WORLD CIRCULAR TEXTILES DAY 2050

FULL CIRCULARITY

a 2050 retrospective

It's October 8th 2050, the 30th year celebration of World Circular Textiles Day. Today we celebrate the success of an entirely transformed industry and those who have made it happen.

A global ambition that was set out thirty years ago across an ecosystem of interconnected stakeholders has been achieved: the circularity of textile resources. We have achieved the vision, and we are now living in a time when dignity, equity and equality, and our shared textile resources, in the form of products and raw materials, are kept in continual circulation. We've completely replaced the need for for using virgin raw materials as fibres in making new textiles and apparel!

For years, exceptional pioneers in the field of textiles made pledges, devised ambitions, conjured visions, produced targets and orchestrated initiatives, all designed to achieve circularity. But bringing these ideas together in itself was a challenge – and now we can see that this connecting of the dots helped to synthesise these thoughts into realities.

Let's be proud of ourselves, for full circularity is remarkable. Dozens of organisations, brands and retailers, producers, innovators, academia and government agencies – and millions of citizens – have showed their emphatic desire for a circular textiles system and we can now wonder at how far we have come.

While it all seems like common sense to us today, the circularity mindset hasn't always been the case. To commemorate the epic journey of how we achieved full circularity, it's important to look back and remind ourselves of the trials and tribulations along the way. We invite you to take a trip with us through these last thirty years, for there is always something to learn in retrospect.

CO-FOUNDERS OF WORLD CIRCULAR TEXTILES DAY

WORLD CIRCULAR TEXTILES DAY 2050

CYNDI RHOADES

Worn Again Technologies

—

"I remember the feeling in 2020, when the momentum was building, the industry was armed with awareness and a willingness to accelerate efforts to achieve a circular future. It was a far cry from 2012 when we first started our technology developments and the concept of circularity was merely an afterthought. 2020 felt like a turning point, where supergroup collaborations were in turbocharge mode, policy changes were in motion, key players that could drive the change were activated and the general public was demanding positive change. Covid-19 changed perspectives and made us realise that everything was different and anything was possible (even transforming an industry!). It started to feel like true circularity could be achieved, collectively, so long as we were all on the same page about where we wanted to end up. And now we're here! Circularity as a lifelong ambition, and the community that made it happen, has kept me youthful!'

EMERITUS PROFESSOR REBECCA EARLEY

Centre for Circular Design

—

"I always knew we could do it. Recycling and reusing every scrap was what our grandmothers had taught us. As a generation, we had to work hard to forget the excessive behaviours that began right back in the 1980s, and design better ways to enjoy fashion and textiles. Recirculating and remanufacturing clothes brought us together into communities who co-designed the way we wanted the industry to be — equitable, just and joyful. Our grandmothers would be proud."

GWEN CUNNINGHAM

Circle Economy

—

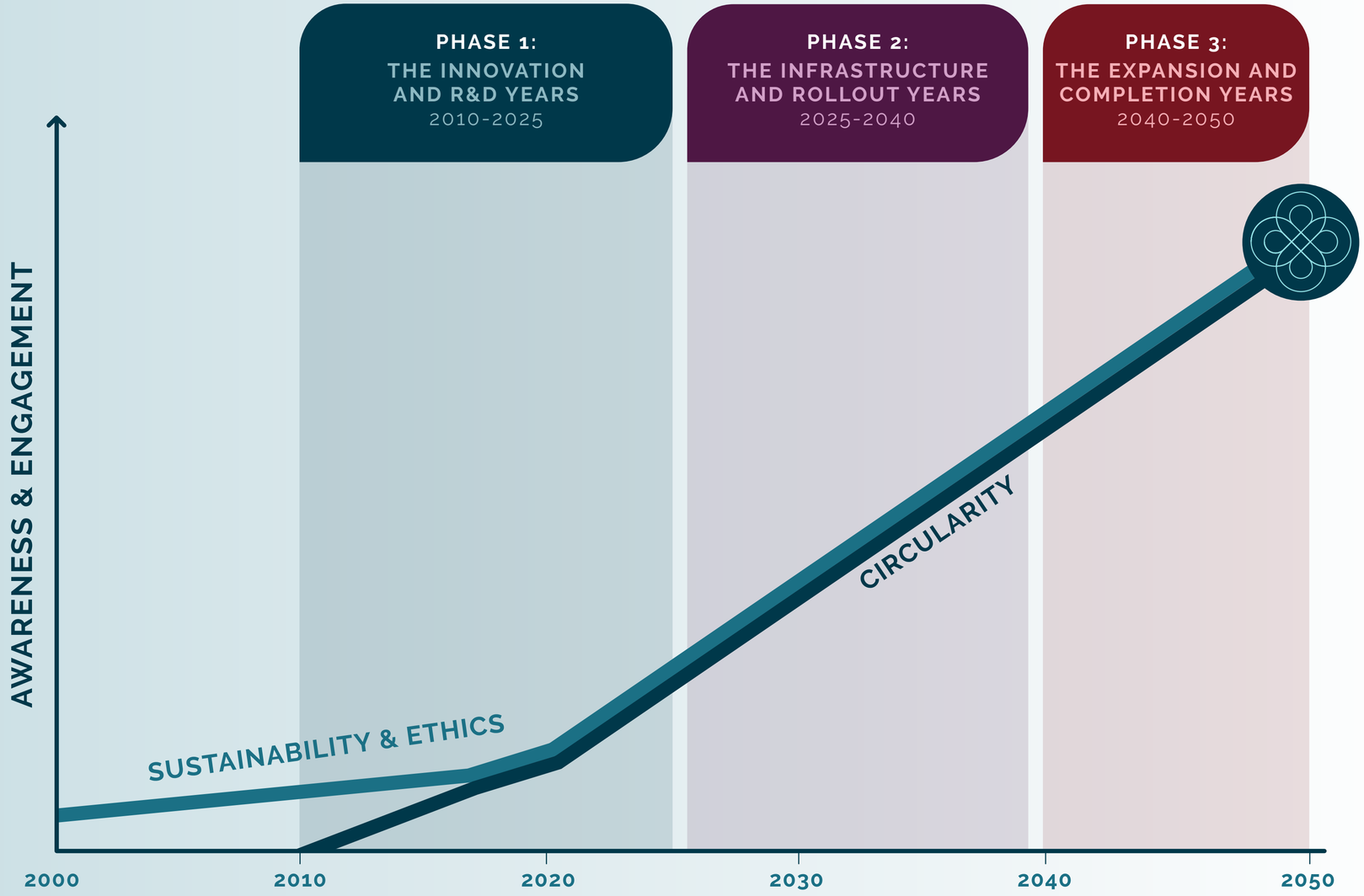
"30 years ago, the textile and apparel industry's excessive and extractive behaviour was placing incredible stress on both our natural and human resources. Back then, we defined and understood materialism as a negative and excessive concern with material objects and comforts. As a materialistic society, we were on a seemingly never-ending merry-go-round of extraction, production, consumption, and consequently, growth – and veering out of control. In the interim years, we have collectively built a new form of materialism. And today, we are proud to call ourselves materialistic – meaning that we have a deep knowledge of and respect for the raw materials from which our products are made, and our businesses, governments and communities function to keep those materials flowing for as long as possible, and at their highest value."

PRE-PHASE 1:
The Sustainability Years
2000-2015

It all started with sustainability in the late 1990s and early 2000s. The apparel and textile industry, driven by consumer awareness, was waking up to the impacts it was having on planet and people, from polluted rivers caused by toxic dyes and finishing processes, to the energy intensive nature of man-made fibre production, to intensive water and pesticides used to produce raw materials such as virgin cotton.

As awareness around finite resources and the problem of textiles waste became more prevalent, sustainability evolved into circularity as a more encompassing, intelligent and systemic approach to production and consumption – and this wasn't just about the environment. It was also about building better lives for people, including the millions of people employed globally to produce and handle both new and used textiles. As awareness increased, so did industry-wide engagement in finding and delivering solutions, independently and collectively.

3 PHASES OF CIRCULARITY



PHASE 1: THE INNOVATION AND R&D YEARS 2010-2025

Product & Raw Materials Processing Hubs

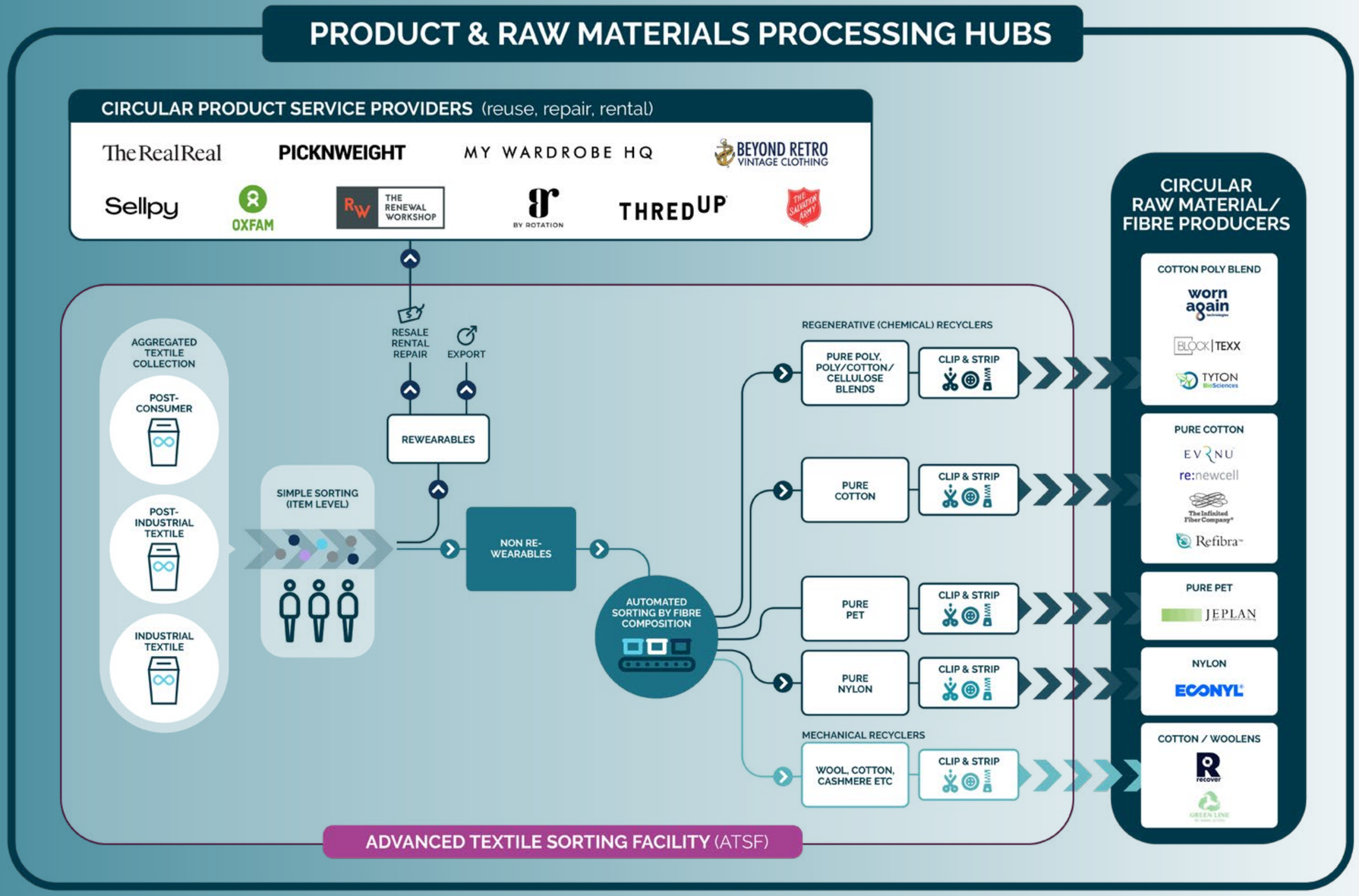
It took decades to take hold, from the late 90s onwards, but by the early 2010s, innovation in sustainability and circularity started to flourish. Start-ups and innovators were already pushing boundaries with new modes of design, production, use, collection, repair, recovery, re-commerce and technology, but the pockets of progress were young and newly forming. Consumers were demanding change and the industry pioneers were listening, evolving and taking the lead. A great swathe of industry coalitions and working groups formed to deal with industry pitfalls, working closely with brands, retailers and supply chains. Technologies began to scale, supported by pioneers of the industry who were eager for solutions. The global COVID-19 pandemic of 2020-2022 fast tracked purpose and streamlined focus. Super coalitions were formed and international efforts were ramped up. The early adopters were busy transitioning pre-existing, traditional business models to new, circular ones.

The puzzle pieces were formulating, but they needed bringing together. Large scale eco-system pilots were developed, including Advanced Textile Sorting Facilities and Product & Raw Materials Processing Hubs primed and ready to be rolled out and replicated during the Infrastructure Years.

This is an example of an Advanced Textile Sorting Facility, which evolved from yesterday's collection and heavily manual sorting methods for post-consumer textiles. It was the first type of facility which had a highly automated system for non-rewearable textiles, where textiles were separated according to fibre content. After cutting and stripping (removal of buttons, zips etc.) they were baled and sold back into the circular market.

These ATSFs lay at the heart of the Product & Raw Materials Processing Hubs, which was part of the wider textile ecosystem, and brought all markets together. Rewearable products were sold into traditional reuse markets and product resale platforms; and non-rewearables were bought in bulk by mechanical and regenerative recyclers, that would process them and subsequently reintroduce materials in the form of raw materials, fibre or sometimes textiles, back into the supply chain.

With resellers and processors geographically clustered together, there was significant advantage in not needing to ship textiles internationally for manual sorting.



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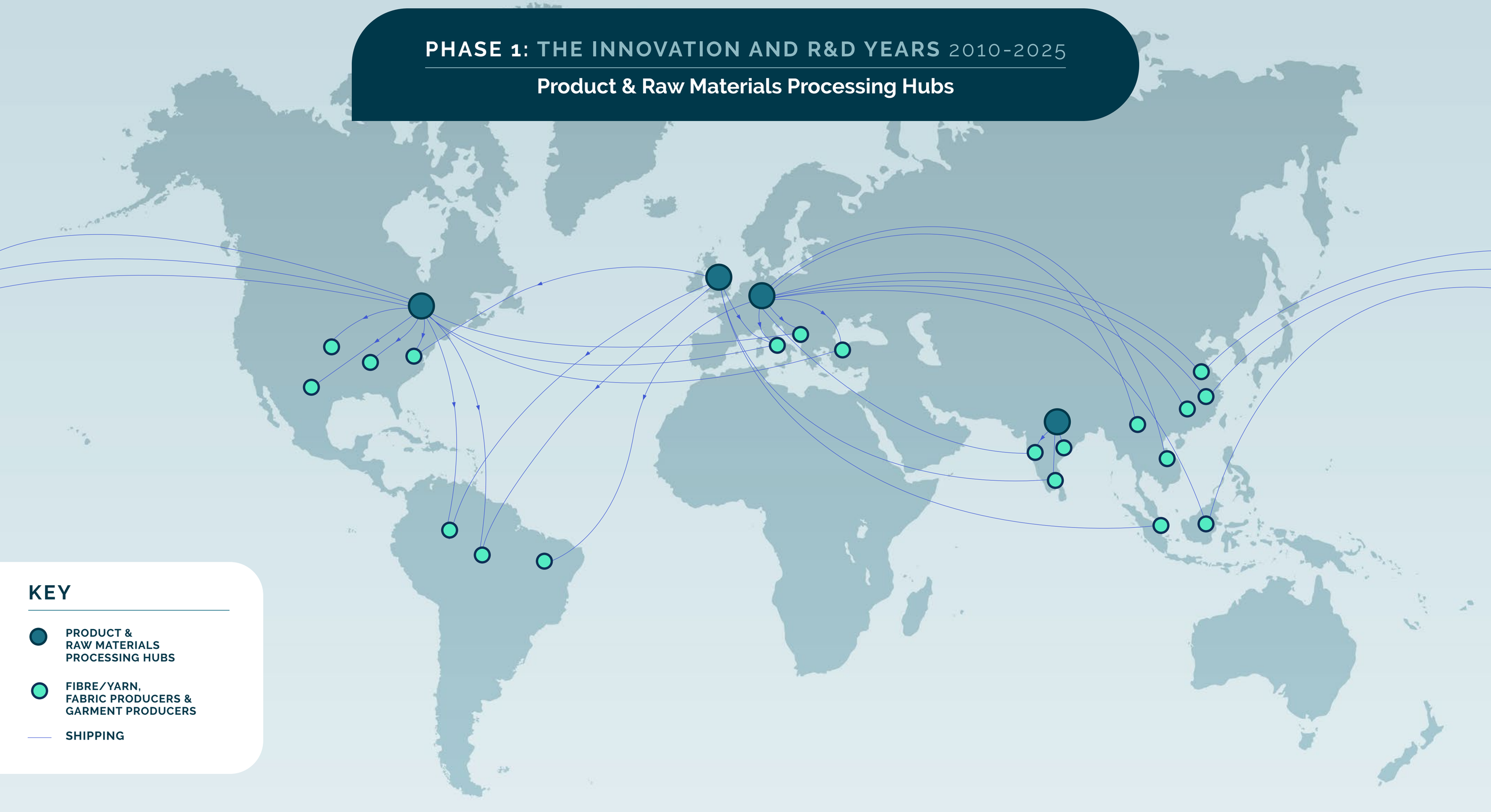


KEY

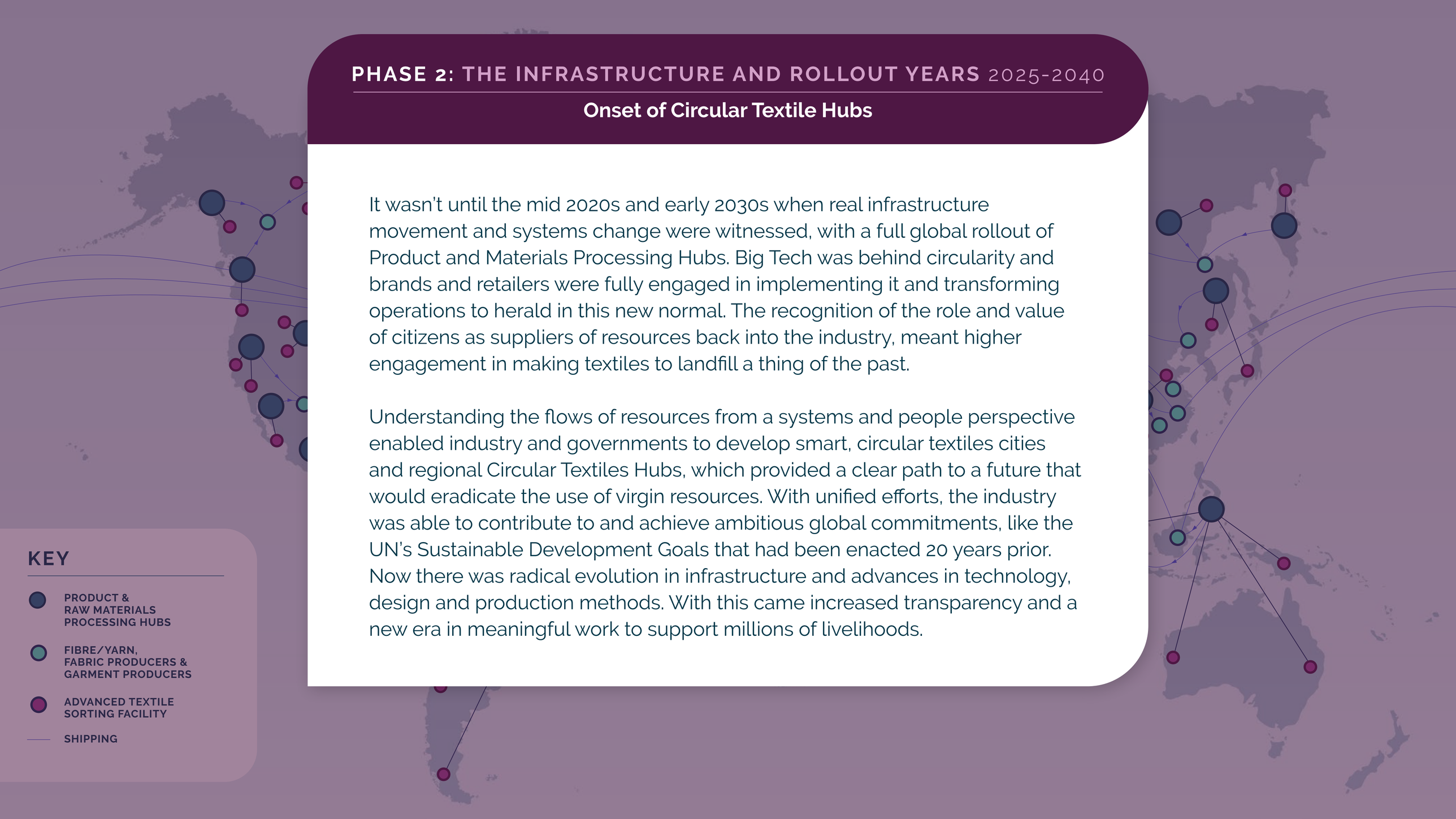
- PRODUCT & RAW MATERIALS PROCESSING HUBS
- FIBRE/YARN, FABRIC PRODUCERS & GARMENT PRODUCERS
- SHIPPING

PHASE 2: THE INFRASTRUCTURE AND ROLLOUT YEARS 2025-2040

Onset of Circular Textile Hubs

It wasn't until the mid 2020s and early 2030s when real infrastructure movement and systems change were witnessed, with a full global rollout of Product and Materials Processing Hubs. Big Tech was behind circularity and brands and retailers were fully engaged in implementing it and transforming operations to herald in this new normal. The recognition of the role and value of citizens as suppliers of resources back into the industry, meant higher engagement in making textiles to landfill a thing of the past.

Understanding the flows of resources from a systems and people perspective enabled industry and governments to develop smart, circular textiles cities and regional Circular Textiles Hubs, which provided a clear path to a future that would eradicate the use of virgin resources. With unified efforts, the industry was able to contribute to and achieve ambitious global commitments, like the UN's Sustainable Development Goals that had been enacted 20 years prior. Now there was radical evolution in infrastructure and advances in technology, design and production methods. With this came increased transparency and a new era in meaningful work to support millions of livelihoods.



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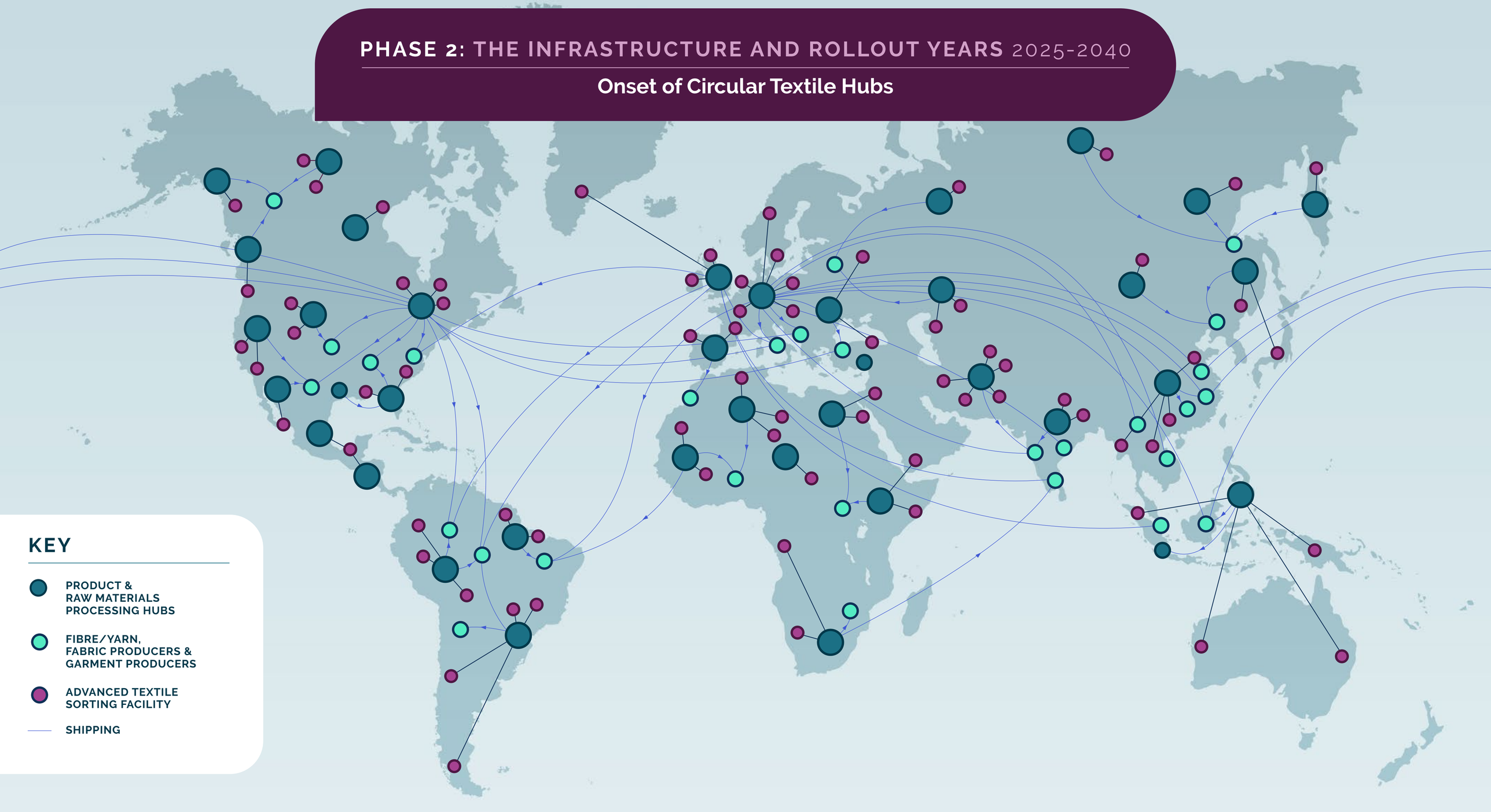


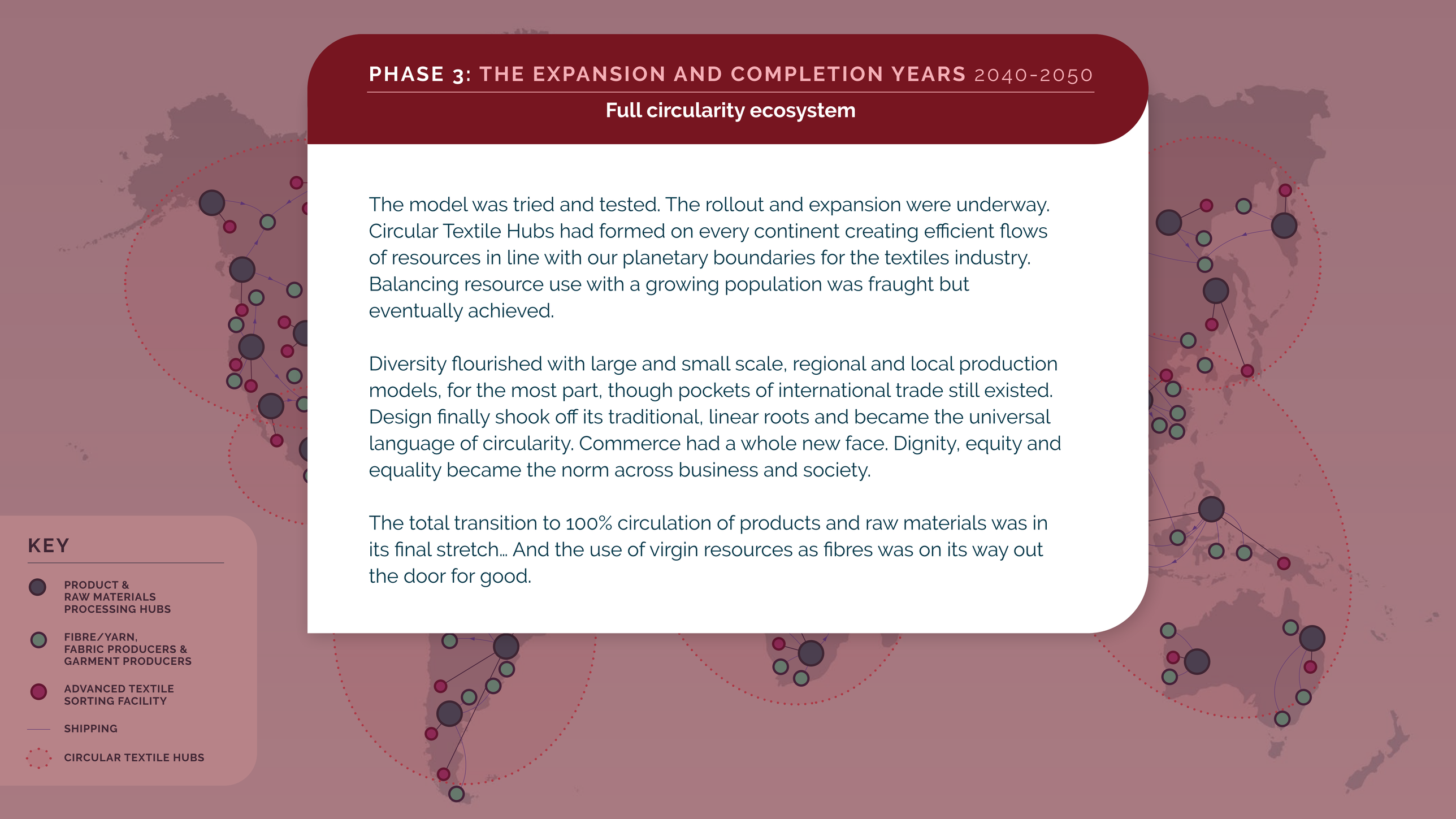
PHASE 3: THE EXPANSION AND COMPLETION YEARS 2040-2050

Full circularity ecosystem

The model was tried and tested. The rollout and expansion were underway. Circular Textile Hubs had formed on every continent creating efficient flows of resources in line with our planetary boundaries for the textiles industry. Balancing resource use with a growing population was fraught but eventually achieved.

Diversity flourished with large and small scale, regional and local production models, for the most part, though pockets of international trade still existed. Design finally shook off its traditional, linear roots and became the universal language of circularity. Commerce had a whole new face. Dignity, equity and equality became the norm across business and society.

The total transition to 100% circulation of products and raw materials was in its final stretch… And the use of virgin resources as fibres was on its way out the door for good.



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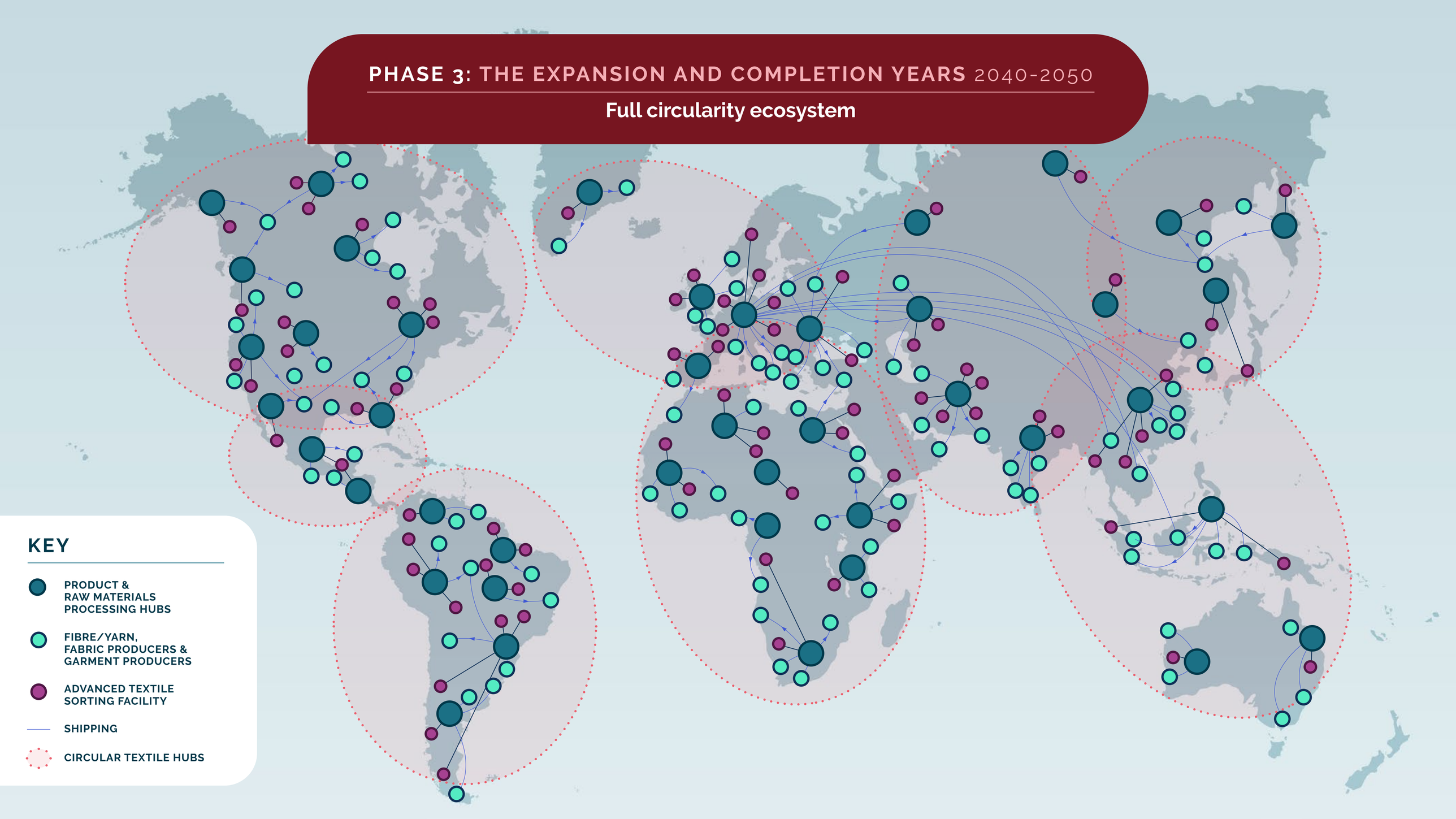

What were things were like in 2020?

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As sustainability conversations became increasingly dominant in politics, in media, around the dinner table, and amongst friends during sweltering 38˚C-degree barbeques, by 2020 it was clear that finally, economies would benefit from 'going green'. What campaigners had been saying for many years, politicians were parroting; while there were still many vocal opponents of the Science behind the impending Climate Crisis, even they could not deny the dramatic rise in green investments, the boom of Electric Vehicles, the increase in renewable energy generation across the world and the general public desire to work towards a fairer and more equitable and sustainable system.

In the textiles world, it was clear to forward-thinking businesses, academics and innovators that the future of resources was at stake: demand for polyester and cotton was set to increase dramatically by 2030, using up vast swathes of land and resources (energy, water, pesticides). It is wild to think that despite the imminent finiteness of these resources, millions of tonnes of perfectly good resources, in the form of textiles, were being thrown away to landfill or incinerated every year.

DID YOU KNOW:

Landfill sites used to be dotted all over the globe, a way for populations to dispose of their unwanted items and waste material. Can you imagine throwing away such bountiful resource?!

FACTFILE: 2020

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TAKE

- 33 billion barrels of oil per year for energy
- Virgin resources, predominantly polyester and cotton, take up vast amounts of energy, water, land, pesticides to produce
- 107 million megatonnes of fibre produced yearly: 97% using virgin feedstocks

MAKE

- 60% textiles are used to create 80-100 billion pieces of clothing every year
- The rest goes towards textiles for homes, hotels, automobiles, etc.
- Skyrocketing demand due to population growth from 7-9 billion by 2050

USE

- More than 50% of clothing produced is disposed of in under one year
- The average number of times a garment is worn before it stops being used has decreased by 36% since the early 2000s

WASTE

- 73% used clothing ends up in landfill or incineration
- Collection systems and infrastructure limited and not at full capacity
- Less than 1% end-of-use textiles go back into new textiles

All about oil

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Back in 2020, the two most popular fibres that were used to make textiles were polyester and cotton.

During this time, approximately 33 billion barrels of oil would be extracted from the earth to provide the world's main source of energy. The by-products from oil production were used to produce what has become our global pool of 'circular polyester stock', which now sits just beneath our planetary boundary for this material.

At the time, polyester at its end-of-use was rarely considered during extraction and manufacture, despite being an ideal circular material.

FIND OUT MORE

PLANETARY BOUNDARIES:

A concept involving Earth system processes that contain nine environmental boundaries within which humanity can continue to develop and thrive for generations to come.

It was proposed in 2009 by a group of Earth system and environmental scientists, led by Johan Rockström from the Stockholm Resilience Centre and Will Steffen from the Australian National University.

SOURCE: www.stockholmresilience.org/research/planetary-boundaries.html

All about oil

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Without the circular infrastructure available, products made from oil were usually downcycled or sent to landfill, causing huge waste. In fact, the years up to 2020 saw one of the largest global public awareness campaigns and national policy reforms to reduce plastic waste and solve landfill issues and biodiversity catastrophes — as well as some super smart tech to solve the problem of microfibres, which we will explore in a later release.

It is hard to fathom now that roughly 65 million megatonnes of synthetic fibres were produced yearly — and we know that most of it went straight to landfill. Fortunately, efforts to divert this into collection systems provided the 2020-30s with an abundance of feedstocks for regenerative recycling technologies, but that's another story.

Cottoning on

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Now imagine a time when cotton, the other most prolific textile fibre aside from polyester, was as abundant as cellulose-based fibres that are recirculating today.

It's hard to envisage how there was ever enough land to farm this cotton and enough water to grow it, especially considering impending food scarcity for the population of 7 billion.

But this wasn't only happening in the textiles world. Due to the food supply chain facing its own problems of resource scarcity and linear supply chains, textile circularity was able to prosper in the subsequent years.

The increase in production of plant-based and lab-grown meat accompanied a shift towards concern around land and resource scarcity for cotton growing that lasted right through the 2020s.

FOOD AND FASHION FARMING

SOPHIE'S CHOICE:

1) Grow more cotton for clothing, but don't feed the planet
2) Feed the planet, but do so without a stitch to wear

Or, there is always a third option...

3) **Fast track circular recycling production to generate new, raw materials, reducing need for agricultural land, while modernising traditional farming methods to newfound innovation, such as vertical and container gardening, plant-based and lab-grown meat**

Now we can eat, while clothed – a great relief.

Understanding planetary boundaries

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The concept of planetary boundaries had existed for some time due to the great work done by Johan Rockstrom at Stockholm Resilience Centre.

An understanding of the importance of working out what planetary boundaries existed started to take shape from 2020, where industry began to carry out in depth analyses to establish what the limitations were for each system; for instance, how much circular polyester the planet could sustain, or how much circular cellulose could be integrated into existing systems.

Understanding planetary boundaries

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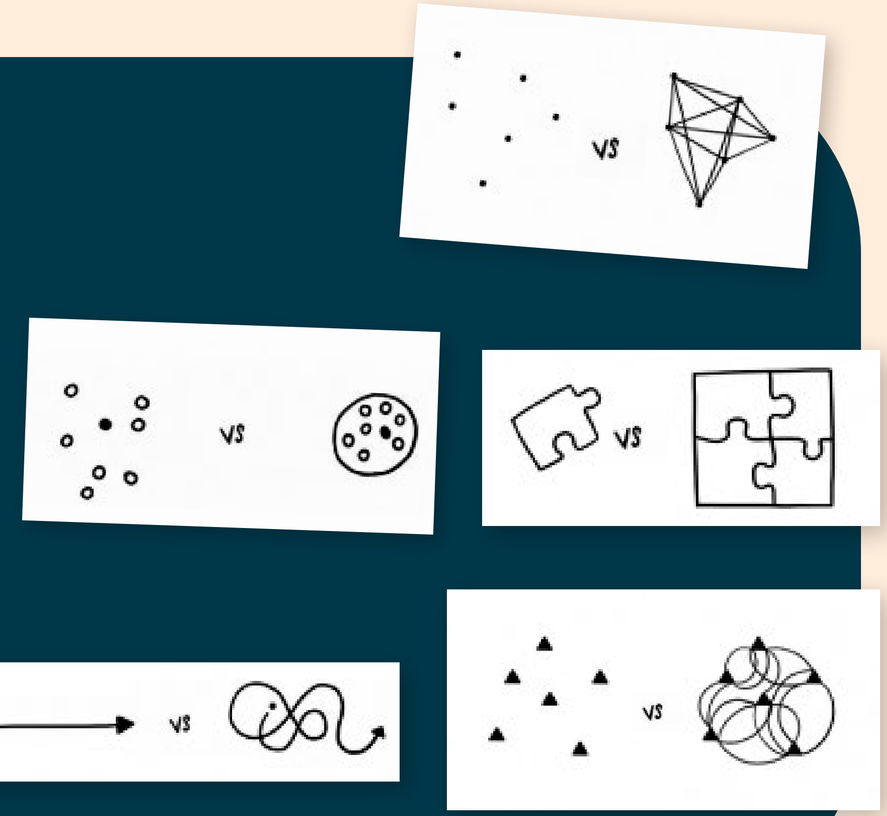
During this time, metrics were established to figure out the full ‘Circular Cycle Analysis’ of textiles from a systems approach, capturing the benefits of embedded carbon and cyclability. Previously, life cycle analyses were measured from a product-to-product level, using the Higg Index – though this evolved into more complex metrics that measured the systems in which these products resided more holistically, including their own planetary boundaries.

FIND OUT MORE

SYSTEMS THINKING – WHAT IS IT?:

As we know now, Systems Thinking is an approach to integration that is based on the belief that the component parts of a system will act differently when isolated from the system’s environment or other parts of the system. At the time, this was not widely understood, let alone practised extensively.



SOURCE: www.convergencetraining.com/blog/intro-to-systems-thinking-for-workplace-performance-improvement

Circularity as a concept

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The full understanding of circularity took time to infiltrate the consciousness of the public as well as industry insiders.

Seen somewhat as an impossibility to few and a pipedream to many, the definition of circularity needed to evolve. There were multiple interpretations at the time, but ultimately it came to be recognised across the textiles industry simply as:

"A time when there is dignity, equity and equality. A time when our shared textile resources, in the form of products and raw materials, are kept in continual circulation, using no more virgin resources."

Circularity as a concept took off in Europe due to crystallised realisation of impending resource scarcity, as well as in India and China. The US, while late to the game due to political upheaval, eventually picked up on the momentum.

Additionally in Europe, while EU innovations supported development in this area, there was a relatively advanced infrastructure in place for textiles collection with high collection rates AND high consumption values (compared to many parts of the world, apart from the US and China, both at the top of the high consumption list).

The forward-looking nature of some EU governments, alongside huge support systems from facilitating organisations, galvanised support to get brands, innovators, collectors and sorters — the entire textile networks — working towards this common goal of textiles circularity.

At the same time, huge impetus came from consumer pressure impacting on brands and retailers, with prominent brands taking a significant leadership position by supporting innovation, addressing supply chain concerns and committing to the SDGs. In these formative years, circular business models were not immediately adopted by brands.

Circularity as a concept

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It didn't fit into their traditional linear business models, which hadn't taken into consideration what happens to products at their end of use. At the time that these 'conventional' business models were founded, there was little idea of the social and environmental impacts that would later result as their global businesses grew. However, with scale, they had absorbed influence and could focus their resources on investing in innovation and solutions. In parallel, a groundswell of new companies proliferated with circularity principles embedded from the beginning.

While sustainability was advancing, Ellen MacArthur's global sail around the world in 2005 changed everything. During this time, she explored what the world really required beyond sustainability, meeting with experts and specialists in all fields to help furnish her in-depth research.

For her, the lightbulb moment was around resources. She went on to found an organisation that played a transformational role in galvanising the men-in-suits, business incumbents and economists at Davos to the concept of circularity. This captured the attention of the textiles industry, alongside many others, and played a valuable role in motivating industry players to understand circularity first, and then actively plan for it and engage in it. It also helped raised awareness so that innovators with moon-shot solutions already in development and on the circularity path had a more receptive audience.

"We could feel that change happening way back in the 20s. Pretty much every material resource we took for granted 'peaked' in the 30s but by then we had learned from our mistakes and found a way to tread lightly on this green planet with generosity and equity."

DR. KATE GOLDSWORTHY
Centre for Circular Design

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When we look back on historical events, we often wonder 'what were they thinking? Why did no-one do anything? How terrible, unequal, wasteful, and sad.'

This document has been written in 2020 to imagine what is '100% circular by 2050'. A time where there is dignity, equity and equality. A time when our shared textiles resources, in the form of products and raw materials, are kept in continual circulation. Virgin resources are no longer needed.

We have imagined this future in three distinct phases, but that future is yet to take shape. This document is a starting point. It has been created by a small team of volunteer contributors (no management consultancy firms were involved in the writing of this report!). However, if you are from a management consultancy, or any other organisation or network, and do want to contribute expertise for the advancement of this initiative, please get in touch. We have ideas and would love to explore yours.

Let's make something clear: we do not want anyone to feel disempowered or despondent by this piece. On the contrary. We want you to know that we have a plan of action in place to shape the roadmap to 2050 — and it involves you.

Visit our website. Get involved with World Circular Textiles Day in whatever way you can. Understand the challenges and tell us your wildcard solution. We are all eyes and ears.

www.worldcirculartextilesday.com

THANK YOU

We'd like to thank the contributors who are helping to put the **World Circular Textiles Day 2050** vision together.

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