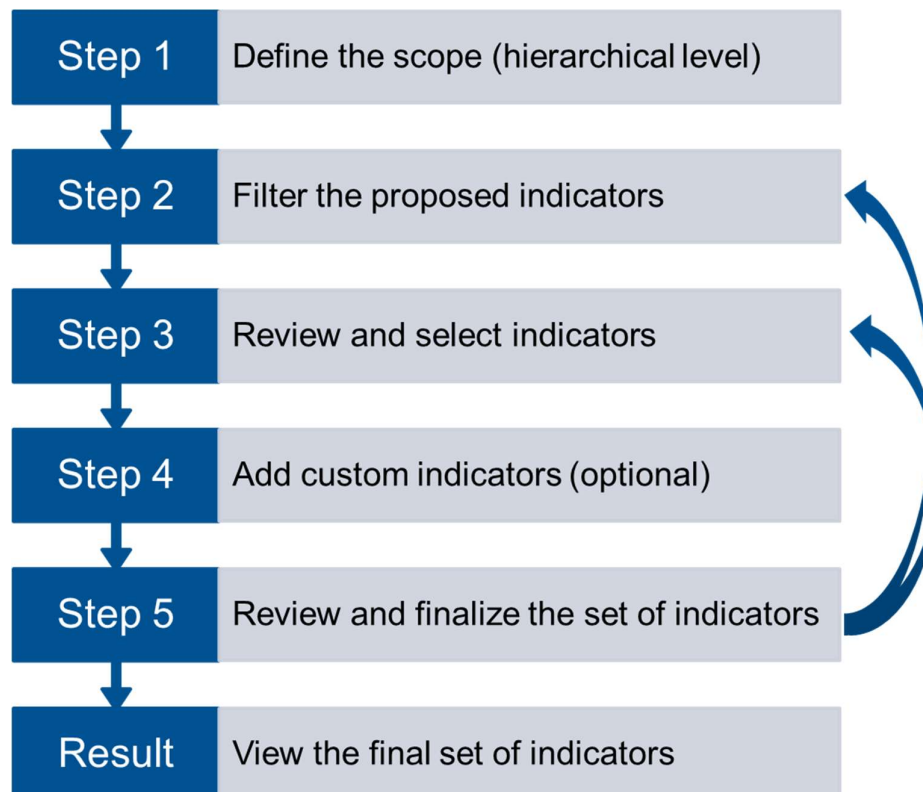


# 1 Introduction

Sustainability is becoming increasingly important, also in manufacturing. This guide is intended to assist with sustainability assessments of manufacturing systems, specifically with identifying and selecting indicators to measure sustainability performance.

The guide complements the ExcelFile “Sustainable Manufacturing Indicators,” which contains an overview of indicators for the economic and environmental dimensions of sustainability.

The below figure presents an overview of the guidelines. They consist of five steps that lead to the final selection of indicators.



## 2 Guidelines for the selection of indicators

This section explains guidelines for the selection of indicators. This is a five-step process, which can be carried out iteratively, i.e., the individual steps can be repeated multiple times before determining a final set of indicators.

### 2.1 Define the scope of your assessment

Go to the tab “1. & 2. Start” to define the **hierarchical level** of your assessment. Choose one or more of the levels covered:

- Process
- Work cell
- Production line
- Factory
- Company

**Select the level in cell B10.** You can select additional levels in cells B11 and B12 if you want to include more than one level.

### 2.2 Filter the proposed indicators

Use the type of industry, type of process, and/ or company size to further customize the list of proposed indicators. You can use all of these criteria or only the ones that are of interest to you, based on your use case. (E.g., if you selected “Company” as your hierarchical level, the process types might not be of interest. You can leave those cells empty in such cases.)

**Select the industry of interest in cell B16.** Additional industries can be selected in cells B17 and B18. The options are based on the NACE-2 Rev.<sup>1</sup> and include the following:

- 13 Manufacture of textiles
- 14 Manufacture of wearing apparel
- 15 Manufacture of leather and related products
- 22 Manufacture of rubber and plastic products
- 23 Manufacture of other non-metallic mineral products
- 24 Manufacture of basic metals
- 25 Manufacture of fabricated metal products, except machinery and equipment

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<sup>1</sup> <https://ec.europa.eu/eurostat/documents/3859598/5902521/KS-RA-07-015-EN.PDF>

- 26 Manufacture of computer, electronic and optical products
- 27 Manufacture of electrical equipment
- 28 Manufacture of machinery and equipment n.e.c. [not elsewhere classified]
- 29 Manufacture of motor vehicles, trailers and semi-trailers
- 30 Manufacture of other transport equipment
- 31 Manufacture of furniture
- 32 Other manufacturing
- not specified<sup>2</sup>

**Select the process type of interest in cell C16.** Additional process types can be selected in cells C17 and C18. The options are based on DIN 8580 and include the following:

- Original forming
- Transforming
- Separating
- Joining
- Coating and finishing
- Change of material properties
- not specified<sup>2</sup>

**Select the company size of interest in cell D16.** Additional company sizes can be selected in cells D17 and D18. The options are based on EU recommendations<sup>3</sup> and include:

- Micro (Staff headcount < 10 and turnover or balance sheet total ≤ € 2 m)
- Small (Staff headcount < 50 and turnover or balance sheet total ≤ € 10 m)
- Medium (Staff headcount < 250 and turnover ≤ € 50 m or balance sheet total ≤ € 43 m)
- Large
- not specified<sup>2</sup>

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<sup>2</sup> “not specified” means that a reference of the corresponding indicator did not include a specific context for this characteristic.

<sup>3</sup> [https://single-market-economy.ec.europa.eu/smes/sme-definition\\_en](https://single-market-economy.ec.europa.eu/smes/sme-definition_en)

## 2.3 Review and select the proposed indicators

Go to the tab “3. *Filtered List*” to review the proposed indicators. For each proposed indicator, you can make use of the following guiding questions to decide whether to select it or not. Select indicators for review by marking **column W** with an “x.”

**Relevance (column T):** How relevant is the indicator to your specific use case?

- Take into consideration the hierarchical level, and the industry/ process type/ company size.
- You can also include column M (relation to the Global Reporting Initiative Disclosures) and column O (count of references, which can give you an indication of which indicators to focus on first) in your considerations.

**Comprehensibility (column U):** How easily can the indicator be interpreted and applied?

- Take into consideration how clear the definition is for you.
- Take into consideration if experts need to be involved in applying the indicator.

**Data availability (column V):** How readily available is data to measure the indicator?

- Take into consideration how time- and cost-intensive it is to collect/ access the data.
- Take into consideration how reliable the data is.

You can also add any comments in **column X**.

Once you feel you have selected a sufficient number of indicators, go to Step 4.

## 2.4 Optional: Add custom indicators

Are there additional (already established) indicators you would like to include? Would you like to customize some of the proposed indicators?

You can add any additional indicators in the “4. *Custom Indicators*” tab. This tab includes a template that you can follow to include these indicators in the same scheme as the proposed indicators.

## 2.5 Review and decide on the final set of selected indicators

Go to the tab “5. *Review*” and click on the button to run the analysis on the selected indicators.

Use the following questions to review the set of indicators:

- **Coverage:** Do the indicators cover both economic and environmental issues?
  - Each indicator is assigned to either an economic or environmental aspect. The graphs can help you identify if you have covered all aspects (of interest).
  - Additionally, the graphs for categories and subcategories can indicate which organizational aspects are covered.
- **Manageability:** Have you selected a manageable number of indicators?
  - A recommendation is to select between 10 to 20 indicators.
  - Ensure the coverage is sufficient, yet the number of indicators is practicable in terms of collecting the data and communicating the results.

Select indicators for the final set by marking **column Y** with an “x.”

If you feel that you would like to review additional indicators before making a final choice, you can go back to Step 2 to filter again (please save your current selection before doing so). You can also go to the tab “3b. *Full List*” to manually filter all proposed indicators. For example, you can filter on an economic or environmental aspect if you notice that indicators for specific aspects are missing.

## 2.6 View the final set of indicators

Go to the tab “6. Final Set of Indicators” tab and click on the button to view your final selection.

## Backup: Information on the Indicator Lists

The structure of the indicator lists (Tabs “3. Filtered List” and “3b. Full List”) is briefly described here. Each row contains one indicator and five groups of columns to help with the navigation:

### General categorization

This group contains the ID, an organizational category and subcategory, and a sustainability dimension and subdimension for each indicator.

### Indicator details

This group provides the name, a definition, a measurement type, and a proposed unit of measure for each indicator.

### References

This group links each indicator to a Disclosure of the Global Reporting Initiative (GRI), if applicable, and provides the individual references and count of references for each indicator.

### Filter options

This group connects each indicator to a hierarchical level, an industry, a process type, and a company size based on the use cases or scope of its references. These options can be used to filter the list to identify potential indicators based on these characteristics.

### Review

This group structures the review of individual indicators with guiding questions.