

RECOMMENDATION

A Re-industrialization Roadmap for Hong Kong SMEs of the Textile and Fashion Industry

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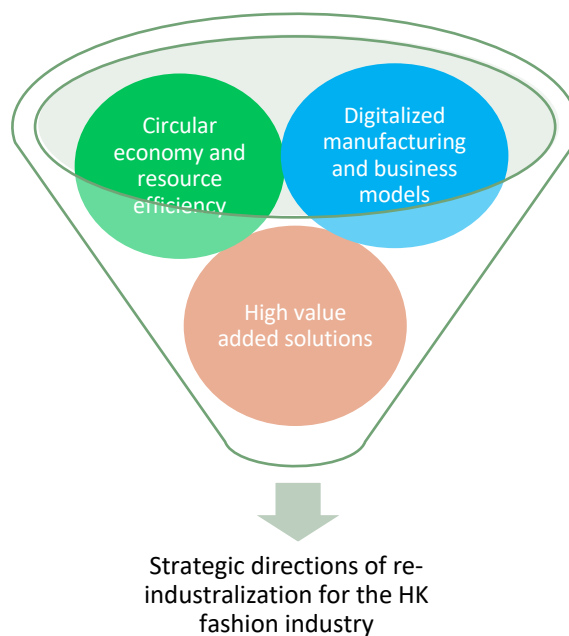
製衣業訓練局
CLOTHING INDUSTRY TRAINING AUTHORITY

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1. The Strategic Directions for Re-industrialization of the Hong Kong Fashion Industry

Based on the Study Report on global technology trends, the environment scan and SWOT analysis of the Hong Kong fashion industry, three main strategic directions for re-industrialization of the industry are recommended.



To further explore each direction, more in-depth analysis has been conducted using the following key success factors:

- 1) market drivers for each direction,
- 2) product and service to be offered in each direction,
- 3) technology required for meeting the changing market needs, and
- 4) essential development work in future.

Based on the findings, a Technology Roadmap has been developed and is presented in the second section of this Report. Two diagrams showing the detailed content of the required technologies are also included.

1.1 Key critical success factors for digitalized manufacturing and business models

1.1.1 Market drivers

- Agile supply chain

The development of fast fashion and multi-seasonal fashion collections require faster reactions from the entire supply chain. Only those manufacturers with capacity in the agile supply chain can survive and satisfy market needs. Digitization provides possibility in higher efficiency, lower defect rate and better responsive production time, and manual labor in different processes can be partially or even completely replaced by machinery.

- Lower manufacturing cost

Costs in each part involved in the manufacturing processes become more and more transparent, and the buyers tend to cut down manufacturing expenditures and increase input in brand value and omni-channel exposures, especially facing with the millennials. Moving to lower-developed countries or areas and hiring low-cost labors used to be the main solution for lowering cost. However, many critical issues would arise such as turbulent political and social environment, different business culture and languages, and immature infrastructures. Digitalization provides an alternative to control the manufacturing time and cost by reducing total manual labor and increasing real-time communications among each sector.

- Digital requirements from customers

More and more customers seek for personalized products through a digital medium, which leads to small-scale production and quick response to unique requirements from each order. Different from the traditional made-to-measure service, customers can place orders anytime, anywhere with different requirements on materials, size, patterns, motifs and colors. This market demand boosts the development of digitalization for order management, automation in production, and new business models for better customer communications.

- Global collaboration

Nowadays, different resources are scattered globally, and many fashion products are manufactured with a global supply chain. Digitalization makes global collaboration a common phenomenon in the fashion industry. New digital business models using global collaboration is predicted to continuously flourish in future.

1.1.2 Product and service

To satisfy the above-mentioned market drivers, four corresponding products and service have been identified; and these are

- 1) automated manufacturing
- 2) 3D design and modelling
- 3) retail technology
- 4) digitalized supply chain management

1.1.3 Technology

To realize these products and service, six key technologies have been recommended, including:

- 1) processing
- 2) automation and robotics
- 3) digitization
- 4) e-retailing
- 5) new business model
- 6) micro infrastructure network

Advanced processing, automation and robotics technology can enhance the transformation from traditional processes to automated manufacturing. Digitization-related technologies facilitate the development of 3D design and modelling software, through which automated manufacturing can be truly realized from order management to design and production. Retail technologies, including but not limited to big data analytics, augmented reality, virtual reality,

e-commerce, artificial intelligence, blockchain, will enhance the service of 3D design and modelling as well as the disruptive development of retail in the future. New business model using the latest technologies will go off the beaten track and facilitate the future development of retail technology and digitalized supply chain management. By adopting a closer micro infrastructure network, such as IT platforms, digital supply chain mechanism and co-working spaces, the development of digitalized supply chain management of the fashion industry will significantly be promoted.

1.1.4 Development work

Based on the market drivers and involved technologies for corresponding product and service, the following prioritized developmental work is recommended:

- Digitalization of production processes
- Virtual design and simulation
- Digitally enabled business model
- Automation and robotics in manufacturing
- Digitalized supply chain infrastructure

1.2 Key critical success factors for a circular economy and resource efficiency

1.2.1 Market drivers

- Environment protection policy and rules

More and more countries and regions are paying attention to environmental protection and publishing a more stringent policy or regulations for industries. As recognized one of the more polluted industries, fashion manufacturers face the dilemma of an upgrade. The concept of circular economy and resource efficiency has now become the most important consideration for fashion manufacturing.

- Sustainability strategy

To satisfy different market demands, sustainability has recently become one of the most popular marketing strategies. Besides saving manufacturing costs, circular economy and resource efficiency have also been taken as an important investment in product and brand values.

- Consumer awareness

A growing consuming population attaches importance to sustainability, especially among the millennials. The consumer awareness of circularity and carbon footprints makes brands and manufacturers to pay more attention to relevant aspects in manufacturing processes.

- Certification and standards

Considering the safety of fashion products, certification and standards for recycled materials, reuse products and other recycling textiles are urgently needed. It is essential to establish a system connecting international or regional standards to enhance the reputation of the Hong Kong fashion industry of the global sustainability sourcing hub.

1.2.2 Product and service

To satisfy the above-mentioned market drivers, four corresponding products and service have been identified; and these are:

- 1) advanced textile processes
- 2) supply chain tracking
- 3) sustainable materials
- 4) textile recycling and certification

1.2.3 Technology

To provide the perceived products and service, six different technologies are recommended as follows:

- 1) resource saving and waste reduction

- 2) digitization
- 3) processing
- 4) recycling
- 5) testing and standards
- 6) new business models

Technologies relating to resource saving and waste reduction will enhance the textile processes and satisfy requirements of sustainability certification. Digitalization increases the automation level and efficiency of different textile processes and reduces defect rate for each process. Meanwhile, digitalization makes supply chain traceable and more transparent. Processing technology can enhance textile processes in terms of circularity and resource saving, and provide various possibilities to develop sustainable materials. Recycling technologies not only improve textile recycling products and service, but also facilitate the development of certification. Testing and standards related technologies will contribute to the development of recycling and certification. New business models will provide more options for fashion consumption, including renting, reusing and others.

1.2.4 Development work

Based on the market drivers and involved technologies for corresponding product and service, the following prioritized developmental work is recommended:

- Improvement of textile processes for resource efficiency
- Supply chain transparency
- Sustainable materials
- Technology for recycling across the entire supply chain
- Recycling textile testing and standards
- Business model for circularity

1.3 Key critical success factors for high value added solutions

1.3.1 Market drivers

- Consumer consciousness in personal identity

With the development of social media, consumers have a great number of channels to learn about new things globally and tend to choose fashion products based on personal identity. Even buying the same products, more and more consumers prefer to make personalized symbols or signs. Personalization with high added value in fashion is becoming popular in the mass customized market.

- Dynamic changes in lifestyles

Dissimilar lifestyles attract different groups of people, and relevant product consumption varies. Taking sports as an example, sportswear has been subdivided into many categories, to fit for the activities including but not limited to football, basketball, baseball, swimming, cycling, running etc. The popularity of outdoor activities also boosts the market for functional fashion products. The high value added product has gradually become a consumer trend, as discussed in the Study Report.

- Digitalization in fashion

Digitalization has been well developed in many industries, and it has also become the most import factor in daily life. These factors are now driving the development of digitalization in the fashion industry. Digitalization will make it realistic for personally designed fashion and other high value added products.

- Quality and safety

More and more consumers focus on product quality, safety and even functionality. High value added products with high quality and safety standards as well as various functions have become a growing trend in the mass market, especially in the more developed economies.

1.3.2 Product and service

To satisfy the mentioned market drivers above, five corresponding products or service have been identified, including:

- 1) personalized fashion
- 2) functional products
- 3) smart manufacturing
- 4) manufacturer-to-customer model
- 5) functionality testing

1.3.3 Technology

To provide the above-mentioned products and service, the following technologies are recommended, including

- 1) functional materials
- 2) digitization
- 3) new business models
- 4) e-retailing
- 5) testing and standards
- 6) micro infrastructure network

Technologies for functional materials will help the development of high value added products with different functions as well as testing and certification. Digitalization will enhance the development of personalized fashion through user-friendly interfaces for personal design and requirements, as well as automation development in smart manufacturing. New business models can provide new service methods, for example, consumers can place online personalized orders directly to the manufacturers and receive the products through home delivery service. Retail technologies, such as big data analytics, e-commerce, virtual reality and Internet of Things, will improve current consumption patterns and make personal and functional fashion more efficient and affordable. Technologies in testing and standards will enhance the quality and safety of the products. Development of a closer micro infrastructure

network, such as IT platforms and digital supply chain, will support the Hong Kong fashion industry to play an important role in the high value added market.

1.3.4 Development work

Based on the market drivers and involved technologies for corresponding product and service, the following prioritized developmental work is recommended:

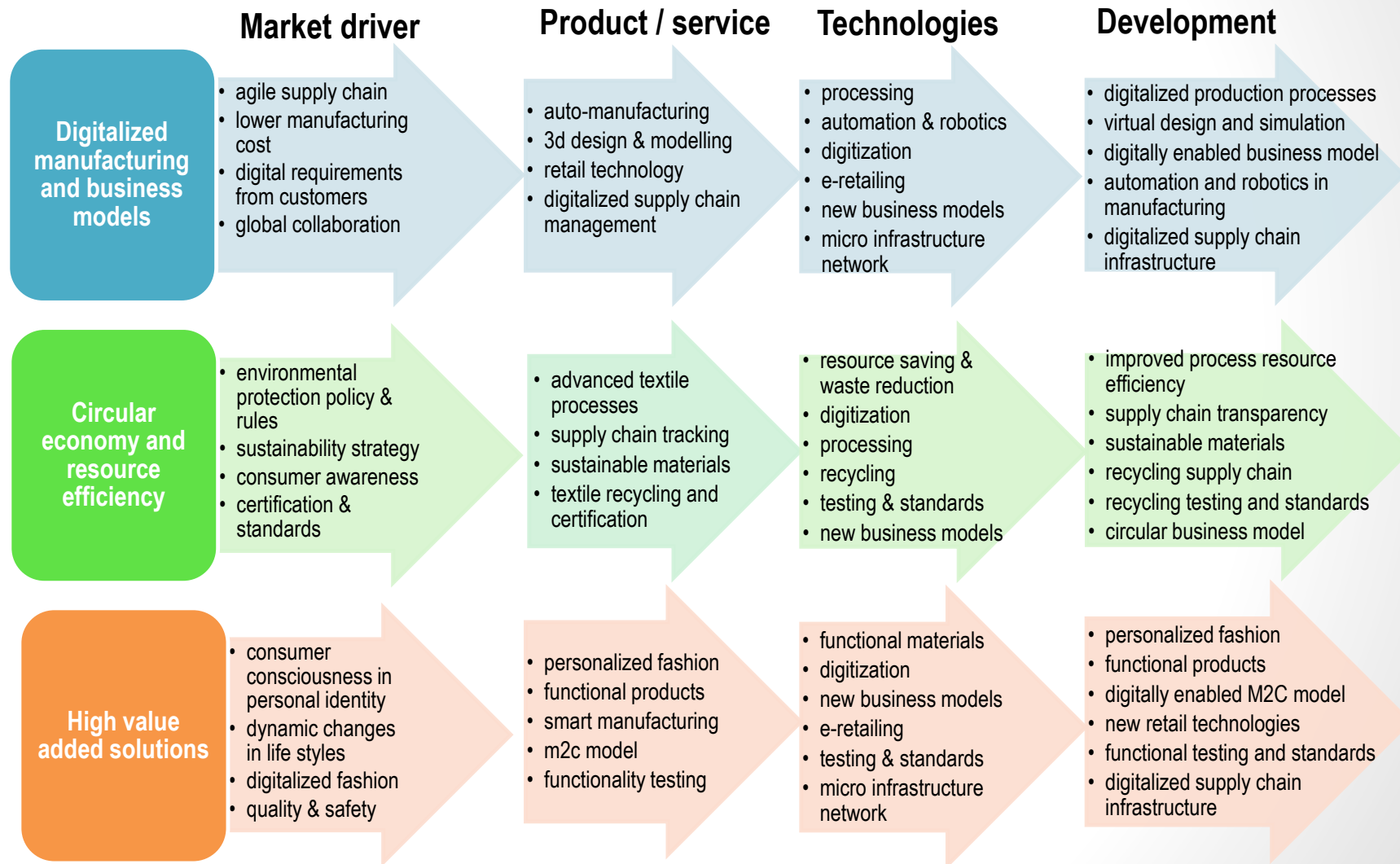
- Personalized fashion
- Functional products
- Digitally enabled M2C model
- New retail technologies
- Functional textile testing and standards
- Digitalized supply chain infrastructure

2. Technology Roadmap for Re-industrialization of the Hong Kong Fashion Industry

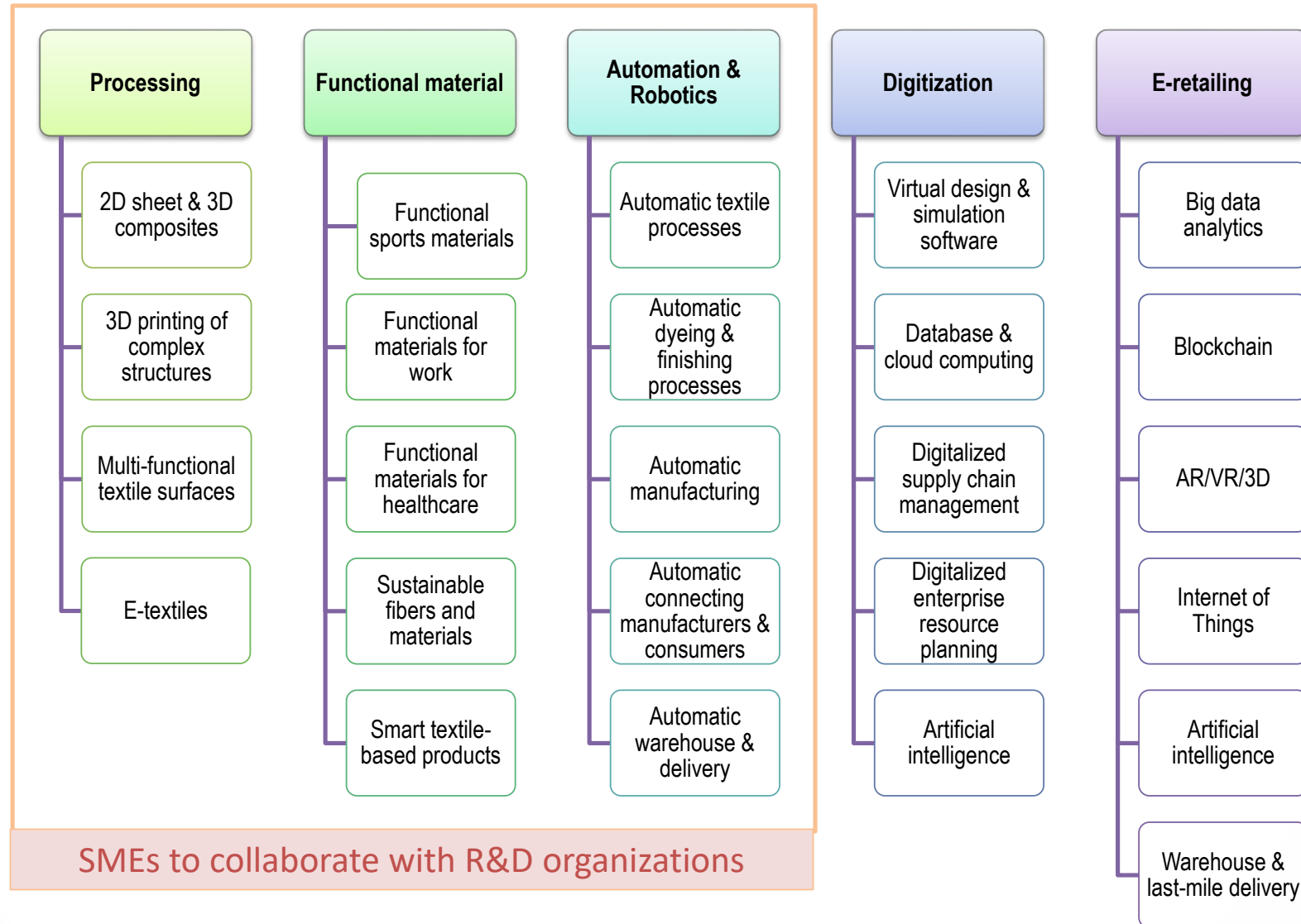
Based on the three development directions and the corresponding key critical success factors as summarized in the first section, a technology roadmap for re-industrialization of the Hong Kong fashion industry is presented. Two diagrams showing the detailed content of the required technologies are also included.

It is recommended that readers should look at their own prospective markets and by referring to one or more of the three directions, to formulate the way forward and future business opportunities of their organizations. This is to be further supported by a self-analysis of their respective strength and weaknesses in implementing the related technologies and to consider the necessary development to successfully meeting the specific business goals.

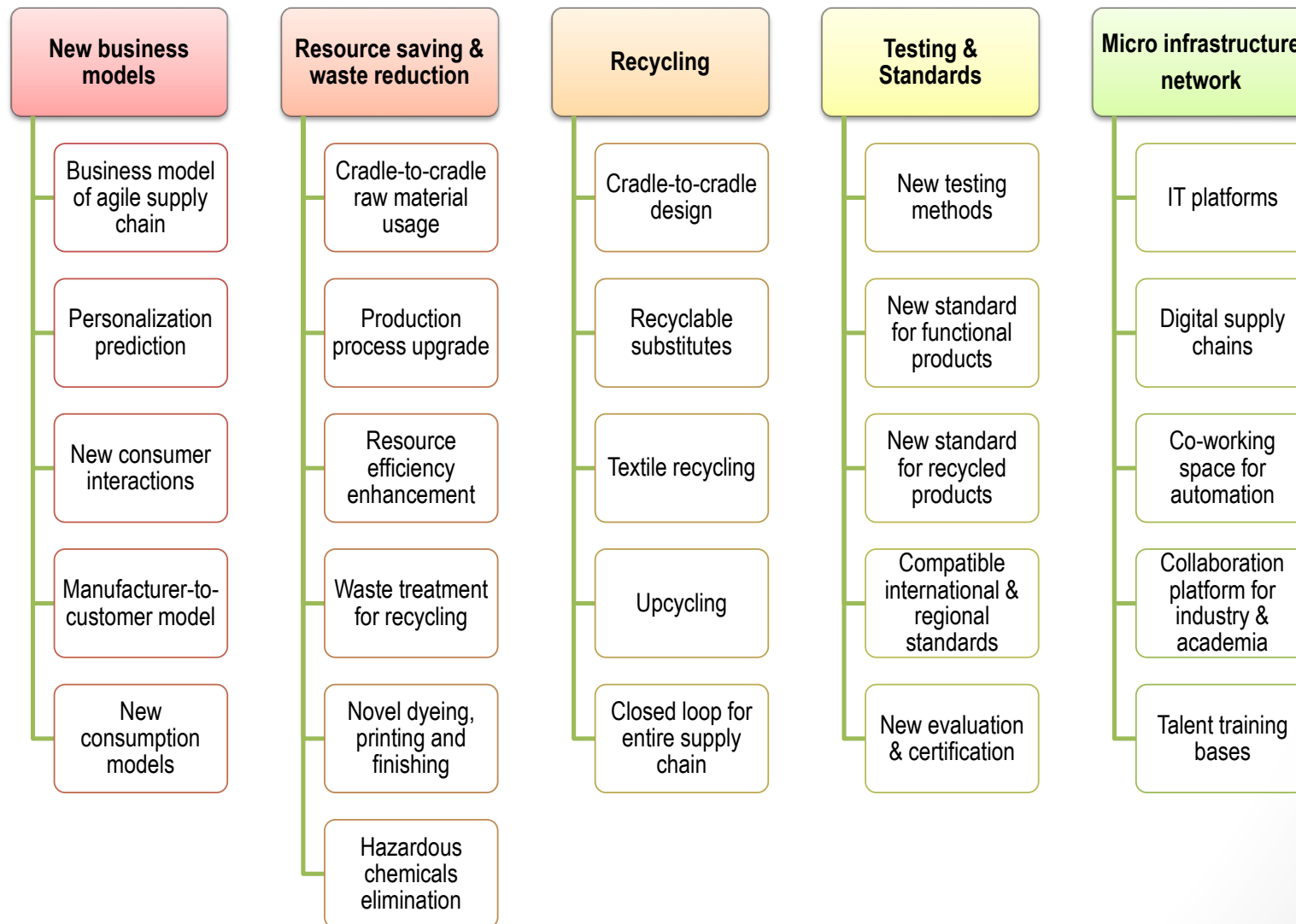
Road Map for re-industrialization of HK fashion industry



Technologies required for re-industrialization of HK fashion industry



Technologies required for re-industrialization of HK fashion industry



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