THE STATE OF FASHION: FUTURE-PROOFING THE INDUSTRY USING ADVANCED MANUFACTURING

WHAT IS FUTURE-PROOFING?

The 2023 McKinsey report identifies that the industry needs to be future-proofed across all sectors from manufacturing to the social needs of the end consumer to account for changing social attitudes and a desire for fashion to be more sustainable, efficient and functional.

Future-proofing is designing with the intent that the result can be used in the future even with technological, social and external change (Cambridge Dictionary, 2023).
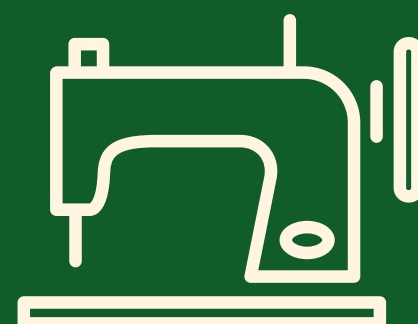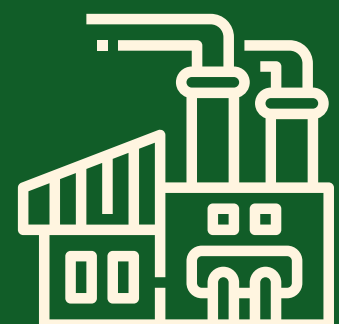
PROBLEM AREAS:

- GARMENT FIT
- OUTDATED SUPPLY CHAIN
- OUTDATED MANUFACTURING PROCESSES

INDIVIDUAL OUTCOMES:

EXPLORING GARMENT FIT RELATING TO TRANSGENDER BODIES

FUTURE-PROOFING THE SMALL FASHION BUSINESS MODEL THROUGH THE USE OF MICROFACTORIES.

INDUSTRY 4.0 - IMPLEMENTING TECHNOLOGY IN PAKISTANI GARMENT FACTORIES

GROUP 3: MACEN GILMORE, HAMZA GHEEWALA AND ULA BONEY-HUNDAL

GARMENT FIT

Literature identified that the current sizing systems are outdated and do not account for changing social attitudes or for the majority of society's garment sizing requirements.

Advanced manufacturing techniques such as 3D body scanning and pattern parameterisation using CAD software like Lectra Modaris are a potential solution to fit issues identified.

OUTDATED SUPPLY CHAIN

The current architecture is described as being outdated, unsustainable and needs to be changed. Smaller scale businesses suffer from the lack of resilience that traditional supply chains offer, especially during the set up phase, due to the expense. Advanced manufacturing and new models offer new opportunities and a competitive advantage in a sustainable market. These approaches could allow small scale businesses to thrive.

OUTDATED MANUFACTURING PROCESSES

In today's production landscape, the demand for cheaper higher-quality garments has lead to many manufacturing countries adopting technology to assist the manufacturing process. This has lead to better efficiency and higher quality whilst driving down costs.

However, Pakistan, is much more hesitant in adopting technology. Resulting in lower completeness in the international market.

The report aims to explore how why Pakistan is hesitant to implement technology and how it can be integrated into current processes.

THESE CONCEPTS ARE EXPLORED FURTHER IN EACH RESPECTIVE INDIVIDUAL REPORT

INDUSTRY 4.0:
IMPLEMENTING TECHNOLOGY IN PAKISTANI GARMENT FACTORIES
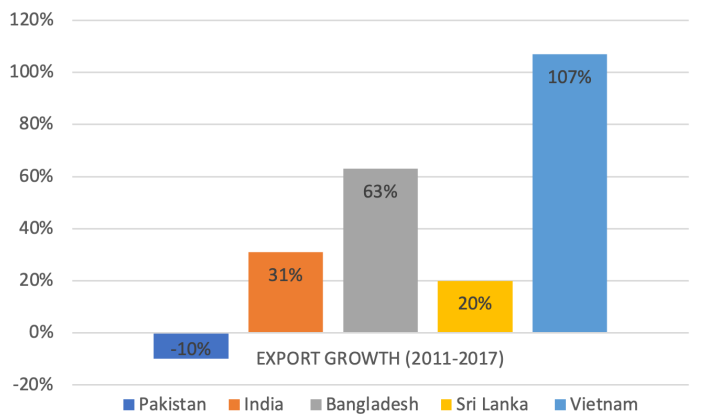
MACRO TOPIC

The ever-changing landscape of the fashion industry has caused a need for businesses operating in the space to evolve and adapt their methods of operation to keep up with the demands of consumer needs and wants, aiming at higher quality and better fit.

ADVANTAGES OF AUTOMATION

- Productivity ↑
- Inventory turnover ↑
- Quality ↑
- Replacement of monotonous tasks
- Variability of goods ↓
- Overhead costs ↓

(Nayak and Padhye, 2018)

The graph above shows the export growth of countries compared to Pakistan between the years 2011-2017 in the textiles industry.
(Memon et al, 2020)

EXPORT GROWTH (2011-2017)

- Pakistan: -10%
- India: 31%
- Bangladesh: 63%
- Sri Lanka: 20%
- Vietnam: 107%

MICRO TOPIC

The Pakistani Garment manufacturing industries and factories are hesitant to adopt and implement technology and are choosing to stick to traditional methods of production.
Thus are subject to lower efficiency and adverse effects on the environment alongside lower export competitiveness and lack of consumer confidence.

OVERVIEW

Focusing on the barriers to adopting and implementing Advanced Manufacturing Technologies (AMTs) in Pakistani garment factories. The consumer demands of buyers across the globe can be achived allowing for higher export competitiveness, better efficiency, and more profitability.

HAMZA GHEEWALA

(1) Nayak, R. and Padhye, R. (2018) 'Introduction to automation in garment manufacturing', Automation in Garment Manufacturing, pp. 1–27. Available at: https://doi.org/10.1016/b978-0-08-101211-6.00001-x. (2) Memon, J.A., Aziz, A. and Qayyum, M. (2020) 'The Rise and Fall of Pakistan's Textile Industry: An Analytical View', European Journal of Business and Management, 12. Available at: https://doi.org/10.7176/ejbm/12-12-12. (3)Yasinshaikh, G. et al. (2012) Implementation of Advanced Manufacturing Technology as Tool for Manufacturing Industries. Available at: http://www.iieom.org/ieom2012/pdfs/360.pdf

EXPLORING GARMENT FIT RELATING TO TRANSGENDER BODIES

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MACRO TOPIC

The 2023 McKinsey report identifies that the garment industry needs to be future-proofed to account for changing social attitudes and a desire for fashion to be more sustainable, efficient and functional.

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GENDER EUPHORIA:

"...the positive homologue of gender dysphoria. It speaks to a distinct enjoyment or satisfaction caused by the correspondence between the person's gender identity and gendered features associated with a gender other than the one assigned at birth." (Ashley and Ellis, 2018)

GENDER DYSPHORIA

A term that describes a sense of unease that a person may have because of a mismatch between their biological sex and their gender identity. (NHS, 2022)

MICRO TOPIC

The examination of transgender consumers' interaction with clothing and how they are perceived by themselves and wider society .

The concepts of gender euphoria and dysphoria play a large part in trans people's relationship with clothing and fashion. Garments often do not fit in a way which affirms their gender, leading to feelings of inauthenticity and low self-esteem, contributing to the mental health issues already plaguing the community. Libby Brooks for The Guardian (2022) reported that trans people's mental health is at a crisis point in the UK.

OVERVIEW

A transgender participant in a study by Reilly et al (2019) stated, _"...'cause if the clothing doesn't fit right on me then obviously that means there's something wrong with my body"._ This was a significant finding in the reading for this project and became a focus point.

Trans people's views towards clothing were compared with their cisgender counterparts and a 3D body scan data set of cis women was examined to display size discrepancies.

KEY POINTS:

- _Many trans people blame themselves for their clothing not fitting and not the sizing systems in place._
- _This is not unique to trans community, cisgender consumers also feel dissatisfaction at the way clothing does or doesn't fit them._
- _3D body scan data from 100 white and Chinese women highlighted that there is no correlation between hip, waist and bust measurements that could lead to a more accurate sizing system._
- _Answer to these issues is likely purposeful implementation of advanced manufacturing techniques such as pattern parameterisation and 3D body scanning._

WHY IS THIS PROJECT IMPORTANT?
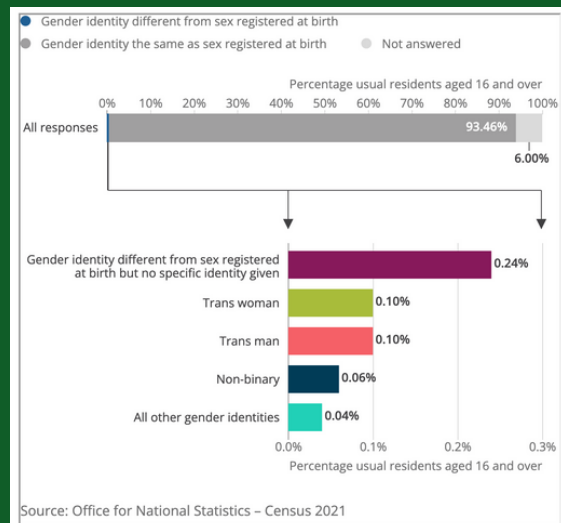
2021 CENSUS RESULTS FROM MEASURING GENDER IDENTITY FOR THE FIRST TIME (THE INDEPENDENT, 2023)

OUTCOME

This project highlighted the already prominent issues with fit and sizing within the fashion industry, except in the context of the LGBTQ+ community.

This is a relatively new arena of research and has potential for meaningful change if given the right attention and resources.

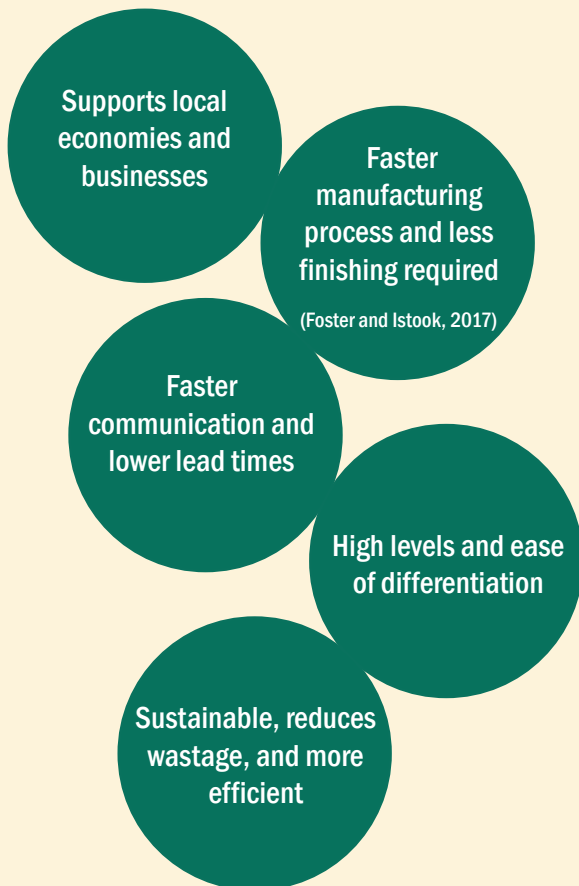# Futureproofing the small business model through the use of sustainable microfactories

By Ula Boney-Hundal, 10685093

The fashion industry needs to change to prepare for the new social, environmental and quality requirements of the consumer. The current fashion business models are unsustainable (Pal and Gander, 2018) with long lead times in supply chains and low levels of resilience, highlighted by the COVID-19 pandemic. This is a main causes of financial strain for small businesses and makes survival difficult.

Key Benefits of a sustainable Microfactory:

Supports local economies and businesses

Faster manufacturing process and less finishing required
(Foster and Istook, 2017)

Faster communication and lower lead times

High levels and ease of differentiation

Sustainable, reduces wastage, and more efficient

For small brands and businesses to adapt and overcome these issues, new supply chain and business models need to be explored.

One potential solution is to use a nearshored microfactory using advanced manufacturing technology, e.g., 3D knitting, creating a more efficient and sustainable manufacturing system for smaller market enterprises

"Microfactory" - nearshored production facility, catering to small production runs

Local Sheep Farmers

Processing and Spinning enterprise

Microfactory

BRANDS

Entrepreneurs

Consumers
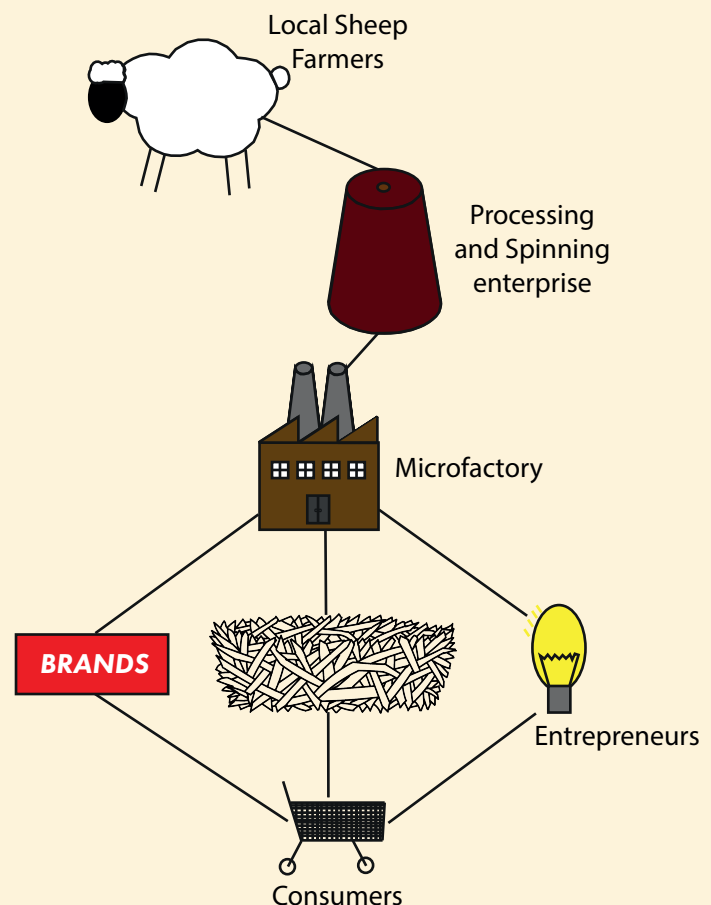
Model of a microfactory supply chain and prodcution path using local wool

Conclusions from investigation

Lincolnshire is a viable place to open a microfactory, there is a local supply of raw materials. Local sheep farmers are willing to sell to their wool to the microfactory or a connected processing business, as discovered during market research.

An analysis of a small sustainable brand Nesthead showed a slow supply chain with large potential of delay. The microfactory model is an efficient substitute that caters to the smaller product runs and can operate in a more sustainable manner than traditional factories.

The use of advanced manufacturing allows Nesthead and small brands an expanded product range. 3D knitting allows production of higher quality garments (such as jumpers or beanies) in small batches. This creates more customisable brands without overstocking or large wastage problems.

References
Pal, R. and Gander, J. (2018). 'Modelling environmental value: An examination of sustainable business models within the fashion industry', Journal of Cleaner Production, Volume 184, 251-263. [Online] Available at: https://www.researchgate.net/publication/323259709_Modelling_environmental_value_An_examination_of_sustainable_business_models_within_the_fashion_industry (Accessed: 16 February 2023)
Foster, K. and Istook, C. (2017). '3D Knitting Technology: A Decision-Making Model'. Available at: https://core.ac.uk/download/pdf/212813113.pdf (Accessed: 17/3/23)