

Economic Outlook

Technology Industries of Finland

1 | 2019

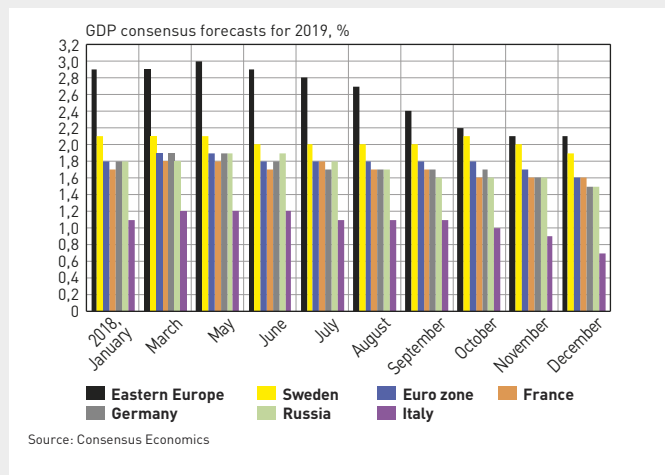
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Economic Outlook**
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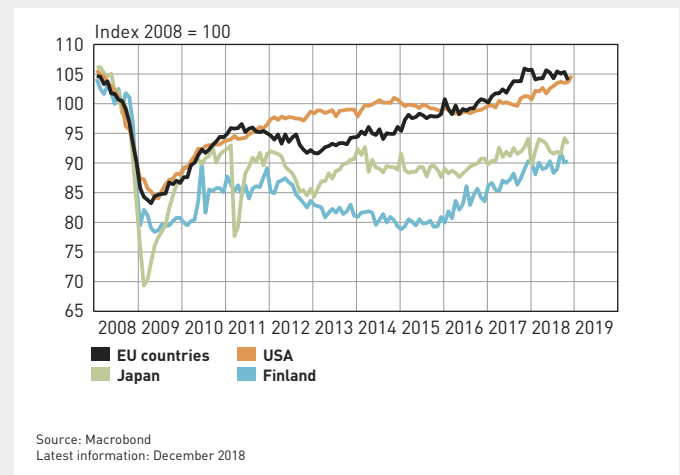
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GDP Growth Forecasts for 2019 Have Been Weakened in Recent Months



Industrial Output Growth in the EU Countries Stopped already in 2018



Uncertainty dims growth outlook

Global growth expectations have continued to weaken over the past few months. The US-China trade war and tariffs, other economic sanctions, the approach of Brexit and the softer momentum of the Chinese economy have increased uncertainty further. The political challenges in Italy have also dampened the outlook for stable development in Europe.

Growth forecasts for 2019 have been revised down in particular in Europe and Asia. Based on a monthly survey of 750 global banks and forecasters, the consensus forecast is that the global economy will grow only 3 per cent in 2019. The last time the growth rate was this low was 2009.

According to the December forecast compilation, the euro area GDP growth rate is expected to be 1.6 per cent in 2019, as opposed to almost 2 per cent in early 2018. In Italy, the projected rate is as low as 0.7 per cent. Germany, France and the UK are forecast to expand 1.5 per cent in 2019.

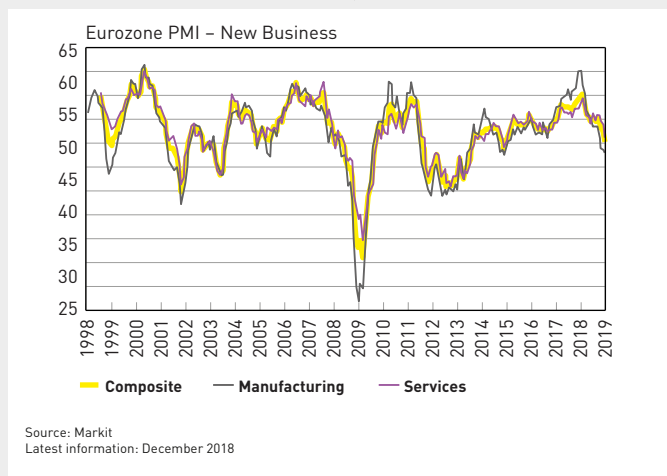
The situation in Germany reflects the uncertainty in the euro area: weakened prospects are not limited to Germany's auto sector, but affect other industries. For example, new orders in Germany's machinery sector have fallen below the level reported in early 2018.

China's economic slowdown is showing signs of rapid acceleration. According to the purchasing managers' indices, growth of industrial production has stalled and foreign trade volumes have dropped. Imports from the US to China were down 35 per cent in December, while imports from Germany, South Korea and Taiwan fell 15 per cent. Auto sales in China dropped for the first time in a long time, signalling a historical change in consumer behaviour as this has not happened since 1990. China has imposed new measures to achieve a higher level of economic growth, but with little effect.

While the outlook in the US remains better than in the euro area, the US economy is going to weaken as indicated by manufacturing purchasing managers' indices and sluggish house sales.

The global economic instability has not had a major impact on the Finnish economy, at least not yet. Industrial production, exports and private consumption have remained relatively constant, and construction activity has expanded further. Employment trends have remained positive. However, the economy will be challenged by export demand in 2019, and the competitiveness of Finnish exports will face an even tougher test.

New Orders in the Manufacturing Industry in the Euro Area Declined Towards the End of 2018, Services Come after



Significant lift required in investments to boost productivity

Industry accounts for 85 per cent of Finland's goods and service export revenue. Most of this revenue is generated by technology, forest and chemical industries. The economic impact of exporting industries is not limited to the value of exports. KPMG has analysed the overall effects with 2017 data and the results were published in November 2018.

Export industry creates a value added effect of EUR 90 billion to the Finnish economy, or 46 per cent of GDP value added. In terms of jobs, the total effect is some 1.1 million, or 43 per cent of all jobs. Every job in export industry creates more than one job in services. Total tax income amounts to EUR 28 billion.

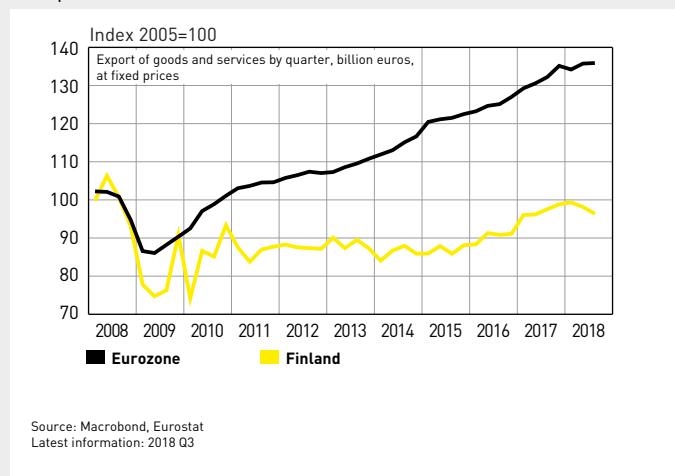
The input-output calculation takes into account companies' continued operations and investments. It includes direct effects on industry companies, indirect effects on other industries as well as the effect of paid salaries and other revenue on private consumption. The calculation also includes the direct and indirect effects of tax revenue.

Export industry has long been the key driver of good productivity development in Finland. However, recent trends are alarming. Productivity has not grown since early 2017. This is true for industry and Finnish economy as a whole. In general, productivity has barely exceeded the level recorded in early 2008. In other EU countries, productivity has grown much faster than in Finland.

The weak productivity development is due to modest growth of business investments in Finland. Lack of investments applies to both tangible and intangible assets. Tangible assets include machinery, equipment and transport vehicles as well as production and business buildings. Intangible assets include, in particular, investments in research and development (R&D) as well software investments.

While investments in tangible assets grew in Finland in the 2015-2017 period from the levels reported during the recession, the growth rate was much slower than in competing countries. According to the investment survey published by the Confederation of Finnish Industries (EK) in January, investments declined again in 2018 and will not reach the 2017 levels in 2019 either. In comparison

Finland's Export Growth Ended in 2018, with a 40% Growth Gap Compared to Euro Area



to other countries, investment rate (fixed capital formation in relation to gross value added) is among the lowest in Finland.

The reality is especially harsh when we look at the development of intangible investments in Finnish industry. The level has nearly halved since 2008. R&D expenditure has dropped most drastically in the electronics industry. In other industry sectors, investments in intangible assets have remained relatively unchanged since 2005. It is astounding that the Finnish investment rate for intangible assets in other industry sectors is closest to that of countries in Eastern Europe.

The government that will be formed in the spring must boldly promote business investment in Finland. It needs to identify the most effective means to boost the weak investment rate while also taking a responsible stance on the sustainability gap in the public finances.

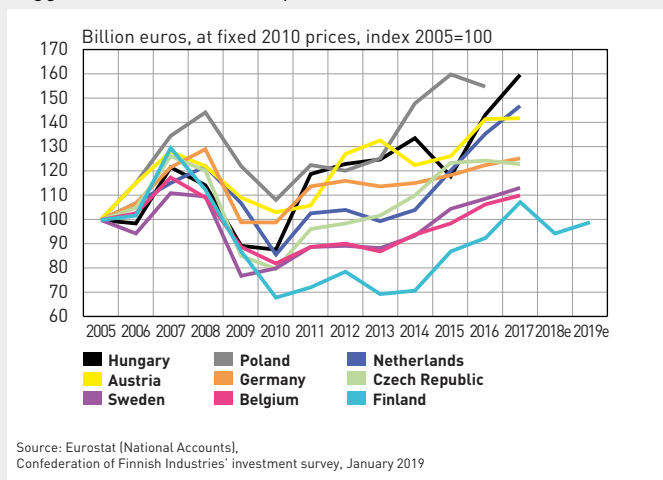
We need to go back to a model which secures stable and predictable development of research and innovation in Finland.

Applied research should receive EUR 300 million permanent increase in funding during the next parliamentary term.

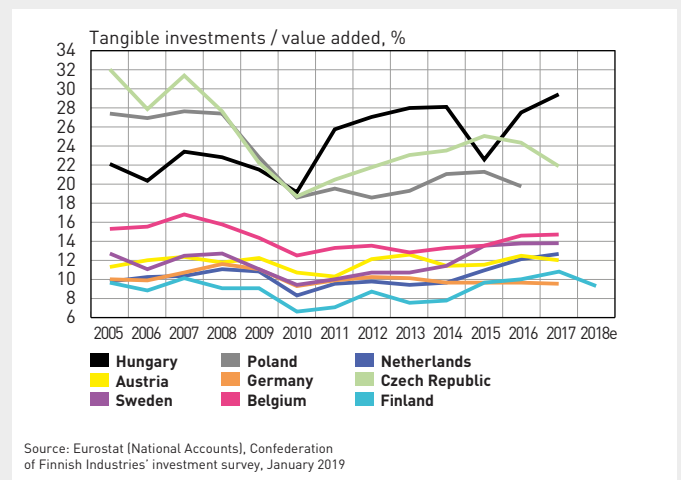
ETLA, the Research Institute of the Finnish Economy, will publish the results of its research on a free depreciation policy, investments and the national economy in the autumn of 2019, providing tangible research data to support decision-making. The research project will develop a new dynamic model for business investment incentives. It will include the main features of the Finnish corporate tax regime.

Free depreciation policy allows companies to choose more freely when they depreciate their investment expenses for tax purposes. The company can expense the investment all at once or over a period of several years. This method will not decrease tax revenue in Finland, but may delay some tax payments depending on the method chosen by companies.

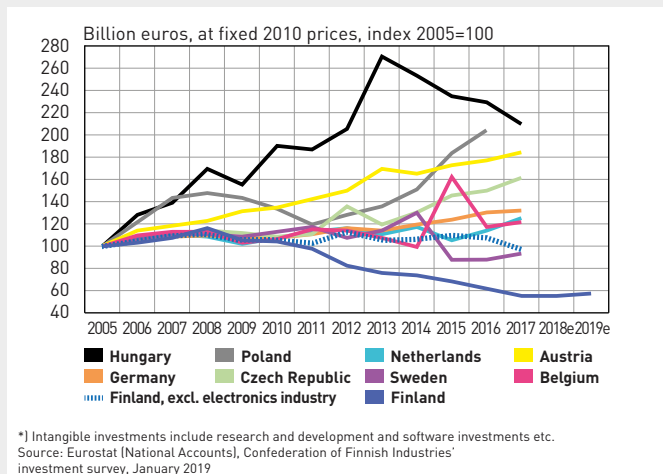
Industrial Fixed (Tangible) Investment Growth in Finland Has Lagged behind that of Competitors



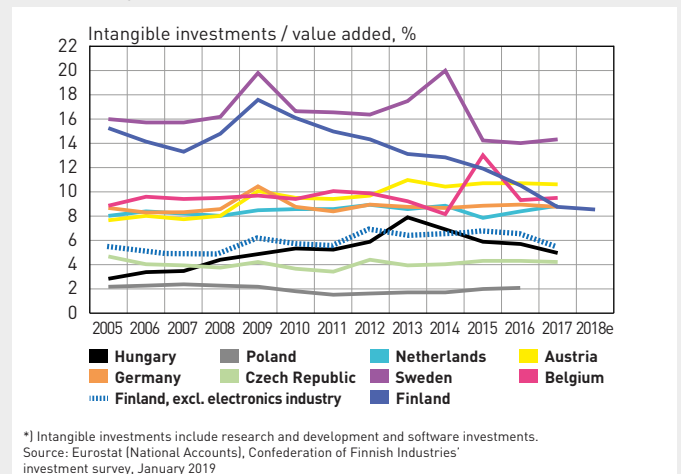
Investment Rate in Industrial Fixed Investments Is at a Low Level in Finland



Industrial Intangible Investments * in Finland Have almost Halved since 2005



Investment Rate of Industrial Intangible Investments* Has Dropped Significantly in Finland



Economic uncertainty has not had a major impact yet

The turnover of technology industry companies in Finland grew by 6 per cent in 2018 from 2017. Growth was steady in all the main sectors. About half of the increase was attributable to volume growth and half to increase in sale value due to rising world market prices of raw materials and components. In 2018, the turnover amounted to EUR 77 billion. In 2008, prior to the financial crisis, the turnover of technology industry companies in Finland totalled EUR 86 billion.

The value of technology industry companies' new orders in the October-December period increased from the previous quarter, but was lower than in the corresponding period 2017. The drop is due to the ship orders in the reference period. Favourable development of order books continued towards the end of 2018. Some 60 per cent of the strengthening of the order books since early 2014 is attributable to ship orders. The last ship in the shipyards' order books is expected to be delivered in 2024.

The number of tender requests received by technology industry companies ceased to grow during the autumn, but increased slightly in January from the level reported in late autumn. The market situation reflects the global economic uncertainty.

The companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary

value of new orders between October and December was 9 per cent higher than in the preceding quarter, but 13 per cent lower than in the corresponding period in 2017.

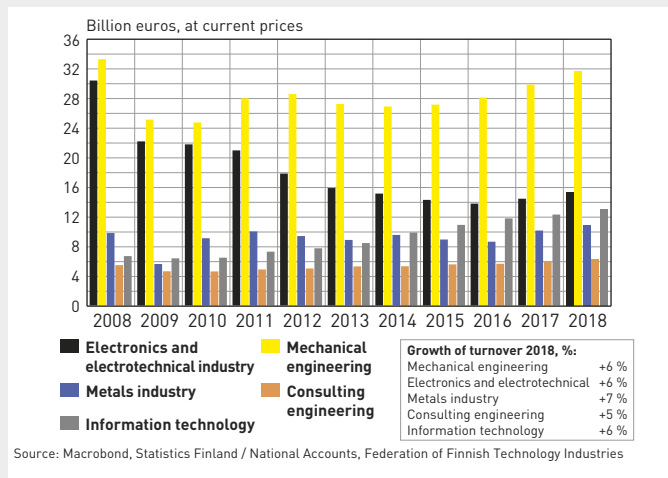
At the end of December, the value of order books was 3 per cent higher than at the end of September, and 10 per cent higher than in December 2017.

Judging from order trends in recent months, the turnover of technology industry companies in early 2019 is expected to be higher than in the corresponding period last year. Some of the turnover growth is attributable to rising producer prices.

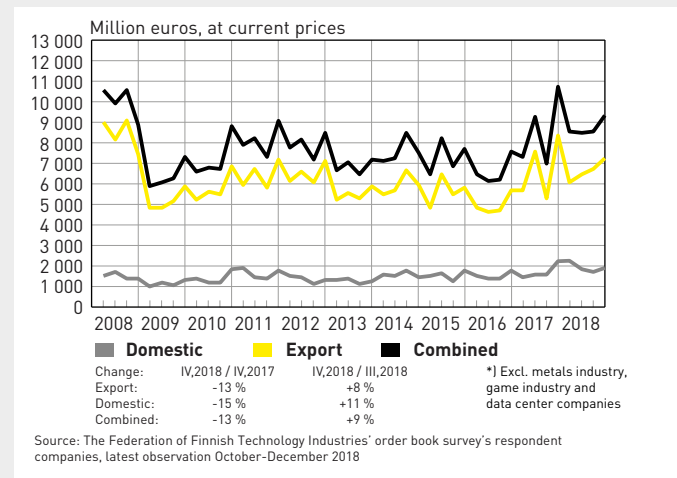
The number of personnel employed by technology industry companies in Finland grew by almost 4 per cent in 2018 from the 2017 average. The industry employed some 311,000 people, up 11,000 from 2017. Personnel numbers did not increase notably in the October-December period.

Technology industry companies' recruitment activities also decreased towards the end of the year. They recruited a total of 50,000 new employees in 2018. In 2017, total recruitments came to 42,500. Sixty-seven per cent of these employees were hired by SMEs. Some companies were increasing their personnel, while others were hiring new employees due to retirements and employee turnover.

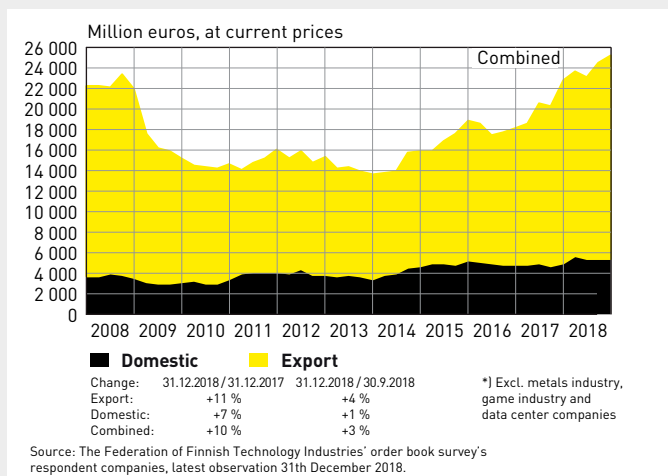
Turnover of Technology Industry in Finland Increased by 6% in 2018, to EUR 77 Billion



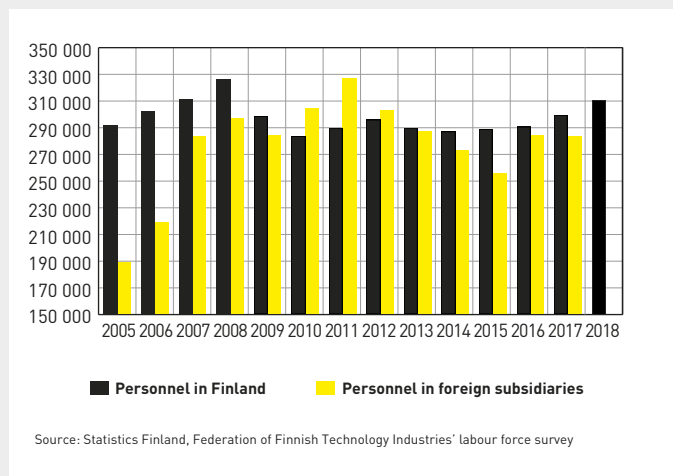
Value of New Orders in the Technology Industry* in Finland



Value of Order Books in the Technology Industry* in Finland



Technology Industry Personnel in Finland and Abroad





Electronics and Electrotechnical Industry in Finland

Steady order growth

The turnover of companies in the electronics and electro-technical industry (telecommunications equipment, electrical equipment and medical technology) in Finland grew by 6 per cent in 2018 from 2017. In 2018, the turnover amounted to EUR 15.3 billion. In 2008, prior to the financial crisis, the turnover of electronics and electrotechnical industry companies in Finland totalled EUR 30.4 billion.

Both new orders and order books grew in the October-December period from the corresponding period in 2017. Orders have grown moderately during the past two years.

The electronics and electrotechnical companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary value of new orders between October and December was 10 per cent higher than in

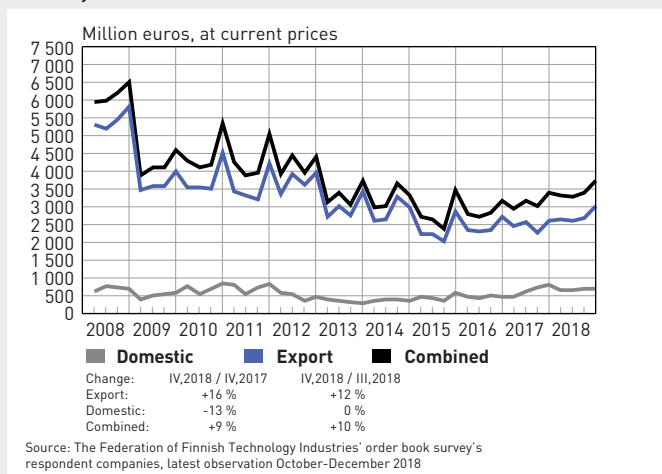
the preceding quarter, and 9 per cent higher than in the corresponding period in 2017.

At the end of December, the value of order books was 5 per cent higher than at the end of September, and 5 per cent higher than in December 2017.

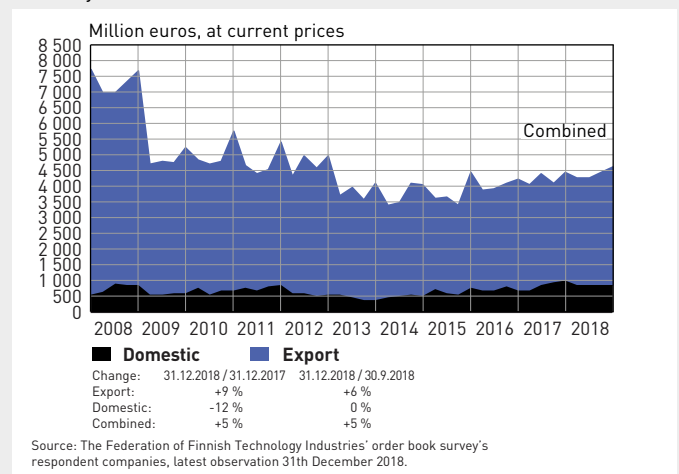
Judging from order trends in recent months, the turnover of electronics and electrotechnical industry companies is expected to be slightly higher in early 2019 than in the corresponding period in 2018.

The number of personnel employed by electronics and electrotechnical companies in Finland was up 2 per cent in 2018 from the 2017 average. The industry employed some 38,600 people, up 800 from 2017.

Value of New Orders in the Electronics and Electrotechnical Industry in Finland



Value of Order Books in the Electronics and Electrotechnical Industry in Finland





Mechanical Engineering in Finland

Order books continue to strengthen

The turnover of mechanical engineering companies (machinery, metal products and vehicles) in Finland increased by 6 per cent in 2018 from 2017. In 2018, the turnover amounted to EUR 31.7 billion. In 2008, prior to the financial crisis, the mechanical engineering industry's turnover in Finland totalled EUR 33.3 billion.

The value of new orders in mechanical engineering remained at a good level in the October-December period. Order volume was higher than in the previous quarter, but lower than in the corresponding period in 2017. The drop is due to the ship orders in the reference period. Boosted by the upswing in new orders, order books also continued to strengthen during the rest of 2018. Some 75 per cent of the strengthening of the order books since early 2014 is attributable to ship orders. The last ship in the shipyards' order books is expected to be delivered in 2024.

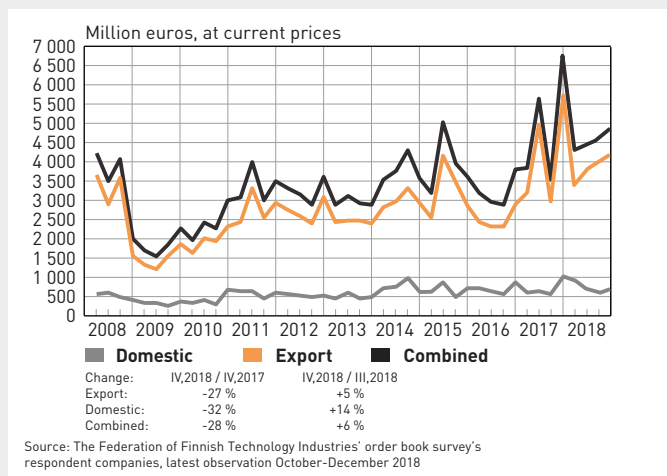
The mechanical engineering companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary value of new orders between October and December was 6 per cent higher than in the preceding quarter, but 28 per cent lower than in the corresponding period in 2017.

At the end of December, the value of order books was 3 per cent higher than at the end of September, and 12 per cent higher than in December 2017.

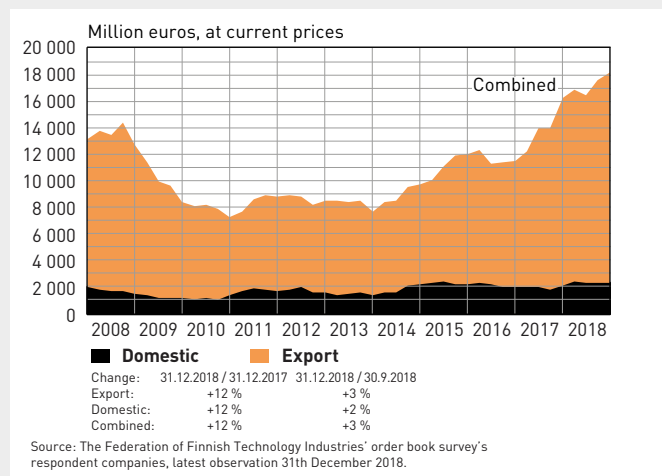
Judging from order trends in recent months, the turnover of mechanical engineering companies in early 2019 is expected to be slightly higher than the corresponding period last year.

The number of personnel in mechanical engineering companies in Finland grew by 4 per cent in 2018 from the 2017 average. The industry employed some 133,000 people, up 5,000 from 2017.

Value of New Orders in the Mechanical Engineering in Finland



Value of Order Books in the Mechanical Engineering in Finland





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Metals Industry in Finland

Turnover growth continues

The turnover of metals industry companies (steel products, non-ferrous metals, castings and metallic minerals) in Finland grew 7 per cent in 2018 from 2017. Most of the turnover growth is attributable to higher sales prices. These are due to the rising world market prices since 2016. In 2018, the turnover amounted to EUR 10.8 billion. In 2007, prior to the financial crisis, the metals industry turnover in Finland totalled EUR 11.1 billion.

The total production of steel products, non-ferrous metals, castings and metallic minerals in Finland in the January-November period increased by 2 per cent year-on-year.

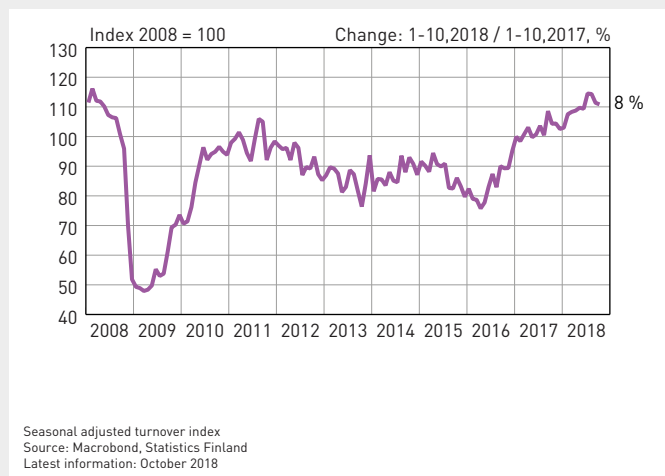
The number of personnel employed by metals industry companies in Finland grew by less than 2 per cent in 2018 from the

2017 average. The industry employed some 16,400 people, up 250 from 2017.

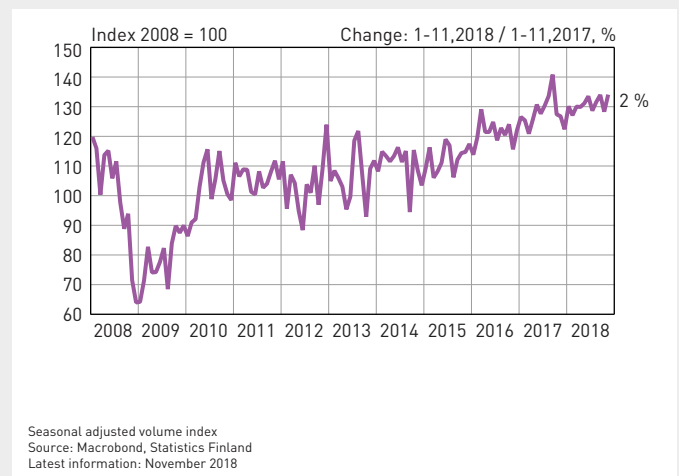
In comparison to the corresponding period in 2017, global steel production increased by 5 per cent in January-November. Production increased by 6 per cent in Asia and by 4 per cent in North America, but decreased slightly in the EU.

China, Japan, India, the United States, South Korea and Russia were the largest producers in November. China accounted for 52 per cent of global steel production.

Turnover of the Metals Industry in Finland



Production Volume of the Metals Industry in Finland





Consulting Engineering in Finland

Order books remain at a high level

The turnover of consulting engineering companies (industrial, social and construction expert services) in Finland grew by 5 per cent in 2018 from 2017. In 2018, the turnover amounted to EUR 6.3 billion. In 2008, prior to the financial crisis, the consulting engineering turnover in Finland totalled EUR 5.5 billion.

New orders remained at a high level in the October–December period. Order books were down slightly from September, but remained at a notably higher level than in December 2017.

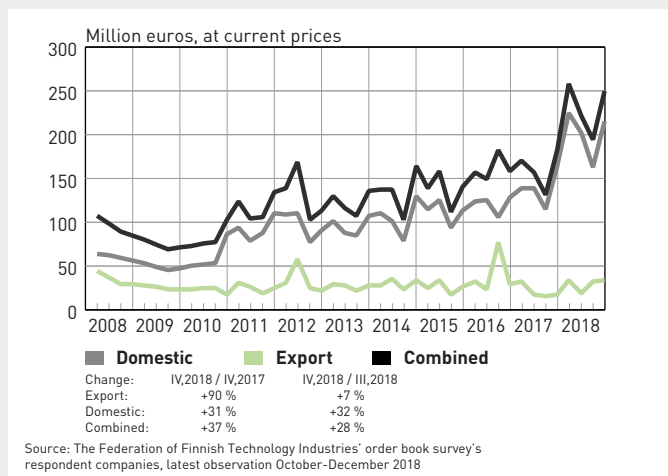
The consulting engineering companies that took part in the Federation of Finnish Technology Industries’ survey of order books reported that the monetary value of new orders between October and December was 28 per cent higher than in the preceding quarter and 37 per cent higher than in the corresponding period in 2017.

At the end of December, the value of order books was 5 per cent lower than at the end of September, but 21 per cent higher than in December 2017.

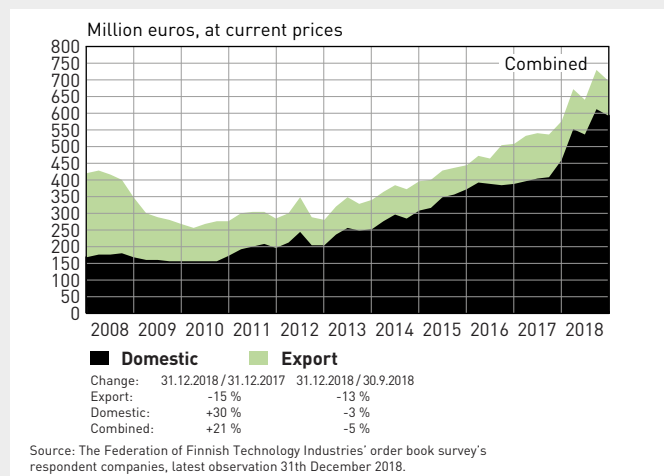
Judging from order trends in recent months, the turnover of consulting engineering companies in early 2019 is expected to be higher than in the corresponding period last year.

The number of personnel employed by consulting engineering companies in Finland grew by almost 7 per cent in 2018 from the 2017 average. The industry employed some 54,000 people, up 3,400 from 2017.

Value of New Orders in the Consulting Engineering in Finland



Value of Order Books in the Consulting Engineering in Finland





Information Technology in Finland

Orders remain at a good level

The turnover of information technology companies (IT services and software) in Finland grew by 6 per cent in 2018 from 2017. In 2018, the turnover amounted to EUR 13 billion. In 2008, prior to the financial crisis, the information technology turnover in Finland totalled EUR 6.7 billion.

New orders remained at a good level in the October-December period. Typically for the sector, order volumes fluctuate strongly from one quarter to another. The value of order books was up from both September 2018 and December 2017.

The information technology companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary value of new orders between October and December was 25 per cent higher than in the preceding

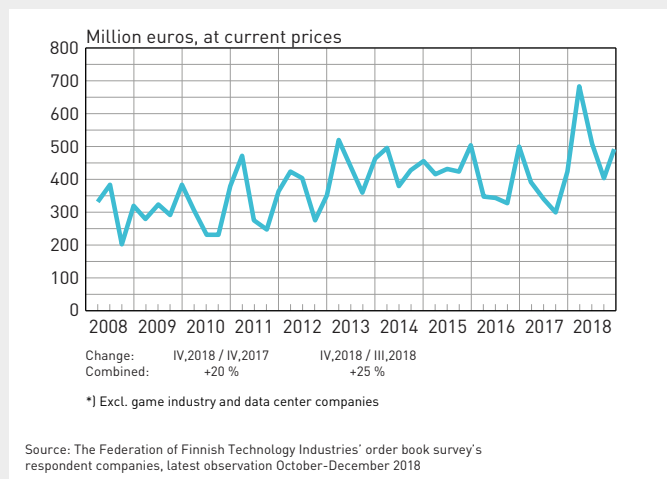
quarter and 20 per cent higher than in the corresponding period in 2017. Game industry and data centre companies are not included in the survey.

At the end of December, the value of order books was 3 per cent higher than at the end of September, and 6 per cent higher than in December 2017.

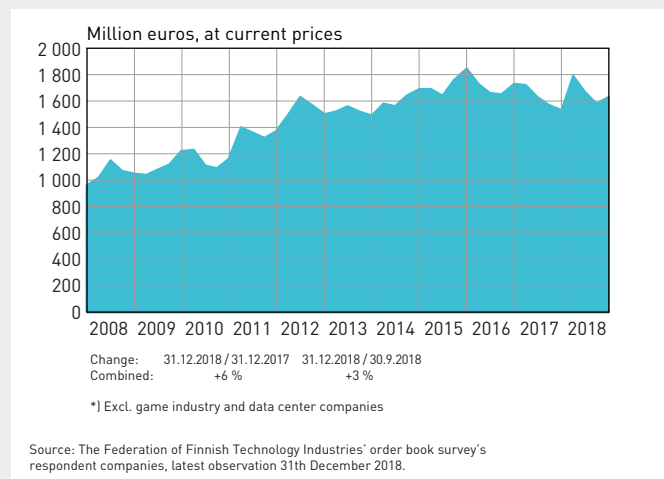
Judging from order trends in recent months, the turnover of information technology companies is expected to be higher in early 2019 than in the corresponding period last year.

The number of personnel employed by information technology companies in Finland grew by 3 per cent in 2018 from the 2017 average. The industry employed almost 69,000 people, up 2,000 from 2017.

Value of New Orders in the Information Technology* in Finland



Value of Order Books in the Information Technology* in Finland



ECONOMIC OUTLOOK 1 | 2019

Information based on the situation on 24 January 2019

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Please visit the homepage of the Federation of Finnish Technology Industries for additional information on technology industry turnover, exports, investments, personnel and the development of producer prices: www.techind.fi.

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