped \$29 billion worth of garments in 2017, 6.5% of the world's market share. It was the second biggest garment exporter.

Here's how it compares to the top five:

- China 34.9% for \$158 billion
- Bangladesh 6.5% for \$29 billion
- Vietnam 5.9% for \$27 billion
- India 3.9% for \$18 billion
- Turkey 3.3% for \$15 billion



WTO data also shows that in 2017, the total share of the top ten exporting countries was 87.8%, a value of \$437 billion.

As we mentioned earlier, the garment industry is the largest exporter for the country and the government has set a goal of \$39 billion, which is right on track. The government has further set a goal of \$50 billion for 2021 to mark the 50th anniversary of Bangladesh's independence.

All the top clothing retailers, like H&M, Zara, Uniqlo, Walmart, JC Penney, Gap, M&S, C&A, Tesco, Primark, Hugo Boss, and Adidas are sourcing billions of dollars' worth of garments from Bangladesh.

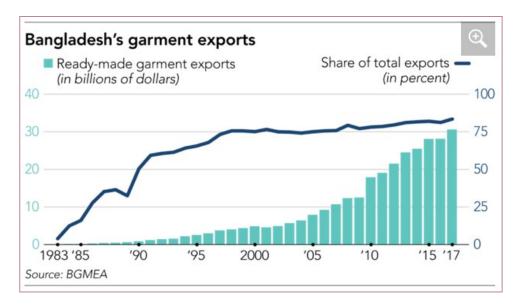


The garment industry is the country's phenomenal success story. The industry is the country's largest employer, providing about 4.5 million jobs. In 2018, it represented nearly 80% of Bangladesh's total merchandise exports.

Bangladesh is still dominated by the more basic products like cotton. They realized that worldwide growth is in manmade fibers that serve many functions.

100% automation is not what the country wants. Having the capability to combat rising costs by training more workers in value-added areas, such as applique and embroidery will help in the long run.





The country is already benefiting from the trade war between the U.S. and China but is also paying attention to other countries on the rise like Vietnam, Cambodia, Myanmar and even Ethiopia.

The Bangladesh Garment Manufacturers and Exporters Association (BGMEA) reported that in the past five years, there was a consolidation of Bangladesh's garment factories, which reduced the number of factories by 22%, to 4,560 factories. This was the result of the Rana Plaza tragedy, which set off alarms and led to both the U.S. and European companies signing accords to inspect the safety of factory buildings.

Faruque Hassan is the managing director of Giant Group, a leading garment manufacturer, and the senior vice president of the Bangladesh Garment Manufacturers and Exporters Association (BGMEA).

The country is not without challenges in the garment sector. The U.S. introduced the Tariff Relief Assistance for Developing Economies Act of 2009. It designated Bangladesh as one of the 14 least developed countries eligible for duty-free access for apparel assembled in those countries and exported to the U.S. between 2004 and 2019. We'll have to wait and see what action the U.S. takes next.



The risk of cheap wage alternatives comes from Africa. Automation and the loss of the duty-free market will probably have an impact if Bangladesh's transition from "Least Developed Country" slated for 2024 becomes a reality.

Internal challenges are developing as well. Pharmaceuticals and business process outsourcing are two potential areas.

Conclusion

Every year, monsoon season, from June to October, brings torrential rainfall to Bangladesh. We've read that the country is suffering from extreme temperatures, erratic rainfall, floods, drought, tropical cyclones, rising sea levels, tidal surges, salinity intrusion, and ocean acidification. These are all causing serious negative impacts on the lives and livelihoods of millions of people in Bangladesh.



Soil erosion on the tributaries

Climate change is also causing increased river erosion that constantly threatens an estimated 20 million people. This is also gradually offsetting the remarkable socio-economic development gained over the past 30 years, as well as jeopardizing the country's future economic growth.



Bangladesh holds second place in garment production after China. It's the world's second largest apparel exporter of western fashion brands, also known as fast fashion. It's already proven that garment production poses a tremendous threat to the environment because of the water that is used during production. Fast fashion accelerates the speed of water contamination and used-garment recycling is almost impossible. The only solution is to spend more on buying new clothes. We already see a slowdown in the demand for fast fashion, which is good news and we hope it continues.



Chittagong's container terminal

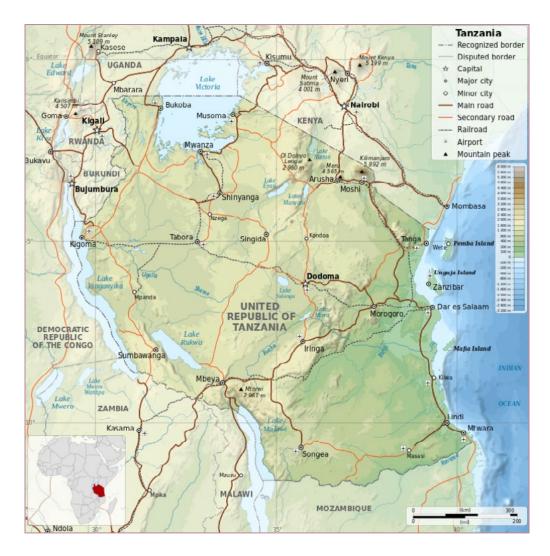


The waterway of Dhaka

COUNTRY REPORT: TANZANIA

ANDREW SIA





Along the coast of the Indian Ocean, we come to Tanzania, a country in eastern Africa. The name is a combination of two states, Tanganyika and Zanzibar.

"Tanganyika" comes from the Swahili words, "Tanga" meaning "sail" and "nyika" meaning "wilderness." Together the name means "Sail in the wilderness."

"Zanzibar" is derived from "Zenji," the name of the local people, meant to be "black" and the Arabian word "barr" meaning coast or shore.

On 29 October 1963, the country became the United Republic of Tanzania.

Like many other African countries, Tanzania has a rich history dating back to early civilization. It's fascinating to read.



Brief history

- The very first hominids were known to live in Tanzania 6 million years ago.
- 4 to 2 million years ago, the Australopithecus genus moved all over Africa.
- The oldest remains of Homo genus were found near Lake Olduvai.
- The rise of Homo erectus 1.8 million years ago marked the beginning of the spread of mankind all over the Old World. Homo sapiens came later and occupied the New World and Australia.
- Homo sapiens also overtook Africa and absorbed the oldest archaic species and subspecies of humanity.
- The Hadzabe, one of the oldest known ethnic groups still existing appears to have originated in Tanzania. This species, who lived in caves, was tall and the first to use fire and medicine.
- Later, during the Stone and Bronze ages, some of the prehistoric population began to migrate to Tanzania.
- The Southern Cushitic speakers from Ethiopia migrated south.
- The Eastern Cushitic, from north of Lake Turkana, moved into Tanzania about 2,000 to 4,000 years ago.
- The Southern Nilotes, including the Datoog, originated from the border of South Sudan and Ethiopia and moved between 2,900 and 2,400 years ago.
- At the same time, the settlement of the Mashariki Bantu from West Africa in Lake Victoria and Lake Tanganyika areas also moved in. They migrated across the rest of Tanzania between 2,300 and 1,700 years ago.
- These movements brought iron-making into the areas of Victoria Lake and Tanganyika Lake, along with planting and the primary staple of yams.
- The Eastern Nilotic people, including the Maasai, were the more recent group to migrate from South Sudan, 500 to 1,500 years ago.
- The people of Tanzania have been associated with the production of iron and steel. The Pare people were the main producers of the highly in-demand iron for the people occupying the mountainous regions of northeastern Tanzania.
- More than 1,500 years ago, the Haya people on the western shore of Lake Victoria invented a high-heat blast furnace that could forge carbon iron at temperatures exceeding 1,820 degrees C.
- Oman, an Arab country on the southeastern coast of the Arabian Peninsula in Western Asia, with its Omani
 Sultanate was a powerful empire. The Sultan, Said bin Sultan, claimed the coastal strip and established the capital in Zanzibar City in 1840.



- Zanzibar became the center of the Arab slave trade. The majority population of the Arab-Swahili was enslaved.
- During the 19th century, 718,000 slaves were exported from the Swahili coast. Another 769,000 slaves remained.
- In the 1980s, slavery was abolished.
- In the late 19th century, Germany occupied most of the area of Tanzania, minus Zanzibar, and incorporated them into German East Africa.
- On 7 May 1919, following WWI, during the Paris Peace Conference, German East Africa was awarded to Britain.
- After the signing of the Treaty of Versailles on 28 July 1919, German East Africa was transferred officially to Britain,
 Belgium and Portugal.
- Tanganyika became the name of the British territory.
- During WWII, about 100,000 people from Tanganyika joined the Allied forces and were among the 350,000
 Africans who fought with the Allies.
- Tanganyika troops fought in many wars for the British.

Recent history:

- Tanganyika gained its independence in 1961. British rule ended, but Tanganyika had a governor general who
 represented Britain. Julius Nyerere, who was involved since the early days and formed the leading political
 organization in Tanganyika became its prime minister.
- On 9 December 1962, Tanganyika became a democratic republic under an executive president.
- In 1963, Zanzibar gained its independence after the Arab dynasty was overthrown during the the Zanzibar Revolution.
- The archipelago merged with the mainland, Tanganyika, and the country was renamed the United Republic of Tanzania.
- After the unification with Zanzibar, Nyerere became the President of Tanzania.
- He successfully transformed the country with over 130 languages spoken, and Tanzania became the most ethnically diverse and politically stable country in Africa.
- In 1967, President Nyerere turned the country to the left and embraced socialism and Pan-Africanism. After this declaration, banks and large industries were nationalized.



- From 1970 to 1975, Tanzania became close with China and sought financial aid for the TAZARA Railway that ran from Dar es Salaam to Zambia, with a distance of 1,860 km.
- In the late 1970s, the country's economy turned sour.
- In the mid-1980s, Tanzania borrowed from the International Monetary Fund and underwent some reforms. The country's economy was on its way to recovery.
- In 1992, the Constitution of Tanzania was amended to allow multiple political parties.
- In the country's first multi-party elections, held in 1995, the ruling Chama Cha Mapinduzi (Party of the Revolution) won 186 of the 232 elected seats in the National Assembly, and Benjamin Mkapa was elected president.

Key facts

- Official name United Republic of Tanzania
- Capital Dodoma
- Commercial capital Dar es Salaam
- Type of Government Unitary Dominant-Party Presidential Constitutional Socialist Republic
- Population 55,451,343
- Land area 947,300 km2
- GDP (nominal) \$56.664 billion
 - o Per capita \$1,100
- GDP (PPP) \$176.465 billion
 - o Per capita \$3,456
- GDP growth 6%

Geography:

Tanzania is the world's 31st largest country and the 13th largest country in Africa. To its north is Kenya and Uganda. To the west, Rwanda, Burundi and the Democratic Republic of Congo. To the south is Zambia, Malawi and Mozambique and to its east is the Indian Ocean with a 1,424 km long coastline. Several offshore islands are now known as Unguja.





The country has the highest point in Africa, Mount Kilimanjaro, at 5,895 meters above sea level. The bottom of Lake

Tanganyika is 352 meters below sea level.

Tanzania is mountainous and densely forested in the northeast, where Mount Kilimanjaro is located.



Mount Kilimanjaro

Africa's largest lake, Lake Victoria, lies to its north. Lake Tanganyika, the continent's deepest lake with its unique species of fish, lies partly to its west. To its southwest lies Lake Nyasa.

Central Tanzania is a large plateau with rolling plains and arable land. The eastern shore is hot and humid. The Zanzibar Archipelago is just offshore.

Kalambo Falls in southwestern Rukwa is the second highest waterfall in Africa and is located near the southeastern shore of Lake Tanganyika on the border of Zambia. It is a 235 meter, uninterrupted single-drop water fall. The Menai Bay Conservation Area is Zanzibar's largest marine protected area.

Climate

Tanzania's climate varies greatly. In the highlands, temperatures are in the range of 10 and 20 degrees C in the cold and hot seasons. In the rest of the country the temperature drops lower than 20 degrees C.

Its hottest period is between November and February, with temperatures between 25 to 31 degrees C. The coldest period is between May and August, with temperatures between 15 to 20 degrees C. Its annual temperature is 20 degrees C.

The country experiences different rainfalls in different regions. From October to April, rainfall occurs in the southern, central and western parts of the country. From October to December and March to May, it occurs in the north, from Lake Victoria to the east coast.



Wildlife and conservation

Tanzania has 16 national parks, plus a variety of game and forest reserves, which includes the Ngorongoro Conservation Area, a protected area and a World Heritage Site in the Crater Highlands area of Tanzania. It's famous for its unparalleled beauty and is one of the world's most unchanged wildlife sanctuaries.



Ngorongoro Conservation Area

In western Tanzania is the Gombe Stream National Park, the world-renowned site for study of Chimpanzee behavior.

Approximately 38% of Tanzania's land area is set aside as protected areas for conversation. It's highly biodiverse and has a wide variety of animal habitats. It is home to 130 amphibians and over 275 reptile species. Tourism brings in \$2.3 billion per year.

Demographics

With a population of 55,451,343, the country is a youthful country. According to the census, 43.4% are under 15 years old. Distribution of the population in Tanzania is very uneven. Either they are living on the northern border or on the eastern coast. Population density for this large country is 13 per square kilometer. About 70% of the population lives in rural area, although this number is declining.

Dar es Salaam has the largest population, 4,364,541, and is the largest city as well as the commercial capital. The capital, Dodoma, has the fourth largest population at 410,956 and is home to the National Assembly.



Like all other African countries, Tanzania's population consists of about 125 ethnic groups, The Sukuma, Nyamwezi, Chagga and Haya each have a population exceeding 1 million. About 99% of Tanzanians are of African descent, with small numbers of Arab, European and Asian descent. The majority of Tanzanians are Bantu, including the Sukuma and Nyamwezi.

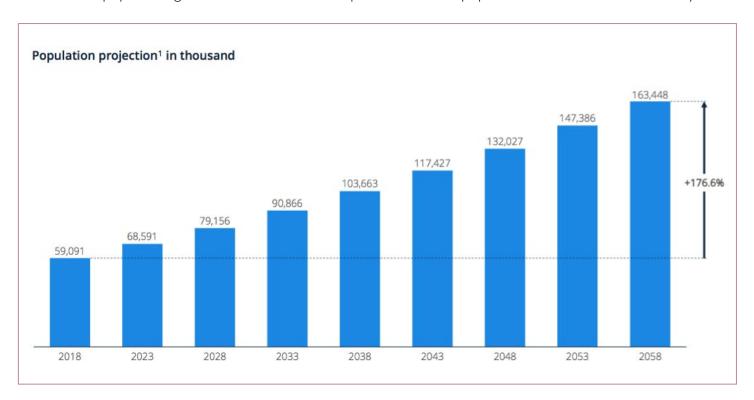


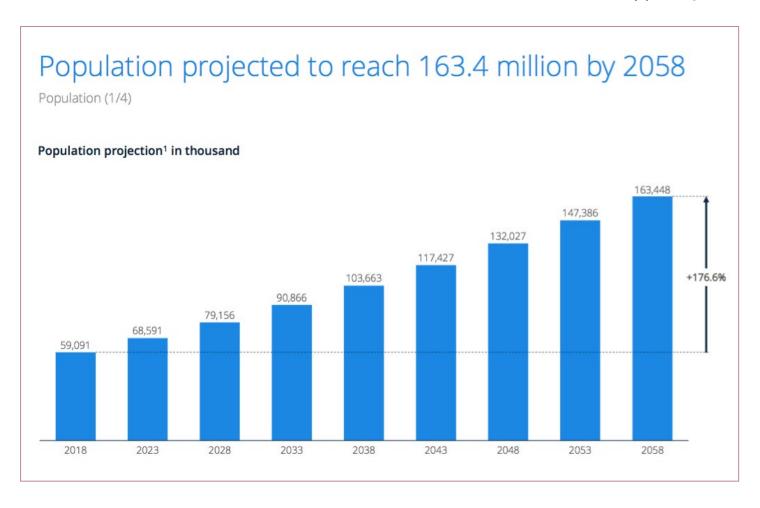
Young girl of Haya

An estimated 50,000 Asian communities live on the mainland and 4,000 on Zanzibar. Another 70,000 Arabs and 10,000 Europeans live in Tanzania.

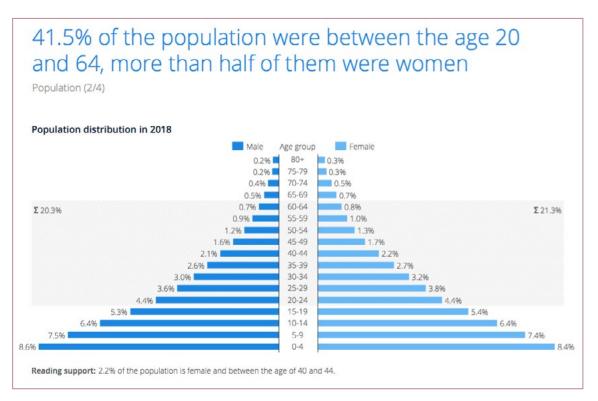
According to 2010 Tanzanian government statistics, the total fertility rate in Tanzania was 5.4 children born per woman, with 3.7 in urban mainland areas, 6.1 in rural mainland areas and 5.1 in Zanzibar. For all women aged 45 to 49, 37.3% had given birth to eight or more children.

Tanzania had a population growth of 3.1% in 2018. It's predicted that its population will reach 163.4 million by 2058.





Most of the people in this young country are between 20 and 64 years old, the majority being female.





The life expectancy for women is 64.6 years. For men it's 61.6 years. The birth rate is 35.3 per 1,000 of the population.

Deaths are 7.5 per 1,000 of the population.

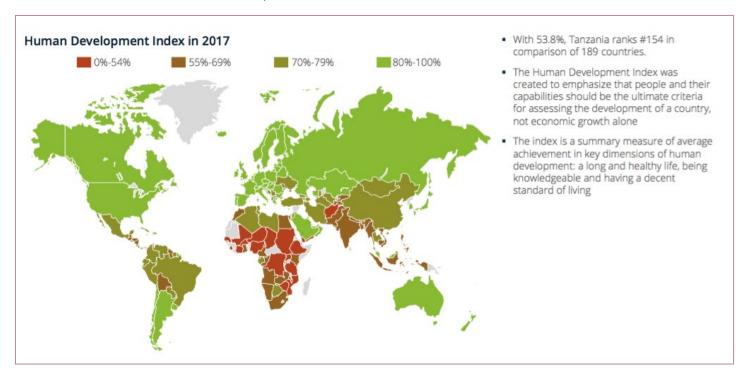
The infant mortality rate is 38.7% per 1,000 live births.

In 2018, Tanzania had the 24th highest total population in the world.

Country	Population	#	Country	Population	#	Country	Population	#	Country	Population	# Country	Population
China	1,415.0	31	Argentina	44.7	64	Syria	18.3	97	Serbia	8.8	135 Bosnia and Herzeg.	3.5
India	1,354.1	32	Uganda	44.3	65	Chile	18.2	98	Austria	8.8	136 Uruguay	3.5
United States	326.8	33	Ukraine	44.0	66	Zambia	17.6	99	Switzerland	8.5	137 Mongolia	3.1
Indonesia	266.8	34	Algeria	42.0	67	Guatemala	17.2	100	Israel	8.5	138 Albania	2.9
Brazil	210.9	35	Sudan	41.5	68	Netherlands	17.1	103	Sierra Leone	7.7	139 Armenia	2.9
Pakistan	200.8	36	Iraq	39.3	69	Zimbabwe	16.9	104	Hong Kong	7.4	140 Jamaica	2.9
Nigeria	195.9	37	Poland	38.1	70	Ecuador	16.9	105	Bulgaria	7.0	141 Lithuania	2.9
Bangladesh	166.4	38	Canada	37.0	71	Senegal	16.3	106	Laos	7.0	142 Qatar	2.7
Russia	144.0	39	Afghanistan	36.4	72	Cambodia	16.2	107	Paraguay	6.9	143 Namibia	2.6
0 Mexico	130.8	40	Morocco	36.2	73	Chad	15.4	108	Libya	6.5	144 Botswana	2.3
1 Japan	127.2	41	Saudi Arabia	33.6	74	Somalia	15.2	109	El Salvador	6.4	146 Gambia	2.2
2 Ethiopia	107.5	42	Peru	32.6	76	South Sudan	12.9	110	Nicaragua	6.3	147 Macedonia	2.1
3 Philippines	106.5	43	Venezuela	32.4	77	Rwanda	12.5	111	Kyrgyzstan	6.1	148 Slovenia	2.1
4 Egypt	99.4	44	Uzbekistan	32.4	78	Tunisia	11.7	112	Lebanon	6.1	149 Gabon	2.1
5 Vietnam	96.5	45	Malaysia	32.0	79	Belgium	11.5	113	Turkmenistan	5.9	150 Latvia	1.9
6 Congo (Dem Rep.) ²	84.0	46	Angola	30.8	80	Cuba	11.5	114	Singapore	5.8	152 Bahrain	1.6
7 Germany	82.3	47	Mozambique	30.5	83	Bolivia	11.2	115	Denmark	5.8	155 Timor-Leste	1.3
8 Iran	82.0	48	Nepal	29.6	84	Greece	11.1	116	Finland	5.5	156 Equatorial Guinea	1.3
9 Turkey	81.9	49	Ghana	29.5	85	Halti	11.1	117	Slovakia	5.4	157 Estonia	1.3
0 Thalland	69.2	50	Yemen	28.9	86	Dominican Republic	10.9	118	Republic of the Cong	5.4	159 Cyprus	1.2
1 United Kingdom	66.6	52	North Korea	25.6	87	Czechia	10.6	119	Norway	5.4	160 Dibouti	1.0
2 France	65.2	53	Ivory Coast	24.9	88	Portugal	10.3	122	Costa Rica	5.0	164 Bhutan	0.8
3 Italy	59.3	54	Australia	24.8	89	Sweden	10.0	124	Oman	4.8	165 Guyana	0.8
4 Tanzania	59.1	55	Cameroon	24.7	90	Azerbaijan	9.9	125	Ireland	4.8	167 Montenegro	0.6
5 South Africa	57.4	57	Niger	22.3	91	Jordan	9.9	126	New Zealand	4.7	169 Luxembourg	0.6
6 Myanmar	53.9	59	Burkina Faso	19.8	92	Hungary	9.7	129	Kuwait	4.2	170 Suriname	0.6
7 South Korea	51.2	60	Romania	19.6	93	United Arab Emirates	9.5	130	Croatia	4.2	175 Brunel Darussalam	0.4
8 Kenya	51.0	61	Malawi	19.2	94	Belarus	9.5	131	Panama	4.2	176 Malta	0.4
9 Colombia	49.5	62	Mall	19.1	95	Honduras	9.4	132	Moldova	4.0	179 Belize	0.4
0 Spain	46.4	63	Kazakhstan	18.4	96	Talikistan	9.1	133	Georgia	3.9	180 Iceland	0.3



Tanzania has a low level of human development, 53.8% in 2017. It ranks #154 out of 189 countries.



Language

- Kiswahili or Swahili
- English for commerce, administrative and higher education
- Arabic widely spoken in Zanzibar

Religion

- Christian 61.4%
- Muslim 35.2%
- Folk religion 1.8%

Zanzibar is almost entirely a Muslim country.



Other facts

The following information was taken from the World Almanac 2019.

	Population	55,451,343					
		<15	43.40%				
	Age Distribution	65+	3.00%				
People	Growth	2.70%					
	Urban Population	33.80%					
	Ethnic Group	Africans	99.00%				
	Total Area	365,755 square miles					
	Arable Land	15.20%					
Geography	Capital	Dodoma					
	Commercial Capital	Dar es Salaam					
	Dar es Salaam	4,364,541					
Major cities' population	Mwanza	1,003,267					
	Dodoma	410,956					

		Agriculture pro	duction			
	[Mining				
		Soda ash				
		Cement				
	Industries	Oil refining				
		Shoes				
		Apparel				
		Wood prod	lucts			
		Fertilize	^			
	<u> </u>	Coffee				
		Sisal				
	<u> </u>	Tea				
	<u> </u>	Cotton				
	<u> </u>	Pyrethrum				
	<u> </u>	Cashews				
	Chief agriculture	Tobacco				
	Cinci agriculture	Cloves				
		Corn				
Economy		Wheat				
		Cassava	<u> </u>			
	-	Cattle				
		Sheep				
		Goats				
		Hydropower Tin				
		Phosphates				
		·				
		Iron ore				
	Natural resources	Coal				
		Diamond				
		Gems				
		Gold				
		Natural gas Nickel				
		Agricultural	66.7%			
	lahan farras					
	Labor force	Industry	6%			
		Services	27.3%			
	Unemployment	2.20%				

	GDP (billions)	\$162.2					
	Per capita	\$3,200					
	GDP growth	6.00%					
		\$8.60					
		India	16.50%				
	Imports (billions)	China	15.80%				
		UAE	9.20%				
		Saudi Arabia	7.90%				
		South Africa	5.10%				
Finance		\$	5.20				
		India	21.80%				
	Exports (billions)	South Africa	17.90%				
		Kenya	8.80%				
		Switzerland	6.70%				
		Belgium	5.90%				
		Congo	5.80%				
	Tourism (billions)	2.30					
	Budget (billions)	\$9.30					
	Inflation	5.30%					
	Railways	2,838 miles					
Transportation	Motor vehicles	1.9 per 1,000					
	Airports	10					
	Telephone	0.2 per 100					
	Mobile	69.7 per 100					
Communications	Broadband	9.2 _F	per 100				
	Internet		13%				

	Expenditure	6.10%					
		Male	61.6				
	Life expectancy	Female	64.6				
	Births	35.3 per I,	000				
Health	Death	7.5 per 1,0	000				
	Infant mortality	38.7 per 1,	000				
	Undernourished	shed 32%					
	HIV	4.50%					
		1					
Education	Compulsory	ages 7-1	3				
Education	Literacy	77.90%	Ź				
		T					
Dalisiana In Tanzania	Christian	61.40%	ó				
Religions In Tanzania	Muslim	35.20%					
Religion in Zanzibar	Muslim	100%					
		C 17 10 17					
Languages in Tanzania	Swahili and Swahili						
	English						
Language in Zanzibar	Arabia						

Politics and government

Tanzania has been a semi-democratic country for less than thirty-five years. Its citizens are considered to be partly-free. In 2018, the freedom score was 4 (1 being most free and 7 meaning least free).

Its Heads of Government, elected on 5 November 2015 for five-year terms, are:

- President John Magufuli
- Vice President Samia Suluhu
- Prime Minister Kassim Majaliwa



The 2015 election results:

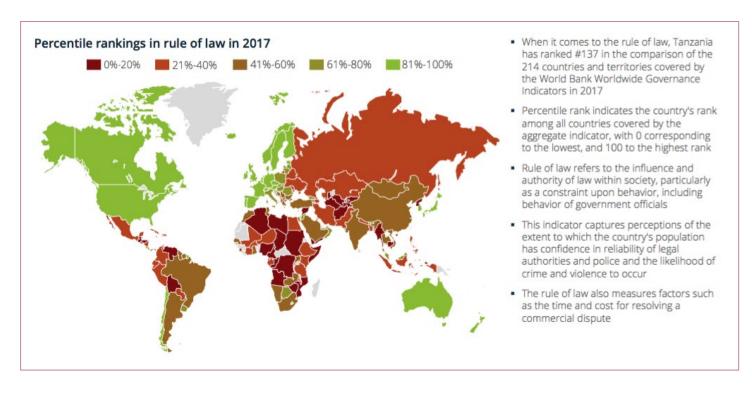
- Chama Cha Mapinduzi (CCM) 55%
- Party for Democracy and Development (Chadema) 31.8%
- Civic United Front 8.6%
- Alliance for Change and Transparency (ACT) 2.4%

As of 2016, Tanzania is divided into thirty-one regions, twenty-six on the mainland and five in Zanzibar. These regions are divided into districts and then urban units, city councils, municipal councils and town councils.



Tanzania's rule of law ranks 137 out of 214 countries. This number reflects the country's risk of crime and violence and the influence and authority of law within the country. The country's risk of political instability, threat of violence, and terrorism remains high. This is the factor for consideration when traveling or investing in the country.





The following chart shows the rank of governance against political instability and threat of violence and terrorism. The risk for Tanzania is moderately high.

#	Country Esti	mate	#	Country	Estimate	#	Country	Estimate	#	Country	Estimate	# Country	Estimate
1	New Zealand	1.5	31	Cuba	0.7	61	Zambia	0.1	91	Bolivia	-0.3	121 Bahrain	-0.9
2	Singapore	1.5	32	Estonia	0.7	62	Serbia	0.1	92	Georgia	-0.4	122 Algeria	-1.0
	Iceland	1.4	33	Namibia	0.7	63	Ghana	0.1	93	Bosnia and Herzeg.	-0.4	123 Mozambique	-1.0
	Luxembourg	1.3	34	United Arab Em.	0.6	64	Romania	0.1	94	Brazil	-0.4	124 Tunisia	-1.1
	Malta	1.3	35	Cyprus	0.6	65	Belize	0.1	95	Morocco	-0.4	125 Myanmar	-1.1
	Switzerland	1.2	36	Germany	0.6	66	Rwanda	0.0	96	Kyrgyzstan	-0.4	126 Kenya	-1.1
	Brunei Darussalam	1.2	37	Qatar	0.5	67	Sierra Leone	0.0	97	North Korea	-0.5	127 Cameroon	-1.1
_	Norway	1.2	38	Poland	0.5	68	Timor-Leste	0.0	98	Indonesia	-0.5	128 Ivory Coast	-1.1
Т	Bhutan	1.1	39	Costa Rica	0.5	69	Belarus	0.0	99	Rep. of the Congo	-0.5	129 Venezuela	-1.2
)	Japan	1.1	40	Latvia	0.5	70	Kazakhstan	0.0	100	Jordan	-0.5	130 Philippines	-1.2
1	Canada	1.1	41	Laos	0.4	71	Montenegro	0.0	101	Honduras	-0.6	131 Bangladesh	-1.2
2	Portugal	1.1	42	Belgium	0.4	72	Guyana	0.0	102	Uganda	-0.6	132 Niger	-1.3
	Finland	1.1		Albania	0.4	73	Kuwait	0.0	103	Guatemala	-0.6	133 Chad	-1.3
		1.1		Panama	0.4	74	Senegal	0.0		Tanzania	-0.6	134 Egypt	-1.4
	Austria	1.0	45	Chile	0.4	75	Nicaragua	0.0		Saudi Arabia	-0.6	135 Lebanon	-1.6
5	Botswana	1.0		Bulgaria	0.4	76	Gabon	-0.1	106	Mexico	-0.6	136 Ethiopia	-1.7
7		1.0	-	Vietnam	0.3	77	Ecuador	-0.1		Nepal	-0.7	137 Turkey	-1.8
3	Czechia	1.0	48	United States	0.3	78	Greece	-0.1		Talikistan	-0.7	138 Ukraine	-1.9
9	Sweden	1.0	49	South Korea	0.3	79	Equatorial Guinea	-0.1		Russia	-0.7	139 Mali	-1.9
0	Netherlands	0.9	50	Spain	0.3	80	Turkmenistan	-0.1		Haiti	-0.7	140 Nigeria	-1.9
1	Australia	0.9	51	United Kingdom	0.3	81	Gambia	-0.2		Armenia	-0.7	141 Sudan	-2.0
2	Slovenia	0.9	52	lamaica	0.3	82	Moldova	-0.2		Diibouti	-0.7	142 Congo (Dem Rep) ¹	-2.3
3	Slovakia	0.9	53	Italy	0.2	83	El Salvador	-0.2		Thailand	-0.8	143 Libya	-2.3
	Denmark	0.9	54	France	0.2	84	Macedonia	-0.2		Azerbaijan	-0.8	144 Somalia	-2.3
	Hong Kong	0.8	-	Argentina	0.2	85	China	-0.3		Zimbabwe	-0.8	145 Iraq	-2.3
	Mongolia	0.8	56	Cambodia	0.2	86	Peru	-0.3		Colombia	-0.8	146 Pakistan	-2.4
	Hungary	0.8	57	Malaysia	0.2	87	South Africa	-0.3		India	-0.8	147 South Sudan	-2.5
	Lithuania	0.8	58	Dominican Republic	0.2	88	Malawi	-0.3		Israel	-0.9	148 Svria	-2.6
9	Croatia	0.7	59	Suriname	0.1	89	Uzbekistan	-0.3		Burkina Faso	-0.9	149 Afghanistan	-2.8
0	Oman	0.7	60	Paraguay	0.1	90	Angola	-0.3	_	Iran	-0.9	150 Yemen	-2.9



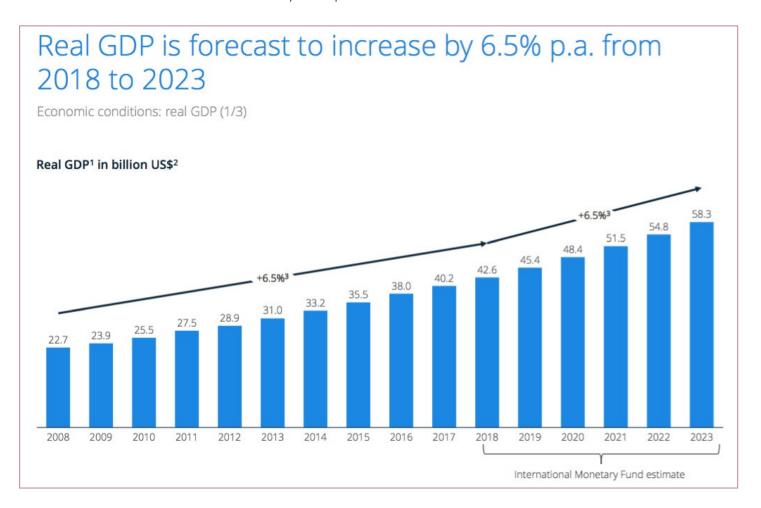
Economy

Tanzania is a member of the East African Community (EAC) along with Uganda, Kenya, Rwanda and Burundi.

According to the agreement, free trade and the free movement of people is guaranteed, including the right to reside in another member country for the purpose of employment.

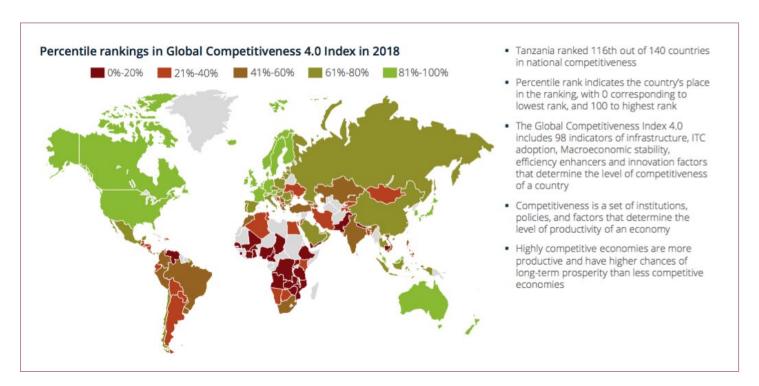
Tanzania is also a member of the Southern African Development Community (SADC). Together, the EAC, SADC and the Common Market for Eastern and Southern Africa (COMESA) is a Tripartite Free Trade Area covering 26 African countries.

Tanzania's real GDP is forecast to increase by 6.5% per annum from 2018 to 2023.

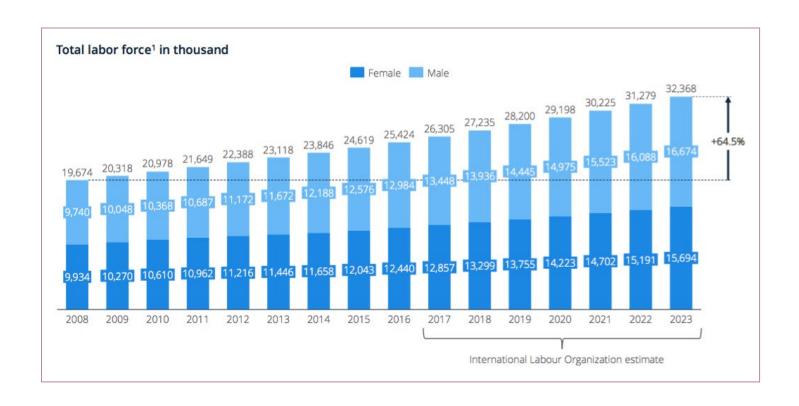




Tanzania ranks 116th out of 140 countries in national competitiveness.

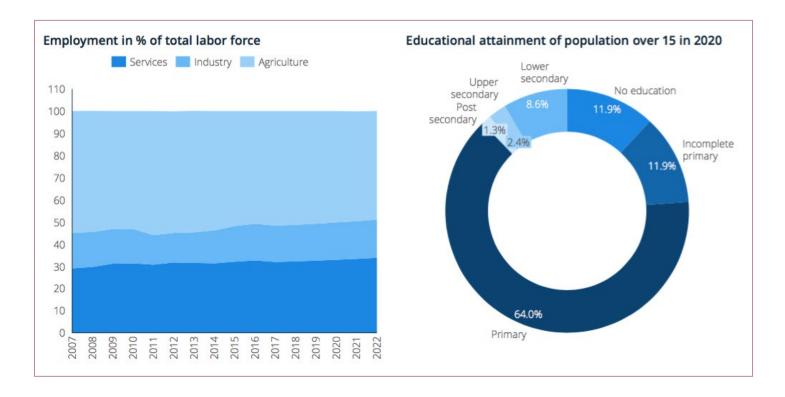


Tanzania's total labor force will grow from 27.235 million in 2018 to 32.368 million by 2013, an increase of 18.85%.





Close to 55% of the labor force works in the agricultural segment as education is still considered low.



Infrastructure

- Railways 2,838 miles
- Motor vehicles 1.9 per 1,000 population
- Airports 10
- Telephone 0.2 per 100 population
- Mobile 69.7 per 100 population
- Broadband 9.2 per 100 population
- Internet 13%

In 2018, Tanzania ranked 135th in global internet penetration. The quality of its trade and transport-related infrastructure is higher than the average of the countries in the region.

Only 32.8% of the population has access to electricity.

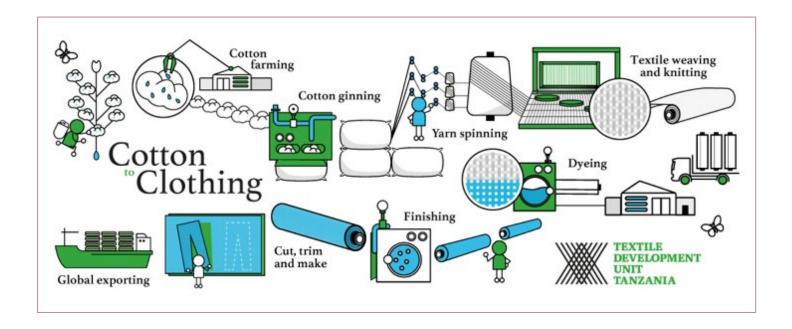


The garment business in Tanzania

In our earlier article "Insight into Africa - Part 2" we mentioned that Tanzania has the potential to become a good source for textile exports. The problem is the limitation in the size of operations, and the type of product is quite restricted. The country will need to invest in knitting facilities, although the country does have the largest organic cotton production.

Under its domestic industrialization plan, the Tanzanian government has made investment in textiles and apparel a priority.

For generations, the country has engaged 450,000 small farmers to grow cotton and is promoting sustainability and ethical practices and claims to have vertical integrated textile and garment operations.



Tanzania has duty-free and quota-free access to the U.S. market under the African Growth and Opportunity Act (AGOA).

Its labor costs remain competitive compared to other garment producing Sub-Sahara countries. The skills of their workforce are said to be average but they are trainable through a program backed by the government. The ability to speak English will also be an asset going forward.



The deep-sea ports, Dar es Salaam, Mtwara and Tanga are operating on a regular shipping schedule. A new mega-seaport is under development in Bagamoyo, north of Dar es Salaam, which will be ready by 2020 and will be the largest in Africa when it is completed. A new air terminal is under construction in Dar es Salaam as well.

You are welcome to make contact through the following:

Tanzania Investment Center

www.tic.co.tz

Export Processing Zones Authority

www.epza.go.tz

Textile Development Unit Tanzania

www.tdu.or.tz



BOOK REVIEW

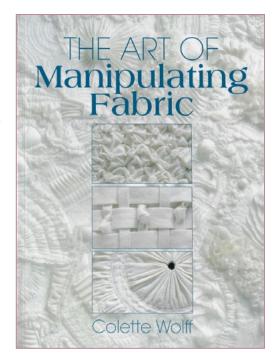
BOOK REVIEW: THE ART OF MANIPULATING FABRIC BY COLETTE WOLFF

ANDREW SIA



This book has been on my shelf for quite some time and I often thought of doing a report on ways to handle fabrics. The book is 312 pages and contains 350 diagrams, all about the endless possibilities in manipulating fabrics into three-dimensional forms with gathering, pleating, tucking, shirring, quilting, and smocking.

In my early days, when I received my first business from Japan, Cecile was their number one mail-order house, and we were told to produce a pin-tucking bra for them using silk satin fabric. There were five rolls of pin-tacking, each with an interval of 9 mm. We asked ourselves why the Japanese were torturing us with that number and why it couldn't be 10 instead of 9? It sounded very off. We finally came to the understanding that they wanted us to stay alert during production.



Available on Amazon Price: \$16.83

I learned about quilting back when I was in the Philippines. In those days, all the children's wear for the U.S. market came from the Philippines. They do very good needle work although the production efficiency leaves a lot to be desired.

The book can be used as a handbook for anyone who is good at designing textile fabrics. It covers a lot of areas and can even be used when designing very fine lingerie and nightwear such as robes and gowns. Home furnishing is also applicable.

Some of this work can be done using sewing machine attachments in order to achieve the stitching effect. It's definitely an artistic approach that can bring another dimension to the garment.

I hope you enjoy the book as much as I do.