International Labour Organization

Tracking production

Sewing room operations

Factory Improvement Toolset

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Factory Improvement Toolset

The Factory Improvement Toolset (FIT) is an innovative self-facilitated, activity-based learning approach designed by the International Labour Organization (ILO) to create more decent and sustainable employment. FIT supports manufacturers in global supply chains to improve productivity, competitiveness and working conditions by upgrading production systems and factory practices.

FIT has been developed to be a sustainable, time- and cost-efficient option for supporting factories to enhance productivity through improved business practices and working conditions. FIT focuses on areas of production improvement and actions to be taken specific to each participating factory. It can be utilized as stand-alone learning tools or to complement other training programmes.

With each module lasting no more than 2.5 hours, FIT enables factories to train personnel, whilst minimizing interference with production realities. The easy-to-use methodology makes it possible to rapidly scale the implementation to reach a large cohort of trainees across multiple production facilities.

Working in small groups, participants review real-life situations and engage in discussions to determine improvements to be made in factory without an external trainer or specialist. This self-facilitated, activity-based and highly participatory learning approach positions participants as both student and teacher and makes the toolset self-tailored to the needs and interests of each group.

About this module

This FIT module on Tracking production is a training for garment manufacturers to improve sewing room operations. Participants will work on tracking and recording production. This module takes about 2.5 hours to complete.

Upon completion of the training, participants should have:

- Learnt how to set realistic production targets for the lines.
- Learnt how to use progress boards to track production.
- Understood how to record daily production concisely and orderly.

The **Factory Improvement Toolset** of the **International Labour Organization (ILO)** are developed and provided by the ILO's **Enterprises Department**.

Authors: Alix Machiels, Sara Andersson, Charles Bodwell, Jayantha R. de Silva.

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Guidelines for successfully using the training tool

Read out-loud

The FIT tool is designed for participants to take turns reading the instructions in the modules out loud to the group. At least one member of the group should be selected in the beginning of the session to take this responsibility.

Work as a group

Always work in groups of 5-7 during a FIT session. The programme will not be successful if participants work independently or do not collaborate with each other.

Be active

Encourage everyone in the group to actively contribute to the discussion. Ensure that no group member dominates the discussion or does not participate at all.

Monitor the time

Select one member of the group to monitor the time for each activity and remind the group when it is time to move to the next exercise.

Complete the action plan

Complete the action plan at the end of the session. This will help ensure that FIT results in improvements in the factory. Review the plan a while after the session to make sure that actions in the plan has been completed accordingly.

Icons

A set of icons is used throughout the modules to provide easy to recognize reference points for different tasks within each session and activity.

Read out loud

One member of the group should read out loud to the rest of group.

Knowledge link

Knowledge and skills are linked to other FIT learning resources and support.

Time allotted

Indicates how much time each sessions and activity should take.

Supplies needed

Indicates that supplies may be necessary to complete the session.

Begin step-by-step instructions

Indicates that the step-by-step instructions for an activity are beginning.

Think about it

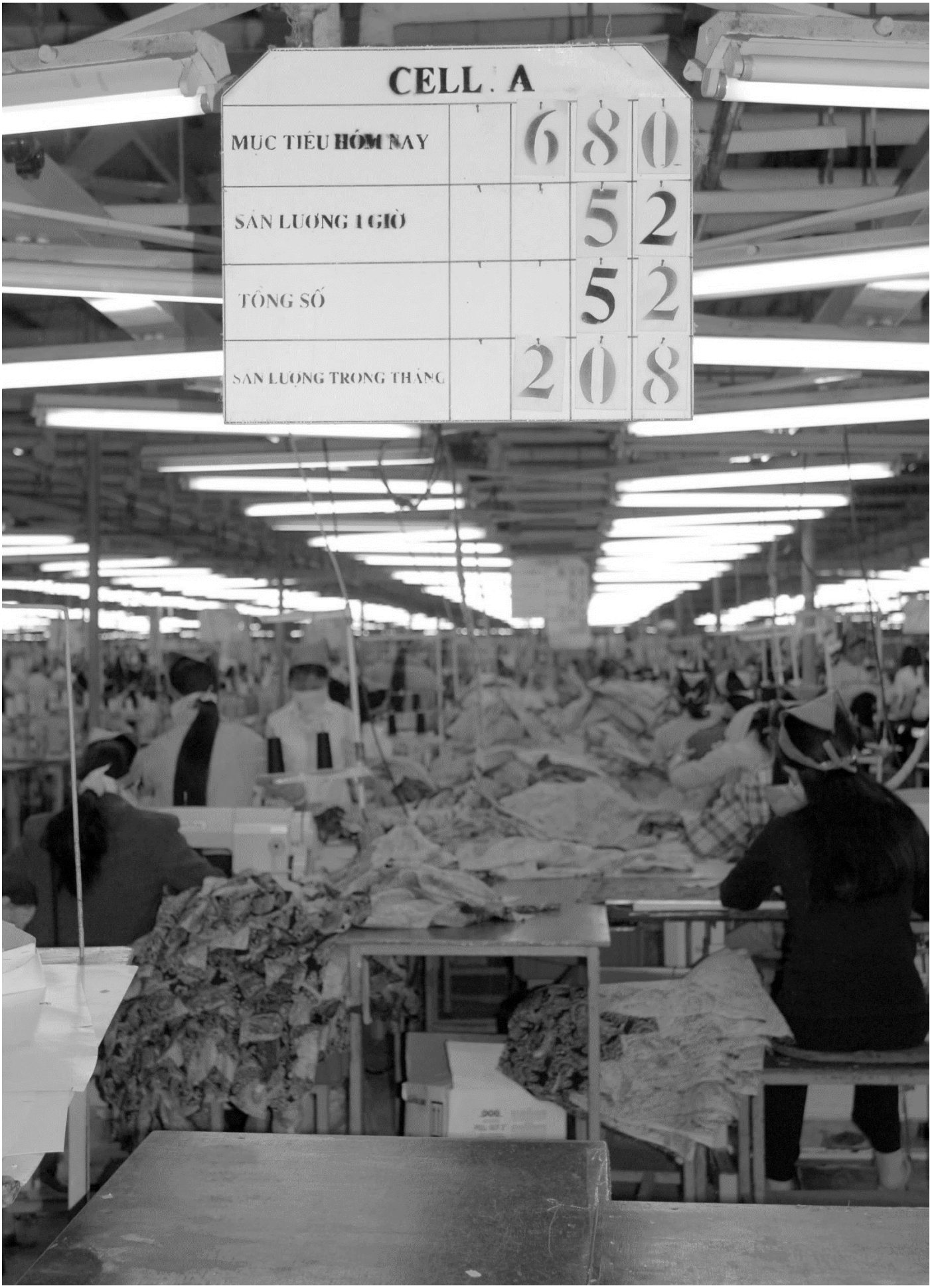
Indicates additional information for the participants to think about.

Measuring your performance

Measuring operational efficiency is a key aspect of running a productive factory. The box(es) below guides you in understanding which measurement indicator(s) can be used to measure and evaluate the performance of your factory in relation to the topics covered by the FIT sewing room series.

Indicator 1	**Target achievement (%)**
Definition	The percentage of the daily production target that was achieved (that was actually sewn in terms of good production). It can be calculated separately for each line, or for all lines together. The closer to 100%, the better.
Purpose	To understand how efficiently each sewing line operates, how realistic production targets are, and begin to identify how to improve efficiency in the sewing room.
Calculation	(# pieces produced today / daily production target) x 100% Notes: The daily target should be based on the SMV, and line efficiency discounted. Target = (working hours x 60 / SMV) x line efficiency %
Frequency	Calculate daily (for each line or all lines), then calculate a monthly average.
Responsible	Sewing room manager, Line supervisors

Indicator 2	**Work-in-progress (WIP)**
Definition	The amount of pieces that have not been completed yet, and are being sewn or waiting in between two work stations. It is calculated separately for each line, or for all lines together. Very low and very high WIP are both signs that lines are not well balanced.
Purpose	To understand how efficiently your sewing lines operate and how well the lines have been balanced, and begin to identify how to better balance sewing lines and improve their efficiency.
Calculation	Total # of pieces fed to the line – Total # of pieces sewn by the line Notes: Total # of pieces fed or sewn refers to the total # of pieces fed or sewn for one specific order, in one specific line.
Frequency	Calculate daily (for each line or all lines), then calculate a monthly average.
Responsible	Sewing room manager & line supervisors


CELL . A
MỤC TIÊU HÔM NAY
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TỔNG SỐ
5 2
SẢN LƯỢNG TRONG THÁNG
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Session 1

Business case study

Goals

Preparing you for the type of discussions you will have with other group members throughout the learning module and understanding the benefits of being exposed to different perspectives.

Understanding better why tracking production systematically is important in the factory.

Session 1

Overview

One member should read the full session out loud to the rest of group

15 minutes

Learning manual, pens, markers and poster paper

A business case study presents a real-life situation for learners to reflect on and discuss with other group members. By discussing the case, students learn from others' ideas and perspectives, and develop an understanding of the topic at hand within the workplace.

One group member reads the case study out loud

The whole group discusses the case study

Everyone develops a deeper understanding of the topic

Activities

Activity

1

15 minutes

Case study review and respond

The case study below presents a situation that could happen in real life.

Instructions:

1) As a group, listen to one member read the case study below while following along in your learning module.

Sopheak is a new sewing room manager at the HS garment factory. She finds out that daily production targets are set too high, as management believes this will encourage workers to work harder. No one tracks how many garments are actually sewn throughout the day. The number of garments issued to finishing is recorded, but not daily progress. Progress is evaluated based on the amount of bundles left to be loaded in the storage area. As a result, workers and line supervisors are not aware of how close to completion the order is, and it is difficult to ensure that the order is completed in time. It also prevents supervisors from eliminating bottlenecks fast enough to avoid quality issues and delays.

To solve these problems, Sopheak designs progress boards, which can be placed at the end of the line for everyone to see, indicating daily targets based on realistic possible outputs. Boards are updated every hour by line supervisors. At the end of the day, they record total production in a daily sewing report, and hand it out to Sopheak. She uses this information to track and record the progress of each style order in a daily production report.

Thanks to these changes, line supervisors and Sopheak now know when daily targets are not met, and can immediately identify the reasons and find solutions. This avoids delays, and helps the sewing room ensure that each order is completed on time.

2) Together, discuss Sopheak's situation by answering the three questions in table 1 on the next page.

Table 1. Questions about Sopheak's situation
1. What problems has Sopheak identified? What impact do these problems have on the factory and its workers?
2. What does Sopheak do or change in order to solve these problems?
3. What are the results of Sopheak's solutions for the factory and its workers?

This page has been intentionally left blank and can be used for note taking.

Session 2

Learning about the topic

Goals

Learning how to set realistic daily production targets for your lines.

Discussing progress boards in the lines and how to use them to track production.

Learning how to record daily production and track progress using daily sewing records and production reports.

Session 2

Overview

One member should read the full session out loud to the rest of group

110 minutes

Learning manual, pens, and markers

This training module aims to help you improve the way your sewing room operates by focusing on how you track production. Tracking production based on specific targets and recording progress daily is important to ensure that a style order is completed and shipped on time. It also helps you identify production issues or bottlenecks and address those before they cause too many delays. Throughout this module, you will work on the three steps below.

Setting production **targets**

→ **Tracking** production

→ **Recording** production

First, you will learn how to set daily and hourly production targets for each line (style). Then, you will discuss how to track production by using progress boards in the lines. Thirdly, you will learn about one way to record daily production as well as progress on a style order to better track production. Finally, you will discuss how to proceed when targets are missed.

Activities

Activity
2a

25 minutes

Setting targets

Setting **daily production targets** is important to ensure that the order is completed and ready to be shipped on time. Targets are also a measure that helps you track production daily, or even hourly. In this activity, you will learn more about how to set appropriate targets.

Instructions:

1) Together, discuss:

- Do you set daily production targets in your factory? If so, how do you set these targets?
- Are these targets realistic and consistently achieved?

2) Have a participant read aloud the information in table 2, and make sure everyone understands.

3) Have a participant read aloud the scenario in table 3, then answer the three questions below it to practice setting production targets. Solutions are at the bottom of the page.

4) Together, discuss the three questions in table 4.

Table 2. Setting production targets

Daily or hourly production goals can be calculated based on (1) the number of operators in the line, (2) daily working time in minutes, (3) line efficiency, and (4) garment SAM (the amount of time it takes to make one garment). The formula is:

Daily production target = (# of operators **x** working hours x 60 **x** line efficiency %) ***/*** Garment SAM

Garment SAM and # of operators can be obtained for your operation bulletin. Line efficiency can be calculated through a line study.

To learn more about how to calculate # of operators and garment SAM, ask your facilitator for the “Making an operation bulletin” module. Production targets are often decided during line planning. To learn more about it, ask for the “Line planning” module.

Table 3. Practice questions

Scenario: Sopheak has assigned style #5555 to Line 4, which is made up of 20 operators. According to the operation bulletin for this style, garment SAM is 18 minutes. Line efficiency for Line 4 is 60%. There are 8 production hours a day.

1. What is the factory's daily total working time (in minutes)?

2. Help Sopheak calculate daily production goals for style #5555:
   Daily goal = (# of operators x working time x efficiency) / garment SAM
   = (_____ x _____ x _____) / _____
   = _____ / _____
   = _____ garments

3. Help Sopheak calculate hourly production goals for style #5555:
   Hourly goal = Daily goal / # working hours a day
   = _____ / _____
   = _____ garments

Table 4. Appropriate goals

1. What is likely to happen if managers consistently set **unrealistic** targets (impossible to attain)? Why do they do so?

2. What is likely to happen if your production targets are not **time-bound** (not set daily or hourly)?

3. What is likely to happen if your production targets are set randomly rather than **calculated** based on measures and information?

Production targets need to be **realistic**, **time-bound**, and **calculated** based on concrete measures and information. Unrealistic, random targets will make production planning and tracking useless, and are demotivating for workers, who then stop paying attention to them.

Solutions: 1. 8 x 60 = 480 min; 2. (20x480x0.60) / 18 = 5,760 / 18 = 320 garments; 3. 320 / 8 = 40 garments

Activity

2b

25 minutes

Using progress boards

You can use tools such as **progress boards** to track production in real time (throughout the day) for each line, and ensure targets are achieved. In this activity, you will discuss the use of progress boards.

Instructions:

1) Together, discuss: How do you currently track production throughout the day in the sewing lines? Which tools do you use?

2) Together, read through the list of information that can be displayed on boards in table 5. For each, discuss, and put a ✓ in the second / fourth column if you think you should include it on your boards.

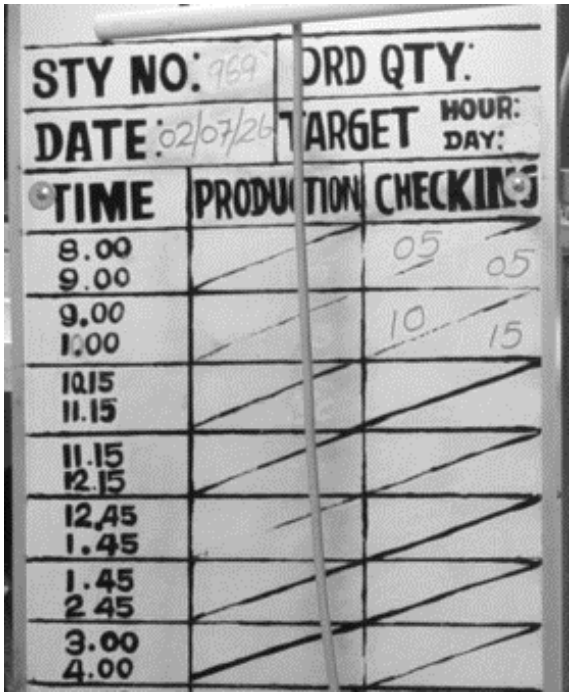
3) Together, look at the three examples of progress boards in table 6. Then, brainstorm and draw what your own progress boards look like or could look like in the space provided.

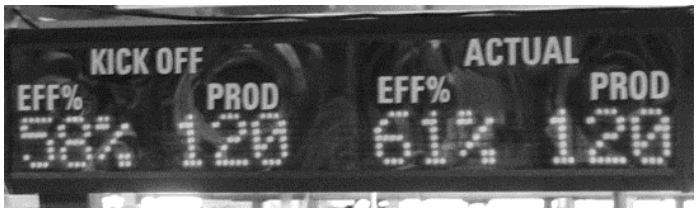
4) Together, discuss the two questions in table 7. Then, have a participant read aloud the text box below table 7.

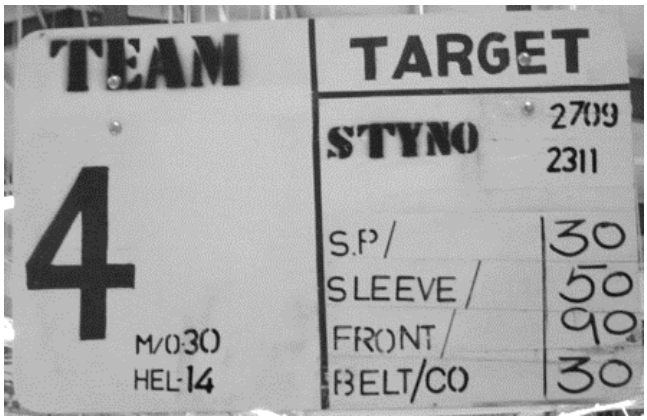
Table 5. Progress boards

Information	Include?	Information	Include?
Example: Line number.	✓	Line efficiency	
Today's date		Quantity loaded to the line	
Style number		Quantity checked	
Team number		Day of production (e.g. Day 3)	
Hourly target (goal)		Quantity of defective items	
Daily target (goal)		Order quantity	
Half-day target (goal)		# of operators in the line	
Quantity stitched		# of operations in the line	
Balance to reach target		Buyer's name	

Table 6. Your progress boards







Draw what your progress boards could look like below.

Table 7. Using progress boards

1. How could you make sure that your workers see and understand progress boards, and that they are aware of progress and targets?

2. What should be done if targets are not achieved?

Progress boards should always display “To do” (target) and “Done” (quantity sewn). The “Done” quantity must reflect the quantity of good quality pieces (garments that passed the inspection), not just the total sewn. You can use hourly, half-day, or daily targets. Boards must be updated by line supervisors hourly through the day, and should be hung or placed where everyone in the line can see them. Some use electronic systems (expensive), others use white boards, or boards made out of cardboard, or even paper sheets. The content needs to be large enough for everyone to read.

Activity

2c

25 minutes

Recording daily production

Record-keeping is important to keep track of production, and ensure daily targets are met. Line supervisors should record daily (hourly and at the end of the day) how many garment pieces have been stitched (line-wise) and compare with planned quantities. In this activity, you will learn how to use a daily sewing report (DSR) to record operations.

Instructions:

1) Together, discuss:

- Do you record production progress in your sewing room?
- If so, how often do you record? Using what document(s)?

2) Together, look at the daily sewing report in table 8, and make sure everyone understands.

3) Have a participant read aloud the scenario in table 9. Then, use the information to fill in the blank cells of the report. Line 1 has been filled in to guide you.

4) Together, discuss the four questions in table 10. Solutions are provided at the bottom of the page.

Table 8. Daily sewing report

Date: Feb 4, 2019 (Tuesday)	**Prepared by:** *Line supervisor*	**Approved by:** *Sewing manager*

Line	**Style #**	**Colour**	**Loaded**			**Planned**			**Actual**			**Balance**		
		Sizes	S	M	L	S	M	L	S	M	L	S	M	L
1	5555	Red	100	100	100	100	100	100	100	100	100	0	0	0
		Green		100			100			80			20	
2	6666	Blue												
		Yellow												
3	5656	Black												
		White												
4	6655	Pink												
		Orange												
Total														

Table 9. Using daily sewing reports

Scenario:
Sopheak, the sewing manager, fills in a sewing report for today (for all lines).

- For style 5555, assigned to Line 1, planned production for today was 100S, 100M, 100L in Red, and 100M in Green. Today, 100S, 100M, 100L were sewn in Red, and 80M in Green. So balance for Red is 0, and balance for Green is 100 – 80 = 20M.
- For style 6666, assigned to Line 2, planned production for today was 100S, 100M in Blue, and 100M, 100L in Yellow. Today, 100S, 100M were sewn in Blue, and 100M, 100L in Yellow.
- For style 5656, assigned to Line 3, planned production for today was 80L in Black, and 160M in White. Today, 80L were cut in Black, and 155M in White.
- For style 6655, assigned to Line 4, planned production for today was 150S, 150L in Pink, and 50S in Orange. Today, 150S, 150L were cut in Pink, and 50S in Orange.

Table 10. Reading daily sewing reports

1. How many pieces were sewn today in Yellow for style #6666? Did it reach today's planned stitched quantity for this style and colour?

2. How many pieces were sewn today in White for style #5656? Did it reach today's planned stitched quantity for this style and colour?

3. How many garments were planned to be stitched today? How many were actually stitched?

4. How many garments remain to be stitched to complete production goals for today (across all lines)?

A **DSR** should show planned production, actual production and balance, so that the reasons for not completing the daily planned production can be identified, and solutions can be implemented to improve operations, or daily goals can be adjusted.

Solutions: 1. 200, Yes; 2. 155, No; 3. Planned = 1,390; Actual = 1,365; 4. Balance = 25.

Activity

2d

25 minutes

Recording progress

Record-keeping is important to keep track of production, and ensure daily targets are met. Sewing room managers should track progress for each style order daily. In this activity, you will learn how to do so using production reports.

Instructions:

1) Have a participant read aloud scenario 1 in table 11, and follow along using the report in table 12 (Day 1 & 2). Then, make sure everyone understands how to fill in a production report.

2) Together, discuss: What is the difference between a DSR (activity 2c) and a production report? Tip: If you are not sure, look at the text box below.

3) Together, answer the five questions in table 13. Solutions are provided at the bottom of the page. Tip: There is no need to calculate anything, the answers are in the report.

A **DSR** helps you record how many garments were planned to be assembled today (*planned*) for all styles, how many actually were (*actual*), and how many are left to reach today's target (*balance*).

A **production report** helps you record how many garments were assembled today (*today*) for one single style, how many have been assembled so far *(cum.)*, and how many are left to complete the order (*balance*). The order is completed when the Balance = 0.

Table 11. Scenario 1

Scenario 1:
Sopheak, the sewing room manager, fills in a production report to track progress for order #668822. Order quantity, assigned to Line 4, is 700 garments in Green and 700 garments in White.

- On Day 1, 200 green bundles (100S, 100M) are loaded and sewn. So, balance to load / sew is 700 – 200 = 500 (100S, 200M, 200L) for Green.
- On Day 2, 300 green bundles (100S, 100M, 100L) are loaded and sewn. So, cumulative total for Green is 500 (200S, 200M, 100L), and balance is 700 – 500 = 200 (100M, 100L).

Table 12. Production report

Style #	668822	**Line #**	4
Buyer	ILO Fashion Corp.	**Order quantity**	1,400

Size	S		M		L		XL		**Total**	
Planned qty.	400		600		400		0		1,400	
Colour	Green	White	Green	White	Green	White	Green	White	Green	White
Quantity	200	200	300	300	200	200	0	0	700	700

Day	**Date**	**Colour**	**LOADING**									**SEWING**								
			Today			**Cum.**			**Balance to load**			**Today**			**Cum.**			**Balance to sew**		
		Sizes	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
1	May 2	Green	100	100	0	100	100	0	100	200	200	100	100	0	100	100	0	100	200	200
		White	0	0	0	0	0	0	200	300	200	0	0	0	0	0	0	200	300	200
2	May 3	Green	100	100	100	200	200	100	0	100	100	100	100	100	200	200	100	0	100	100
		White	0	0	0	0	0	0	200	300	200	0	0	0	0	0	0	200	300	200
3	May 4	Green	0	100	100	200	300	200	0	0	0	0	100	100	200	300	200	0	0	0
		White	100	0	0	100	0	0	100	300	200	100	0	0	100	0	0	100	300	200
4	May 5	Green	0	0	0	200	300	200	0	0	0	0	0	0	200	300	200	0	0	0
		White	100	200	0	200	200	0	0	100	200	100	200	0	200	200	0	0	100	200
5	May 6	Green	0	0	0	200	300	200	0	0	0	0	0	0	200	300	200	0	0	0
		White	0	100	200	200	300	200	0	0	0	0	100	200	200	300	200	0	0	0
6	May 7	Green	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
		White	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	/																			
8	/																			
		Total							0	0	0							0	0	0

Table 13. Reading production reports
1. When (on which day) was sewing completed for colour Green? For colour White?
2. How many garment pieces were left to be sewn to complete the style order in Green after Day 2?
3. How many garment pieces were left to be sewn to complete the style order in White after Day 4?
4. How many garment pieces were left to be sewn in total to complete the order after Day 3?

Solutions: 1. Green on day 3, White on day 5; 2. 200 pieces; 3. 300 pieces; 4. 600 pieces

Activity

2e

10 minutes

Making improvements

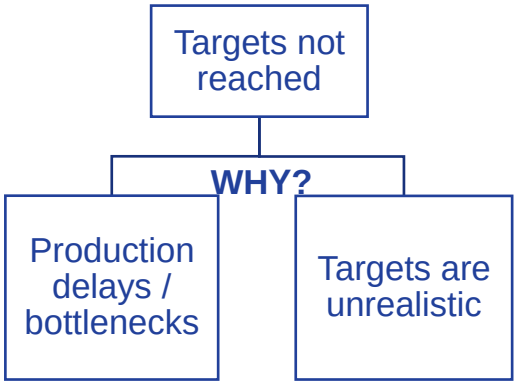
Records provide you with important information and help you detect problems and make improvements. Whenever targets are not reached, managers and workers should work together to identify the cause(s), select solutions, and implement them. In this activity, you will think about how to identify the causes.

Instructions:

1) Together, look at the chart in table 14, then discuss: How would you go about identifying the cause(s) behind unachieved targets?

2) Together, discuss the two questions in table 14.

Table 14. Making improvements

1. What to do if you find out that targets are unrealistic?	
2. What kind of production delays / problems could have caused you to miss your targets?	

Workers are directly involved with in-line work, and may thus have noticed issues or have useful information that managers don't. So, they should be consulted when you identify causes and select solutions.

To learn more about how to how to identify and solve production problems, ask your facilitator for the "Eliminating bottlenecks" module.

Session 3

Action items

Goals

Summarizing and revising the new knowledge gained.

Identifying concrete applications of the new knowledge that benefit your factory.

Session 3

Overview

One member should read the full session out loud to the rest of group

20 minutes

Learning manual, pens, and markers

Throughout this module, you gained new knowledge on target-setting, progress boards, daily sewing records and daily production records to help you improve your tracking system.

Setting production **targets**

Tracking production

Recording production

In this session, you will think of ways to apply your new knowledge to improve production tracking in your sewing room by reviewing best practices and drafting your own action plan.

Daily sewing report and daily production report templates are available online for you to print out and use in your own factory. To obtain it, contact your factory's FIT coordinator!

Activities

Activity

3a

5 minutes

Best practices checklist

In this activity, you will review best practices for tracking production as a next step for evaluating your own and implementing improvements.

Instructions:

1) Together, look at the list of best practices in table 15, and put a ✓ in the column on the right if you use these practices in your factory.

Table 15. Tracking production

Best practices	✓
1. Realistic, time-specific daily / hourly production targets are set before production starts for each style.	
2. Progress boards are used by supervisors and workers to track production throughout the day and ensure that daily targets are met.	
3. Progress boards can be seen by everyone in the line, and display style #, hourly / daily targets and progress towards the target.	
4. Daily sewing reports are used by the sewing room manager to record daily production for each line.	
5. Production reports are used by the sewing room manager to record daily progress and balance to completion for each order.	
6. When daily targets are not achieved, causes are identified (bottlenecks or inappropriate targets?) and solutions discussed, agreed and implemented.	

Activity

3b

15 minutes

Your action plan

In this activity, you will think of ways to apply your new knowledge to improve production tracking in your factory by drafting your own action plan.

Instructions:

1) Together, fill in the action plan (table 16) on the next page. Identify a key problem that you want to solve and write down the solutions you identified while working on this module.

Table 16. Tracking production – Action Plan				
Problem identified				
Solutions identified	**Action(s) to be taken**	**Person responsible**	**By when?**	**How will improvements be measured?**

Tracking production

The Factory Improvement Toolset (FIT) is an innovative self-facilitated, activity-based learning approach designed by the International Labour Organization (ILO) to create more decent and sustainable employment. FIT supports manufacturers in global supply chains to improve productivity, competitiveness and working conditions by upgrading production systems and factory practices.

FIT is being piloted in Asia under the regional Decent Work in the Garment Sector Supply Chains in Asia project funded by the Government of Sweden.

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