

---

# Digital Transformation in Apparel Industry

How to improve efficiency of Apparel Factory Supply Chain

*Dec. 16th*



## Webinar Video Links

---

- These slides were presented in a webinar
- To view the webinar online:
  - <https://youtu.be/jkwZdkfmbrs>
- To download the webinar video, kindly use the link below:
  - [https://zoom.us/webinar/register/WN\\_KF4LUGhXQnCqU2mvj9ETTg](https://zoom.us/webinar/register/WN_KF4LUGhXQnCqU2mvj9ETTg)

# Digital Transformation in Apparel Industry

How to improve efficiency of Apparel Factory Supply Chain

## Digital Transformation in Apparel Industry:

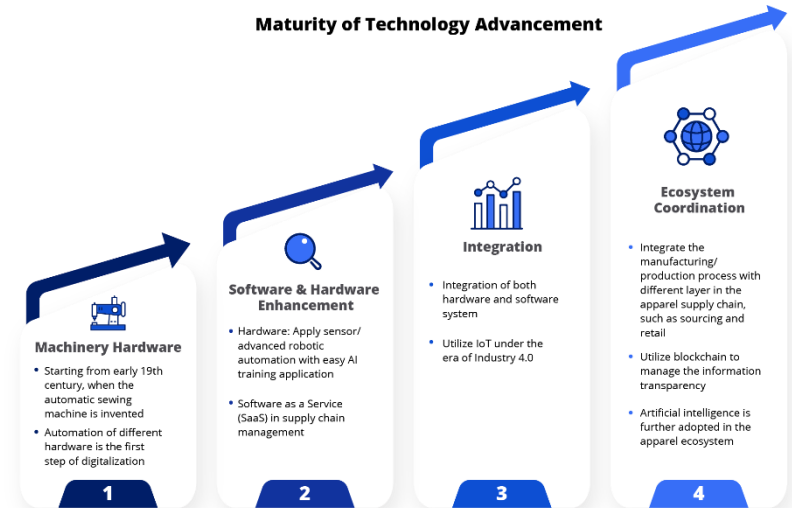
How to Improve Efficiency in Apparel Factory Supply Chain



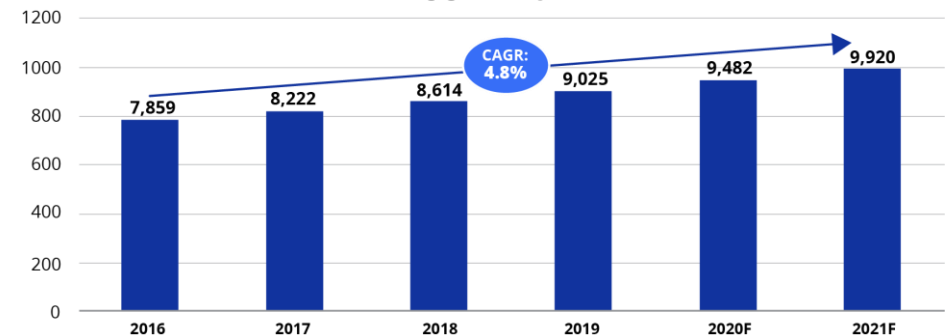
DECEMBER 2020

YCP Solidiance has produced this white paper for information purposes only. While every effort has been made to ensure the accuracy of the information and data contained herein, YCP Solidiance bears no responsibility for any possible errors and omissions. All information, views, and advice are given in good faith but without any legal responsibility; the information contained should not be regarded as a substitute for legal and/or commercial advice. Copyright restrictions (including those of third parties) are to be observed.

### Maturity of Technology Advancement



### Global Apparel Manufacturing Market Size In USD Billion





## Speakers' Profile

Speakers from YCP Solidiance, Brother Machinery (Asia) Limited and GPRO Global Sdn Bhd.

### Moderator:

- **Yulin Huang** - Director of YCP Solidiance

Yulin Huang is the Director of YCP Solidiance in Hong Kong. She is involved in consultation services for strategy planning and potential investment evaluation opportunities. Prior to joining YCP Group, Yulin Huang was at Goldman Sachs and J.P. Morgan with industry focus on Technology, Media, and Telecommunications, and consumer related industries.



### Speaker:

- **Gen Kimura** - General Manager of the BMA Solution Department

BMA Solution Department was separated from ISM Dept Industrial Sewing Machine Dept. He conducted initial marketing act for NEXIO system as General Manager of ISM Dept, strengthened the BMA governance matter as General Manager of Finance & Administration, he also accelerated digitalization of BMA operation.



- **Jordan Tang** - Founder and Executive Director of GPRO GLOBAL Sdn Bhd. GPRO is a leading technology-based company dedicated to designing and developing innovative I.T. , automation, IoT and process solutions for the apparel, healthcare and logistic sectors. Jordan has 28 years of entrepreneurial experience in managing I.T. based companies. He has brought a company he founded to a public listing in the Malaysia Stock Exchange (Bursa Malaysia) in 2004.





# Agenda

---

- **Introduction**
  - Digitalization Transformation in the Apparel Industry
  - Evolvement of Digital Transformation in the Apparel Industry
  - Digitalization in the Apparel Industry's Supply Chain
- **BMA**
  - BMA's Company Introduction
  - NEXIO System Introduction
  - Case Study
- **GPRO**
  - GPRO's Company Introduction
  - Case Study
- **Outlook**
- **Q&A**



# Agenda

**Introduction**

Sharing by BMA

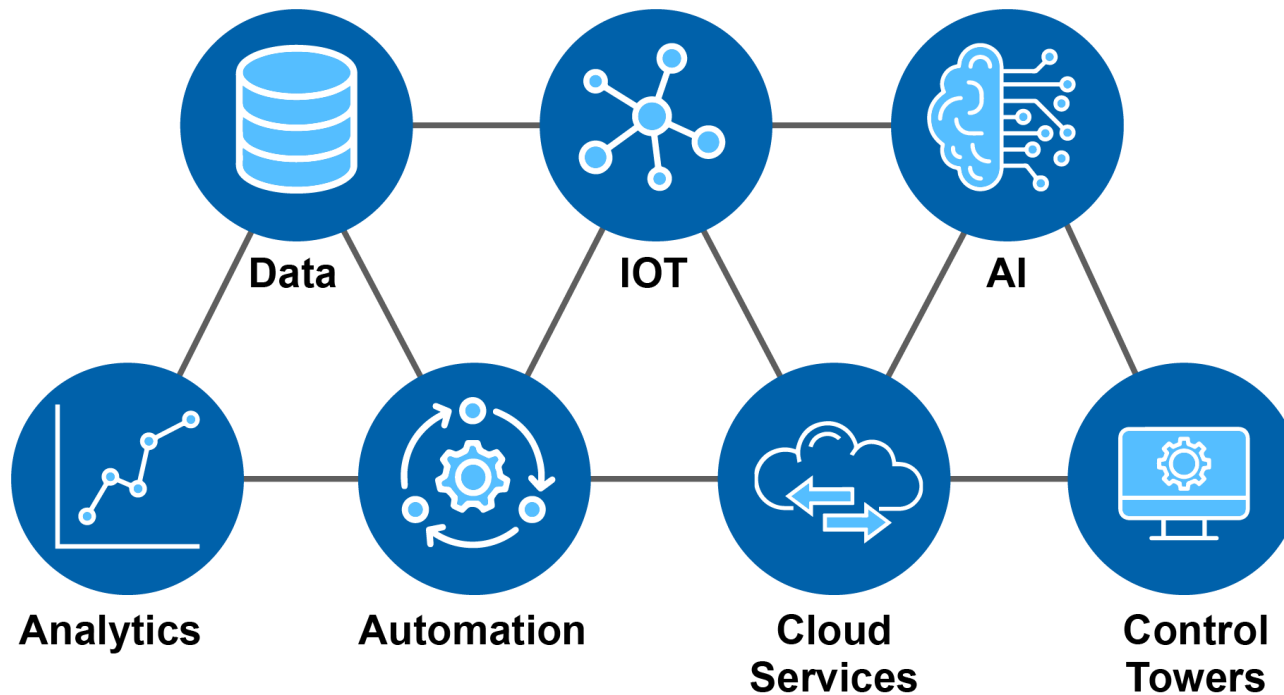
Sharing by GPRO

Market Outlook

# Digital transformation is happening all over the world across all industries



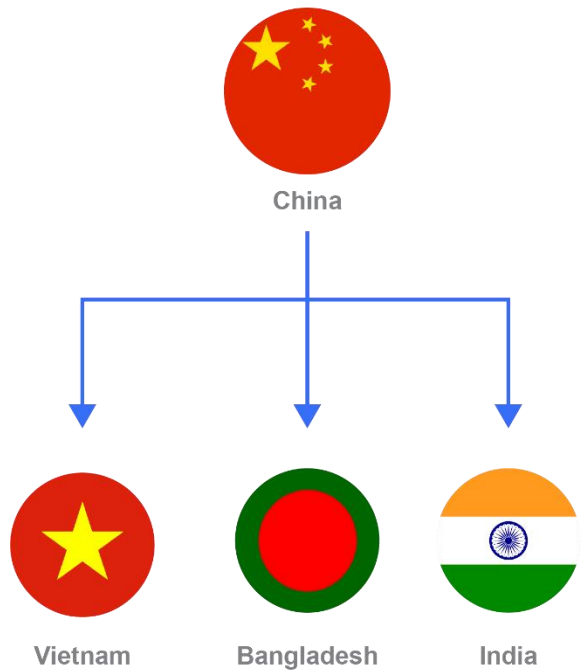
**Digital transformation** is the adoption process of the integration of digital technology into different industries and transforms businesses through replacing non-digital or manual processes, and it has been an inevitable trend happening in every industry, and the apparel industry is not exempted from it.





# Cost cutting needs in apparel industry has driven the relocation of factories and technology advancement, Covid-19 has accelerated the Digital Transformation in Apparel Factories

Moving from China to other Asian counties



Covid-19



- Deduction of labour forces
- Increasing need of small lot production
- After Covid-19, the production volume will be reduced. Factory focus is changing from Output to Quality



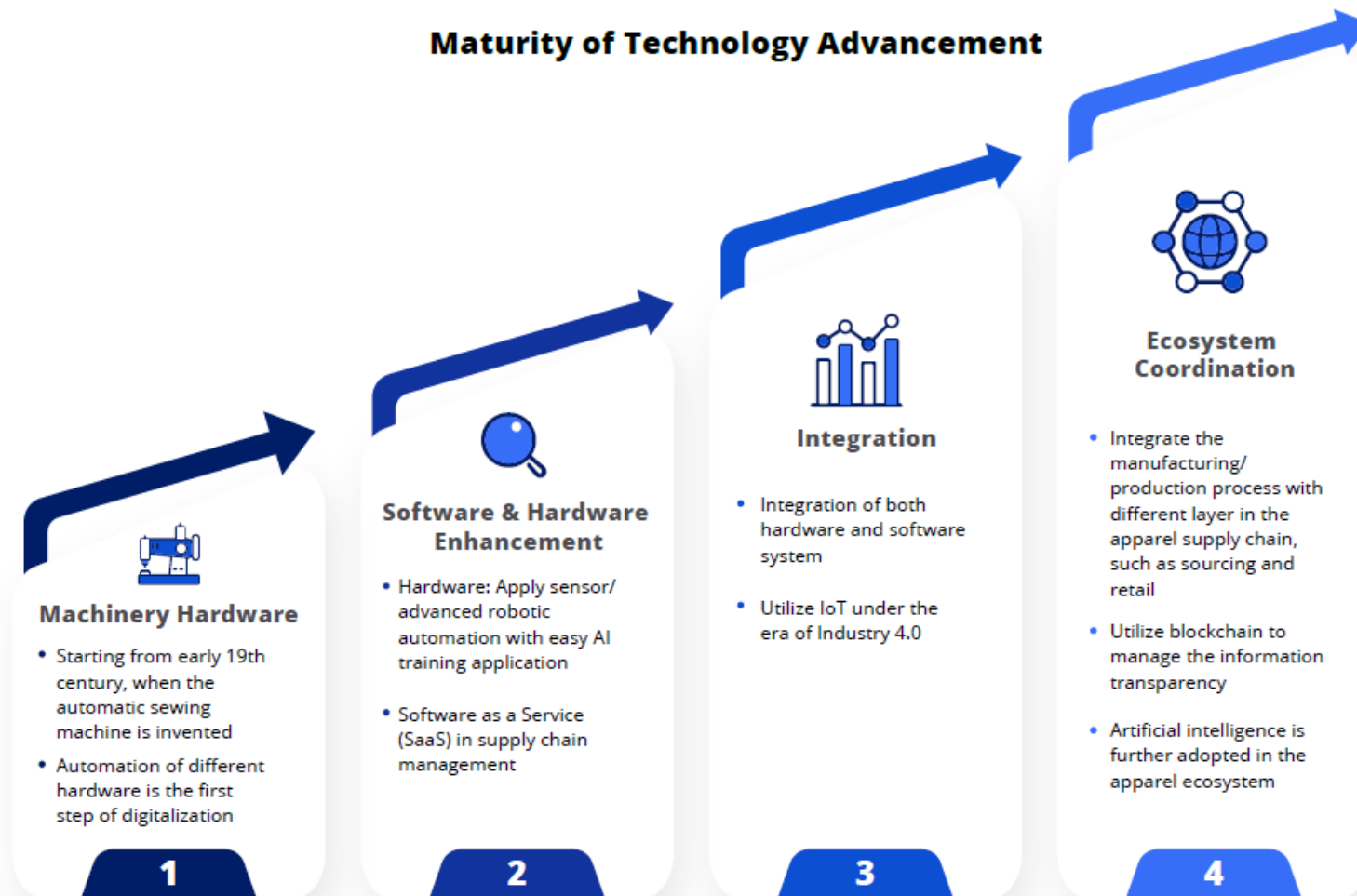
Urgent need of Digital Transformation





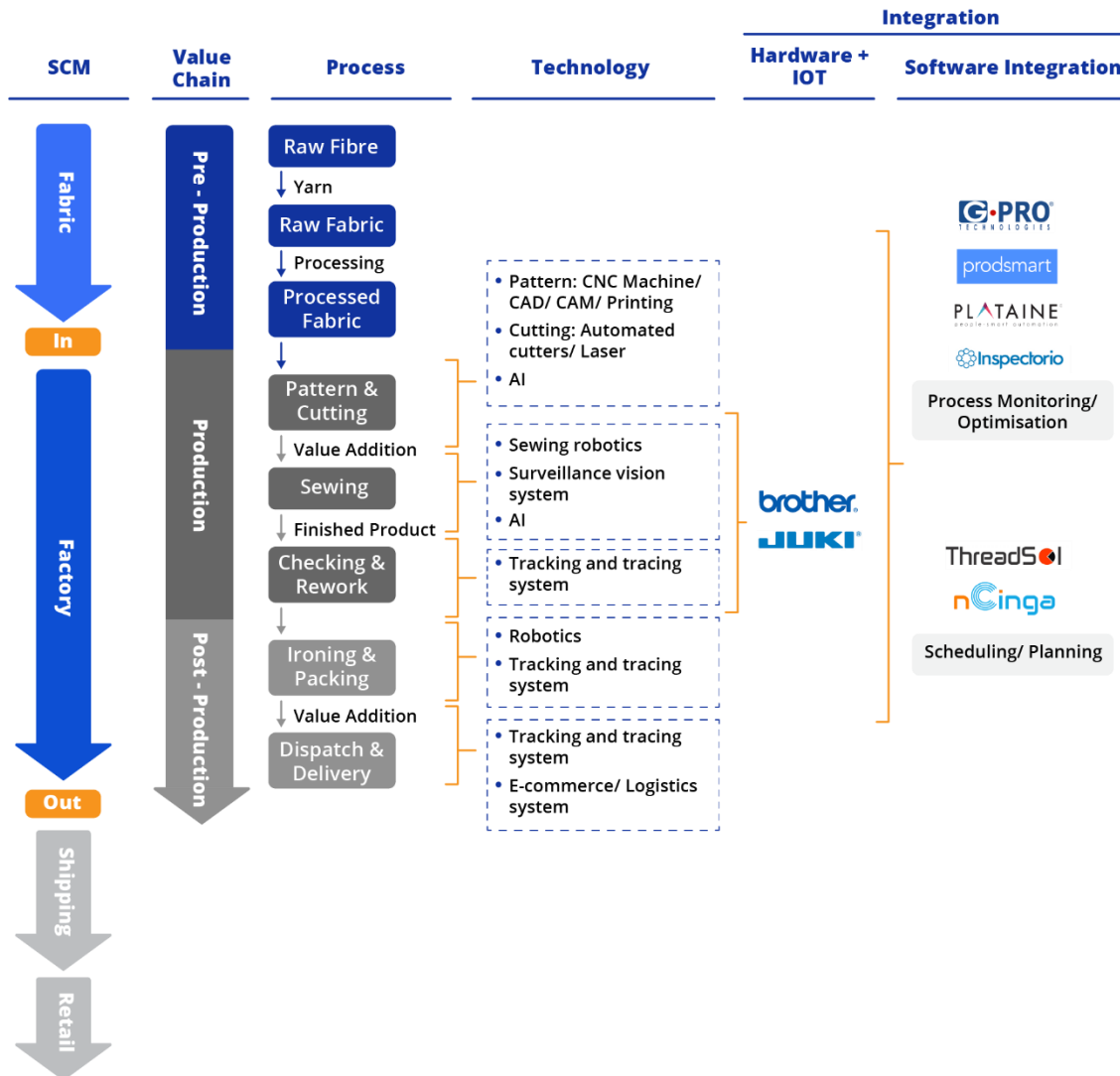


# Evolution of Digital Transformation in the Apparel Industry





# Digitalization in the Apparel Industry's Supply Chain Management



- **Fabric:** Cover the pre-production process in the value chain. Focus on preparing necessary materials and services, and includes line planning, sample development, and approvals, sourcing, and production scheduling
- **Factory:** Cover the production and post-production process in the value chain, which is whatever happened in the factory. During production, fabrics are spread, cut, bundled, and sew. Post-production includes pressing, inspection, folding and packing — to get goods ready for consumers
- **Shipping:** Once the product is out of factory, they would be shipped to the retail site by the logistics company
- **Retail:** The activity refers to selling directly to consumers or end-users



# Agenda

Introduction

**Sharing by BMA**

Sharing by GPRO

Market Outlook

## Brother Machinery (Asia) Limited



### Location:

Hong Kong

### Under:

Brother Industries, Ltd. located in Japan

### Responsible for:

Industrial Sewing Machine

Garment printer business in **ASIA** region



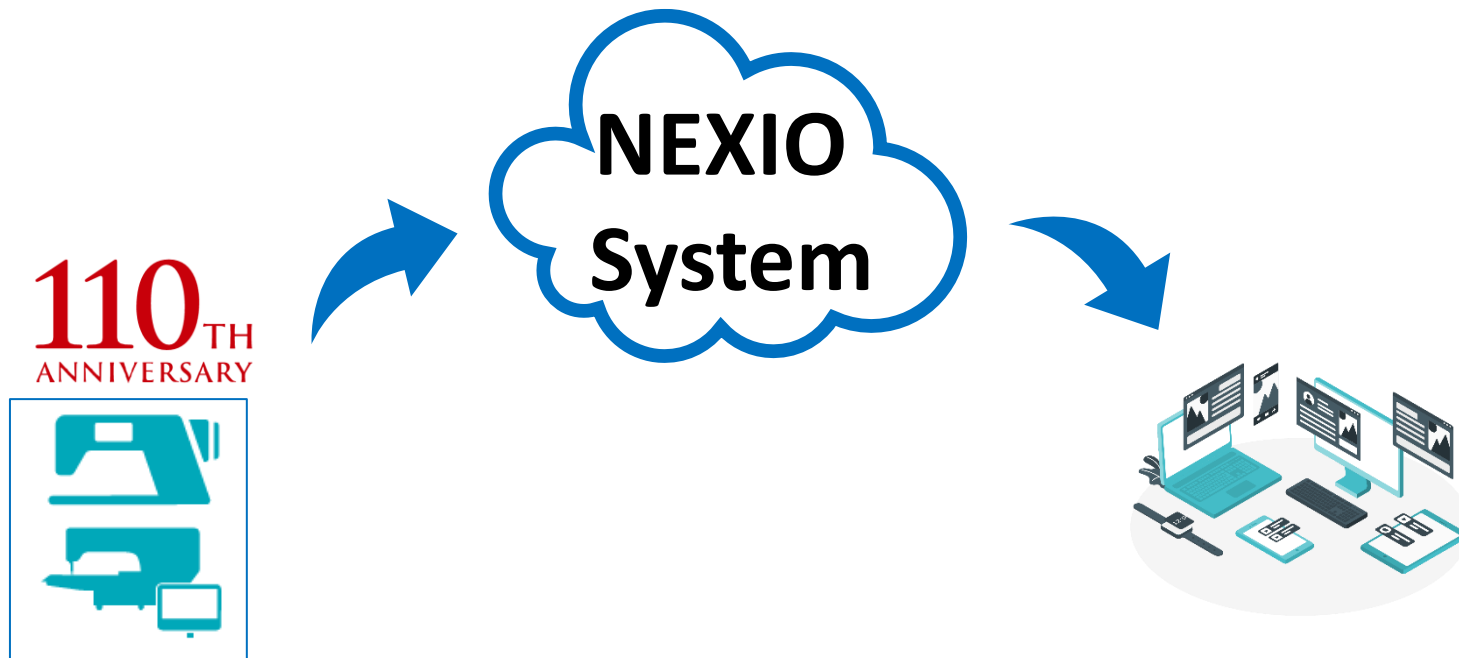
Sewing Machine



Garment Printer

# Brother is now in software business

NEXIO system is the cloud base system which directly send sewing machine data for visualization.  
Cloud system allows you to check data on real time basis.



# 1. NEXIO System reduces factory's manual work

Eliminate the manual work in production lines and never worry about missing your delivery dates!

Manual data collection requires



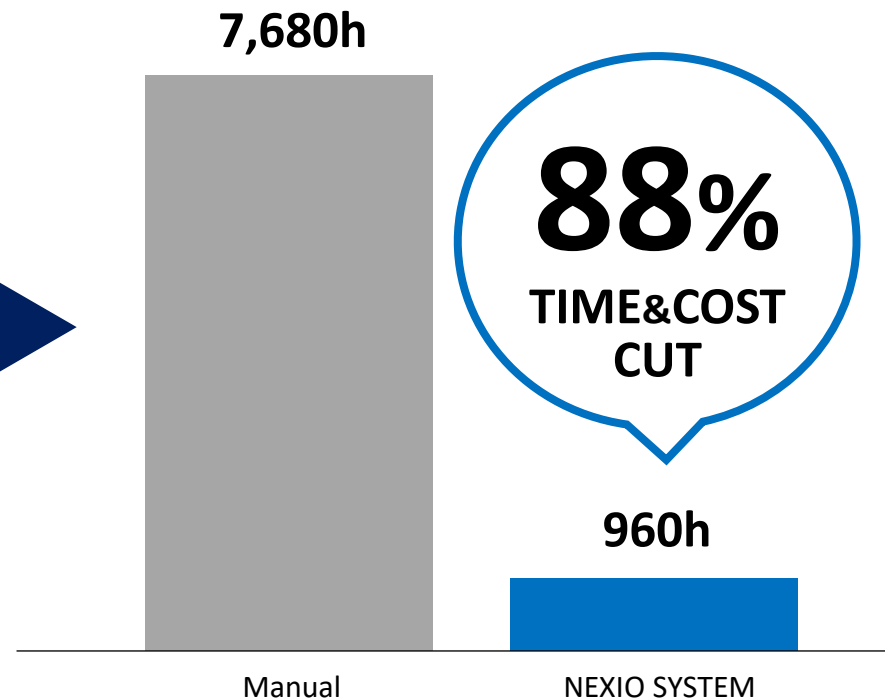
**40%**

of working time



**\$23,000**

in one year



\*all figures are based on Brother's survey to 66 factories with IE department



# Collect machine data automatically

Just inserting Wi-Fi communication module to your sewing machine.  
It replaces your manual data collection and report creation by digitalizing the work process.



## Just inserting a module and realizes:

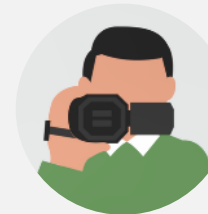
- EASY data collection
- WHOLE DAY monitoring
- ACUURATE data collection



No need for manual count



Stopwatch



Video



Hand Memo



# Able to collect data with ANY MACHINES

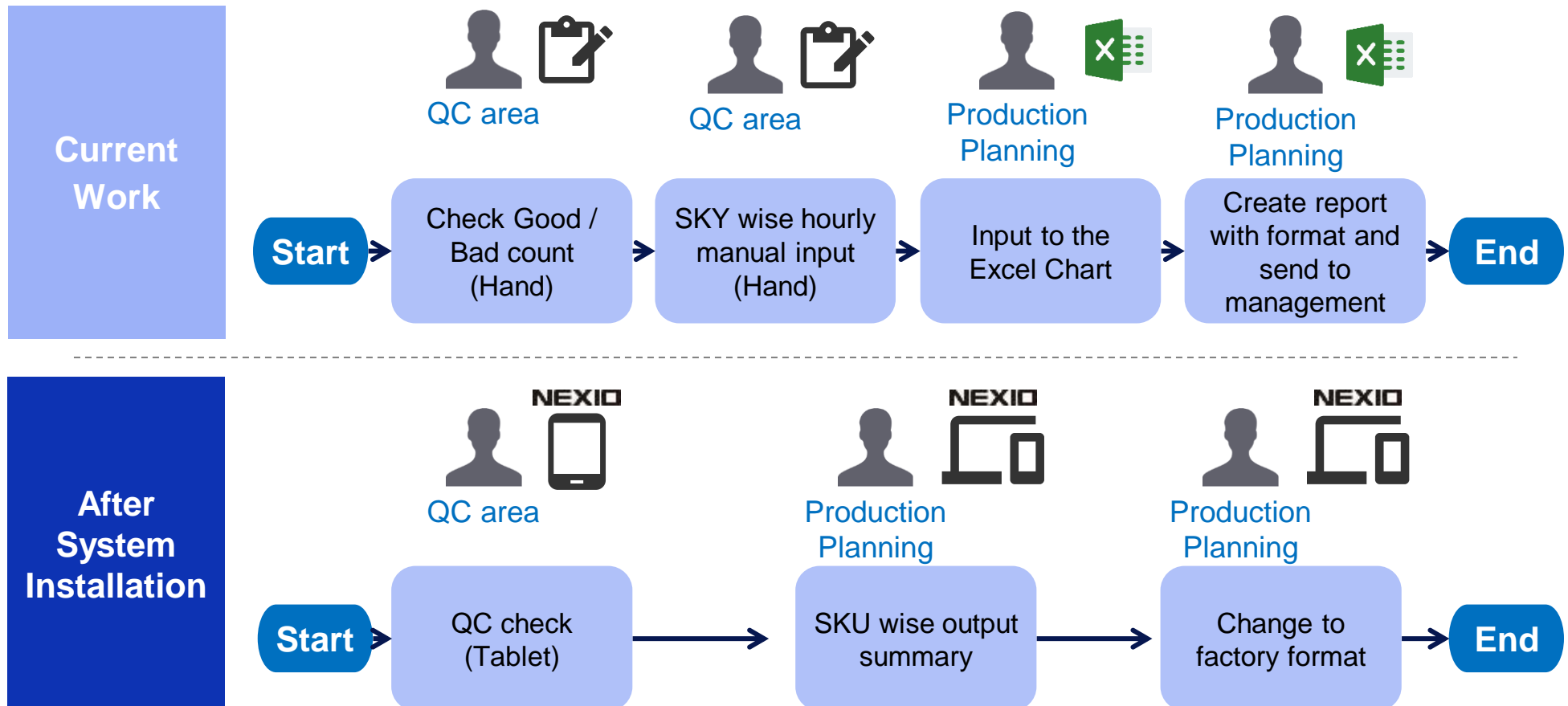
**brother**  
at your side



**Other Brand**

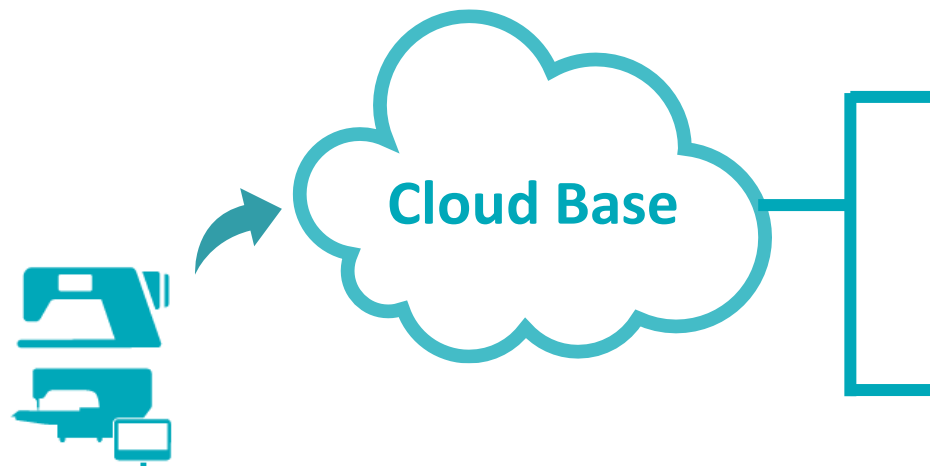


## 2. Enhancing paperless operation



# Automatic Data aggregation and visualization

Just inserting Wi-Fi communication module to your sewing machine.  
It replaces your manual data collection and report creation by digitalizing the work process.



Projection at the production line



Report Extract with Excel

| Monthly | 9/20 | 10/20 | 11/20 | 12/20 | 1/21 | 2/21 | 3/21 | 4/21 | 5/21 | 6/21 | 7/21 | 8/21 | 9/21 | 10/21 | 11/21 | 12/21 | 1/22 | 2/22 | 3/22 | 4/22 | 5/22 | 6/22 | 7/22 | 8/22 | 9/22 | 10/22 | 11/22 | 12/22 | 1/23 | 2/23 | 3/23 | 4/23 | 5/23 | 6/23 | 7/23 | 8/23 | 9/23 | 10/23 | 11/23 | 12/23 | 1/24 | 2/24 | 3/24 | 4/24 | 5/24 | 6/24 | 7/24 | 8/24 | 9/24 | 10/24 | 11/24 | 12/24 | 1/25 | 2/25 | 3/25 | 4/25 | 5/25 | 6/25 | 7/25 | 8/25 | 9/25 | 10/25 | 11/25 | 12/25 | 1/26 | 2/26 | 3/26 | 4/26 | 5/26 | 6/26 | 7/26 | 8/26 | 9/26 | 10/26 | 11/26 | 12/26 | 1/27 | 2/27 | 3/27 | 4/27 | 5/27 | 6/27 | 7/27 | 8/27 | 9/27 | 10/27 | 11/27 | 12/27 | 1/28 | 2/28 | 3/28 | 4/28 | 5/28 | 6/28 | 7/28 | 8/28 | 9/28 | 10/28 | 11/28 | 12/28 | 1/29 | 2/29 | 3/29 | 4/29 | 5/29 | 6/29 | 7/29 | 8/29 | 9/29 | 10/29 | 11/29 | 12/29 | 1/30 | 2/30 | 3/30 | 4/30 | 5/30 | 6/30 | 7/30 | 8/30 | 9/30 | 10/30 | 11/30 | 12/30 | 1/31 | 2/31 | 3/31 | 4/31 | 5/31 | 6/31 | 7/31 | 8/31 | 9/31 | 10/31 | 11/31 | 12/31 | 1/32 | 2/32 | 3/32 | 4/32 | 5/32 | 6/32 | 7/32 | 8/32 | 9/32 | 10/32 | 11/32 | 12/32 | 1/33 | 2/33 | 3/33 | 4/33 | 5/33 | 6/33 | 7/33 | 8/33 | 9/33 | 10/33 | 11/33 | 12/33 | 1/34 | 2/34 | 3/34 | 4/34 | 5/34 | 6/34 | 7/34 | 8/34 | 9/34 | 10/34 | 11/34 | 12/34 | 1/35 | 2/35 | 3/35 | 4/35 | 5/35 | 6/35 | 7/35 | 8/35 | 9/35 | 10/35 | 11/35 | 12/35 | 1/36 | 2/36 | 3/36 | 4/36 | 5/36 | 6/36 | 7/36 | 8/36 | 9/36 | 10/36 | 11/36 | 12/36 | 1/37 | 2/37 | 3/37 | 4/37 | 5/37 | 6/37 | 7/37 | 8/37 | 9/37 | 10/37 | 11/37 | 12/37 | 1/38 | 2/38 | 3/38 | 4/38 | 5/38 | 6/38 | 7/38 | 8/38 | 9/38 | 10/38 | 11/38 | 12/38 | 1/39 | 2/39 | 3/39 | 4/39 | 5/39 | 6/39 | 7/39 | 8/39 | 9/39 | 10/39 | 11/39 | 12/39 | 1/40 | 2/40 | 3/40 | 4/40 | 5/40 | 6/40 | 7/40 | 8/40 | 9/40 | 10/40 | 11/40 | 12/40 | 1/41 | 2/41 | 3/41 | 4/41 | 5/41 | 6/41 | 7/41 | 8/41 | 9/41 | 10/41 | 11/41 | 12/41 | 1/42 | 2/42 | 3/42 | 4/42 | 5/42 | 6/42 | 7/42 | 8/42 | 9/42 | 10/42 | 11/42 | 12/42 | 1/43 | 2/43 | 3/43 | 4/43 | 5/43 | 6/43 | 7/43 | 8/43 | 9/43 | 10/43 | 11/43 | 12/43 | 1/44 | 2/44 | 3/44 | 4/44 | 5/44 | 6/44 | 7/44 | 8/44 | 9/44 | 10/44 | 11/44 | 12/44 | 1/45 | 2/45 | 3/45 | 4/45 | 5/45 | 6/45 | 7/45 | 8/45 | 9/45 | 10/45 | 11/45 | 12/45 | 1/46 | 2/46 | 3/46 | 4/46 | 5/46 | 6/46 | 7/46 | 8/46 | 9/46 | 10/46 | 11/46 | 12/46 | 1/47 | 2/47 | 3/47 | 4/47 | 5/47 | 6/47 | 7/47 | 8/47 | 9/47 | 10/47 | 11/47 | 12/47 | 1/48 | 2/48 | 3/48 | 4/48 | 5/48 | 6/48 | 7/48 | 8/48 | 9/48 | 10/48 | 11/48 | 12/48 | 1/49 | 2/49 | 3/49 | 4/49 | 5/49 | 6/49 | 7/49 | 8/49 | 9/49 | 10/49 | 11/49 | 12/49 | 1/50 | 2/50 | 3/50 | 4/50 | 5/50 | 6/50 | 7/50 | 8/50 | 9/50 | 10/50 | 11/50 | 12/50 | 1/51 | 2/51 | 3/51 | 4/51 | 5/51 | 6/51 | 7/51 | 8/51 | 9/51 | 10/51 | 11/51 | 12/51 | 1/52 | 2/52 | 3/52 | 4/52 | 5/52 | 6/52 | 7/52 | 8/52 | 9/52 | 10/52 | 11/52 | 12/52 | 1/53 | 2/53 | 3/53 | 4/53 | 5/53 | 6/53 | 7/53 | 8/53 | 9/53 | 10/53 | 11/53 | 12/53 | 1/54 | 2/54 | 3/54 | 4/54 | 5/54 | 6/54 | 7/54 | 8/54 | 9/54 | 10/54 | 11/54 | 12/54 | 1/55 | 2/55 | 3/55 | 4/55 | 5/55 | 6/55 | 7/55 | 8/55 | 9/55 | 10/55 | 11/55 | 12/55 | 1/56 | 2/56 | 3/56 | 4/56 | 5/56 | 6/56 | 7/56 | 8/56 | 9/56 | 10/56 | 11/56 | 12/56 | 1/57 | 2/57 | 3/57 | 4/57 | 5/57 | 6/57 | 7/57 | 8/57 | 9/57 | 10/57 | 11/57 | 12/57 | 1/58 | 2/58 | 3/58 | 4/58 | 5/58 | 6/58 | 7/58 | 8/58 | 9/58 | 10/58 | 11/58 | 12/58 | 1/59 | 2/59 | 3/59 | 4/59 | 5/59 | 6/59 | 7/59 | 8/59 | 9/59 | 10/59 | 11/59 | 12/59 | 1/60 | 2/60 | 3/60 | 4/60 | 5/60 | 6/60 | 7/60 | 8/60 | 9/60 | 10/60 | 11/60 | 12/60 | 1/61 | 2/61 | 3/61 | 4/61 | 5/61 | 6/61 | 7/61 | 8/61 | 9/61 | 10/61 | 11/61 | 12/61 | 1/62 | 2/62 | 3/62 | 4/62 | 5/62 | 6/62 | 7/62 | 8/62 | 9/62 | 10/62 | 11/62 | 12/62 | 1/63 | 2/63 | 3/63 | 4/63 | 5/63 | 6/63 | 7/63 | 8/63 | 9/63 | 10/63 | 11/63 | 12/63 | 1/64 | 2/64 | 3/64 | 4/64 | 5/64 | 6/64 | 7/64 | 8/64 | 9/64 | 10/64 | 11/64 | 12/64 | 1/65 | 2/65 | 3/65 | 4/65 | 5/65 | 6/65 | 7/65 | 8/65 | 9/65 | 10/65 | 11/65 | 12/65 | 1/66 | 2/66 | 3/66 | 4/66 | 5/66 | 6/66 | 7/66 | 8/66 | 9/66 | 10/66 | 11/66 | 12/66 | 1/67 | 2/67 | 3/67 | 4/67 | 5/67 | 6/67 | 7/67 | 8/67 | 9/67 | 10/67 | 11/67 | 12/67 | 1/68 | 2/68 | 3/68 | 4/68 | 5/68 | 6/68 | 7/68 | 8/68 | 9/68 | 10/68 | 11/68 | 12/68 | 1/69 | 2/69 | 3/69 | 4/69 | 5/69 | 6/69 | 7/69 | 8/69 | 9/69 | 10/69 | 11/69 | 12/69 | 1/70 | 2/70 | 3/70 | 4/70 | 5/70 | 6/70 | 7/70 | 8/70 | 9/70 | 10/70 | 11/70 | 12/70 | 1/71 | 2/71 | 3/71 | 4/71 | 5/71 | 6/71 | 7/71 | 8/71 | 9/71 | 10/71 | 11/71 | 12/71 | 1/72 | 2/72 | 3/72 | 4/72 | 5/72 | 6/72 | 7/72 | 8/72 | 9/72 | 10/72 | 11/72 | 12/72 | 1/73 | 2/73 | 3/73 | 4/73 | 5/73 | 6/73 | 7/73 | 8/73 | 9/73 | 10/73 | 11/73 | 12/73 | 1/74 | 2/74 | 3/74 | 4/74 | 5/74 | 6/74 | 7/74 | 8/74 | 9/74 | 10/74 | 11/74 | 12/74 | 1/75 | 2/75 | 3/75 | 4/75 | 5/75 | 6/75 | 7/75 | 8/75 | 9/75 | 10/75 | 11/75 | 12/75 | 1/76 | 2/76 | 3/76 | 4/76 | 5/76 | 6/76 | 7/76 | 8/76 | 9/76 | 10/76 | 11/76 | 12/76 | 1/77 | 2/77 | 3/77 | 4/77 | 5/77 | 6/77 | 7/77 | 8/77 | 9/77 | 10/77 | 11/77 | 12/77 | 1/78 | 2/78 | 3/78 | 4/78 | 5/78 | 6/78 | 7/78 | 8/78 | 9/78 | 10/78 | 11/78 | 12/78 | 1/79 | 2/79 | 3/79 | 4/79 | 5/79 | 6/79 | 7/79 | 8/79 | 9/79 | 10/79 | 11/79 | 12/79 | 1/80 | 2/80 | 3/80 | 4/80 | 5/80 | 6/80 | 7/80 | 8/80 | 9/80 | 10/80 | 11/80 | 12/80 | 1/81 | 2/81 | 3/81 | 4/81 | 5/81 | 6/81 | 7/81 | 8/81 | 9/81 | 10/81 | 11/81 | 12/81 | 1/82 | 2/82 | 3/82 | 4/82 | 5/82 | 6/82 | 7/82 | 8/82 | 9/82 | 10/82 | 11/82 | 12/82 | 1/83 | 2/83 | 3/83 | 4/83 | 5/83 | 6/83 | 7/83 | 8/83 | 9/83 | 10/83 | 11/83 | 12/83 | 1/84 | 2/84 | 3/84 | 4/84 | 5/84 | 6/84 | 7/84 | 8/84 | 9/84 | 10/84 | 11/84 | 12/84 | 1/85 | 2/85 | 3/85 | 4/85 | 5/85 | 6/85 | 7/85 | 8/85 | 9/85 | 10/85 | 11/85 | 12/85 | 1/86 | 2/86 | 3/86 | 4/86 | 5/86 | 6/86 | 7/86 | 8/86 | 9/86 | 10/86 | 11/86 | 12/86 | 1/87 | 2/87 | 3/87 | 4/87 | 5/87 | 6/87 | 7/87 | 8/87 | 9/87 | 10/87 | 11/87 | 12/87 | 1/88 | 2/88 | 3/88 | 4/88 | 5/88 | 6/88 | 7/88 | 8/88 | 9/88 | 10/88 | 11/88 | 12/88 | 1/89 | 2/89 | 3/89 | 4/89 | 5/89 | 6/89 | 7/89 | 8/89 | 9/89 | 10/89 | 11/89 | 12/89 | 1/90 | 2/90 | 3/90 | 4/90 | 5/90 | 6/90 | 7/90 | 8/90 | 9/90 | 10/90 | 11/90 | 12/90 | 1/91 | 2/91 | 3/91 | 4/91 | 5/91 | 6/91 | 7/91 | 8/91 | 9/91 | 10/91 | 11/91 | 12/91 | 1/92 | 2/92 | 3/92 | 4/92 | 5/92 | 6/92 | 7/92 | 8/92 | 9/92 | 10/92 | 11/92 | 12/92 | 1/93 | 2/93 | 3/93 | 4/93 | 5/93 | 6/93 | 7/93 | 8/93 | 9/93 | 10/93 | 11/93 | 12/93 | 1/94 | 2/94 | 3/94 | 4/94 | 5/94 | 6/94 | 7/94 | 8/94 | 9/94 | 10/94 | 11/94 | 12/94 | 1/95 | 2/95 | 3/95 | 4/95 | 5/95 | 6/95 | 7/95 | 8/95 | 9/95 | 10/95 | 11/95 | 12/95 | 1/96 | 2/96 | 3/96 | 4/96 | 5/96 | 6/96 | 7/96 | 8/96 | 9/96 | 10/96 | 11/96 | 12/96 | 1/97 | 2/97 | 3/97 | 4/97 | 5/97 | 6/97 | 7/97 | 8/97 | 9/97 | 10/97 | 11/97 | 12/97 | 1/98 | 2/98 | 3/98 | 4/98 | 5/98 | 6/98 | 7/98 | 8/98 | 9/98 | 10/98 | 11/98 | 12/98 | 1/99 | 2/99 | 3/99 | 4/99 | 5/99 | 6/99 | 7/99 | 8/99 | 9/99 | 10/99 | 11/99 | 12/99 | 1/100 | 2/100 | 3/100 | 4/100 | 5/100 | 6/100 | 7/100 | 8/100 | 9/100 | 10/100 | 11/100 | 12/100 | 1/101 | 2/101 | 3/101 | 4/101 | 5/101 | 6/101 | 7/101 | 8/101 | 9/101 | 10/101 | 11/101 | 12/101 | 1/102 | 2/102 | 3/102 | 4/102 | 5/102 | 6/102 | 7/102 | 8/102 | 9/102 | 10/102 | 11/102 | 12/102 | 1/103 | 2/103 | 3/103 | 4/103 | 5/103 | 6/103 | 7/103 | 8/103 | 9/103 | 10/103 | 11/103 | 12/103 | 1/104 | 2/104 | 3/104 | 4/104 | 5/104 | 6/104 | 7/104 | 8/104 | 9/104 | 10/104 | 11/104 | 12/104 | 1/105 | 2/105 | 3/105 | 4/105 | 5/105 | 6/105 | 7/105 | 8/105 | 9/105 | 10/105 | 11/105 | 12/105 | 1/106 | 2/106 | 3/106 | 4/106 | 5/106 | 6/106 | 7/106 | 8/106 | 9/106 | 10/106 | 11/106 | 12/106 | 1/107 | 2/107 | 3/107 | 4/107 | 5/107 | 6/107 | 7/107 | 8/107 | 9/107 | 10/107 | 11/107 | 12/107 | 1/108 | 2/108 | 3/108 | 4/108 | 5/108 | 6/108 | 7/108 | 8/108 | 9/108 | 10/108 | 11/108 | 12/108 | 1/109 | 2/109 | 3/109 | 4/109 | 5/109 | 6/109 | 7/109 | 8/109 | 9/109 | 10/109 | 11/109 | 12/109 | 1/110 | 2/110 | 3/110 | 4/110 | 5/110 | 6/110 | 7/110 | 8/110 | 9/110 | 10/110 | 11/110 | 12/110 | 1/111 | 2/111 | 3/111 | 4/111 | 5/111 | 6/111 | 7/111 | 8/111 | 9/111 | 10/111 | 11/111 | 12/111 | 1/112 | 2/112 | 3/112 | 4/112 | 5/112 | 6/112 | 7/112 | 8/112 | 9/112 | 10/112 | 11/112 | 12/112 | 1/113 | 2/113 | 3/113 | 4/113 | 5/113 | 6/113 | 7/113 | 8/113 | 9/113 | 10/113 | 11/113 | 12/113 | 1/114 | 2/114 | 3/114 | 4/114 | 5/114 | 6/114 | 7/114 | 8/114 | 9/114 | 10/114 | 11/114 | 12/114 | 1/115 | 2/115 | 3/115 | 4/115 | 5/115 | 6/115 | 7/115 | 8/115 | 9/115 | 10/115 | 11/115 | 12/115 | 1/116 | 2/116 | 3/116 | 4/116 | 5/116 | 6/116 | 7/116 | 8/116 | 9/116 | 10/116 | 11/116 | 12/116 | 1/117 | 2/117 | 3/117 | 4/117 | 5/117 | 6/117 | 7/117 | 8/117 | 9/117 | 10/117 | 11/117 | 12/117 | 1/118 | 2/118 | 3/118 | 4/118 | 5/118 | 6/118 | 7/118 | 8/118 | 9/118 | 10/118 | 11/118 | 12/118 | 1/119 | 2/119 | 3/119 | 4/119 | 5/119 | 6/119 | 7/119 | 8/119 | 9/119 | 10/119 | 11/119 | 12/119 | 1/120 | 2/120 | 3/120 | 4/120 | 5/120 | 6/120 | 7/120 | 8/120 | 9/120 | 10/120 | 11/120 | 12/120 | 1/121 | 2/121 | 3/121 | 4/121 | 5/121 | 6/121 | 7/121 | 8/121 | 9/121 | 10/121 | 11/121 | 12/121 | 1/122 | 2/122 | 3/122 | 4/122 | 5/122 | 6/122 | 7/122 | 8/122 | 9/122 | 10/122 | 11/122 | 12/122 | 1/123 | 2/123 | 3/123 | 4/123 | 5/123 | 6/123 | 7/123 | 8/123 | 9/123 | 10/123 | 11/123 | 12/123 | 1/124 | 2/124 | 3/124 | 4/124 | 5/124 | 6/124 | 7/124 | 8/124 | 9/124 | 10/124 | 11/124 | 12/124 | 1/125 | 2/125 | 3/125 | 4/125 | 5/125 | 6/125 | 7/125 | 8/125 | 9/125 | 10/125 | 11/125 | 12/125 | 1/126 | 2/126 | 3/126 | 4/126 | 5/126 | 6/126 | 7/126 | 8/126 | 9/126 | 10/126 | 11/126 | 12/126 | 1/127 | 2/127 | 3/127 | 4/127 | 5/127 | 6/127 | 7/127 | 8/127 | 9/127 | 10/127 | 11/127 | 12/127 | 1/128 | 2/128 | 3/128 | 4/128 | 5/128 | 6/128 | 7/128 | 8/128 | 9/128 | 10/128 | 11/128 | 12/128 |
|---------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|
|---------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|-------|-------|-------|-------|-------|-------|-------|-------|-------|--------|--------|--------|

## 3 types of the data will be available

1



**Production  
Piece**

2



**Defect  
Analysis**

3



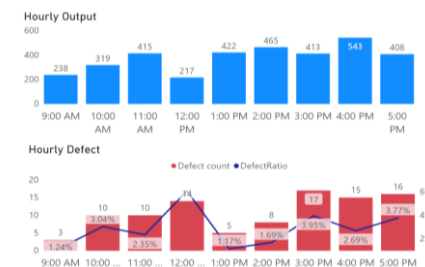
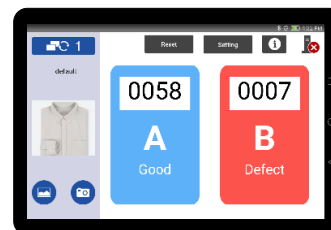
**Operation  
Analysis**

# 1. Production Piece

SCM

Value Chain

- Production count By SKU
- Data connectivity with factory system



Sewing Area

- Real-Time Monitoring



| Hourly                     | 9:00  | 10:00 | 11:00 | 12:00 | 13:00 | 14:00 | 15:00 | 16:00 | 17:00 | Total |
|----------------------------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Step Id                    | Plan  | Act   | Plan  | Act   | Plan  | Act   | Plan  | Act   | Plan  | Act   |
| [1] LINE1                  |       |       |       |       |       |       |       |       |       |       |
| A1 Neck Stay Stitch        | 370   | 309   | 375   | 464   | 370   | 375   | 370   | 370   | 370   | 277   |
| A2 Waist Case Label Attach | 620   | 0     | 620   | 0     | 620   | 0     | 620   | 0     | 620   | 0     |
| A3 Front And Back Attach   | 620   | 140   | 620   | 197   | 620   | 192   | 620   | 102   | 620   | 160   |
| A4 Main Label Attach       | 620   | 309   | 620   | 430   | 620   | 403   | 620   | 314   | 620   | 469   |
| A5 Main Label Attach       | 620   | 199   | 620   | 212   | 620   | 217   | 620   | 190   | 620   | 203   |
| A6 Bottom Close            | 730   | 132   | 730   | 202   | 730   | 216   | 730   | 154   | 730   | 214   |
| A7 Side Close              | 870   | 339   | 870   | 380   | 870   | 376   | 870   | 251   | 870   | 409   |
| [2] LINE2                  |       |       |       |       |       |       |       |       |       |       |
| B1 Run Stitch              | 370   | 289   | 370   | 300   | 370   | 313   | 370   | 289   | 370   | 279   |
| B2 Run Stitch              | 370   | 289   | 370   | 231   | 370   | 230   | 370   | 101   | 370   | 248   |
| B3 Run Stitch              | 370   | 180   | 370   | 223   | 370   | 188   | 370   | 172   | 370   | 213   |
| B4 Run Stitch              | 370   | 230   | 370   | 298   | 370   | 381   | 370   | 141   | 370   | 262   |
| B5 Side End Taking         | 620   | 132   | 620   | 224   | 620   | 385   | 620   | 177   | 620   | 313   |
| B6 Line 8 OUTPUT           | 1,560 | 340   | 1,560 | 250   | 1,560 | 249   | 1,560 | 173   | 1,560 | 275   |
| [3] LINE3                  |       |       |       |       |       |       |       |       |       |       |
| C1 Run Stitch              | 370   | 289   | 370   | 346   | 370   | 411   | 370   | 230   | 370   | 362   |
| C2 Run Stitch              | 370   | 0     | 370   | 0     | 370   | 0     | 370   | 0     | 370   | 0     |
| C3 Run Stitch              | 370   | 230   | 370   | 353   | 370   | 442   | 370   | 262   | 370   | 439   |
| C4 Run Stitch              | 370   | 248   | 370   | 347   | 370   | 441   | 370   | 247   | 370   | 371   |



# Take small actions to improve the production

Real time action with back data generate proper communication with production line which helps to find best solutions.

IE / Line Manager

Line Supervisor / Manager

## 1. Real-Time Monitoring



## 2. IDENTIFY Line & Process

| ASSEMBLY HOURLY PRODUCTION |             |        |      |      |       |       |       |    |  |
|----------------------------|-------------|--------|------|------|-------|-------|-------|----|--|
| Line                       | Sewing M... | Item   | 8:00 | 9:00 | 10:00 | 11:00 | 12:00 |    |  |
| SHR_ ASSEMBL               | -           | TARGET | 54   | 54   | 54    | 54    | 54    | 13 |  |
|                            |             | ACTUAL | 54   | 100  | 102   | 210   | 229   |    |  |
| SHR_ ASSEMBL               | -           | TARGET | 5    | 64   | 120   | 180   | 229   |    |  |
|                            |             | ACTUAL | 54   | 54   | 54    | 54    | 54    |    |  |

## 3. Discuss with **DATA**



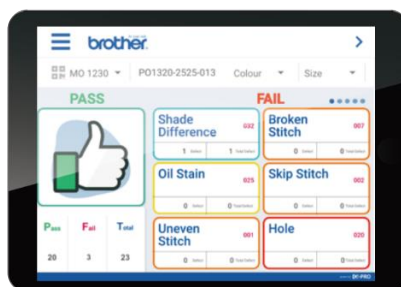
## 4. Take action!!

Training,  
Standard process check,  
Balance check  
Feed support etc.



## 2. Defect analysis

### Simple UI



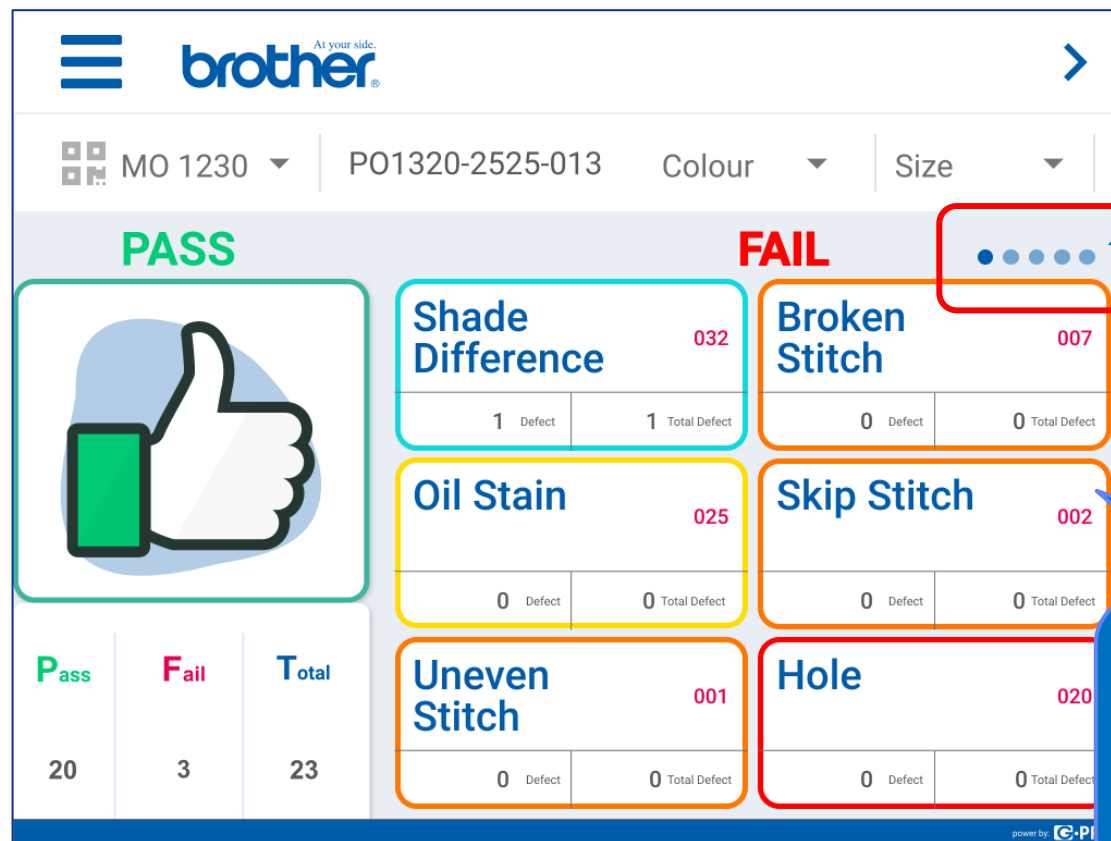
### Defect Tracking



### Multi-defects



# Defect count simple UI

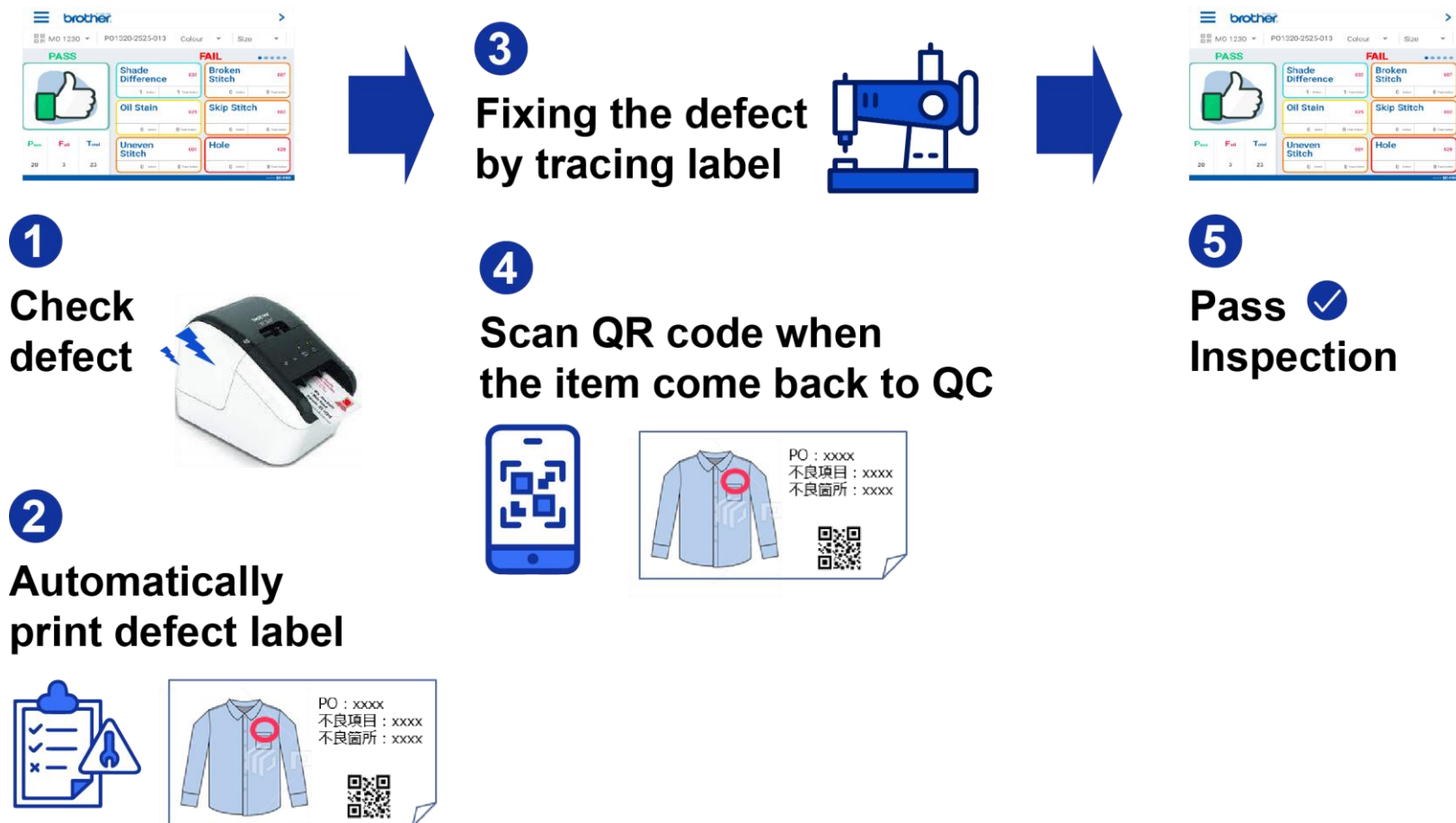


By using scroll, it can be show as total 40 defects type

Defect type can be access in front page to save time to search

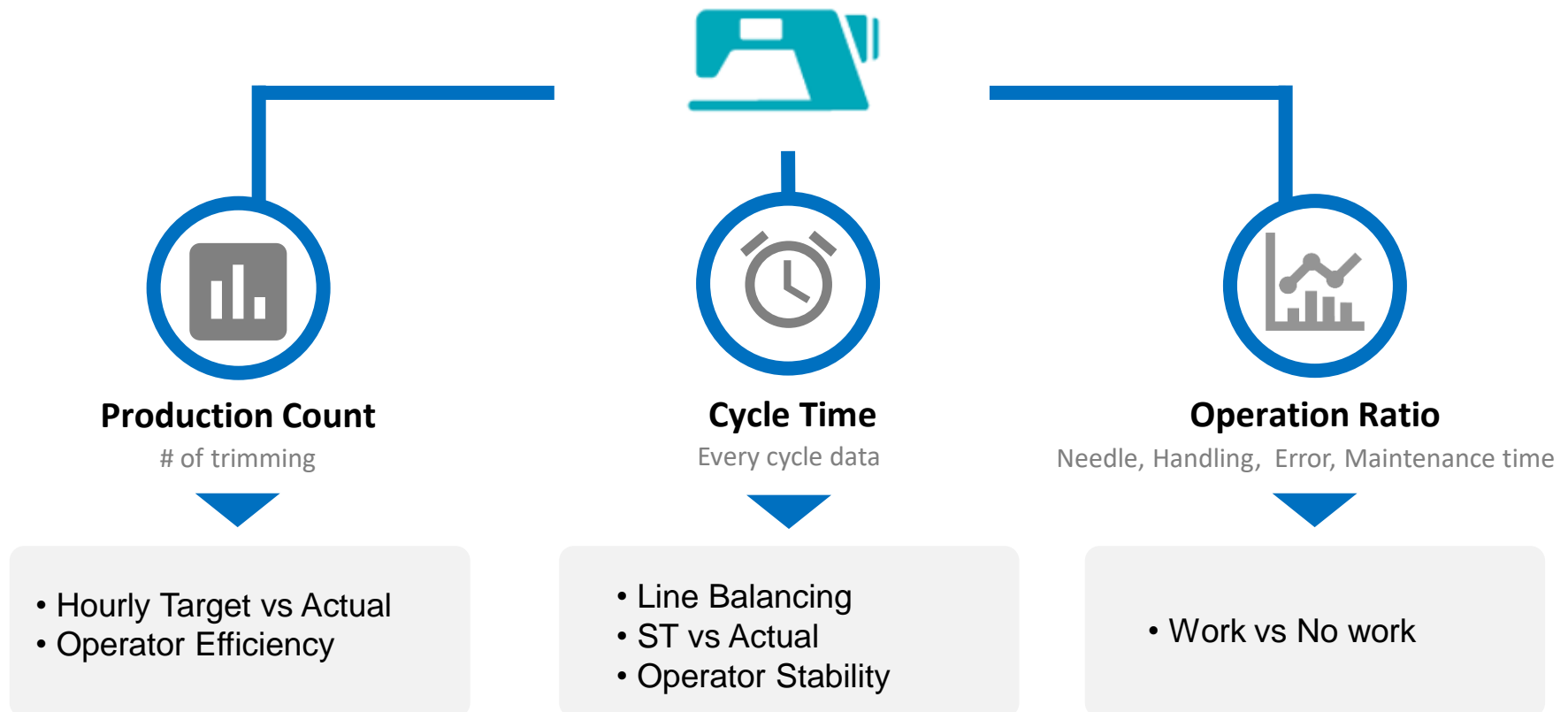
# Defect tracing system

By using Brother label printer, customer can easily trace Defect product after inspection area



### 3. Operation Analysis

Data from sewing machine and flexible data export gives various type of analysis.



# This report is available on 1-LA

Previous page report is already available to use.



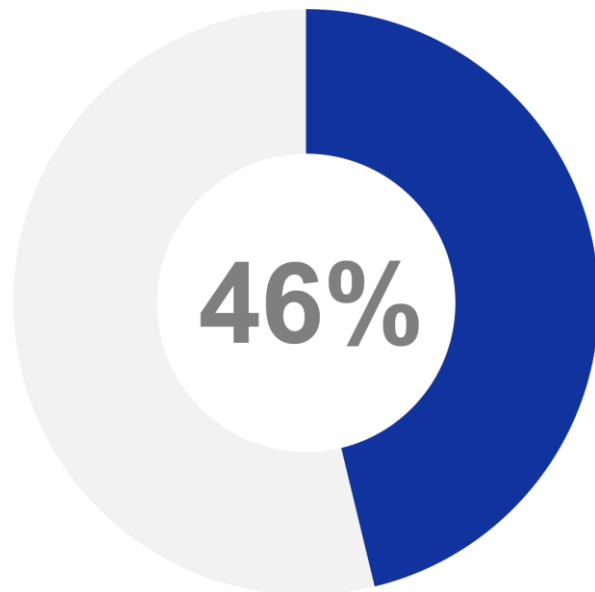
## Simple data collection and Detailed report

- Line balancing
- Cycle time
- Operation ratio
- Operator stability

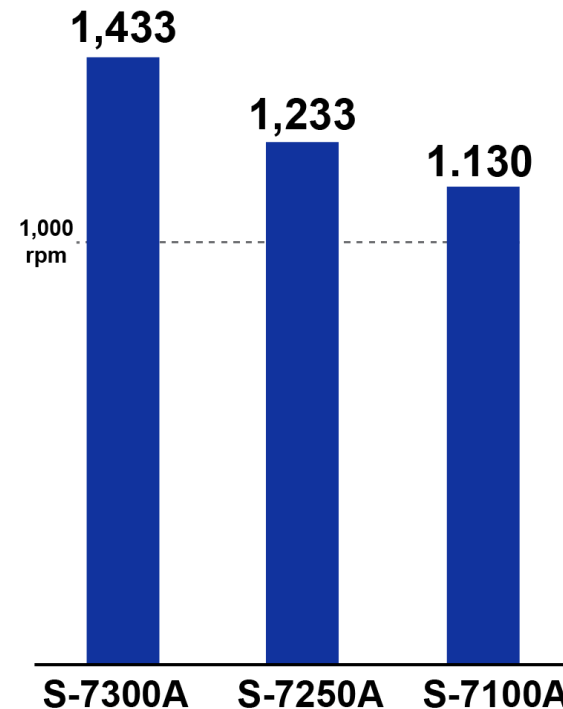


## Sewing Machine Average Speed

Slower than 1,000 rpm



Sewing Speed (rpm)

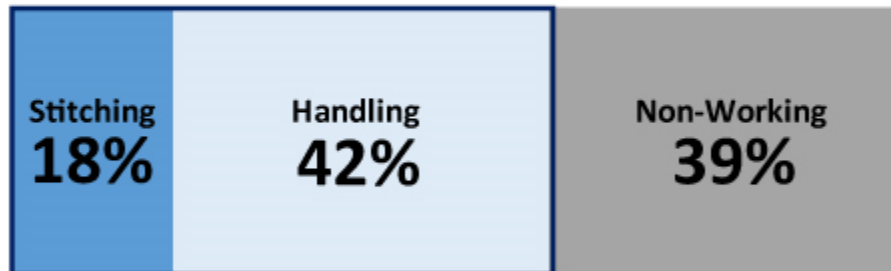


Brother machine  
running over

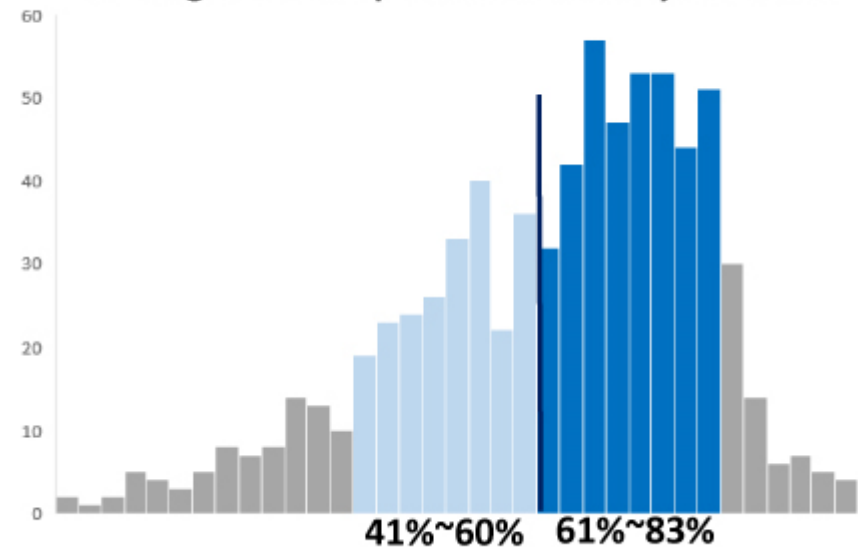
**1,000 rpm**

## Sewing Machine Operating Ratio

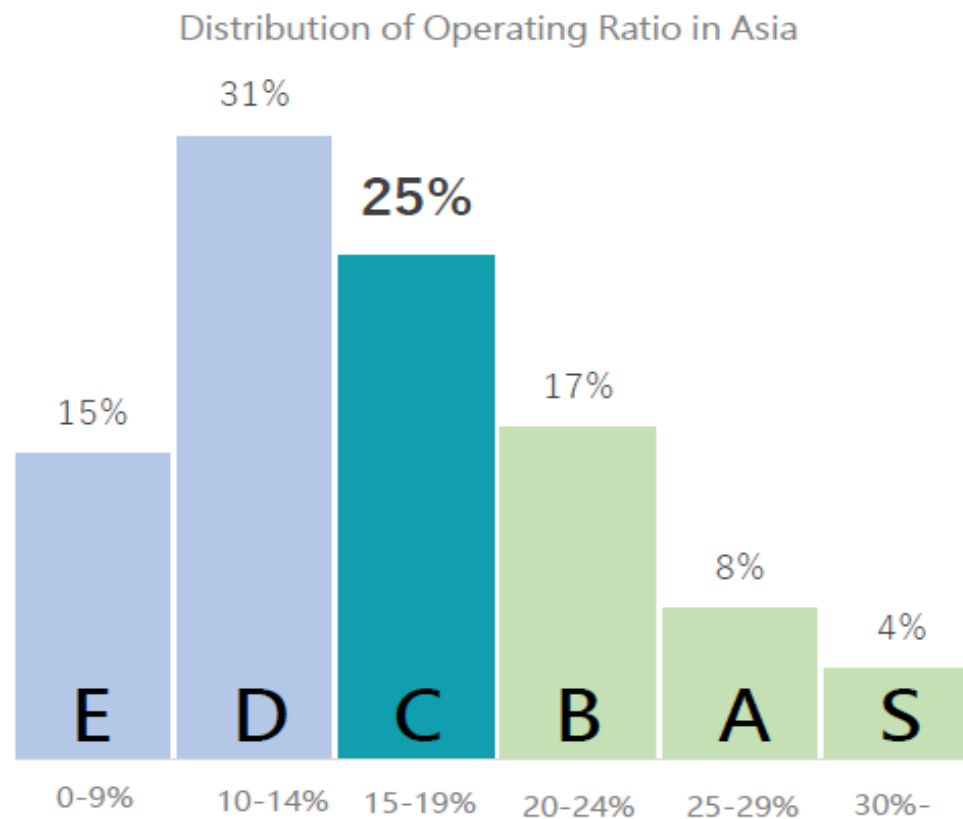
Operating Time is 61%



Histogram for Operation Ratio by factories

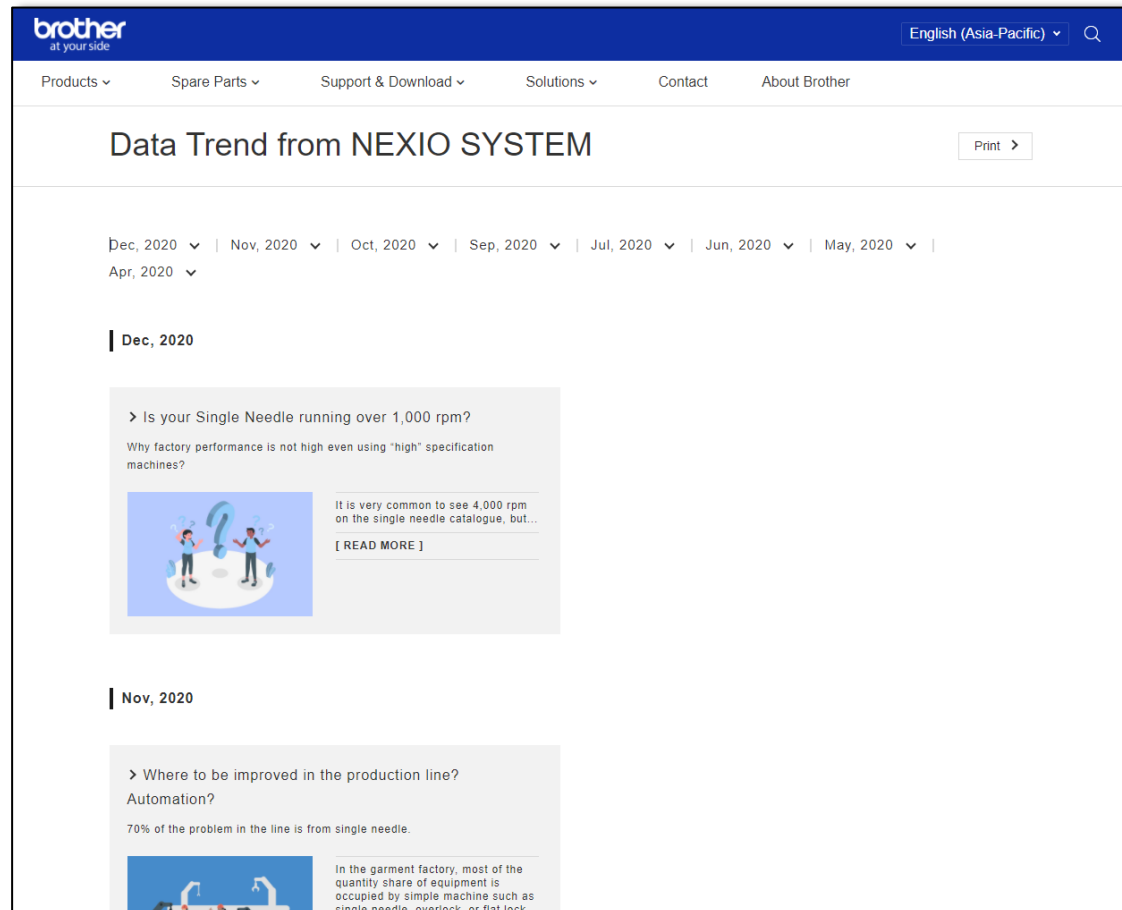


## Operator Score Ranking



Brother Data Column: <https://industrialsewingmachine.global.brother/en-ap/news-column/data/jun-2020>

<https://industrialsewingmachine.global.brother/en-ap/news-column/data/index>



The screenshot displays the Brother website's 'Data Column Reference' section. The header includes the Brother logo, a language dropdown set to 'English (Asia-Pacific)', and a search icon. A navigation bar lists 'Products', 'Spare Parts', 'Support & Download', 'Solutions', 'Contact', and 'About Brother'. The main heading is 'Data Trend from NEXIO SYSTEM' with a 'Print' button. Below this is a month selection bar with dropdowns for Dec, 2020, Nov, 2020, Oct, 2020, Sep, 2020, Jul, 2020, Jun, 2020, May, 2020, and Apr, 2020. The 'Dec, 2020' section is active, featuring an article titled '> Is your Single Needle running over 1,000 rpm?'. The article text states: 'Why factory performance is not high even using "high" specification machines?'. It includes an illustration of two people with a large question mark and a text box explaining that 4,000 rpm is common in catalogues but not in reality. A '[ READ MORE ]' link is provided. Below this, the 'Nov, 2020' section is partially visible, with an article titled '> Where to be improved in the production line? Automation?'. The text indicates that 70% of the problem is from single needle and includes an illustration of sewing machines. A final text box notes that in garment factories, simple machines like single needle, overlock, or flat lock occupy most of the equipment share.

## GOOD CASE: Small lot improvement

This is a customer case who successfully improved production in small lot order which they used to give up.

**Before** 700 pieces/day. Production complete within 2 to 3 days.

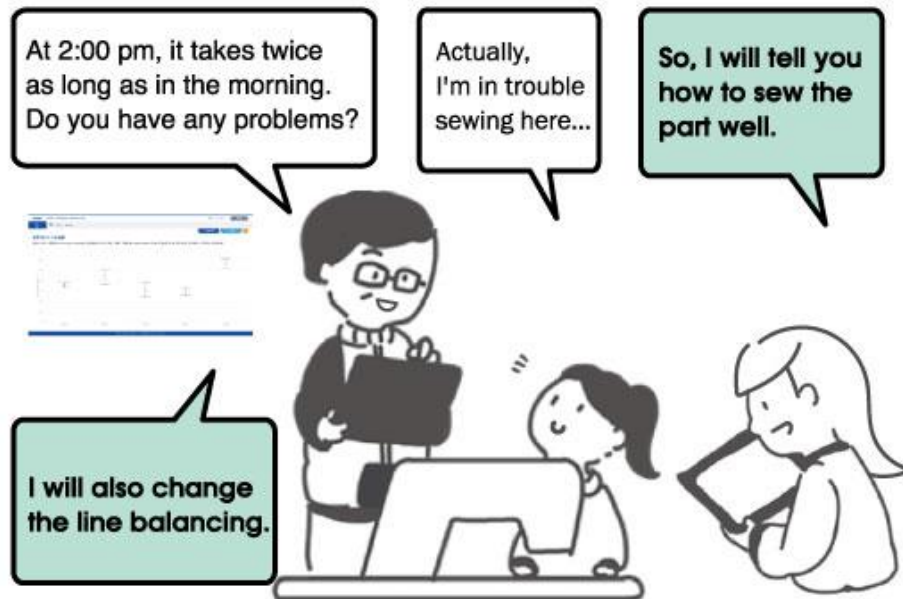
- No time for time study
- Sample study result cannot convince operator



## GOOD CASE: Small lot improvement

This is a customer case who successfully improved production in small lot order which they used to give up.

- After**
- Instant data collection & automatic calculation
  - Discuss with operator with data to find out solution together.



Production  
**5%UP**





# Agenda

Introduction

Sharing by BMA

**Sharing by GPRO**

Market Outlook

# GPRO GLOBAL

INSIGHT . INNOVATION . IMPACT

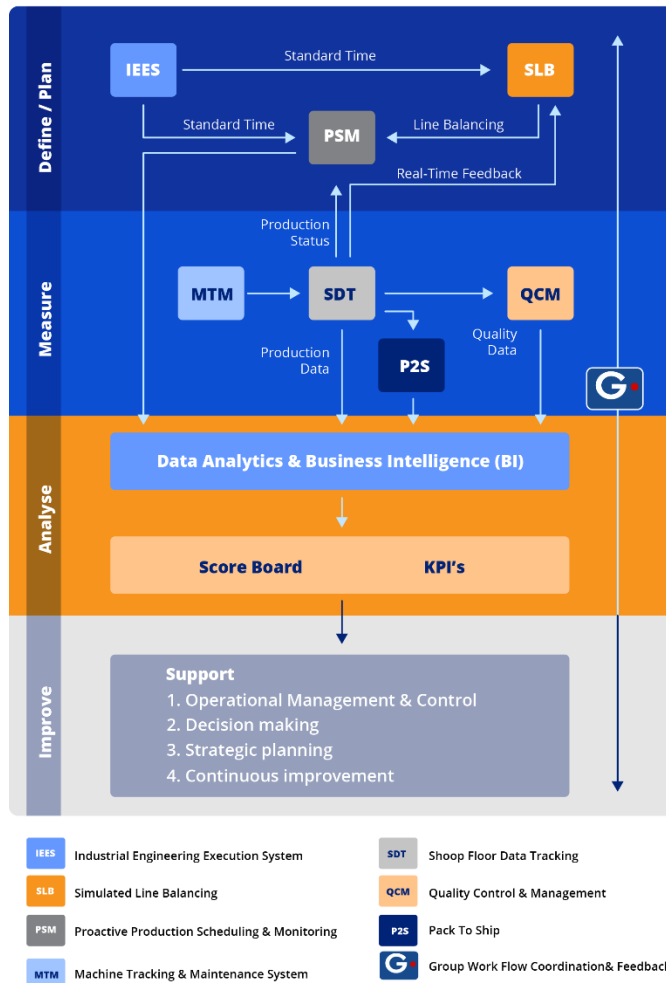






# GPRO's Suite of Digital Solutions for Apparel Manufacturing Industry

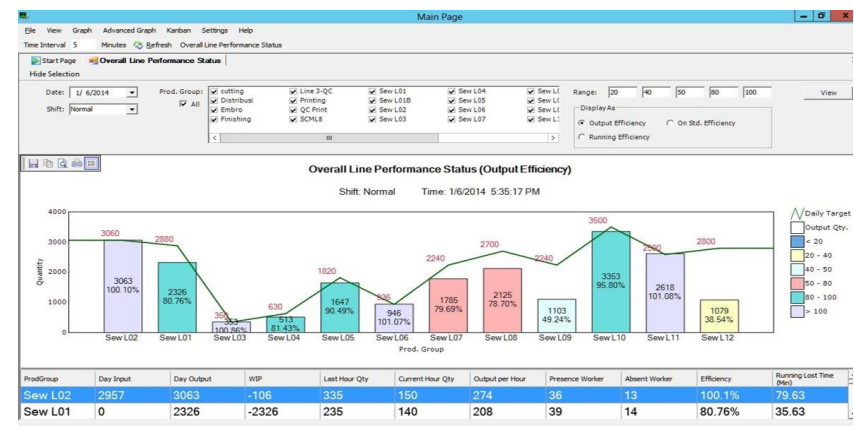
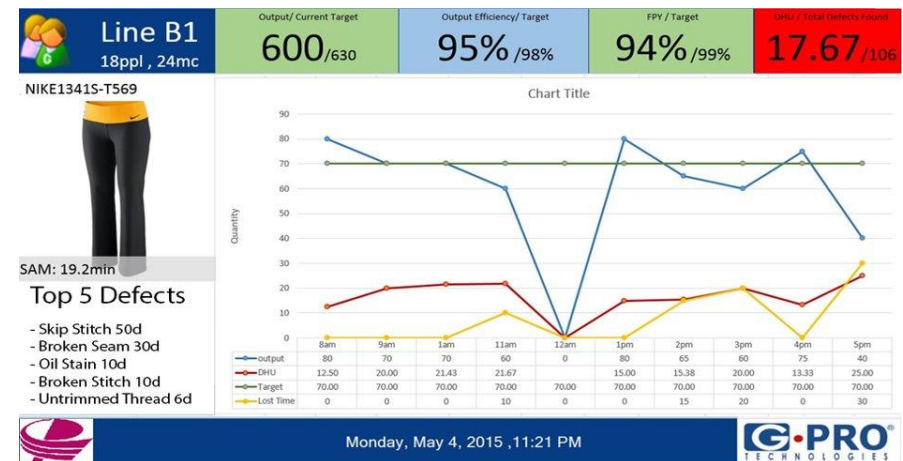
GPRO is a company engaged primarily in high technology R&D activities in RFID, IoT, Industrial Engineering, Robotics, and Process Automation for Apparel Manufacturing industry.

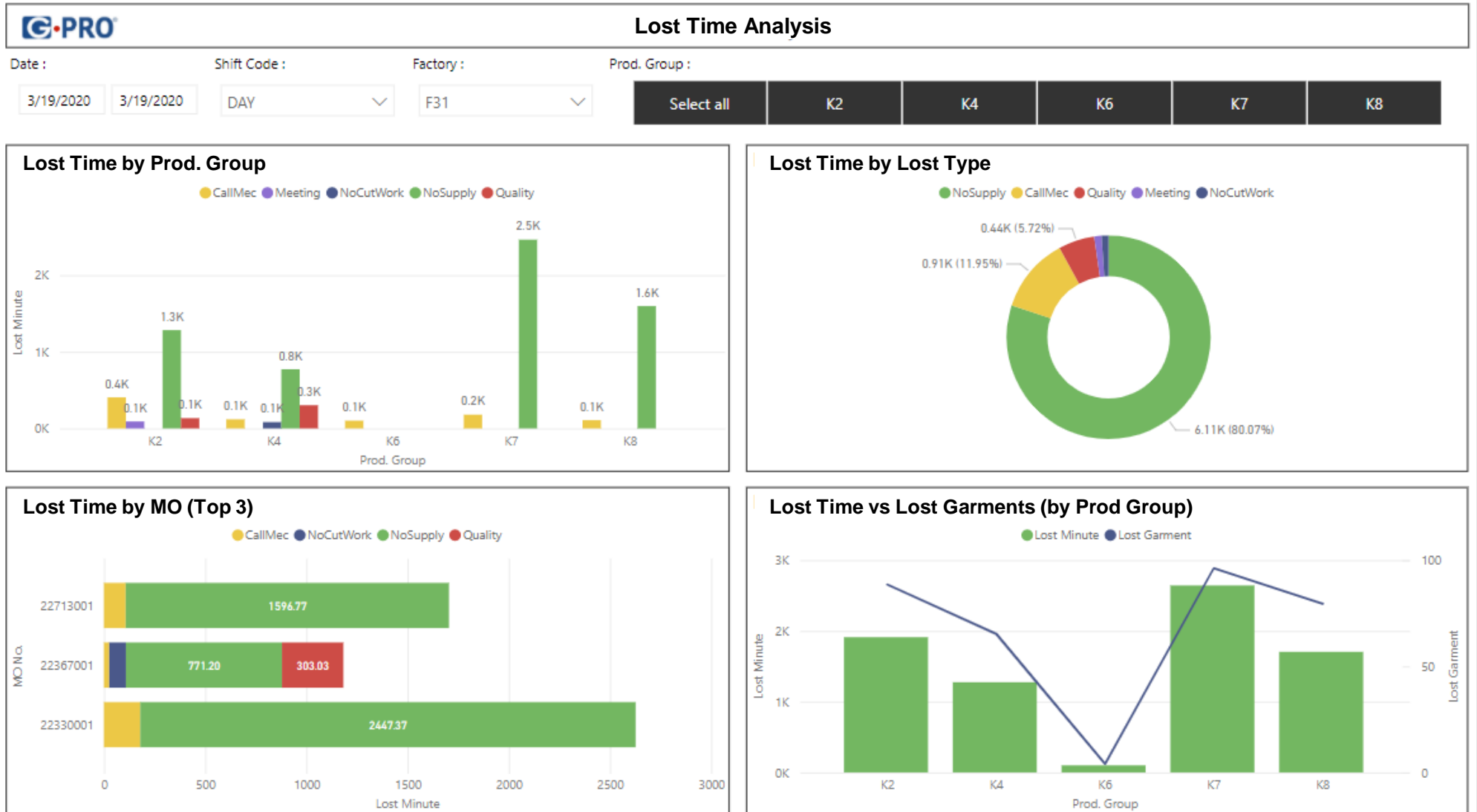


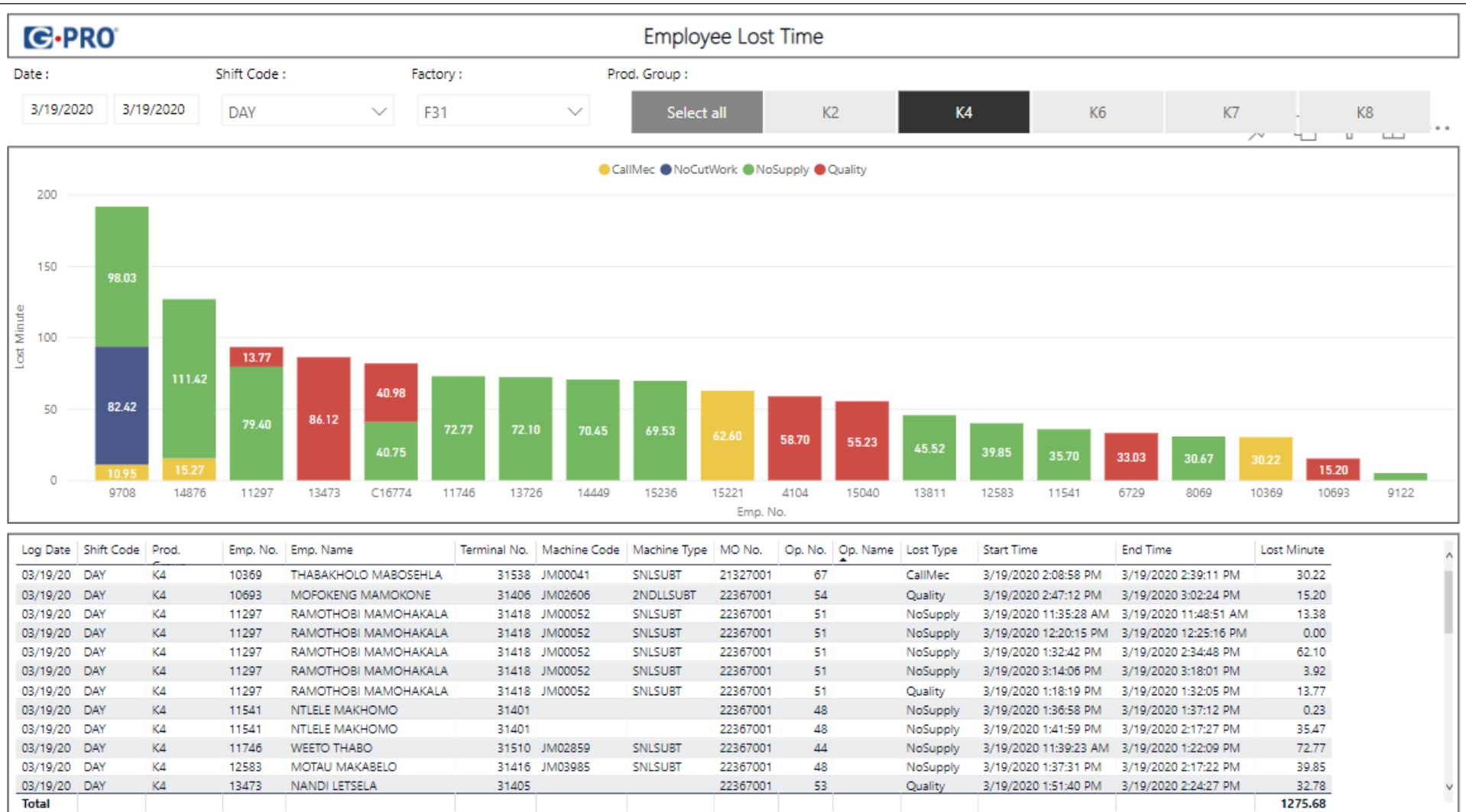
- **Industrial Engineering Execution System (IEES):** Pre-determined Motion Time System for labour costing, benchmarking and planning
- **Simulated Line Balancing (SLB):** Manpower/ machine requirement calculation
- **Proactive Scheduling & Monitoring (PSM):** Resources utilization and timely delivery optimization
- **Shop Floor Data Tracking (SDT):** WIP and production tracking
- **Quality Control & Management (QCM):** Real time quality information
- **Machine Tracking & Maintenance (MTM)**
- **Pack To Ship (P2S)**
- **Warehouse Management System (WMS)**
- **Group Work Flow Coordination & Feedback (G.WORK)**

Company P is a state-owned garment manufacturing company located in Vietnam. The production floors occupy 16,000 sq meters and production facilities have monthly capacities for 540,000 pieces of jeans, 200,000 pieces of woven shirts and 230,000 pieces of casual and active pants.

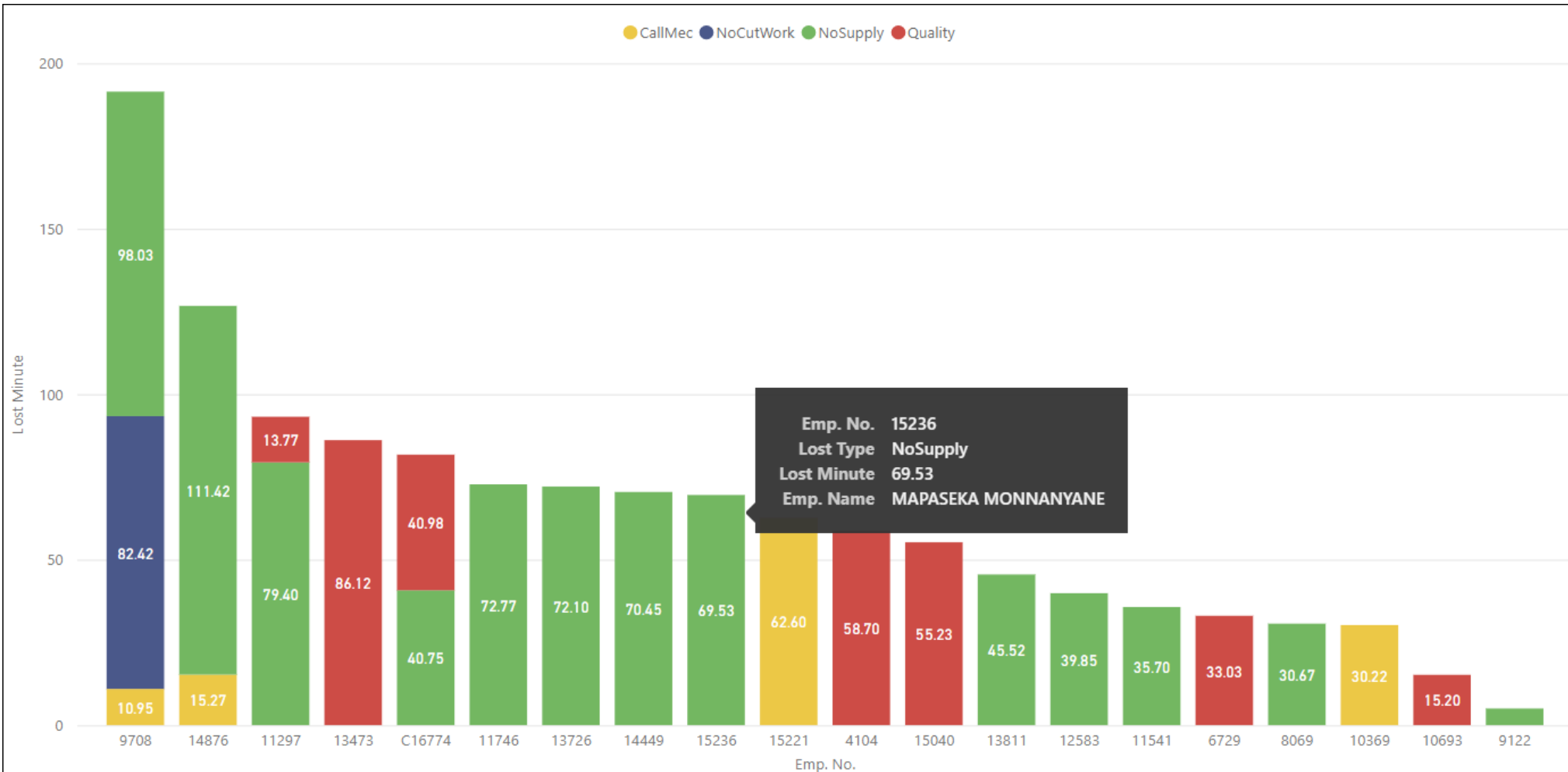
- Results after implementing GPRO-SDT (RFID) and QCM Systems:
  - Efficiency of sewers improved more than **20%** at the end of two months
  - Defect rate reduced by **30%**
  - Lost time reduced by **50%**
  - Machine down-time reduced by **30%**
  - Frequency of bottle-neck situation reduced by **80%**
  - On-time delivery improved by **80%**
  - Staff for data collection and computation reduced from 10 to 3 persons.
  - At **6 %** productivity gain, the ROI was around 11 months.











# GPRO's Data Analytics



## Mechanic Performance (Total)

Date :

Shift Code :

Factory :

Prod. Group :

1/6/2019

6/11/2020

All

All

All

**4089**

Total Breakdown

**5041**

Total Repair

**25.48K**

Total Repair Minutes

**107.84K**

Total Response Time

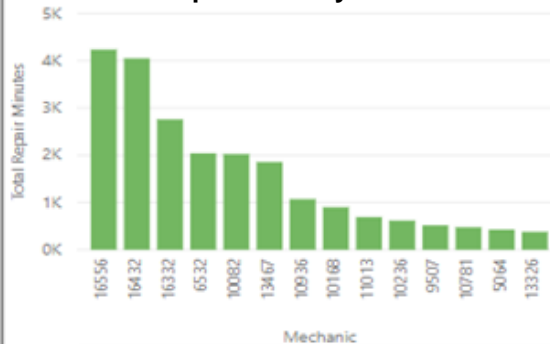
**231.26K**

Total Downtime

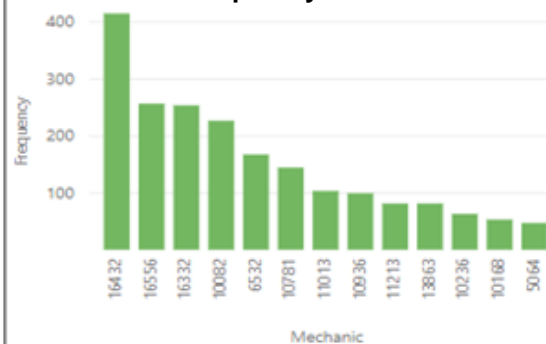
**952**

Running Breakdown

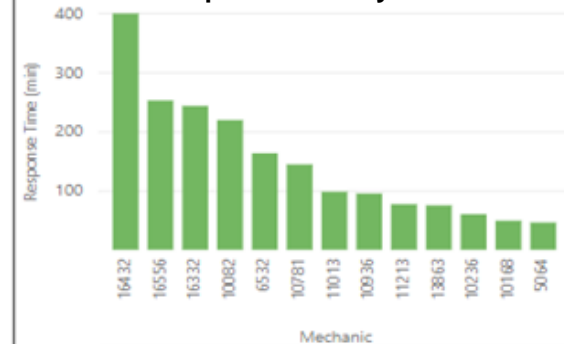
### Total Repair Time by Mechanic



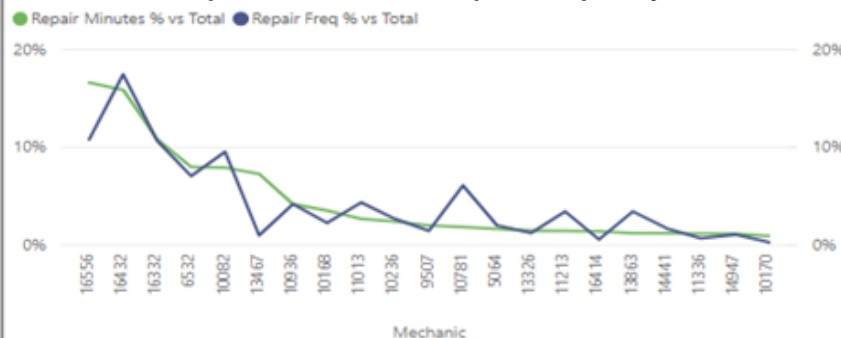
### Total Repair by Mechanic



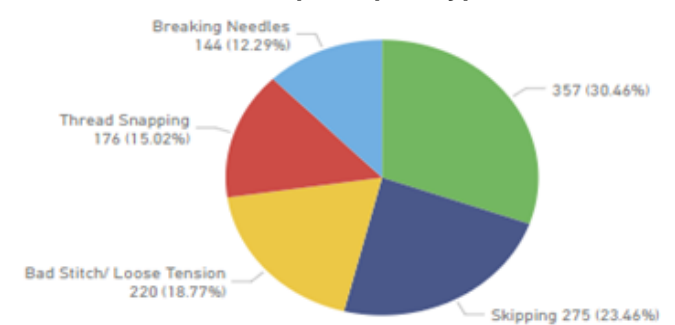
### Total Response Time by Mechanic



### Repair Minutes % vs Repair Frequency %



### Top 5 Repair Types





## Daily Production Summary (Factory)



Login Manpower  
(Avg)

**128.11**

Total Output

**15K**

Factory Eff % (Avg)

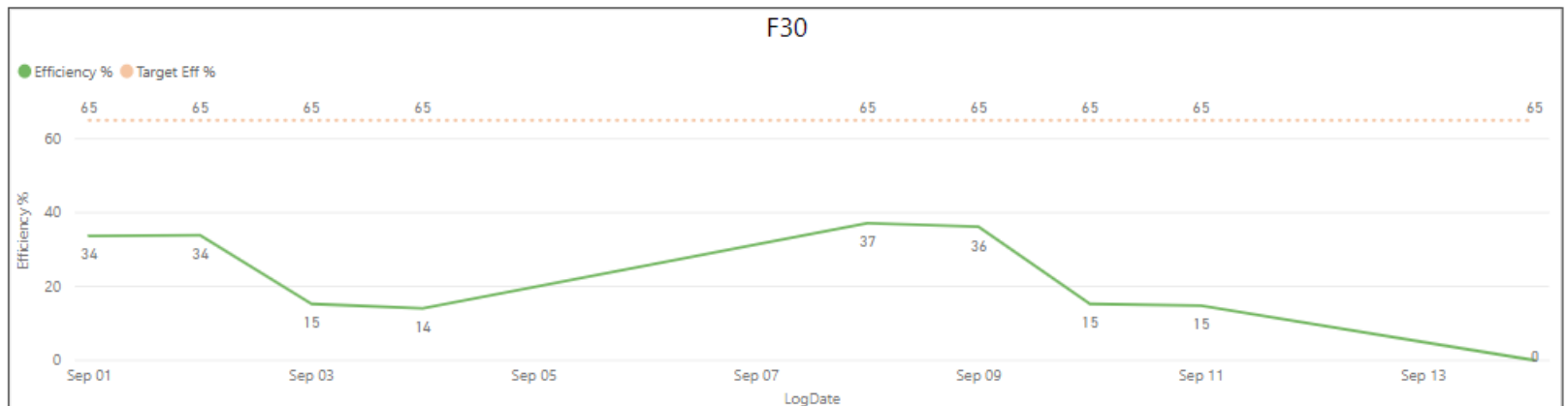
**22**

On Std Eff % (Avg)

**64**

Total Lost Minutes

**89K**



| Log Date   | 01-Sep-20 |            |          | 02-Sep-20 |            |          | 03-Sep-20 |            |          | 04-Sep-20 |            |          | 08-Sep-20 |            |          | 09-Sep-20 |            |          | L |
|------------|-----------|------------|----------|-----------|------------|----------|-----------|------------|----------|-----------|------------|----------|-----------|------------|----------|-----------|------------|----------|---|
| Prod Group | Line Eff  | Output Qty | Login MP | Line Eff  | Output Qty | Login MP | Line Eff  | Output Qty | Login MP | Line Eff  | Output Qty | Login MP | Line Eff  | Output Qty | Login MP | Line Eff  | Output Qty | Login MP |   |
| F30 A.WASH |           |            |          |           |            |          | 0         | 0          | 7        | 0         | 0          | 7        |           |            |          |           |            |          |   |
| J1         |           |            |          |           |            |          | 71        | 488        | 41       | 69        | 485        | 42       |           |            |          |           |            |          |   |
| J2         |           |            |          |           |            |          | 51        | 533        | 38       | 42        | 504        | 44       |           |            |          |           |            |          |   |
| J3         | 71        | 977        | 67       | 71        | 924        | 73       |           |            |          |           |            |          | 77        | 1027       | 73       | 69        | 884        | 73       |   |
| J5         |           |            |          |           |            |          | 67        | 1135       | 64       | 63        | 1086       | 68       |           |            |          |           |            |          |   |
| J6         |           |            |          |           |            |          |           |            |          |           |            |          |           |            |          |           |            |          |   |
| J7         | 64        | 950        | 64       | 64        | 910        | 63       |           |            |          |           |            |          | 72        | 819        | 61       | 77        | 866        | 60       |   |



## Daily Production Summary (Line)



Login Manpower  
(Avg)

**66.00**

Total Output

**3796**

Line Eff % (Avg)

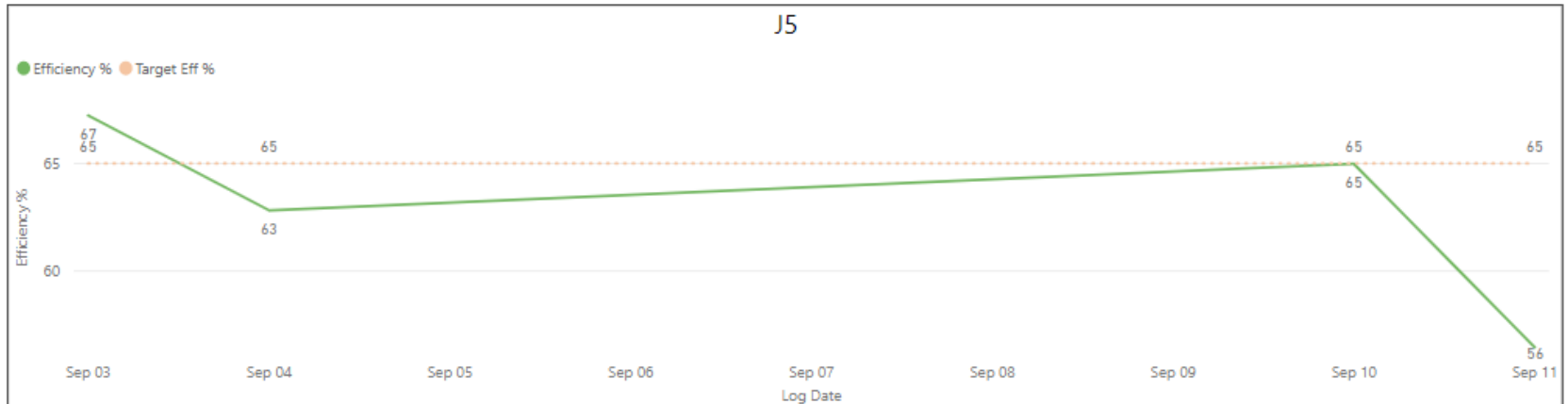
**63**

On Std Eff % (Avg)

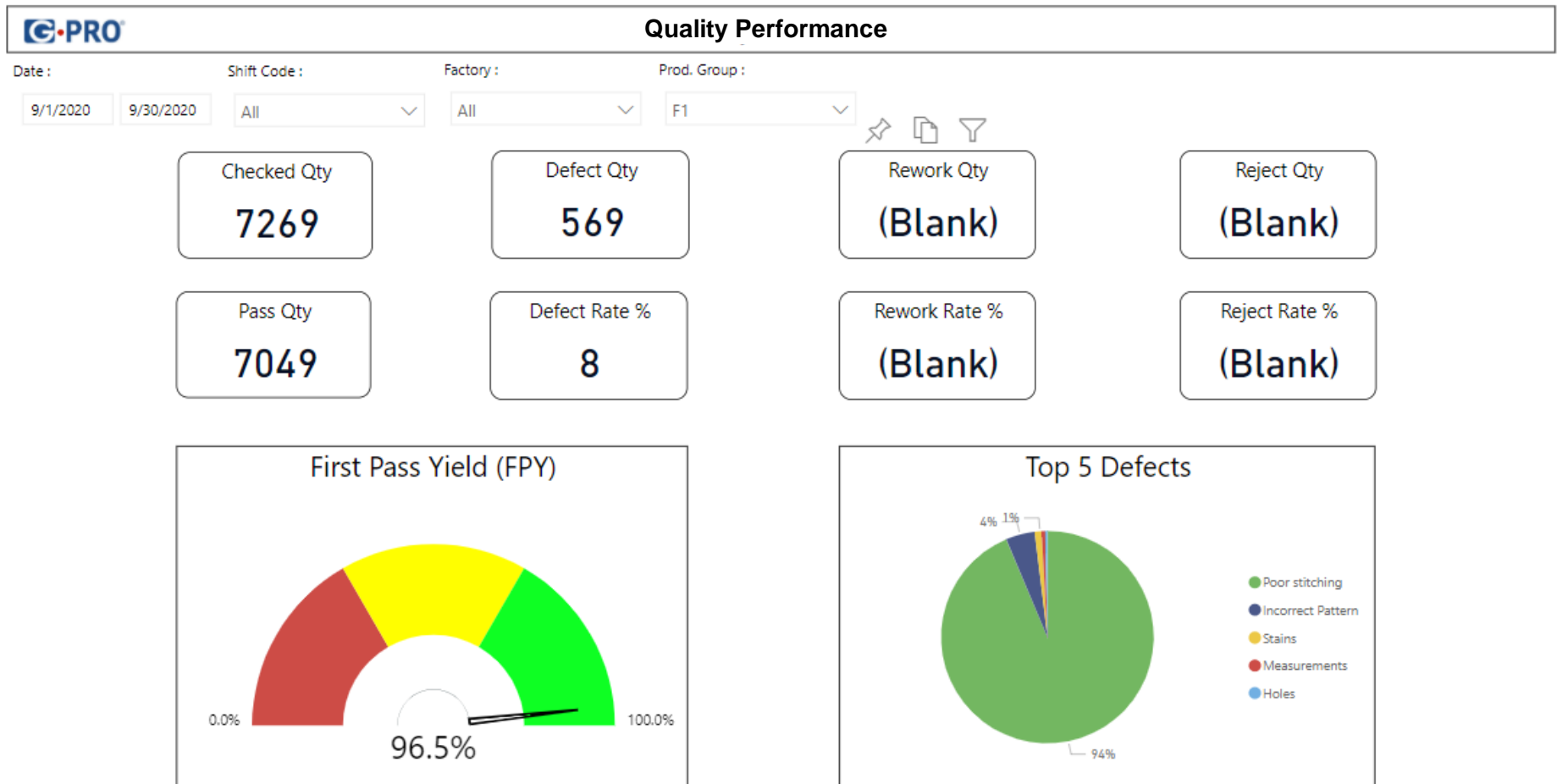
**76**

Total Lost Minutes

**29K**

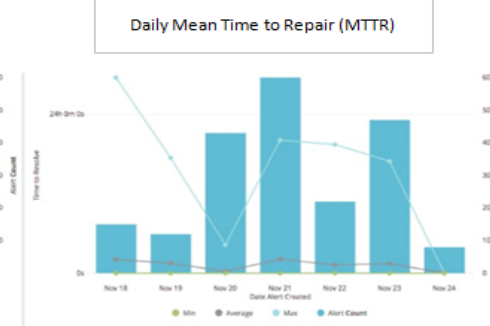
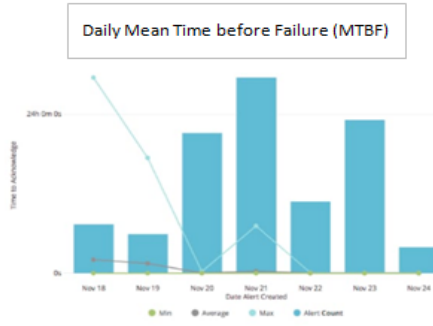
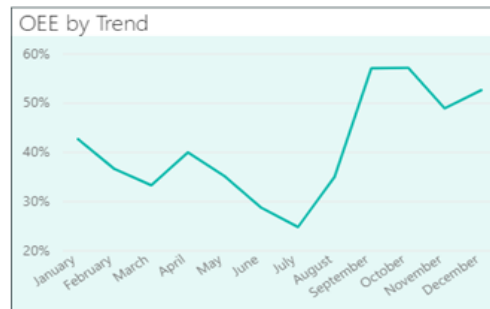
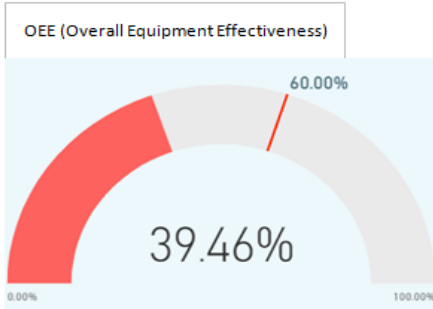
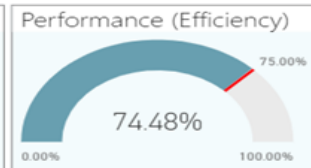
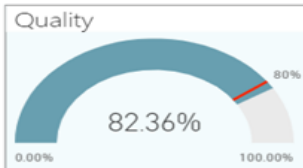
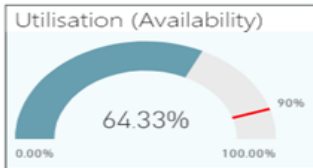


| Log Date  | Shift | ProdGroup | Login MP | Target MP | Output Qty | Target Qty | Output Variance | On Std Earn Min | Output Earn Min | Total Available Min | Target Available Min | Lost Min | On Std Eff % | Line Eff % | Target E |
|-----------|-------|-----------|----------|-----------|------------|------------|-----------------|-----------------|-----------------|---------------------|----------------------|----------|--------------|------------|----------|
| 03-Sep-20 | DAY   | J5        | 64       | 61        | 1135       | 1595       | 460             | 24799           | 23880           | 32236               | 35520                | 2661     | 84           | 67         |          |
| 04-Sep-20 | DAY   | J5        | 68       | 61        | 1086       | 1635       | 549             | 25446           | 23710           | 34371               | 37740                | 3881     | 83           | 63         |          |
| 10-Sep-20 | DAY   | J5        | 67       | 61        | 799        | 1329       | 530             | 16524           | 24164           | 34164               | 37185                | 10754    | 71           | 65         |          |
| 11-Sep-20 | DAY   | J5        | 65       | 61        | 776        | 1445       | 669             | 14790           | 20370           | 34239               | 36075                | 11640    | 65           | 56         |          |



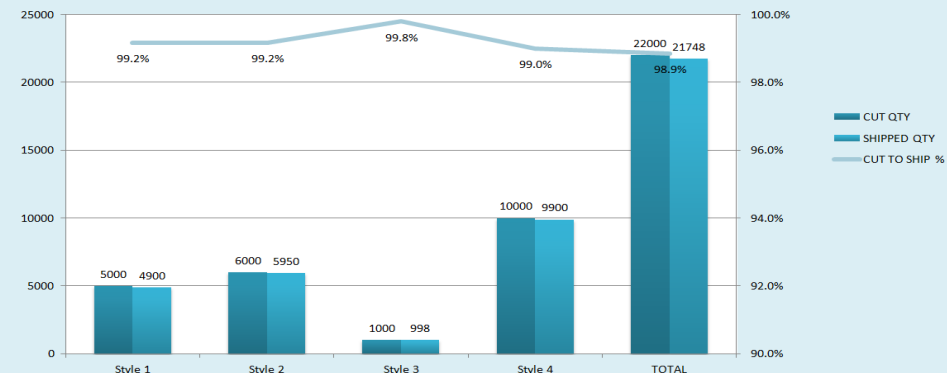
## ASSET PERFORMANCE METRICS

Prod Group



## G·PRO

## STYLEWISE CUT TO SHIP PERFORMANCE

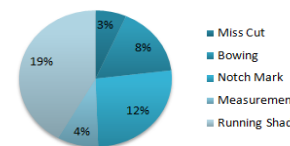


## G·PRO

## QUALITY PERFORMANCE

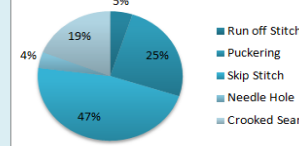
### Department Wise

### Cutting Defects



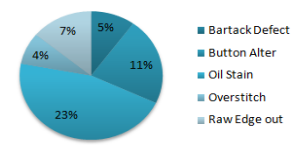
Total Cut Qty - 5000  
Good Cut Qty - 4987  
FPY % - 96.5%  
DHU % - 6.5%  
Recut % - 2%  
Reject % - 0.3%

### Sewing Defects



Total Order Qty - 17500  
Output - 17356  
FPY % - 92.3%  
DHU % - 5.4%  
Rework % - 4.8%  
Reject % - 1.2%

### Finishing Defects



Total Order Qty - 17500  
Output - 17150  
FPY % - 97.9%  
DHU % - 4.32%  
Rework % - 3.1%  
Reject % - 0.75%







# Agenda

Introduction

Sharing by BMA

Sharing by GPRO

**Market Outlook**

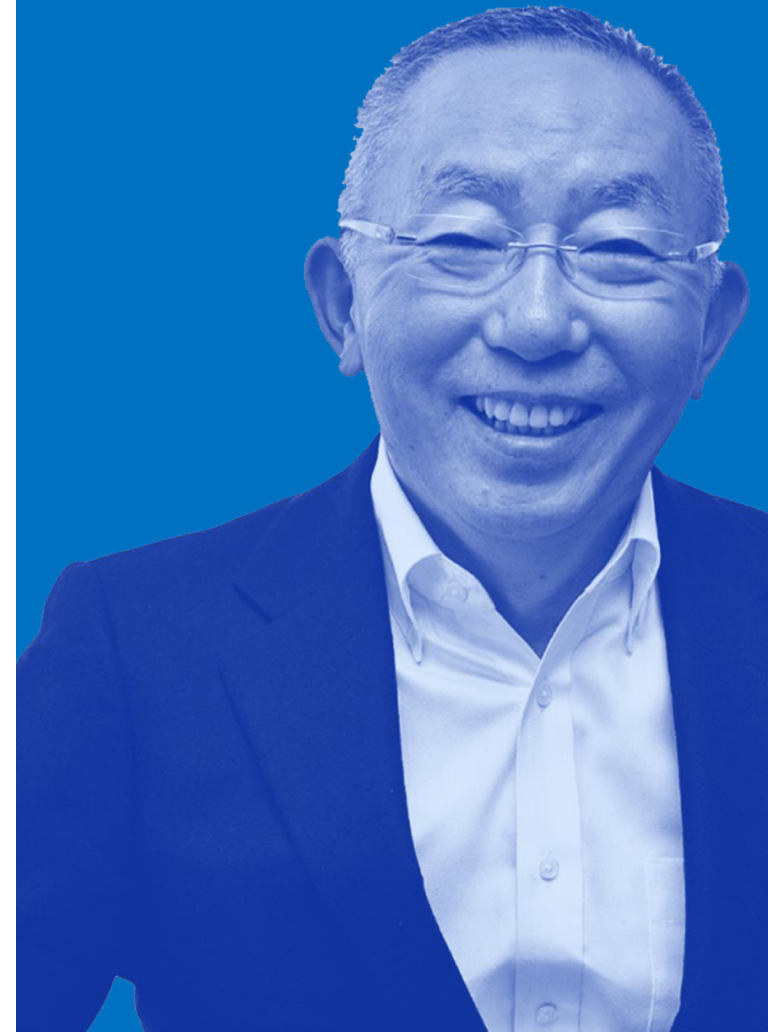


## Inevitable trends towards digitalization in apparel industry supply chain

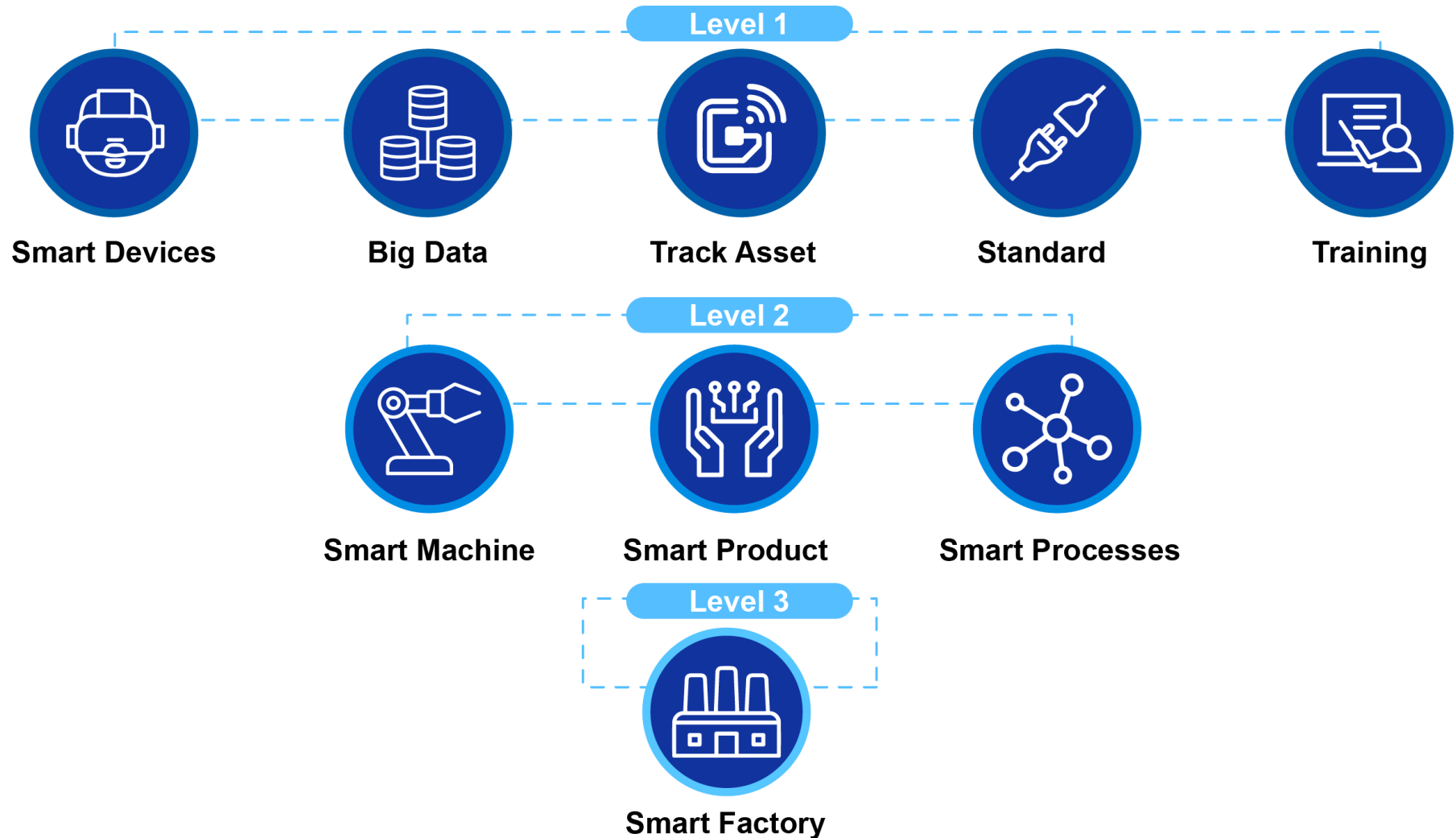
---

*“Digitalization makes demarcation of industries useless. In such a world, data is the most important source of competitiveness. As fashion and apparel products are the data itself, Amazon and Google will have a great power in this industry too. In order to overcome such challenge from these digital giants, we need to transform our supply chain system by using digital technology.”*

Tadashi Yanai, CEO of UNIQLO

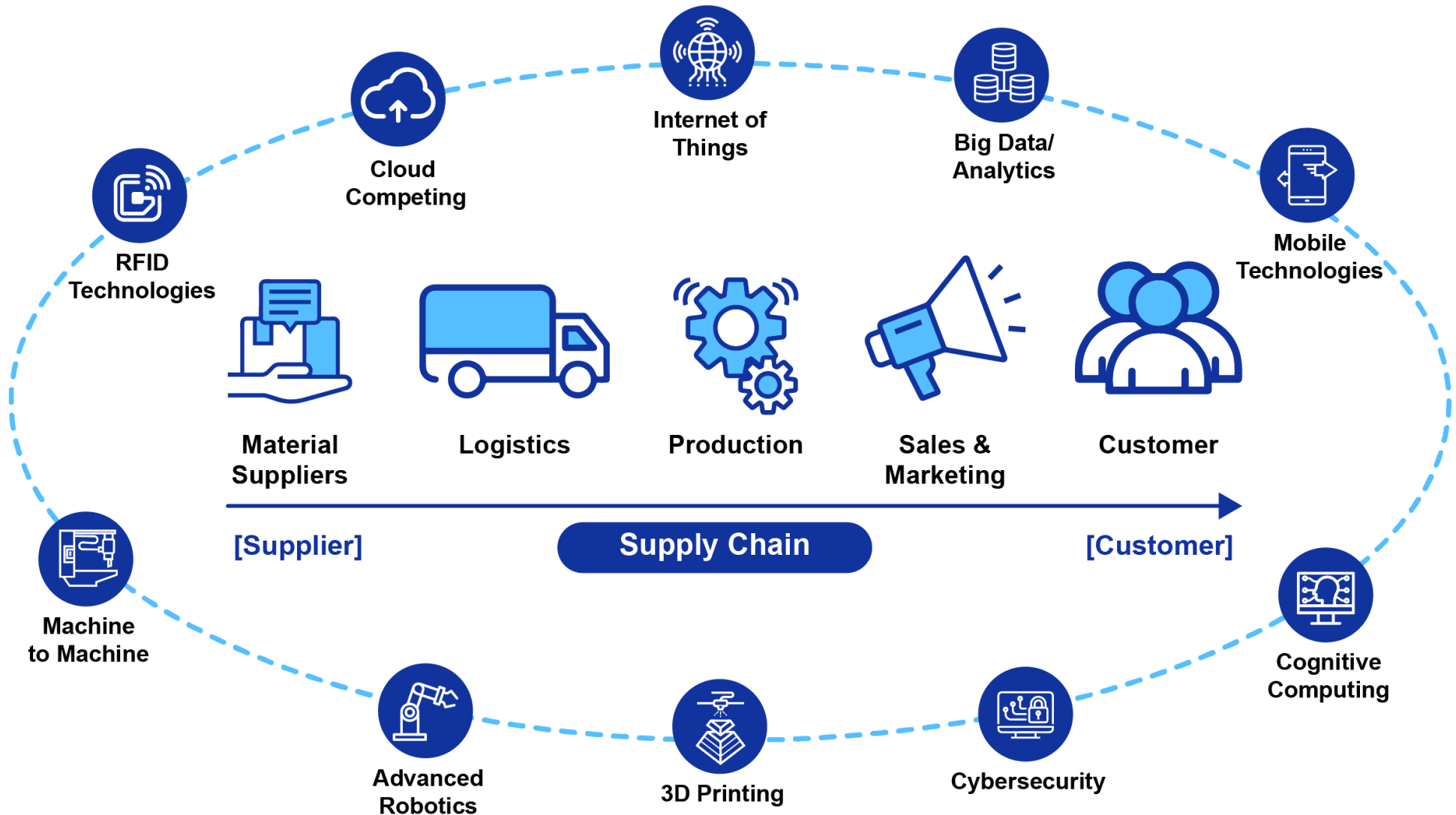


# Future outlook: Smart Factory and apparel industry ecosystem technology advancement





# Digitalization across the whole apparel supply chain





# Agenda

Q & A

**Please Enter Your Questions by clicking the “Question” button at the bottom of the screen.**

**Speaker, Respondent**



**Gen Kimura**

General Manager

BMA Solution Department

**Speaker, Respondent**



**Jordan Tang**

Founder, Executive Director

GPRO Global

**Moderator**



**Yulin Huang**

Director

YCP Solidiance



## White paper Download Link and Contacts

We also issued a White paper along with the Webinar, please find below the download link:

<https://bit.ly/apparelwp>

If you have any further questions or enquires, please reach out to:

YCPS contact: [Yulin.huang@ycp.com](mailto:Yulin.huang@ycp.com)

BMA contact: [iot-campaign-asia@brother.co.jp](mailto:iot-campaign-asia@brother.co.jp)

GRPO contact: [info@gprotechnologies.com](mailto:info@gprotechnologies.com)





---

The information contained in this presentation is strictly confidential. It shall, under no circumstances, be disclosed to any party other than the intended recipients. Any breach of information to unauthorised parties will result in damages to the company and our clients.

**STRICTLY CONFIDENTIAL**