



Manufacturing outlook 2026

An overview of the Swedish discrete manufacturing industry's
greenhouse gas emissions and financial development

Preface

The report has been produced by Net Zero Industry, a Swedish innovation programme whose mission is: A competitive, resilient Swedish manufacturing industry with net zero greenhouse gas emissions 2040.



The programme is intended to enable the industry to develop strategic competitive advantages and become a global leader in the transition towards net-zero greenhouse gas emissions. To accelerate progress, a broad range of actors – from manufacturers, entire supply chains and technology providers to research organisations and the public sector – has been mobilised in a wide-ranging collaboration to realise the mission.

The purpose of the report is to provide a clear and accessible overview of the financial development of Sweden's discrete manufacturing industry, its greenhouse gas emissions, its importance for employment, and its overall structure. A shared understanding of the current situation, its key challenges, and the evolution required to achieve the mission, will enable the programme and the industrial system to enhance their capacity to design effective innovation initiatives.

What is discrete manufacturing? The report focuses on the so-called discrete manufacturing industry, where the items produced have their own distinct and often traceable identity. This may refer to end products such as a vehicle, or to components, such as a compressor, that subsequently form part of a final product. The definition does not, for example, include the process industry or the food industry, although these can also be considered manufacturers in a broader sense.

Where do the statistics come from? The statistics in the report are based on the most recently available data commissioned from, or openly provided by, Statistics Sweden (SCB). SCB has supported the adaptation and quality assurance of the data, but the processing of the data into charts and indicators has been carried out by the authors. All data are classified according to the Swedish Standard Industrial Classification (SNI), which is based on the EU's NACE standard. Discrete manufacturing is represented here by the following SNI codes: C13–16, C22 and C25–C33.

How should the statistics be interpreted? The statistics are intended to help identify significant variations, overall trends, and changes over time. They should not be interpreted as exact values or absolute truths.

Net Zero Industry believes in continuous learning. This report is the first in a planned series of reports that will be progressively expanded with updated data and new knowledge as it emerges. Together, we are building the knowledge required for the journey towards a competitive and resilient Swedish manufacturing industry with net-zero greenhouse gas emissions by 2040.

Net Zero Industry would like to extend particular thanks to experts at Statistics Sweden (SCB) and RISE Research Institutes of Sweden for valuable discussions and the processing of the statistics that made this report possible.

¹ Swedish Standard Industrial Classification (SNI)

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The background of the slide features a series of overlapping, curved, dark grey or black shapes that resemble thick, textured fabric or perhaps the folds of a heavy curtain. The lighting creates a sense of depth and texture, with highlights and shadows across the curves.

1. Financial position

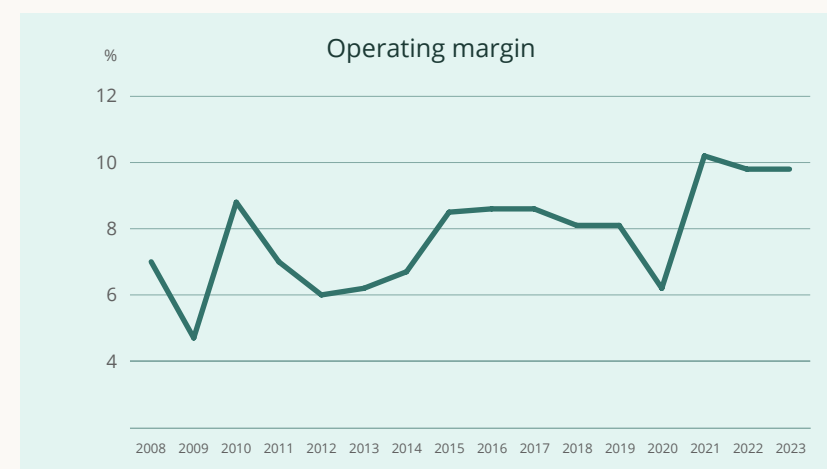
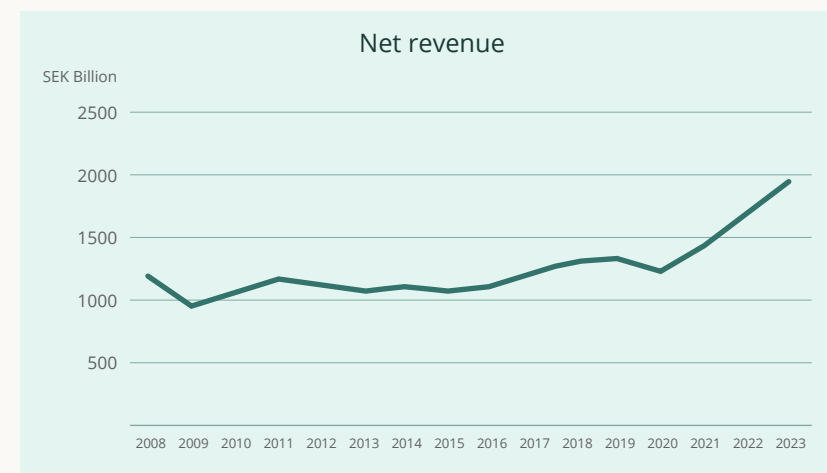
Strong economic development for over a decade

The Swedish discrete manufacturing industry's economic performance has developed positively since 2008, with increasing revenue and improved profitability over time. Statistics Sweden's (SCB) long-term data on business profitability show that the industry returned a general increase in operating profit and margins² between 2008 and 2023. In addition, net revenue growth averaged just under 5 per cent per year and has doubled since its lowest point in 2009.

Whereas variations occur between the constituent sectors, these development patterns indicate that the industry's overall financial position strengthened considerably over the period, particularly during the latter half. Inflation-adjusted values do not differ significantly from the presented figures and therefore do not affect either the overall trend or the overall levels.

Operating margin doubled 2009-2023

Net revenue doubled 2009-2023

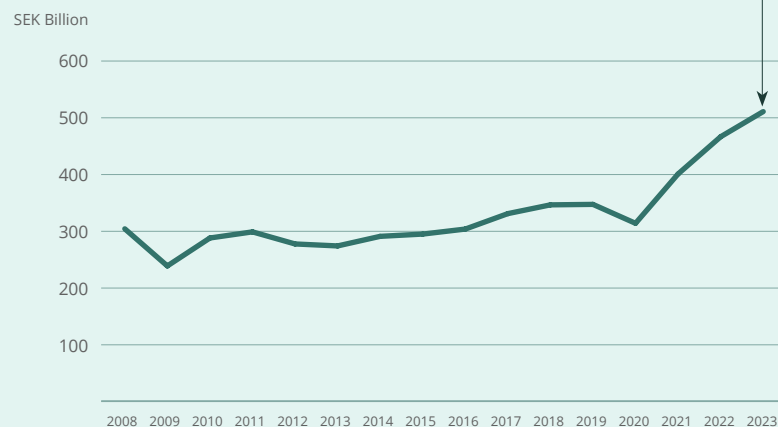


² Operating margin = (Earnings before depreciation and amortisation/Net revenue) x 100

The value added of the discrete manufacturing industry in 2023 amounted to just over SEK 500 billion, which, somewhat simplified, corresponds to just over 8 per cent of Sweden's GDP that year. This represents an increase of just over 60 per cent since 2020 and more than double the lowest level, in 2009.

8%
of GDP

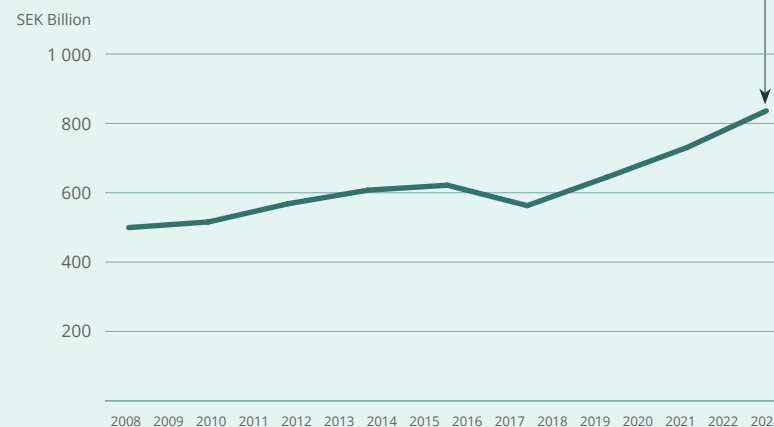
Value added



The discrete manufacturing industry exported goods and services in 2023 valued at SEK 836 billion, corresponding to about 30 per cent of the total value of Swedish exports³. Between the pandemic years of 2020 and 2023, export values increased by nearly 50 per cent. In terms of its share of Sweden's total export value of goods and services, the amount has fluctuated from about 32 per cent in 2015 to 30 per cent in 2023.

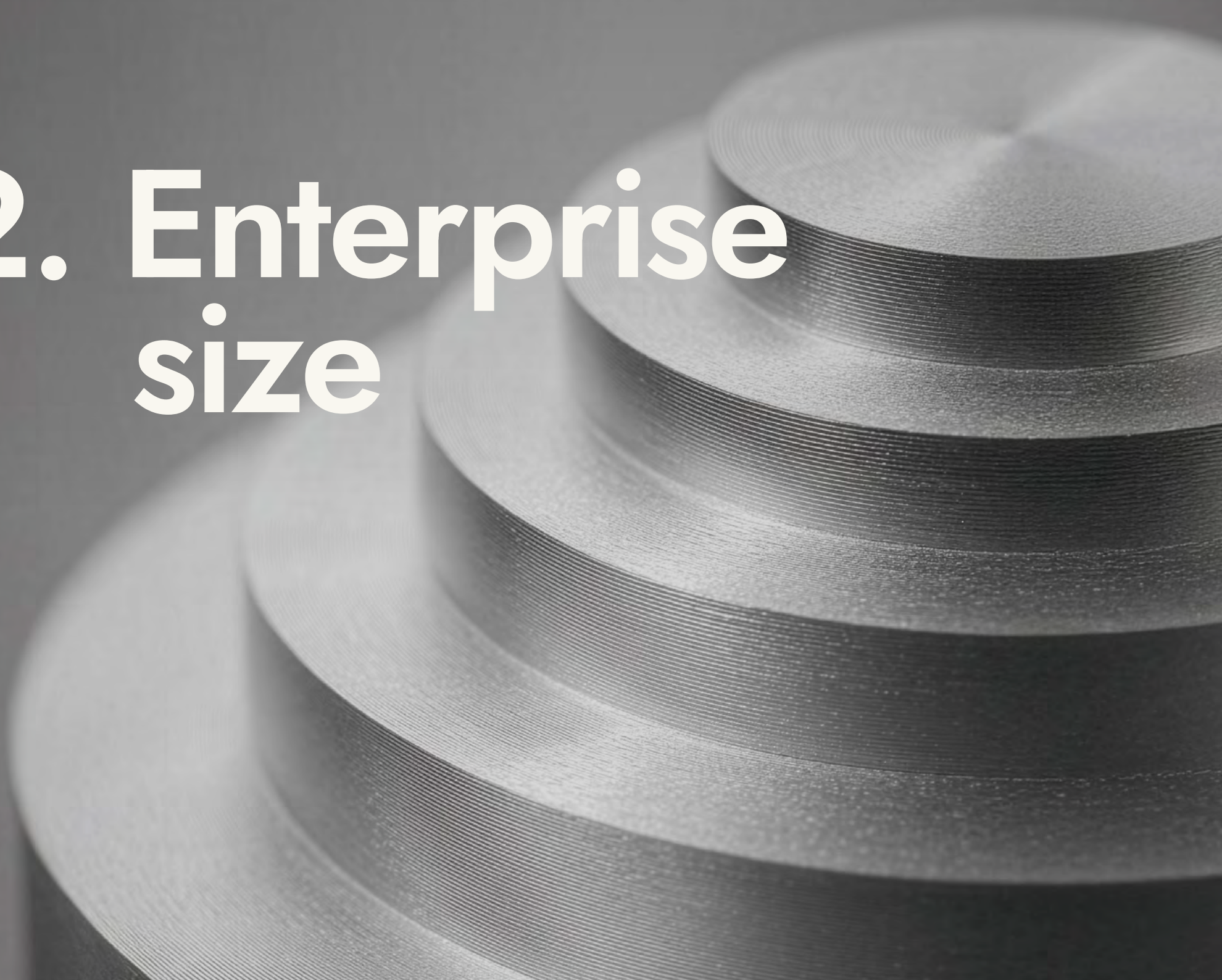
30%
of the total value
of Swedish exports³

Export value



³ According to the European standard: Classification of Products by Activity (CPA)

2. Enterprise size



Enterprise size and number of employees

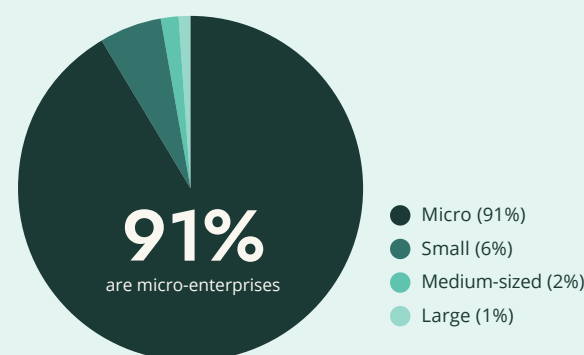
SMEs predominate in numbers

Ninety-nine per cent of the discrete manufacturing industry consists of small and medium-sized enterprises (SMEs), which can be simply defined as enterprises with fewer than 250 employees^{4,5}. When SMEs are divided into their respective subcategories, it becomes apparent that micro-enterprises with fewer than 10 employees represent as much as 91 per cent of the total number. They are followed by small enterprises with 10–49 employees (6 per cent), medium-sized enterprises with 50–249 employees (2 per cent), and large enterprises with 250 or more employees (1 per cent).

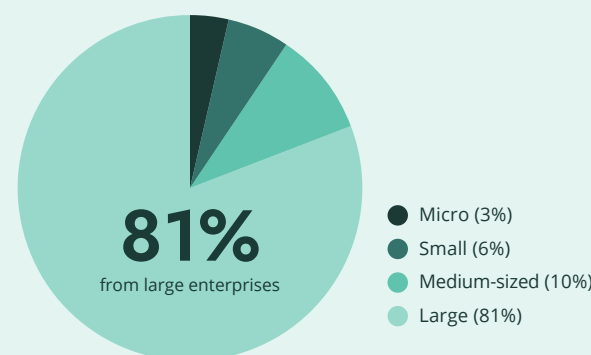
...but large enterprises dominate in terms of revenue and number of employees

The largest contribution to the total revenue of the discrete manufacturing industry comes from large enterprises (81 per cent), followed by medium-sized enterprises (10 per cent). Large enterprises also have the highest total number of employees (63 per cent), followed by medium-sized enterprises (15 per cent).

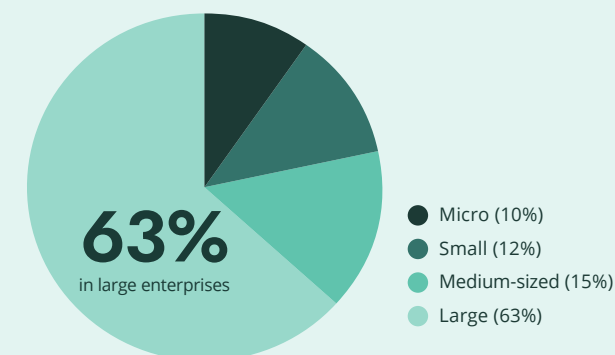
Distribution of total number of enterprises by size (2023)



Distribution of total net revenue by size (2023)



Distribution of total number of employees by size (2023)

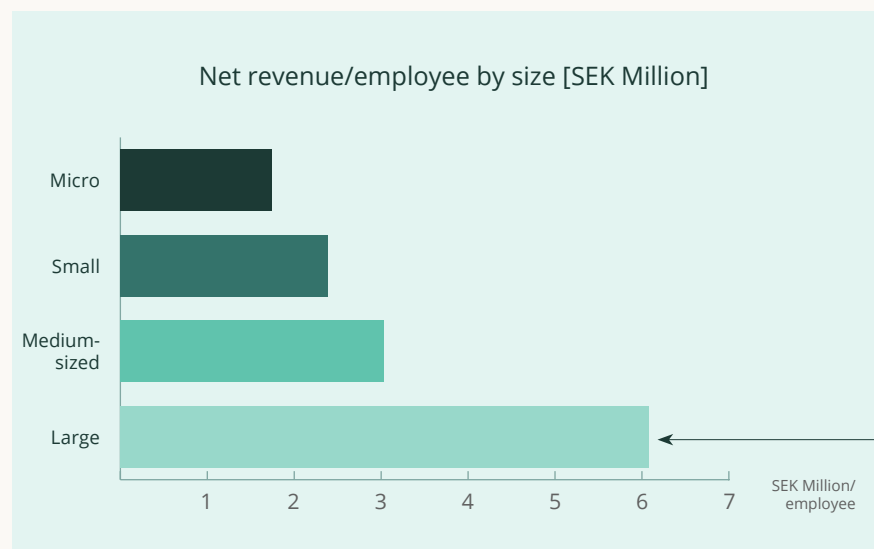


⁴ Enterprises defined as business entities

⁵ SME definition - Internal Market, Industry, Entrepreneurship and SMEs

Three times higher revenue per employee in large enterprises

In terms of net revenue per employee, the value increases with company size. Large enterprises generate more than three times the revenue per employee of micro-enterprises, and twice as much as medium-sized enterprises.



Large enterprises:

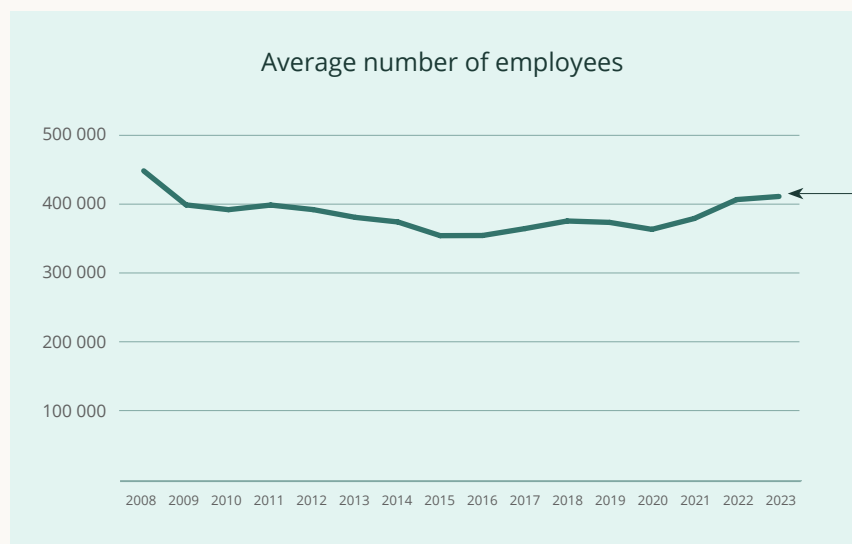
>3x

the revenue per employee of micro-enterprises

More than 400,000 employees

In 2023, the discrete manufacturing industry had an average of 411,000 employees. This entails a reduction of approximately 12,000 employees since 2008, but an increase of approximately 57,000 since its lowest point in 2015.

In addition to the industry's direct employment, jobs are also indirectly created among suppliers and service providers. The total employment generated by the industry is thus considerably higher.



Average number of employees

>400 000
(2023)

3. Greenhouse gas emissions



The pace of emissions reductions must increase

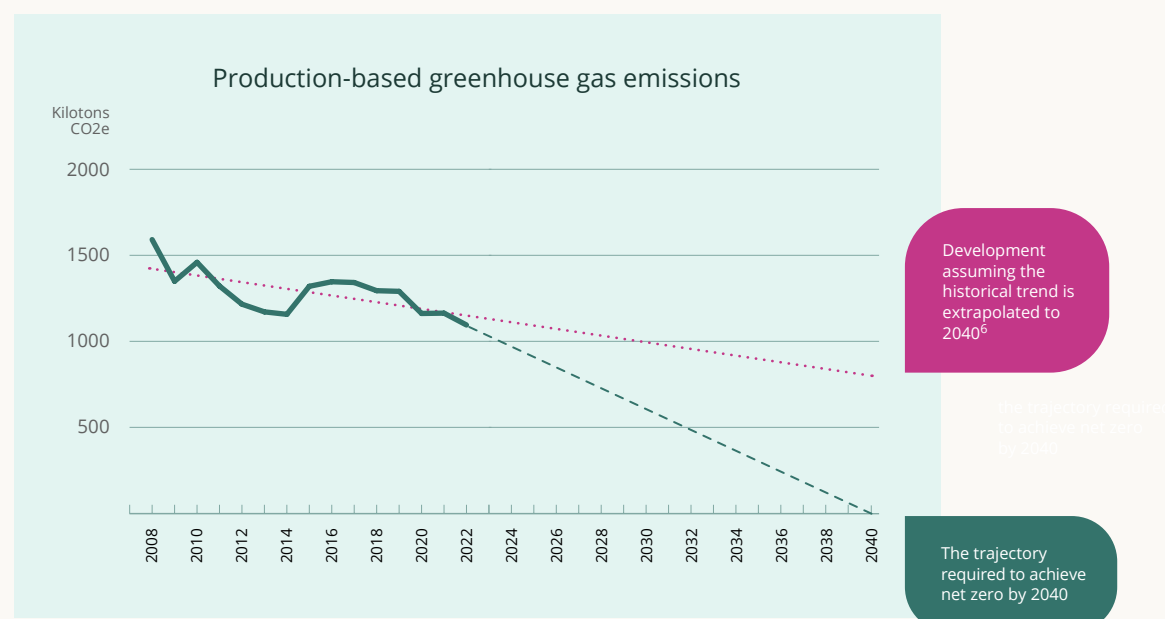
The discrete manufacturing industry's own greenhouse gas emissions are declining – but not fast enough

Greenhouse gas emissions are decreasing, both from enterprises' own operations and from value chains and purchased energy.

Between 2008 and 2022, production-based emissions fell by approximately 31 per cent, averaging around 35 kilotons of CO₂e per year. To reach net zero by 2040, this rate would need to almost double to an average of about 60 kilotons CO₂e per year from 2023 onwards. The green line in the chart illustrates the trajectory required to achieve net zero by 2040, whereas the dotted pink line shows what the trend would look like if historical pattern were extrapolated to 2040. Neither line represents a qualified forecast; their purpose is to illustrate the difference between the historical rate of emissions reduction and the rate required.

What are production-based emissions?

Emissions that arise from the organisation's own directly controlled operations. These correspond to companies' Scope 1 emissions.



⁶ Linear trend line based on historical emissions data.

Emissions in value chains are also declining – but not fast enough

Between 2008 and 2022, value chain emissions decreased by approximately 37 per cent, with an average reduction of around 950 kilotons of CO₂e per year. To achieve net zero by 2040, annual emissions reductions would need to average about 1,250 kilotons CO₂e per year from 2023 onwards.

The green line in the chart illustrates the trajectory required to achieve net zero by 2040, whereas the dotted pink line shows what the trend would look like if historical pattern were extrapolated to 2040. Neither line represents a qualified forecast; their purpose is to illustrate the difference between the historical rate of emissions reductions and the rate required.

What are value chain emissions?

All direct emissions and emissions embedded in goods and services purchased from the value chain, as well as emissions associated with purchased energy. This includes emissions occurring both in Sweden and abroad. These correspond to companies' Scope 1, Scope 2 and upstream Scope 3 emissions.

What is "Scope"?

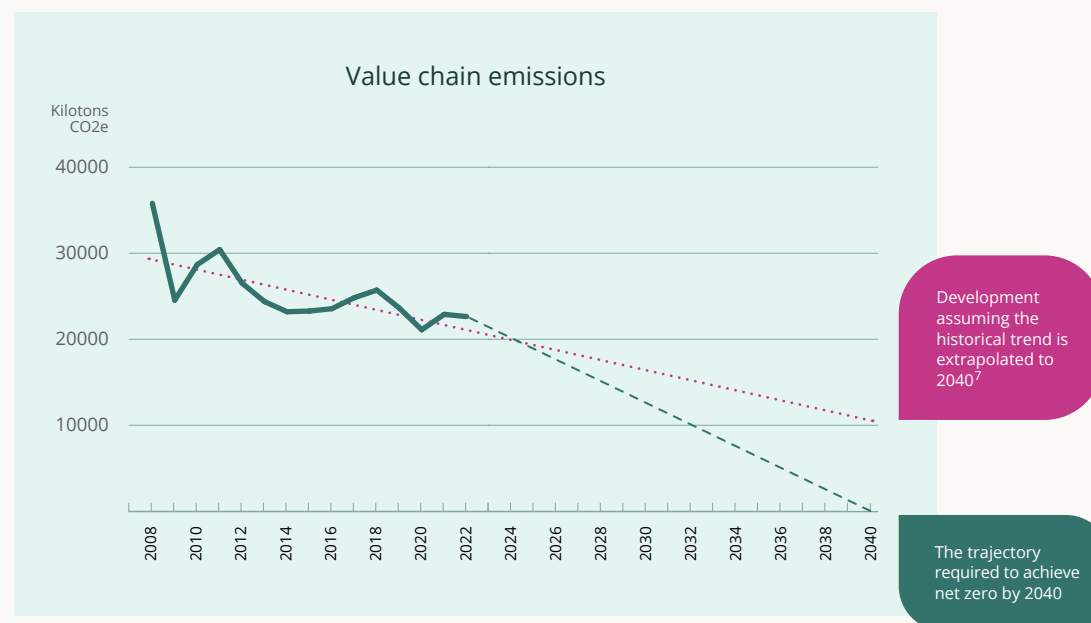
A framework for categorising, measuring and reporting greenhouse gas emissions in accordance with the international Greenhouse Gas Protocol standard. The three categories can be summarised as follows:

Scope 1: Direct emissions from owned or controlled vehicles, machinery and facilities.

Scope 2: Indirect emissions from purchased energy (e.g. electricity and district heating).

Scope 3: Emissions that occur as a consequence of, but outside, the organisation's directly controlled operations. This includes both upstream emissions (e.g. emissions from suppliers' material production) and downstream emissions (e.g. emissions arising when customers use the company's products). Downstream emissions are however not included in this report.

Read more: [GHG Protocol](#)



⁷ Linear trend line based on historical emissions data.

higher emissions in the value chain
than in own operations

20 x higher emissions in the value chain than in own operations

Greenhouse gas emissions from the discrete manufacturing industry's value chains (including purchased energy) are about 20 times higher than emissions from its own directly controlled operations (Scope 1), based on 2022 figures. Therefore, the rate of emission reduction required to reach net zero by 2040 needs to be significantly higher for value chain emissions than for production-based emissions.

20x

higher emissions in the value chain than in own operations

The rate of emission reduction required to reach net zero by 2040 needs to be significantly higher for value chain emissions than for production-based emissions.

Value chain and production-based greenhouse gas emissions and evolution required to achieve net zero by 2040

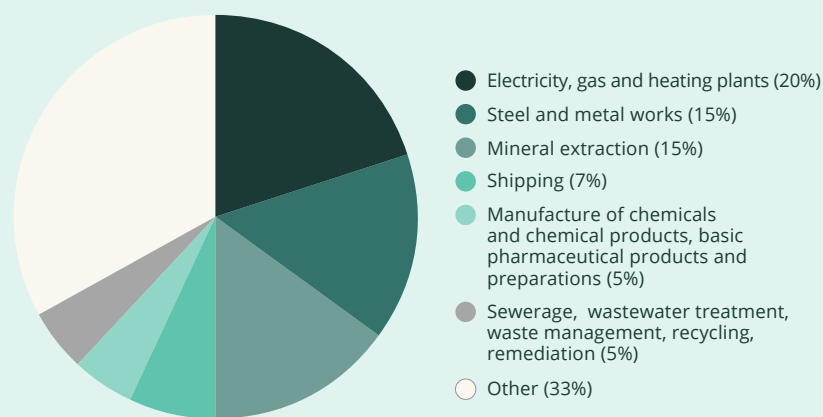


Dashed lines =
The trajectory
required to achieve
net zero by 2040

A few segments of the value chain account for the majority of the greenhouse gas emissions

The discrete manufacturing industry's value chains emissions arise primarily from *Electricity, gas and heating plants* (20 per cent), *Steel and metals works* (15 per cent), and *Mineral extraction* (15 per cent), which together account for half of all emissions. Among those contributing more than 5 per cent of emissions are *Shipping* (7 per cent); *Manufacture of chemicals and chemical products, basic pharmaceutical products and preparations* (5 per cent); and *Sewerage, wastewater treatment, waste management, recycling and remediation* (5 per cent). All other sectors combined account for 33 per cent.

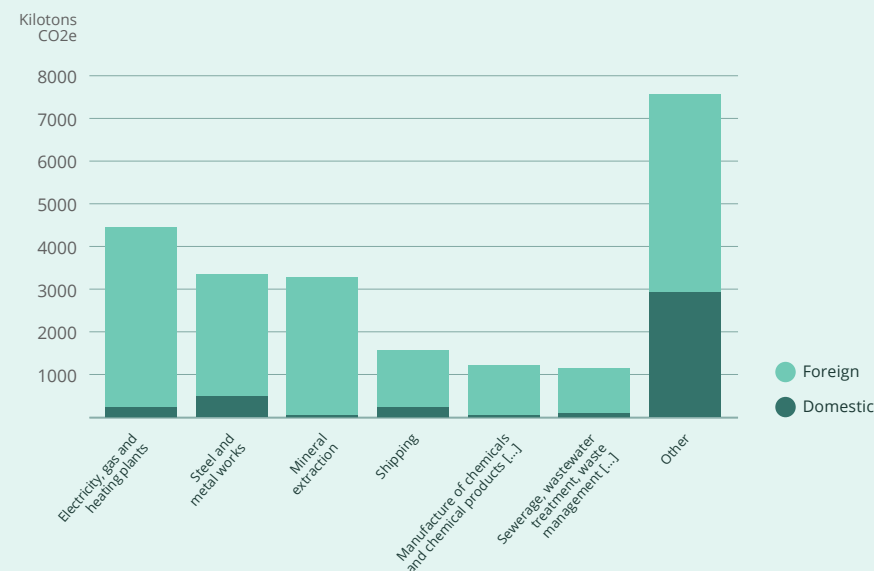
Industries that contribute more than 5% of total value chain emissions



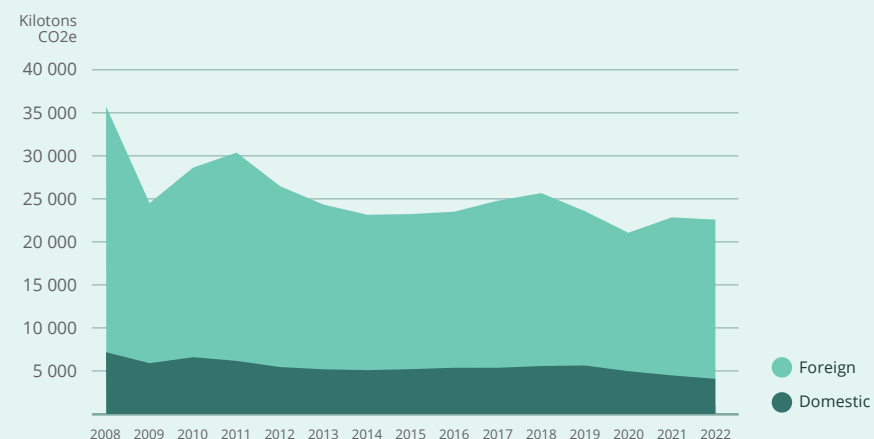
Greenhouse gas emissions are greatest outside Sweden

For both the total number of industries and those that contribute most, just over 80 per cent of greenhouse gas emissions are generated in value chains outside Sweden's borders.

Geographic distribution of emissions from industries responsible for more than 5% of value chain emissions



Geographic distribution of total value chain emissions





About the use phase

As Statistics Sweden does not provide data on emissions arising from the use of the end product, such data is not included in this report. However, it is important to emphasise that the use phase sometimes constitutes a significant share of total greenhouse gas emissions. For products whose use phase involves energy consumption, it can even account for the majority of emissions – for example, in the case of vehicles powered by fossil fuels. Emissions associated with use are included in the definition of Scope 3. The ambition for future updates of this report is to identify ways to estimate these as well.

4. Financial development v. greenhouse gas emissions



Enhanced competitiveness alongside reduced greenhouse gas emissions

Over time, the discrete manufacturing industry has succeeded in combining strong economic growth with reductions in greenhouse gas emissions. This type of development demonstrates the capacity for so-called absolute decoupling, which in this case is illustrated by the industry continuing to increase its value added and revenue while emissions decline. In terms of value chain greenhouse gas emissions relative to net revenue, emissions per Swedish Crown (SEK) generated have more than halved over the period 2008-2022.

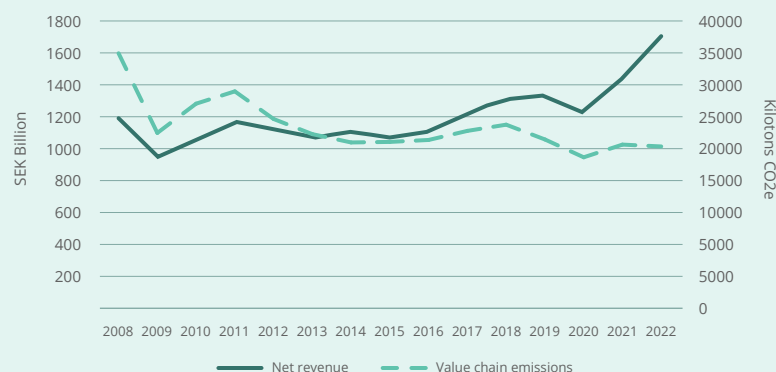


What is decoupling?

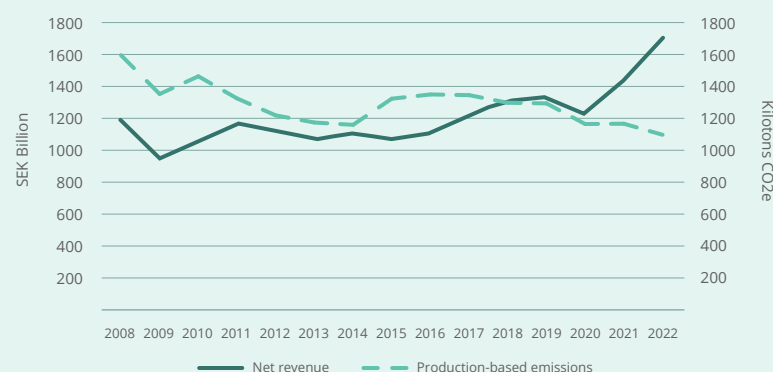
Relative decoupling: Emissions increase, but at a slower pace than economic growth.

Absolute decoupling: Total emissions decrease while the economy continues to grow.

Net revenue and value chain emissions for the discrete manufacturing industry



Net revenue and production-based emissions for the discrete manufacturing industry



5. Concluding remarks



Conclusions

1. A resilient Swedish manufacturing industry

Following broad declines in revenue, margins, value added and export value during the 2008 financial crisis and the 2020 pandemic, the discrete manufacturing industry has demonstrated strong resilience and capacity for recovery. Not only has it quickly returned to previous levels; it has also accelerated and reached significantly higher levels than before the crises, which is particularly evident after the pandemic.

4. Greenhouse gas emissions are declining – but not fast enough

Both production-based and value chain emissions are decreasing, but neither is falling at the rate required to reach net zero by 2040. The annual rate of reduction needs to increase substantially, particularly for value chain emissions.

2. Strong growth and reduced greenhouse gas emissions

Over time, the discrete manufacturing industry has managed to combine strong economic growth with reductions in its greenhouse gas emissions. The industry has decoupled economic growth from emissions. The amount of value chain emissions per Swedish Crown (SEK) generated has more than halved.

5. The majority of emissions are generated outside direct operations

Of the greenhouse gas emissions analysed, only around 5 per cent are generated within directly controlled operations (Scope 1). Emissions from the value chain (Scope 3) and from the generation of purchased energy (Scope 2 but here included in value chain emissions) predominate. If the use phase had also been included in the analysis, Scope 3 emissions would be even higher, further underpinning the conclusion that most emissions occur outside the directly controlled operations.

3. Of great importance to the Swedish economy and prosperity

The discrete manufacturing industry employs around 400,000 people on average, more than the population of Malmö, Sweden's third largest city. In addition, jobs are indirectly created among suppliers and service providers, meaning that the total employment generated is significantly higher. With an export value corresponding to one third of Sweden's total exports and a significant contribution to GDP, the industry is an important economic engine and a major contributor to Sweden's prosperity.

6. Significant potential to directly influence greenhouse gas emissions

Although most emissions occur outside enterprises' own operations, they occur as a result of those operations. Enterprises therefore still have a considerable direct influence over emissions. Smart product design and alternative material choices can reduce emissions from raw material extraction and production. Better-planned specifications can reshape entire supply chains. Resource-efficient production processes reduce material needs and the emissions associated with them. Electrification of products can help phase out fossil energy in the use phase, and circular design can enable remanufacturing, reducing the need for new production and its associated emissions.

OUR MISSION

**A competitive and resilient
Swedish manufacturing
industry with net zero
greenhouse gas emissions
by 2040.**

netzeroimpact.se