

Eco—i Manual

Textiles Supplement



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Table of contents

HOW TO USE THIS SUPPLEMENT	5
ACTIVITIES WITH SUPPLEMENTARY CONTENT	6
INTRODUCTION AND OVERVIEW	9
PHASE 1 - PREPARE	18
PHASE 2 - SET STRATEGY	69
PHASE 3 - SET BUSINESS MODEL	105
PHASE 4 - BUILD ROADMAP	151
PHASE 5 - IMPLEMENT	158
PHASE 6 - REVIEW	162
GLOSSARY OF KEY TERMS	166
LIST OF FIGURES	169

How to use this supplement



The aim of this supplement is to provide textile sector-specific information and guidance to service providers supporting apparel companies in eco-innovation using the core principles and methodology presented in the UNEP's Eco-innovation Manual. Although the primary target audience is service providers, apparel company representatives interested in business development and eco-innovation will also find the information in this supplement valuable. Apparel includes textiles products such as formal and casual wear, sportswear, undergarments, uniforms, accessories and footwear. It does not include industrial and technical textiles (i.e. medical textiles or packaging), or household textiles (i.e. cleaning supplies or bedroom linens).

Although this supplement will be helpful to service providers advising a broad range of apparel related companies operating throughout the textile value chain, much of the information and examples provided focus on the business-to-consumer (B2C) aspects of the apparel industry. Additionally, since most companies in the apparel industry are small and medium-sized enterprises (SMEs), it is important to clarify that the eco-innovation methodology was developed specifically for SMEs, especially those operating in developing countries.

Users should follow the [Eco-innovation Manual](#) (instructions, guidance, templates and learning case studies) and refer back to this supplement for additional guidance and insights. Please note that this supplement is not intended to be a stand-alone document.

The structure of the supplement follows the same order as the Eco-innovation Manual. However, where apparel-specific information and analysis is not needed to complete a step or activity in the eco-innovation process, it is not included. In these cases, the support provided in the Eco-innovation Manual is sufficient. Steps and activities not covered in this supplement are clearly marked on pages six through eight.

In addition to industry-specific information and analysis, a company case study - Niche Denim - is included to show how the activities in the supplement can be applied in real life. Users will also benefit from the Tips & Tricks sections and a glossary that includes industry-specific terminology definitions.

Finally, please observe that there can be significant differences between global analysis and developments in regional or local market conditions. Users of this supplement should therefore apply and adapt the information and analysis provided, so that it is useful for the specific company(ies) being advised.

List of activities with supplementary content*

PREPARE

Identify the right market for the eco-innovation services

Evaluate potential markets
PR.1

Build the right team to deliver the service

Build the right internal team
PR.2

Build the right external partnerships
PR.3

Understand the value chain sustainability hotspots, opportunities and threats

Identify sustainability hotspots across the value chain
PR.4

Identify the general opportunities and threats across the value chain
PR.5

Develop a concept for a more sustainable value chain

Develop a value chain vision
PR.6

Engage potential clients

Develop a value chain pitch
PR.7

Plan and implement engagement activities
PR.8

Gain approval from senior management to proceed

Pitch the benefits of eco-innovation to the CEO
PR.9

SET STRATEGY

Get ready for the Preliminary Assessment

Plan my data gathering strategy
ST.1

Understand the current business strategy

Interview the CEO
ST.2

Understand the current business model

Capture the current business model
ST.3

Understand the current operational performance

Do a Walk-Through Audit
ST.4

Do a workshop/ interviews with staff
ST.5

Update the sustainability hotspots
ST.6

Analyse the information I have gathered

Do a SWOT analysis
ST.7

Define the company vision and strategic goals of the new business strategy

Develop a vision for the company
ST.8

Define the strategic goals
ST.9

**Activities not covered in the supplement are faded*

List of activities with supplementary content

SET BUSINESS MODEL

Define the products, markets and selling points of the new business strategy

Generate ideas for new products, markets and selling points

ST.10

Evaluate ideas for new markets, products and selling points

ST.11

Select which ideas for new markets, products and selling points to include in the strategy proposal

ST.12

Get senior management approval for the new business strategy

Do an individual/group review of the business strategy proposal

ST.13

Pitch the new business strategy to the CEO

ST.14

Consider key management issues for implementation

ST.15

Understand in more detail the performance of the company through an In-Depth Assessment

Update the data gathering strategy

BM.1

Gather additional data on the business model

BM.2

Gather additional data on operational performance

BM.3

Generating business model concepts at the big picture level

Generate business model concepts at the big picture level

BM.4

Generating ideas at the individual building block level

Generate ideas for the customer segments block

BM.5

Generate marketing ideas for the value proposition block

BM.6

Generate technical ideas for the value proposition block

BM.7

Generate ideas for the channels block

BM.8

Generate ideas for the customer relationships block

BM.9

Generate ideas for the revenue streams block

BM.10

Generate ideas for the key resources block

BM.11

Generate ideas for the key activities block

BM.12

Generate ideas for the key partnerships block

BM.13

Generate ideas for the cost structure block

BM.14

List of activities with supplementary content

BUILD ROADMAP

Evaluate the business model concepts and select one to pitch

Evaluate the benefits
BM.15

Evaluate the costs
BM.16

Evaluate the risks
BM.17

Integrate all the evaluations and make the final selection
BM.18

Get senior management approval for the new business model

Pitch the new business model to the CEO
BM.19

Build a roadmap for eco-innovation implementation

Prepare for the roadmapping workshop
BR.1

Do a roadmapping workshop with input from value chain partners
BR.2

Define and prioritise the requirements of the first project
BR.3

Get senior management approval for the implementation roadmap

Pitch the implementation roadmap to the CEO
BR.4

IMPLEMENT

Create a project plan and get it approved

Create a project plan
IM.1

Present the project plan to the Senior Management Team
IM.2

Support the implementation activities

Provide guidance and solve problems
IM.3

REVIEW

Review the performance of the first project for eco-innovation

Do a project review workshop
RE.1

Do a personal review
RE.2

Review the business model and roadmap and agree the next steps

Review the business model and roadmap
RE.3

Present the review conclusions and agree next steps with the CEO
RE.4

Introduction and overview

The textile industry provides many jobs, foreign exchange revenue, and products essential to human welfare. The value of textiles to human society goes beyond their utilitarian benefits, such as warmth and comfort. How people dress and adorn their living spaces are important aspects of people's cultural and individual identity (United Nations Environment Programme [UNEP], 2020).

Fashion, however, is overly reliant on a pattern of 'take-make-dispose', which causes devastating environmental impacts and negatively impacts health, communities and economies. On average, we buy 60% more clothing than we did 15 years ago - but we keep each item only half as long. Plus, it is estimated that nearly 60% of all clothing produced ends up being burned or deposited in landfills within one year of being made (Fashion for Good, 2021).

As with many industries, sustainability in fashion has become more essential. Investors are expecting better sustainability performance from brands and consumers are starting to ask for more sustainable products. Environmental regulations are also becoming stricter, jobseekers are wanting to work at sustainable companies, and significant value from sustainability is available - value that first movers are already starting to capture (McKinsey & Company [McKinsey], 2020).

The fashion industry can transform its linear 'take-make-use-waste' model into a circular approach that is restorative and regenerative by design. A circular economy for fashion and textiles creates better products and services for customers, contributes to a resilient and thriving textile industry, and regenerates the environment. It prioritises the rights of and justice for everyone involved in the textile value chain, and creates new opportunities for growth that are distributed more evenly, diversely, and inclusively. We can build a value chain that designs products to be:

- used more and longer
- made to be made again
- made from safe, as well as recycled or renewable inputs (Ellen MacArthur Foundation [EMF], 2020)

The imperative of business resilience

More business leaders are recognising that business operations are significantly affected by sustainability threats such as climate change, biodiversity loss, pollution, and worker welfare. These sustainability threats can change the way that companies operate. A 'business as usual' approach can leave companies unable to respond to issues such as rising energy costs, disruptions to raw materials supply or changes in legislation. Ultimately, companies that do not act now run a higher risk of failure when these issues inevitably affect their industry (UNEP, 2017). These risks of disruption are not just theories, as the COVID-19 pandemic revealed, with impacts affecting the entire textile value chain.

Also important to note is that these sustainability threats are aggravated by current patterns of consuming and producing textiles - right now the world is producing and consuming more textiles than ever before, and this combined with the minute rates of textile reuse and recycling means that the level of textiles being discarded is at an all-time high. Maintaining this level of textile production requires ever more land, water, chemicals and fossil fuels, and causes the increased pollution of air, water and soil. In turn, the current production and consumption patterns of textiles are having a cannibalising effect on the industry as companies depend strongly on the natural resources, which are being damaged and polluted during the textile life cycle.

Future-proofing through eco-innovation

Eco-innovation can support SMEs by adding sustainability to the core of their business strategies, so that they become more resilient, even during times of crisis. Rather than examining short-term impacts and one-off actions that lead to small, defined improvements, eco-innovation represents a long-term strategy towards sustainability. By considering all phases of the product life cycle, eco-innovation allows companies to evaluate where significant progress can be made, so they're better prepared for the challenges the industry presents and can anticipate and avoid future challenges. Eco-innovation helps companies create sustainable value for their business, the environment and society, and in doing so, contribute to the Paris Agreement and the 2030 Agenda (17 Sustainable Development Goals).

Eco-innovation works best in cooperation with suppliers, customers and other partners across the value chain. By jointly working on sustainable solutions to common problems, strong relationships are formed that help develop proactive communication and shared expertise on emerging challenges and risks.

To be a strong candidate for eco-innovation, a company should recognise the importance of the long term sustainability threats faced by their industry and be ready to take action to turn these threats into opportunities. This requires leadership by both business owners and managers, as well as a culture within the company that is open, responsive and willing to take on big challenges (UNEP, 2021).

The textiles value chain

The value chain includes all the activities that provide or receive value from designing, making, distributing, retailing and using a textile product (or providing the service that a textile product gives). This includes the extraction and supply of raw materials, as well as the activities that are involved with the textile after its useful life. The value chain covers all stages in a textile product's life, from supply of raw materials to disposal after use, and includes the stakeholders and activities linked to value creation, such as business models, investments and regulation. As a point of distinction, the term 'supply chain' refers to stakeholders in the value chain that provide goods and services to the company in question.

Figure 1 summarises the typical 'cradle to grave' (take-make-use-dispose) life cycle activities for textile products. These activities are often shown as a linear representation from raw material production to end-of-life treatment. While the aim of circularity is to shift the 'take-make-use-dispose' linear value chain into a circular system, the linear model is still more common (UNEP, 2020).



Figure 1: Life Cycle Activities for Textile Products (UNEP, 2020)

Fibre production (and other apparel materials): insights

There are different ways of categorising textile materials - sometimes with slightly different names and headings - but generally the categories are similar to the explanation below.

The first difference is between natural and manufactured (or man-made) materials. Each of these two categories can then be divided into two subsets, where naturally occurring materials are aligned between animal-based and plant-based, while manufactured materials are divided into petroleum-based and bio-based. Finally, each of these four 'slices' can be divided into fibre and non-fibre materials. While non-fibre materials are technically not textiles, they are included in this overview as these materials are common in apparel and footwear.

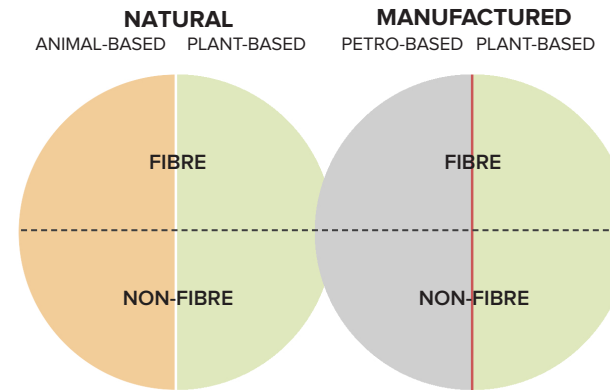


Figure 2.1: Textile Material Categorisation (SFA, 2021)

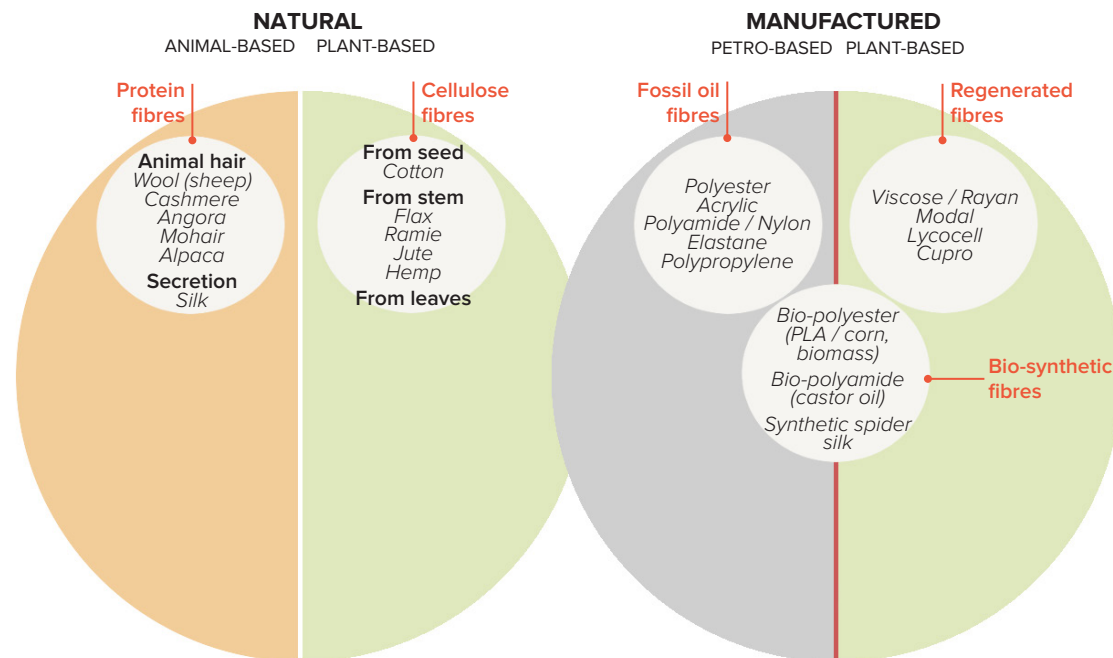


Figure 2.2: Textile Material Categorisation (SFA, 2021)

Looking first across the fibre groups, animal-based fibres (upper left) are essentially of two types: animal hair - like sheep's wool, cashmere, angora, mohair and alpaca - and silk, which is a secretion from the silkworm. All of these fibres are made of protein.

By contrast, plant-based fibres are made of cellulose, with cotton being the most common. Within this fibre group are 'bast fibres', which are taken from the stem or bark of plants like flax, ramie, jute and hemp. This cellulose group also contains fibres extracted from plant leaves, such as sisal (though these are not commonly used for apparel).

Manufactured (man-made) petroleum-based fibres are manufactured from synthetic polymers and include polyester, acrylic, polyamide (or nylon), elastane and polypropylene. The manufactured bio-based fibres are often called regenerated fibres or Man-made Cellulosic Fibres (MMCF). These fibres are derived from cellulose pulp and include viscose (also known as rayon, or viscose rayon), modal, lyocell and cupro.

There is one more group of manufactured fibres that can be placed between bio-based and petroleum-based materials. These fibres are 'innovative fibres' and referred to as bio-synthetics. They are derived either entirely from bio-based, natural polymers, or combined with petroleum-based polymers. Bio-polyester fibres made with Polylactic Acid (PLA) are derived from corn or biomass, for example. Other examples include bio-polyamide made from natural polymers derived from castor oil and lab-grown spider silk.

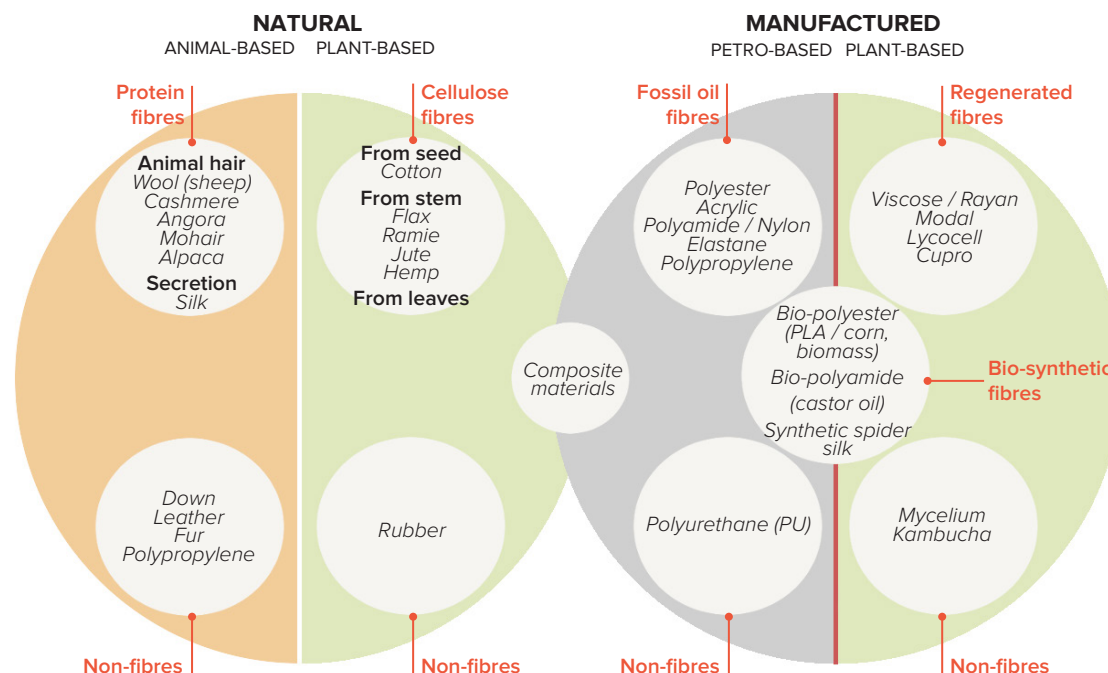


Figure 2.3: Textile Material Categorisation (SFA, 2021)

Finally, non-fibre materials can be further divided into four groups: animal-based, plant-based, petro-based and bio-based. In the animal-based category, common materials in apparel, fashion accessories and footwear include down, leather, furs and skins. In the plant-based category, natural latex rubber is a common material in footwear.

The most common petroleum-based, non-fibre material is polyurethane, which is often used as a synthetic substitute for leather. There are also several innovative bio-based materials, including materials derived from the mycelium of mushrooms and grown from kombucha, a fermented drink made from sea algae.

Composite materials is an additional material group that overlaps natural and manufactured materials. These materials are also typically used as leather substitutes and combine naturally occurring materials like leaf-based fibres with petroleum-based materials, such as polyurethane.

It can also be helpful to understand the various fibre categories by how commonly they are used. Figure 3 shows the breakdown of global use of fibres in 2016 (UNEP, 2021). In this figure, 'Synthetics' are equivalent with the category petroleum-based fibres. 'Other natural fibres' would include animal-fibres, as well as bast (from stem) fibres, and 'Cellulosic' refers to regenerative fibres. This demonstrates how differing labels and groupings are used to categorise fibres, since there is no standard set of terms for fibres in the industry.

This analysis also highlights how regional and country level fibre usage can vary significantly from the global aggregate. For instance, cotton-based textiles are particularly popular in Sweden, as reflected in cotton's 49% share (vs. 24% globally) of textile consumption (2019) compared to synthetics - including polyester, polyamide and elastane - at 45% (vs. 64% globally) (Mistra Future Fashion, 2019).

Polyester and other petroleum-based fibres were developed in the 1940s and 1950s and are relatively new compared to cotton, which has existed for thousands of years. Global use of polyester only overtook cotton in 2007.

Textiles value chain (Figure 1): fibre production stage



The names of the fibre category already give an indication of the main activities and operations in their production processes. These can be summarised as:

Natural, animal-based fibres:

- for animal hair: livestock / animal husbandry, removal of the hair through shearing or combing, cleaning the fibre
- for silk: silkworm cultivation, removal of the silk filament from the cocoon

Natural, plant-based fibres: small or large-scale agriculture including sowing, fertilising, pest management, irrigation (not in all cases), harvesting and cleaning (for instance, ginning for cotton to remove seeds and impurities)

Manufactured, petroleum-based fibres: oil extraction and refinement, polymerisation into granulates, extrusion

Manufactured, bio-based, regenerative (man-made cellulosic) fibres: forestry (including logging) of either natural forests or tree plantations, cellulose extraction (dissolving into pulp), wet spinning (crystallisation into fibres in a chemical bath with extrusion)

Textiles value chain: yarn and fabric production stage



Yarn preparation

Making yarn from shorter, 'staple' fibres - for instance cotton and wool fibres - typically involves initial steps like carding and combing, followed by drawing, spinning, and winding. For longer 'filament' fibres - for instance polyester, viscose or silk - carding and combing are not necessary, while texturing is a common initial step, before the drawing, spinning, twisting and winding. On an industrial scale, yarn production is largely mechanical and not labour intensive, while in small scale artisan operations, it is the opposite.

Weaving, knitting and bonding

While the terms 'weaving' and 'knitting' are likely self-explanatory, 'bonding' may not be as clear. Bonding refers to fabrics often called 'non-wovens' (although they are 'non-knitted' as well) and instead of yarn as the input material, they are made by entangling fibres together through chemical, mechanical or heat treatment. Felt is a typical example.

There are a multitude of different techniques for both weaving and knitting, although the fundamental principles of both are the same. In some cases, the knitting process can be integrated with the subsequent assembly stage, as often is the case with socks.

For industrial scale operations, knitting, weaving and bonding are machine-intensive, so they require a lot of machines. They are not labour-intensive, however, so require fewer employees. Small scale artisan operations, such as yarn production, are the opposite. They are labour-intensive rather than machine-intensive.

In fabric and yarn production, the production units are commonly referred to as textile mills.

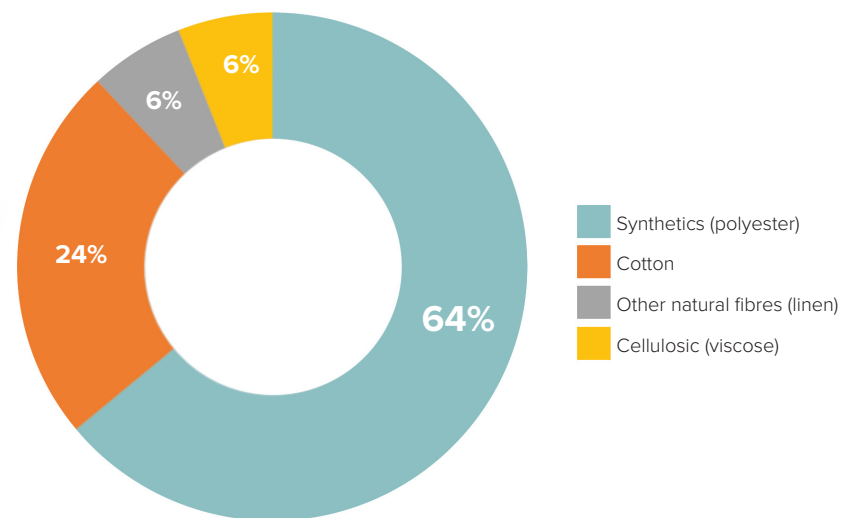


Figure 3: Global Use of Fibres (Quantis, 2018)

Textiles value chain: textile production stage



Wet processing

As indicated on the Life Cycle diagram (Figure 1), wet processing operations can occur between Fabric Production and Assembly, since key steps such as dyeing are commonly applied to fabrics before being sent to garment assembly. However, wet processing steps - including dyeing - can also occur both earlier and later in the life cycle, which is shown by the dotted arrows on the diagram. For example, wool fibre typically goes through a shrink-proofing chemical step in Fibre Preparation before being processed into yarn. Another example is 'sizing', which includes applying natural or chemical inputs on yarns to strengthen them, so that they can withstand the tension applied during the weaving process. After weaving, 'desizing' is performed to remove sizing chemicals from the woven fabrics.

The dyeing process, usually performed by production units referred to as 'dye houses' using a range of dyeing techniques, can be applied to fibres, yarns, woven, knitted or non-woven fabrics, and even to a finished garment. A prominent example of yarn dyeing is with denim, where the warp yarn (running lengthwise) is traditionally dyed blue, while the weft yarn (running crosswise) is white.

Prior to dyeing, pre-treatment operations like bleaching, boiling, kiering, washing, mercerisation, optical brightening, etc. are common. Their objective is to increase absorbance and whiteness, while making the fibre - or yarn, or fabric - ready for dyeing.

Printing (including digital printing) is also considered a wet process, and imparts colour using inks and pigments. Printing is typically done on the fabric before garment assembly or on the finished garment.

'Finishing' is usually the final step in wet-processing operations and is used to improve the look, softness, or performance of the fabric or garment. Examples of finishing include stain resistance, water repellency, anti-microbial and laundering.

Though largely machine-driven, wet processing typically requires a moderate level of labour. Dyeing and printing can also be performed on an artisanal level, as with batik dyeing and block printing.

Assembly

You may hear this stage referred to with various names, including 'CMT' - for Cut, Make and Trims, 'Cut & Sew,' 'Garment Manufacturing' and 'Confectioning'. This stage is labour-intensive and primarily involves cutting fabric, sewing, ironing and packaging, as well as laundering and printing.

Textiles value chain: consumption



Distribution & retail

The global nature of the textile industry drives a significant level of international cargo. Ocean freight is the main form of transportation, although rail, air and road are important as well.

For the apparel market consumer, distribution to retail stores is generally handled through strategically located logistics hubs and distribution centres. Retail stores can operate independently or be a part of a chain, can be brand-owned (single brand), multi-brand or offer a combination of both, i.e. a branded store that also offers apparel products from other brands. E-commerce channels are typically supported by fulfillment centres and are often housed within distribution centres. Given the strong growth in e-commerce, the distribution and retail stage also includes handling customer returns, typically through the same distribution/fulfillment centres.

Brands are the primary drivers of product marketing and communication toward the consumer, although wholesalers and retailers - when these channels are employed - can also play a significant role. Collaboration is typical in these cases.

Use

This life cycle stage includes the consumer's transport to and from the store, garment care (washing, drying, ironing, mending and repairing) and of course the actual use and storage of garments, including related wear and tear from use.

This stage can include consumer-to-consumer channels where the apparel product changes ownership.

Textiles value chain: end-of-life



Collecting and sorting

Discarded textile products can be handled in different ways and by different types of organisations. They can be collected by charitable organisations as donations, by commercial organisations - including retailers - either as donations or in exchange for a 'reward', or by municipalities, either as a separated fraction or as unsorted waste. In all cases apart from the latter (unsorted waste), textile products have a chance to return into circulation in their current form - in which case the products can be considered to have reached end-of-use but not yet end-of-life. This also applies when the material is to some extent recovered and put into another use.

Landfilling, waste to energy

Used textile products disposed of as unsorted waste can either be incinerated - potentially contributing to some degree of energy recovery - or be added to landfill. However, even sorted textiles can end up in incineration or landfill. For example, in cases of oversupply of second-hand garments where no markets or alternative use is available at a cost-efficient level, or when unsold retail stock is destroyed through incineration or sent to landfill.



Presenting the eco-innovation process through the example of a fictional company

This supplement uses a learning case study of a fictional enterprise to illustrate the eco-innovation methodology and selected templates in the context of a textile value chain. Denim - and particularly denim jeans - has been chosen as the category of textile product, as jeans are widely popular in virtually all markets, cultures, and age groups around the world. Jeans are also one of the most resource-intensive garments to produce. Furthermore, the denim sector is known for promising innovation.

An apparel brand in the denim value chain has been chosen, as it interacts both with the consumer market and producers. Therefore, it has an opportunity to embrace a life cycle perspective. The medium-sized apparel brand Niche Denim, with its headquarters in Mumbai, India will serve as the fictional case company as you progress through the methodology. The service provider Resilient Futures LLC supports SMEs in the region, to innovate their business models using eco-innovation.

Niche Denim was founded in the mid-1990s in Mumbai and continues to be owned and managed by the co-founders, one of which is the Creative Director. The other founder is the CEO. The company has approximately 150 employees, located either at the headquarters' home office, which also houses an e-commerce fulfillment operation, or at one of their 25 retail stores in India. Niche Denim also distributes and sells its products through a wholesale network, reaching approximately 500 retail stores in India and a small but growing number of retailers in neighboring countries. Niche Denim has built a loyal customer base.

Niche Denim is an equal partner in a joint venture based in The Netherlands. This venture was created in 2014 to establish a closer presence in European markets, after years of increasing consumer interest in Niche Denim products sold through its e-commerce channel.

Niche Denim's product range is focused on denim with carefully crafted denim washes and styles. Niche Denim has a close collaboration with two main denim fabric suppliers in Surat, India, as well as one supplier in Turkey that produces for the European market. Cotton makes up over 90% of fibre use and is sourced from both India and Turkey. The denim-based product range is complemented by knitted tops (shirts and jumpers) in cotton and wool. A small amount of the cotton is certified organic. The rest is conventionally grown.



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PREPARE

Prepare to engage a company and its value chain
and build the potential company's interest
in the rewards available from eco-innovation

PR.1

Evaluate potential markets



ORIENTATION

Your initial assessment for Target Identification has likely included textiles as a main industrial sector in your country and therefore led you to this supplement. The guidance in the Eco-innovation Manual suggests starting with assembling basic information about the industry sector, as well as the markets and the companies operating in this sector in your country, to determine if these are suitable to target with your eco-innovation services.

At the industry sector level, key things for you to consider include the contribution to global environmental sustainability problems, the social impacts - both positive and negative - and the amount of attention the sector gets from non-governmental organizations (NGOs).

At the market level, key considerations are the level of government policy and financing supporting the market in your country, the credibility and experience your organisation has in the market, the channels you can access to approach companies, and the market's growth and profitability profile.

Considerations **at the company level** include the commercial success of the company, its history of innovation and its sustainability performance.

The Target Identification template suggests straightforward, points-based scoring for the sector, the market and the company based on the above considerations. The aim of this supplement is to provide you with direct input for setting a score within the global textiles sector, as well as to offer you insights into the business-to-consumer (B2C) apparel market that may inform your process when assembling information for the relevant market(s) in your country. And while the company-level scoring will of course be very specific to your target company or companies, some general insights related to B2C apparel companies are provided as potential reference information.

PR.1 Evaluate potential markets

TEMPLATE INPUT & INSPIRATION: TARGET IDENTIFICATION

A - Sector-level analysis

Sector name: Textiles

A1 - To what extent does the sector contribute to global greenhouse gas emissions and climate change?

- Major contributor, [2 points]
- Moderate contributor, [1 point]
- Contribution is negligible, [0 points]

The climate impact of the global apparel industry is substantial, with over 3.3 billion metric tons of greenhouse gases (GHG) emitted across the value chain per year - roughly exceeding the direct emissions of all international flights and maritime shipping combined. (UNEP, 2020, p. 19).

Note: the hotspot assessment in activity PR.4 in this supplement provides more insight into the activities in the textile product life cycle linked to GHG emissions.

Suggested score: 2 points for being a major contributor

A2 - To what extent does the sector contribute to global consumption of non-renewable resources and potable water?

- Major contributor e.g. agriculture, chemicals, automotive, energy etc., [2 points]
- Minor contributor e.g. insurance, banking, software etc., [1 point]
- Contribution is negligible, [0 points]

Most synthetic fibres are produced from crude oil, a non-renewable resource. As previously presented in Figure 3, synthetic fibres accounted for 64% of global textile fibre use in 2016. The production of plastic-based fibres for textiles uses around 350 million barrels of oil each year - which has more than doubled since 2000 (Changing Markets Foundation [CMF], 2021).

Production of synthetic fibres for the textile sector accounts for 15% of plastic production, which makes the sector the third largest user of plastic, behind packaging and construction (CMF, 2021).

The global apparel industry consumes approximately 215 trillion liters of water every year (UNEP, 2020). By comparison, the World Health Organization (WHO) estimates that 150-300 trillion liters are needed for the global population to meet most basic needs (UN-Water Decade Programme, 2010). The textile industry impacts water scarcity during each life-cycle stage by polluting natural waterways through extensive use of chemicals, some of which cannot be removed by wastewater treatment plants (UNEP, 2021).

Suggested score: 2 points for being a major contributor

A3 - To what extent does the sector contribute to global pollution problems?

- Major contributor, [2 points]
- Moderate contributor, [1 point]
- Contribution is negligible, [0 points]

There are two potentially significant sources of pollution related to textiles: chemical release and microfibre release. However, there is not a lot of research confirming this (UNEP 2020). Regarding chemical release, the textile industry is notorious for its impact on water systems (UNEP, 2020). However, little data exists on the scale of water pollution from textile processing, due to a lack of systematic monitoring, at mills and downstream.

More than 3,500 chemical substances are potentially used in the processing of textiles to provide specific properties amongst which 750 are classified as hazardous for human health and 440 as hazardous for the environment (KEMI, 2016). Chemicals of concern, relevant to the textile sector, include heavy metals, as well as chemicals used as dyes or solvents, for example, a family of substances called PFAS (per- and polyfluoroalkyl substances), commonly used in the textile industry for their water-, stain- and oil-repelling properties, are identified as

PR.1 Evaluate potential markets

TEMPLATE INPUT & INSPIRATION: TARGET IDENTIFICATION

an 'Issue of Concern' (SAICM, 2021; UNEP, 2020). PFAS are linked to several severe health effects and are often referred to as 'forever chemicals', as they do not break down easily and can accumulate in the environment. Global cotton cultivation is estimated to require 4% and 16% of total global use of fertilizers and pesticides respectively, which represent substantial quantities of chemicals released directly into the environment.

Regarding microfibre release, while the extent of global microplastic pollution and its exact sources are not yet known, we are finding more evidence of the impacts of microplastics (microfibres) derived from textiles (Mowbry, 2020).

Suggested score: 2 points for being a major contributor

A4 - How important is the sector for the national economy?

- High importance, contributes over 15% of GDP or employs over 15% of workforce, [2 points]
- Medium importance, contributes over 5% of GDP or employs over 5% of workforce, [1 point]
- Low importance, contributes less than 5% of GDP and employs less than 5% of workforce, [0 point]

The textile industry is globally important, providing high levels of employment, foreign exchange revenue, and products essential to human welfare. The global textiles market is estimated at around US\$1.4 trillion, with textiles worth about US\$7.7 billion traded in 2019. The industry employs over 300 million people globally, especially in developing countries like Bangladesh, Brazil, China, India, Pakistan and Turkey (UNCTAD, 2021).

As an example at the national level, the textiles sector in India accounts for approximately 2.3% of GDP, with an estimated 45 million people engaged/employed directly in the textiles industry (9.3% of the workforce) and another 60 million people (12.4%) in related sectors,

including a large number of women and rural population (India Ministry of Textiles, 2017).

Suggested score: In this example, the score for the sector in India would be 'High importance', particularly given the significance for the labour force

A5 - To what extent has this sector been targeted by Non-Governmental Organizations (NGOs) to encourage improvements in sustainability performance?

- Major focus of sustained, global campaigns by NGOs, [2 points]
- Focus of occasional, local campaigns by NGOs, [1 point]
- No focus/attention from NGOs, [0 points]

Activity PR.3 in this supplement identifies several stakeholders, including a category for Civil Society / Advocacy / NGOs. Among the textiles-relevant organisations in this category are international NGOs, including Clean Clothes Campaign (CCC), Greenpeace, and People for the Ethical Treatment of Animals (PETA) that focus on workers' rights, environmental protection and animal rights respectively. While CCC works exclusively on the textiles sector, Greenpeace and PETA work within multiple sectors. A relatively new organisation is Fashion Revolution, which campaigns for global brands to provide greater transparency into their supply chains.

While these are examples of 'watchdog' NGOs, there are a number of NGOs working more collaboratively with commercial stakeholders, such as the World Wildlife Fund (WWF). There are also watchdog and collaborative NGOs that engage both globally and locally within the textile sector.

Suggested score: While NGO campaign activity in the sector may not be of the 'sustained, global' nature attributed to 'a major focus' the activity can be judged as being closest to this level. There has also been an increase in NGO attention from workers' rights advocates due to the challenges faced by textile supply chains during the COVID-19 pandemic.

PR.1 Evaluate potential markets

TEMPLATE INPUT & INSPIRATION: TARGET IDENTIFICATION

B - Market-level analysis

Description of the market: global consumer apparel (*note: the insights and examples provided below relate to a global vs national view*)

B1 - How strong is the growth of this market?

- Strong (>5% per year), [2 points]
- Moderate (2-5% per year), [1 point]
- Weak (<2% per year), [0 points]

The COVID-19 pandemic has created major problems across many markets, including apparel, so assessing growth is uncertain. However, the years before the pandemic showed significant profit growth in the apparel industry according to McKinsey (2020), as shown in Figure 4. The growth of the second-hand market has also grown rapidly, and is expected to experience accelerated growth, as predicted in the 2020 Resale Report and reflected in Figure 5. This research defines second hand as both 'traditional thrift and donations' - characterised by second hand shops often run by charity organisations - and 'resale', predominantly e-commerce platforms for second hand merchandise.

Suggested score: *On a global basis, and considering both new and second hand apparel, Strong, 2 points*

B2 - How strong is the competition in this market?

- Strong (6+ companies competing), [2 points]
- Moderate (2-5 companies competing), [1 point]
- Monopoly (1 company), [0 points]

Globally, the B2C apparel market is crowded, with a large number of established brands

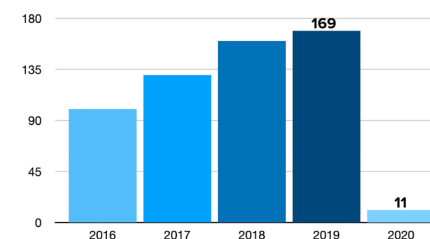
and very low barriers to entry for new brands. Compared to companies operating in the second hand market - including collection, sorting and resale services - competition is lower. However, new actors and established retailers are increasing in this market. (Business of Fashion, 2021).

Suggested score: *With the scoring metric above, the B2C apparel industry would be categorised as Strong, 2 points.*

B3 - To what extent is government policy encouraging and supporting moves towards improved sustainability performance?

- Major support from policy, including financial measures, [2 points]
- Moderate support from policy, but no financial measures, [1 point]
- No support from policy, [0 points]

Total economic profit, index (100 = 2016)



93%
drop in economic
profit from
2019- 2020

Figure 4: Global Fashion Industry Profit (McKinsey, 2020)

PR.1 Evaluate potential markets

TEMPLATE INPUT & INSPIRATION: TARGET IDENTIFICATION

As a leading policy example, the European Union's (EU's) Circular Economy Action Plan (CEAP), adopted in March 2020, is one of the main building blocks of the European Green Deal and specifies textiles as a prioritised 'key product value chain' (European Commission, 2020). Policies for sustainable textiles are gaining traction across regions. For instance, South Africa is implementing a Master Plan for the retail - clothing, textile, footwear and leather value chains ('retail CTFL') (2021). Also, efforts from NGOs and technical institutions are underway to promote and develop policy, for instance through the Circular Apparel Policy Innovation Lab (CAPIL) (2021) exploring policy interventions in India. However, government policy for sustainable textiles is not yet seen as prominent in most regions. On the other hand, governments do actively support sustainability in the sector through funding to relevant initiatives, including through UN agencies (see for instance the United Nations Alliance for Sustainable Fashion) and other international organisations. As a leading example, UNEP's eco-innovation work has supported organisations in over 10 countries to assist small and medium enterprises (SMEs) within selected value chains - including textiles - to adopt circular economy practices and sustainable business models. The OECD's (2017) Due Diligence guidance also provides recommendations on responsible supply chains in the garment and footwear sector.

Suggested score: *On an international level, the support could be deemed as moderate, as government policy examples are currently mostly in the proposal stage.*

B4 - Is this market affected by new or forthcoming legislation?

- Major changes required to meet new or forthcoming legislative requirements, [2 points]
- Moderate changes required to meet new or forthcoming legislative requirements, [1 point]
- No new or forthcoming legislation, [0 points]

One of many upcoming examples in the EU is the Waste Framework Directive (2008), requiring that Member States set up separate collections of textiles by 1 January 2025. This may lead to states adopting Extended Producer Responsibility (EPR) legislation, requiring companies selling textiles in the market to bear the responsibility for collecting and sorting discarded textile products, rather than letting them be mixed with waste for incineration or landfill. As another example, the EU Environmental and Human Rights Due Diligence Law was adopted by the European Parliament in March 2021 and requires companies to conduct

Resale Expected to Be Bigger Than Fast Fashion by 2029

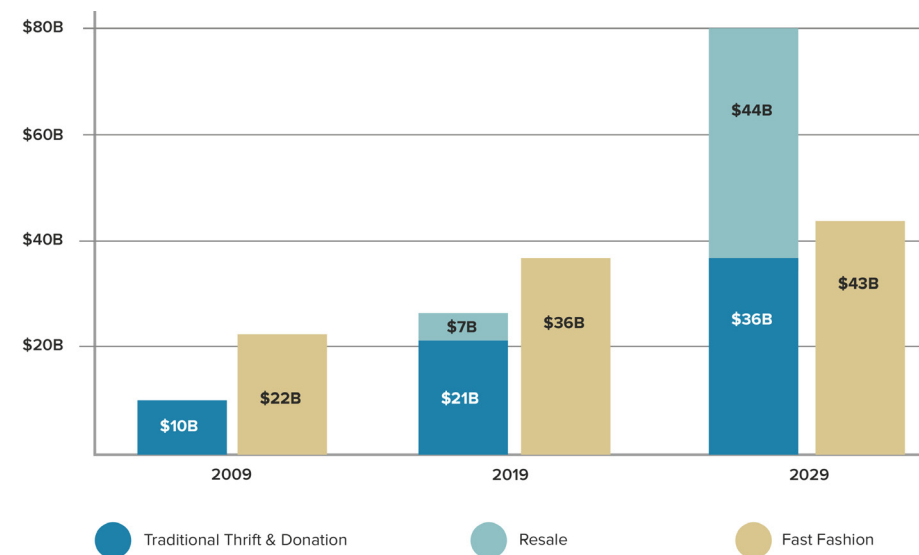


Figure 5: Second Hand Market Growth (ThredUp, 2020)

PR.1 Evaluate potential markets

TEMPLATE INPUT & INSPIRATION: TARGET IDENTIFICATION

environmental and human rights due diligence along their full value chain or face fines, sanctions and/or civil liability. This legislation applies to all companies with global supply chains.

In 2019, The Gujarat Pollution Control Board launched India's first emission trading scheme (ETS) in a primarily textile cluster in Surat. This scheme is currently being reviewed for implementation in other clusters/regions in the country (2019).

Suggested score: *Using the examples provided, changes to the market and new requirements for companies could be deemed as moderate. Note however that as legislation is relevant at the national level, many developing countries may not prioritise legislation in this area (0 points).*

B5 - How interested are the end customers of this market in improved sustainability performance?

- Major interest - willing to switch products/suppliers or pay a price premium for better sustainability performance, **[2 points]**
- Moderate interest - information about sustainability performance is considered a part of the purchase decision, but not a deciding factor, **[1 point]**
- No interest, **[0 point]**

Apparel holds importance in both cultural and individual identity, meaning customers' interests can incorporate more emotional and less rational weight than for other goods. Many international surveys and research reports on apparel consumers' attitudes show increasing awareness and interest in sustainable fashion, especially amongst trend-driven younger generations (McKinsey, 2020) (Genomatica, 2021) although this trend certainly varies across and within markets (The Voice of Fashion, 2020). Online searches for sustainable fashion have increased by 66% since 2018, with a 187% increase in page views for sustainable denim brands (Lyst, 2020). Consumers fall into three scoring groups: major, moderate and no

interest. Overall, the level of interest could be rated as moderate, and on a path to become major.

Suggested score: *Moderate, 1 point*

B6 - Are there trends that would encourage eco-innovation in this market?

- Yes, several strong trends that would encourage eco-innovation, **[2 points]**
- Possibly, one or two weak trends that would encourage eco-innovation, **[1 point]**
- No relevant trends, **[0 point]**

The macro-environment analysis in PR.5 identifies a handful of trends and developments that could encourage eco-innovation, either through emerging requirements, threats or opportunities 'pushing' innovation for new solutions, or as new developments serving to enable eco-innovation. Among these are growing customer interest and demands for transparency, and digital tagging technology that allows greater transparency.

Influential stakeholders in the textiles value chain are also making visible endorsements and commitments toward ambitious sustainability goals, for example the United Nations Framework Convention on Climate Change (UNFCCC) Fashion Industry Charter for Climate Action (2021), the Fashion Pact (2021) and the Circular Fashion System Commitment (Global Fashion Agenda 2020). Actions to fulfill such commitments would typically reverberate through those companies' value chains.

Suggested score: *Several strong trends, 2 points*

B7 - B9 are specific to the Service Provider's experience and positioning, and thus no market input is provided in this supplement.

PR.1 Evaluate potential markets

TEMPLATE INPUT & INSPIRATION: TARGET IDENTIFICATION

C - Company-level analysis

C1 - To what extent is sustainability an explicit and public part of the core strategy and values of the company?

- Major focus on sustainability - public statements or literature explicitly stating that sustainability is a core part of the company strategy and values, [2 points]
- Moderate focus on sustainability - sustainability not mentioned in company strategy or values but some evidence of interest in sustainability performance, [1 point]
- No existing focus on sustainability, [0 point]

From an international perspective, there are not many B2C apparel brands that do not explicitly include sustainability messages in their value statements. At the same time, brands that express sustainability values may not necessarily have them embedded in their core strategies.

There are many examples of brands embracing sustainability in all aspects of their business models, such as Tonlé in Cambodia and Nudie Jeans in Sweden (note, both of these examples appear as cases in the BM phase of this supplement).

C2 - To what extent is sustainability performance of the company's products and services part of their product marketing and positioning?

- Major focus on sustainability - sustainability performance a major and consistent feature of the marketing and branding of the products and services of the company, [2 points]
- Moderate focus on sustainability - a minor and occasional feature of the marketing and branding of the products and services of the company, [1 point]
- No existing focus on sustainability in marketing and positioning, [0 point]

As opposed to a widespread communication of sustainability in company values (as posed

in question C1), communicating sustainability performance on a product level tends to be more limited. However, brands are focusing more on promoting product-level sustainability performance, suggesting that this factor could be rated as 'Major' or as 'Moderate' moving strongly toward 'Major'.

C3 - What experience and capability does the company have in innovation?

- Significant experience and capability - frequent, successful innovations with evidence of significant resources dedicated to innovation, such as the existence of an R&D team, [2 points]
- Moderate experience and capability - some notable innovations, but no resources dedicated to supporting innovation, [1 point]
- No experience or existing capability in innovation, [0 point]

Generally, B2C apparel brands do not heavily focus on research and development (R&D) or significant innovation. However, brands designing and developing technical apparel will often have a portion of their workforce and budget allocated for materials innovation. This might include outdoor, sport and some forms of workwear. With regards to the scoring levels for this question, you may find that target apparel companies exhibit either 'No' or at best 'Moderate' experience.

PR.1 Evaluate potential markets

TEMPLATE INPUT & INSPIRATION: TARGET IDENTIFICATION

C4 - What experience and capability does the company have in managing environmental issues?

- Significant experience and capability - formal environmental management system in operation and resources dedicated to supporting environmental improvement, **[2 points]**
- Moderate experience and capability - some environmental management initiatives in operation but no resources dedicated to environmental improvement, **[1 point]**
- No experience or existing capability in managing environmental issues, **[0 point]**

Chemical management capabilities focused on the products placed on the market are commonplace in most apparel companies, as these are generally a response to legal requirements and restrictions. For brands with technical apparel (e.g. outdoor, sport and some forms of workwear), these capabilities tend to be more extensive, as such products often involve a higher degree of chemistry. Water and energy are also key environmental management issues, with more brands including climate action as well.

With limited resources, SMEs may not be able to manage environmental issues beyond a focus on the end product. A common arrangement is that both environmental and social issues are managed by one or a few staff, or even shared with other roles, such as quality or purchasing managers.

PR.1 Evaluate potential markets



TIPS & TRICKS

Many valuable sources of sector and market related information from a variety of public, private and civil service organisations are provided throughout this supplement as support for the respective activities in the eco-innovation methodology. For this initial assessment of your national market, a valuable source of information regarding national priority sectors and long term sustainability targets could be found in a National Development Plan or a Sustainable Consumption and Production Strategy. Ministries of Trade, Commerce, Environment and Development - or their equivalents - should as well be primary sources for your investigation. Universities and national/local trade or industry/textile sector associations are also recommended sources for you to explore.

There are as well a number of national data sets covering historical and projected data for GDP, trade, labour, population, consumption, and environmental indicators (e.g. GHG emissions) offered by a number of international organisations. For trade-related information, data sets are in some cases available for textile and apparel categories. The following are among the most recognised sources:

- International Trade Centre (ITC): <http://www.intracen.org/>
- OECD :
 - <https://stats.oecd.org/>
 - <https://data.oecd.org/>
 - <https://www.oecd.org/economic-outlook/>
- The World Bank: <https://data.worldbank.org/>
- The International Monetary Fund: <https://www.imf.org/en/Data>
- EuroStat: https://ec.europa.eu/eurostat/statistics-explained/index.php?title=Quarterly_national_accounts_-_GDP_and_employment
- United Nations, Department of Economic and Social Affairs: <https://unstats.un.org/unsd/snaama/index>
- International Labour Organisation: <https://ilostat.ilo.org/data/>
- Our World in Data: <https://ourworldindata.org/>

To effectively begin your exploration of the textiles sector and to initially grasp prevailing sustainability -related issues and trends, the organisations summarised under Tips & Tricks in activity PR.3 are recommended sources. Among the most useful sources from that list to prioritise are:

- The Clean Clothes Campaign: <https://cleanclothes.org/>
- World Wildlife Fund: <https://www.worldwildlife.org/>
- Textile Exchange: <https://textileexchange.org/>
- The Ellen MacArthur Foundation: <https://www.ellenmacarthurfoundation.org/>
- FairWear Foundation: <https://www.fairwear.org/>
- The UN Alliance for Sustainable Fashion: <https://unfashionalliance.org/>
- UN Climate Change - Fashion Industry Charter for Climate Action (UNFCCC): <https://unfccc.int/climate-action/sectoral-engagement/fashion-for-global-climate-action>
- International Labour Organization work on Textiles, Clothing, Leather and Footwear: <https://www.ilo.org/global/industries-and-sectors/textiles-clothing-leather-footwear>
- Strategic Approach to International Chemicals Management's knowledge library on chemicals in textiles: <https://saicmknowledge.org/topic/chemicals-textiles>

PR.1 Evaluate potential markets



In addition, the Tips & Tricks sections in the PR5 activity provide a few more sources worth prioritising at this point:

- McKinsey & Co's annual State of Fashion: <https://www.mckinsey.com/industries/retail/our-insights/state-of-fashion>
- Fashion For Good: <https://fashionforgood.com/news/our-news/>
- The Global Fashion Agenda: <https://www.globalfashionagenda.com/>
- UNEP and partners work on sustainability and circularity in the textile value chain: <https://www.oneplanetnetwork.org/value-chains/textiles>

When it comes to selecting companies that you will provide eco-innovation services to, you can consider the following in addition to the questions from the Target Identification Template:

- Where in the textile value chain is the company located? This can also have an impact on the kind of changes the company is willing or expecting to make through eco-innovation. For instance, a textile brand typically has more decision-making power over product design, whereas a yarn and fabric production company has more exposure to innovations around technologies and materials. You can put this in context with the trends you have identified through the sector- and market-level analysis.
- Is the company connected to international value chains (export markets)? If these markets are passing stricter textile sustainability regulations, this can be an important driver for the company to engage in eco-innovation.

One way to identify companies for eco-innovation is to take larger brand companies in your country or multinational enterprises as an entry point and approach SME manufacturers in their supply chains. As part of the market analysis, you should therefore, also check supply chain / procurement policies of these larger brand companies, which can ultimately be a driver for eco-innovation.

PR.1 Evaluate potential markets

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Building the right internal team



ORIENTATION

As described in the Eco-innovation Manual, this activity starts by identifying the skills necessary for your team to deliver eco-innovation services, followed by identifying any critical gaps in those skills. The manual then offers ways for you as a Service Provider to fill those gaps, including training, recruiting, partnerships and buying services.

The learning case study in the manual populates the Competencies Checklist template with a suggested list of ten competencies, one of which is sector-specific knowledge. Textile-specific expertise is key to working with textile companies on eco-innovation. If additional knowledge about sustainable textiles and apparel is needed, this supplement lists relatively accessible, cost-free training resources for your team.

Template of Competencies Checklist

```
graph LR; A[Competence] --> B[Essential/beneficial]; B --> C[In-house]; C --> D[Needs]
```

Competence	Essential/ beneficial	In-house	Needs

PR.2 Building the right internal team



TIPS & TRICKS

The following is an initial set of selected learning resources that you may offer suitable opportunities for building relevant competencies in your team:

Massive Open Online Courses (MOOCs):

- [Circular Fashion: Design, Science and Value in a Sustainable Clothing Industry](#), offered by Wageningen University & Research via the EdX MOOC platform. 'The fundamentals of circular fashion unraveled, learn about circularity in all steps of the fashion value chain. From new textile materials and circular design all the way to business modelling.' Self-paced, approximately five weeks, 8 - 12 hours / week.
- [Sustainable Fashion](#), offered by the Copenhagen Business School via the Coursera MOOC platform. '...we provide an overview of business model theory and discuss business models as essential tools in the transformation towards more sustainable businesses. Throughout the course, we will use business model theory as a foundation to look at how real-world fashion brands are adopting more sustainable ways of doing business.' Self-paced, approximately 5 hours in total.
- [Fashion Values: Nature](#), offered by the Centre for Sustainable Fashion at the London College of Fashion. 'This course will help you build the knowledge, skills, and connections to reimagine fashion's practices and develop a plan to put nature first... You'll examine the tools and frameworks used by companies who are developing a nature-centred way of working.' Self-paced, 4 weeks, approx. 3 hours / week.

Structured portals: websites with relevant knowledge packaged in pedagogic structures

- [The Clothing Knowledge Hub](#), offered by WRAP UK (Waste & Resources Action Programme), including links to a series of 3 - 5-minute videos covering a handful of topics around textile fibres and fabric processing.
- The [Textile Guide](#) by ChemSec is a chemical management education guide that explains hazardous chemicals, maps common chemical substances along the textile supply chain, and explains the practice of chemical substitution.

Resource banks:

- [Textile Exchange Resource Center, Webinar archives](#) include recorded webinars from the past 5+ years, focused on sustainability-related topics regarding textiles fibres, leather and down. Some of these webinars could be valuable further along the eco-innovation process when more specific hotspots and opportunity areas are identified.

PR.2 Building the right internal team



- [Common Objective, Learning Resources](#) offer a broad and varied collection of reports, analysis and articles, with a search and filter function by topic and sustainability issue for easier navigation. Some of the content requires payment but a large portion is free to access.
- [The Sustainable Fashion Toolkit](#) was made by the initiative Fashion Takes Action and the international consulting firm PwC. The hundreds of text-based assets are archived and searchable by category, for instance chemicals, climate change, circular economy, labour, water, etc.
- [The Nature of Fashion webinar series](#) on fashion and biodiversity is co-sponsored by the Fashion Pact Association and Conservation International and aims to raise awareness, and catalyze behavior change to minimize biodiversity loss across the fashion industry.

Standalone objects:

- [Detoxing the Fashion Industry, for Dummies](#) is a tool produced by the initiative ZDHC (Zero Discharge of Hazardous Chemicals) focusing on similar topics as the ChemSec Textile Guide.

Other potential, miscellaneous resources for competency building:

- The Academy on Sustainability & Circularity in Fashion and Textiles, created by UNEP, will be launched in 2022 to offer courses to both professionals in the field (through collaborations with leading fashion schools) and the general public in Arabic: <https://www.unep.org/explore-topics/resource-efficiency/what-we-do/sustainable-and-circular-fashion>
- Sustainability and Circularity in the Textile Value Chain, Global Stocktaking, UNEP: <https://wedocs.unep.org/handle/20.500.11822/34184>
- UNECE Recommendation and Guidelines: <https://unece.org/trade/traceability-sustainable-garment-and-footwear>
- The Circular Design Guide by The Ellen MacArthur Foundation and IDEO: <https://www.circulardesignguide.com/>
- Transformers Foundation acts as a platform for the denim supply chain and works to enable sustainable innovation: <https://www.transformersfoundation.org/>

Universities, online learning platforms and enterprise centres/institutes in your country may offer courses, classes and other resources which may be more relevant to your specific country context.

PR.3

Build the right external partnerships



ORIENTATION

As an initial step in building the right partnerships, the Eco-innovation Manual suggests applying the Life Cycle Stakeholders template as a guide, to help you identify key stakeholders along the value chain of your target company.

Template of Life Cycle Stakeholders

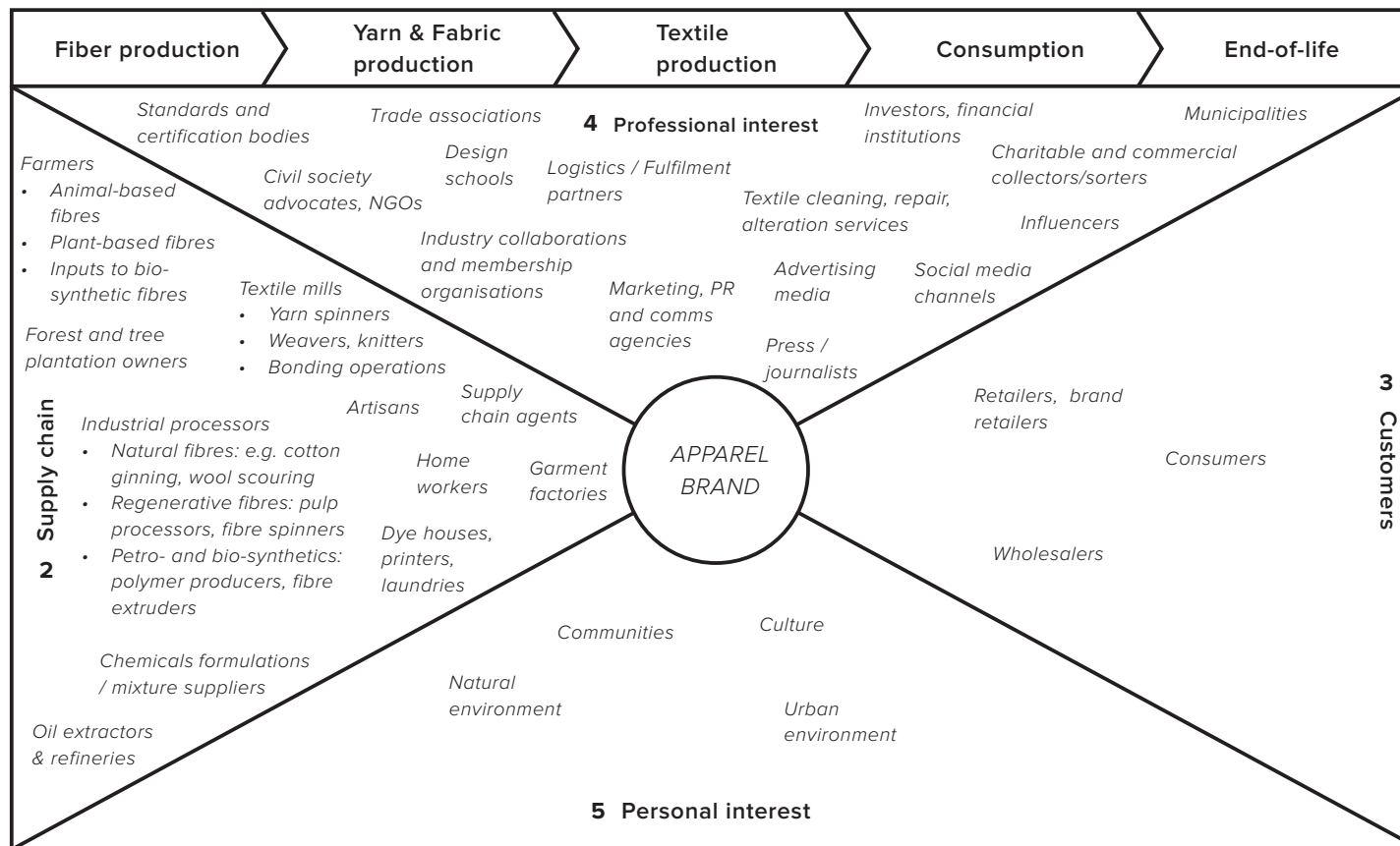


PR.3 Build the right external partnerships



LEARNING CASE STUDY - APPAREL BRAND: LIFE CYCLE STAKEHOLDERS

The following template is populated from the general perspective of a consumer apparel brand, as opposed to specifically for the case company Niche Denim.



PR.3 Build the right external partnerships



TIPS & TRICKS

Build partnerships between SMEs with similar needs

Clustering SMEs with similar needs can lead to synergies between companies which benefit all parties involved. Your role as a service provider can be to facilitate meetings and discussions about opportunities for cooperation between textile SMEs. This can be done for instance by building networks and organizing events (social media can be used as a powerful tool to help with this). Textile manufacturers often work in clusters and in industrial parks, these synergies enable businesses to make cost savings in areas such as machinery, procurement, distribution, R&D, and marketing which would be unachievable for an individual company. SMEs can particularly benefit from these work cluster arrangements, both financially and in terms of capacity building from knowledge sharing within clusters.

When exploring and investigating Life Cycle Stakeholders in your country, it will be helpful for you to keep in mind the following insights:

Primary and secondary stakeholders: It can be helpful to think in terms of 'primary' and 'secondary' stakeholders. Primary stakeholders are engaged more directly with the production, consumption and end-of-life stages and aligned with the template categories of Supply Chain (2) and Customers (3). Secondary stakeholders are those who impact or influence, or are impacted by, the textile life cycle. These would fall into the Professional Interest (4) and Personal Interest (5) categories.

Vertical integration: Stakeholders in the textile sector tend to operate primarily within a life cycle stage, although there are plenty of examples of vertical integration along the life cycle, where stakeholders' operations span more than one stage. Some key examples include:

- Farmers with their own processing (e.g., ginning, scouring) operations, or the more common jointly/collectively owned processing operations with other farmers
- Yarn, fabric and textile production: garment factories, dye houses and textile mills can be organised into production units with various constellations within a single company

Supply chain agents: While apparel brands most often have direct commercial relationships with garment manufacturers, it is common that agents (or 'traders') are employed in roles that can span from more simple facilitation roles to comprehensive roles taking responsibility for entire global supply chains. One example is Hong Kong-based [Li & Fung](#).

Consumer attitudes and choices: Several of the stakeholders listed play instrumental roles in influencing the consumer in their purchasing and related behaviours. These include advertising and social media - often steered by brands and/or retailers - journalists, civil society advocates / campaigners, as well as services for repair, alterations, cleaning, etc.

PR.3 Build the right external partnerships



Common partnerships in the textiles value chain: Membership organisations are a typical source of, and platform for, collaborations and partnerships generally involving several organisations from multiple stages along the value chain. Such partnerships could include, for instance, producers (fibre, yarn, fabric, and/or garment), brands, NGOs and researchers. They are generally conducted on a 'pre-competitive' basis to promote innovation for the broader set of stakeholders.

Opposed to more 'pre-competitive' partnerships, typical examples of more commercially focused collaboration (i.e. collaboration that has an economic motive) include:

- Brands and collection/sorting and recycling partners, and/or cleaning, repair and logistics/fulfillment partners
- Brands and various constellations of supply chain partners, that is, garment, fabric, and yarn producers, as well as chemicals mixtures suppliers,
- New generation (e.g. bio-synthetics, recycled feedstock) fibre suppliers, yarn and fabric producers, and brands
- Design schools and fabric or garment suppliers, and/or brands.

Typically, innovation partnerships also include a technology partner.

Interaction with other value chains: While not reflected in the stakeholder mapping, it can be valuable to consider stakeholders from related value chains, such as white goods (washers and dryers), laundry detergents and other care products. These could offer collaborative opportunities when considering new business models.

PR.3 Build the right external partnerships



Secondary stakeholders - prevailing examples from the global level: The Life Cycle Stakeholders template in the Manual relates to the fishing industry but nonetheless offers a number of stakeholder titles that are also relevant for textiles and can give inspiration to your process. To complement this, a number of leading organisations relevant to the textiles industry at global level are provided in the table below and aligned along four categories. You can also check their presence and projects in your country, or approach them to receive recommendations for other stakeholders they are partnering with in your country. Also check the template above for Niche Denim for examples of local secondary stakeholders (professional and personal interest categories) you can approach.

Civil Society / Advocacy / NGOs

- The [Clean Clothes Campaign](#) works to educate and mobilise consumers, lobby companies and governments, and offer direct support to workers seeking rights and better working conditions.
- [Greenpeace](#) works directly with communities to protect their local environments. In 2011, Greenpeace published an investigative report entitled Dirty Laundry on water pollution from textiles and subsequently launched the Detox campaign to inspire changes in the management of hazardous chemicals by major apparel brands, and formed the Zero Discharge of Hazardous Chemicals collaboration (see next category).
- The [World Wildlife Fund \(WWF\)](#) has been working on water stewardship in the textile sector since 2011. With the support of international brands and local partners, WWF has established water stewardship projects in several countries, including China, India, Viet Nam, and Turkey.
- [Canopy Planet](#) has worked with over 750 of the forest industry's largest customers, including leading clothing brands and fashion designers, to help shape their purchasing practices and create permanent solutions for the world's threatened forests. CanopyStyle is their programme focused on the apparel industry.
- [People for the Ethical Treatment of Animals \(PETA\)](#) is the largest animal rights organization in the world and focuses on animal abuse during the animal hair/wool shearing process, and the practice of mulesing lambs in the textiles sector. It works through public education, cruelty investigations, research, animal rescue, special events, celebrity involvement, and protest campaigns.

PR.3 Build the right external partnerships



Industry collaborations and membership organisations

- [Zero Discharge of Hazardous Chemicals \(ZDHC\)](#) enables brands and retailers in the textile, apparel, and footwear industries to implement sustainable chemical management best practices across the value chain. Through the ZDHC Programme - a collaboration of signatory organisations - experts work together to help develop and implement ZDHC guidelines and solutions.
- [Textile Exchange](#) is a global nonprofit with a membership representing leading brands, retailers, and suppliers. It develops, manages, and promotes a suite of leading industry standards (which would also place the organisation in the next category) including the Content Claim Standard, the Organic Content Standard, Global Recycled Standard, and Recycled Claim Standard - all supporting fibre content claims in final products through 'chain-of-custody' management. The organisation also collects and publishes critical industry data and insights that enable brands and retailers to measure, manage and track their use of preferred fiber and materials.
- [The Ellen MacArthur Foundation \(EMF\)](#), launched in 2010, develops and promotes the idea of a circular economy that delivers better outcomes for people and the environment. EMF works with and inspires business, academia, policymakers, and institutions to mobilise systems solutions at scale, globally. In 2018, EMF launched the initiative Make Fashion Circular, bringing together leaders from across the fashion industry, including designers, brands, cities, philanthropists, NGOs, and innovators. It is leading international efforts to stop waste and pollution by creating a circular economy for the fashion industry, where clothes are used more, are made to be made again, and are made from safe and recycled or renewable inputs.
- [The Sustainable Apparel Coalition \(SAC\)](#) is a prominent alliance of value chain stakeholders for sustainable production in the apparel, footwear, and textile industries. The Coalition develops the Higg Index, a standardised suite of tools that measure environmental, social and labor impacts across the value chain for all industry participants. With this data, the industry can address inefficiencies, resolve damaging practices, and achieve the environmental and social transparency consumers are demanding. The more than 250 global SAC members from multiple sectors represent every part of the global supply chain.
- [IndustriALL](#) is a global union federation and comprises approximately 600 unions in 140 countries, representing more than 50 million workers. The organisation's goals are to defend workers' rights, build union power, confront global capital, fight precarious work and promote sustainable industrial policy. After the Rana Plaza industrial disaster, when a building collapse killed 1,134 people, IndustriALL and UNI Global Union negotiated the Bangladesh Accord, a legally binding safety and inspection mechanism for garment and textile factories in Bangladesh, signed by more than 200 brands. IndustriAll negotiates Global Framework Agreements (GFA) between trade unions and multinational companies - including global apparel brands - which serve to protect the interests of workers across a multinational company's operations.
- [World Fair Trade Organisation \(WFTO\)](#) is the global community and verifier of social enterprises that fully-practice Fair Trade. Spread across 76 countries, WFTO members exist to serve marginalised communities. A large proportion of the social enterprises are textile artisans.

PR.3 Build the right external partnerships



Standards and certifications

- [The International Federation of Organic Agriculture Movements \(IFOAM\)](#) is the worldwide organization for organic agriculture in 117 countries. As organic fibre certifications are typically set at the national level, IFOAM operates a tool to assess the equivalence of organic certifications while ensuring a high level of integrity and transparency.
- [Global Organic Textile Standard \(GOTS\)](#) was launched in 2006 as the result of a collaboration between organic cotton producers, the textile industry, standard organisations and certifiers to establish a harmonised organic textile standard that would be globally recognised. With over 10 000 certified facilities, GOTS is a leading standard for producing textile products containing organic fibre content, including not only cotton but all natural fibres subject to organic certification.
- [Fairtrade International](#) and [Fair Trade USA](#) are organisations promoting trade justice, sustainable livelihoods, community development funds, safe working conditions and environmental protection through their respective standards and product labelling schemes. Both organisations certify textile products, with Fairtrade International also providing specific certification for cotton itself as raw material. While Fairtrade International focuses on vulnerable smallholder producers in low income countries, Fair Trade USA also includes larger farms and plantations, as well as producers in developed countries including the US, to pursue a higher volume approach.
- Established in 1992 and recognised across Europe and worldwide, the [EU Ecolabel](#) is a label of environmental excellence that is awarded to products and services meeting high environmental standards throughout their life cycle: from raw material extraction, to production, distribution and disposal. The EU Ecolabel promotes the circular economy by encouraging producers to generate less waste and CO2 during the manufacturing process. The EU Ecolabel criteria also encourages companies to develop products that are durable, easy to repair and recycle.
- [Forest Stewardship Council \(FSC\)](#) was established in 1993 and is a global forest certification system established for forests and forest products, promoting environmentally appropriate, socially beneficial, and economically viable management of the world's forests. The FSC standard can be applied to certify forests and plantations harvested for feedstock for the production of regenerated fibres. FSC is an international non-profit, multi stakeholder organization.
- [Oeko-Tex](#) consists of 18 independent research and test institutes in Europe and Japan. Their OEKO-TEX 100 standard is one of the world's best-known labels for textiles tested for harmful substances. For a textile product to carry the OEKO-TEX 100 label, every component, including threads, buttons and other accessories, have to be tested for harmful substances to ensure the product is harmless for human health.
- [Fair Wear Foundation \(FWF\)](#), [WRAP \(Worldwide Responsible Accredited Production\)](#), [Amfori](#), [Fair Labour Association \(FLA\)](#) and [Ethical Trading Initiative \(ETI\)](#) are all recognised international organisations working with and on behalf of brands to promote fair and ethical production in global supply chains, generally with adherence to labour standards as a central mechanism. While FWF and WRAP focus exclusively on the textiles sector, the others work with multiple sectors.

PR.3 Build the right external partnerships



Government-backed initiatives

- The United Nations Economic Commission for Europe (UNECE) and The Centre for Trade Facilitation and Electronic Business (UN/CEFACT), jointly with key industry stakeholders, have launched [Traceability for Sustainable Garment and Footwear Initiative](#), an initiative to develop and promote an international framework for enhancing transparency and traceability in sustainable value chains in the garment and footwear industry. Over the period 2019-2022, the initiative aims to set up a multi-stakeholder policy platform; develop a policy recommendation, traceability standards and implementation guidelines; build capacity; and conduct projects based on these deliverables. In September 2021 they launched the Sustainability Pledge which allows organizations to highlight how they are contributing to more sustainable garment and footwear value chains.
- In 2018, fashion stakeholders, under the auspices of UN Climate Change, worked to identify ways in which the broader textile, clothing and fashion industry can move towards a holistic commitment to climate action. They created the [Fashion Industry Charter for Climate Action \(UNFCCC\)](#), containing the vision to achieve net-zero emissions by 2050.
- [Partnership for Sustainable Textiles](#) is a multi-stakeholder initiative in Germany with about 135 members from business, government, civil society, unions, and standards organisations. Together, they strive to improve the conditions in global textile supply networks - from production of raw materials to re-use and disposal.
- [Dutch Agreement on Sustainable Garments and Textile](#) is a signatory driven commitment launched in 2016 with the intention to 'see an improvement in working conditions and/or wages in textile-producing businesses as well as in animal welfare and environmental protection'.
- [The United Nations Alliance for Sustainable Fashion](#) is an initiative of United Nations agencies and allied organizations designed to contribute to the Sustainable Development Goals through coordinated action in the fashion sector. Specifically, the Alliance works to support coordination between UN bodies working in fashion and promoting projects and policies that ensure that the fashion value chain contributes to the achievement of the Sustainable Development Goals' targets.
- [ILO Code of Practice](#) on safety and health in textiles, clothing, leather and footwear industries: The International Labour Organisation brings together governments, employers and workers of 187 member States, to set labour standards, develop policies and devise programmes promoting decent work for all women and men. The Code of Practice provides comprehensive and practical advice on how to eliminate, reduce and control all major hazards and risks, including those related to chemical substances, ergonomic and physical hazards, tools, machines and equipment, as well as building and fire safety.
- [The Ethical Fashion Initiative \(EFI\)](#) is a flagship programme of the International Trade Centre, a joint agency of the United Nations and the World Trade Organization. EFI creates and strengthens social enterprises in emerging economies to connect international brands in fashion and interiors with talented local designers, artisans and micro-producers.

PR.3 Build the right external partnerships



Secondary stakeholders - additional examples

- Appendix A in the [UNEP Global Stocktaking Report](#) organises over 100 initiatives and organisations relevant to sustainability in the textiles sector. Many potential stakeholders listed above are found in the appendix. You may find other potential stakeholders for your target companies' value chains - and potential external partners for your eco-innovation work.
- [Green Science Policy Institute](#) works to prevent PFAS pollution by publishing research, making policy recommendations, and educating decision makers. PFAS (Per- and polyfluoroalkyl Substances) are a class of highly persistent industrial chemicals used in many industries, including textiles.

PR.4

Identify sustainability hotspots across the value chain

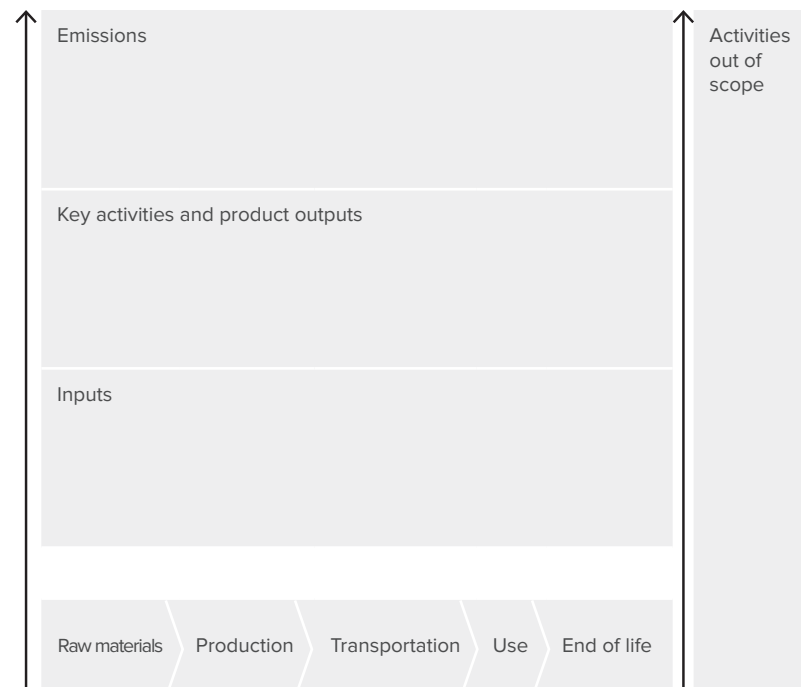


ORIENTATION

The first step suggested in the Eco-innovation Manual for this activity is to create a life cycle inventory as a way to identify potential hotspots. The explanation of textile life cycle activities in the introduction section of this supplement gives you a foundation for creating the life cycle inventory. As an additional input, the [UNEP Global Stocktaking report](#) is largely dedicated to identifying and mapping textile value chain hotspots at an aggregated global level.

You will apply these inputs to your target company or companies. There can be significant differences between aggregate global impact assessments and local country or regional assessments. Several factors not related to country or region, including the type of product and how it is produced, can have both positive and negative environmental and social impacts.

Template of Life Cycle Inventory

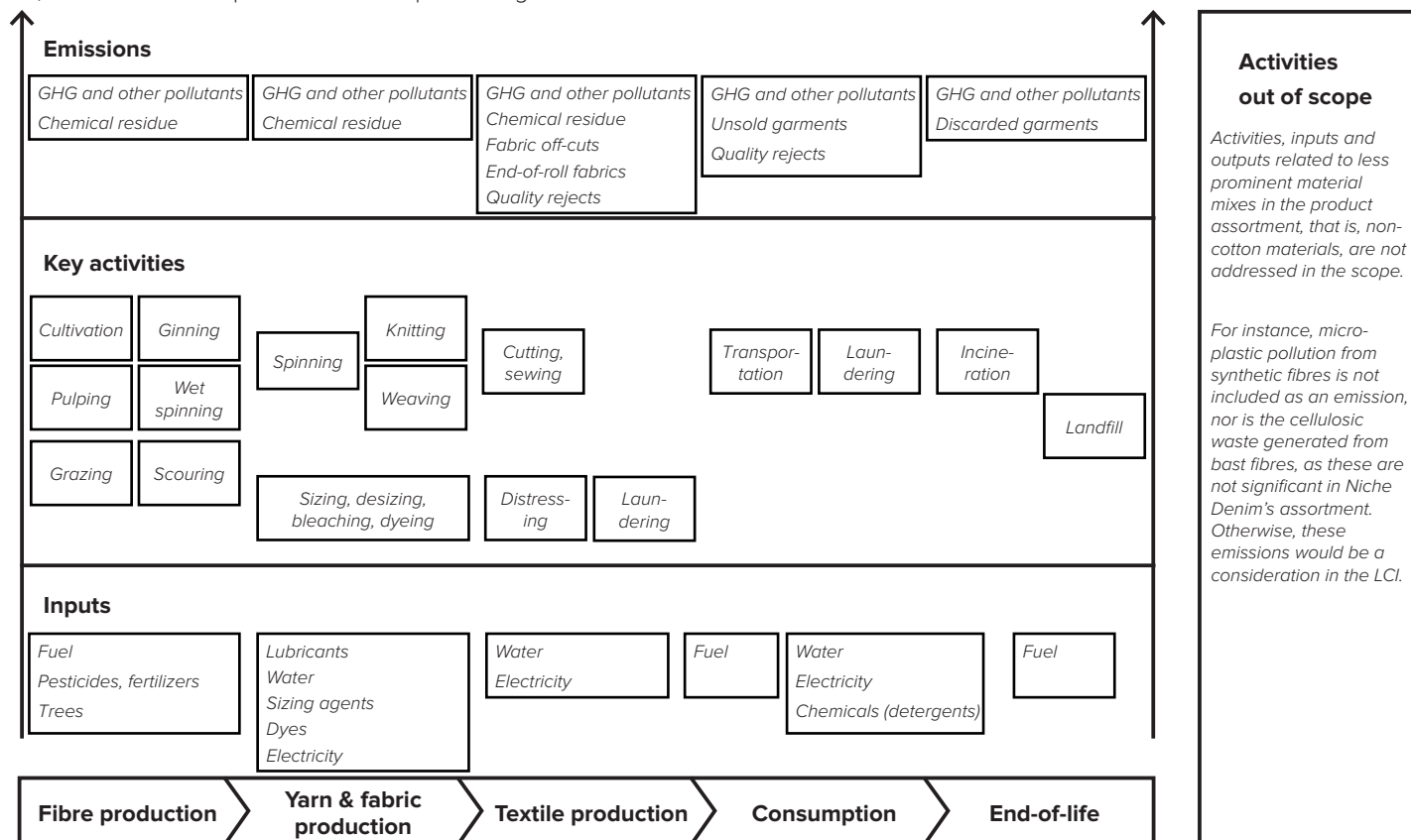


PR.4 Identify sustainability hotspots across the value chain



LEARNING CASE STUDY - NICHE DENIM: LIFE CYCLE INVENTORY

In their initial review, Resilient Futures identified that the key production activities and associated impacts are largely related to the cotton-intensive nature of Niche Denim's product assortment, as well as the uniqueness of denim processing.



PR.4 Identify sustainability hotspots across the value chain



LEARNING CASE STUDY - NICHE DENIM: LIFE CYCLE THINKING - HOTSPOTS

Furthering their review process, Resilient Futures listed environmental, social and economic impacts for Niche Denim's value chain. Within those, they identified a preliminary set of high priority hotspots for the case of Niche Denim, marked in the table with '(H)'. These will help guide the subsequent strategy setting phase.

Phase	Activity	Environmental impacts	Social impacts	Economic impacts
Fibre production	Cotton agriculture	Water use, particularly in water scarce regions in Turkey, where irrigation (vs. naturally rainfed cotton) is the practice (H) Ecosystems quality: the cotton sourced as conventionally grown, which applies synthetic fertilizers and pesticides (organic certification forbids their use) (H)	Reports of refugees exploited for seasonal harvesting (M) Agrochemicals used in cotton cultivation; risk of worker injury and exposure to toxins and hazards (M)	Risk of corruption and fragility in the legal system (L)
Yarn & Fabric Production	Yarn dyeing	For denim fabric, the warp - or 'surface' threads are dyed traditionally using a water intensive dip dyeing process (M)	Unsafe working conditions and fragility of the legal system (leading to human health impacts and social risks) (L)	Risk of corruption and fragility in the legal system (L)
Textile Production	Cut & sew	The wasteful cutting practices which lead to high levels of textile waste generation (H)	While factory wages meet minimum legal requirements, advocacy groups are reporting significant gaps with what is considered a basic living wage in the region (H)	Risk of corruption and fragility in the legal system (L)
Textile Production	Washing / finishing	Denim garments are washed and treated with a variety of techniques to achieve the characteristic worn looks. Water use is high, and some of the treatments are chemically intensive and require strong substances, e.g. potassium permanganate (H)	Cases of factory workers suffering health issues because of exposure to strong chemical compounds like potassium permanganate (M)	Quality challenges in the finishing process resulting in high rejection rates and high material loss (M)

PR.4 Identify sustainability hotspots across the value chain



LEARNING CASE STUDY - NICHE DENIM: LIFE CYCLE THINKING - HOTSPOTS

Phase	Activity	Environmental impacts	Social impacts	Economic impacts
Consumption	Clothing care: washing	High use of electricity and water in the care of jeans over their lifetime (fossil fuels used for energy production, leading to climate, human health and ecosystem quality impacts) (H)		
End-of-Life	Disposal	Low rates of recovery of textiles at end-of-life leading to non-renewable resource depletion (L)		<p>The flagship jeans products are subject to damage from use, and as cotton products, they are subject to unwanted damage, though generally minor. Customers are quick nonetheless to discard them and turn to the (competitive) market for new jeans. This is seen both as a loss of value and a risk to market share (M)</p> <p>Low rates of recovery of textiles at end-of-life leading to high material value loss (L)</p>

PR.4 Identify sustainability hotspots across the value chain



TIPS & TRICKS

A number of resources are available for exploring potential life cycle impacts and issues, including:

- The UNEP report Sustainability and Circularity in the Textile Value Chain, Global Stocktaking, in particular chapter 2, The Textile Value Chain and its Hotspots, pp 11-39. [UNEP Global Stocktaking Report](#)
- MDPI supports academic communities with scholarly open access publishing, and can be a source for you to find freely accessible 'open access' scientific journal articles within the textiles sphere through keyword searches such as 'hotspots' or 'life cycle analysis'. <https://www.mdpi.com/>. ScienceDirect is another such service: <https://www.sciencedirect.com/>
- Hosted by UNEP, the Life Cycle Initiative is a public-private, multi-stakeholder partnership enabling the global use of credible life cycle knowledge by private and public decision makers. Of particular interest is the Sustainable Consumption and Production Hotspots Analysis Tool (SCP-HAT). <https://www.lifecycleinitiative.org/new-hotspots-tool-pinpoints-unsustainable-consumption-and-production/>
- The Global LCA Data Access network (GLAD) is a comprehensive directory of Life Cycle Assessment (LCA) datasets - which in the future will include textile life cycle data - from independent LCA database providers, from around the world. <https://www.globalcadataaccess.org/about>. Similarly, Nexus is an online repository for LCA data: <https://nexus.openlca.org/databases>
- The Mistra Future Fashion Fibre Bible compiles and analyses all available data on the environmental impact of textile fibers: <http://mistrafuturefashion.com/shifting-the-focus-from-fiber-to-process/>
- ChemSec's Chemical Management Guide for textiles offers a three step process - including 'Find the hot spots in your product portfolio' - towards a product free of hazardous chemicals: <https://textileguide.chemsec.org/>. Note, the Chemical Management Guide includes a step-by-step approach for substituting hazardous chemicals (Step 3 Act on hazardous chemicals in your supply chain - Substitution in Practise) which if not done carefully could risk prolonging or even worsening potential hotspots.

PR.4 Identify sustainability hotspots across the value chain



Included in the Guide is also a helpful overview of common chemical groups used in textiles, summarised here:

<p>Solvents are usually a liquid used to dissolve substances or materials, such as pigments, in a solution, such as dye. Solvents are used in several stages throughout the production process. Water can often be used as a solvent, but it cannot be used for everything. Different types of organic solvents are often required. Many of them are hazardous when inhaled or in contact with skin.</p> <p>Solvents are often used in large quantities, both in the production process and in the cleaning of the machinery. Many solvents are also flammable and some are explosive.</p> <p>Among the solvents that are hazardous to human health are trichloroethylene, benzene and methanol.</p>	<p>Biocides and pesticides are used to prevent living organisms from thriving on products. Biocides can be used to prevent anything from bacterial growth to grazing by large animals, and are designed to be hazardous for the target organisms. Developing biocides that will not harm other organisms, including humans, presents great challenges.</p> <p>Pesticides are a type of biocide used to defend crops from damage by insects, mould and weeds. Residues of pesticides can therefore be present in fibres such as cotton or linen.</p> <p>Biocides can also be used during manufacturing, transportation or to give the end product antibacterial properties. Mould inhibitors may be used to provide protection during transportation or storage of wet goods.</p> <p>Hazardous pesticides include atrazine, mirex and DDT. Problematic biocides that may be used in final textile products are triclosan and nano-silver.</p>
<p>Flame retardants are used to make a product less flammable. Depending on national regulations, flame retardants may be required in a product. Examples of such products are protective clothing, curtains and fabrics used in furniture, to name a few.</p> <p>Some of the currently used flame retardants, especially halogenated versions, have been shown to have hazardous properties and some are subject to international and/or national regulations.</p>	<p>Plasticisers and phthalates are used to soften plastics. For textile applications, such as screen printing and coating of fabrics, PVC first needs to be softened.</p> <p>One common group of plasticisers is phthalates, which are being used in large quantities to print as much as 30-60% of the total composition. Several phthalates have hazardous properties, such as toxicity to reproduction.</p> <p>Because phthalates are not chemically bound to the PVC but can leak out, users are likely to be exposed to and ingest the phthalates from the textile, for example through fiber dust. Children can get exposed when chewing on the printed textile.</p>

PR.4 Identify sustainability hotspots across the value chain



Dyes/pigments are used to give a desired colour or whiteness. A frequently used dyeing method is dyeing in excessive quantities, and large amounts are hence discharged into wastewater. Some dyes, including azo dyes, can be very toxic and are often persistent, which is a desired property on the fabric but not in the environment.

Dyes may also contain heavy metals such as lead or cadmium, which are very hazardous. Optical whiteners on cotton are often only loosely bound to the fibre and easily wash off.

Surfactants may act as detergents, wetting agents, emulsifiers, foaming agents, dispersants, softeners and antistatic agents and are used in many stages of the textile process. Commonly used surfactants are alkyl phenol ethoxylates, which are problematic since they are endocrine disruptors and can interfere with the hormone systems of mammals. Commonly used softeners intentionally applied to fabric are DHTDMAC, DSDMAC and DTDMAC.

Water and soil repellents are popular for fabrics that are used outdoors. A way to achieve repellency is to impregnate the fabric with fluorinated or perfluorinated compounds. Some of these substances, including PFOA and PFOS (sometimes called C8 technology), have been known for many years to have hazardous properties. This has led to the increased use of other perfluorinated substances.

However, many of these (including those sometimes known as C6 or C4) have been shown to have problematic properties as well.

PR.5

Identify the general opportunities and threats across the value chain



ORIENTATION

This activity in the eco-innovation methodology aims to identify macro trends and external issues that will or could have an impact on your target value chain, be it a general threat or an opportunity. As stated in the manual, a PESTEL analysis is often used by a company to scan their environment for emerging issues, and involves searching for significant issues or trends related to the headings: political, economic, social, technological, environmental and legal (PESTEL). A rough assessment is then made to determine how significant the respective issues are for the company, addressing their likelihood and timing (as reflected in the template headings). The PESTEL is also a useful tool for you to convince your potential textile company clients to engage in eco-innovation.

Template of PESTEL

	Definition	Prompting questions
Political		
Economic		
Social		
Technological		
Environmental		
Legal		

PR.5 Identify the general opportunities and threats across the value chain



LEARNING CASE STUDY - NICHE DENIM: OPPORTUNITIES AND THREATS

Using the PESTEL prompts as a guide, Resilient Futures started its search for trends and issues of importance to Niche Denim and its value chain. This included research into denim and cotton in India, the EU and Turkey. In a next step, Resilient Futures started to search more broadly and globally for upcoming apparel and fashion news. As suggested in the manual, several potential sources have been investigated, including:

- Government websites
- Professional networking websites
- Academic and private research centres
- Trade publications

Among the many helpful references Resilient Futures found were the Ellen MacArthur Foundation Jeans Redesign research collaboration (2021), Circle Economy's Circle Textiles Programme Denim Alliance (2018), Global Fashion Agenda (2021), the UNECE initiative for Traceability and Transparency in Garment and Footwear Value Chains (2021), and Fashion for Good (2021).

To explore the significance of the assembled trends and issues, the aspects recommended in the manual were assessed:

- **Time:** When will the issue start to have an impact on the value chain? 'Within 6 months', 'Within 2 years', or 'More than 2 years' time'
- **Impact:** What level of impact could the issue have on the value chain? Scale from 1-5 where: 1 = Potential to create limited change within a limited part of the value chain, and 5 = Potential to revolutionise or destroy the entire value chain.
- **Likelihood:** How likely is it that the issue will have an impact on the value chain? Scale from 1-5 where: 1 = Very unlikely, and 5 = Very likely.
- **Significance for the value chain:** Impact x Probability

PR.5 Identify the general opportunities and threats across the value chain



LEARNING CASE STUDY - NICHE DENIM: PESTEL

	Description	Timing (months)	Impact	Likelihood	Significance
Political	EU and India to restart the long-halted free trade agreement (FTA): The agreement has been suspended since 2013; the restart will pave the wave for lower tariffs, potentially even duty free (Apparel Resources, 2021).	0-6	2	5	10
	Import of used textiles: The National Committee on Textiles and Clothing (NCTC) in India has urged the Indian government to stop the import of used clothes from China, Bangladesh and Indonesia to protect the domestic textile industry (Fibre-2Fashion, 2019).	7-24	1	5	5
	Textiles among prioritised sectors for EU: The European Green Deal, the Circular Economy Action Plan and the Industrial Strategy identified textiles as a priority sector in which the EU can pave the way towards a carbon neutral, circular economy, and announced an EU Strategy on textiles.	7-24	3	5	15
	Impetus on supporting and promoting the traditional Indian artisanal sector: The Ministry of Textiles constituted Handloom Promotion Council to provide support and guidance, trade promotion and marketing.	7-24	1	5	5
	Extended Producer Responsibility: The European Waste Framework Directive (WFD) requires that all EU Member States collect textiles separately by 2025 at the latest. In at least some jurisdictions, this is likely to entail that responsibility for waste management and recycling of textiles will be placed on the producers, based on the polluter pays principle.	7-24	3	5	15
	Repair and reuse: The WFD also requires EU Member States to promote repair and re-use of textiles.	7-24	2	5	10
Economic	Growing market for denim jeans: The global market for denim jeans, estimated at US\$63.5 billion in the year 2020, is projected to reach a revised size of US\$87.4 billion by 2027, growing at 4.7% over the period 2020-2027 (Research and Markets, 2020).	0-6	1	4	4
	Significant growth projected for the secondhand apparel market. Projected to double in the five years 2021 - 2025, reaching US\$77 billion (ThredUp, 2021).	0-6	5	4	20
	Growing array of service providers enabling recommerce: the market offering brands third party services for resale platforms (e.g. ThredUp), refurbishment (e.g. Renewal Workshop, Targus), fulfillment (e.g. Trove) and rental (e.g. Caastle) is rapidly evolving, offering brands effective means of establishing circular business services.	7-24	3	3	9

PR.5 Identify the general opportunities and threats across the value chain



LEARNING CASE STUDY - NICHE DENIM: PESTEL

	Description	Timing (months)	Impact	Likelihood	Significance
Social	Growing interest/demand for transparency: Fashion consumers increasingly expect companies to be transparent about how, where and by whom their products are made. In a culture where social media drives the consumer dialogue, not addressing these expectations can have a direct impact on brand value (Global Fashion Agenda, 2019).	7-24	2	5	10
	The power imbalance between brands and suppliers - and denim suppliers in particular - is being increasingly called out. The power differential became even more exposed by the COVID-19 crisis and allowed brands, retailers, and importers to walk away from their contracts with suppliers without almost any consequence (Transformers Foundation, 2020).	7-24	3	3	9
	Prevailing stigmas and negative connotations among consumers: The concept of circularity is an abstract idea to most consumers and terms such as recycled, upcycled, repaired and refurbished still have negative connotations (McKinsey, 2021).	0-6	2	3	6
Legal	Potential legislation to curb greenwashing: The European Green Deal states 'Companies making 'green claims' should substantiate these against a standard methodology to assess their impact on the environment'. The 2020 Circular Economy action plan commits that 'the Commission will also propose that companies substantiate their environmental claims using Product and Organisation Environmental Footprint (PEF and OEF) methods.'	7-24	2	5	10
	Mandatory Human Rights Due Diligence: the European Parliament adopted a legislative initiative report proposing a mandatory corporate due diligence obligation to identify, prevent, mitigate and account for human rights violations and negative environmental impacts in business' supply chains.	7-24	2	5	10
	EU member state Sweden to launch chemical tax on clothing: The Swedish government announced its intentions to introduce a chemical tax on clothing and footwear with rollout in 2022. The tax proposal is intended to phase out hazardous chemicals in order to reduce health problems for consumers that are exposed to the chemicals, to reduce environmental impact arising during manufacture, washing and waste, and to increase the quality of recycled materials. The tax will apply to all clothing and footwear that are produced or imported into Sweden from abroad - with the exception of certain protective clothing and toys - and for which the absence of hazardous chemicals cannot be proven.	7-24	3	4	12

PR.5 Identify the general opportunities and threats across the value chain



LEARNING CASE STUDY - NICHE DENIM: PESTEL

	Description	Timing (months)	Impact	Likelihood	Significance
Environmental	Limited availability of organic cotton: Commercial participants in the Ellen MacArthur Foundation Jeans Redesign project report that limited market availability for organic cotton along with premium prices are significant barriers to scaling (EMF, 2021).	0-6	4	3	12
	Microfibres: The textiles industry is becoming increasingly aware of the issue of fibre fragmentation and its potential as a serious environmental polluter, with a growing body of scientific literature related to the presence of textile fibre fragments in aquatic and atmospheric environments, associated emission routes, and potential consequences. Microfibres have a tendency to be carriers for other harmful chemicals and can enter the food chain through ingestion by aquatic life, or through inhalation of airborne fragments. The concerns are not only relevant for synthetic fibres (microplastics) but for natural fibres as well (Microfibre Consortium, 2021).	7-24	4	4	16
	Emissions Trading Scheme (ETS): The Gujarat Pollution Control Board launched in 2019 a large-scale pilot programme to curb particulate pollution in Surat, Gujarat, primarily a textile cluster.	7-24	3	4	12
	EU member state France to launch mandatory carbon labelling: France's parliament approved in 2021 an expansive climate bill that will introduce mandatory 'carbon labels' for goods and services, including clothing and textiles, as part of an effort to inform consumers about the environmental impact of their purchasing decisions.	7-24	2	5	10
Technical	Growing rate of innovation in denim dyeing and finishing: Legacy processes for dyeing and finishing denim fabrics and products are being replaced with innovative, low-impact production methods, including e.g. ozone bleaches, laser and enzyme treatments (FashionUnited, 2021).	0-6	4	4	16
	Expanding array of solutions for digital tagging and product-level traceability: From embedded markers in fibres, to block-chain-based data ledgers, to product-level identifiers, a range of innovative techniques and solution providers have been introduced over recent years for digitally storing information on products, with several collaborations along textile value chains launched for piloting and scaling up. UNECE and Fashion for Good are examples of organisations with coordinating roles.	0-6	4	3	12

PR.5 Identify the general opportunities and threats across the value chain



TIPS & TRICKS

Two key challenges when developing a PESTEL analysis - and keeping it relatively current - are 1) establishing a time-effective process for scanning the external environment for macro trends and issues, and 2) identifying and selecting only the most significant trends and issues to focus on amongst the large volume and continuous stream of potential candidates, and filtering away all others. It can be tempting to include longstanding and established elements of the external environment that are important in shaping the context within which the company operates, but keep in mind that the trends and issues ultimately captured in your PESTEL analysis are intended to have particular meaning for setting the company strategy for innovation. A heavily populated PESTEL could prove overwhelming or distracting in the subsequent strategy setting activities.

If you are relatively new to the textile sector, it will of course be important for you to establish an initial familiarity with the topic, ultimately aligned with each of the PESTEL elements of political, economic, social, technological, environmental and legal aspects. If you are undergoing an initial process of learning about the sector, it could be a helpful exercise to early on begin assembling information you come across into PESTEL categories. The prompting questions for each PESTEL element in the manual may also be a helpful reminder of the types of information you should be on the lookout for. Following this approach, you would essentially create your own database from which to identify trends and issues of highest significance that can be lifted into the actual PESTEL analysis.

For your scanning process, websites to search could include more general media sources, such as NY Times, Forbes, The Guardian, Wired and local news websites. There are also useful databases where you can actively search for the information you need, such as Mintel, Statista, Euromonitor Passport or Marketline Advantage. Note that some of these databases require a pay-per-use subscription, and in some cases universities offer free access to these databases. Therefore, we recommend that you engage with universities in your country, as not only could they have access to a variety of data sources, but they may as well work with experts who have a comprehensive understanding of the country profiles of a specific sector, as is the case with textiles.

Textiles-specific news channels that could prove effective sources for you include Ecotextile News (<https://www.ecotextile.com/>) (note, while there is a paywall, there are often at least summaries for key headlines), Kyna Intel newsletter and platform (<https://kyna-intel.com/latest-news>), The Spin Off (<https://www.the-spin-off.com/news>) and The Business of Fashion (BoF) (<http://www.businessoffashion.com>). All of these sites publish routinely, and cover topics spread across all of the PESTEL categories. In many countries that have a prominent textile sector national or regional textile-focused news channels also exist.

A number of private, public and civil society organisations periodically publish textile related reports and analyses containing a wealth of relevant information that could inform your PESTEL analysis. Among the most relevant are:

- McKinsey & Co's annual State of Fashion report, which typically includes a list of perceived high-level global trends.
<https://www.mckinsey.com/industries/retail/our-insights/state-of-fashion>

PR.5 Identify the general opportunities and threats across the value chain



- Fashion For Good, particularly of interest for technology-related topics, which is likely the 'fasted paced' PESTEL category with new developments appearing almost continually. <https://fashionforgood.com/news/our-news/>
- The Global Fashion Agenda: <https://www.globalfashionagenda.com/>
- The Clean Clothes Campaign: <https://cleanclothes.org/news>
- UNEP via the One Planet Network: <https://www.oneplanetnetwork.org/value-chains/textiles>
- The Asia Garment Hub: <https://asiagarmenthub.net/>

In some cases, it can also be helpful to include non-textiles specific sources in your scanning process, for instance the UNEP Global Environment Outlook <https://www.unep.org/global-environment-outlook> and the OECD economic outlook <https://www.oecd.org/economic-outlook/>.

Finally, there may be relevant international conventions that - while not recent trends or issues - address specific chemical issues, often indirectly creating favourable conditions for innovation. These include:

- The Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and their Disposal (signed: 1989, entering into force: 1992)
- The Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides (signed: 1998, entering into force: 2004)
- The Stockholm Convention on Persistent Organic Pollutants (signed: 2001, entering into force: 2004)
- The Montreal Protocol on Substances that Deplete the Ozone Layer (signed: 1987, entering into force: 1989)
- The Minamata Convention on Mercury (signed: 2013, entering into force: 2017)

PR.5 Identify the general opportunities and threats across the value chain

References:

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- Transformers Foundation (2020). *The Denim Supply Chain Speaks Up*. <https://www.transformersfoundation.org/annualreport>
- United Nations Economic Commission for Europe [UNECE] (2021). *Traceability for Sustainable Garment and Footwear*. <https://unece.org/trade/traceability-sustainable-garment-and-footwear>

PR.6

Develop a value chain vision



ORIENTATION

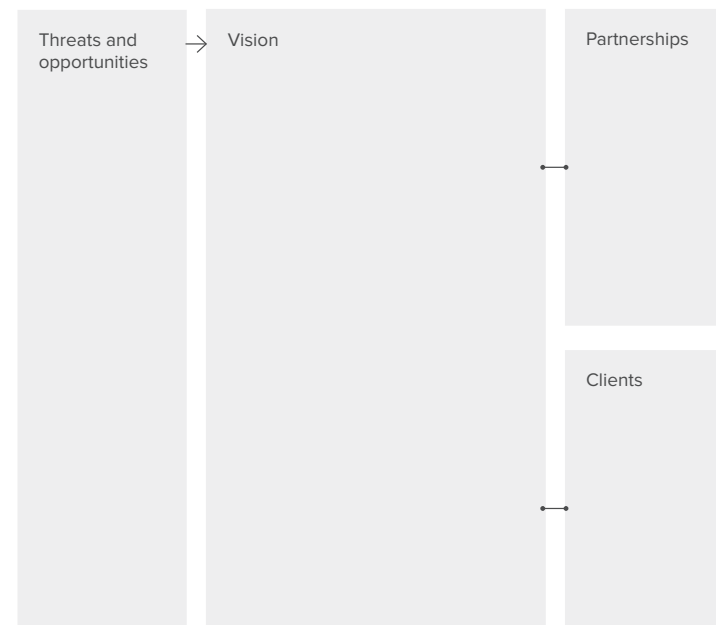
As outlined in the Eco-innovation Manual, developing a value chain vision encourages 'blue sky thinking' or open-minded thinking without constraints or limitations. This helps you establish a 'big picture' that can guide your activities with companies based on a shared vision for the value chain.

The Tips & Tricks box in the manual suggests investigating potential insights from existing vision statements of relevant organisations as a starting point and source of inspiration. The supplement provides a collection of visions articulated by a selection of key stakeholders identified in activity PR.3. These can provide inspiration as you prepare your own value chain vision for textiles.

Note that while the eco-innovation methodology suggests a five-to-ten-year horizon for vision statements, the examples provided in this section have longer or unspecified time horizons.

* To be recorded in the center Vision box in the suggested template

Template of Value Chain Vision

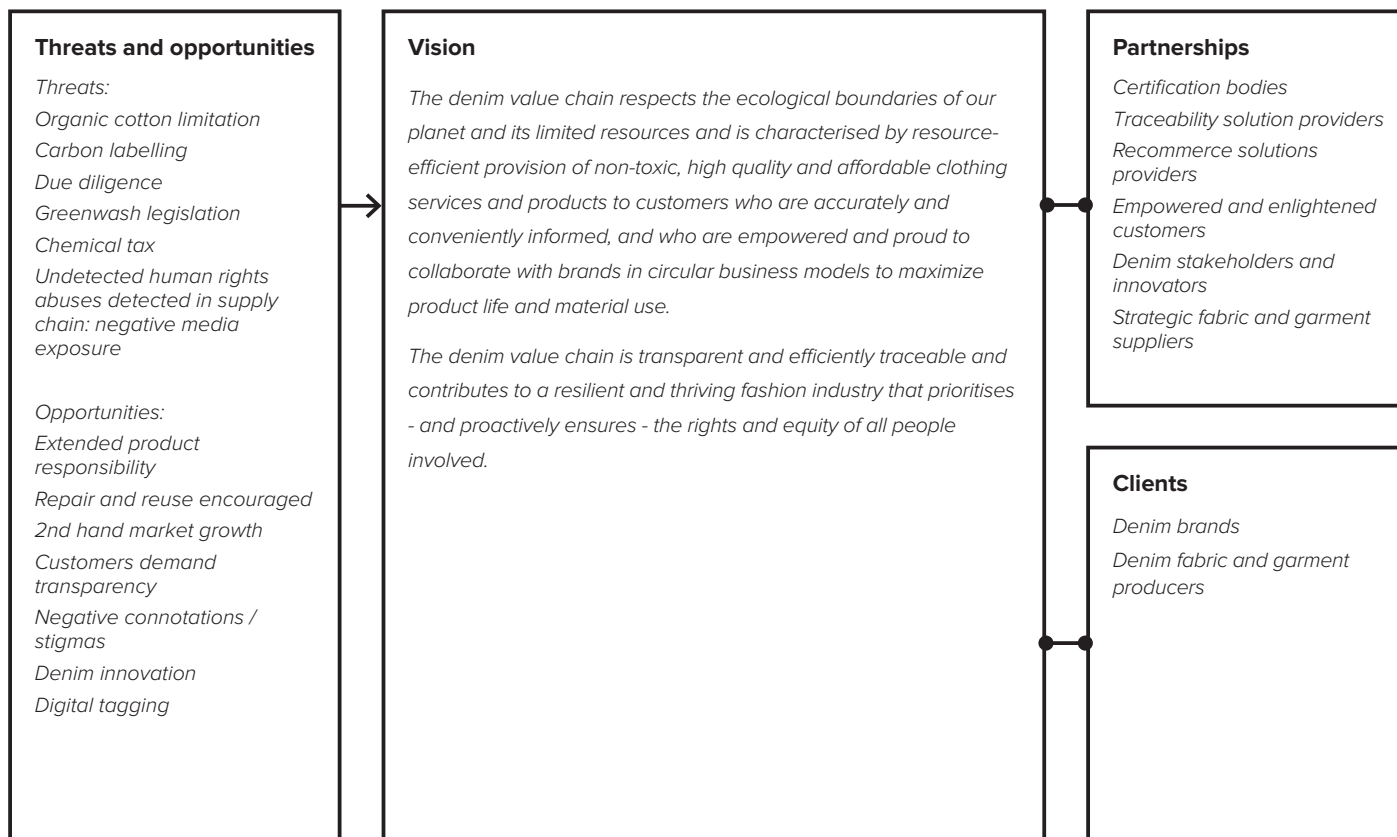


PR.6 Develop a value chain vision



LEARNING CASE STUDY - NICHE DENIM: VALUE CHAIN VISION

With an eye on the threats and opportunities captured in the PESTEL analysis for the learning case in PR.5, and with inspiration from established value chain visions, service provider Resilient Futures has formulated a vision for the denim value chain as follows:



PR.6 Develop a value chain vision



TIPS & TRICKS

Reference vision statements

Circularity is a key means by which to achieve sustainability. It provides a model to transform the current linear textile economic model towards a sustainable future. It requires governments, businesses and consumers to look beyond the current 'take-make-use-dispose' extractive industrial model, and to redefine growth, focusing on positive society-wide benefits. Circularity's underlying objective is to keep materials at their highest possible value as they move within the textile value chain. This reduces and disconnects the use of natural resources and environmental impacts from the economic activity of the textile industry, while continuing to enable improvements in human wellbeing.

Figure 6 shows how circularity goes beyond just recycling fibres to include a number of 'value retention loops' (UNEP, 2020). Consumers seek to **re-use** and keep their garments in use, and to reduce consumption levels by choosing to **refuse** unnecessary purchases. Consumers also seek to **repair** garments, either on their own or using commercial services. Commercial actors further eliminate waste by either **repurposing** discarded products and materials into products of value or **recycling** them to raw material inputs. A circular value chain also applies an overarching **reduce by design** approach, which ensures that upstream design decisions are made to help reduce waste, resource use and environmental impact in later stages such as production and end-consumer use. Production and consumption patterns of textile products, as well as end-of-life processes, are optimised through innovative product designs and business models, which aim to eliminate harmful impacts and unnecessary waste.

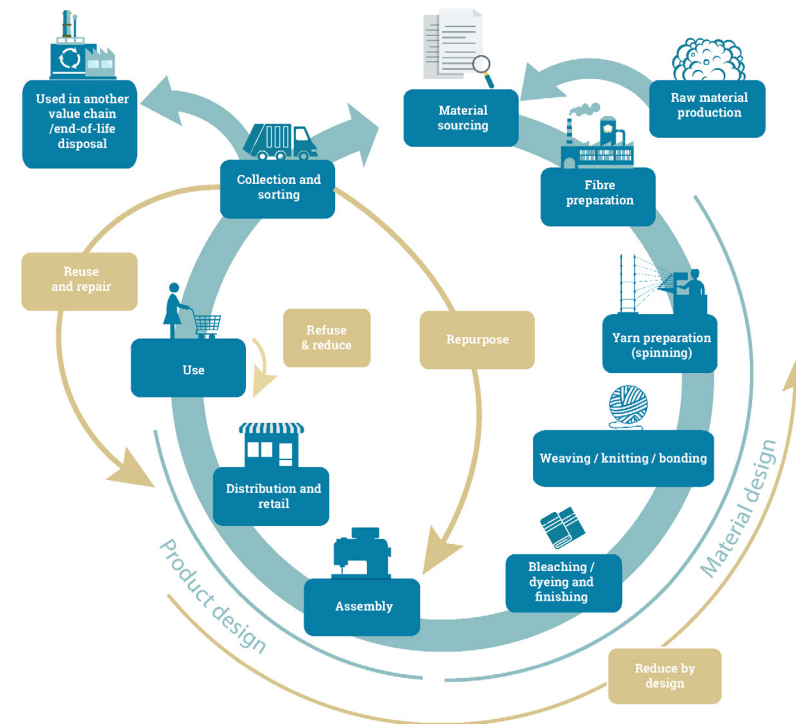


Figure 6: Representation of Activities in a Circular Textiles Value Chain (UNEP, 2020)

PR.6 Develop a value chain vision



In January 2019, **UNEP** facilitated an expert multi-stakeholder consultation workshop that led to a shared vision of a sustainable and circular textile value chain. As shown in Figure 7, a circular textile industry is resource-efficient and renewable resources-based. It produces non-toxic, high quality and affordable clothing services and products, while providing safe and secure livelihoods.

In their 'Vision of a circular economy for fashion' (2021) **The Ellen MacArthur Foundation** explains: 'For fashion, a circular economy means ensuring that products ... are used more, are made to be made again, and are made from safe and recycled or renewable inputs. A circular economy for fashion creates better products and services for customers, contributes to a resilient and thriving fashion industry, and regenerates the environment. ... the rights and equity of all people involved in the fashion industry are prioritised. The circular economy for fashion creates new opportunities for growth that are distributed, diverse, and inclusive. This vision offers a target state to innovate towards.'

While not specifically articulated as a vision, the **World Wildlife Foundation (WWF)** offers the following in its report 'Changing fashion - The clothing and textile industry at the brink of radical transformation': 'The clothing and textile industry needs to find a modus operandi which allows it to respect the ecological boundaries of our planet and its limited resources, for example regarding climate change, biochemical flows, freshwater use and pollution. This would enable the clothing and textile industry to contribute to a future in which humans live healthy lives in harmony with nature, without overusing resources or polluting more than the planet can take.'

Finally, **Fashion for Good** articulates its vision simply and clearly as The Five Goods (2021): '*The Five Goods represent an aspirational framework we can all use to work towards a world in which we do not simply take, make, waste, but rather take, make, renew, restore.*'

Good fashion is not fashion that simply looks good or is mostly good. It is good in five important ways:

Good Materials - safe, healthy and designed for reuse and recycling

Good Economy - growing, circular, shared and benefiting everyone

Good Energy - renewable and clean

Good Water - clean and available to all

Good Lives - living and working conditions that are just, safe and dignified

By 2040 the textile sector will achieve circularity through

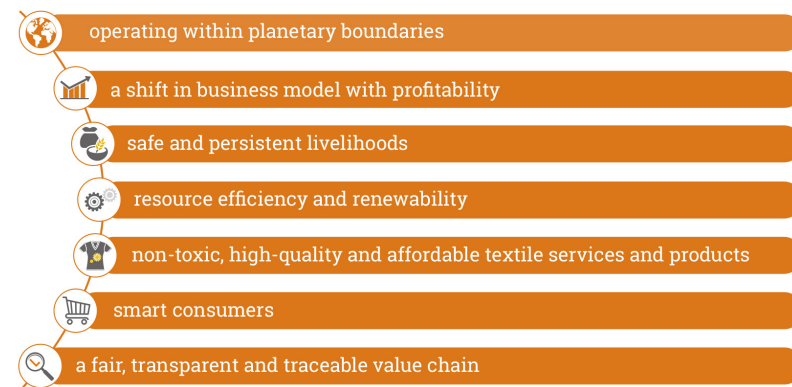


Figure 7: Vision for a Sustainable and Circular Value Chain (UNEP, 2020)

PR.6 Develop a value chain vision



Reference vision statements: synthesis

From these visions, certain vision statement elements can be extracted to help form the basis for your own value chain vision:

Elements	UNEP Stocktaking	EMF	WWF	Fashion for Good
Resources	Resource-efficient and renewable resources-based	Regenerates the environment		Good Materials - safe, healthy and designed for reuse and recycling Good Energy - renewable and clean Good Water - clean and available to all
Products	Producing non-toxic, high quality and affordable clothing services and products	Creates better products and services for customers		
Livelihoods	Providing safe and secure livelihoods	Contributes to a resilient and thriving fashion industry	Humans live healthy lives in harmony with nature	Good Water - clean and available to all Good Economy - growing, circular, shared and benefiting everyone Good Lives - living and working conditions that are just, safe and dignified
Business models	A shift in business model towards more circularity			Good Economy - growing, circular, shared and benefiting everyone

PR.6 Develop a value chain vision



Reference vision statements: synthesis

From these visions, certain vision statement elements can be extracted to help form the basis for your own value chain vision:

Elements	UNEP Stocktaking	EMF	WWF	Fashion for Good
Consumers	Informed consumers			
Equity	Fair, transparent and traceable value chains	Prioritises the rights and equity of all people involved in the fashion industry Creates new opportunities for growth that are distributed, diverse, and inclusive		Good Economy - growing, circular, shared and benefiting everyone
Limits	Must operate within planetary boundaries		Respect the ecological boundaries of our planet and its limited resources	

PR.6 Develop a value chain vision



Additional input & inspiration

- The **UNEP Circularity Platform** provides an understanding of the circularity concept, its scope and how it contributes to promoting sustainable consumption and production patterns. The UNEP circularity approach is not sector-specific, but the platform has a textile specific section, and is oriented around nine value retention processes - The '9 Rs'- contributing to circularity: Reduce by design, Refuse, Reduce and Re-use, Repair, Refurbish and Remanufacture, Repurpose and Recycle.
<https://www.unep.org/circularity>
- The vision of the **UNFCCC** Fashion Industry Charter for Climate Action is a net-zero GHG emissions fashion industry no later than 2050 in line with keeping global warming below 1.5 degrees Celsius. This embraces a target of 30% GHG emissions reduction by 2030 by, among other policies, supporting the movement towards circular business models.
<https://unfccc.int/climate-action/sectoral-engagement/fashion-for-global-climate-action>
- The **Fashion Pact** is a global coalition of companies in the fashion and textile industry (ready-to-wear, sport, lifestyle and luxury) including their suppliers and distributors, all committed to a common core of key environmental goals in three areas: stopping global warming, restoring biodiversity and protecting the oceans. Launched as a mission given to Kering Chairman and CEO, François-Henri Pinault by French President, Emmanuel Macron, the Fashion Pact was presented to Heads of State at the G7 Summit in Biarritz.
<https://thefashionpact.org/>
- **Textiles 2030** is a voluntary agreement in the UK, to be funded by its signatories and government. Signatories will collaborate on carbon, water and circular textile targets, and also contribute to national policy discussions with UK governments to shape Extended Producer Responsibility and other critical regulatory developments.
<https://wrap.org.uk/taking-action/textiles/initiatives/textiles-2030#>

PR.6 Develop a value chain vision



Ellen MacArthur Foundation's 'Vision of a circular economy for fashion': While at a deeper level of detail than a typical vision statement, the EMF vision document unpacks the pillars of its vision as follows, which could offer further constructive insight:

USED MORE

- Business models that keep products at their highest value, like rental and e-commerce, are the norm across the industry, decoupling its economic development from resource consumption.
- Products are designed and manufactured to last, and align with the business model that will deliver them (for example, in rental models, considering the durability and ability to repair the products).
- Businesses empower users with the necessary knowledge, tools, and services to maintain the physical and emotional appeal of their products.
- All products that are made are used. Excess inventory is minimised and is never destroyed.
- Where relevant, products are enhanced or replaced by virtual alternatives such as digital collections or virtual showrooms.

MADE TO BE MADE AGAIN

- Products and their materials are designed and manufactured to be disassembled so that they can be reused, remade, recycled, and - where relevant, and after maximum use and cycling - safely composted.
- Landfill, incineration, and waste to energy are not part of a circular economy.
- Packaging is minimised, and is made from reusable, recyclable, or compostable materials.
- Products are in practice collected and sorted to be reused, remade, recycled, and - where relevant and after maximum use and cycling - composted.
- Businesses contribute to support infrastructure, commensurately with what they put on the market, to ensure their products are collected and reused, remade or recycled in practice.
- Governments support effective collection infrastructure, facilitate the establishment of related self-sustaining funding mechanisms, and provide an enabling regulatory and policy landscape.

MADE FROM SAFE AND RECYCLED OR RENEWABLE INPUTS

- The health of people and ecosystems is protected by ensuring:
 - Products and their materials are free from hazardous substances.
 - Production and use of products do not discharge hazardous substances into the environment.
 - Microfibres that may cause harm are prevented from reaching the environment, either by design or collection.
- Production, supply chain practices, and technologies ensure the effective use of resources, for example by optimising the use of water, energy, chemicals, and materials.
- Production (including inputs used during manufacturing and processing) is fully decoupled from the consumption of finite resources:
 - The need for virgin resources is minimised by increasing the use of existing products and materials.
 - Production by-products are minimised, and where unavoidable, are treated as valuable materials.
 - Post-consumer recycled content is used both to help decouple from finite feedstocks and to stimulate demand for collection and recycling.
 - Where virgin input is needed it is from renewable feedstocks sourced using regenerative production practices.
 - The manufacturing, distribution, sorting, and recycling of products is powered by renewable energy.

PR.6 Develop a value chain vision

References:

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UNEP (2020). *Sustainability and Circularity in the Textile Value Chain: Global Stocktaking*.

World Wildlife Foundation (2017). *Changing fashion: The clothing and textile industry at the brink of radical transformation: Environmental rating and innovation report*

https://www.wwf.ch/sites/default/files/doc-2017-09/2017-09-WWF-Report-Changing_fashion_2017_EN.pdf

PR.9

Pitching the benefits of eco-innovation to the CEO

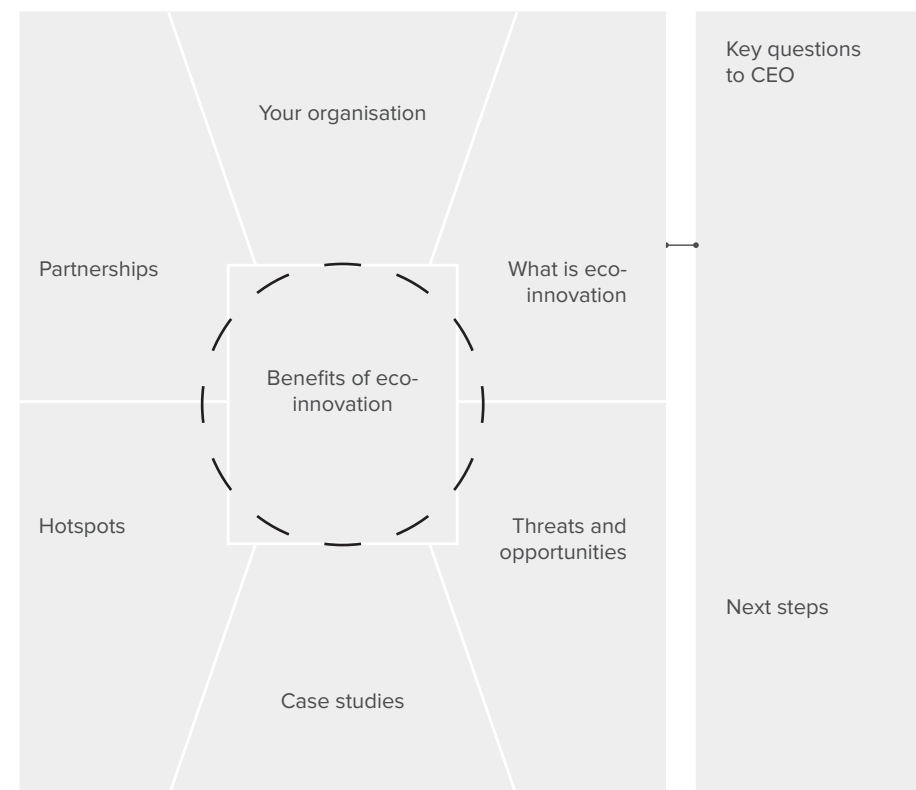


ORIENTATION

For this activity, the eco-innovation methodology calls for a pitch to company leadership to 'discuss the potential business benefits for the company of eco-innovation'. These will provide the important key messages for the center focal point of the suggested template.

This section explores potential considerations for pitching eco-innovation business benefits to a B2C apparel brand, using Niche Denim as an example.

Template of Initial Pitch to CEO



PR.9 Pitching the benefits of eco-innovation to the CEO



LEARNING CASE STUDY - POTENTIAL BENEFITS OF ECO-INNOVATION

For a B2C apparel brand, the following considerations would be important to keep in mind when pitching benefits to its leadership team:

Do the innovations have the potential to appeal to customers? As is typical for B2C apparel brands, customers have an emotional attachment and a connection to personal identity with Niche Denim's products. The products are also 'close to skin' and therefore carry an association to health and safety.

Therefore, any innovations that help the customer feel better about the product, while also being easy to explain without distracting from core product communications, would be of interest. At the same time, the denim market is crowded, and there are many sustainability messages from competing brands, so promoting innovations that are relatively unique to this market and can capture the imagination of the customer would be important.

As Niche Denim's products are more expensive than mainstream denim brands, innovations that may considerably increase the retail price are risky, unless consumers could be convinced that the higher price was worth it, such as innovations that would increase the sense of long-term value and reduced cost of ownership.

Will innovations be interesting to supply chain partners? As an SME, Niche Denim is a minor customer among the many brands sourcing products from the same factories. While Niche Denim has good collaborative relationships with its key suppliers, any new initiatives or requirements will need to offer clear benefits for the suppliers. This may simply be in the form of an increased unit price paid to the supplier but could also be, for instance, higher efficiencies, lower resource and production costs, increased worker satisfaction, and/or increased capabilities toward all brand customers. Better relationships with their suppliers could help preempt social risks and therefore risks to Niche Denim's reputation. Eco-innovative business models that offer such opportunities are of high interest.

Can innovations be delivered and/or communicated through wholesale partners? While Niche Denim operates a network of own stores, a significant part of its product sales are generated through wholesale channels (through multi-brand retailers). This is common for SMEs. In these cases, Niche Denim typically has limited opportunities to influence how products will be presented and communicated, as retailers usually have a relatively standard approach for all brands carried. Thus, innovations with a high reliance on retail store activity could be of lower interest.

Can eco-innovation lead to meaningful product innovation and differentiation? Niche Denim is known for its focus on craftsmanship and stands out through innovation in denim styles. Niche Denim leadership would be interested in exploring how applying eco-innovation to its products could give a competitive advantage.

Can staff contribute meaningfully without being overburdened? Niche Denim invests in a knowledgeable workforce both at its headquarters and at its stores. Recruiting, training and wages are among Niche Denim's key costs. Employee turnover is relatively low, even though demand and competition for resources is relatively high. Therefore, innovations that would resonate with and engage the workforce, offer new skills and enhance satisfaction and loyalty, while at the same time not introducing excessive time requirements, would also be of interest.

Can eco-innovations help to preempt risks stemming from NGO campaigns and/or investigative journalism? While SMEs like Niche Denim typically are not specifically targeted by NGO / industry watchdog campaigns or media stories, consumers will still be exposed to their messages. Innovations linked to Niche Denim's value chain that could yield authentic and forward-thinking messages around topics that the public are aware of are of potentially high interest.

PR.9 Pitching the benefits of eco-innovation to the CEO



TIPS & TRICKS

It may be helpful to pursue company cases where eco-innovation has been implemented and explore the nature of benefits reported as possible input to your CEO pitch. The [Business Case for Eco-Innovation from UNEP](#) expands on the drivers for eco-innovation presented in the manual (p. 18) and [illustrates these drivers with case examples](#).

While not specifically linked to eco-innovation, the World Business Council for Sustainable Development (WBCSD) regularly publishes [CEO Guides](#) to bring a high-level perspective to issues that have an impact on business while highlighting risks and opportunities. Among the topics that could be helpful are guides on circular economy, and on the Sustainable Development Goals.

Finally, it should be noted that beyond gaining the buy-in from the CEO (and potentially even the CFO and investors at this point), internal stakeholders will also be critical to engage. ST.15 Key Management Issues for Implementation presents some considerations regarding this.

SET STRATEGY

The aim of the SET STRATEGY phase is to use your knowledge of the company's strengths, weaknesses, opportunities and threats to propose a new business strategy that places eco-innovation at the core of the company's business strategy to ensure progress towards a sustainable future for the company

ST.3

Capture the current business model



ORIENTATION

The Business Model Canvas allows you to capture the essential elements of a business model on one sheet of paper. Logical and easy to explain and discuss with others, it serves as a framework for exploration of eco-innovation opportunities and how they might drive changes to your client's business model. This will be central to the activities in the entire Set Business Model phase (Phase 3).

The intention of this activity is to understand the current business model of your client. To assist you, insights into typical business model components for SMEs operating in the B2C apparel market are provided. The contents can provide helpful perspective in the event that the selected company fills another role in the value chain.

ST.3 Capture the current business model



LEARNING CASE STUDY - NICHE DENIM: BUSINESS MODEL CANVAS - "AS IS"

In a workshop with Niche Denim's Marketing Manager and Production Manager (and building on an interview held with the company's management), Resilient Futures has gathered initial information about the company to expand on Niche Denim's current business model:

Key partners <i>Primarily one strategic denim fabric supplier and three strategic jeans producers</i> <i>Joint venture partner in the Netherlands</i>	Key activities <i>Product development collaborations with denim fabric producer and washing & finishing functions at jeans producers</i>	Value propositions <i>Denim craftsmanship</i> <i>Participation in authentic denim culture and community</i>	Customer relationships <i>Centred on sharing knowledge and insights into denim jeans</i> <i>Carefully curated website and newsletters are primary digital channels for strengthening relationships</i> <i>Loyal base of proud repeat customers</i>	Customer segments <i>Urban adults</i> <i>Denim lovers / enthusiasts</i>
	Key resources <i>Design team with deep knowledge of denim craftsmanship</i> <i>Denim product development collaboration teams with fabric and garment suppliers</i> <i>Store interior design team</i> <i>Knowledgeable and passionate store staff</i>		Channels <i>25 own retail stores in India</i> <i>Wholesaler network reaching approx. 500 retail stores</i> <i>E-commerce reaches most major markets globally</i>	
Cost structure <i>Most denim fabrics purchased per meter directly from fabric producer in advance of garment production. Minimum Order Quantities (MOQs) apply</i> <i>Per unit garment manufacturing costs upon order delivery. MOQs apply</i> <i>Inventory carrying costs for own channels</i> <i>Retail staff and store rent</i>			Revenue streams <i>Individual garment sales through own stores and e-commerce channel</i> <i>Bulk sales to wholesale partners. Fixed quantities per case pack. Minimum sales order quantities</i>	

ST.3 Capture the current business model



TIPS & TRICKS

If you are unfamiliar with the Business Model Canvas framework, or are in need of a refresher, a number of helpful guides are available, including:

- The 20 minute business model plan: BMC made easy: <https://www.alexandercowan.com/business-model-canvas-templates/>
- Strategyzer - The Business Model Canvas (including a video tutorial): <https://www.strategyzer.com/canvas/business-model-canvas>
- The Business Model Analyst: <https://businessmodelanalyst.com/business-model/>

The building blocks of the Business Model Canvas is also a helpful framework for pointing out the typical nature of SMEs in the consumer apparel market:

1. **Customer segments** for apparel SMEs typically focus on one or more types of lifestyle, rather than mass market. For example, products might be for the bohemian adventurer, the elegant professional and the trendy parent.
2. **Value propositions** often include aspects of quality, style and function, with an element of enabling or enhancing the customer's personal expression.
3. **Channels** to the end customers will almost always include e-commerce and either boutiques or resellers, or a combination of the two. To reach potential resellers, fashion weeks and expos are commonly used channels.
4. **Customer relationships** tend to focus on building community and loyalty. They are frequently promoted and managed on the predominant social media platforms, as well as branded websites and through newsletters. Personal service is typically handled through customer service email, chat functions or through boutique staff.
5. **Revenue streams** are driven by individual garment sales to customers and in bulk to resellers. Consignment models with resellers are common and are a type of individual garment sale.

Template of Business Model Canvas



ST.3 Capture the current business model



6. **Key resources** typically include the creative vision and team, buyers and communications. Liquidity can be a key resource, as the gap between production expense and sales income can encompass several weeks or months.
7. **Key activities** include trend monitoring, product development (from design sketch to order placement), purchasing/buying (including production order monitoring), logistics, marketing communications and B2C and/or B2B sales.
8. **Key partnerships** often include garment manufacturers and can include fabric producers and supply chain agents. If included in the channel strategy, distribution agents and/or key resellers are also key partners. E-commerce providers may also be relevant.
9. **Cost structure** typically comprises delivered garment manufacturing costs, warehousing and logistics, creative staff, and, in some cases, retail staff.

ST.4

Do a Walk-Through Audit



ORIENTATION

The prompts in the Manual's Learning Case Study provide a useful starting point for your walk-through audit. The overall guidance for this activity is to add your own questions so that you get the answers you need. The learning case study in this section provides an illustrative example of additional questions aligned with the audit categories in the template.

Template of Walk-through Audit Guide

Key discovery questions		Page 2	
Getting started on tour	Production — main processes	Production — goods out	Design & engineering
Production — goods in	Purchasing	Sales & marketing	Management

ST.4 Do a Walk-Through Audit



LEARNING CASE STUDY - NICHE DENIM: WALK-THROUGH AUDIT

In preparation for the walkthrough audit, Resilient Futures supplemented the list of questions for Niche Denim with the following:

Template section	Potential additional questions to a walk-through audit
General aspects	<p><i>Which sustainability-related textile or apparel industry initiatives are you engaged with (including social ones)?</i></p> <ul style="list-style-type: none"> • Are any of these membership- or signatory-based? • Do any of these require commitments to targets, either externally or internally? • How long has the company been engaged, and how active is it now?
Production - goods in	<ul style="list-style-type: none"> • What is your chemical management strategy for incoming products? Do you have information on their chemical content? • How are damaged or poor quality goods handled (for instance, donated, refurbished, sold via outlet, incinerated)
Production - main processes	<ul style="list-style-type: none"> • To what extent can you identify all producers in your supply chain, including fibre production and chemicals formulations producers? • To what extent do you share your list of suppliers externally? What information do you share?
Production - goods out	<ul style="list-style-type: none"> • Do you apply any product-level sustainability certifications?
Sales & marketing	<ul style="list-style-type: none"> • To what extent do your customers (end consumers, companies/brands or government entities) explicitly ask about the environmental and/or social sustainability of your company, your supply chain and your products? Which elements are they most interested in (e.g. chemicals, materials, social standards, etc.)? <p><i>Post-sales:</i></p> <ul style="list-style-type: none"> • What is your policy for customer returns? • Do you offer any take-back service or otherwise support your customers with their garment discard?
Design & engineering	<ul style="list-style-type: none"> • Do you have a fibre strategy? Is sustainability included in this strategy? How is sustainability defined and determined in this case?
Purchasing	<ul style="list-style-type: none"> • What is your sourcing strategy and how are suppliers evaluated and selected? Are there any clear sustainability-related grounds for discontinuing the relationships? • What is your strategy and approach for monitoring and ensuring adherence to sustainability-related requirements and guidelines in your supply chain?
Management	<ul style="list-style-type: none"> • What relationships does the company have with NGOs?

ST.4 Do a Walk-Through Audit



TIPS & TRICKS

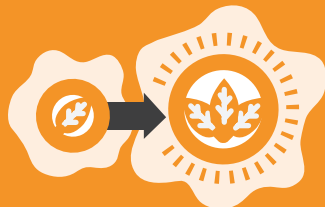
Remember, the walk-through audit is an important moment where you can gather details, such as on materials and chemicals used, and map the production process in order to then identify potential improvements. Make sure to be thorough to capture all the information you need. As a result, this captured information and data could enable you to evaluate important textile sector Key Performance Indicators (KPIs) for the company that address process efficiency and overall equipment efficiency. Further examples of KPIs can be found in the IM.1 phase of this supplement.

The ILO's '**Responsible business - Meeting labour standards in global supply chains**' training course assists enterprises to better understand expectations contained in, for example, codes of conduct for suppliers and can provide insight into social issues along the supply chain which can help during the walk through audit. This course is offered in English, Spanish and Portuguese.

<https://www.itcilo.org/courses/responsible-business-meeting-labour-standards-global-supply-chains>

ST.6

Update the sustainability hotspots



ORIENTATION

At this point, additional insights gained from data gathering, business model mapping and walk-through audit activities are analysed to identify any significant environmental, social or economic impact risks that were not detected in the Prepare phase.

Template of Life Cycle Thinking

	Environmental impacts	Social impacts	Economic impacts
Materials			
Production			
Transportation			
Use			
End-of-life			

ST.6 Update the sustainability hotspots



LEARNING CASE STUDY - NICHE DENIM: LIFE CYCLE THINKING - HOTSPOT UPDATE

By bringing a life cycle perspective to the assessment, Resilient Futures helped uncover significant environmental risks linked to Niche Denim's consumer care habits and updated the hotspot summary accordingly. The updates are shown in **blue text**, while the original hotspot text is in black.

Phase	Activity	Environmental impacts	Social impacts	Economic impacts
Raw material	Cotton agriculture	Water use, particularly in water scarce regions of Turkey where irrigation (vs naturally rainfed cotton) is the practice Ecosystems quality in regions where sourced cotton is conventionally grown, using synthetic fertilizers and pesticides	Reports of refugees exploited for seasonal harvesting	
Yarn & fabric production	Yarn dyeing	For denim fabric, the warp - or 'surface' - threads are traditionally dyed using a water intensive dip dyeing process.		
Textile production	Cut & sew		Though factory wages meet minimum legal requirements, advocacy groups report significant gaps between the basic living wage in the region	
Textile production	Washing / finishing	Denim garments are washed and treated with a variety of techniques to achieve the characteristic worn looks. Water use is high, and some of the treatments are chemically intensive and involve strong substances, e.g. potassium permanganate	Cases of factory workers suffering health issues because of exposure to strong chemical compounds like potassium permanganate	Quality challenges in the finishing process are resulting in high rejection rates and related high material loss
Consumption	Clothing care: washing	Overly excessive garment washing habits are predominant in certain consumer markets, including in water stressed geographies Excess washing and machine drying also weakens the garment and shortens useful life		
End-of-life	Disposal			Flagship jean products are subject to wear and tear. As cotton products, they frequently develop unwanted damage. Albeit generally minor damage, customers are quick to discard, and turn to the (competitive) market for new jeans. This is seen both as a loss of value and a risk to market share

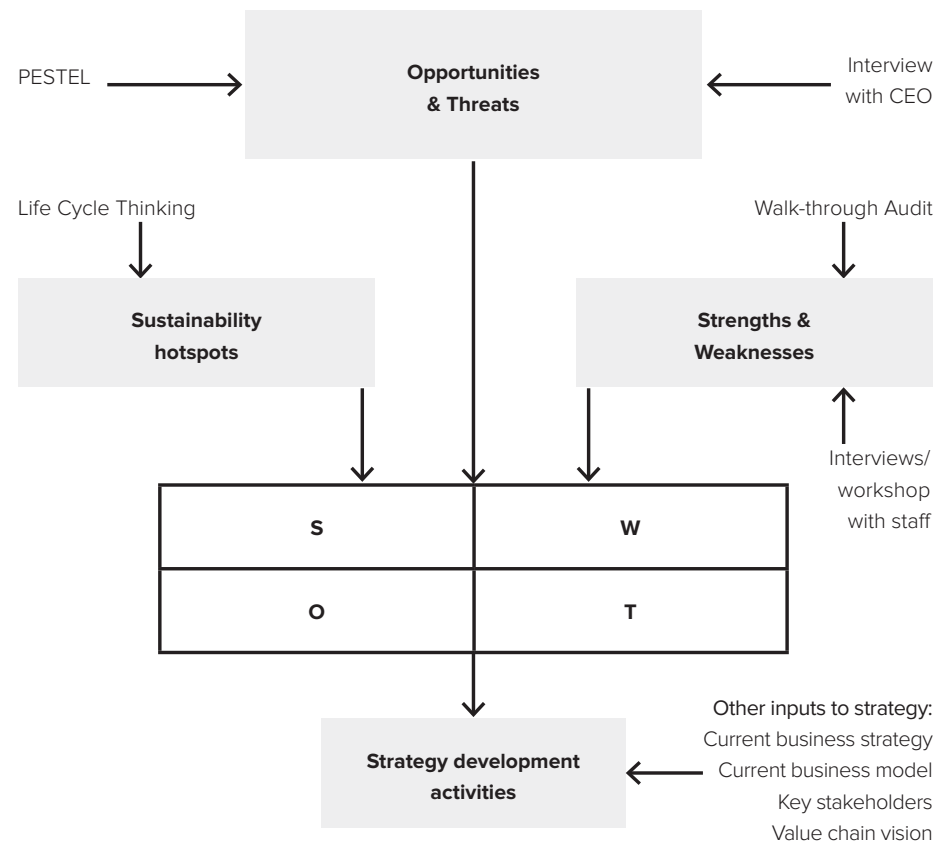
ST.7

Do a SWOT analysis



ORIENTATION

Identifying the key strengths and weaknesses of your target company - along with the predominant threats and opportunities of the external environment - will provide the context you need to generate fresh, strategic ideas that tackle sustainability.



ST.7 Do a SWOT analysis



LEARNING CASE STUDY - NICHE DENIM: SWOT ANALYSIS

With the guidance of Resilient Futures and a set of inputs from previous analyses, including the PESTEL and hotspot mapping, the Niche Denim team framed the prevailing set of strengths and weaknesses, opportunities and threats for the company.

	Helpful - to becoming more sustainable	Harmful - to becoming more sustainable
Internal origin (attributes of the company)	STRENGTHS <i>Strong community of customers - or 'fans' - who share values and root for the brand</i> <i>Seen by customers as credible, sincere and authentic</i> <i>Relatively limited and closely managed product range, strong product knowledge, including own store staff</i> <i>As an SME, not on the frontline of industry criticism and generally allowed time to progress on its sustainability journey</i> <i>Free from short-term profit margin pressures often faced by larger, publicly traded brands.</i> <i>E-commerce platform and potential reach</i>	WEAKNESSES <i>Lower priority customer to its garment suppliers, and thus limited possibilities to influence</i> <i>Relatively low capacity and budget to monitor supply chain sustainability performance</i> <i>Limited R&D and innovation experience</i>
External origin (attributes of the environment)	OPPORTUNITIES <i>Government promotion of repair and reuse</i> <i>Significant growth in resale market</i> <i>Rapidly evolving landscape of 3rd party service providers supporting forms of recommerce (ie. resale, repair and rental)</i> <i>Digital tagging technology and providers advancing rapidly</i> <i>Innovations in low impact denim technologies</i> <i>Intermediaries facilitating collaboration with artisan communities in vulnerable regions</i>	THREATS <i>Limited availability of organic cotton, price premium could prevent scale up</i> <i>Growing consumer demand for transparency</i> <i>Increased costs from extended product responsibility / polluter pays, for chemical tax compliance and for carbon labelling</i> <i>High water-related risks associated with all stages of the supply chain</i>

ST.8

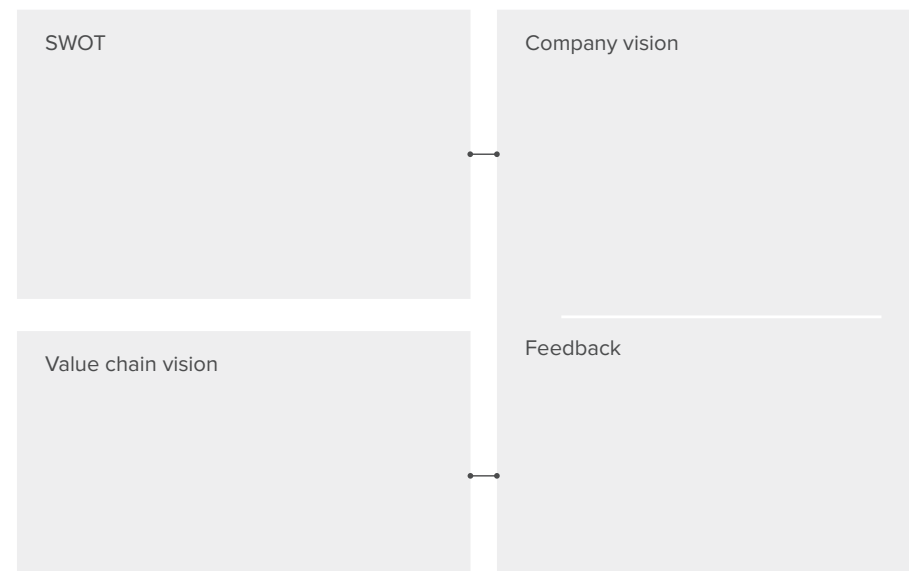
Develop a vision for the company



ORIENTATION

This activity serves to shape an initial vision and provide a backdrop for identification of new strategic ideas and goals. The company vision should align with the earlier, broader vision of the value chain, as previously outlined in PR.6. It should also take into account key insights from the SWOT analysis. Note, you may need to return to the company vision as you iterate through the eco-innovation process.

Template of Company Vision



ST.8 Develop a vision for the company



LEARNING CASE STUDY - NICHE DENIM: COMPANY VISION

In crafting a company vision statement, Resilient Futures and Niche Denim built upon the brand's strong opportunities in the short- to medium term to leverage its customer relationships, while also recognising the brand's somewhat weaker position toward its supply partners.

SWOT

Strong community of customers who share values, authentic voice

Closely managed product range; strong product knowledge, including own store staff

Significant growth in resale market

Lower priority customer to its garment suppliers / limited influence

Limited R&D and innovation experience

Value chain vision

Resource-efficient provision of non-toxic, high quality and affordable clothing services and products

Customers who are accurately and conveniently informed, and who are empowered and proud to collaborate with brands in circular business models to maximize product life and material use

Transparent and efficiently traceable and contributes to a resilient and thriving fashion industry

Prioritises - and proactively ensures - the rights and equity of all people involved

Company vision

Leader in promoting zero waste across the value chain

Known for filling its products with meaning and story (i.e. the opposite of commodity products)

Collaborates with and empowers customers to maximise product life

Growth decoupled from resource use

Feedback

ST.9

Define the strategic goals



ORIENTATION

The process for formulating new strategic goals is essentially laid out in two steps. The first is to brainstorm a list of potential strategic ideas that address hotspots and threats. The second is to select the most promising ideas as the drivers for new strategic goals.

The TOWS (threats, opportunities, weaknesses and strengths) template and approach is a helpful way of turning your SWOT analysis 'inside out' to generate strategic ideas relating to the strengths, weaknesses, opportunities and threats you identified for your target company. Using the list of ideas assembled in the TOWS template, prioritised ideas are then transitioned into the Strategic Goals template for further shaping.

This section illustrates the process, using a TOWS template populated for the learning case company, followed by the related Strategic Goals templates. A simple table is provided to help you visualise the link between hotspots and strategic ideas placed in the TOWS template.

Template of TOWS

	Strengths	Weaknesses
Opportunities		
Threats		

ST.9 Define the strategic goals



LEARNING CASE STUDY - NICHE DENIM: TOWS AND STRATEGIC GOALS

While generating ideas for Niche Denim in the TOWS template, Resilient Futures considered a number of ideas that could potentially address the respective hotspots and/or selected SWOT issues. This is done with the intention of leveraging strengths and opportunities, while potentially overcoming weaknesses and threats, or at least avoiding risks related to them. The table below shows the link between hotspots and the strategy ideas that subsequently appear in the TOWS template.

Hotspot or SWOT issue	Potential strategy ideas
Water use and pollution in supply chain	<p>Certify supply chains with credible certification, e.g. GOTS, Bluesign, EcoLabel</p> <p>Reduce production volumes by supporting reduced consumer purchases of virgin products. Compensate through price premium and/or other revenue streams. Extend product life and/or increase product value through e.g.:</p> <ul style="list-style-type: none">• Increased durability• Customer engagement in design / co-creation, product customisation• Enhanced product information, storytelling• Repair and resell services• Encourage / teach appropriate product care
Large gap below living wage in parts of supply chain, and identified risks of exploitation in the cotton supply chain	<p>Engage relevant Fair Trade organisation</p> <p>Enter collaboration with value chain stakeholders to explore common solution</p>
Excessive fabric waste in production	<p>Material recovery from production off-cuts, end-of-roll and second quality. Creatively design and produce complementary product collections</p> <p>Seek R&D partner(s) for fibre recovery and reuse</p>
Reckless / excessive washing and drying in several consumer markets	<p>Encourage / teach appropriate product care</p>
Customers prematurely discard useable garments	<p>Take back, repair, refurbishment and resell services, internally or with support of 3rd party solution provider(s)</p>
Customers demanding more transparency	<p>Enhanced, appealing and convenient product information, including descriptive narratives (i.e. storytelling), potentially through digital tagging</p>

ST.9 Define the strategic goals



LEARNING CASE STUDY - NICHE DENIM: TOWS AND STRATEGIC GOALS

TOWS

The initial ideas were then considered and further developed in light of Niche Denim's strengths, weaknesses, opportunities and strengths.

	STRENGTHS <i>Strong community of customers</i> <i>Authentic voice and distinct creative vision</i> <i>Strong product knowledge</i> <i>SMEs not on the frontline of industry criticism</i> <i>Free from short-term profit margin pressures</i> <i>E-commerce platform and potential reach</i>	WEAKNESSES <i>Generally lower priority customer to garment suppliers, and thus limited possibilities to influence</i> <i>Lower capacity and budget to monitor supply chain sustainability performance</i> <i>Limited R&D and innovation experience</i>
OPPORTUNITIES <i>Government promotion of repair and reuse</i> <i>Significant growth in resale market</i> <i>Rapidly evolving landscape of 3rd party service providers supporting the many facets of recommerce</i> <i>Digital tagging technology and providers advancing rapidly</i> <i>Innovations in low impact denim technologies</i> <i>Collaboration with artisan communities in vulnerable regions</i>	STRENGTHS-OPPORTUNITIES strategy ideas <ol style="list-style-type: none"> 1. Digitally enabled and authentic product-level transparency to connect engaged customers with product story 2. Seek R&D partners for innovative solutions to fibre recovery and reuse as feedstock 	WEAKNESSES-OPPORTUNITIES strategy ideas <ol style="list-style-type: none"> 8. Offer innovative recommerce services through partnership(s) with 3rd party service provider(s) 9. Employ product certification(s) to ensure adherence to sustainability standards. Use certification organisations' supplier register to guide selection of garment suppliers 10. Engage artisan communities for creative and unique collections, e.g. with recovered materials.

ST.9 Define the strategic goals



LEARNING CASE STUDY - NICHE DENIM: TOWS AND STRATEGIC GOALS

THREATS	STRENGTHS-THREATS strategy ideas	WEAKNESSES-THREATS strategy ideas
<i>Limited availability of organic cotton</i> <i>Growing consumer demand for transparency</i> <i>Increased costs from extended product responsibility / polluter pays, for chemical tax compliance and for carbon labelling</i> <i>High water-related risks associated with all stages of the supply chain</i>	<i>3. Prioritise long-life product strategy, including durability, versatility, reduced seasonality</i> <i>4. Collaborate with customer community to solicit design improvements for higher usage and longer life</i> <i>5. Offer product co-creation for personalisation</i> <i>6. Incorporate creative use of production off-cuts and end-of-roll stock, in capsule and/or recurring collections.</i> <i>7. Develop in-store repair service. Fee-based or though life-time warranty</i>	<i>11. Collaborate with universities for R&D on optimising production processes to reduce water use</i>

ST.9 Define the strategic goals



LEARNING CASE STUDY - NICHE DENIM: TOWS AND STRATEGIC GOALS

Strategic goals

The more promising ideas were then further assembled to help formulate a set of new strategic goals for Niche Denim.

STRATEGIC GOAL #1: SUPPLY CHAIN WORKER SUPPORT	
What hotspot or other SWOT issue does the goal help to address?	<i>Insufficient minimum wage for supply chain workers in certain regions Reports of exploitation within cotton supply chain</i>
What is the desired change?	<i>Support proactive collaborative initiatives for positive improvements beyond the minimum level of compliance for at least 20% of supply chain</i>
How will you know if the goal has been achieved?	<i>Third party assessments, monitoring and verification</i>
When will the change be achieved?	<i>Within three years</i>
Final formulation of the goal:	<i>At least 25% of workers in the supply chain will benefit from collaborative support to achieve working and living standards above minimum compliance. Within five years</i>

STRATEGIC GOAL #2: ZERO WASTE PRODUCTION	
What hotspot or other SWOT issue does the goal help to address?	<i>Value loss from high levels of material waste in garment production Fabric production linked to high water use and chemical pollution in water scarce regions</i>
What is the desired change?	<i>Zero waste - all potential production waste recovered and diverted to either new product or raw material. Reduce raw fabric consumption and thus water impact</i>
How will you know if the goal has been achieved?	<i>Material use reporting</i>
When will the change be achieved?	<i>Within three years for strategic suppliers</i>
Final formulation of the goal:	<i>Zero waste production at strategic suppliers within three years</i>

ST.9 Define the strategic goals



LEARNING CASE STUDY - NICHE DENIM: TOWS AND STRATEGIC GOALS

STRATEGIC GOAL #3: EXTEND PRODUCT LIFE	
What hotspot or other SWOT issue does the goal help to address?	<i>Declining product use and increasing premature disposal</i>
What is the desired change?	<i>Zero disposal of primary denim products by customers. Products either submitted for repair and continued use, or for resale, refurbishment or repurposing</i>
How will you know if the goal has been achieved?	<i>Systematically solicit information from the customer base Digital tagging and tracking of garments in circulation</i>
When will the change be achieved?	<i>Within five years for top five markets</i>
Final formulation of the goal:	<i>Customers of the brand in top five markets will either submit their garments for resell at end of use, or for repair for continued use, or for material recovery if worn out</i>

STRATEGIC GOAL #4: CUSTOMER - PRODUCT CARE	
What hotspot or other SWOT issue does the goal help to address?	<i>Excessive laundering and improper care leads to shortened product life, unnecessary water, energy and chemical use Limited consumer awareness as to related impacts and benefits of proper handling</i>
What is the desired change?	<i>All routine/repeat customers should be aware of environmental impacts avoided by prolonging product life, and be inspired to treat their garments properly and respectfully</i>
How will you know if the goal has been achieved?	<i>Systematically solicit information from the customer base</i>
When will the change be achieved?	<i>High availability of product and care information for 50% of the assortment within three years</i>
Final formulation of the goal:	<i>The majority of the customer base is reached by meaningful product-related insights, and adapts routines accordingly</i>

ST.10

Generate ideas for new products, markets and selling points



ORIENTATION

This activity in the eco-innovation process continues to build upon accumulated input and ideas from previous activities, with an aim to frame an eco-innovation strategy proposal in ST.12.

Among other things, this activity serves to distill potential innovation based on ideas generated in the TOWS analysis within the categories of Markets (1), Products (2) and Selling Points (3).

Template of Products, Markets and Selling Points



The learning case in this section illustrates this process. But first, to assist you with the Markets block (1), we've provided typical descriptions of the 'Market' for B2C apparel. If your target company lies somewhere else in the textile value chain, i.e. in the supply chain or in end-of-use or end-of-life, it will be helpful nonetheless for you to have an understanding of the apparel markets being served or linked to.

ST.10 Generate ideas for new products, markets and selling points

TEMPLATE INPUT & INSPIRATION: MARKET SEGMENTS

Markets - or market segments - for B2C apparel can be defined in multiple ways. And while there are commonly used descriptions, there is no standard definition or standardised terminology for markets or market segments.

Common approaches for defining market segments - often in combination with one another - include:

- By **geographical location** - customers share particular characteristics as a reflection of the cultural and geographical area of residence
- By **personality** - customers share interests, attitudes, values and lifestyle
- By **socio-demographics** - customers share income, age, gender, family status and stage in life
- By **occasions of use** - evening wear, sportswear, outdoor wear, leisure wear, business attire
- By **commercial history** - first hand, second hand/resale and rental
- By **price**, along with **creativity**, **quality** and **craftsmanship** - often referred to as the 'Fashion Pyramid'. Segments - or levels - of the fashion pyramid are commonly referred to in B2C apparel, with variations.

A general orientation of the Fashion Pyramid is provided below (The Sustainable Fashion Academy, 2021):



Figure 8: Distillation of Diverse Representations of The Fashion Pyramid (SFA, 2021)

ST.10 Generate ideas for new products, markets and selling points

TEMPLATE INPUT & INSPIRATION: MARKET SEGMENTS

Common levels of the Pyramid

1. **HAUTE COUTURE** consists of opulent, custom-made garments that have been constructed by hand from start to finish, made from high quality, expensive, often unusual fabric, sewn with extreme attention to detail and finished by the most experienced sewers, often using time consuming, hand-executed techniques. Every piece is made to fit the individual customer (made-to-measure) and unique. This segment does not address a large audience, but rather a few clients, and the garments are essentially considered pieces of art.
2. **LUXURY:** Unlike Haute Couture, the garments in this segment - commonly referred to as Ready To Wear or Prêt-à-Porter - come in more standardized sizes, as opposed to the made-to-measure pieces, and are produced rather than hand-made. However, they are not mass-produced and therefore still offer the prestige of limited availability and accessibility. Collections - at least two per year - are intended to appeal to a wider audience and have a high degree of creativity that embodies the vision of the designer. High prices guarantee access to an elite market.
3. **DIFFUSION** are secondary lines of a cheaper range of products developed by luxury brands to attract a secondary consumer; those who will try the brand at a cheaper price and become fans of the higher luxury brand in the future. The design is usually based around the main luxury range, but of reduced quality and customisation in terms of fabric and/or embellishment. This clothing is more 'wearable' and intended for daily life. However, the products are not considered cheap, with prices still high compared to other retail brands. Industrial manufacturing is applied to create higher production volumes.
4. **HIGH STREET** is characterised by affordable fashion with design aimed at the 'average' fashion consumer. These goods are manufactured in large volumes with a focus on items that will sell quickly and make space for new designs and stock every 6-12 weeks. Sales are mostly generated in flagship stores on high streets in cities, and in secondary stores in other relevant shopping areas.
5. **VALUE / ECONOMY** is generally characterised by mass production, with emphasis on efficiency in getting products from factory to store, huge sales volumes and low price. The products usually include lower quality fabric, trims and construction. While traditionally focusing on essential items that mass consumers can purchase, this segment is thought to be evolving to offer more fashionable garments at a low price point.

Common variations

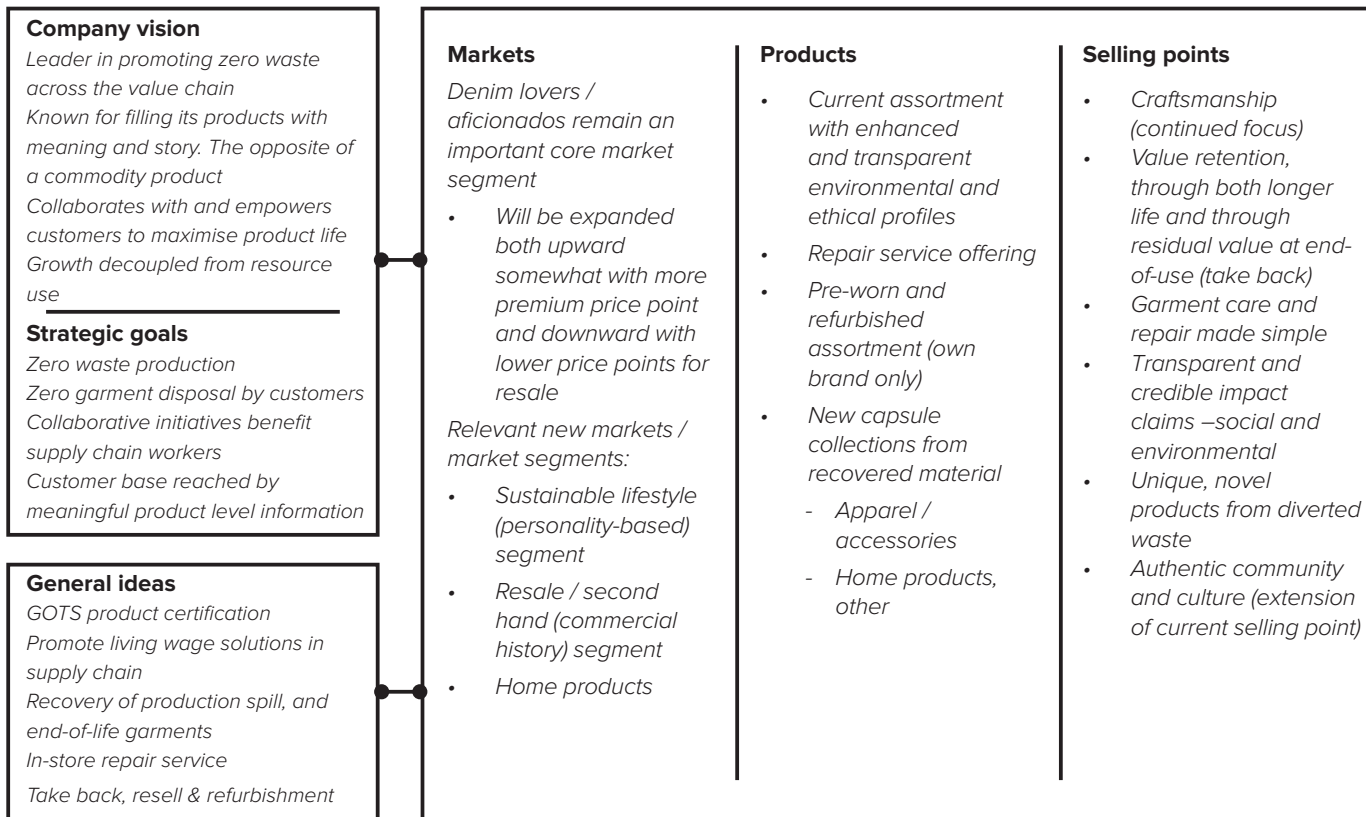
6. **MASS MARKET:** In some models, the entire lower end of the pyramid is lumped together into the MASS MARKET segment, with a focus on reaching the maximum number of people by providing fashion at affordable prices. However, some descriptions of MASS MARKET also identify a non-fashionable aspect, where products become increasingly basic and undifferentiated, and items are sold as 'useful' rather than 'fashionable'.
7. **Luxury vs LUXURY:** In cases where the second level is labelled READY TO WEAR / PRÊT-À-PORTER, the entire upper section of the pyramid is generally referred to as luxury.
8. **BRIDGE:** In some representations, a Bridge segment or level is shown between Luxury and Diffusion, while in others, between Diffusion and High Street. In either case, the segment is described as being created to bridge the gap between high end and mass market, and differentiated from Diffusion, as the garment collections are not linked to luxury brands, which is the case with Diffusion. The brands within this level offer high quality clothing without the price tag associated with designer names. Clothing collections are generally at the high end of affordable products, and sometimes described as affordable luxury.
9. **FAST FASHION:** Some depictions of the Fashion Pyramid specifically include a segment for Fast Fashion, while others describe Fast Fashion as the lower end of the High Street segment or a part of a broader Mass Market segment. Fast Fashion is where the process of production is expedited to get new trends to the market as quickly and as cheaply as possible. Clothing collections are usually based on the latest fashion trends observed at the most recent Fashion Weeks, but are made without a designer price tag. Typically, fast fashion brands are known for their ability to develop new products quickly and have them inside their stores within a matter of weeks, compared to other retailers, who often require several months.

ST.10 Generate ideas for new products, markets and selling points



LEARNING CASE STUDY - NICHE DENIM: PRODUCTS, MARKETS AND SELLING POINTS

After an initial brainstorming and analysis, Resilient Futures drafted the below proposal. In the next phase, Resilient Futures will revisit and revise these initial key points together with Niche Denim representatives, as the new business model is explored and iterated.



ST.10 Generate ideas for new products, markets and selling points

References:

The Sustainable Fashion Academy (2021). *Sustainability Fundamentals*. <https://www.sustainablefashionacademy.org/courses/sustainability-fundamentals>

ST.11

Evaluate ideas for new markets, products and selling points



ORIENTATION

The eco-innovation methodology focuses on a risk profile along with a benefits profile for each of the selected strategy ideas. The method for rating risk in this activity is based on whether or not the strategic idea is linked to a new or existing market, product or selling point, and anything new is associated with some degree of risk. As a complement to this approach, it is possible to identify risks included in the strategy idea evaluation. To give you some examples and inspiration, potential risks and challenges aligned with the strategic ideas for Niche Denim are provided as additional risk considerations.

Template of Strategy Idea Evaluation

Idea title _____	
Risk	Benefit
Product	Economic
Market	Environmental
Selling point	Social

Regarding potential benefits, the 'Desired Change' element of the template from ST.9 serves as a foundation and should be referred to when you begin to quantify potential benefits together with your target company. The desired changes outlined in the learning case are repeated below as reference.

ST.11 Evaluate ideas for new markets, products and selling points



LEARNING CASE STUDY - NICHE DENIM: INPUT INTO STRATEGY IDEA EVALUATION

A complete list of brainstormed ideas for Niche Denim, including those not initially selected for new strategic goals, is listed below.

Strategic ideas	Additional risk considerations	Nature of benefits
1. Digitally enabled and authentic product-level transparency	Incomplete access to data Cost of data collection and verification may be prohibitive	Increased customer knowledge about, interest in and choice of lower impact apparel Increased product life through more robust product data availability to inform product care and repair, and enhance reselling transactions
2. Seek R&D partners for innovative solutions to fibre recovery and reuse as feedstock	R&D process may not succeed in bringing the innovation to a level necessary to pilot	Higher resource efficiency Increased capabilities for engaging in innovation
3. Prioritise long-life product strategy, including durability, versatility, reduced seasonality	Long-life doesn't necessarily translate into meaningful displacement of new purchases Achieving increased durability and versatility may increase resource use and/or environmental impacts, e.g. additional fabric treatments, additional chemical substances to better fix dyes, heavier threads and yarns, etc.	Displace consumption of new production, and thus reduction of impacts associated with production
4. Collaborate with customer community to solicit / 'crowd source' design improvements for higher usage and longer life	Long-life doesn't necessarily translate into meaningful displacement of new purchases.	Displace consumption of new production, and thus reduction of impacts associated with production
5. Offer product co-creation for personalisation	Longer delivery lead times may be unacceptable for many customers May be difficult to command a price high enough to compensate for the higher cost of fulfillment	Reduced consumption through more selective and discerned product purchases, along with a higher use rate / longer product life due to increased emotional attachment

ST.11 Evaluate ideas for new markets, products and selling points



LEARNING CASE STUDY - NICHE DENIM: INPUT INTO STRATEGY IDEA EVALUATION

Strategic ideas	Additional risk considerations	Nature of benefits
6. Incorporate creative use of production off-cuts and end-of-roll stock, in capsule and/or recurring collections	Ownership of off-cut and/or end-of-roll fabrics can be a point of dispute	Higher yield from produced materials, i.e., increased resource efficiency and thus reduced production volumes
7. Develop in-store repair service. Fee-based or though life-time warranty	Excess burden on store staff	Extend useful product life and thus displace consumption of new production, and reduce impacts associated with production
8. Offer innovative recommerce services through partnership(s) with 3rd party service provider(s) to enter the fast growing resale market	Lower margin on resale may need higher volumes than are feasible to offer minimal business case	Displace consumption of new production, and thus reduction of impacts associated with production
9. Employ product certification(s) to ensure and communicate adherence to sustainability standards	Certification may require replacing supply chain production units that are not certified or are not willing to become certified	Lower product impacts leveraged through credible certification organisations and their supply chain licensees
10. Engage artisan communities for creative and unique collections, e.g. with recovered materials	Communities may be more vulnerable to unforeseen supply disruptions	More personal and robust relationships with suppliers, offering more opportunities for joint innovation, and increased visibility into their supply chains

ST.12

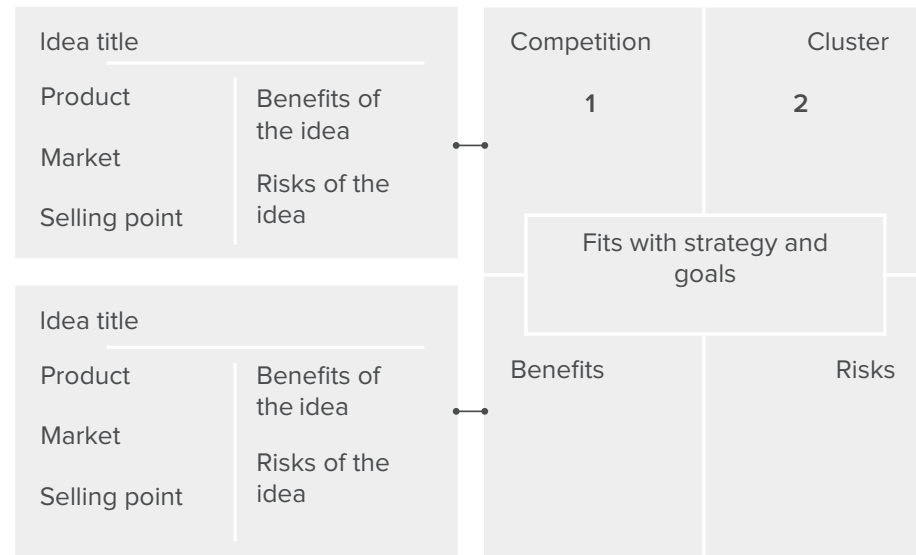
Select which ideas for new markets, products and selling points to include in the strategy proposal



ORIENTATION

To arrive at the final list of selected strategic ideas, this activity builds upon the idea evaluation from ST.11 and adds two dimensions: strength of competition (1) and potential to cluster ideas (2). The complete Strategic Idea list from the learning case is repeated below, with considerations for competition and clustering identified when relevant.

Template of Strategy Proposal Development



ST.12 Select which ideas to include in the strategy proposal



LEARNING CASE STUDY - NICHE DENIM: STRATEGY PROPOSAL DEVELOPMENT

Strategic ideas	1. Would face the strongest competition	2. Would work well together, potential synergies (cluster)
1. Digitally enabled and authentic product-level transparency to: <ul style="list-style-type: none"> connect engaged customers with product story regarding materials, production processes, and producers guide customers in care, refurbishment and end-of-use options 	Competition not deemed strong	Could be an enabling technology for Idea 4 collaboration with customers to solicit information for design improvement Product certifications along the value chain (Idea 9) would serve as meaningful components of product transparency
2. Seek R&D partners for innovative solutions to fibre recovery and reuse as feedstock	Not applicable	No cluster opportunities identified
3. Prioritise long-life product strategy, including durability, versatility, reduced seasonality	Durability and long-life are frequent selling points for products on the market	No cluster opportunities identified
4. Collaborate with customer community to solicit / "crowd source" design improvements for higher usage and longer life	Competition not deemed strong	Digital tagging (Idea 1) could provide an opportunity for streamlined direct solicitation of customer feedback related to the specific product
5. Offer product co-creation for personalisation	Competition not deemed strong	Could combine well with Idea 12 use of local non-high output suppliers
6. Incorporate creative use of production off-cuts and end-of-roll stock, in capsule and/or recurring collections	Competition not deemed strong	Could combine well with Idea 12 use of local non-high output suppliers
7. Develop in-store repair service. Fee-based or though life-time warranty	Independent repair services are abundant and would offer competition in the event a fee-based repair service is pursued	Could inform Idea 3 with insights into common points of wear and tear

ST.12 Select which ideas to include in the strategy proposal



LEARNING CASE STUDY - NICHE DENIM: STRATEGY PROPOSAL DEVELOPMENT

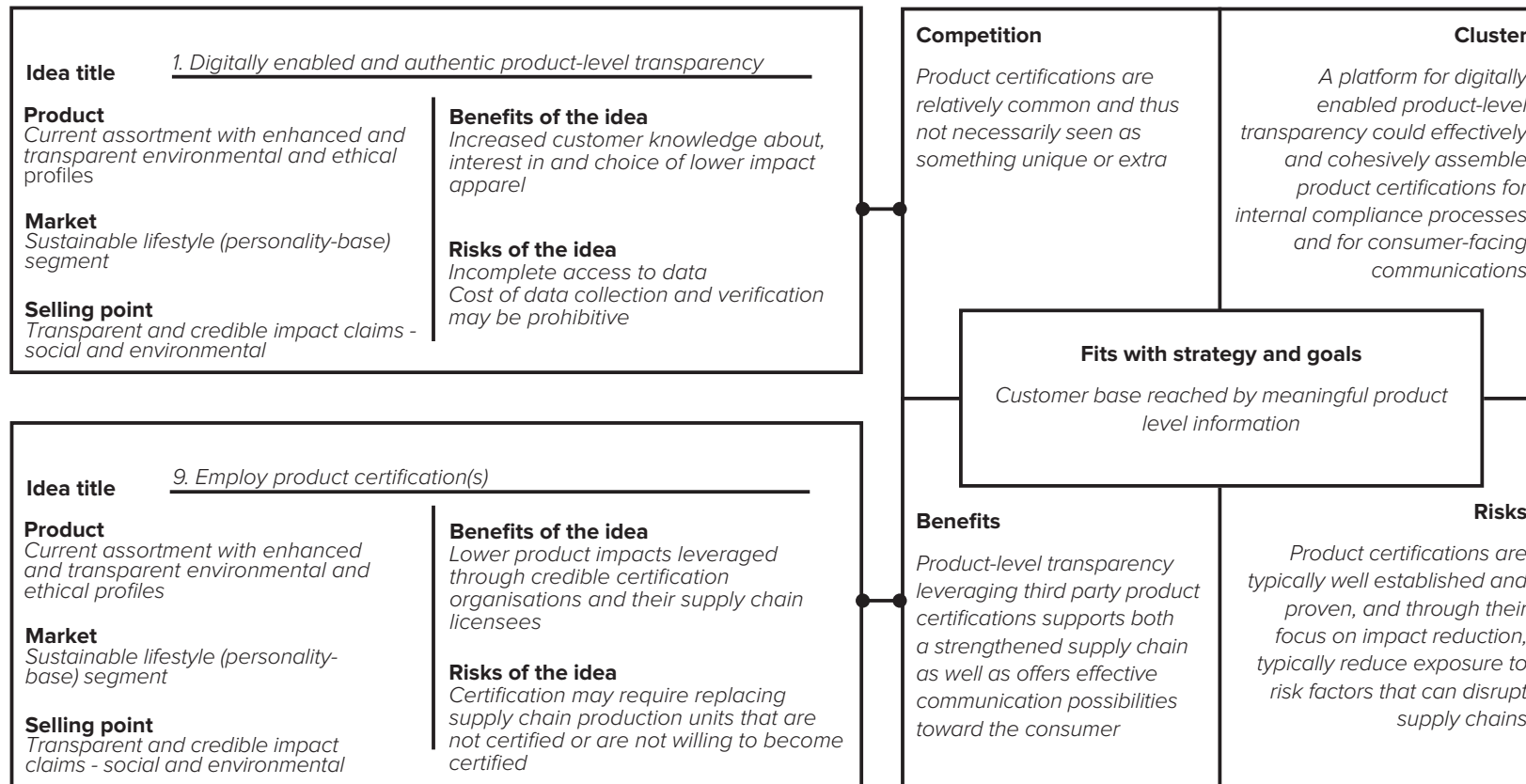
Strategic ideas	1. Would face the strongest competition	2. Would work well together, potential synergies (cluster)
8. Offer innovative recommerce services through partnership(s) with 3rd party service provider(s) to enter the fast growing resale market	Non-brand platforms, often in the category of peer-to-peer platforms, dominate the resale market	No cluster opportunities identified
9. Employ product certification(s) to ensure and communicate adherence to sustainability standards	Product certifications are relatively common and thus not necessarily seen as something unique or extra	A platform for digitally enabled product-level transparency (Idea 1) could effectively and cohesively assemble product certifications for internal compliance processes and for consumer-facing communications
10. Engage artisan communities for creative and unique collections, e.g. with recovered materials	Competition not deemed strong	Could combine well with Idea 6 use of production off-cuts and end-of-roll and for the offering of product configuration / personalisation (Idea 5)

ST.12 Select which ideas to include in the strategy proposal



LEARNING CASE STUDY - NICHE DENIM: STRATEGY PROPOSAL DEVELOPMENT

For illustration, strategic ideas 1 and 9 are aligned in the suggested template.



ST.15

Consider key management issues for implementation



ORIENTATION

For this final activity of the Set Strategy phase, the intention of the methodology is to begin assembling issues and considerations that could help or inhibit your target company's ability to embrace the eco-innovation process. As a starting point, the Management Issues template and HOW TO GO ABOUT IT text suggest collecting and aligning consideration in four categories:

Culture: Embedding eco-innovation into the company culture

Message and communications: Making use of opportunities for internal communication

Practices and setting:

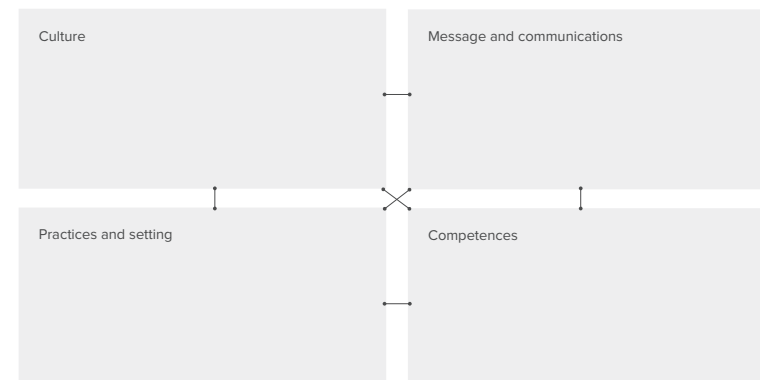
- Managing eco-innovation research and development
- Empowering employees through a flat organisational structure

Competencies: Enhance the sustainability knowledge and skills of the workforce

At this point it is helpful to revisit Table 1: Attributes of an organisation important for eco-innovation and the type of company, on page 35 of the manual. The table frames a number of relevant considerations linked to the type of organisation - that is, start-up, micro-enterprise, or small- or medium sized company - related to aspects such as resistance to change and attitudes to risk (culture), and decision-making style and innovation resources (practices and setting). These could be relevant triggers for your Management Issues template.

This section offers a handful of additional considerations reflecting the B2C apparel market.

Template of Management Issues



ST.15 Consider key management issues for implementation

TEMPLATE INPUT & INSPIRATION: MANAGEMENT ISSUES

The following generalised considerations can help you with your own process. If the target company is not in the consumer apparel market, these may be helpful nonetheless, especially where the eco-innovation involves collaboration with one or more apparel brands. General insights for textile suppliers are also provided (note, no insights regarding Message & Communications are identified).

Potential drivers	Culture	Practices and setting	Competences
Market segment related: brand - outdoor wear	Outdoor brands and their employees often have a strong connection to nature and the natural environment and therefore are likely to embrace eco-innovation, particularly where it aims to address air, water and land pollution	More likely to have existing R&D processes, internally and/or linked to external organisations	Outdoor (and some sportswear) brands would be more likely to have a higher presence of technical competencies, e.g. material science and chemistry, due to the nature of their products
Market segment related: brand - luxury / upper levels in the fashion pyramid	Company culture is naturally oriented around quality, craftsmanship, long- term product value and authentic creativity. It's likely that the culture displays conservative tendencies, which may inhibit innovation	Conservative culture may be mirrored by more hierarchical structure and decision-making process	A deep knowledge in craftsmanship would be typical
Market segment related: brand - fast fashion / lower levels in the fashion pyramid	Brands serving the lower levels of the fashion pyramid will likely display a high paced culture with a focus on efficiency and speed. Adaptability may be a related characteristic, which would be conducive to eco-innovation A low cost culture may limit the nature and time frame (payback requirements) of innovations	Operational processes are likely focused largely on design specification and purchasing, with relatively little R&D	Process management would be among prevailing skills
Eponymous / founder-led brand	It's not uncommon for apparel brands large and small to be built around the creative force of a founding designer, sometimes bearing the name of the founder/designer in the brand. This may create a more cohesive company culture than those seen in traditional organisations, which can be more conducive to new initiatives if endorsed by the founder	Decision-making is likely linked to the founding designer irrespective of their current role in the organisation	No specific insights identified
Supplier	Textile supply chains tend to operate with short-term planning horizons and a relatively high degree of uncertainty and volatility. This generally yields fast paced, adaptable and solution-oriented organisations	Strategic decisions for investment and capacity development are typically driven by value chain customer requests / demands	Negotiation, resource planning and financing/cash management

ST.15 Consider key management issues for implementation



TIPS & TRICKS

While sustainability-related initiatives in the apparel sector are widespread and seemingly embraced and supported by management teams, internal stakeholder engagement and buy-in should nonetheless not be taken for granted. As indicated in the manual for this section (p. 190), 'when trying to implement major changes within a company, such as introducing eco-innovation, having a supportive company culture can greatly ease and accelerate the implementation of the changes. Conversely, a company culture that is resistant to eco innovation can make it extremely difficult to make any progress.' As in any situation where significant change is being proposed, it is important to understand and be sympathetic to potential concerns and sources of resistance or hesitance in the organisation. These will likely be different for the various functions in apparel organisations - below are potential concerns held by management and colleagues in typical functions.

Company function	Potential concerns / sources of resistance
Design / Product Development	Will this lead to more limited choices of materials and fabrics? Will it require compromises in form, functionality, style? Does this imply higher material costs that will make it more difficult to meet product margin targets? Will this require designers to acquire and maintain new knowledge, and add to their time demands? Will this increase requirements on product-level labelling and hangtags?
Sourcing / Procurement / Logistics	Will this limit the choices of suppliers, and/or require changing out existing suppliers? Will this increase the amount of time needed to engage suppliers, e.g. when placing orders, monitoring, soliciting information?
Marketing & Communications	Will this increase the scope of information to communicate to the consumer? Will it distract from core messages of style, form, functionality? Will this require significantly new and complex knowledge in the marketing team? Does this imply higher risks of communicating incorrect / inaccurate information?
Sales	Will store staff need to acquire and maintain new knowledge? Or new skills? Would this command higher wages? Do store facilities need to be reoriented?
Finance and Accounting	Will this add uncertainty to cash flows? Could this create challenges in raising capital? Will banks assign a higher risk to our company?
Human Resources	Will compensation models need to be significantly reworked? Will new performance metrics be needed, and potentially create concern and uncertainty amongst staff, and managers?

ST.15 Consider key management issues for implementation



Most if not all of these questions and concerns are warranted, and in many cases are likely to be implications of the proposed changes and innovations that will need to be addressed. This process of internal stakeholder engagement will need to be grounded in the business case initially established in the CEO pitch in PR.9. The same messages will be relevant for aligning colleagues from all organisational functions with the long term benefits for the organisation of eco-innovation, and to put into perspective the investments and efforts needed for business model innovation.

Of particular relevance for management team members from the respective business functions are insights outlined in the previously cited UNEP resource The Business Case for Eco-Innovation related to Driver 5 Increase productivity and technical capacity (UNEP, 2021, p. 35). These include:

Given the collaborative nature of eco-innovation ... companies tend to involve their workforce in a more participative process of knowledge sharing, training and encouraging two-way communication. Employees' sense of engagement and satisfaction leads to better retention of skills and reduced attrition rate, which corresponds in turn to higher productivity, profitability and growth for a company. This is supported by research which indicates that the more engaged employees are, the more likely their employer is to exceed the industry average in terms of revenue growth...

Experience during the COVID-19 pandemic has shown that employee engagement created by a company's commitment to sustainability can help to make its business more resilient. In addition, the greater trust engendered between employer and employee by a commitment to sustainability becomes ever more important in situations like the COVID-19 pandemic, where home-based work becomes the norm.

References:

UNEP (2021). *The Business Case for Eco-innovation*. <http://unep.ecoinnovation.org/wp-content/uploads/2021/02/UNEP-Business-Case-for-Eco-innovation.pdf>

SET BUSINESS MODEL

Defining a new business model
to deliver the business strategy

BM.4

Generate business model concepts at the big picture level



ORIENTATION

The guidance in the Eco-innovation Manual refers to both top-down and bottom-up approaches for creating and assembling business model alternatives. The top-down approach starts with the big picture of the business model and looks for cohesive patterns and themes stemming from the strategic direction and ideas pulled together in the Strategy phase.

To support this approach, the manual provides inspiration in the form of six business model patterns (UNEP, 2017), with case examples for each. This will be elaborated upon by introducing additional textile-related cases from the B2C apparel market.

The challenge is to understand what operational-level changes would be required to implement the big picture ideas.

Template of Business Model Canvas



BM.4 Generate business model concepts at the big picture level

TEMPLATE INPUT & INSPIRATION: SUPPORT TO A TOP-DOWN APPROACH

Two of the examples provided in the manual for the six business model patterns are textile-related: Nudie Jeans **Pattern 3 - Product Life Extension** and Vigga (note: since renamed to Circos) **Pattern 4 - Sharing Platforms**.

Expanding on this set of examples, this supplement adds the Peruvian apparel brand Arms of Andes to illustrate the **Pattern 1 - Circular Supplies** pattern, while the Cambodian brand Tonlé illustrates a zero-waste approach to **Pattern 2 - Resource Recovery**. The 'reworked vintage' brand RE/DONE, based in the US, offers another approach to resource recovery, as well as an example of the business model **Pattern 6 - Multi-sided Platform**. Finally, the Renewed brand of The North Face offers an example of another approach to **Pattern 3 - Product Life Extension** with its comprehensive refurbishment-driven business model.

Note: in the B2C apparel market, the label **Product as a Service (Pattern 5)** might be commonly applied to describe subscription models like the Vigga/ Circos service or other types of rental models, although these don't necessarily align well with the example in the manual (chemicals leasing) and the description of 'turning incentives for product durability and upgradability upside down, shifting them from volume to performance.' Otherwise, no relevant B2C apparel- or textile-based examples are offered for this circular pattern.

In addition to providing examples of these business model concepts, these brands also serve as cases for many of the more operational innovation ideas that will be explored for each of the business model canvas blocks.

Pattern 1 - Circular Supplies: as described in the manual, this pattern is grounded in the use of renewable, recyclable or biodegradable resource inputs.

[Arms of Andes](#) describes its mission 'to preserve the traditions of Peruvian Alpaca Wool production, through the manufacture of high quality, functional outdoor apparel, while working towards making completely biodegradable clothing.' Alpaca wool is sourced directly from family-run farms and herders in the Peruvian Andes, employing traditional techniques. Yarn, fabric and garment production is all done in Peru, including artisanal hand dyeing using natural dyes.

Business Models

Circular Supplies

Resource Recovery

Product Life Extension

Sharing Platforms

Product as a Service

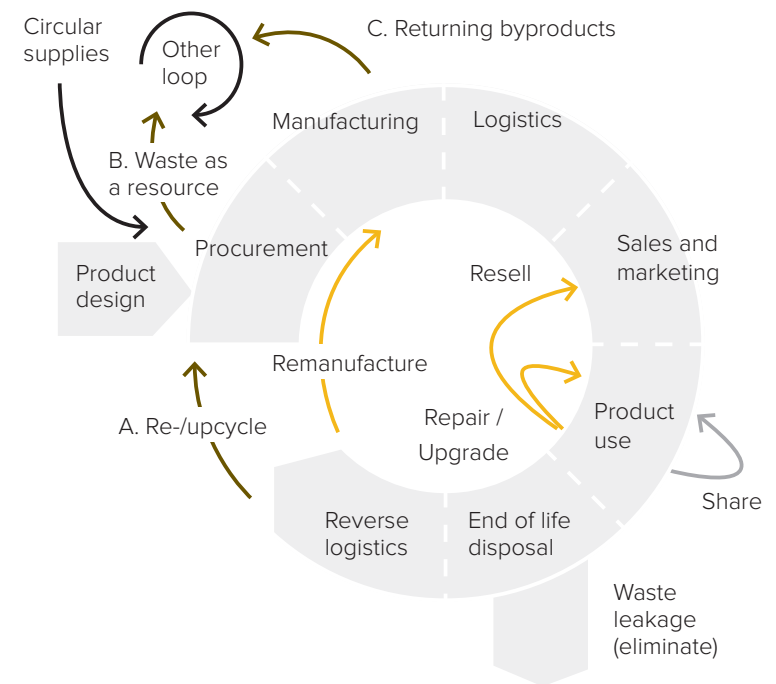


Figure 9: Examples of Business Model Patterns based on Circular Economy Principles (Accenture, 2014)

BM.4 Generate business model concepts at the big picture level

TEMPLATE INPUT & INSPIRATION: SUPPORT TO A TOP-DOWN APPROACH

Pattern 2 - Resource Recovery is defined as 'business models that employ new technologies and capabilities to recover and reuse resource outputs through closed loop recycling, industrial symbiosis and upcycling.' For instance, as part of this pattern, the company can seek R&D partnerships for innovative solutions such as to recover and reuse fibre resources as feedstock for other processes. One example may be to use this innovative approach for the company's different dyeing techniques that will have the direct result of lowered environmental impacts but also positive social outcomes such as the reduction of workers exposures. Below are two further inspirational examples that illustrate this business model pattern at the bigger picture:

[Tonlé](#) describes itself as a 'maker-led community' with the philosophy that 'every scrap of fabric has a purpose.' With a team of approximately 30 colleagues in their workshop in Phnom Penh, Cambodia, Tonlé incorporates the two primary approaches to zero-waste fashion: creative pattern making that uses 100% of a given textile, and creating garments from reclaimed materials. All incoming fabrics are a combination of deadstock, cut-waste, and textiles sourced from the local remnant markets, where textile waste from large garment factories is collected and resold. Makers and designers work together to create designs from the larger pieces of reclaimed fabric. The small scraps left over are cut and individually sewn into yarn, which is then handwoven and knit into new pieces. The small amount of textile waste that remains is mixed with used paper from the office and pattern making to create new handmade paper for tags and packaging.

[RE/DONE](#) began in 2014 in Los Angeles, USA with the original concept of upcycling vintage Levi's into modern fits, employing preloved raw goods to create brand new styles while extending the life of stagnant stock, and diverting over 145,000 garments from landfills. RE/DONE describes itself as 'a movement to restore individuality to the luxury fashion space, ... to keep heritage brands relevant, and ... to create sustainable fashion.' In addition to a number of exclusive heritage brand partnerships, RE/DONE has expanded its offering to include upcycled ready-to-wear clothes and sneakers handmade in Italy by expert artisans. RE/DONE also offers the hosted peer-to-peer platform RE/SELL where it supports its customers in reselling used RE/DONE garments to each other.

Pattern 3 - Product Life Extension is based on 'the extension of the lifetime of products and assets by employing strategies such as remanufacturing, refurbishment, repairing, upgrading or re-marketing.'

See the [Nudie Jeans](#) description of its repair and exchange services on p. 222 of the Eco-innovation Manual.

[The North Face Renewed](#) brand is a collection of returned, damaged or defective clothing that is refurbished to The North Face's 'like new' quality standards ([The North Face](#) is an international outdoor brand within VF Corporation). Renewed also includes a collection of upcycled garments made from recovered fabrics from damaged garments not suitable for refurbishment. The Renewed products are refurbished and remade by a third party partner, and garments are individually identified, tracked and sold through the use of digital tagging.

Pattern 4 - Sharing platforms enable the sharing of products and assets that would otherwise have a low ownership or use rate. See the Vigga description of its subscription service on page 222 of the Eco-innovation Manual (UNEP, 2017) ([Circos](#)).

Pattern 6 - Multi-sided platform: See RE/DONE's RE/SELL services linking sellers and buyers.

References:

UNEP (2017). *Eco-i Manual: Eco-innovation implementation process*. [Eco-i Manual](#)

BM.4 Generate business model concepts at the big picture level



LEARNING CASE STUDY - NICHE DENIM: TOP-DOWN APPROACH, BMC - "TO BE", INITIAL

Resilient Futures and Niche Denim identified Pattern 2 - Resource Recovery and Pattern 3 - Product Life Extension to serve as the primary inspiration for the new business model concept. As reflected in the template, the new business model builds on core elements in the existing business model with new elements indicated by blue text. This initial set of business model elements are then considered and explored in more detail in the block-level activities BM.5 - BM.14 (note: new elements indicated in blue text).

Key partners <i>Strategic denim fabric supplier and jeans producers</i> <i>Fair Wear Foundation</i> <i>Certification body (GOTS)</i> <i>Product ID service provider</i> <i>Artisan community intermediary(ies)</i> <i>R&D partner(s)</i>	Key activities <i>Product development collaborations with</i> <ul style="list-style-type: none"><i>fabric producers</i><i>jeans producers & recyclers</i><i>artisan groups</i> <i>In-store repairs and refurbishment</i> <i>In-store takeback and resell</i>	Value propositions <i>Craftsmanship</i> <i>Participation in authentic denim culture</i> <i>Zero waste denim</i> <i>Aligning people with product: 'be part of the story'</i>	Customer relationships <i>Sharing knowledge and insights into denim jeans, including care</i> <i>Website and newsletters</i> <i>Loyal base of proud repeat customers, including repair</i> <i>QR code product labels linked to rich information</i>	Customer segments <i>Urban adults</i> <i>Denim lovers / enthusiasts</i>
	Key resources <i>Design team</i> <i>Product development teams: fabric, garment suppliers</i> <i>Store interior design team</i> <i>Knowledgeable, skilled store staff</i> <i>Production off-cuts, end-of-roll fabrics, factory seconds</i>		Channels <i>25 own retail stores India</i> <i>Wholesaler network reaching approx. 500 retail stores</i> <i>E-commerce reaches most major markets globally</i>	
Cost structure <i>Denim fabrics purchased per meter with Minimum Order Quantities (MOQs)</i> <i>Per unit garment manufacturing costs upon order delivery. MOQs apply</i> <i>Inventory carrying costs for own channels</i> <i>Retail staff and store rent</i> <i>Processing costs for recycled cotton fibre from own factory seconds</i> <i>Cleaning for reselling of 2nd hand product</i> <i>Living wage premium for supply chain workers</i>			Revenue streams <i>Individual garment sales through own stores and e-commerce channel</i> <i>Bulk sales to wholesale partners. Fixed quantities per case pack. Minimum sales order quantities</i> <i>2nd hand sales: pre-worn and refurbished (at own stores)</i> <i>Repair service fees (at own stores)</i>	

Step

Generating ideas at the individual building block level



ORIENTATION

The following activities BM.5 to BM.14 unpack and explore specific blocks of the Business Model Canvas (BMC), with BM.6 and BM.7 both addressing different aspects of the Value Proposition block.

As described in the Eco-innovation Manual (p. 226), these block-level activities can be relevant for both top-down and bottom-up approaches defining new or enhanced business models.

To provide illustration of and some degree of insight for each of the nine blocks, this supplement explores the respective blocks in the initial draft of the new business model presented in BM.4 for the learning case study.

Template of Business Model Canvas

Key partners BM.13	Key activities BM.12	Value propositions BM.6 BM.7	Customer relationships BM.9	Customer segment BM.5
	Key resources BM.11		Channels BM.8	
Cost structure BM.14		Revenue streams BM.10		

BM.5

Generate ideas for the customer segments block

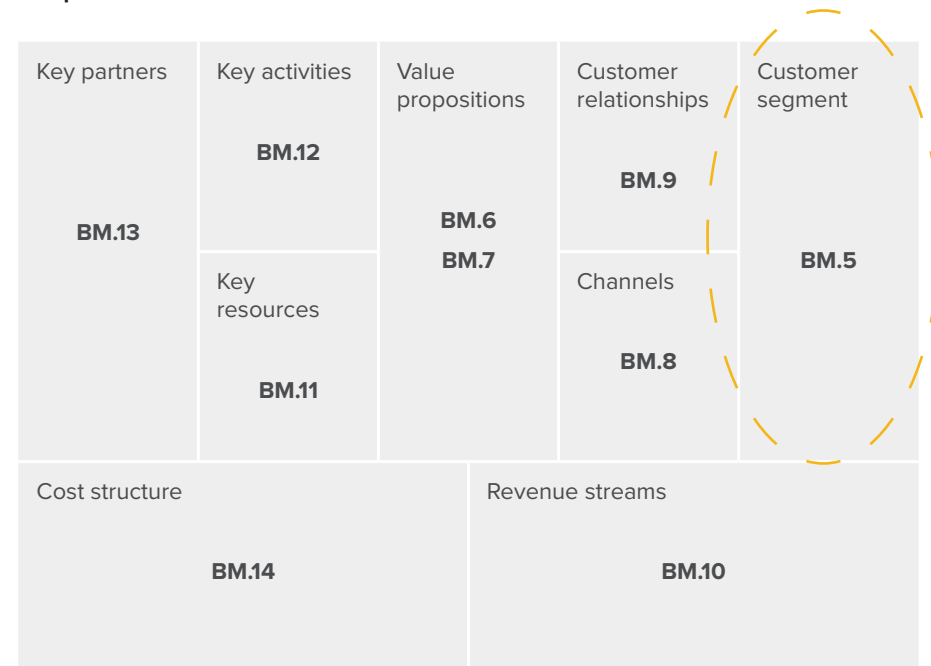


ORIENTATION

To support your investigation into potential changes and developments in the Customer Segments block, this section revisits the market segmentation approaches described in ST.10. These approaches include segmentation by:

- Geography
- Personality
- Socio-demographic elements
- Occasion of use
- Commercial history
- The fashion pyramid

Template of Business Model Canvas



BM.5 Generate ideas for the customer segments block



LEARNING CASE STUDY - NICHE DENIM: CUSTOMER SEGMENT CONSIDERATIONS

Niche Denim describes its customer segments as **Urban adults**, a socio-demographic segment, and **Denim lovers / enthusiasts**, a lifestyle segment.

Market segmentation approach	Potential changes, developments or considerations
By geographical location - customers share particular characteristics as a reflection of cultural and geographical areas of residence	No foreseen changes related to the new value proposition and business model concept, although a significant second hand assortment may in the future offer an attractive price point for new geographic markets where income levels and consumer purchasing power is relatively low Some product certification organisations, for instance Fairtrade International, operate market-based organisations that can offer market exposure to licensees
By personality - defined by shared interests, attitudes, values and lifestyle	The sustainable lifestyle segment would be highly relevant, including 2nd hand enthusiasts. This should be added to the new business model
By socio-demographic - defined by income, age, gender, family status and stage in life	The pre-worn and refurbished range could appeal to bargain hunting consumers in current markets who otherwise couldn't afford to routinely purchase Niche Denim products As reported in The North Face Renewed case (Product Life Extension), a consumer segment that otherwise couldn't generally afford the mainline product range were able to become customers Product certifications with strict chemical protection profiles, for example Oeko-Tex 100, could appeal to parents
By occasions of use - evening wear, sportswear, outdoor wear, leisure wear, business attire	Creative use of production off-cuts and end-of-roll, and material recovered from worn out garments would include new textile products for the home and thus an additional segment, albeit of only minor significance
By commercial history - first hand - which is typically the default or implied market - second hand/resale and rental	The second hand market would be highly relevant and could be specifically targeted. This should be added to the new business model
By price , along with creativity , quality and craftsmanship - often referred to as the 'Fashion Pyramid'	While difficult to place Niche Denim within the general tiers of the Fashion Pyramid, the driving factors of price, creativity, quality and craftsmanship place the brand in a more premium positioning with the expanded value proposition

BM.5 Generate ideas for the customer segments block

INPUT & INSPIRATION: ADDITIONAL MARKET SEGMENT CONSIDERATIONS

In addition to the insights related to the new business model concept for Niche Denim, other ideas and cases presented in the supplement outside of the Niche Denim model can offer inspiration:

Market segmentation approach	Potential changes, developments or considerations
By socio-demographic elements of the consumers such as income, age, gender, family status and stage in life	As illustrated by the Viggo case, shared platforms (pattern 4) hold many advantages when garment sizes need to change frequently, for example, with children, thus appealing to parents
By occasions of use , for example evening wear, sportswear, outdoor wear, leisure wear, business attire	For segments characterised by relatively infrequent product use, for instance evening/formal wear, and some categories of outdoor wear, sharing platforms (pattern 4) may provide opportunities for greater market segment penetration and market share
By price , along with creativity, quality and craftsmanship , often referred to as the 'Fashion Pyramid'	The RE/DONE case (Resource Recovery, pattern 2) offers an example of a value-added process that elevates the products' exclusivity and essentially moves them up the Fashion Pyramid

BM.6

Generate marketing ideas for the value proposition block

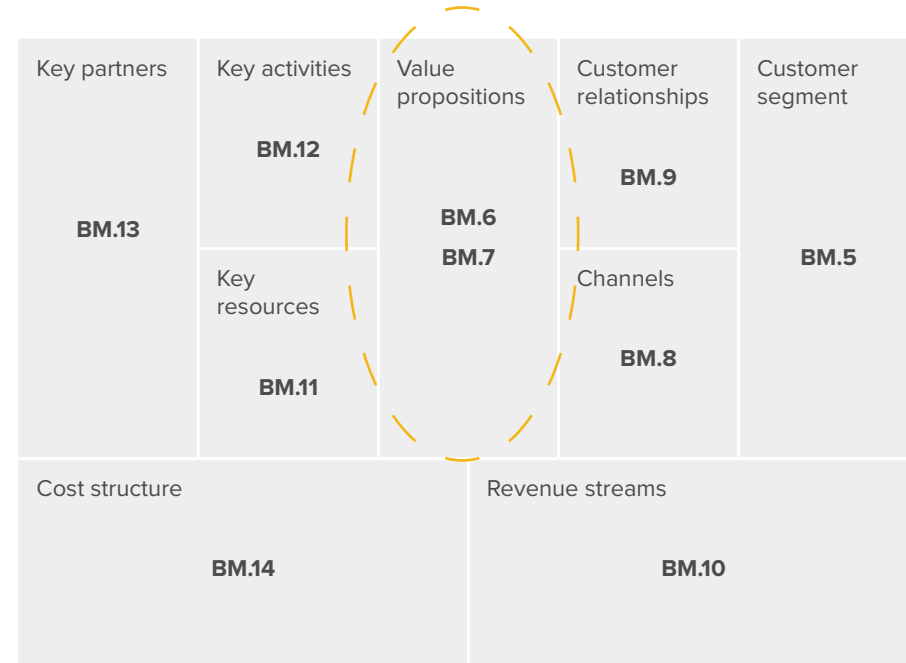


ORIENTATION

This is the first of two sections exploring the value proposition block. It applies the People, Planet, Profit (PPP) template to help extract considerations for expanding / enhancing the value proposition and how it is marketed. This is done by seeking a balance of positive sustainable impacts across stakeholders, outlined broadly as:

- **People:** the customer or society
- **Planet:** the natural environment
- **Profit:** the brand or manufacturer

Template of Business Model Canvas



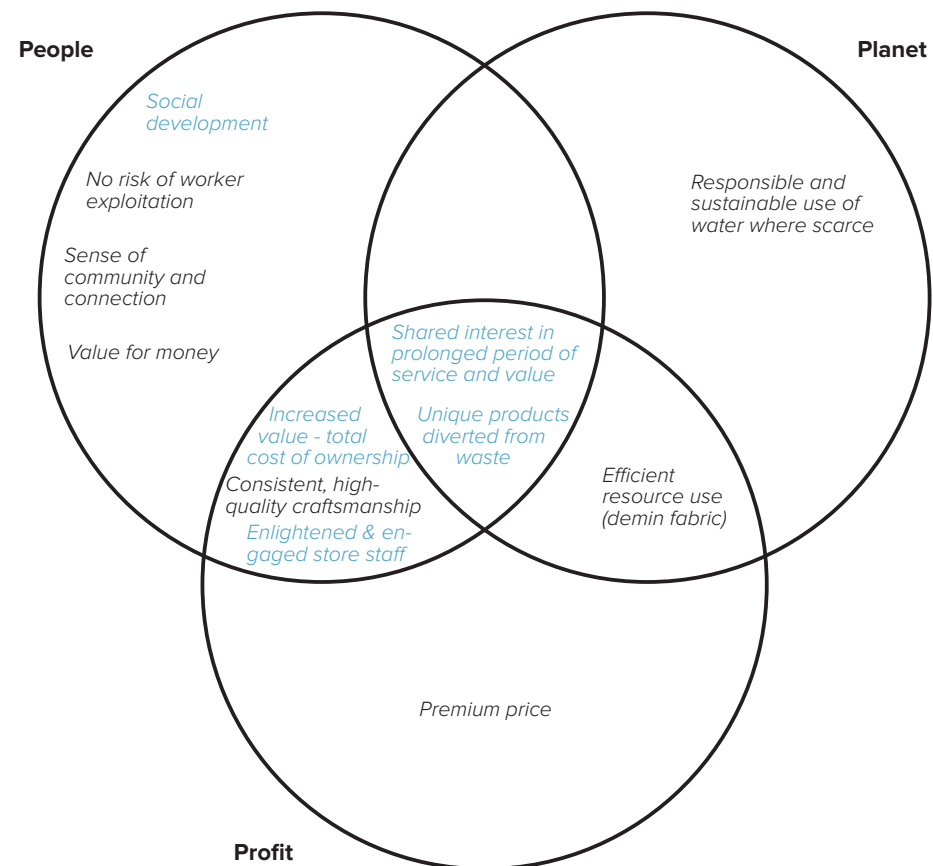
BM.6 Generate marketing ideas for the value proposition block



LEARNING CASE STUDY - NICHE DENIM: PEOPLE, PLANET, PROFIT

To explore this block, an initial set of positive impacts from the new business model are submitted in black text. By considering and reflecting on the three dimensions, several other benefits emerge (blue text), which can be used to enrich the value proposition in the new business model. These could include:

- Shared interest in prolonged service, understood by the customer
- Unique products, diverted from waste
- Informed and engaged store staff
- Social development
- Increased value - total cost of ownership



BM.6 Generate marketing ideas for the value proposition block



TIPS & TRICKS

Further examples of enhanced value propositions can be found in the following Circular Pattern examples presented in BM.4:

- **Circular Supplies:** The Arms of Andes case would include the biodegradable nature of its products in its value proposition, which could be positioned in the overlap between People and Planet. That products can be returned to nature could be seen as offering customers a certain peace of mind. As an example, this mapping exercise could trigger an effort to explore how this aspect could be further developed and emphasised, and possibly even linked to a higher price, thus shifting the position to include the overlap with Profit. Closely linked to circular supplies are circular and sustainable design choices. These can ensure that negative environmental and socio-economic impacts are minimised or eliminated across the value chain, and that positive outcomes are enabled by creating features that allow for other circular or sustainable actions. For example, by designing a product in a way to eliminate the need for specific chemical-heavy processes, to increase the product lifespan, or to make it easier to repair or recycle.
- **Product Life Extension:** The Nudie repair service would offer an assurance of prolonged use, positioned in the overlap between People and Planet. In addition to being a value to the customer, the store staff at Nudie - who receive sewing training and perform the repairs during slow periods - report that this is a valued aspect of their job. As the repair service is free of charge to the customer, this element may not be seen as directly contributing to Profit, but there would likely be indirect links to benefits from customer and employee retention.
- **Sharing Platform:** The Vigga/Circos subscription model offers the customer time and space savings, as well as clear carbon reduction, which is particularly valuable for parents thinking of their childrens' future.
- **Multi-sided Platform.** RE/DONE's RE/SELL service model - which brings together fans of the brand - offers its customers a comfort that the value of their purchases will be better preserved. The RE/SELL value proposition also includes a Profit element, as RE/DONE retains a commission fee on the selling price. The more they help preserve product value, the more contribution to profit.
- While not included among the Circular Patterns, a **Production on Demand** model offers clear opportunities to enhance the value proposition and promote zero waste. As an example, the brand Rapanui employs a just-in-time production process where orders are produced in real time, one at a time, shortly after they are ordered, to eliminate waste. <https://rapanuiclothing.com/our-story>

Still further inspiration can be found amongst a variety of circular service business models assembled by the Circular X research project for several sectors, including fashion, clothing and textiles. <https://www.circularx.eu/en/cases/fashion-clothing-and-textiles>

BM.7

Generate technical ideas for the value proposition block

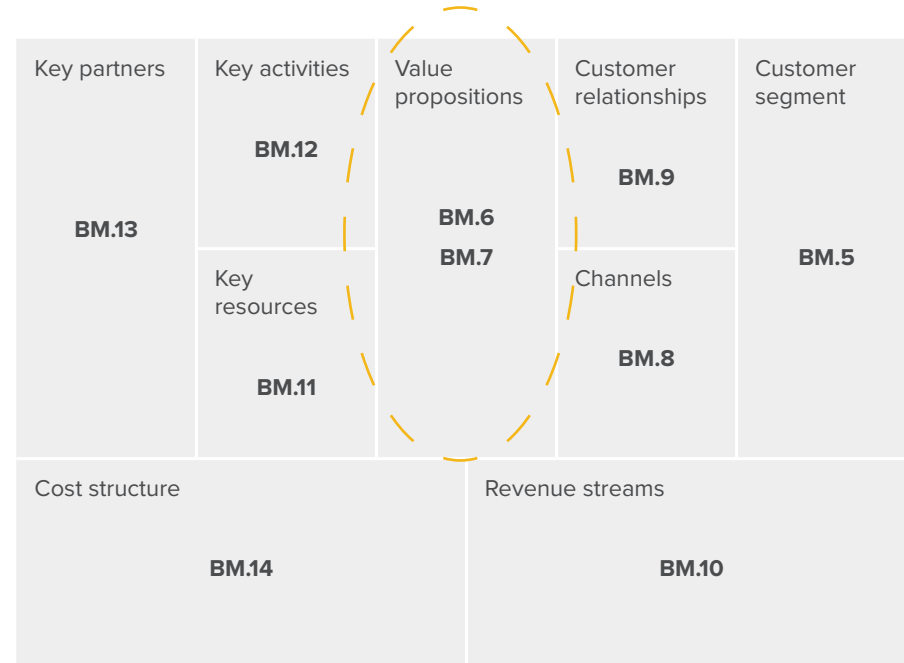


ORIENTATION

This is the second of two activities in the eco-innovation methodology addressing the value proposition block. Whereas BM.6 considered positive sustainability impacts and marketing ideas, BM.7 gives technical consideration to products' negative sustainability impacts and their root causes.

As an example, the issue of premature garment disposal by the customer - a hotspot identified in the learning case - is analysed using the suggested 9 Windows on the World approach, leading to new insights into how the value proposition could be enriched.

Template of Business Model Canvas

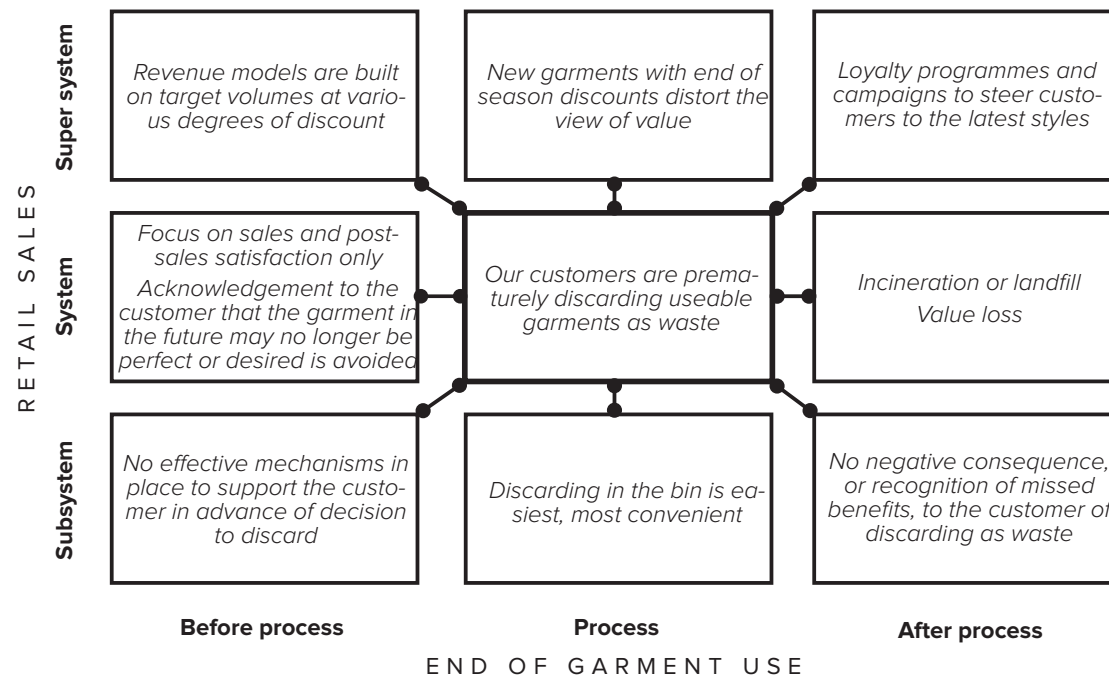


BM.7 Generate technical ideas for the value proposition block



LEARNING CASE STUDY - NICHE DENIM: 9 WINDOWS OF THE WORLD

The process of discarding a garment at end of use is analysed in the context of the Retail system. Resilient Futures organised a brainstorming workshop with Niche Denim design and manufacturing staff and arrived at the following results:



When the customer/user experiences that the garment is no longer desirable - due to wear and tear or otherwise - it's clear that the retail system is encouraging the next purchase. At times, below market rates. With a low replacement cost and no consequences for simply discarding, the residual and potentially revitalised value of the garment is lost. This analysis led to the insight that Niche Denim will need to orient its value proposition and relevant marketing and sales processes to include helping and supporting the customer to be a responsible/sustainable garment owner.

BM.8

Generate ideas for the channels block



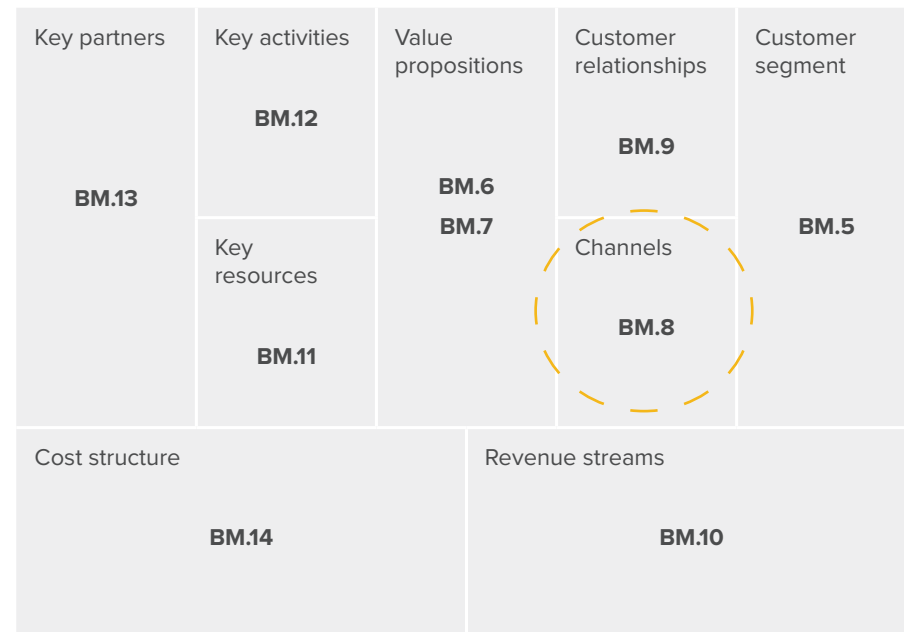
ORIENTATION

To explore the Channels block, the eco-innovation methodology suggests that you consider the elements of marketing and sales and the delivery of the value proposition to the relevant customer segments. A learning case study provides some initial inspiration.

Additionally, to support the communication of the value proposition, this section provides an orientation to the UNEP and ITC 2017 'Guidelines for Providing Product Sustainability Information' - along with important learnings from an analysis of prevailing communication practices in the B2C apparel market using the guidelines as a benchmark. As the marketing of sustainability in general - and for apparel in particular - is not only made complex by the wide range of concepts, terms and definitions, and a variety of scientific and technical aspects, it is also coming under increased scrutiny for greenwashing.

In addition, examples of eco-innovation initiatives in packaging are offered as insights for the Delivery component of the channels block.

Template of Business Model Canvas

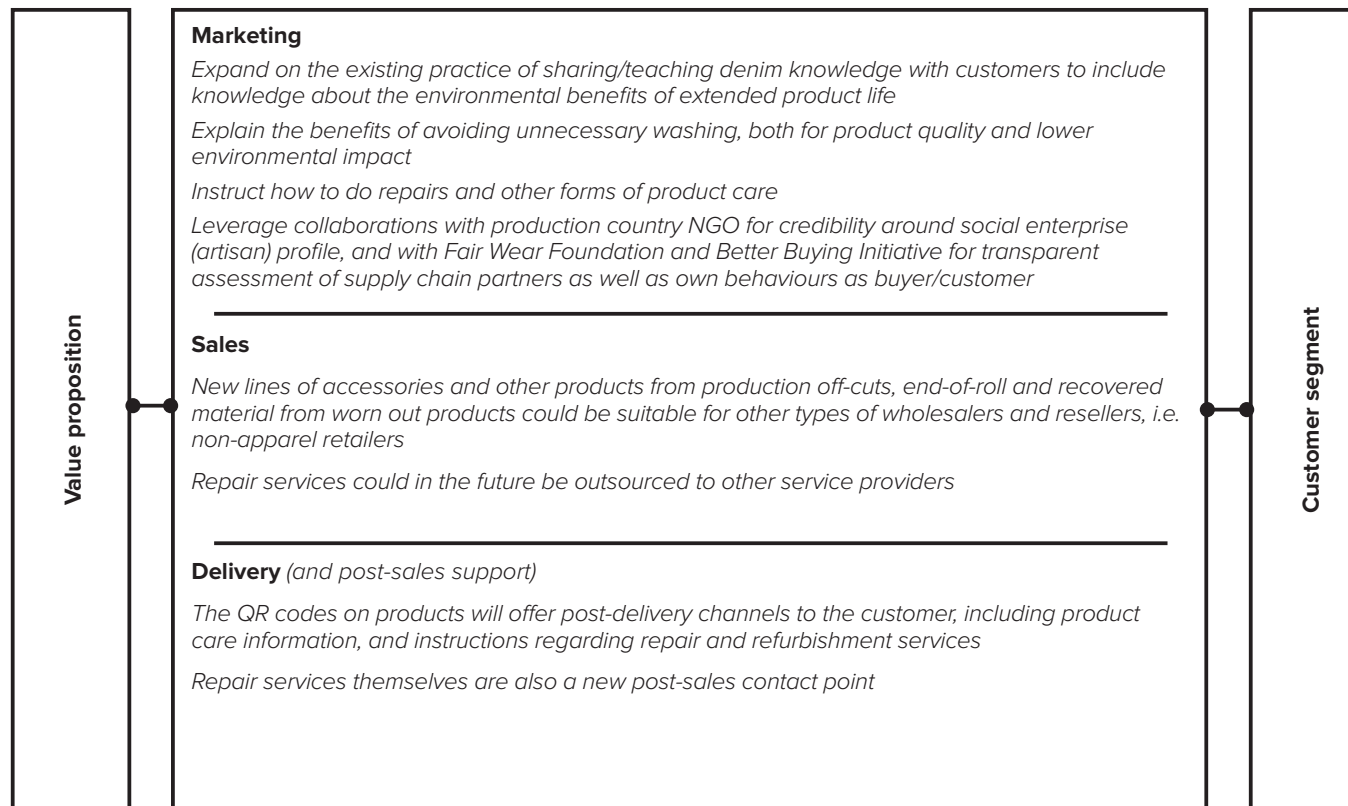


BM.8 Generate ideas for the channels block



LEARNING CASE STUDY - NICHE DENIM: CHANNEL IDEAS

Opportunities for Niche Denim in the respective channels relate largely to a few key factors: expanding on the brand's long history of educating customers in denim craftsmanship to include insights into how products are produced and their impacts, the new repair service offering, and leveraging the potential of the new QR codes.



BM.8 Generate ideas for the channels block



TIPS & TRICKS

If you need additional insights and ideas for constructively using the Channels building block of the Business Model Canvas, Strategyzer offers some helpful guidance: <https://www.strategyzer.com/business-model-canvas/channels>, as does the Business Model Analyst: <https://businessmodelanalyst.com/distribution-channels-business-model-canvas/>

Similarly, education content explaining the Channels block from the open course 'Business Model Canvas: A Tool for Entrepreneurs and Innovators' can be accessed without cost: <https://www.coursera.org/lecture/business-model-canvas/channels-and-customer-relationships-presentation-Xmwsp>

More specific considerations regarding elements of the Channels template are provided below.

Channel ideas - marketing element

There are several information channels that can be used to engage with apparel consumers, including direct information on packaging or at the point of sale, signs or posters, online, social media, TV and radio advertisements, receipts, product labels and instruction manuals. The information provided may focus on a single-issue, e.g. carbon footprint, and/or only on certain stages of the life cycle, for instance fibre production. Alternatively, the information could have a broader focus, e.g. environmental footprint, and cover impacts of every stage of the product's life cycle, from raw material extraction and product manufacturing to use and disposal.

The broader context for communicating sustainability information is often challenging. As described by UNEP and the International Trade Centre (ITC) in their 'Guidelines for Providing Product Sustainability Information' (ITC, 2017):

'The growth of markets for sustainable products is often impaired by the malpractice of greenwashing and the volume of information facing consumers, which can be imprecise, unclear, incomparable, unsubstantiated or irrelevant when guiding their choices. There is a proliferation of diverging and/or unchecked product sustainability information tools, which can negatively affect the reputation of credible standards, labels and claims. This often results in mistrust and confusion among consumers, as well as among information providers in business and government.'

In an analysis stemming from UNEP and ITC's Guidelines focusing on brands' communication of sustainable fashion (One Planet Network, 2020), the following were among the shortcomings and missteps uncovered:

- Companies usually do not communicate with consumers to find out their needs
- Companies do not train sales staff to explain the meaning of product sustainability claims, thereby depriving them of the opportunity to be a source of information for consumers

BM.8 Generate ideas for the channels block



- General sustainability claims are often limited to commitments and plans while no real proof of action/impact is available
- Companies like to develop labels of their own or use labels that present commitments instead of using monitored labels that require strict obligations

The UNEP and ITC Guidelines for Providing Product Sustainability Information are based on 10 fundamental and aspirational principles:

- **Fundamental:** Reliability, Relevance, Clarity, Transparency and Accessibility
- **Aspirational:** Three dimensions of sustainability, Behaviour change and longer term impact, Multi-channel and innovative approach, Collaboration, and Comparability

These principles may be helpful for you to explore in more detail as you enter the Implementation Phase. Other potential sources to explore include:

- The One Planet Network Consumer Information Programme's Product Sustainability Information Hub, which lists case studies and other resources connected to the Guidelines described above: <https://www.oneplanetnetwork.org/consumer-information-scp/product-sustainability-information-hub>
- High-level communication commitment included in the 2021 renewed Fashion Industry Charter for Climate Action, convened by UNFCCC, with additional guidance for fashion companies on responsible communication and marketing in the climate context to follow in 2022: <https://unfccc.int/climate-action/sectoral-engagement/global-climate-action-in-fashion/about-the-fashion-industry-charter-for-climate-action>
- The ITC Standards Map offers a free and open toolkit for identifying potentially relevant standards and certification labels, with search options for sector - including Textiles - and region or country. The tool also provides a helpful option to identify consumer facing labels. <https://www.standardmap.org/en/home>
- Fashionomics Africa, an initiative of the African Development Bank, regularly holds public events and masterclasses on topics such as digital marketing, e-commerce, media and advertising skills (in French and English). Participants are able to gain insight into emerging strategies, the latest innovative technologies, and best practices. <https://fashionomicsafrica.org/>

Channel ideas - social media

The power of social media, consisting of content, visuals, promotions, discounts and influencers, cannot be underestimated when considering its influence over consumers' buying behaviours. This is especially true of the fashion and textiles industry. A recent survey found that fashion purchases made by 49% of respondents were influenced by brands they see on social media (Econsultancy, 2021), which suggests social media and influencers should be considered key elements of businesses' marketing strategies. Although in many cases social media encourages the overconsumption of fast fashion, there are many influencers working to promote more sustainable options who may be able to help support and promote your business' new business model. Social media is an incredibly impactful tool and what matters most is how we decide to use it.

BM.8 Generate ideas for the channels block



Channel ideas - delivery element

According to the New Plastics Economy Global Commitment (EMF, 2021), elimination of problematic or unnecessary plastic packaging through redesign, innovation, and new delivery models is a priority. For the plastic packaging we still need to keep, the aim is to have them 100% reusable, recyclable, or compostable. The Global Commitment has signatories from various sectors, including textiles. [The Fashion Pact](#) is a global coalition of textile companies (including their suppliers and distributors) and is one example of promoting the elimination of unnecessary and harmful plastic in packaging and packaging with recycled content specifically amongst apparel brands.

As further examples, the case companies Nudie Jeans and Tonlé communicate clearly around their approaches to packaging:

Nudie Jeans: 'We care a great deal about taking responsibility for the manufacturing of our garments. We, therefore, find it equally important to care for how we package and distribute our products to customers. There are no plastic shopping bags in our physical shops and all bags and gift boxes used in our Repair Shops are made from FSC-certified and recycled paper. The Forest Stewardship Council offers certification to ensure responsible forest management. Products ordered from our online shop are delivered in plastic bags made from RE-LDPE and RE-HDPE, which are recycled plastics containing around 40–80% recycled materials and 60-20% virgin plastic.'

Tonlé: '...wasteful packaging is a huge contributor to our environmental problems... We ship all of our products in bags made from 100% recycled materials, and our hang tags are made with recycled cardboard that is hand printed with our logo. For wholesale, we do not pack our products in individual plastic bags unless requested, preferring to group sizes and colors together in our signature recycled packaging materials.'

References:

Econsultancy (2021). 'TikTok made me buy it': How the video-sharing platform is influencing fashion retail. <https://econsultancy.com/tiktok-fashion-retail-marketing/>
Ellen MacArthur Foundation (2021). *Designing out Plastic Pollution*. <https://ellenmacarthurfoundation.org/topics/plastics/overview>
One Planet Network (2017). *Guidelines for Providing Product Sustainability Information*.
<https://www.oneplanetnetwork.org/knowledge-centre/resources/guidelines-providing-product-sustainability-information>
One Planet Network (2020). *Sustainable Fashion? How companies provide sustainability information to consumers*.
<https://www.oneplanetnetwork.org/knowledge-centre/resources/sustainable-fashion-how-companies-provide-sustainability-information-0>

BM.9

Generate ideas for the customer relationships block

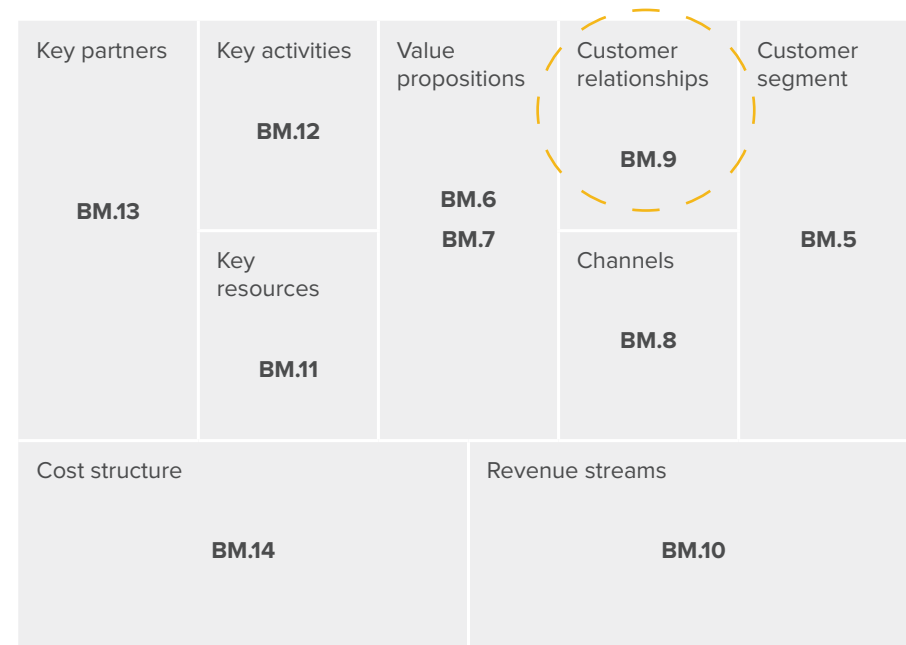


ORIENTATION

This activity explores opportunities to enhance relations with customers based on new types and/or more frequent contact stemming from changes in the value proposition. A learning case study provides initial inspiration.

As well, a selection of the business model patterns described in BM.4 provide further illustrative example.

Template of Business Model Canvas

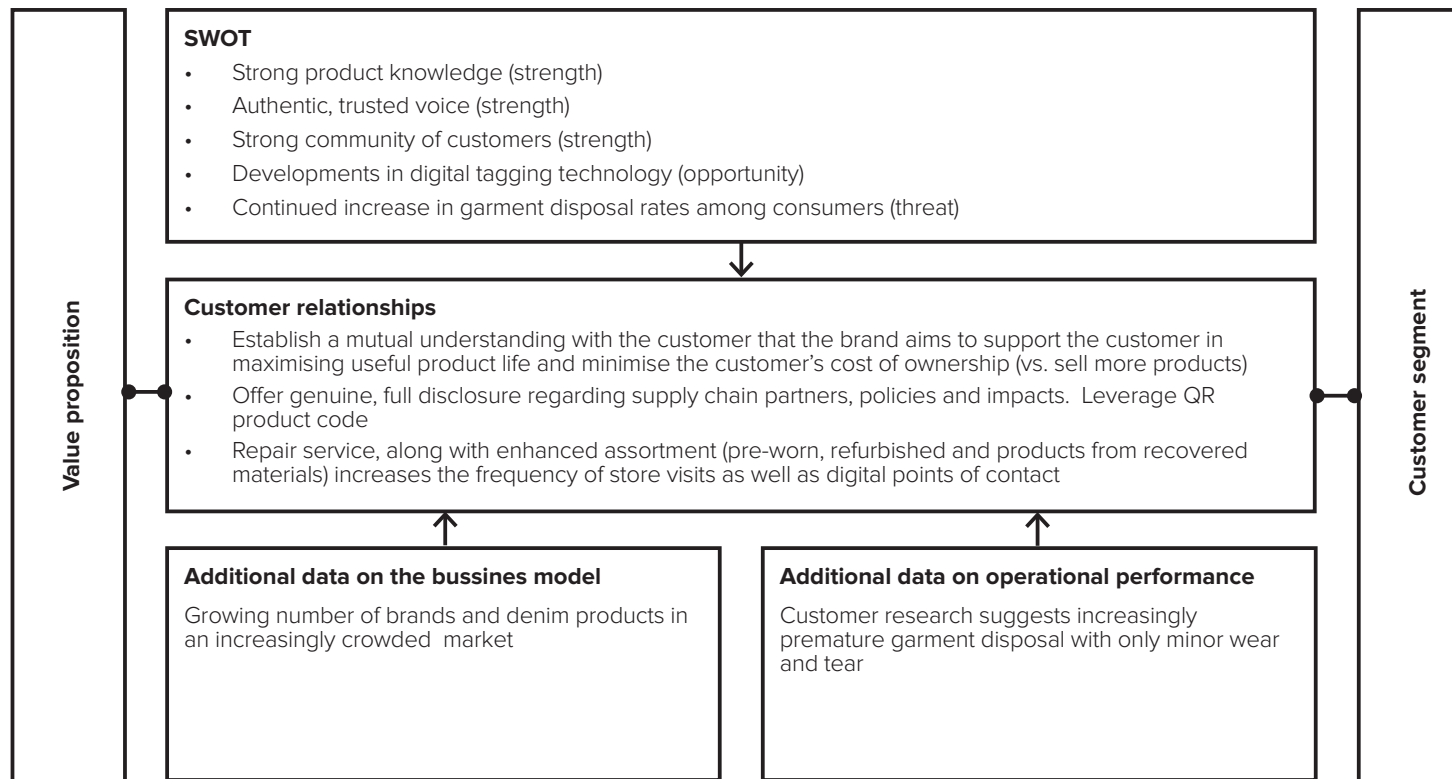


BM.9 Generate ideas for the customer relationships block



LEARNING CASE STUDY - NICHE DENIM: CUSTOMER RELATIONSHIP IDEAS

Similar to drivers of some channel ideas in BM.8, the QR product code and the repair service also link to new opportunities for enhancing Niche Denim's customer relations. Important as well will be a fundamental and convincing expansion of the relationship to include a sincere focus on the customer's product ownership (and extended product life) and the cost of that ownership, as opposed to simply sales turnover.



BM.9 Generate ideas for the customer relationships block



TIPS & TRICKS

Exploring case companies provided as illustrations of the Circular Patterns in BM.4 can offer insights as to potential opportunities to enhance and enrich customer relationships:

Product life extension

The repair service offered by **Nudie Jeans** is designed to be part of the retail experience of their stores, with stores renamed to Nudie Repair Shops, and sewing workstations in visible display and in use in the store. When garments are dropped off, knowledgeable staff have the opportunity to speak to the customer about the product and its use, and even collaborate on how the repair should be made. The message to the customer that the repair is complete, the pick-up itself, and the follow-up contact asking for feedback are all additional opportunities to strengthen the relationship.

The North Face Renewed brand, while considered an extension of the mainline brand, is presented to the customer on a parallel platform. As the Renewed assortment is relatively unpredictable, customers may visit the Renewed platform more frequently and monitor the latest assortment. The Renewed site also solicits customer feedback regarding their purchases of refurbished garments, which often seems to evoke a sense of pride and community. Finally, the refurbishment process adds a QR code to each garment, an additional point of customer engagement.

Sharing platform

A fundamental aspect of subscription services like **Vigga/Circos** is that the transaction doesn't end with purchase. It is an ongoing relationship. While the selected garments (children's clothing) of Circos are not likely to be exchanged until they are outgrown, many other subscription models involve frequent replacement. Clearly, these models would involve a higher frequency of customer contact than traditional retail, due to the nature of the relationship, and would provide opportunities to deepen engagement.

Multi-sided platform

The RE/SELL service offered by **RE/DONE** - which essentially facilitates the matching of owners (sellers) of RE/DONE garments with interested buyers - creates not only opportunities for contact with both parties, it also builds and strengthens a sense of community.

BM.10

Generate ideas for the revenue streams block

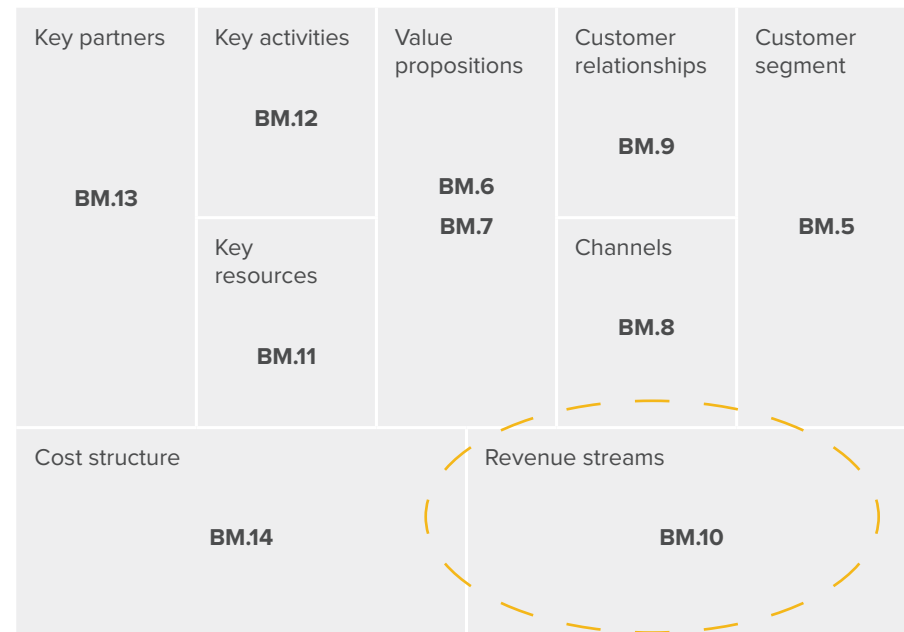


ORIENTATION

While in the short term revenue streams originating from new business models may not display potential to reach levels comparable to existing streams, they can offer an opportunity to contribute to the overall income portfolio. Noteworthy is the diversification of revenues that comes with new business models, decreasing risks of relying only on one revenue stream.

This section provides inspiration first through a learning case followed by examining revenue stream considerations in selected business model patterns from BM.4.

Template of Business Model Canvas

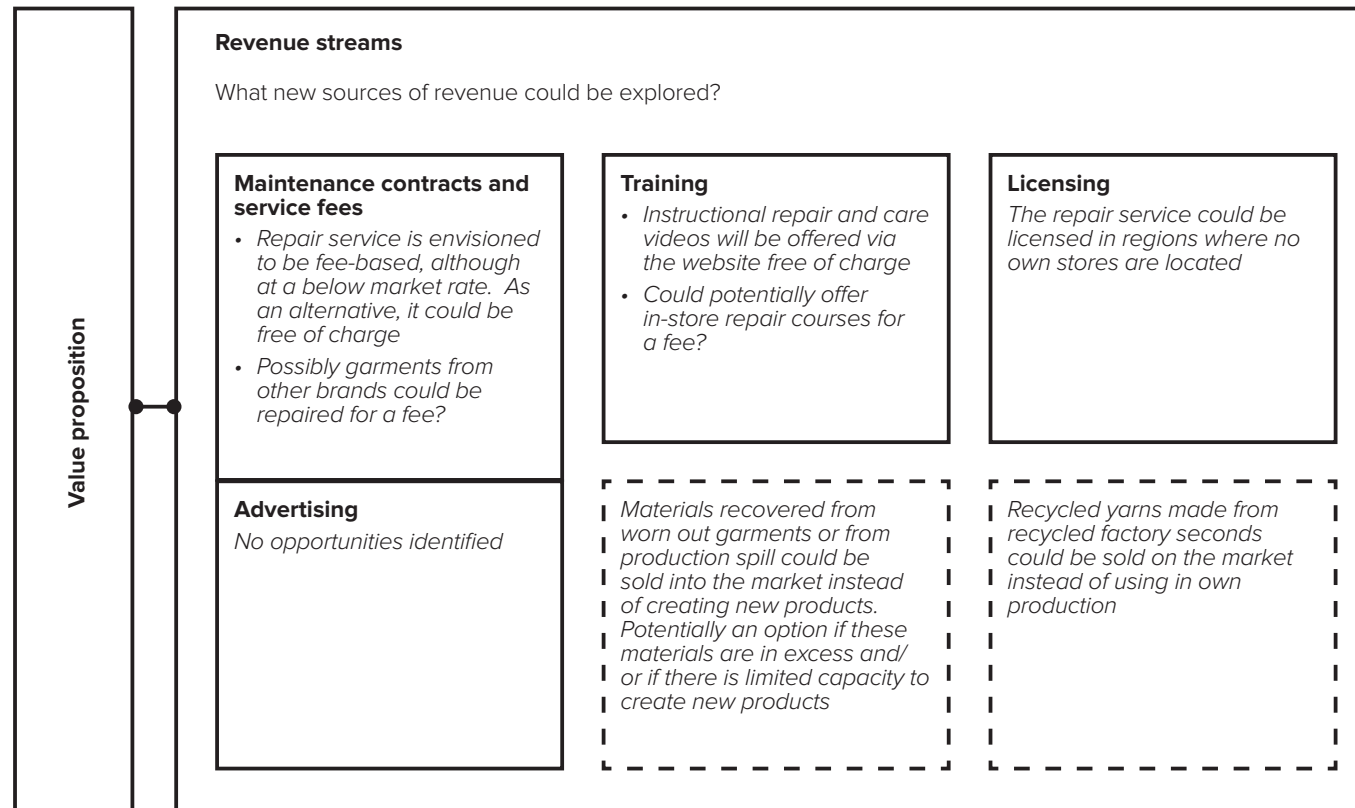


BM.10 Generate ideas for the revenue streams block



LEARNING CASE STUDY - NICHE DENIM: REVENUE STREAM IDEAS

While the envisioned repair service for Niche Denim offers one new type of revenue stream, some interesting variations were identified for consideration. As well, new activities to recover materials for new products were identified as a potential opportunity for additional revenue possibilities not originally considered.



BM.10 Generate ideas for the revenue streams block



TIPS & TRICKS

Exploring case companies provided as illustrations of the Circular Patterns in BM.4 can offer insights as to potential revenue streams.

Product Life Extension

The repair service offered by **Nudie Jeans** is free of charge and therefore not a new revenue stream. However, in-store repair services with a fee are common in the market, and in such cases would be a revenue source.

The nature of the revenue stream for the resale offering from **The North Face Renewed** brand is essentially the same as for mainline products. That is, revenue is generated from sold products, typically at 50% of the original suggested retail price.

Sharing Platform

In the case of Vigga/Circos, the company was founded using the subscription service and thus the subscription fees were never introduced as a new revenue stream. But for a traditional brand implementing a subscription - or any other time of rental model - together with their mainstream model, the rental income would clearly represent a new, and quite different, revenue stream. Subscription services can be structured as a fixed periodic fee for the use of a fixed number of items, or can include a variable fee based on the number of garments chosen (which is the Circos model.) In some cases, the term of the subscription can mean that future revenue streams would to some extent already be established.

Multi-sided Platform

The RE/SELL platform generates both a service fee and a commission from the transaction price as new revenue for RE/DONE. Otherwise RE/DONE's revenues are from product sales.

BM.11

Generate ideas for the key resources block

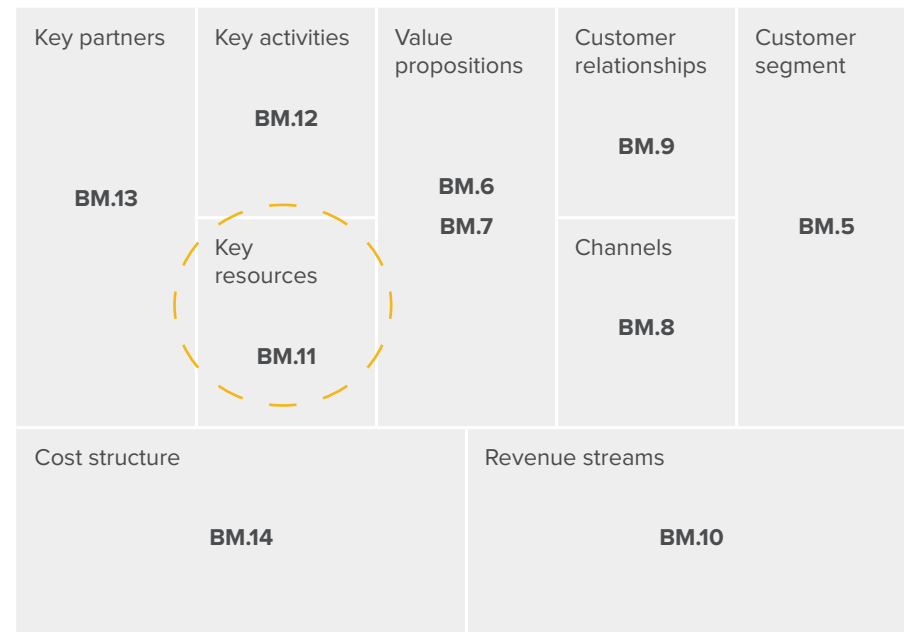


ORIENTATION

In the previously covered ST.3 process for capturing the current business model, the suggested key resources typical for SMEs in B2C apparel included the creative vision and team, buyers and communications. When applying a circularity perspective, it's common that store staff could also be considered as key resources. A learning case study example is provided to illustrate potential considerations.

Also, information technology (IT) and other capabilities supporting traceability and transparency could be considered as key resources, with the potential to unlock specific circular business models. As additional background, this section offers brief insights into types of enabling technologies relevant to traceability and transparency.

Template of Business Model Canvas

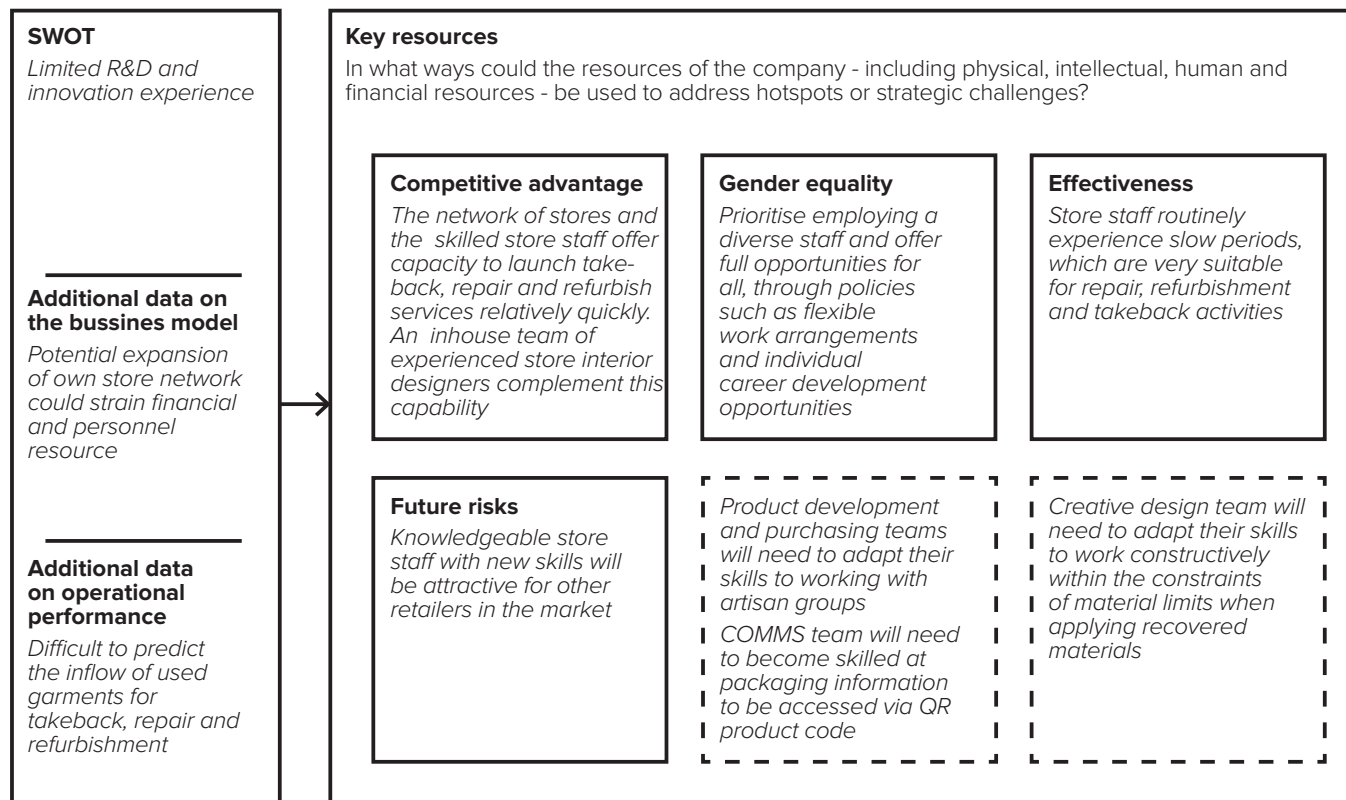


BM.11 Generate ideas for the key resources block



LEARNING CASE STUDY - NICHE DENIM: KEY RESOURCE IDEAS

The new value proposition for Niche Denim implies opportunities and requirements related to most resource types, including store staff, design, product development and communications. With the aid of the guiding questions in the manual, Resilient Futures and the Niche Denim team brainstormed and summarised the following ideas and considerations:



BM.11 Generate ideas for the key resources block



TIPS & TRICKS

Every business model requires key resources. The resources allow the company to reach markets, offer a value proposition, maintain customer segment relationships and earn revenues. In order to support you for the resource selection as part of building your client's new business models, you should thus ask yourself: what key resources does the company need that the value proposition requires? What are the key resources needed by the company's marketing and distribution channels? How do the key resources support their revenue streams?

- What kind of **physical resources** does the company need? Such as type of suppliers and raw materials incl. chemicals, vehicles/transportation, storage facility, machines and factory
- What kind of **human resources** are necessary? This includes talented employees such as designers, engineers or marketing experts (i.e. expert knowledge)
- What kind of **intellectual resources** are crucial to have? This can be in the form of patents, copyrights or even customer databases
- Does the company have the required **financial resources** (credit, cash etc.)?

Key resources for traceability and transparency

While not a measure of sustainability itself, the lack of product traceability and transparency is a weakness in textile value chains that inhibits sustainability improvements, while also enabling negative impacts to continue unnoticed. Including traceability and transparency can enhance a company's value proposition and support reliable and verifiable claims on the sustainability and circularity performance of products, processes and facilities operating for this industry. The following provides a high-level overview of the topic since including traceability and transparency could potentially enhance a company's value proposition.

As a result, traceability and transparency has emerged in recent years as a high priority topic in the textiles sector, with many public and private collaborations focusing on policies, standards, methods and technologies. One excellent resource on Traceability and Transparency is the UNECE Recommendation and Guidelines on Enhancing Traceability and Transparency of Sustainable Value Chains in the Garment and Footwear Sector (2020). The explanations in this section are taken from that document.

Traceability provides the basis for verifying claims about circularity and sustainability. It can be defined as 'the ability to trace the history, application or location of an object' in a supply chain. In this context, it is defined as the ability to 'identify and trace the history, application, location and distribution of products, parts and materials to ensure the reliability of sustainability claims in the areas of human rights, labour (including health and safety), the environment and anti-corruption'; and 'the process by which enterprises track materials and products and the conditions in which they were produced through the supply chain' (OECD, 2018).

In order to use traceability to support sustainability, the following need to be defined:

- A clear **objective** which sets out the **purpose** of tracing
- **The sustainability claim** which supports the objective
- **The sustainability requirement(s)** which must be met in order to achieve the purpose
- **The asset(s)** which need to be traced in order to support the claim
- **Verification criteria** which should be objective and measurable

More information on how to do this can be found in the UNECE Recommendation and Guidelines.

BM.11 Generate ideas for the key resources block



Within garment and footwear value chains, traced assets are periodically used as inputs to processes that transform them into outputs that are new and different. These outputs must also be traced, and they must be linked to their inputs so that when the customer receives a final product, all the inputs can be identified – by following the links of the 'traceability chain' back to the beginning. To do this, the assets to be traced need to be defined for each stage in the value chain. In addition, the relationship between traceable assets that are inputs and traceable assets that are outputs needs to be clearly defined and recorded. In order to record this information, all of the key assets, participants, facilities, and processes have to be assigned unique IDs. Many of these unique IDs probably already exist, however, identifying these unique IDs and establishing the systems for recording them requires a significant investment of time, effort, and money.

Among the other challenges faced when establishing traceability are:

- Identifying and locating relevant production units around the world, many with different languages and using different formats for storing their product information
- The variability in product supply chains which routinely change based on sourcing and capacity issues
- Sometimes, a lack of available information, particularly upstream in the earlier stages of the textile life cycle where the production of fibres, yarns and fabrics involve batch processes, and are subject to aggregation and disaggregation

Sustainability information, such as certifications, are linked to the unique IDs of assets that are being traced. For example, to verify the sustainability of the cotton in a shirt, one can trace back through the chain of IDs (i.e. inputs and outputs) for the fabric in order to obtain the unique IDs for the cotton and those IDs are then linked

to one or more certifications for sustainably grown cotton.

The needed information on IDs, assets, processes and value-chain partners can be identified using business process analysis (BPA). The UNECE has prepared a [high-level generic business process analysis for textiles](#) that may form a useful basis for this work and can be used together with the UNECE Recommendation and Guidelines.

For facilities, The Open Apparel Registry is an example of a digital solution aiming to bring uniformity to the basic mapping of production unit profiles and locations. <https://info.openapparel.org/>

Transparency relates directly to relevant information that's been made available to all elements of the value chain in a standardised way. This allows common understanding, accessibility, clarity, and comparison.

There are many ways that transparency can be established. These range from QR code labels that, when read, provide an understandable summary of the sustainability information for an individual product to web sites that provide that sustainability information for an entire supply chain. SustainaBill is an example of one of many proprietary cloud-based platforms that helps companies create transparency in their supply chains. <https://sustainabill.de/>

BM.11 Generate ideas for the key resources block



Enabling technologies for traceability and transparency

Global value chains pose great challenges for risk management, particularly in the area of sustainability. While traceability and transparency can help to address this, implementing them has its own challenges as discussed above.

To address these implementation challenges, advanced technologies are playing an increasing role. Distributed ledgers (blockchains), artificial intelligence (AI), machine learning, the Internet of Things (IoT), and physical tracer technologies, are just a few examples. This topic is discussed in more detail in a chapter in the UNECE Recommendation and Guideline and Policy Brief on Blockchain for Traceability and Due Diligence (2021), and there are a growing number of companies that offer applications incorporating these technologies, including some that are focused on the textile industry.

Some forms of product tagging using digital technologies are widely used already and involve both visible mechanisms like QR codes, or more discrete, concealed radio frequency identification (RFID) tags. QR codes can link users to product-level information via smartphones and other common devices, whereas RFID devices can be scanned, read in bulk, and are effective in more industrial settings.

One of the evolving technologies of particular interest to textiles is physical tracer technologies or on-product markers. These are relatively new in textiles and involve various methods and technologies to track material - potentially originating already with the fibre - through the supply chain to the final garment. Product markers can be placed on materials, as in the case of Haelixa's synthetic DNA and Tailorlux's fluorescent markers. Alternatively, markers can occur naturally and be interpreted through lab analysis, as in the case of Corebiome. The following were among the technologies tested in a pilot involving the innovation accelerator Fashion for Good

(Fashion for Good, 2019) :

- Haelixa is a DNA tracer that uses DNA sequences encapsulated within an inorganic matrix that provide forensic level authentication. The tracer can be applied manually with hand sprayers or through an automated sprayer.
- Tailorlux is a fluorescent technology that provides an invisible, machine-readable fingerprint that combines forensics and optical authentication. Fluorescent Particles are blended with a viscous slurry to create enriched tracer fibres. These fibres can then be easily integrated at the gin and spinning mills, blending them together with untreated cotton without hindering standing procedures. The technology enables real-time authentication.
- Corebiome is a microbiome analysis that identifies the presence and concentration of bacteria, fungi, algae and viruses in a specific community. In this sense it is like a living fingerprint.

While this type of technology solution is not yet pervasive in the textiles industry, several pilots and small-scale initiatives have been launched in recent years.

Harnessing the potential of blockchain technology for due diligence and sustainability

In the project [Enhancing Traceability and Transparency for Sustainable Value Chains in the Garment and Footwear Sector](#), UNECE is implementing pilots to assess the enabling role of blockchain for due diligence and sustainability in cotton and leather value chains. Such pilots aim to demonstrate the feasibility of end-to-end traceability building on the identification and coding of data to be collected and exchanged by value chain actors at key data points. Approximately 60 partners are involved, covering the full spectrum of value chain transactions (farmers, cooperatives, traders, tanneries, manufacturers and brands) across 18 countries, including developing

BM.11 Generate ideas for the key resources block



economies. With support of a blockchain platform developed by the project, sustainability claims related to origin, use of chemicals, material content (e.g. recycled, repurposed, organic) animal welfare, species conservation and responsible sourcing, are tracked backward and in 'real time' for products such as jeans, cotton shirts, socks, shoes and bags. The supporting role of DNA and ceramic tracers is also tested to prove cotton and leather authenticity and provenance. The proof of concept for the pilots shows that blockchain has the potential to increase trust in sustainability claims for products and materials, enhance B2B and B2C communication and improve access to reliable information on compliance with policy and regulatory requirements. At the

same time, this involves commitment and collaboration among value chain actors, fair distribution of costs, skills development and technology transfer for small actors, who make most of this industry. Policymakers and regulators have a key role to support the uptake of such solutions, through the promotion of standardization and harmonization, including on interoperability of data management systems and clear rules on data privacy and security, and with financial assistance and capacity building. This year, UNECE published a Policy recommendation for Enhancing Traceability and Transparency of Sustainable Value Chains in the Garment and Footwear Sector - read more [here](#).

References:

European Commission (2017). *A Background Analysis on Transparency and Traceability in the Garment Value Chain*. https://ec.europa.eu/international-partnerships/system/files/european_commission_study_on_background_analysis_on_transparency_and_traceability_in_the_garment_value_chain.pdf

Fashion for Good (2019). *Tracing Organic Cotton from Farm to Consumer*. <https://fashionforgood.com/wp-content/uploads/2019/12/Fashion-for-Good-Organic-Cotton-Traceability-Pilot-Report.pdf>

OECD (2018). *Due Diligence Guidance for Responsible Supply Chains in the Garment and Footwear Sector*. <http://dx.doi.org/10.1787/9789264290587-en>

UNECE (2021). *Recommendation N.46 with Implementation Guidelines 46*. https://unece.org/sites/default/files/2021-04/ECE_TRADE_C_CEFAC_2021_10E_Rec46-Textile_0.pdf

BM.12

Generate ideas for the key activities block



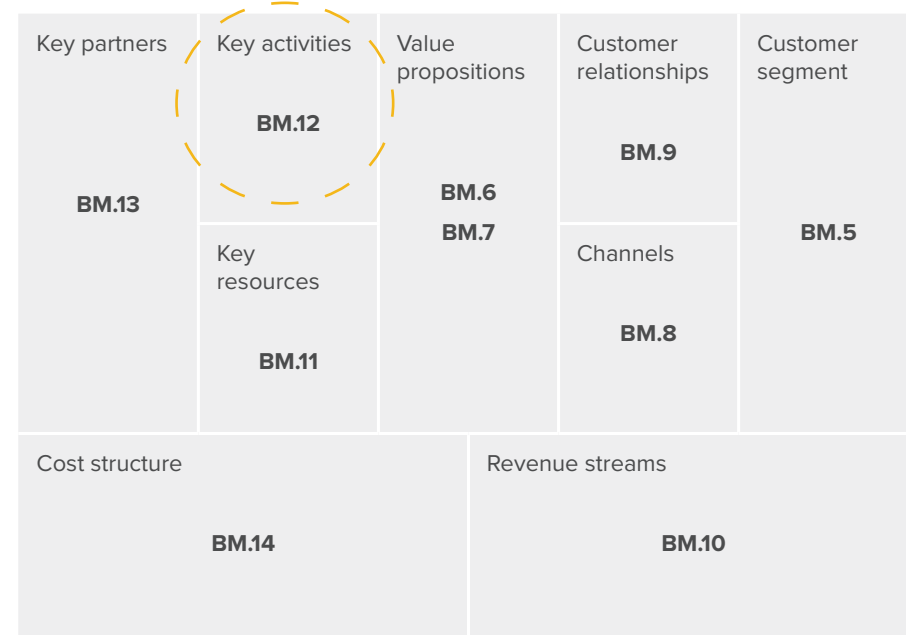
ORIENTATION

Key activities for a typical B2C apparel company were previously suggested in the ST.3 process as

- The product development processes from design sketch, through sampling to order placement
- Trend monitoring
- Purchasing/buying, and production order monitoring
- Logistics
- Marketing communications
- B2C and/or B2B sales

For the learning case study, the product development process is singled out as the most critical activity, particularly as it relates to the close collaboration with fabric and garments producers. These collaborations need to be deepened to support the new zero waste value proposition, as it relates to recovering production spill, end-of-roll and factory seconds.

Template of Business Model Canvas



BM.12 Generate ideas for the key activities block



TIPS & TRICKS

If your client company is positioned in the textiles supply chain, many of the key activities under consideration for this block would naturally be production-related. New methods and technologies in the industry may help inform your idea generation process. As illustrative examples, the following could inspire input for your client:

- New technology exists that allows dyeing and printing on natural fabric with zero water use. This involves a one-step print solution that uses zero water waste. Minimum water is required for the finishing process. <https://www.kornit.com/>
- A technology-driven company has automated the CMT process of fabric making and allows small scale garment manufacturers to efficiently complete production locally. <https://youtu.be/Ng7RDwXlqlo>

BM.13

Generate ideas for the key partnership block



ORIENTATION

For this activity, the manual provides a handful of suggested approaches particularly relevant for SMEs seeking to engage in constructive partnerships that address sustainability challenges and opportunities to strengthen the value proposition: They include:

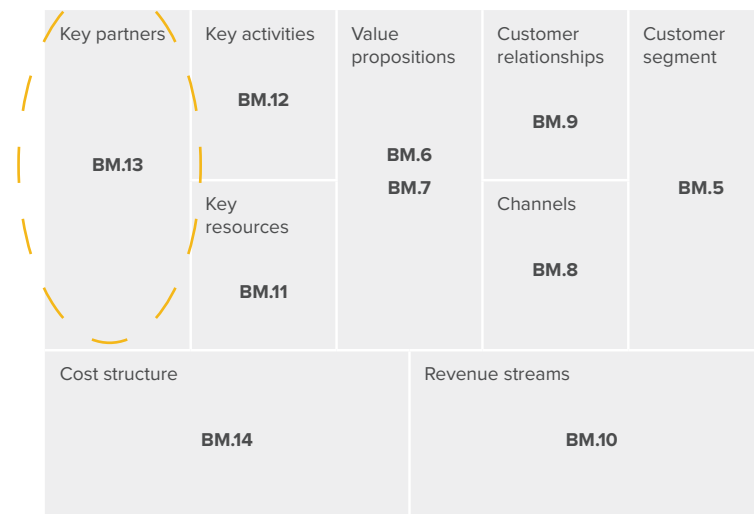
- Work with trade associations, small business associations, free economic zones or eco-industrial parks that can help you to **engage large groups of companies** that are facing a common sustainability challenge
- Identify the partners that are **already** pro-actively addressing sustainability issues
- Seek out large companies that may **have more influence** over the supply chain
- Encourage the formation of **networks** or business clubs to tackle specific issues

The stakeholder mapping in PR3 should be referenced for potential partnerships.

In this section, a learning case study serves as an illustrative example of an apparel SME employing elements of the approach above.

Additional examples of partnerships aimed at strengthening value propositions are illustrated using selected company cases from the BM.4 business model patterns. These collaborations span the value chain and involve supply chain partners as well as market-oriented partners.

Template of Business Model Canvas

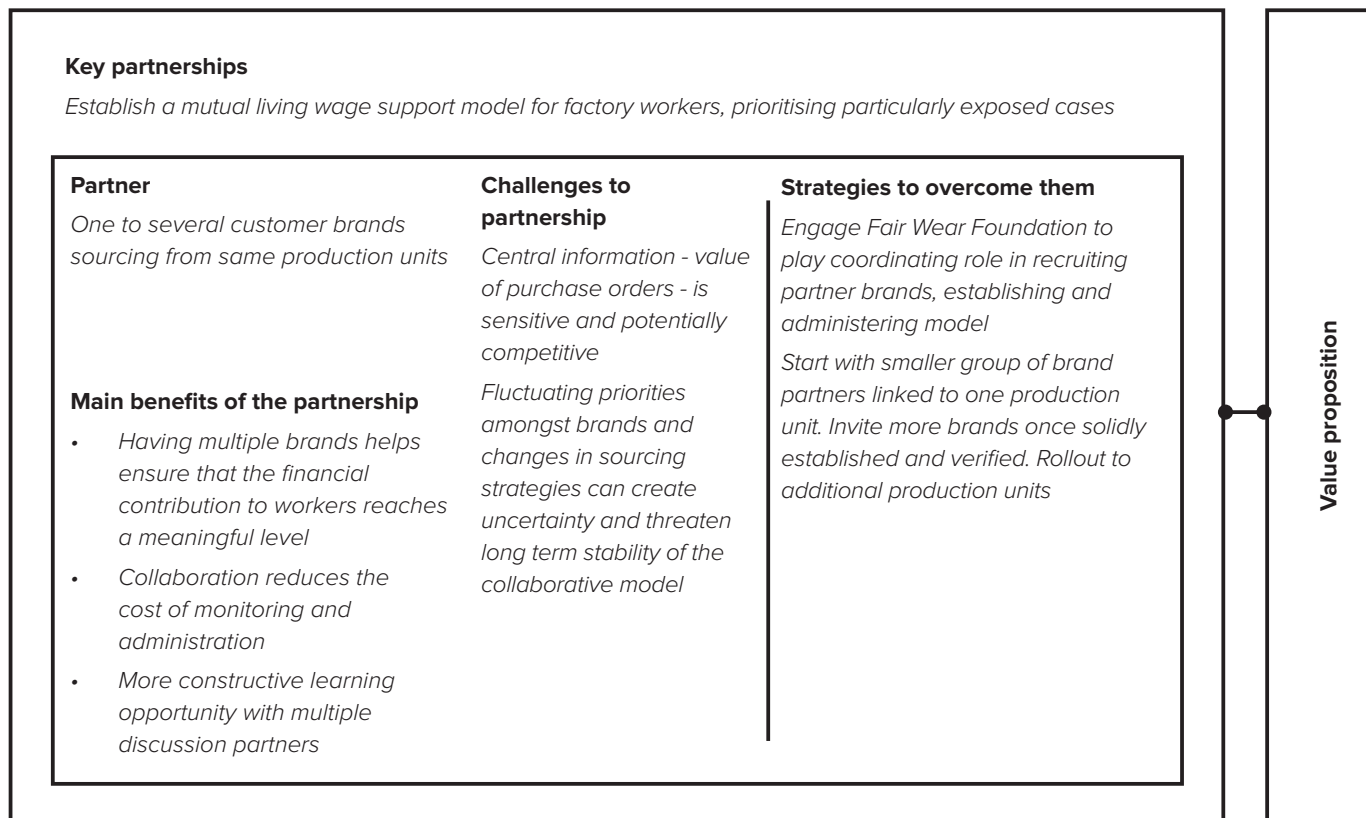


BM.13 Generate ideas for the key partnerships block



LEARNING CASE STUDY - NICHE DENIM: PARTNERSHIP IDEAS

To deliver on its value proposition for 'aligning people with product', Niche Denim works to address the gap between minimum wages and recognised basic living wages. Constructive partnerships will be critical to make the efforts meaningful.



BM.13 Generate ideas for the key partnerships block



TIPS & TRICKS

The case companies provided to illustrate the Circular Patterns in BM.4 offer a variety of examples of meaningful partnerships and collaborations along the value chain. These can offer inspiration while considering and exploring partnerships relevant for your client company.

- Collaboration with **farmers**: Arms of Andes centers its value proposition around the technical properties and cultural importance of alpaca wool. Instead of working through markets or middlemen, Arms of Andes directly engages with the farming families to source the wool that is sent to their selected yarn producer.
- Collaboration with **artisanal weavers**: Tonlé builds its value proposition around zero-waste design and production as empowerment. While most production steps are performed in-house, Tonlé has a creative partnership with the weaving collective Weaves of Cambodia to produce product ranges using the yarns made by Tonlé from textile scraps.
- Multi-partner collaboration with **garment manufacturer, fibre supplier and government agency**: In line with its focus on reuse, Nudie Jeans also works toward material recovery in the supply chain. In a partnership with both a key garment manufacturer in Tunisia and a fibre supplier, Nudie is piloting processes for recovering the value of second quality production through fibre recycling. The United Nations Industrial Development Organisation (UNIDO) is also a partner in the collaboration.
- Collaboration with **yarn, fabric and garment producers**: in addition to repair and reuse, the value proposition for Nudie Jeans includes the notion of fair share, with a focus on ensuring living wages for factory workers. Nudie partners with mills and garment suppliers in India to employ a unique mechanism for bolstering the wages of factory workers based on the production volumes of Nudie's garments.
- Design collaboration with **artisanal production**: in keeping with its sustainability value proposition, the assortment offered through the Vigga/Circos subscription service centers around carefully selected brands. Among these is [Aiayu](#), a Scandinavian designer brand producing its garments exclusively through partnerships with artisanal producers in Bolivia, India and Nepal. Aiaya and Vigga collaborated on the design of the assortment offered on Circos.
- Collaboration with **refurbishment and fulfillment partner**: The North Face Renewed partners with [The Renewal Workshop](#) (TRW) to deliver the core components of its value proposition. TRW handles key stages in the process from sorting and assessing damaged and returned garments to refurbishment, quality assurance, data processing, webshop content, inventory management and order fulfillment.
- Collaboration with **apparel brands**: RE/DONE's value proposition is based on 'reimagining heritage brands' and celebrating vintage, and is grounded in creative collaborations with a number of brands, including Levis and Haines.
- Collaboration with **financial institutions**: there are not only financial institutions such as banks or government funds that can finance companies but also textile specific funds (e.g. Textile Innovation Fund, Bombyx Capital or Alante Capital, amongst others) have emerged in recent years in order to overcome the limitations on experience and expertise that hinder traditional investors from pursuing fashion innovation opportunities (Fashion for Good and Boston Consulting Group, 2020). You can also check Development Banks in your region.

BM.13 Generate ideas for the key partnerships block

References:

Fashion for Good and Boston Consulting Group (2020). *Financing the Transformation in Fashion Unlocking Investment to Scale Innovation*.
https://fashionforgood.com/our_news/fashion-for-good-bcg-launch-new-report-financing-the-transformation-in-fashion/

BM.14

Generate ideas for the cost structure block

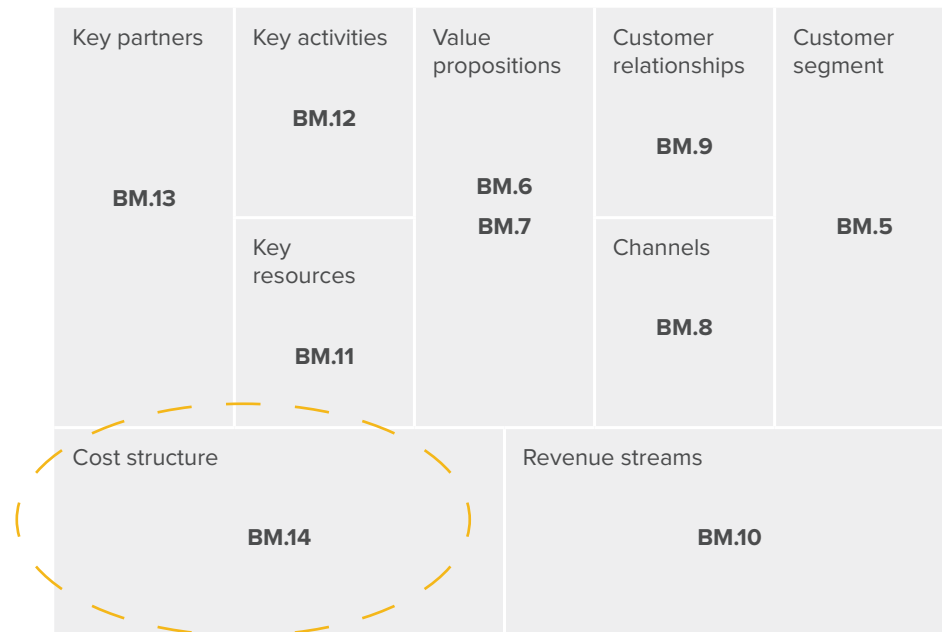


ORIENTATION

The aim of this activity is to explore ways to reduce costs, either through resource efficiency ('economies of scope') or through increased volume ('economies of scale'). A learning case study provides an example for inspiration.

This section also takes the opportunity to explore examples of potential additional costs of eco-innovations that may need to be taken into account when considering the cost structure block for alternative business models and value propositions.

Template of Business Model Canvas

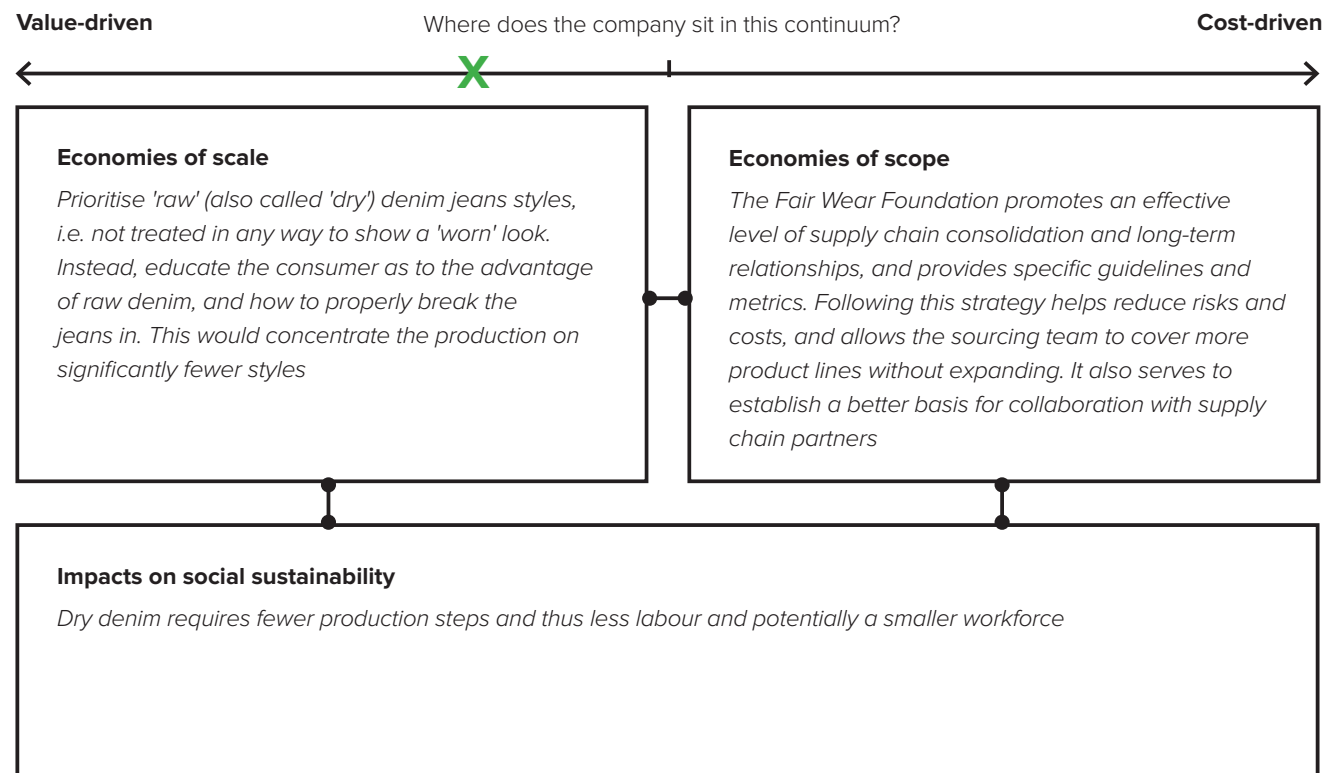


BM.14 Generate ideas for the cost structure block



LEARNING CASE STUDY - NICHE DENIM: COST STRUCTURE IDEAS

After supporting the Niche Denim team in plotting the company along the Value- vs Cost-driven continuum, Resilient Futures led a brainstorming session using among other things, the prompts in the template. As reflected in the summary results below, exploring these dimensions of cost structure yielded potentially new ideas with positive cost implications, while linking to the value proposition and other elements of the business model.



BM.14 Generate ideas for the cost structure block



TIPS & TRICKS

Exploring additional strategic ideas from those initially identified for possible inclusion in the new business model can provide you with further inspiration and ideas as to how cost structures and cost levels could be affected.

Innovation ideas for implementation	Potential cost-related implications
1. Digitally enabled and authentic product-level transparency	This would add to the running operational costs, both as a periodic fee for the technology service, and for routine efforts to verify and improve data collection Digital tagging would involve a per unit cost, albeit negligible
6. Incorporate creative use of production off-cuts and end-of-roll stock, in capsule and/or recurring collections	There may be no additional cost for the materials when made into new garments, i.e. the materials cost may be a so-called sunk cost The manufacturing cost may be higher per unit due to smaller production runs
10. Employ product certification(s) to ensure and communicate adherence to sustainability standards	Most certifications involve an annual license fee, and a volume-based fee based on produced and/or sold units
13. Engage small scale 'craft' production through artisans	Generally a higher per-unit production cost. May also require some advanced payment, although related interest costs would be negligible

BM.15

Evaluate the benefits



ORIENTATION

The learning case study below summarises an array of potential benefits stemming from the business model to deliver the value propositions of zero waste denim. Examples include services to delay end-of-life, material recovery at both end-of-life and from production, aligning people with products - including new collaborations with local artisans and social enterprises.

Template of Life Cycle Business Benefits

	Environmental impacts	Social impacts	Economic impacts
Materials			
Production			
Transportation			
Use			
End-of-life			

BM.15 Evaluate the benefits



LEARNING CASE STUDY - NICHE DENIM: EVALUATE THE BENEFITS

For this evaluation, each life cycle phase was considered, with an eye on the sustainability hotspots and strategic threats - as well as the opportunities - addressed by the business model concept.

	Environmental impacts	Social impacts	Economic impacts
Materials	<i>Yarns using cotton fibres recycled from factory seconds (second quality production) avoids impacts from virgin cotton cultivation</i>	<i>Multi-brand and factory collaboration aims to eliminate risks of refugees being exploited in cotton harvesting</i>	<i>Partial value recovery from second quality production recycled into new yarns</i>
Production	<i>Prioritisation of raw denim reduces need for garment washing & finishing processes. Reductions in water, chemical and energy use</i>	<i>Support livelihoods of local artisan groups engaged to create products from recovered fabrics</i>	<i>Recovered value from off-cuts and end-of-roll fabrics diverted from waste</i>
Transportation	<i>Increased use of local materials will reduce transport impacts</i>	<i>Less 'toxics' will be emitted and thus decreased impacts on occupational human health as well as improve 'quality of life' of general public</i>	<i>Reduced costs through better usage of transportation and logistics</i>
Use	<i>Educating and supporting the customer to repair and care for garments prolongs product life and helps to displace new purchases</i>		<i>Additional revenue streams from repair service and from reselling Potential price premium from authentic differentiation</i>
End-of-life	<i>Repair service and take back/resell program delay end-of-life, helping to displace consumption - and thus production and related impacts - of virgin products</i>	<i>Increased job satisfaction of store staff</i>	<i>Recovered value from garments diverted from waste</i>

BM.16

Evaluate the costs



ORIENTATION

This activity aims to capture a high-level understanding of the effort required to implement a new business model. At this early stage, the suggested approach is to roughly gauge the gap between how the company performs today and what will be needed to perform successfully in the envisioned future business model. This can be done systematically using the respective blocks in Business Model Canvas.

Note, this Business Model Canvas has been updated where new insights were generated in the block-level activities.

The learning case below provides an example. Existing business model elements are shown in black text and new elements in blue text. For these new elements, a green check mark indicates that current capabilities are likely sufficient without significant investment or implementation effort. A single **X** indicates that some degree of development will be needed, whereas a double **XX** identifies those areas where more significant development will be needed. In most cases where development is foreseen, piloting and phasing approaches are feasible.

BM.16 Evaluate the costs



LEARNING CASE STUDY - NICHE DENIM: EVALUATE THE BENEFITS, BUSINESS MODEL CANVAS - "TO BE"

Key partners <i>Strategic denim fabric supplier and jeans producers</i> XX <i>Local artisan collectives / social enterprises</i> X <i>R&D project sponsors</i> ✓ <i>Fair Wear Foundation</i> XX <i>Product ID service provider</i>	Key activities <i>Product development collaborations with</i> <ul style="list-style-type: none"><i>fabric producers</i><i>jeans producers & recyclers</i> X <i>• artisan groups</i> XX <i>In-store repairs and refurbishment</i> X <i>In-store takeback and resell</i>	Value propositions <i>Craftsmanship</i> <i>Participation in authentic denim culture</i> XX <i>Zero waste denim</i> X <i>Aligning people with product: 'be part of the story'</i>	Customer relationships <i>Sharing knowledge and insights into denim jeans,</i> ✓ <i>including care</i> <i>Websites and newsletters</i> <i>Loyal base of proud repeat customers, including repair</i> XX <i>QR code product labels linked to rich information</i>	Customer segments <i>Urban adults</i> <i>Denim lovers / enthusiasts</i> ✓ <i>2nd hand enthusiasts</i>
	Key resources <i>Design team</i> <i>Product development teams:</i> ✓ <i>fabric, garment suppliers and artisans</i> <i>Store interior design team</i> X <i>Knowledgeable, skilled store staff</i> XX <i>Off-cuts, end-of-roll, factory seconds</i>		Channels <i>25 own retail stores India</i> <i>Wholesaler network reaching approx 500 retail stores</i> <i>E-commerce reaches most major markets globally</i>	
Cost structure <i>Denim fabrics purchased per meter with Minimum Order Quantities (MOQs)</i> <i>Per unit garment manufacturing costs upon order delivery. MOQs apply</i> <i>Inventory carrying costs for own channels</i> <i>Retail staff and store rent</i> X <i>Processing costs for recycled cotton fibre from own factory seconds</i> X <i>Cleaning for reselling of 2nd hand product</i> XX <i>Living wage premium for supply chain workers</i>			Revenue streams <i>Individual garment sales through own stores and e-commerce channel</i> <i>Bulk sales to wholesale partners. Fixed quantities per case pack, Minimum sales order quantities</i> X <i>2nd hand sales: pre-worn and refurbished (at own stores)</i> X <i>Repair service fees (at own stores)</i>	

BM.17

Evaluate the risks



ORIENTATION

This activity begins with gathering an initial broad list of risks to complete the Risk Register template, followed by a rough assessment of the probability of the risk actually occurring, and the impact in the event it does occur. These two factors are then multiplied with one another to create a risk score.

A complementary method to constructively assess and prioritise risks - particularly when there is a relatively large number of risks identified - is to plot them on a 2 x 2 matrix (SFA, 2021). This helps to visualise mitigation strategies which can consider ways to both reduce the probability of occurrence - thus shifting the risk to the left - and/or reducing the impact in the event of occurrence, which shifts the risk downward. The objective is then to seek mitigation strategies that move the risks into the bottom left quadrant, and keep them out of the upper right quadrant.

The learning case study below offers selected examples of risks and considers key elements of the template. These risks are also plotted on the matrix to the left.

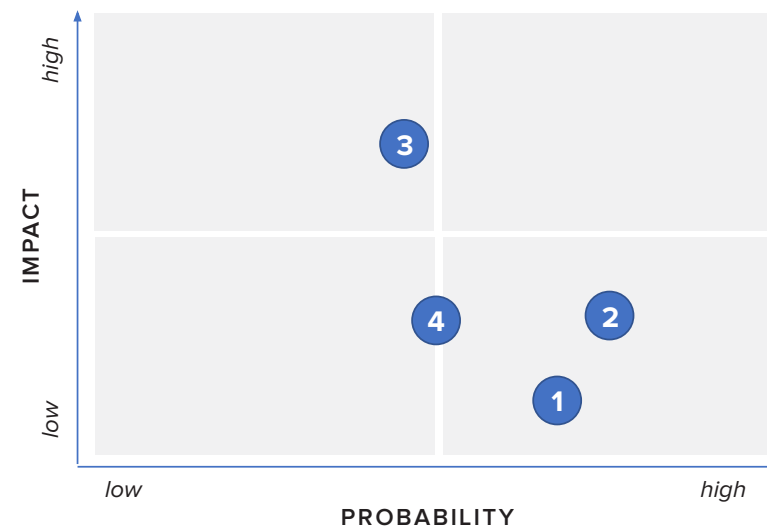


Figure 10: Risk Mapping & Mitigation (SFA, 2021)

BM.17 Evaluate the risks



LEARNING CASE STUDY - NICHE DENIM: EVALUATE THE BENEFITS

To enhance the process of risk evaluation, Resilient Futures solicited input from project teams with experience in similar types of initiatives in the sector. Some valuable input was found in reports and interviews, while other input was obtained through direct contact and discussion.

Risk	Impact	Probability (Low - High)	Impact (Low - High)	Mitigation	Contingency
1. Unpredictable volumes for take back, re-sell and repair services	Excessive volumes could lead to service delays, capacity shortages and storage issues Low volumes could lead to underutilised capacity and resource inefficiencies	Medium - High, particularly in initial year(s)	Low	Set customer expectations to lessen impact	Outsource to third party services
2. Low value of information via QR code	Adequate supply chain information proves difficult and too costly to access and assemble, limiting the value of the transparency offered to customers	Medium - High, particularly in initial year(s)	Low - Medium	Conduct customer research to set a minimum level for value. Secure this level before initial launch	Limit rollout to select supply chains with accessible information Collaborate with sector wide initiatives to increase trust and access information
3. Ownership of production spill	Ownership and rights to production spill, end-of-roll and deadstock may limit access to the material and/or impact the cost of use	Medium	Medium - High	To reduce probability of occurrence, assess ownership rights as the initial step before proceeding. Negotiate where necessary, and clarify contractually	Delay initiative until access to spill is contractually established
4. Supply disruption	Artisanal suppliers in vulnerable areas could be susceptible to situations abruptly hindering production or delivery	Medium	Low - Medium	Limit collaboration to non-critical product assortment and plan for flexibility	Accept delays and set expectations with customers

References:

The Sustainable Fashion Academy (2021). *Sustainability Fundamentals*. <https://www.sustainablefashionacademy.org/courses/sustainability-fundamentals>

BUILD ROADMAP

Defining a new business model
to deliver the business strategy

BR.2

Roadmapping workshop



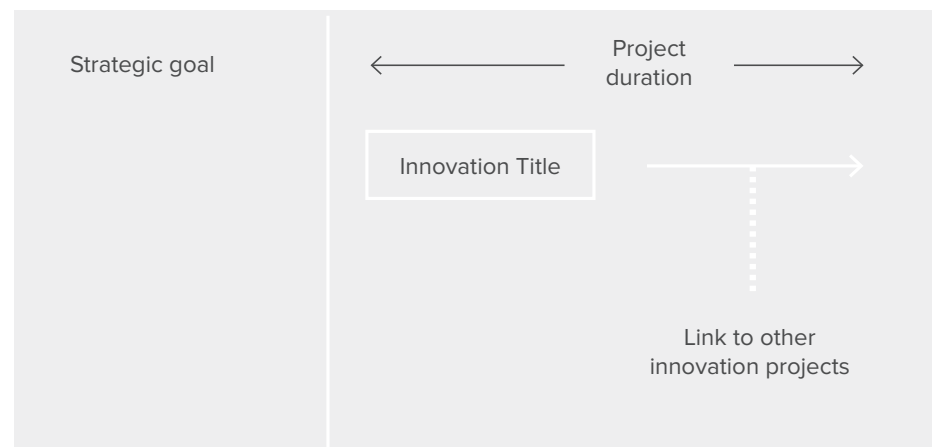
ORIENTATION

A key element described for the roadmapping process is deciding how to organise the innovation ideas into projects for eco-innovation. This could involve breaking up large innovation ideas and grouping together small innovation ideas, with a recommended aim to end up with projects that are between 1 and 12 month(s) in duration.

The next step is to create a logical sequence in which to tackle the projects, giving consideration to any prerequisites, as well as risk levels and payback periods. Requirements regarding collaboration partners and/or key personnel should also be considered.

The learning case study below offers examples of these considerations for selected innovation ideas related to the targeted business model. Additional innovation ideas from the initial candidate list are also explored to provide further examples and inspiration for your roadmapping process.

Template of Roadmap



BR.2 Roadmapping workshop



LEARNING CASE STUDY - NICHE DENIM: ROADMAPPING

As a preparatory step, Resilient Futures brainstormed with Niche Denim to capture key considerations for implementing each of the innovation ideas.

Strategic innovation ideas	Splitting / phasing, or grouping	Considerations: payback, risks, prerequisites	Partners / personnel
<p>1. Digitally enabled and authentic product-level transparency to</p> <ul style="list-style-type: none"> connect engaged customers with product story regarding materials, production processes, and producers guide customers in care, refurbishment and end-of-use options 	<p>Splitting into a longer-term, multi-year phasing approach is appropriate, starting with piloting and launching in a limited scope.</p> <p>Collecting learnings and adapting to those learnings along the way should be clearly built into the roadmap.</p> <p>The digital nature of this type of solution will be beneficial in supporting a high degree of adaptability as the scope of the solution expands.</p>	<p>The technical infrastructure and data scope and collection methods will need to be in place as a prerequisite. Product-level transparency can take on a number of dimensions related to the nature of the information, the level of detail, the degree of verification, and the scope of the value chain captured.</p> <p>QR codes need to be attached during production. Products in circulation without QR codes will essentially be excluded from the service offering.</p> <p>This innovation is ultimately customer-facing and therefore higher risk.</p>	<p>Partnering with experienced technology and service providers would be key.</p> <p>Supply chain cooperation will be necessary.</p>
<p>2. Seek R&D partners for innovative solutions to fibre recovery and reuse as feedstock</p>	<p>R&D initiatives should not be placed on any critical path where other initiatives are dependent on successful outcomes.</p>	<p>The actual outcomes of R&D initiatives and thus the applicability for the company will be uncertain, and thus inclusion in a roadmap should be done with caution.</p>	<p>Initiatives where the company has a reasonable degree of influence over the outcomes of the collaboration would be suitable candidates for inclusion in a roadmap.</p>
<p>6. Incorporate creative use of production off-cuts and end-of-roll stock, in capsule and/or recurring collections</p>	<p>Suitable for an initial one year project to establish the model and routines. Once operational, expansion would likely not need to be project based.</p> <p>The actual amount of usable production spill will likely not be fully known in advance, and thus design and production using the spill would be a separate activity, likely with a distinct lag time after the original production.</p>	<p>Capsule collections could be an appropriate format to apply, and offer flexibility in terms of the number and frequency of collections, and the product groups encompassed.</p> <p>Relatively short payback, so reasonable to place early in the Roadmap.</p> <p>Customer-facing, but nonetheless not particularly high risk.</p>	<p>Selected garment producers will be critical.</p> <p>The concept also lends itself well to collaboration with design schools.</p>

BR.2 Roadmapping workshop



LEARNING CASE STUDY - NICHE DENIM: ROADMAPPING

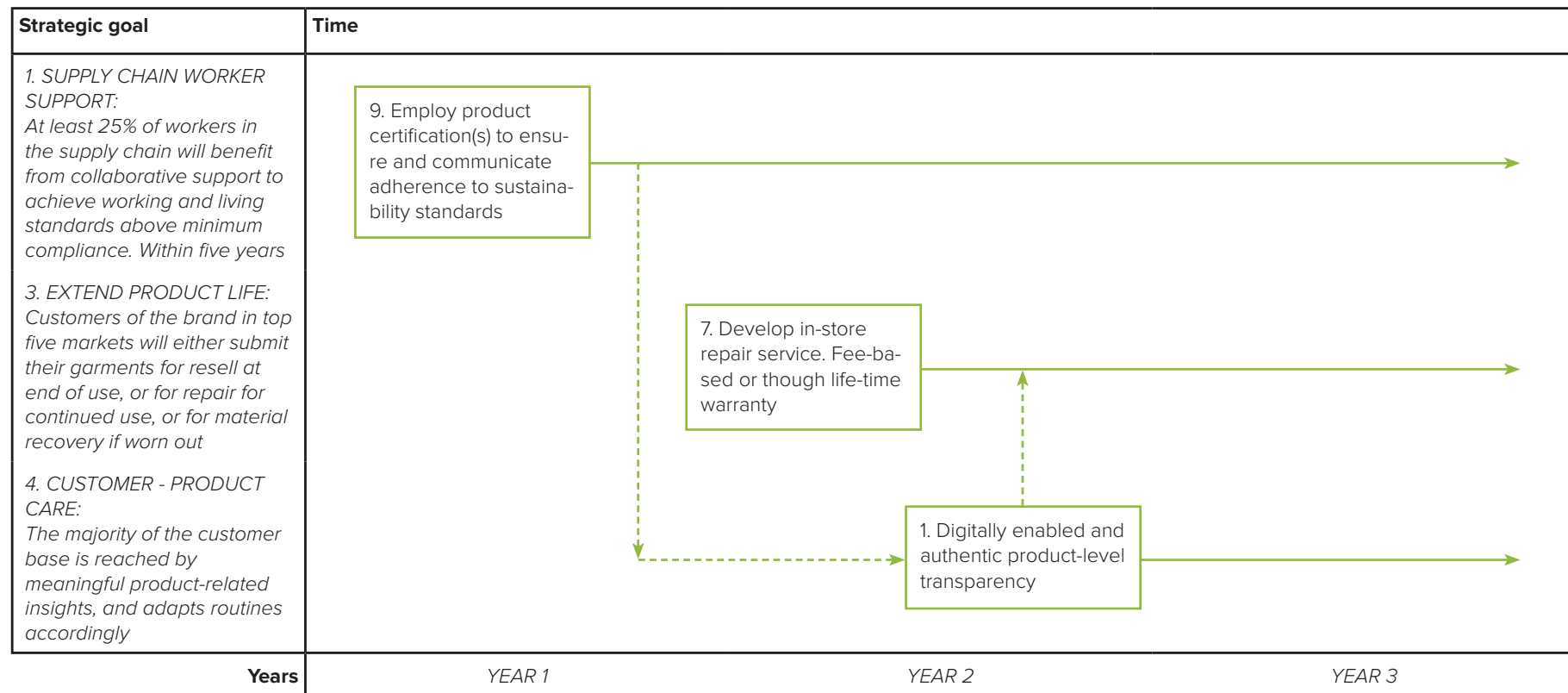
Strategic innovation ideas	Splitting / phasing, or grouping	Considerations: payback, risks, prerequisites	Partners / personnel
7. Develop in-store repair service. Fee-based or through life-time warranty	Lends itself well to implementation by store or group of stores. Once the routines are established at the initial location(s), rollout would be relatively straightforward.	Relatively short payback, with high communication value. Ideal for early position in the roadmap.	Garment repair training program for store staff.
9. Employ product certification(s) to ensure and communicate adherence to sustainability standards	For prevailing product certifications, there will likely be opportunities to relatively quickly begin applying the label to certain products.	Several certifications are relevant for textiles products, covering diverse value chain focus areas, processes, impact areas, etc. Some certificates overlap each other while some complement each other. Additionally, certifications by nature pose requirements on supply chain partners, including so-called chain of custody handling requirements, which current suppliers and/or their suppliers, may not be willing to prioritise.	Certification organisations generally offer assistance in identifying approved fibre suppliers and production units.
10. Engage small scale 'craft' production through artisans	With no previous experience engaging artisanal producers, the roadmap should allow for sufficient time to understand and adapt to appropriate routines for product development, purchasing, delivery and payment.	Caution and awareness is important so as to avoid short-term, one-off relationships that could create vulnerable situations when expected future orders don't materialise.	Many networks and affiliations exist to represent artisanal producers and facilitate contact and relationships.

BR.2 Roadmapping workshop



LEARNING CASE STUDY - NICHE DENIM: ROADMAPPING

The above considerations then informed the process of setting a high-level timing for development and implementation of innovation ideas. A selection of innovation ideas is applied in the Roadmap template below.





LEARNING CASE STUDY - NICHE DENIM: ROADMAPPING

While not chosen for the business model, the implementation considerations for other innovation ideas could provide further inspiration.

Innovation ideas	Phasing, grouping	Considerations	Partners
3. Prioritise long-life product strategy, including durability, versatility, reduced seasonality	Several options could be relevant, including aligning phases along product lines within the assortment and/or with a supply chain partner focus.	Technical aspects of product durability, e.g. construction, pattern, colour fastness, would generally involve relatively accessible and straightforward extensions of current working processes. Aspects like enhanced versatility and reduced seasonality could require more comprehensive adjustments and adaptations to design processes as well as culture.	Primarily with selected garment manufacturers, but collaboration further up the supply chain, i.e. fabric-, yarn or even fibre production, could be critical.
4. Collaborate with customer community to solicit / 'crowd source' design improvements for higher usage and longer life	The current degree and nature of customer interaction will dictate the starting point for a design-related engagement. A series of recurring points of interaction should be pursued as opposed to one-off engagements.	Companies may have existing newsletters and mailing lists, loyalty programs, clubs, or followers on social media platforms that can be leveraged. Various forms of incentives should be considered.	Engaging a social media partner could be an effective approach.
5. Offer product co-creation for personalisation	Select limited product groups with ample time for piloting and running at a small scale. However, a minimum degree of scale and volume will be needed to make the model feasible.	Co-creation, or offering the customer a degree of product configuration, relies on many factors to function successfully, most importantly the tool or user interface allowing the customer to make - and ideally preview - configuration choices, and the responsive production capability essentially work on an order size of one. These two factors are likely not present in the current business model. As well, while a simple concept to grasp, garment configuration will be a novel service for customers.	A tight collaboration with a proficient garment manufacturing partner will be critical, preferably a more local manufacturer. This type of offering could also be well supported by artisanal producers. Alternatively, a provider of automated garment production.

BR.2 Roadmapping workshop



LEARNING CASE STUDY - NICHE DENIM: ROADMAPPING

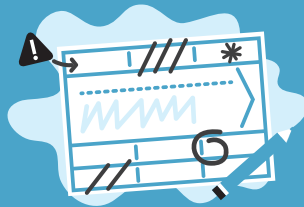
Innovation ideas	Phasing, grouping	Considerations	Partners
8. Offer innovative recommerce services through partnership(s) with 3rd party service provider(s) to enter the fast growing resale market.	Implementing recommerce models is reported to be filled with trial and error. Thus, pilots and limited scale rollouts are recommended. A roadmap should consider the timing and nature of integration into the mainline business.	There is a broad and growing palette of approaches to resale and rental models, regarding e.g. feedstock, processing and merchandising, most of which will be quite alien to current business processes and models.	In Europe and North America, a growing number of providers offer services including collection, sorting/grading, cleaning, refurbishment, packaging, data management, inventory management, e-commerce selling and fulfillment.

IMPLEMENT

Implementing the first project for eco-innovation
that will help to realise the new business strategy
and business model

IM.1

Create a project plan



ORIENTATION

This activity is centered around the assembly of the Project Canvas and is composed of a number of elements as shown in the template below.

This section of the supplement offers a set of illustrative examples of suitable metrics aligned with the innovation ideas referred to in the roadmapping activities in BR.2. These would align with the Success criteria element of the planning canvas.

Template of Project Canvas

Aims and objectives	Scope	(Success criteria)
Milestones	Deliverables	
Actions		
Team	Stakeholders	Customers
Resources	Constraints	Risks

IM.1 Create a project plan



LEARNING CASE STUDY - NICHE DENIM: INPUT TO PROJECT CANVAS

Resilient Future helped the team at Niche Denim identify and articulate relevant metrics aligned with each of the innovation ideas that would as well be practical to implement. It was also recognised that the metrics would be routinely reviewed as to their effectiveness, and adjusted or replaced if needed.

Innovation ideas	Suitable metrics / success criteria
1. Digitally enabled and authentic product-level transparency to: <ul style="list-style-type: none">connect engaged customers with product story regarding materials, production processes, and producersguide customers in care, refurbishment and end-of-use options	<ul style="list-style-type: none">% of assortment covered% of supply chain coveredCustomer scans / use
2. Seek R&D partners for innovative solutions to fibre recovery and reuse as feedstock	<ul style="list-style-type: none">Value / usability of outcomes (including scope of use and time horizon) in relation to personnel and other investment costs
6. Incorporate creative use of production off-cuts and end-of-roll stock, in capsule and/or recurring collections	<ul style="list-style-type: none">% of estimated spill recovered, per production unit, for all production
7. Offer innovative recommerce services through partnership(s) with 3rd party service provider(s) to enter the fast growing resale market	<ul style="list-style-type: none">New customers to the brandReturning customersLandfill / incineration tonnage avoidedNew product displacement
9. Employ product certification(s) to ensure and communicate adherence to sustainability standards	<ul style="list-style-type: none">Customer perception (survey)Perceived impact on product demandCalculated reductions in product impact
10. Engage small scale 'craft' production through artisans	<ul style="list-style-type: none">Customer perception (survey, social media buzz)Volume of artisanal products soldNumber of artisanal groups engagedNumber of orders placedEstimated social benefit

IM.1 Create a project plan



TIPS & TRICKS

While not chosen for the business model, the potential metrics / success criteria for other innovation ideas could provide further inspiration.

Innovation ideas	Suitable metrics / success criteria
3. Prioritise long-life product strategy, including durability, versatility, reduced seasonality	<ul style="list-style-type: none">• % of assortment covered• Customer perception of long-life, quality (survey based)
4. Collaborate with customer community to solicit / 'crowd source' design improvements for higher usage and longer life	<ul style="list-style-type: none">• Number of contributing customers• % of usable inputs• Value rating of the contributions
5. Offer product co-creation for personalisation	<ul style="list-style-type: none">• Number of products configured• Number / % of aborted configurations• Customer satisfaction (survey)• Related social media traffic / buzz• Average delivery lead time

REVIEW

Review the performance of the first project
for eco-innovation and update your plans for the future

RE.1

Do a project review workshop

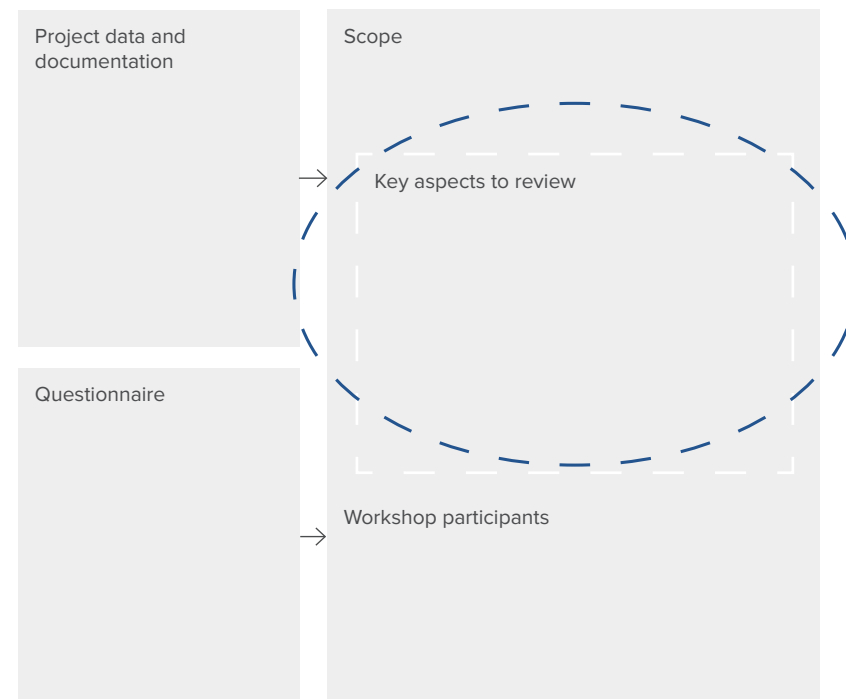


ORIENTATION

This activity aims to assess the performance and results of the project at certain milestones, as well as capture learnings and opportunities for improvement.

This section offers a set of illustrative examples of potential pitfalls aligned with the innovation ideas referred to in the IM.1 project planning. Such pitfalls would form the basis of learning points that would be amongst the key aspects to review.

Template of Project Review



RE.1 Do a project review workshop

TEMPLATE INPUT & INSPIRATION: PROJECT REVIEW

Strategic innovation ideas for implementation	Learnings and pitfalls (illustrative)
1. Digitally enabled and authentic product-level transparency to <ul style="list-style-type: none"> connect engaged customers with product story regarding materials, production processes, and producers guide customers in care, refurbishment and end-of-use options 	<ul style="list-style-type: none"> Suppliers not sufficiently engaged or incentivised to provide meaningful data Information to customers not adequately curated
2. Seek R&D partners for innovative solutions to fibre recovery and reuse as feedstock	<ul style="list-style-type: none"> Initiative not sufficiently prioritised, or given sufficient resources, to ensure valuable and useful outcomes
3. Prioritise long-life product strategy, including durability, versatility, reduced seasonality	<ul style="list-style-type: none"> Creative team not incentivised to adapt design approach Overriding seasonal sales targets divert focus from long term design vision
4. Collaborate with customer community to solicit / 'crowd source' design improvements for higher usage and longer life	<ul style="list-style-type: none"> Sense of community among customers not sufficiently established before attempting to solicit meaningful input
5. Offer product co-creation for personalisation	<ul style="list-style-type: none"> Expectations for delivery lead time not set with the customer
6. Incorporate creative use of production off-cuts and end-of-roll stock, in capsule and/or recurring collections	<ul style="list-style-type: none"> Attempt to squeeze production into peak times along with main orders
8. Offer innovative recommerce services through partnership(s) with 3rd party service provider(s) to enter the fast growing resale market	<ul style="list-style-type: none"> Significantly more feedstock received than can be reasonably processed Insufficient / unclear communication as to the quality of respective products for resale
9. Employ product certification(s) to ensure and communicate adherence to sustainability standards	<ul style="list-style-type: none"> Multiple product labels create confusion in the mind of the customer
10. Engage small scale 'craft' production through artisans	<ul style="list-style-type: none"> Expectations for clearly established and understood for both parties

RE.1 Do a project review workshop



TIPS & TRICKS

Remember that eco-innovation is an iterative process.

Now that you have gone through the eco-innovation process and methodology in this supplement, you may realise that it is sometimes necessary to revisit a previous eco-innovation activity in light of changes, new information or other developments. Keep in mind that this is in fact true for any innovation process, and should never be seen as a sign of failure, but rather a sign of progress in the continuous innovation process. This practice of iteration will lead to better results in the long-term.

Eco-innovation is a continuous learning journey that we are all part of.

Glossary of key terms

B2B / B2C

B2B stands for 'business-to-business' while B2C is short for 'business-to-consumer'. These two distinct business models serve different types of customers: a B2B company provides services or products to other businesses, a B2C company sells directly to individual consumers.

Brand vs. manufacturer

A brand is a marketing or business concept that helps people identify a product, and is intended to be associated with the quality or other attributes of the product. A manufacturer produces the finished product and that identical product may be sold under multiple brands.

Business model

How a company does business. The translation of strategic issues, such as strategic positioning and strategic goals into a conceptual model that explicitly states how the business functions. The business model serves as a building plan that allows designing and realising the business structure and systems that constitute the company's operational and physical form (Osterwalder et al, 2005).

Business strategy

The long term goals of a company and the markets in which the company will operate (i.e. vision and mission) (adapted from Andrews, 1997).

Consignment model

A supply chain model in which a product is sold by a retailer, but ownership is retained by the supplier until the product has been sold. The retailer does not buy the inventory until it has been sold, so unsold products can be returned.

Consumer vs Client

A consumer is an individual or a group of people who purchase or use goods and services solely for personal use, and not for manufacturing or resale. A consumer is the final user in the sales distribution chain. A client is somebody who buys goods or pays for services. Companies and other organisations may also be clients. A client usually has an arrangement or a relationship with the seller.

Crowdsourcing

Refers to the process of companies collecting work, information or opinions from a large group of people, usually via the internet, both paid or voluntarily. It allows companies to tap into people with a large set of skills and expertise all over the world while saving time and money.

Economies of scale

Cost advantages that companies experience when production becomes efficient, as costs can be spread over a larger amount of goods. It can be both internal and external - internal economies are caused by factors within a single company while external factors affect the entire industry.

Fiber strategy

A company's strategy for choosing which fibers and materials it will prioritise or phase out in its product portfolio over a defined period of time. This strategy may be informed by a range of factors, including cost, performance, and environmental impact.

Flat organisational structure

An organisation structure with few or no levels of management between management and staff level employees, meaning less supervision of employees while increasing their involvement in the decision-making progress, improving coordination and speed of communications between employees and reducing an organisation's budget costs by eliminating salaries of middle management.

Forensic markers

Refers to the various techniques used to track and trace the origin and components of a garment, from raw material, to finished product and post-consumer use. These techniques include labeling, certifications and block chain technology.

Gender

Describes the roles, behaviours, activities, and attributes that a given society at a given time considers appropriate for men and women. These attributes, opportunities and relationships are socially constructed and are learned through socialization processes. They are context/time-specific and changeable (UN Women).

Gender discrimination

Describes any distinction, exclusion or restriction made on the basis of sex which has the effect or purpose of impairing or nullifying the recognition, enjoyment or exercise by women, irrespective of their marital status, on the basis of equality of men and women, of human rights and fundamental freedoms in the political, economic, social, cultural, civil or any other field. Examples of gender discrimination are choosing only men for higher management roles, or lack of health and safety projections for women (e.g. PPE for endocrine disrupting chemicals for women of childbearing age) (Art.1 CEDAW, 1979).

Glossary of key terms

Gender equality

Refers to the equal rights, responsibilities and opportunities of women and men and girls and boys. Equality does not mean that women and men will become the same but that women's and men's rights, responsibilities and opportunities will not depend on whether they are born male or female. Gender equality implies that the interests, needs and priorities of both women and men are taken into consideration, recognizing the diversity of different groups of women and men. Gender equality is not a women's issue but should concern and fully engage men as well as women (UN Women).

Gender-sensitive

The practice of redressing existing gender inequalities when designing and implementing development projects, programs or policies.

Greenwashing

Refers to providing misleading information or conveying a false impression about how a company's products or processes are more environmentally sound, typically by exaggerating claims or benefits in order to deceive consumers.

Life cycle

Consecutive and interlinked stages of a product (good or service), from the extraction of natural resources to the final disposal (adapted from ISO 14040:2006).

Life cycle assessment

A systematic set of procedures for compiling and examining the inputs and outputs of materials and energy and the associated environmental impacts directly attributable to the functioning of a product throughout its life cycle (adapted from ISO 14040:2006).

Life cycle thinking

A mostly qualitative approach to understand how our choices influence what happens at each of the stages of the life cycle of an industrial activity: from raw material acquisition through manufacture, distribution, product use and disposal. This approach is needed in order for us to balance trade-offs and positively impact the economy, the environment, and society (UNEP Life Cycle Initiative, 2020).

Marketing

The set of activities that are designed to help the company to understand the type of product it should offer to a market and communicate the benefits and value of the product to the targeted consumer. Marketing focuses on the product, promotion, price and distribution channels.

Market analysis

The activity of gathering information about the size, growth, profitability, target groups and existing products of a market, which is used to inform decision making at a strategic level. This specific activity would fall under the broader umbrella of marketing activities.

Microfibres/microplastics

Synthetic microfibers are a subgroup of microplastics. They are shed when garments made of synthetic material are washed and go into wastewater. This raises concern as high concentrations have been found in products for human consumption such as shellfish and tap water. Researchers are also exploring to what extent animal and plant based materials shed microfibers.

Multi-brand retailer

A retailer who has multiple brands in their product portfolio, as opposed to a single-brand retailer who sells only one brand.

Organization structure

The range of activities and key resources (human and financial) within a company, in addition to those relating directly to production, that are dedicated to supporting the business model. These include procurement processes, distribution, key partnerships, customer relationships and interfaces, research and development, internal communication, and revenue generation.

Partners

Parties in the value chain that provide or receive value including suppliers, outsourced workers, contractors, customers, consumers, clients, members, and others (ISO 26000:2010).

Product line

A group of related products that are all marketed under a single brand name and sold by the same company.

Production spill

Extra, defective or unacceptable materials that are created during the production of textile products. Unused production spill can result in costs due to lower production output, excessive scrap, delayed delivery time as well as wasted human and equipment resources.

Recommerce

The act of selling previously owned products.

Glossary of key terms

Roadmap

A planning tool used to support the implementation of strategies. It is made-up of a series of projects that will help to progress the organisation from the company's current position towards fulfilling the organisation's goals (adapted from Phaal R et al, 2007).

Stakeholder

Any group or individual who can affect, or is affected by, an organisation or its activities. Also, any individual or group that can help define value propositions for the organisation (Stakeholder Research Associates Canada Inc., United Nations Environment Programme, AccountAbility: Stakeholder Engagement, 2005).

Take-back service

The service offered by a manufacturer or retailer to collect used garments from consumers without cost and either resell them or reintroduce them into the original processing and manufacturing cycle to create new garments.

Technical apparel/textiles

Apparel/textiles that have been designed and produced for functional application as the primary purpose, rather than according to aesthetic criteria.

The supply chain

A system of organisations, technology, activities, information and resources involved in moving a product or service from supplier to customer (Michael Porter, 1985) are the most significant impacts in the value chain or the life cycle of a product or service system, which can be used to identify impact improvement opportunities and to prioritise impact reduction actions (UN Environment/SETAC, 2014).

Traceability

It is the ability to track a product through the entire supply chain including materials and parts, production and distribution. In the context of sustainable textiles, traceability is the basis for verifying claims about circularity and sustainability.

Transparency

Relates directly to relevant information that has been made available to all elements of the value chain in a standardised way. This allows common understanding, accessibility, clarity, and comparison.

Value

It is understood to involve creating economic value (the revenue that a firm gets in return for its goods or services) in a way that also creates positive outputs for society by addressing its needs and threats, taking into account economic, environmental and social considerations (adapted from Porter & Kramer, 2011).

A value chain

The entire sequence of activities or parties that provide or receive value in the form of products or services (e.g. suppliers, outsource workers, contractors, investors, R&D, customers, consumers, members) (ISO 14001 CD2, 2013). See also Partners definition above.

Value proposition

Products or services that an organisation offers to a specific market segment that the organisation believes will create value for that specific market segment.

Vertical integration

A manufacturing approach by which a textile mill manages all or most of the steps in apparel production from start to finish, including the yarn prep such as carding, drawing and spinning, all the way through weaving/knitting and the dyeing and finishing of apparel, and at times, even cut and sew.

Virgin products

Textile products made from materials sourced directly from nature in their original form, such as cotton or polyester. Manufacturing products using virgin materials generally uses more energy and depletes more natural resources, as opposed to producing products using recycled materials.

Wholesale channel

A marketing channel for consumer goods involving a wholesaler or distributor primarily engaged in buying and handling goods in large quantities. The wholesaler then resells, usually in smaller quantities, to a retailer who in turn sells to the consumer. The vast majority of goods produced in an advanced economy have wholesaling involved in their distribution.

List of figures

Figures

Figure 1: Life Cycle Activities for Textile Products (UNEP (2020). *Sustainability and Circularity in the Textile Value Chain: Global Stocktaking*)

INTRODUCTION

Figure 2.1-2.3: Textile Material Categorisation (SFA (2021). *Sustainability Fundamentals*. <https://www.sustainablefashionacademy.org/courses/sustainability-fundamentals>)

INTRODUCTION

Figure 3: Global Use of Fibres (Quantis (2018))

INTRODUCTION

Figure 4: Global Fashion Industry Profit (McKinsey (2020). *Global Fashion Index*. <https://www.mckinsey.com/industries/retail/our-insights/state-of-fashion>)

PR.1

Figure 5: Second Hand Market Growth (ThredUp (2020). *2020 Resale Report*. <https://www.thredup.com/resale/2020/>)

PR.1

Figure 6: Representation of Activities in a Circular Textiles Value Chain (UNEP (2020). *Sustainability and Circularity in the Textile Value Chain: Global Stocktaking*)

PR.6

Figure 7: Vision for a Sustainable and Circular Value Chain (UNEP (2020). *Sustainability and Circularity in the Textile Value Chain: Global Stocktaking*)

PR.6

Figure 8: Distillation of Diverse Representations of The Fashion Pyramid (SFA (2021). *Sustainability Fundamentals*)

ST.10

Figure 9: Examples of Business Model Patterns based on Circular Economy Principles (Accenture (2014))

BM.4

Figure 10: Risk Mapping & Mitigation (SFA (2021). *Sustainability Fundamentals*)

BM.17

Images

Page 16: <https://unsplash.com/photos/-mz7qv4SNUg>



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