RESILIENT LOCAL MANUFACTURING IN SJUHÄRAD-SUPPLY NETWORK CONFIGURATION DECISION-MAKING AND IMPLEMENTATION

Sara Harper, PhD
Faculty of Textiles, Engineering and Business, University of Borås, Sweden

January 2024
Key insights (Executive summary)

This report details the second study undertaken within the research project “Resilient supply chains for local textile and clothing production in small series” with funding from Sparbanksstiftelsen Sjühärad-No.20221947. More information about this project can be found here.

Specifically, this report summarizes the results of an interview study focused on understanding the perspectives of practitioners operating within the Sjühärad region in Western Sweden regarding what is required to implement and scale local textile and apparel manufacturing supply chains. These results are based on the perceptions of representatives from diverse companies that have had experience with local manufacturing and/or sourcing, or are interested in such opportunities. The companies interviewed for this study included eight producers, three brands currently implementing such local configurations, one with established local supply chains, and one brand interested in local manufacturing/sourcing. This represents diversity in both decision-making roles and experience.

This study specifically addresses localization opportunities in the textile and apparel industry, which face tensions and challenges, in particular related to location decisions and resilience as highlighted in the previous study. Here the focus is on implementation and scaling of such opportunities as they relate to the configuration of products, processes, relationships, and supply chain structures. The key results of the interview study show that many issues are relevant or crucial for both implementation and scaling in such production contexts, in particular several factors were highlighted that can also be challenging due to insufficient levels or other difficulties.

Overall, brands show more focus on product-related considerations with implementation, like on-demand production and customization, as well as standardization, however, standardization is also suggested to be beneficial for producers regarding scaling, specifically expanding beyond material sharing between products to standardized products for reduced development costs.

Several process considerations are both crucial and challenging, including the imperative of knowledge spanning from production skills like sewing to competence linked with required technology as well as business-related skills. Additionally, these considerations are linked to capacity requirements which are related to the need for or limitations related to competence, machinery, space, and so on. Moreover, they are linked to efficient processes in production and throughout the whole supply chain which can be challenging, and remake and redesign processes which can benefit from improvements for instance, related to technology to overcome complexity.

The results show relationship considerations stressed are related to supplier relationships (and trust) for both implementation and scaling. For scaling, customer relationships were more of a focus, both with end-consumers, and between producers and brands.

Complexities and challenges are also highlighted related to supply chains, specifically location considerations that are difficult due to local supplier vulnerabilities and the location and availability of materials globally rather than locally. This finding adds insights to the complexity around location decisions as found in the previous study in this project, suggesting difficulties related to local manufacturing and resilience outcomes. Ownership and control was also emphasized, especially for brands.

Among the other considerations mentioned as crucial are several related to capabilities and performance priorities, including quality which is always strongly required and in some cases is challenging. Additionally, cost mindset changes were suggested, which is described as helpful for some brands to overcome cost challenges - which were highlighted in the earlier study - together with increasing product value through sustainability and customization. It is with these types of products that such local production is considered feasible to implement, but local production is not necessarily required with such product focuses. Lead time and sustainability performance priorities and performance benefits are also crucial with local production including for further scaling. Additionally, capital was mentioned as being required to invest in marketing to end-consumers and grow demand, as well as to invest in improved processes and other efforts to grow.

The next page summarizes a workshop on future scenarios, which confirms and adds to this interview study. Looking forward, the requirements revealed in this study provide a foundation for a feasibility study.
Interdisciplinary workshop on future scenarios

During Autumn 2023, a workshop was undertaken with diverse stakeholders involved with or interested in localization of textile and clothing manufacturing. The workshop was focused on future scenario development for local value chains in the Sjuhärad region and requirements for support. The main question asked was “What textile or clothing production scenarios can be implemented locally?” The results from this discussion and the additional insights provided by those not present added strength to some issues from interviews(*), and identified other issues (in yellow), as detailed further in this report.

Multiple issues regarding circular business models and infrastructure were emphasized/added, with local materials and customization. Issues related to transparency and consumer behavior were among the other issues added. The main priorities were related to technology, collaboration, knowledge, and profitable small volume production.

Highest ranked items from scenario discussion

* Confirming and expanding upon interview findings
* Added during workshop
*Interrelated for Circular Business Model opportunities
Acknowledgements

This report is published within the scope of the project “Resilient supply chains for local textile and clothing production in small series” with funding by Sparbanksstiftelsen Sjuhärad-No. 20221947


The data in this report was generated in collaboration with respondents from companies that are acknowledged for their involvement.

These include: Ellos (Borås), FOV (Borås), Gina Tricot (Borås), NOMS AB (Borås), TEXTILFABRIKEN (Borås), XV Production (Borås), Hobby Reklam (Gällstad), Ekelund (Horred), Marbäck Tricot (Marbäck), A NEW SWEDEN (Norrfjärden), Beyondfit.se (Halmstad), Grandpa (Stockholm), among others.

Note: This report is written in English to allow for the widespread accessibility of the findings, and to reflect the content of the interviews, which were undertaken primarily in the English language.
## Contents

- Key insights (Executive summary)  - 1
- Acknowledgements  - 2
- Contents  - 2
- Introduction  - 3
- Key concepts  - 4
- Configuration decisions and decision-making  - 5
- Methods  - 6
- Overview of results - Implementation and scaling  - 7
- Products - Configuration for implementation and scaling  - 9
- Processes - Configuration for implementation and scaling  - 11
- Relationships - Configuration for implementation and scaling  - 13
- Supply chain structures - Configuration for implementation and scaling  - 15
- Capabilities and performance - Configuration for implementation and scaling  - 17
- Other considerations for scaling  - 19
- Implementation and scaling summary  - 21
- Overview of workshop - Future scenarios  - 22
- Workshop results - Overview of future scenarios  - 26
- Further reading  - 27
- References  - 28
Introduction

Interest in resilience is increasing in various industries due to the importance of such abilities to manage and cope with changes and challenges [1]. Thus, attention on local manufacturing and sourcing opportunities are growing even in high-cost locations and labor-intensive industries. These opportunities promise enhanced flexibility and better response to challenges. However, both research and business has shown this demands careful consideration of trade-offs and tensions within decision-making and implementation processes. These include trade-offs related to supply chain resilience like balancing benefits gained from shorter supply chains with the reduced adaptability without global supply chains [2], and challenges with higher costs.

These opportunities and challenges are among the key issues considered by management in the textile and apparel industry. Looking forward, a significant percentage, 54% of executives, are expecting to increase reshoring or nearshoring in 2024 for reasons like de-risking the supply chain, with even more emphasizing the need for rebalancing sourcing footprints [3]. This finding shows that such dynamics are continuing in a similar way as they have over the last few years. Previous studies showed up to 71% of managers were planning to relocate some production for reduced risk and overproduction [4]. However, these changes can be held back by the challenges mentioned above, and the competence and technology limitations faced within the industry, especially in high-cost contexts.

Within this context, research is required to understand how resilience can be supported or enhanced by local supply chains focused on textiles and apparel manufacturing. This is the focus of the research project “Resilient supply chains for local textile and clothing production in small series” [5]. The overall project goals are:

- To understand factors for resilient local supply chains (and for small-series manufacturing) as well as challenges
- To explore decision-making and implementation of local/small-series manufacturing
- To assess the feasibility of small-series manufacturing opportunities (for resilience)

This report details a study within this research project that is focused on the second goal. The findings of the Delphi study that addressed the first goal of the research project were detailed in the previous report [6]. Following this research report, the final study will focus on a multi-dimensional assessment of the feasibility of local supply chains in general, and of small-series production models in particular.

Study objectives and questions

In this report, the study is focused on understanding decision-making and implementation regarding localization on the supply chain level through interviews. Specifically, the research addresses the following objective and associated research questions. The objective is to understand what is required to implement and scale local textile and apparel supply chains. This requires understanding configuration decisions related to manufacturing or sourcing related to products, processes, supply chain structures, and relationships—which represent supply network configurations, as well as other issues such as potential benefits for resilience.

This objective is answered with two research questions:

- What is required to implement local textile and apparel supply chains?

- What is required to scale local textile and apparel supply chains?

These questions are addressed within a specific high-cost context, the Sjuhärad region of Western Sweden. This focus is important because both industry and location can shape the requirements for implementation and scaling of localization. In this case, the context is within one of the highest cost countries in this industry sector. Beyond this context, the findings in this report can be of interest for similar industry and location contexts, in particular those that have lower technology levels and high labor intensivity like textiles and clothing.
In this report, the focus is on the implementation and scaling of local sourcing or manufacturing. Specifically, addressing what is required for implementation and scaling with respect to various configuration decisions.

Supply network configuration
Crucial among the decisions within implementation and scaling of local manufacturing are the multi-dimensional design decisions that can be defined as supply network configurations [7]. The supply network configuration concept includes:

• Products,
• Processes,
• Relationships, and
• Supply chain structures.

Such configurations must be aligned to overall goals, and can constrain or enable resilience in the supply chain. For instance, through local supply chains or reconfiguration for localization.

Supply chain resilience is defined as the ability to manage or cope with “any change or new disruption to a system so that it can later return to its original condition or adapt to the new situation” [1]. Resilience capabilities include both proactive and reactive abilities [8,9] supported by supply network configuration and associated changes. Resilience outcomes include success (competitiveness, growth) and survival (continued competitiveness, reduced risk exposure and recovery time) when faced with challenges, risks and disruptions. These disruptions and difficulties can be both internal and external to companies and their supply chains (supply network configuration).

These concepts are summarized in the table below, which guided the analysis of interview data.

<table>
<thead>
<tr>
<th>Supply network configuration</th>
<th>Supply chain resilience</th>
</tr>
</thead>
<tbody>
<tr>
<td>-Supply chain structures (e.g., location, density, complexity, criticality, supply chain understanding, etc.)</td>
<td>Resilience capabilities</td>
</tr>
<tr>
<td>Localization/High-cost context*</td>
<td>-Proactive capability (e.g., flexibility/agility, redundancy, integration, efficiency, market strength-product differentiation, financial strength, readiness/risk management)</td>
</tr>
<tr>
<td>-Relationships (e.g., collaboration, trust, information sharing, etc.)</td>
<td>-Reactive capability (e.g., risk management/response, recovery)</td>
</tr>
<tr>
<td>-Products (e.g., customization, new products, etc.)</td>
<td>Resilience outcomes</td>
</tr>
<tr>
<td>-Processes (e.g., flexibility, redundancy, efficiency, etc.)</td>
<td>-Competitiveness (e.g., cost, quality, delivery, responsiveness, variety, etc.)</td>
</tr>
<tr>
<td></td>
<td>-Growth</td>
</tr>
<tr>
<td></td>
<td>-Reduced risk exposure (External/Internal)</td>
</tr>
<tr>
<td></td>
<td>-Reduced recovery time</td>
</tr>
</tbody>
</table>

Adapted from Chowdhury and Quaddus [8]; Datta [9]; and Srai and Gregory [7].

* Concept in focus
Configuration decisions and decision-making

**Configuration decision-making**
As detailed in key concepts, supply network configurations can impact levels of resilience in high-cost contexts. As summarized in the figure below, the previous Delphi study revealed different aspects related to configurations can act as either enablers or challenges to resilience [6].

However, the scope of control differs significantly among company types, in terms of the ownership of manufacturing and supply chains, and decision-making rules. Thus, to capture the crucial issues for implementation and scaling related to localization, it is necessary to first understand the perspectives of customer-facing brands with the responsibility and power to make sourcing and supply chain design decisions. Thereafter, it is necessary to understand how producers must support these brands during implementation and scaling through their control of manufacturing processes. These different levels of control are addressed in this report, and thus results related to implementation and scaling are presented separately for brands and producers.

**Brands**
As mentioned, brands have the most control of supply chain designs. These companies often face the challenge of transitioning from traditional business models to those based on local manufacturing or sourcing, with various implementation challenges and scaling barriers. However, in some cases, this control is combined with ownership of production capacity as well. Additionally, some brands are founded with a focus on local production and sustainability, which allows for some comparison with brands transitioning their business models.

**Producers**
Local textile manufacturers are largely focused on scaling up their own processes in alignment with material sourcing processes and customer demand. Local product manufacturers are also focused on scaling up their processes but face additional challenges related to sewing competence and in some cases demands to improve remanufacturing.

**Other actors**
Beyond brands and producers, there are other actors that can be relevant for implementation and scaling such as material suppliers. For instance, local suppliers of leftover materials are often described as a good option from the perspective of brands and local producers. This type of sourcing can help to overcome the difficulties related to high minimum order quantities when sourcing sustainable materials from European fabric mills. However, these actors have less control over implementation and scaling, instead enabling brands to increase local production.

Thus, implementation and scaling decision-making will only be addressed from the perspectives of brands and producers in this report.
Methods

This report details an interview-based study designed to understand both what is required for implementation of local manufacturing or sourcing according to the brands responsible for such decisions, and what is required for scaling such local supply chains according to both brands and local producers. The respondents come from companies in or sourcing from the Sjuhärad region, including both apparel brands currently sourcing or manufacturing locally as well as those that are interested in such localization opportunities.

These interviews include both follow-up interviews with respondents from companies involved in the previous Delphi study in the research project, and additional interviews with several companies not involved in the first stage of the research. The interviews were semi-structured with open questions, and the resulting data was analyzed using the key concepts previously detailed. The figure below shows this process and an overview of the diverse group of companies represented in the research.

Note: On the left, is the overview of how many of each company type were asked about either implementation (6 brands) or scaling (8 producers) or both (5/6 brands) within the interviews.

The chart on the right shows the overall distribution of company types included in this interview study. Among the brands, there was variety in company size, and different levels of experience with local manufacturing or sourcing. Some had established this type of supply chain from the beginning of their company development, others had undertaken several projects in the past years, and one was interested but do not have local production. There was also diversity in the producers represented, some were either responsible for fabric (textile) manufacturing or product manufacturing, and two companies were responsible for both activities within the textile value chain, another offers a specific service.
## Overview of results – Implementation and scaling

### Localization (textile manufacturing/supply chains)

#### Implementation – Decision-making

- **Scaling**

#### Products

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>• On-demand (smaller volumes)</td>
<td>o Standardization</td>
</tr>
<tr>
<td>• Standardization</td>
<td></td>
</tr>
<tr>
<td>• Customization</td>
<td></td>
</tr>
</tbody>
</table>

#### Processes

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Knowledge</td>
<td>o Knowledge</td>
</tr>
<tr>
<td>• Technology</td>
<td>o Technology</td>
</tr>
<tr>
<td>• Efficient processes</td>
<td>o Capacity</td>
</tr>
<tr>
<td></td>
<td>o Redesign processes</td>
</tr>
<tr>
<td></td>
<td>o Supply chain processes</td>
</tr>
</tbody>
</table>

#### Relationships

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Supplier relationships</td>
<td>o Customer relationships</td>
</tr>
<tr>
<td>• Trust</td>
<td>o Supplier relationships</td>
</tr>
</tbody>
</table>

#### Supply chain structures

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Location</td>
<td>o Location</td>
</tr>
<tr>
<td>• Ownership/ control</td>
<td>o Ownership/ control</td>
</tr>
</tbody>
</table>

#### Capabilities and performance priorities

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Quality</td>
<td>o Quality</td>
</tr>
<tr>
<td>• Cost (mindset)</td>
<td>o Cost (mindset)</td>
</tr>
<tr>
<td>• Sustainability</td>
<td>o Sustainability</td>
</tr>
<tr>
<td>• Lead time</td>
<td>o Lead time</td>
</tr>
</tbody>
</table>

#### Other

<table>
<thead>
<tr>
<th>Category</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>o Capital</td>
</tr>
</tbody>
</table>

---

**Notes:** Underlined = >2 respondents \**Bold** = >1 respondent  
*Category added from interviews*
As the overview of results on this page and on the previous page show, **significant alignment** was found among the diverse group of companies interviewed that both represent different levels of experience with and ownership of local manufacturing (see details above) and diverse roles in the value chain (see **methods**). As shown in the Figure below, the companies agree to a significant extent on the crucial role of processes in **implementation** and **scaling**. Specifically, **knowledge** is crucial, as well as **capacity** and **technology**.

These process considerations are also described as challenging by several companies in this and the previous study, along with several other factors highlighted like how decision-makers view **costs**, and how producers can achieve required levels of **quality**, which can hinder implementation or scaling, as explained in the following sections.
Products – Configuration for implementation and scaling

Products

- **On-demand (smaller volumes)**
- **Standardization**
- **Customization**

The results summarized in the figures below about products configuration show that more issues are relevant to implementation, including on-demand production with or without customization and standardization, whereas only standardization is also linked to scaling. Specifically, local production implementation is linked to standardized materials, although these are not always sourced locally, and standardization for scaling extends beyond the material, as discussed further on the next page.
Products – Configuration for implementation and scaling

Products

- On-demand (smaller volumes)
- Standardization
- Customization

Implementation

According to several brands, implementation of local sourcing or manufacturing is for products that are based on on-demand production and the related reduction of volumes. Specifically, one brand has introduced a few products on-demand but without being made-to-measure, this relates to a goal of selling less items with higher quality, and also overcoming issues related to risk with product stocks. In another case, such on-demand production is also including some level of customization for customers, which is considered an important demand to be able to meet for that company.

However, it should be noted that one company has implemented and steadily grown the focus on made-to-measure/custom products within an existing supplier relationship that is located nearshore rather than with local sourcing. In this way, the company leverages their relationships and concentrates their investments for the required machinery (e.g., digital cutting). This shows that the relationship between these small-series production models and localization is not straightforward, especially when maintaining global or regional supply chains.

With these local products standardization is used by one brand, in that they are based on the use of established materials (Never-out-of-stock, NOOS). These materials are sourced from suppliers that the brand has long-term relationships with, but are not sourced locally or regionally. This strategy is also used by a small brand that has developed their own fabrics based on local materials, and the brand tries to make more product options from each fabric because it is described as having been a long and expensive process.

Scaling

According to a producer, standardization is important for growing such local supply chains. Specifically, standard prices for development and standardizing patterns in order to reduce product development costs. This adds to the material standardization emphasized with implementaiton, which is also relevant to scaling. Specifically, one brand stressed that they were prepared to scale up on-demand production with their fabric sourcing from established suppliers in the Far East, because “everywhere in Far East do not have full production (...) So placing an order is super easy today” and that lead times have improved since the worst disruptions due to COVID-19.
Processes – Configuration for implementation and scaling

The results summarized in the figures below about processes configuration show that the key issues for both implementation and scaling are knowledge-related. These issues are also linked to technology considerations and requirements. Such requirements are linked to the need for efficient processes in production and throughout the whole supply chain for both implementation and scaling. As will be detailed on the next page.

Among the key issues for scaling is also the availability of capacity to scale up and remain efficient, which is challenging. Capacity issues and requirements relate to competence, machinery, space, and so on.

Additionally, producers with focus on remake and redesign require improvements to the efficiency of such processes. This can potentially be helped by technology improvements, but currently remains challenging.
Processes – Configuration for implementation and scaling

Implementation
Many brands stressed the importance of **knowledge** and skills in the workforce when implementing local manufacturing and sourcing. This is linked to other issues discussed including capacity and technology as well as process efficiency. Among other process issues emphasized was the need to categorize and improve redesign and remanufacturing processes.

**Knowledge** issues are also considered to be challenging in this study, like found in the previous Delphi study [6]. It is considered to be difficult to find people with the required skills or interest in such local manufacturing work. One brand said that it is “really hard to find people with the right knowledge and experience in sewing (...) It’s really difficult to find seamstresses and cutters and pattern makers, it’s not an overload of people to hire.” In addition to the need for production skills, producers having business-related competences was described as important by one brand, and as somewhat lacking. Another brand said that it is crucial to take steps to improve high quality skills through training. This availability of competence and trust in compatible business cultures-spectifically, producers being consistently able to control price and quality levels, are among the key motivations for one brand when developing long-term collaboration with a local supplier.

**Technology** considerations or improvements were deemed necessary for implementation of localization as higher quality and flexibility was crucial to overcome higher costs locally. As one brand mentioned, in Sweden it is necessary “to compete with technology and quality (...) high technology machine parks that will help us to make the production faster and more efficient, but still keep the control over the quality.” Additionally, for one brand, it was described as important to tweak and improve processes as they go with their producer partner using their business intelligence system with available sales data, fabric booking and production details. For another brand, significant investments were made for systems supporting new customer ordering and data sharing processes.

Another factor highlighted by one brand related to the previous issues discussed was the importance of **efficient processes** when implementing such local supply chains. Specifically, the availability of the knowledge required to manage such efficient processes was considered challenging. As described, it has been a long time since there was significant volumes of production with “an efficient flow. So here, you don’t really know how many days it takes or when they (on-demand products) will be ready.” This process efficiency was also required for scaling up supply chains.

Scaling
For scaling up, both brands and producers shared a focus on **technology** implementation and development, and **knowledge**-both to support that technology/machinery, and learning from past local manufacturing capsule collections/projects. But as mentioned, this required **knowledge** is also particularly challenging, due to difficulties investing in training without increased demand, and limited willingness of people to work in the industry because of lower salaries, etc. Additionally, **capacity** is described as crucial and challenging for scaling up, because capacity for larger volumes is very limited.

**Technology** considerations for one producer included multi-stage processes starting with digitalization, which can lead to data for machine learning and AI, and eventually higher levels of automation in fabric manufacturing. Another producer discussed how machinery is key for scaling, as the production system “is depending on technology (...) machines, like cutting machines, and sewing machines.” For a brand, scaling was enabled by digital systems that can accomodate growth.
The results summarized in the figures below about relationship configuration show that the key issues are related to supplier relationships and trust for both implementation and scaling. Customer relationships were instead a greater focus in scaling. This includes both marketing and development of relationships with end-consumers, and the need for partnerships between producers and brands, as will be discussed on the next page.
Many brands stressed the importance of supplier relationships when implementing local supply chains. Specifically, relationships based on trust enabled on-demand production. This trust was described as crucial in the quality that the producer can provide, the promise to allocate production capacity when required, and the ability to keep an average price level so that the brand can maintain their margins. Moreover, long-term relationships with material suppliers, globally, was also supportive of such production models.

One brand did not perceive a difference between building global and local supplier relationships, stating that the relationship development process was more or less “copy paste from what I would have gone through in Portugal, in Turkey, in China (...) if I just compare this to a say an onboarding of a of a new supplier in China, this was much, much easier.” However, another brand suggested there are some significant differences between global sourcing and local supplier relationships. In particular, because small suppliers are seen as more dependent on market situations, and thus more highly exposed to risks.

Both brands and producers highlight the same focus on the role of customer relationships for scaling such supply chains that are based on established supplier relationships. This customer focus is discussed from several angles, including the importance of customer satisfaction with product quality and ensuring sufficient demand to continue to offer and grow on-demand production. Also, customer and brand mindsets around the cost of local production was discussed. Several mentioned the need for more marketing to attract customers. Also, one producer talked about how brands, as customers, need to partner with producers, and must have the willingness to scale up local production.

One brand already had some experience with introducing another product within a local supplier relationship that was built for on-demand production. Specifically, this was a fix of a production mistake on a larger volume of products, which was considered relatively easy to decide to do in this way. The existing relationship that had been built gave the brand the assurance that the producer would be able to take care of the products in the way required. However, extra time was required to show the producer the product, so that they could give an accurate cost for the processes. In the end, some activities were decided to be done in-house by the brand to reduce the production price. This example shows the benefits of established relationships with local suppliers, but also the need to find a balance between internal and external processes, in this case due to higher costs.
Supply chain structures – Configuration for implementation and scaling

The results summarized in the figures below about supply chain structures configuration show that the key issues for brands are related to location for both implementation and scaling. However, location considerations can be challenging due to the vulnerability of small local producers to market forces and other location-related difficulties. This adds insights to the complexity around location decisions as found in the previous study, that suggested difficulties related to local manufacturing and resilience outcomes. Ownership and control of the supply chain was also of importance, in particular for brands, as will discussed on the next page.
Supply chain structures – Configuration for implementation and scaling

<table>
<thead>
<tr>
<th>Supply chain structures</th>
<th>Location</th>
<th>Ownership/ control</th>
</tr>
</thead>
</table>

**Implementation**

Location was stressed by two brands, who both discussed the strategic nature of locally sourced production. Specifically, one said that they wanted to source their new products in this way to build a story that “you can order your made-to-measure locally” and another said that such products “became very well perceived from a brand statement point of view.” However, this local production faced increased challenges for some brands as local producers were considered more vulnerable supplier relationships, because they are smaller and seen as more dependent on market forces. This highlights complexity around location decisions and their associated benefits, similar to findings in the previous study [6], which showed local manufacturing has complicated interactions with resilience.

Two brands considered ownership/control important for implementation because reconfiguration for localization is linked to the desire for control. When implementing local sourcing, one brand maintained some processes internally for reduced sourcing costs and increased control.

**Scaling**

Brands showed several challenges about location when discussing scaling, specifically, there was need to be aware of location considerations for fabric sourcing and other processes, which frequently cannot be co-located for various reasons. For one brand, the fact that fabrics cannot be sourced from Sweden, means that success of local manufacturing was dependent “on how highly they in the fabric mills (in Europe) prioritize you”. Another stressed the need to improve material sourcing logistics by finding more local raw materials and fabric producers, because material sourcing often requires long transportation in the supply chain, even when some stages are possible to be done in Sweden.

Ownership/control related to scaling was stressed by one when mentioning the need to ensure the supply chain processes went smoothly in terms of fabric and material availability. Although the emphasis was more on having good control of the supply chain, rather than the brand targeting vertical integration.
The results summarized in the figures below about capabilities and performance show that many agree that some of the key issues are related to quality and cost. These issues are of importance for both implementation and scaling. Cost considerations expand beyond the challenge of higher production costs to include changing mindsets around higher costs with local production, while increasing product value through enhanced sustainability and customization. Other issues include maintaining focus on short lead times together with the required quality and sustainability performance in order to scale up processes.
Capabilities and performance priorities – Implementation and scaling

**Implementation**

The interviews revealed that some brands stress the importance of multiple performance goals when designing and evaluating their local manufacturing or sourcing configurations. While the products and processes are fundamentally linked with sustainability considerations, through use of certified/waste materials and the use of on-demand production to reduce overproduction, quality performance was highlighted by many as the most critical. However, different views on the level of quality were found, where one brand highlighted that any doubts about the product quality (together with the price and supply chain) were proven wrong, while others stressed that high demands for quality together with high costs are still somewhat difficult to be balanced locally.

Along with quality, cost is a crucial consideration determining the feasibility and success of local manufacturing or sourcing. On one hand, a brand stressed the importance of controlling production cost levels and associated margins as a key goal of the multi-stage development project focused on a new line of on-demand products. On the other hand, another brand discussed being comfortable with reduced margins for both the increased sustainability and the reduced risk of discounts with on-demand production. Specifically, the company said “I can easily cut 10-15% out of my own margin because I know that the limited size runs or quantities will make sure that when I sum it all up in the end I won’t have put this much on sale (...) I’m sure that we will make, if not more, at least as much money.” This highlights a changing cost mindset with some decision-makers regarding the higher costs of production faced in Sweden. However, high costs continue to be among the most significant challenges in such production contexts, as other studies have emphasized including the previous study in this research project.

Additionally, lead time considerations were emphasized with implementation of on-demand production models. Specifically, it was noted that having limited visibility and control over production capacity required promising a longer delivery time to customers, even if shorter times might be possible with local sourcing setups.

**Scaling**

Both quality and cost performance are also crucial to ensure for both brands and producers when scaling such production and business models.

For brands, the emphasis is on quality being able to be achieved at the level required for customers. One company highlighted that such local production can be challenging to grow as a focus if the prices are higher and the quality is not better than what can be achieved globally. However, for brands that see that the required quality level is achieved, the final product retail prices are able to be increased because of having value added related to sustainability. This is reflected in the strategic goal of one brand to grow while selling less products. As explained, their customers seem to respond in a positive way to the brand’s intention to sell less “stuff” but with higher quality. Thus, it was mentioned that they had been able to increase sales 30% while reducing the number of products sold by 20%.

As a producer, this focus on the specific levels of quality required was a key part of the process of development of the skilled workers employed. This highlights a need to invest in ongoing development to build up knowledge/skills, even when working with skilled workers.

Like with implementation, cost was discussed as a crucial consideration for scaling. Some brands mentioned that it is critical to be willing to pay more for local sourcing. This was described as a mindset block that is starting to change. For instance, a brand explained being aware that Sweden is going to be twice the price of Portugal and three times of the Far East. However, if improved sustainability is prioritized, and other benefits can be gained-like having lower risk with no product markdowns, it can be seen as feasible to source locally for on-demand production.
Other considerations for scaling

The results summarized in the figures below about other considerations for scaling show that capital is mentioned for brands, in particular, for investing in marketing and other activities for growth, and for producers to improve and develop standardized processes.
Scaling
A producer stressed the importance of capital (investments) for continuing to scale local manufacturing. Specifically, the need for venture capital was discussed in order to take an existing commercial concept to the next level, in particular through standardization and digitalization of product development processes. Such developments require the addition of more specialized knowledge and technology. But in the end, such investments will allow for reduced costs. Additionally, a small brand spoke about needing “investors to try to do some marketing and to reach more people. Even though we have customers, and a lot of our customers come back to buy everything we make, which is great, but we still need more of them.”

In addition to these financial demands mentioned for scaling, significant financial investments were seen with a brand implementing the project developing new products sourced locally. The evaluation of the success of that project and potential for scaling is thereafter planned for when there is considered to be sufficient data about product sales. For another brand, after implementing several smaller projects with various combinations of local and remake products, it was described as important to delay further developments to evaluate success levels and integrate learnings before future scaling. These additional examples suggest there is a need for balance between investment and learning/evaluation for successful scaling of local production.
Implementation and scaling summary

The results summarized on this page and detailed in the previous sections show many issues are relevant for both implementation and scaling. However, some of these issues are also significantly challenging, and are thus crucial to overcome for scaling of local production or sourcing. Looking forward, the requirements revealed in this study provide a foundation for the upcoming feasibility study.

Products - There is more focus on product-related considerations for implementation (like on-demand products and customization), however, standardization is also suggested for scaling-moving beyond material sharing to standardized products.

Processes - Several process considerations are both crucial and challenging for implementation and scaling, including knowledge - from production skills to competence linked with technology as well as business-related skills. Such considerations are required for efficiency in manufacturing and supply chains. They are also linked to insufficient capacity, which is critical for scaling up.

Supply chain structures - Challenges are also related to location, which is difficult, both due to local supplier vulnerabilities and the availability of materials globally vs. locally. Ownership and control of the supply chain was also important for brands, in particular.

Relationships - Results show relationship considerations regarding supplier relationships (and trust) are crucial for implementation and scaling. Customer relationships are crucial for scaling, both with end-consumers, and between producers and brands.

Other considerations - Among the other considerations emphasized are several related to capabilities and performance priorities, including quality which is always required and can be challenging. Beyond focusing on cost performance alone, cost mindset changes were suggested, which can help brands to overcome cost challenges, together with increased product value based on sustainability and customization. Lead time performance was also mentioned as crucial for scaling. Additionally, capital was mentioned by some as being required to market to end-consumers and grow demand, and to invest in improving processes. For some, balancing investment and learning is implied as relevant for scaling local supply chains.
Overview of workshop – Future scenarios

Workshop on future scenario development
During Autumn in 2023, a workshop was undertaken with various stakeholders involved with or interested in localization. As the Figure above summarizes, 22 participants were registered and represented many different types of actors in the local manufacturing ecosystem. Of these registered participants, 17 partipants were in attendance and active within data collection processes supported by interactive digital tools. In addition to those actors present physically at the workshop, four other practitioners contributed remotely to the discussion with their opinions.

The focus of this workshop was future planning and scenario development for local value chains in the specific region and requirements for support. The questions discussed are summarized on this page and the results are presented on the following pages.

Question 1
What textile/clothing manufacturing and sourcing scenarios can be implemented locally (including for resilience)?

Question 2
What is required to facilitate this implementation?

Question 3
What are the key issues going forward?
Question 1

What textile/clothing manufacturing and sourcing scenarios can be implemented locally?

*Interrelated for Circular Business Model opportunities

Added during workshop

Confirming and expanding upon interview findings
What textile/clothing manufacturing and sourcing scenarios can be implemented locally?

Supply chain structures

- **Supply chain transparency**
  - Digitalization for transparency in supply chain

- **Supply chain flexibility**
  - Flexibility from short distances, digitalization and automation
  - Close to market

- **Circular infrastructures***
  - Infrastructure for discarded clothing/products as raw materials (overproduction or secondhand)
  - Specialized machines

Relationships

- **Collaboration***
  - Collaboration, including new types of collaboration (between brands and producers-investments, among producers)
  - Ecosystem view

- **Transparency**
  - Honesty, transparency, digitalization in relationships

Other

- **Consumer behavior**
  - Consumers valuing sustainability and local production
  - Paying more for long lasting products (consuming less)

---

*Inter related for Circular Business Model opportunities

- Added during workshop
- Confirming and expanding upon interview findings
When identifying requirements to support future local value chains, the workshop participants stressed several issues that had already been identified during the workshop and the interview study while adding several other issues.

Requirements include production knowledge, specifically focused on flexibility in competence. To add to this need, there was focus on enhancing the attractiveness of work with textiles. This included discussions about the need to balance traditional knowledge with new technologies/processes.

Advanced technologies and infrastructure for implementing circular processes were also stressed, along with the need for capital to invest in development. The participants also emphasized that policy is required to provide both incentives and other types of support.

Top ranked priorities

- Digitalization/Automation/Robotics
- Collaboration
- Less/small-scale production (profitable)
- Knowledge/Competence

Question 2

What is required to facilitate this implementation?

Question 3

What are the key issues going forward?
Workshop results – Overview of future scenarios

Future local textile/clothing manufacturing and sourcing scenarios

<table>
<thead>
<tr>
<th>Products</th>
<th>Workshop</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Remake/Circular***</td>
<td>•</td>
<td>IMP/SCAL</td>
</tr>
<tr>
<td>Local materials</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Customization/Personalization</td>
<td>•</td>
<td>•</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Processes</th>
<th>Workshop</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Technology (Automation/AI/Robotics)</td>
<td>•</td>
<td>• •</td>
</tr>
<tr>
<td>Circular processes*</td>
<td>•</td>
<td>•</td>
</tr>
<tr>
<td>Knowledge (Craft knowledge)</td>
<td>•</td>
<td>• •</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Supply chain structures</th>
<th>Workshop</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supply chain transparency/digitalization**</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Supply chain flexibility**</td>
<td>•</td>
<td></td>
</tr>
<tr>
<td>Circular infrastructure* **</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Relationships</th>
<th>Workshop</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Collaboration</td>
<td>•</td>
<td>• •</td>
</tr>
<tr>
<td>Transparency**</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Other</th>
<th>Workshop</th>
<th>Interviews</th>
</tr>
</thead>
<tbody>
<tr>
<td>Consumer behavior**</td>
<td>•</td>
<td></td>
</tr>
</tbody>
</table>

* Interrelated for circular business models
** Added during workshop
(Sizes of dots represent the relative strength of agreement or emphasis in workshop based on votes, or number of companies in interviews)
Further reading

The previous report* offers an executive summary of and extends a corresponding research paper. More details of that scientific work can be obtained upon request from the lead author**.

The following specific publication can be provided upon request:


**Sara Harper – sara.harper@hb.se
References


