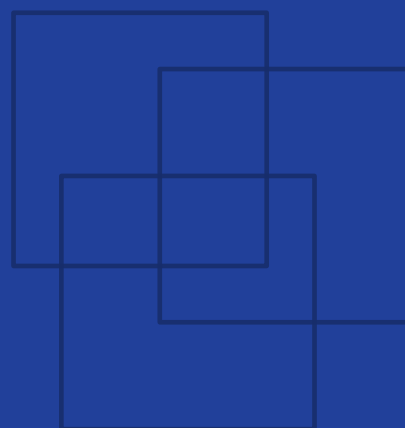




International
Labour
Organization

Measuring productivity

Production systems



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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 Measuring productivity is a training for garment manufacturers to improve their production systems. Participants will work on setting up their own productivity measurement plan and using results to improve the factory. This module takes about 2.5 hours to complete.

Upon completion of the training, participants should have:

- Understood the importance of measuring productivity.
- Learnt how to select indicators to measure productivity.
- Practiced measuring indicators and preparing forms to collect required information.
- Learnt how to assign responsibilities for collecting information.

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

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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 topic of this FIT module.

Indicator 1	Capacity utilization (%)
Definition	<p>How much of your capacity (what you could produce) was used after completing an order (what you did produce). It needs to be calculated for each order, after the order is completed.</p> <p>E.g.: If capacity is 20%, it means that you only produced 20% of the total quantity you could have produced in the same amount of time. So, efficiency is very low.</p>
Purpose	To understand how efficiently the factory (production) runs, and whether it could become more efficient.
Calculation	<p>$(\# \text{ Earned minutes} / \# \text{ Available minutes}) \times 100\%$</p> <p>Notes:</p> <p>Earned minutes = SMV x # pieces sewn</p> <p>Available minutes = (# of operators in the line(s) x # days it took to complete the order x # hours in a working day x 60)</p>
Frequency	Calculate for each order, then calculate the average every month.
Responsible	Sewing room manager

Indicator 2	Pieces per employee
Definition	The amount of accepted pieces that each employee contributed to producing over a certain period of time. The higher, the more productive your employees are.
Purpose	To understand how productive your employees are, set a personal productivity target, identify ways to increase productivity in your factory, then track improvements by comparing with previous results.
Calculation	<p>$(\text{Total \# of pieces produced} / \text{total \# employees in the factory})$</p> <p>Note: Total # of employees includes ALL employees in the factory, including managers, administration, etc. – not only workers.</p>
Frequency	Calculate monthly.
Responsible	Production manager



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 measuring productivity 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.

Ali is a new production manager at the HS factory. The HS factory does not measure productivity, as management thinks it will be too much work. As a result, they do not know how productive the factory is, and how it performs in terms of quality, working conditions, planning, efficiency, etc. Ali thinks that this prevents the factory from identifying and solving its problems correctly to improve productivity, keep good workers and become more profitable. Even when changes are made, it is hard to know how effective they are as there is no information to evaluate results.

Ali shares his ideas with senior management. Together, they discuss what should be measured, when, how and by whom – and how this information will be used. They record this information in a measurement plan, which is approved by the factory manager. Results are shared in the factory to motivate staff. Staff is also encouraged to make suggestions on how to improve the factory. This also helps in setting monthly goals to be achieved which are slightly challenging and realistic.

Thanks to these changes, factory management knows how well the factory is performing, and can timely identify and solve problems to improve the factory and maintain productivity. Staff feel appreciated and become more committed to the factory.

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

Table 1. Questions about Ali's situation

1. What problems has Ali identified? What impact do these problems have on the factory and its workers?

2. What does Ali do or change in order to solve these problems?

3. What are the results of Ali'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

Understanding the benefits of measuring productivity and how to set up a productivity measurement plan.

Learning how to select indicators and measure them in the factory.

Discussing how to record and collect important measurement data using standard forms.

Practicing assigning responsibilities to determine who will measure what, where and when.

Session 2

Overview



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

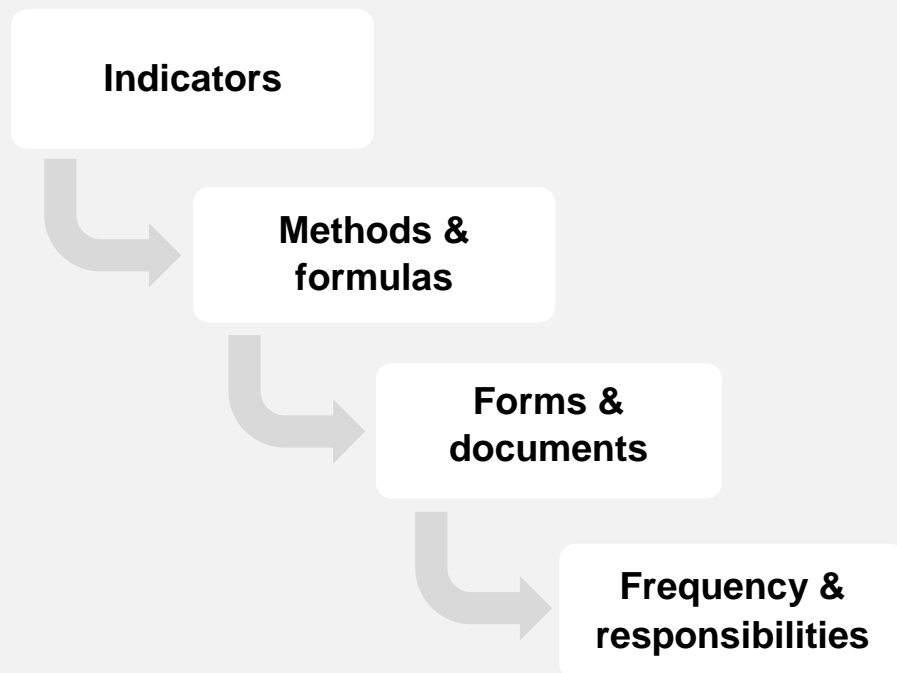


100 minutes



Learning manual, pens, and markers

This training module helps you improve how you measure your factory performance by preparing a productivity measurement plan. Measuring productivity helps you understand how productive you are, how and what to improve to become more productive, and how effective your improvements were. You cannot improve productivity without measuring it! Throughout this module, you will work on the four topics below.



First, you will discuss the importance of measurement and learn how to set up a productivity measurement plan. Then, you will learn how to choose and calculate indicators, prepare necessary forms and documents, select measurement frequency, and assign measurement responsibilities.



To complete this module, you will need the **FIT Indicators Guide**. If you do not have it yet, ask your facilitator before starting the module!

Activities

Activity

2a



15 minutes

Measuring productivity

Measuring productivity is necessary to improve productivity and plan resources more efficiently. In this activity, you will discuss the benefits of measuring productivity, and how to prepare a productivity measurement plan in your factory.



Instructions:

- 1) Have a participant read aloud the text box about productivity below. Then, together, discuss:
 - Do you measure productivity in your factory?
 - If so, how do you measure it and why?
- 2) Together, look at table 2 listing ways that measuring productivity can benefit your factory, and put a ✓ on the right if you think that it is important for your factory.
- 3) Have a participant read aloud the second text box below. Then, together, look at the measurement plan and the two examples in table 3 and make sure everyone understands.



Productivity is the efficient use of resources (labour, energy, materials, machinery, etc.) needed for production. A more productive factory produces more garments (output) with less resources (input).



Making a productivity measurement plan will help you:

- Identify which forms to prepare and who to train in order to start measurement in your factory.
- Show staff that measurement is important, and make sure that it is carried out according to the plan.

Table 2. Measuring productivity

Measuring productivity can help you:	✓
1. Understand how productive your factory is.	
2. Identify which factory areas to improve to become more productive.	
3. Set concrete objectives for improving the factory.	
4. Evaluate the results of your factory improvements.	
5. Plan the usage of resources more efficiently.	
6. Make everyone more aware of and committed to factory performance.	
7. Link wages or rewards to performance in a fair, transparent way.	

Table 3. Productivity measurement plan

Year: 2020		Prepared by: Production manager		Approved by: Factory manager	
A. Indicator	B. Method / Formula	C. Documents	D. Frequency	E. Responsibilities	
Labour turnover rate (LTO)	(# of staff who left and need to be replaced / average # of staff) x 100%	Staff list	Monthly	HR manager	
Number of accidents	1. Record any accident happening in each department.	Accident log - Department	Daily	1. Department managers	
	2. Count the total at the end of the month.	Accident log - Factory	Monthly	2. OSH manager	

Activity

2b



20 minutes

Selecting indicators

The first step when preparing a productivity measurement plan is to select **indicators**. Indicators show how well the factory performs in areas that influence productivity (quality, planning, working conditions, etc.) In this activity, you will learn how to select indicators suitable to your factory.



Instructions:

- 1) Have a participant read aloud the text box below.
- 2) Together, look at the factory and production areas in table 4, and circle two areas in which you often experience problems.
- 3) For this step, use the **FIT Indicators Guide**. Together, look at the sections corresponding to the two areas you circled in table 4. Then, discuss and select two indicators (one for each area) that you think you should start measuring.



To select indicators, keep in mind the three things below:

1. Start with a small number of simple indicators.
2. Select indicators suited to your factory. For example, select an indicator to measure turnover rate if you have issues with staff.
3. Good working conditions strongly contribute to productivity. Select a mix of indicators that cover both productivity and working conditions.

Table 4. Tips for measuring indicators

Sample room operations	Storeroom operations	Cutting room operations
Sewing room operations	Finishing operations	Factory systems (organisation & maintenance)
Staff (human resources) management	Labour relations	Production systems (planning, measuring, etc.)
Safety, health & welfare	Gender equality & non-discrimination	Resources use, waste and pollution

Activity

2c



20 minutes

Using methods & formulas

Once you have identified what to measure, you can start planning **how to measure** indicators. In this activity, you will practice measuring different indicators.



Instructions:

- 1) Have a participant read aloud the scenario in table 5. Then, practice calculating the indicators by answering the questions in the table. Use the **FIT Indicators Guide** to guide you if necessary! Solutions are at the bottom of the page.
- 2) Together, look at the methods or formulas in the FIT Indicators Guide for the indicators that you selected in the previous activity. Make sure that everyone understands the calculations.

Table 5. Measuring indicators

Scenario: Factory X has determined that they need to improve sample room operations and staff management system. The management team has selected four indicators: Sample turnaround time, Sample hit rate, Turnover rate, and Overtime rate. Managers have obtained information from each department. In February...

- It took 40 hours to make sample A, 48 hours for sample B, 32 hours for sample C, 72 hours for sample D. Only sample C was accepted by the buyer the first time.
- There was an average number of 200 employees, and 40 workers left the factory and will need to be replaced. Employees worked a total of 32,000 hours, and a total of 8,000 overtime hours.

1. Calculate sample turnaround time for February.

$$\text{STT} = \# \text{ hours used to make samples} / \# \text{ of samples made} = \underline{\hspace{2cm}}$$

2. Calculate sample hit rate for February.

$$\text{SHR} = (\# \text{ samples right the first time} / \text{total} \# \text{ of samples made}) \times 100 = \underline{\hspace{2cm}}\%$$

3. Calculate the labour turnover rate (LTO) for February.

$$\text{LTR} = (\# \text{ employees who left to be replaced} / \text{average} \# \text{ of workers}) \times 100 = \underline{\hspace{2cm}}\%$$

4. Calculate the overtime rate for February.

$$\text{OR} = (\# \text{ overtime hours worked} / \text{total} \# \text{ of hours worked}) \times 100 = \underline{\hspace{2cm}}\%$$

Solutions: 1. STT = (40+48+32+72)/4 = 48 hours; SHR = (1/4) x 100 = 25%; 3. LTR = (40/200) x 100 = 20%; 4. OR = 8,000 / (32,000+8,000) x 100 = 25%

Activity

2d



20 minutes

Preparing forms & documents

Once you know how to measure indicators, you also better understand what **data** (information) you need for calculations and where to find it. In this activity, you will think of how to prepare documents to collect important data to measure indicators.



Instructions:

- 1) Have a participant read aloud the six tips for preparing forms in table 6, and make sure everyone understands.
- 2) Together, look at the forms in table 7, and decide which indicator the forms correspond to by writing down the corresponding letter. Solutions are at the bottom of the page.
- 3) Together, discuss: What forms do you need to measure the two indicators you selected in 2b? If you already have such forms, how could you improve them? Write down or draw your ideas in table 8.

Table 6. Tips for preparing forms

1. The forms should be easy to understand and use.
2. Forms should have a clear title and a form number to help identify them.
3. Forms should contain basic details such as style#, buyer, order# and others depending on the form's usage and content to fill in.
4. Forms should always indicate who filled it in and when.
5. Forms should be in the local language to be easier to understand.
6. There should be as few forms as possible to avoid confusion, duplication and to reduce costs.



To help you keep records and collect information, the ILO provides several forms and templates that you can adapt to your factory needs. Ask your facilitator for the Annex list!

Table 7. Using the right forms

Indicators	Letter	Indicators	Letter
Number of accidents		On-time delivery rate	
Absenteeism rate		Electricity consumption	

A

ACCIDENT RECORD				
FORM NUMBER: 005		PERIOD:		PROCESSED BY:
DATE	NAME OF EMPLOYEE	INJURY	CAUSE	REMARKS

B

ENERGY CONSUMPTION RECORD				
FORM NUMBER: 008		PERIOD:		PROCESSED BY:
DATE	KILOWATTS USED	RATE PER KW	TOTAL UNITS PRODUCED	

C

DELIVERY PERFORMANCE RECORD					
FORM NUMBER: 004		PERIOD:			PROCESSED BY:
DATE	PURCHASE ORDER NO.	SCHEDULED DELIVERY DATE	ACTUAL DELIVERY DATE	DELAYED DELIVERY (DAYS)	REASON FOR DELAY

D

ATTENDANCE PERSONNEL RECORD																																				
FOR THE MONTH OF.....																																				
FORM NUMBER: 003												PREPARED BY																								
TIME CARD NO.	NAME OF EMPLOYEE	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	TOTAL SICK LEAVE	TOTAL VACATION LEAVE	TOTAL ABSENCES	

Solutions: Number of accidents, A. Absenteeism rate, D. On-time delivery rate, C. Electricity consumption, B.

Table 8. Your documents

What kind of forms would you need to measure the two indicators you selected in 2b? If you already have such forms, how could you could improve them?

Activity

2e



15 minutes

Frequency & responsibilities

Once you have identified what to measure and how to measure it, you can move on to assigning responsibilities to decide **who** will measure what, **where** and **how often**. In this activity, you will practice assigning measurement frequency and responsibilities.



Instructions:

- 1) Have a participant read aloud the scenario in table 9. Then, answer the four questions below. Use the **FIT Indicators Guide** to help you.
- 2) Together, think of the two indicators that you selected in 2b, and discuss: How often do you think they should be measured? Who could be responsible for measuring them?

Table 9. Frequency & responsibilities

Scenario: Factory X has selected four indicators for its measurement plan: Sample turnaround time, Sample hit rate, Labour turnover rate, and Overtime rate. Now, management needs to decide how often each indicator should be measured, and who will be responsible for measuring each indicator.

Sample Turnaround Time = # hours used to make samples / # of samples made

- How often should it be measured?
- Who should be in charge of measuring it?

Sample Hit Rate = (# samples right the first time / total # of samples made) x 100

- How often should it be measured?
- Who should be in charge of measuring it?

Labour Turnover Rate = (# staff who left to be replaced / average # of staff) x 100

- How often should it be measured?
- Who should be in charge of measuring it?

Overtime Rate = (# overtime hours worked / total # of hours worked) x 100

- How often should it be measured?
- Who should be in charge of measuring it?

Activity

2f



10 minutes

Preparing a productivity measurement plan

So far, you have completed activities related to the different sections in a productivity **measurement plan**. In this activity, you will use your new knowledge and your previous discussions to complete a productivity measurement plan for your factory.



Instructions:

- 1) Together, fill in the indicators that you circled in activity 2b in column A in the plan in table 10.
- 2) Together, fill in the measurements (methods/formulas) for the selected indicators in column B. Use **the FIT Indicators Guide** to guide you.
- 3) Together, fill in what forms you will use to record your measurements in column C.
- 4) Together, fill in how often you will record or measure the indicators and who will be responsible for doing so in column D and E.

You now have a started your productivity measurement plan!

Table 10. Productivity measurement plan

Year:	Prepared by:		Approved by:		
A. Indicator	B. Method / Formula	C. Documents	D. Frequency	E. Responsibilities	



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

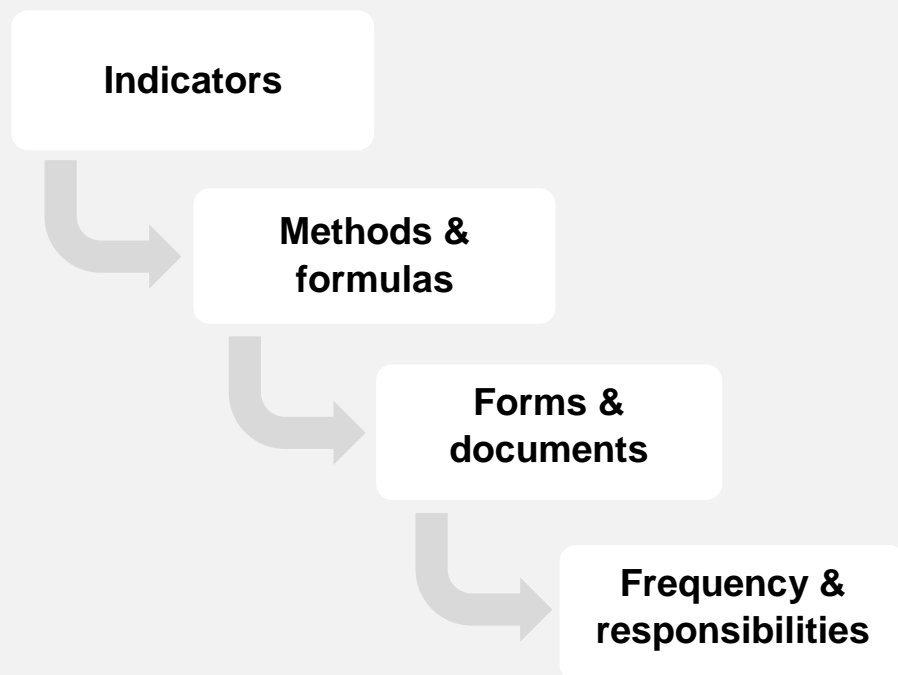


20 minutes



Learning manual, pens, and markers

Throughout this module, you gained new knowledge on how to prepare a measurement plan by selecting indicators, understanding methods and formulas, preparing necessary documents, selecting measurement frequency and assigning responsibilities.



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



A productivity measurement plan template is 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 measuring productivity as a next step for evaluating your own and implementing improvements.



Instructions:

- 1) Together, look at the list of best practices in table 11, and put a ✓ in the column on the right if you use these practices in your factory.

Table 11. Measuring productivity

Best practices	✓
1. Factory management sets up a productivity measurement plan, which is reviewed half yearly and adapted if necessary.	
2. Factory management selects a small group of indicators based on the factory's particular needs and situation.	
3. Factory management decides which indicator will be measured how, and prepares forms to collect information for each indicator.	
4. Factory management decides who will be responsible for collecting data, measuring indicators and when, and trains them adequately.	
5. Department managers review results daily and weekly to take immediate corrective action.	
6. Management reviews the results of the indicators on a monthly basis before the 5 th of the following month to take necessary corrective actions.	

Activity

3b



15 minutes

Your action plan

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



Instructions:

- 1) Together, fill in the action plan (table 12) 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 12. Measuring productivity – Action Plan

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

Measuring productivity

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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