

CIRCULAR ECONOMY BUSINESS CASE STUDIES IN SOUTHEAST ASIA



ID Knitting Co. Ltd

- Nakhon Phathom, Thailand
- Textiles
- www.idknitting.com
- Analysis period: 2018-2023

Knitting Novel Fabrics for a Circular Fashion Transition

Business Spotlight

Due to intensive competition in the textile industry, ID Knitting Co. has evolved over the past 27 years from using low technology with cheap labour to using advanced technology and more specialisation in specific fabrics such as cool-mode fabric for tropical weather, and circular knitted fabrics. The company also diversifies its products to serve specific groups such as baby and children's wear, and specific uses such as uniforms and casual wear. The company developed its skills and experiences to produce two kinds of recycled fabrics, especially synthetic circular knitted fabrics (made from synthetic fibres like polyester), and plaiting cotton and polyester. The company faces challenges in expanding its markets for these new fabrics, especially internationally.

Keywords

Recycled fabric, CoolMode fabric, Knitwear

Innovation

Product/service design, Manufacturing, Resource circularity, Resource efficiency



Analysis of ID Knitting Co. Ltd.

Context and baseline

During its first generation, from its establishment in 1997, I.D. Knitting Company was operated as a manufacturer of circular and flat knit fabrics. During its second generation, it moved from simple, functional textiles to innovative fabrics. Over the years and now in its third generation, ID Knitting

is now manufacturing to customer specifications, concentrating on innovative fabrics for polo shirts (such as High Cool 1, High Cool 2, and Micro-cotton) and T shirts (such as extra cotton). With its 25+ years of experience, the company has developed a strong supply chain network and innovation partnerships, including through the Thailand Textile Institute (TTI) and craftsmanship.

More recently, international buyers are requiring standards and certification for social and environmental performance, including for traceability of fair and environmentally sound raw materials, through, for example, the Better Cotton Initiative.¹ In addition, some Japanese and European buyers have formulated their own specific requirements.

Innovation

ID Knitting is innovating towards the circular economy by using alternative and more sustainable yarns to develop and knit innovative fabrics, which are being used by its customers to design and manufacture clothing and other textile products.

Specific examples of innovation that incorporate alternative and more circular fibres include, for example, double Jacquard fabric made with 100% recycled polyester fibres; reducing to 60% the cotton content of polyester blended double Jacquard fabric while maintaining cotton-like properties (thereby reducing the cotton content given its high environmental impact during farming and processing); and incorporating anti-pilling acryl which extends the useful life of clothing items like sweaters.

In terms of innovative fabrics with superior fabric qualities, ID Knitting is producing certified CoolMode fabrics. These are designed and manufactured to facilitate sweat absorption and evaporation and will keep the wearer comfortable at 25 °C or even higher, reducing the need for air conditioning in the tropical climate in Thailand and elsewhere.

Within its factory operations, ID Knitting has also started to recover left-over yarn, particularly the predominant white yarns, and are incorporating them into an upcycled fabric.

Circular Economy impact

The company's initiatives are contributing to the circular economy through the recovery and circular use of yarn and fabric, demonstrating resource circularity, more efficient use of energy and materials in the knitting processes, demonstrating resource efficiency, and through the planned partial substitution of non-renewable by renewable energy, which will demonstrate resource substitution.

The company's impacts on resource circularity are still modest, given that the market for more circular fabrics is still in its nascent stage. In 2023, depending on customer orders, ID Knitting was knitting about 10% of its production with some recycled fibres. Moreover, ID Knitting produced about 1 metric tonne of upcycled fabric from its in-house left-over yarn.

ID Knitting achieves resource efficiency through the use of highly efficient technology, such as LightSpeed® Plus, which saves approximately 20% in electricity use while reducing knitting machine heat generation (and hence requiring less energy to cool the factory). Moreover, advanced technology such as that of Groz Beckert reduces waste from breaks and machine stoppages, along with resource consumption through extended cleaning intervals, lower oil usage, and less waste. By adopting smart procurement, ID Knitting reduced overstocking supplies by about 20%, which in turn reduced the amount of unused leftover fabric and yarn which was formerly disposed of as waste. The company's CoolMode fabrics facilitate energy savings for the end users by keeping them comfortable at higher air-conditioning temperatures (25 °C or above).

The planned installation of a solar PV system on the factory rooftop in 2024–2025 for about 50-60 kWh will help the Company to use renewable energy for 30% of its total electricity consumption. The investment is expected to be recovered within the next 5 years.

Business and market impact

In the transformation to green industry practices, the Company took about one year for technology upgrading. The Company met the cost-recovery to produce circular knitted fabrics on a batch-by-batch basis, working with customers to ensure their satisfaction. Similarly, the Company received enough revenue to compensate for changing machines and upcycling leftover yarn once every three months. The company's main customers for circular knitted fabrics are domestic, in particular the corporate customers.

Smart procurement practices help to reduce not only environmental impact but also reduced the company's difficulties with debts and cashflows by some 10%.

Stakeholders

Indorama Venture Company and its supply chain including Mirai Company Limited, supply the Company with recycled polyester yarn (made through recycling of PET bottles) which is used by ID Knitting to produce recycled fibre fabrics. ID Knitting is participating in the online platform of Moreloop Company to sell some of its left-over stock for repurposing by other textile companies.

The Thailand Textile Institute provided the recognition for ID Knitting under Thailand's Green Industry Initiatives.

¹ BETTER Cotton Traceability means: (1) knowing from which country traceable better cotton comes from, (2) showing the journey of traceable BETTER Cotton, and (3) in the future, directing impact investment to these cotton farming communities (<https://bettercotton.org>).

The company employs 30 local workers and some others. Some 5–6 dyeing factories in the Bangkok metropolitan areas have played a role upstream in the supply chain of fabric production. On the other hand, the company provides business for uniform and casualwear manufacturers after producing fabric.

ID Knitting also works on supply chain transparency including under the U.S. Cotton Trust Protocol® and Better Cotton Initiative.

Implementation

ID Knitting has skills and experience in producing circular knitted fabric. With its existing technology, there are no costs for technology changes for switching to recycled yarns. Some 40% of the company's business is export, but it has only limited circular economy business. The company considers that the opportunities for exporting circular economy fabrics are higher than those in the domestic market, but with only limited business connections, the company faces challenges entering the international circular economy markets.

ID Knitting informs its customers about the environmentally friendly fabric and circular economy products so that their customers can make informed decisions about accepting them. In addition, the company explains the technical adjustments for these products, which can be slightly different from those made of virgin cotton.

Takeaways

ID Knitting seeks prominent marketing and business connections to enter international circular economy markets. The Free Trade Agreements of Thailand will be helpful for addressing trade barriers and accessing international markets. ID Knitting is also seeking collaboration in supply chain to access both end of life products as well as deadstock sampling fabrics for potential upcycling.



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