International Labour Organization

Planning for cutting

Cutting room operations

Factory Improvement Toolset

Copyright © International Labour Organization 2019

First published 2019

Publications of the International Labour Office enjoy copyright under Protocol 2 of the Universal Copyright Convention. Nevertheless, short excerpts from them may be reproduced without authorization, on condition that the source is indicated. For rights of reproduction or translation, application should be made to ILO Publications (Rights and Licensing), International Labour Office, CH-1211 Geneva 22, Switzerland, or by email: rights@ilo.org. The International Labour Office welcomes such applications.

Libraries, institutions and other users registered with a reproduction rights organization may make copies in accordance with the licences issued to them for this purpose. Visit www.ifrro.org to find the reproduction rights organization in your country.

ISBN: 9789220326312 (web pdf)

The designations employed in ILO publications, which are in conformity with United Nations practice, and the presentation of material therein do not imply the expression of any opinion whatsoever on the part of the International Labour Office concerning the legal status of any country, area or territory or of its authorities, or concerning the delimitation of its frontiers.

The responsibility for opinions expressed in signed articles, studies and other contributions rests solely with their authors, and publication does not constitute an endorsement by the International Labour Office of the opinions expressed in them.

Reference to names of firms and commercial products and processes does not imply their endorsement by the International Labour Office, and any failure to mention a particular firm, commercial product or process is not a sign of disapproval.

Information on ILO publications and digital products can be found at: www.ilo.org/publns

---

Photos: © ILO
Printed in Thailand

Table of Contents

About the FIT module **4**

Guidelines for successfully using the training tool **5**

Session 1
Business case study **9**

Session 2
Learning about the topic **15**

Session 3
Action items **25**

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 Planning for cutting is a training for garment manufacturers to improve cutting room operations. Participants will work on planning weekly and daily cutting operations. This module takes about 2 hours to complete.

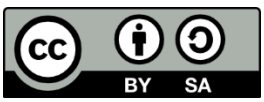
Upon completion of the training, participants should have:

- Understood what planning cutting operations means and why it is important.
- Learnt how to fill-in and use weekly and daily cutting plans to better plan and track cutting operations.

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.

This work is licensed under the Creative Commons Attribution-ShareAlike 4.0 International License.



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

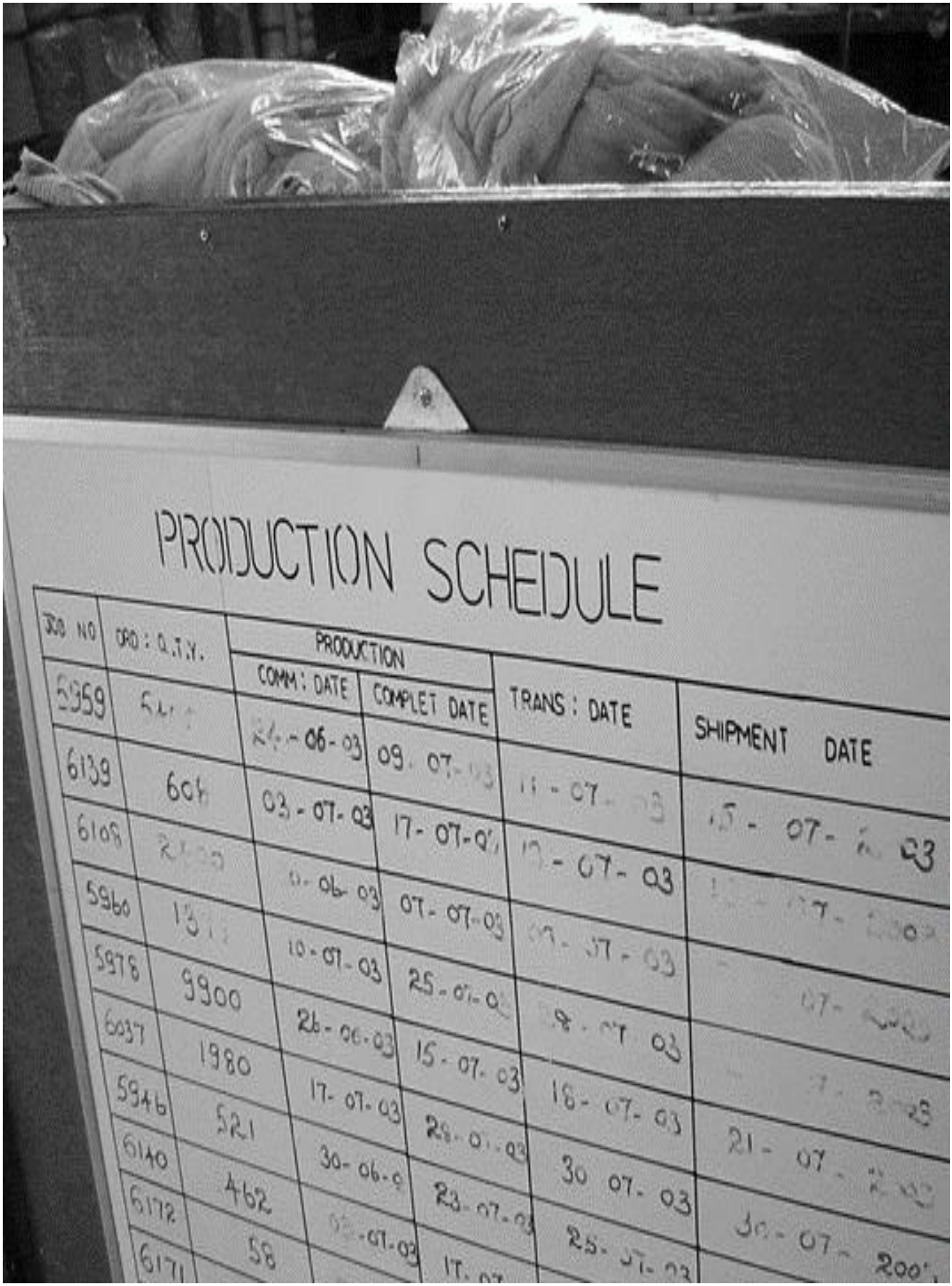
Indicates additional information for the participants to think about.

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 cutting room series.

Indicator 1	**Re-cuts (%)**
Definition	The proportion of fabric used for re-cuts for each order (the amount of fabric used for re-cuts compared to the total amount of fabric used for the order).
Purpose	To understand how much of the fabric was used for re-cuts, to better assess quality and begin to identify how to improve quality in the cutting room.
Calculation	(# meters of fabric used for re-cuts / total # meters of fabric used for this order including re-cuts) x 100% This should also be calculated separately for re-cuts due to cutting defects and re-cuts due to other defects.
Frequency	Calculate for each cut order, then do a monthly average of all cut orders.
Responsible	Cutting room manager / Quality inspector

Indicator 2	**Fabric utilization (%)**
Definition	The proportion of total spread fabric that is actually used for garments. It is calculated for each cut (for each marker). The higher the most efficient.
Purpose	To understand how efficient your marker planning and cutting operations are, how much fabric gets wasted, and to begin to identify how to improve marker efficiency and reduce fabric waste.
Calculation	(Marker area used for garments in *sqm* / total fabric area in *sqm*) x 100% Marker area used for garments = Fabric (in sqm) actually used for garments Total fabric area = The total amount of fabric spread on the cutting table for a cut = Fabric length (mts) x Fabric width (mts)
Frequency	Calculate for each marker, then do a monthly average of all markers.
Responsible	Cutting room manager / Senior marker maker


PRODUCTION SCHEDULE
JOB NO
ORD : Q.T.Y.
PRODUCTION
COMM : DATE
COMPLET DATE
TRANS : DATE
SHIPMENT DATE
5959
6139
6108
5960
5978
6037
5946
6140
6172
6171
03 - 07 - 03
17 - 07 - 03
10 - 07 - 03
25 - 07 - 03
26 - 06 - 03
15 - 07 - 03
17 - 07 - 03
18 - 07 - 03
30 - 06 - 03
30 07 03
23 - 07 - 03
25 - 07 - 03
9900
1980
521
462
58

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 good planning and scheduling is important in the cutting room.

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.

Ritthy is a new cutting room manager at the HS garment factory. During his first week at the factory, he notices that there is no system in place for planning cut orders, so the cutting room usually starts cutting an order whenever fabric is delivered to the stores, without taking into account shipment dates. As a result, some orders are delayed, which makes buyers unhappy. Sometimes, orders are cut too early, which means that the cut panels have to be stored in the cutting room for a long time, where they take up space and sometimes get lost or damaged.

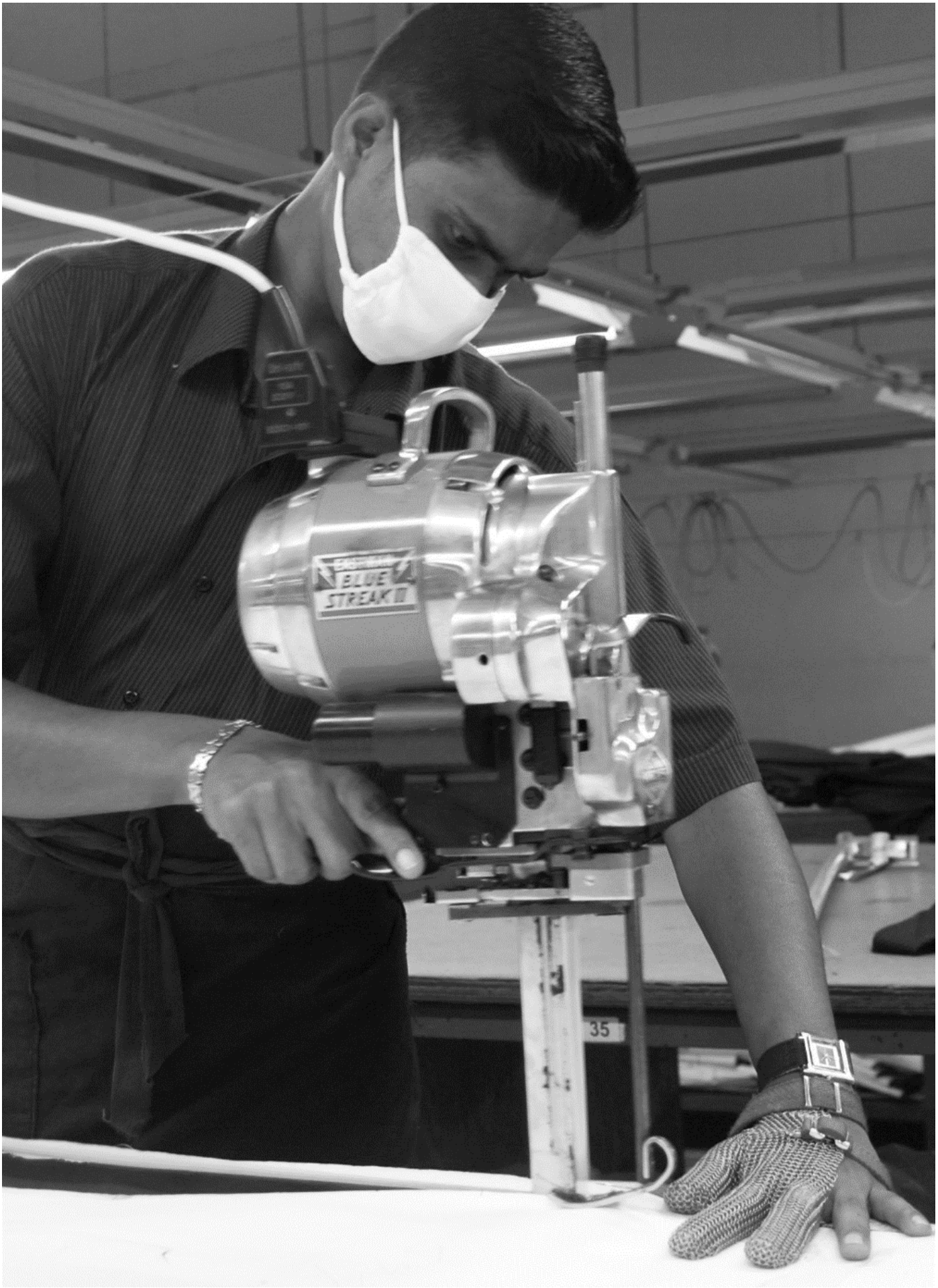
To solve these problems, Ritthy decides to make some changes. From now on, cutting will be planned based on order shipment date, after fabric has been received in the stores and notice given to the cutting room. Ritthy creates one weekly cutting plan, and one daily cutting plan, which he can use to plan for cutting operations every week and every day. Laying helpers and cutting operators will cut orders according to the daily cutting plan every day.

Thanks to these changes, Ritthy can plan cutting operations on time, and avoid orders getting cut too early or too late. He can also adjust plans on time in case of changes. Departments can coordinate better, and cut panels do not risk getting damaged. This saves the factory both time and money.

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

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

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


BLUE
STREAK II
35

Session 2

Learning about the topic

Goals

Understanding what good planning is and why it is important for productivity and profitability.

Understanding and discussing the cutting process.

Learning how to use and fill-in weekly cutting plans to plan production.

Learning how to use and fill-in daily cutting plans to plan and track production.

Session 2

Overview

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

90 minutes

Learning manual, pens, and markers

This training module aims to help you improve the way your cutting room operates by focusing on planning. Cut planning is the process of planning cutting operations to make sure a cut order is completed on time. Good planning makes your cutting room more productive by ensuring that deadlines are met and avoiding bottlenecks or delays. Throughout this module, you will work on the three steps below.

Understanding **planning**

Making a **weekly cutting plan**

Making a **daily cutting plan**

First, you will review the cutting process, and discuss what good planning is and why it is important. Then, you will learn how to make weekly cutting plans and daily cutting plans, and how to use them to plan and track cutting operations.

Activities

Activity
2a

20 minutes

The cutting process

Cut order planning is the first step of the **cutting process**. There are many other steps to follow before the cut panels are ready for the sewing lines. In this activity, you will discuss the cutting process.

Instructions:

1) Together, read through the steps of the cutting process in table 2, and put them in the right order from 1 to 10. Solutions are at the bottom of the page.

2) Together, discuss:

- Does your cutting process involve the same steps as in the table below? What is different?
- Is there anything that you think should change in your cutting process to make it faster and more efficient?

Table 2. The cutting process

Steps	#
Cut planning	1
Spreading the fabric	
Ticketing the bundles	
Assembling cut parts into bundles (bundling)	
Cutting the fabric & recording cutting operations (Daily Cutting Report)	
Receiving the fabric from the storerooms	
Marker planning and lay planning	
Issuing the bundles to the sewing lines	
Numbering the cut panels	
Inspecting cut panels	

Solutions: 1, 4, 9, 8, 5, 3, 2, 10, 7, 6

Activity

2b

20 minutes

Understanding planning

Planning for cutting means transforming customer orders into cut orders that will be executed by cutting operators. Good planning helps your factory save a lot of time and money! In this activity, you will discuss what good cut planning involves.

Instructions:

1) Together, discuss the four questions in table 3 below.

2) Together, discuss:

- How can good planning help you be more productive?
- How can good planning help you save money?

3) Together, read through the list of statements in table 4, and decide for each whether it is true or not by putting a ✓ in the corresponding column. Solutions are at the bottom of the page.

4) Together, discuss:

- What happens if an order is cut too soon?
- What happens if an order is cut too late?

Table 3. Cut order planning

What?	How do you plan cutting operations in your factory? How does it link to overall production planning?
Who?	Who is in charge of planning for cutting in your factory?
When?	When does planning take place? What comes before / after?
How?	How do you plan cut orders in your factory? Using which documents?

Planning should be done by the cutting room manager for each customer order as soon as the fabric for the order has been received in the stores. This information can be obtained from the Merchandising / Production planning department via order books or boards.

Table 4. Planning for cutting		
Good planning helps you…	**Yes**	**No**
Example: Translate customer orders into cut orders.	✓	
1. Minimize production costs (fabric, tools, labour, etc.).		
2. Cut the entire order as soon as possible.		
3. Meet the customer's deadlines.		
4. Decide when the order will be ready to be shipped.		
5. Use all of the fabric received in the stores for that order.		
6. Issue orders for marker making, spreading and cutting.		
7. Determine how much to cut, of which style, and when.		
8. Determine in which colours the style order can be cut.		
9. Avoid delays and bottlenecks for other departments.		
10. Calculate fabric and marker utilization.		

Planning should be only be done after the fabric for the order has been **received** in the stores. To learn more about how the cutting room should request fabric from the stores, ask your facilitator for the "Requesting fabric" module.

Solutions: 1. Yes, 2. No, 3. Yes, 4. No, 5. No, 6. Yes, 7. Yes, 8. No, 9. Yes, 10. No.

Activity

2c

25 minutes

Making a weekly cutting plan

Based on the order book / board prepared by the merchandising or production planning department, and once fabric has been received in the stores, the cutting manager makes a **weekly cutting plan** for all ongoing orders. In this activity, you will learn how to make a weekly cutting plan.

Instructions:

1) Together, discuss:

- Do you prepare weekly cutting plans?
- What information should appear on a weekly cutting plan?

2) Together, look at the example of a weekly cutting plan in table 5 and make sure everyone understands.

3) Have a participant read aloud the scenario in table 6, then answer the 7 questions below. The solutions are at the bottom of the page.

4) Together, based on your answers, fill in the blank weekly cut plan in table 7 by filling in and shading the cells to indicate when each order should be cut.

Table 5. Weekly cutting plan

Week	1st – 7th April, 2020	**Cutting manager**	Ritthy Pheang
Prepared	30 March 2020	**Cutting capacity**	3000 pieces / day

Order / Style #	Quantity	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday
		1 April	2 April	3 April	4 April	5 April	6 April	7 April
56782	4000							
36915	8000							
63489	3000							
64894	6000							

This type of chart is called a **Gantt chart**. Gantt charts are simple ways to “draw” a schedule. The left part (vertical) shows tasks to complete. The right part (horizontal) shows time (months/weeks/days). The coloured cells in between show when each task should be completed.

Table 6. Weekly cutting plans

Scenario: Ritthy is preparing a weekly cutting plan for the week of 2 to 7 November. On Sundays (8 November), the factory does not operate. The cutting capacity is 3000 pieces a day. According to the order board prepared by merchandising:

- Order 545 needs to be shipped by December 5, Order 544 by December 11, and Order 546 by December 8.
- Quantity for order 545 is 6,000 pieces; Quantity for order 544 is 10,000 pieces; Quantity for order 546 is 8,000 pieces.

1. In which order should these three orders be cut?
2. How many days will order 545 take to cut completely?
3. How many days will order 546 take to cut completely?
4. How many days will order 544 take to cut completely?
5. Within this week (6 days), can we complete cutting order 545?
6. Within this week (6 days), can we complete cutting order 5466?
7. Within this week, can we complete cutting order 544? When would you start cutting?

Table 7. Weekly cutting plan

Week	2 ~ 8 November	**Cutting manager**	Ritthy Pheang
Prepared	1 November	**Cutting capacity**	3000 pieces / day

Order / Style #	**Quantity**	**Monday**	**Tuesday**	**Wednesday**	**Thursday**	**Friday**	**Saturday**	**Sunday**
		2 Nov	3 Nov	4 Nov	5 Nov	6 Nov	7 Nov	8 Nov

Solutions: 1. 545, 546, 544; 2. 6,000/3,000 = 2 days; 3. 8,000/3,000 = 2.6 days; 4.10,000/3,000 = 3.3 days; 5. Yes; 6. Yes; 7. No, we need 2 more days. You can start cutting on Friday 6th after order 546 is completed.

Activity

2d

25 minutes

Making a daily cutting plan

Based on the weekly cutting plan and the cutting balance sheet, the cutting manager makes a **daily cutting plan** for the next day. It can also be used to record cutting operations, and track progress. In this activity, you will learn how to use a daily cutting plan.

Instructions:

1) Together, discuss:

- Do you use daily cutting plans in your factory? Why / why not?
- What kind of information should appear on a daily cutting plan?

2) Together, look at the image below (Image 1) which shows the ideal planning process, then discuss:

- How does record-keeping help you plan for cutting?
- Do you use cutting records to plan cutting operations?

3) Together, look at the Daily Cutting Plan in table 8, and make sure everyone understands. Pay attention: Cutting plans record the amount of full garments cut, not the amount of garment parts cut!

4) Have a participant read aloud the scenario in table 9. Then, fill in the "Planned" column in the second daily cutting plan (table 8) using the scenario. Solutions are provided at the bottom of the page.

Image 1

Cutting records should always be used when planning cutting!
Daily cutting reports help you record daily how many garments were planned to be cut and how many were actually cut.
Cutting balance sheets help you record how many garments have been cut so far for a cut order, and how many remain to be cut to complete the order.

Table 8. Daily Cutting Plan

Example

Date		Feb 4, 2019 (Tuesday)		**Cutting manager**	Ritthy Pheang		
Order #	Buyer	Style #	Size	Colour	Planned	Cut today	Balance
57493	AC	TQ578	S	Black	200		
57493	AC	TQ578		Navy	200		
57493	AC	TQ578	M	Black	400		
57493	AC	TQ578		Navy	400		
57493	AC	AY621	S	Pink	200		
57493	AC	AY621		Red	200		
57493	AC	AY621	M	Pink	400		
57493	AC	AY621		Red	400		
Total					2,400		

Practice

Date		Nov 6, 2019 (Tuesday)		**Cutting manager**	Ritthy Pheang		
Order #	Buyer	Style #	Size	Colour	Planned	Cut today	Balance
9898	PA	UY376	M	Black			
9898	PA	UY376		Navy			
9898	PA	UY376	L	Black			
9898	PA	UY376		Navy			
8787	TU	GQ549	S	Pink			
8787	TU	GQ549		Red			
8787	TU	GQ549	M	Pink			
8787	TU	GQ549		Red			
Total							

Table 9. Scenario

Scenario: Ritthy is preparing a daily cutting plan for 6 November. The cutting capacity is 3000 pieces a day:

- According to the cutting balance sheet, yesterday, order 9898 for buyer PA (style UY376) was not completely cut due to a machine malfunction. There is still a total of 1600 pieces to cut: 400 in M Black, 400 in M Navy, 400 in L Black, 400 in L Navy.
- According to the weekly cutting plan, order 8787 for buyer TU (style QG549) needs to start today. Since they need to finish order 9898 first, Ritthy calculates that today they can only cut 1400 pieces: 300 S Pink, 300 S Red, 400 M Pink, and 400 M Red.

Daily cutting plans can also be used as Daily cutting reports, to record daily cut quantities and balances. To learn more about Daily cutting reports and Cutting balance sheets, ask your facilitator for the "Cutting fabric" module.

Solutions (vertically): Planned → 400, 400, 400, 400, 300, 300, 400, 400; Total → 3,000

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 how to plan for cutting by making weekly and daily cut plan.

Understanding **planning**

Making a **weekly cutting plan**

Making a **daily cutting plan**

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

Weekly cutting plan and daily cutting 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 cut planning practices as a next step for evaluating your own and implementing improvements.

Instructions:

1) Together, look at the list of best practices in table 10, and put a ✓ in the column on the right if you use these practices in your factory.

Table 10. Planning for cutting

Best practices	✓
1. The cutting manager starts planning cutting operations once fabric has been received in the stores and accurate information obtained on it.	
2. The cutting manager plans for cutting using weekly and daily cutting plans.	
3. Weekly cutting plans are made based on production plans.	
4. Daily cutting plans are made based on weekly cutting plans.	
5. The cutting manager uses cutting records (daily cutting report, cutting balance sheet) to make / update daily and weekly cutting plans.	

Activity

3b

15 minutes

Your action plan

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

Instructions:

1) Together, fill in the action plan (table 11) 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 11. Planning for cutting – Action Plan

Problem identified				
Solutions identified	**Action(s) to be taken**	**Person responsible**	**By when?**	**How will improvements be measured?**

Planning for cutting

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.

Decent Work Technical Support Team for East and South-East Asia and the Pacific

United Nations Building, 10th Floor
Rajdamnern Nok Avenue,
Bangkok 10200, Thailand
Tel.: 662 288 1234 Fax. 662 288 3058
Email: BANGKOK@ilo.org

ISBN: 9789220326312 (web pdf)