

Economic Outlook

Technology Industries of Finland

1 | 2018

Global And Finnish Economic Outlook

Good global economic outlook

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Technology Industries In Finland

Significant growth in the value of orders due to ship orders

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Good global economic outlook

The global economy is experiencing strong growth and the positive trend continues across all geographical areas and sectors. The outlook remains good for both manufacturing and services.

The improved outlook in comparison to 2017 is based on recent figures on actual growth, as well as the manufacturing and service sector purchasing managers' index (PMI) surveyed during December and January. Favourable growth of GDP and trade has continued globally with only a few exceptions.

PMIs are collected from all major economies, and separately for manufacturing and services. Based on this data, economic growth seems to have strengthened further in recent months. Indicators of consumer confidence also remain at a high level.

The competition for the distribution of global economic growth will intensify after the US tax reform. The lower corporate rate of 21%, full expensing of capital investment and a lower repatriation tax for bringing foreign profits back to the US will have an overall positive effect on the US economy. The introduced tax cuts will allow the Federal Reserve to raise its interest rates faster to align its financial policy with the current economic situation. This is desirable, as it will allow the central bank to introduce lower interest rates to support growth during future downturns.

Rate hikes are to be expected in the euro area, too, but without a tax policy to offset the negative effects of higher interest rates on growth. On the contrary, the European Commission's corporation tax harmonisation plans threaten to weaken the competitiveness of business in Europe.

Finnish growth paradox

The economy in Finland enjoyed robust growth in 2017. According to preliminary data, Finnish GDP grew between 3 and 3.5 per cent. However, it remained below the 2008 level. The volume of Finland's GDP in the autumn of 2017 was less than two per cent below the level reported in early 2008. The gap between Finland and the rest of the euro area has widened significantly. In the autumn of 2017, the GDP in the other countries was 6.5 per cent above the level reported in early 2008. The difference between Finland and the rest of the euro area is as high as eight per cent.

Finnish exports also grew in 2017, by some eight per cent according to preliminary data. More specifically, exports jumped to a higher level in the first quarter of 2017, after which the growth stalled. The development of Finnish exports since 2008 is in stark contrast to that of the competitor countries. Finland is lagging behind by as much as 40 per cent in comparison to other countries in the euro area.

Considering that the rest of the euro area also continues to enjoy robust economic growth, Finland faces a Herculean task to catch up with them. The difference in GDP and export growth is mainly due to the reduced levels of production and turnover of large manufacturing enterprises in Finland. This is a historical shift, and it is misleading to attribute it to creative destruction and "natural" progression. Large manufacturing enterprises have grown, but the growth has taken place outside Finland. They continue to innovate, but these innovations increasingly take place in foreign countries.

The Finnish economy is experiencing a growth paradox. While these companies have managed to expand their turnover and exports slightly during the past eighteen months, the contraction of business activity that has occurred since 2008 significantly limits the overall growth potential of the Finnish economy. It has weakened substantially, which has been the main driver of public debt. Developments in recent years confirm that success of large enterprises is vital for the growth of small and medium-sized enterprises and the economy as a whole.

The problem will not solve itself. Instead, significant further steps are required to improve the operating environment of both large and small and medium-sized enterprises in Finland. It is a fact that current economic and tax policies will not help Finland catch up with the rest of the euro area.

Comparing the turnover development, export volumes and personnel numbers of manufacturing enterprises with a minimum of 500 employees with that of the entire industry since 2008 reveals the extent of the growth paradox.

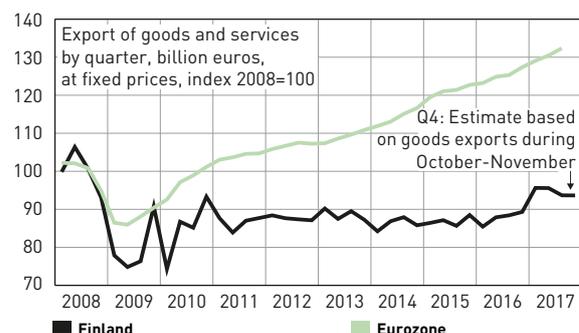
According to the calculations of Statistics Finland and Finnish customs, large manufacturing enterprises' turnover and export levels were at their lowest in 2016.

GDP also Grows in Finland, but the Backlog for the Other Euro Area Countries Is up to 8%



Source: Macrobond
Latest information: 2017 Q3

Finland's Exports Jumped in Early 2017, but the Backlog for the Other Euro Area Countries is 40 %



Source: Macrobond, Eurostat
Latest information: 2017 Q3

Their reported turnover was EUR 22 billion below the 2008 level and value of goods exports EUR 14 billion lower. As a result, the total manufacturing turnover in Finland in 2016 fell EUR 29 billion short of the level reported in 2008. This means that small and medium-sized enterprises also experienced a fall in turnover.

Total Finnish exports and total manufacturing exports fell slightly less than those of large manufacturing enterprises. Total value of manufacturing exports fell by some EUR 11 billion and total goods exports from Finland by some EUR 10 billion.

Manufacturing turnover and exports increased slightly in 2017. However, based on preliminary data for 2017, total manufacturing turnover remained EUR 24 billion and total goods exports from manufacturing EUR seven billion below the levels reported in 2008. Turnover and exports of large manufacturing enterprises also grew slightly.

The drop in turnover and export levels has weighed heavily on employment numbers. In 2016, personnel in large enterprises was down by 52,000 from 2008. In total, 93,000 jobs were lost, which reflects the effect of large enterprises on their subcontractors.

As a result of the changes in recent years, large enterprises' share of manufacturing turnover, exports and jobs have also contracted. They now account for less than 50 per cent of

manufacturing turnover, less than 60 per cent of goods exports and some 25 per cent of jobs.

Calculations of Statistics Finland and Finnish customs on the development of large manufacturing enterprises in Finland

Technology Industries of Finland commissioned Statistics Finland and Finnish customs to compile statistics on the turnover development, goods export volumes and personnel numbers of manufacturing companies with a minimum of 500 employees between 2008 and 2016 (export data also includes data from 2017).

Statistics Finland's data includes large technology, forest and chemical industry enterprises with a minimum of 500 employees in 2008. They totalled 74 in 2008 and 67 in 2016. Data is provided up to 2016.

Finnish custom's data includes all sectors in 2008-2016 and January-September 2017.

The data reveals the level of contraction in large enterprises' turnover, exports and personnel numbers since 2008. The statistics also reveal how much the recession has reduced large enterprises' share of total turnover and personnel numbers, as well as their share of manufacturing goods exports and total exports from Finland.

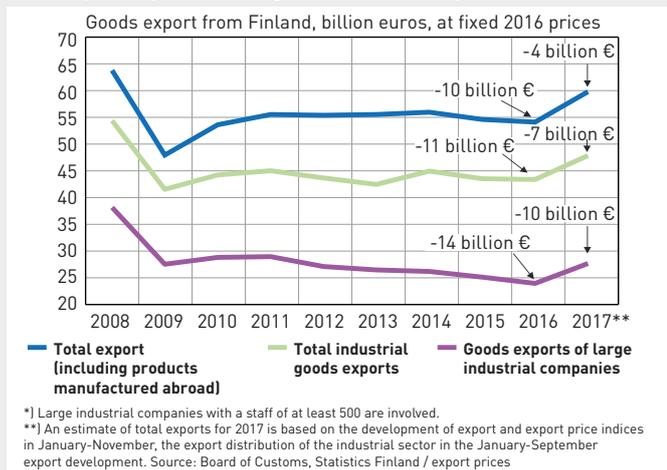
Growth paradox: It Is Difficult to Overcome the Lost Turnover of Large Industrial Companies*



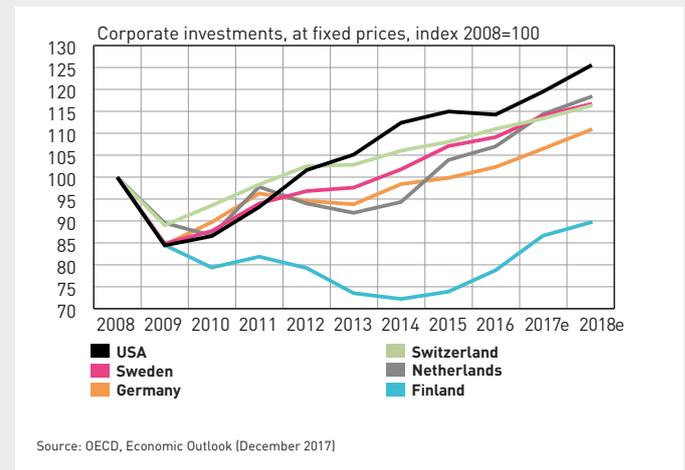
Growth paradox: It Is Difficult to Overcome the Lost Jobs of Large Industrial Companies* and Sub-contractors



Growth paradox: It Is Difficult to Overcome the Drop in Exports of Large Industrial Companies*



Unlike the Competition Countries, in Finland Business Investment Is Still Below the Level in 2008



Significant growth in the value of orders due to ship orders

The turnover of technology industry companies in Finland grew by 10 per cent in 2017 from 2016. About half of the increase was attributable to volume growth and half to increase in sales due to rising world market prices of raw materials and components. In 2017, the turnover amounted to EUR 74.1 billion. In 2008, prior to the financial crisis, the turnover of technology industry companies in Finland totalled EUR 85.7 billion.

The value of technology industry companies' new orders and order books grew strongly between October and December. In late 2017, the growth was boosted by two large ship orders in particular. Excluding these, new orders and order books remained stagnant after the spring of 2017. The effect of the new ship orders will not be reflected in Finnish export volumes until after 2021.

The technology industry 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 54 per cent higher than between July and September and 40 per cent higher than in the corresponding period in 2016. Of the respondents, 65 per cent reported that the number of new orders was up since the July-September period, 29 per cent

said it was down and six per cent said it had remained stable.

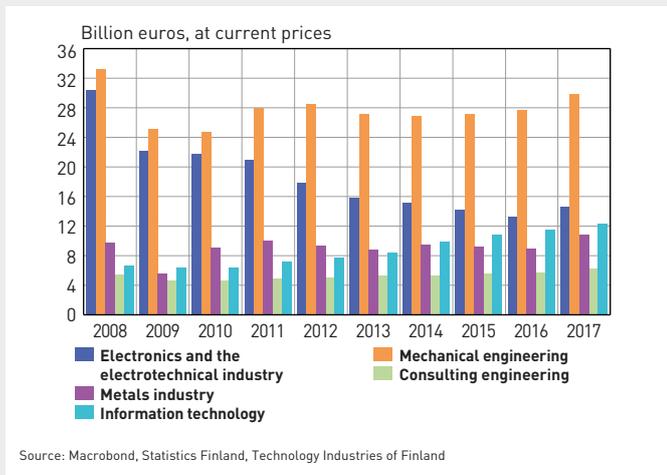
At the end of December, the value of order books was 11 per cent higher than at the end of September and 25 per cent higher than in December 2016. Forty-seven per cent of companies reported a decrease in the number of orders from September, while 41 per cent reported an increase and 12 per cent had seen no change.

Judging from order trends in recent months, the turnover of technology industry companies is expected to be higher in the spring of 2018 than in the corresponding period last year.

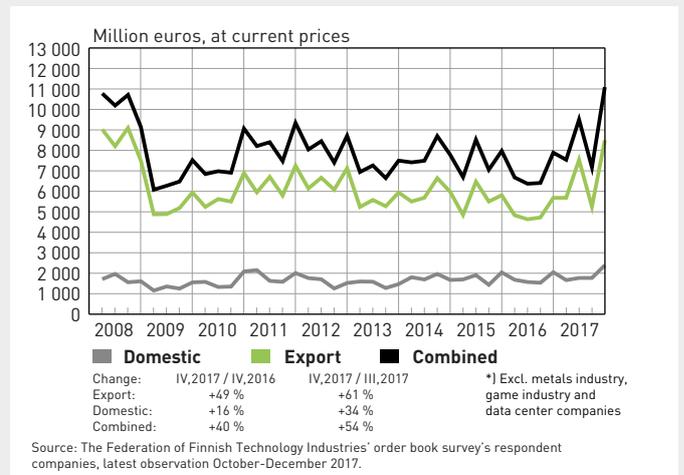
The number of personnel employed by technology industry companies in Finland grew by slightly more than two per cent in 2017 from 2016. On average, the industry employed 297,000 people, up 6,400 from 2016.

The recruitment activities of technology industry companies picked up markedly in 2017. They recruited a total of 42,500 new employees in 2017. In 2016, total recruitments came to 28,500. Some companies were increasing their personnel, while others were hiring new employees due to retirements and employee turnover.

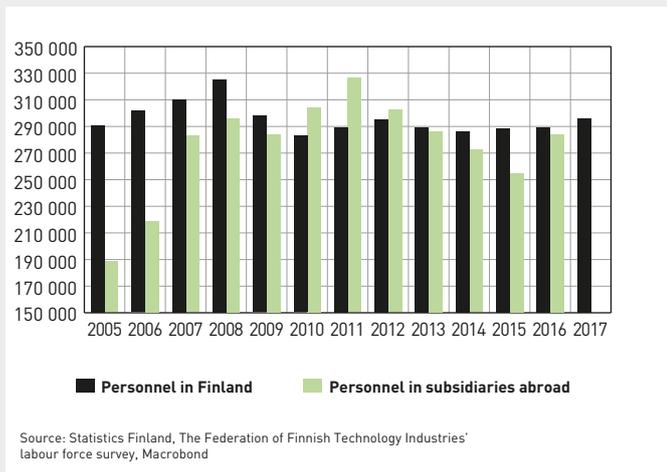
Turnover of the Technology Industry in Finland



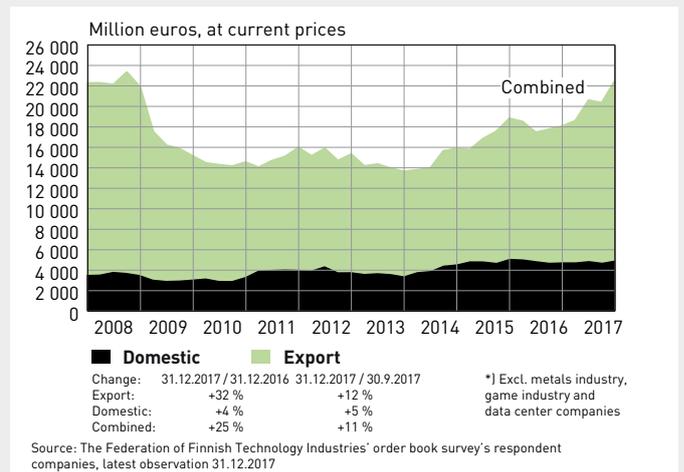
Value of New Orders in the Technology Industry* in Finland



Technology Industry Personnel in Finland and Abroad



Value of Order Books in the Technology Industry* in Finland





Electronics and Electrotechnical Industry in Finland

Orders pick up slightly

The turnover of companies in the electronics and electrotechnical industry (telecommunications equipment, electrical equipment and medical technology) in Finland grew by 10 per cent in 2017 from 2016, amounting to EUR 14.7 billion. In 2008, prior to the financial crisis, the industry turnover in Finland totalled EUR 30.4 billion.

Both new orders and order books grew between October and December in the electronics and electrotechnical industry. In comparison to the previous quarter, more companies saw an increase in orders than a fall.

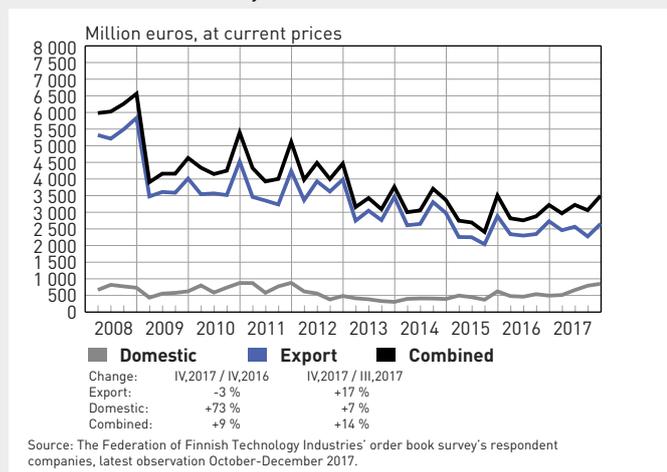
The electronics and electrotechnical companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary value of new orders between October and December was 14 per cent higher than in the preceding quarter and nine per cent higher than in the corresponding period in 2016.

At the end of December, the value of order books was eight per cent higher than at the end of September and five per cent higher than in December 2016.

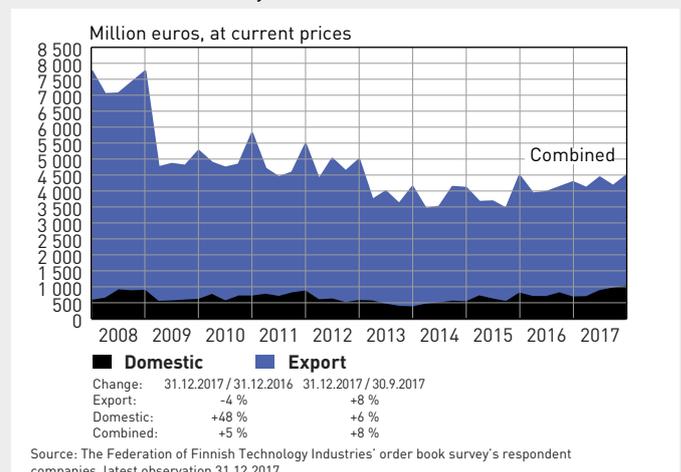
Judging from order trends in recent months, the turnover of electronics and electrotechnical industry companies is expected to remain at the same or slightly higher level during the spring of 2018 than in the corresponding period last year.

The number of personnel employed by electronics and electrotechnical companies in Finland dropped by slightly more than one per cent in 2017 from 2016. On average, the industry employed 39,000 people, down 500 from 2016.

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

Strong growth in the value of orders due to ship orders

The turnover of mechanical engineering companies (machinery, metal products and vehicles) in Finland increased by eight per cent in 2017 from 2016, amounting to EUR 30 billion. In 2008, prior to the financial crisis, the industry turnover in Finland totalled EUR 33.3 billion.

Both new orders and order books grew significantly between October and December in mechanical engineering. Growth was driven by two large ship orders in particular. Despite this, more companies saw a fall in orders than an increase between September and December. The new ship orders will not be reflected in Finnish export volumes until after 2021.

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 93 per cent higher than in the

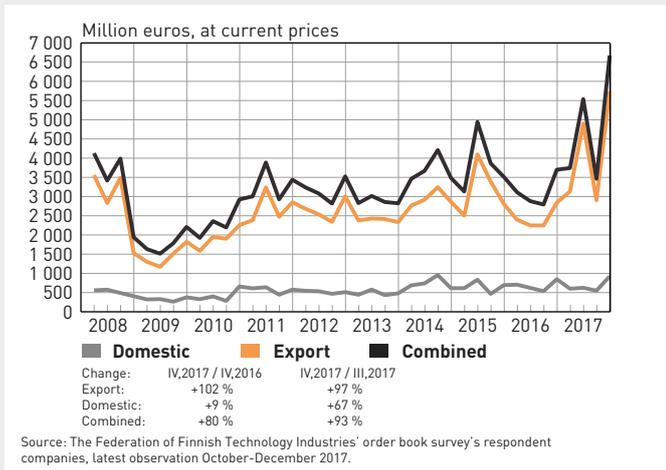
preceding quarter and 80 per cent higher than in the corresponding period in 2016.

At the end of December, the value of order books was 13 per cent higher than at the end of September and 38 per cent higher than in December 2016.

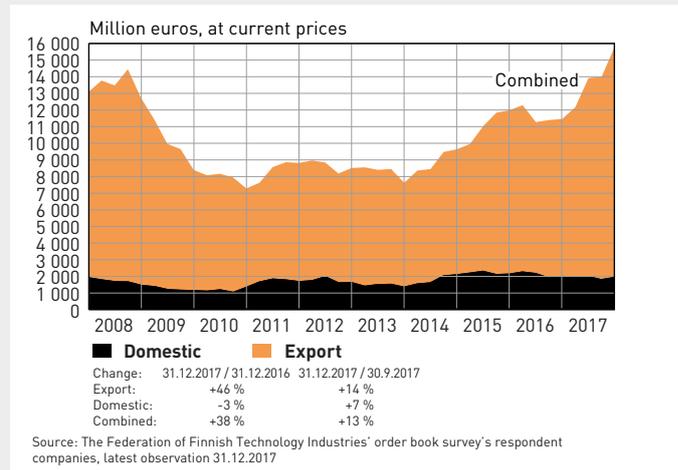
Judging from order trends in recent months, the turnover of mechanical engineering companies is expected to be higher in the spring of 2018 than in the corresponding period last year.

The number of personnel in mechanical engineering companies in Finland grew by slightly more than three per cent in 2017 from 2016. On average, the industry employed 128,000 people, up 4,200 from 2016.

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

Significant turnover growth, slight growth in production

The turnover of metals industry companies (steel products, non-ferrous metals, castings and metallic minerals) in Finland grew some 20 per cent in 2017 from 2016, amounting to EUR 10.9 billion. In 2008, prior to the financial crisis, metals industry turnover in Finland totalled EUR 11.1 billion.

Most of the growth in the turnover of metals industry companies in 2017 was attributable to the rise in sales prices. This was due to the favourable development in world market prices of steel products and non-ferrous metals after early 2016. Producer prices in Finland were up some 20 per cent in 2017 from 2016.

Total production of steel products, non-ferrous metals, castings and metallic minerals in Finland increased slightly from 2016. Production of steel products remained at the same level while production of non-ferrous metals, metallic minerals and castings in particular increased.

Global steel production grew by five per cent from 2016. Production increased by five per cent in both Asia and Northern America and by four per cent in the EU.

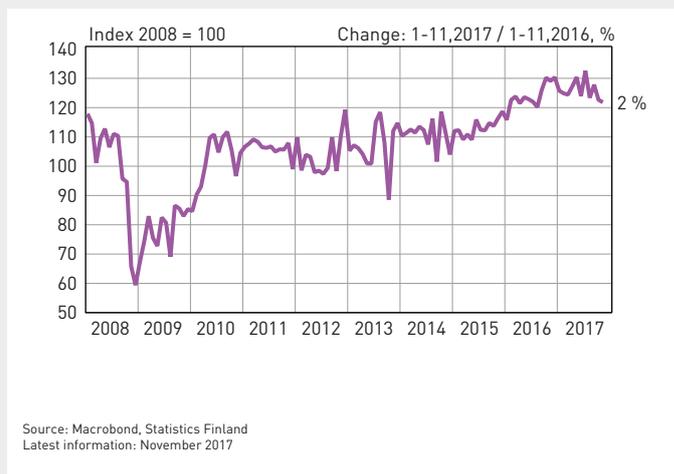
China, Japan, India, the United States, Russia and South Korea were the largest producers. China accounted for 50 per cent of global steel production.

The number of personnel employed by metals industry companies in Finland decreased by some two per cent in 2017 from 2016. On average, the industry employed 15,100 people, down 300 from 2016.

Turnover of the Metals Industry in Finland



Production Volume of the Metals Industry in Finland





Consulting Engineering in Finland

Boost in orders towards the end of the year

The turnover of consulting engineering companies (industrial, social and construction expert services) in Finland grew by eight per cent in 2017 from 2016, amounting to EUR 6.2 billion. In 2008, prior to the financial crisis, the industry turnover in Finland totalled EUR 5.5 billion.

Both new orders and order books picked up between October and December from early autumn in consulting engineering. The growth was broad-based. Typically for the sector, order volumes fluctuate strongly from one quarter to another.

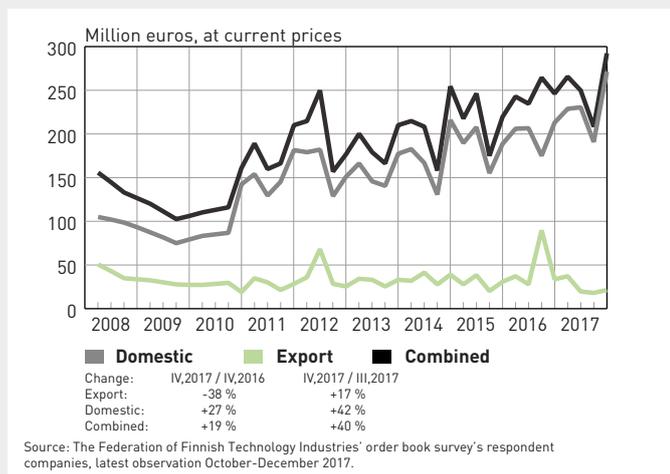
The consulting engineering companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary value of new orders between October and December was 40 per cent higher than in the preceding quarter and 19 per cent higher than in the corresponding period in 2016.

At the end of December, the value of order books was eight per cent higher than at the end of September and 15 per cent higher than in December 2016.

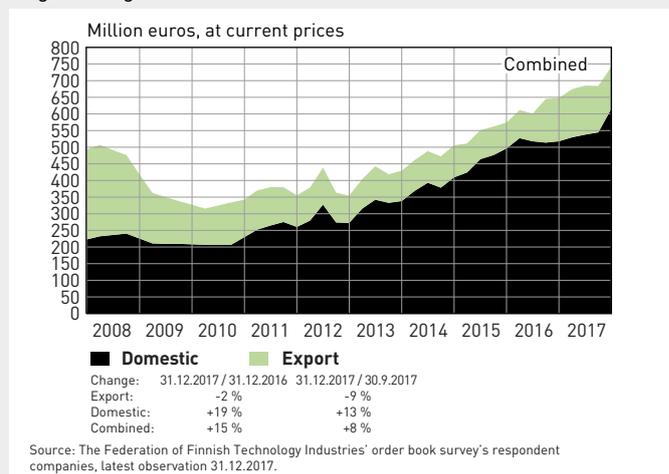
Judging from order trends in recent months, the turnover of consulting engineering companies is expected to be higher in the spring of 2018 than in the corresponding period last year.

The number of personnel in consulting engineering in Finland grew by some four per cent in 2017 from 2016. On average, the industry employed 52,100 people, up 2,000 from 2016.

Value of New Orders in the Consulting Engineering in Finland



Value of Order Books in the Consulting Engineering in Finland





Information Technology in Finland

Uneven growth continues

The turnover of information technology companies (IT services and software) in Finland grew by eight per cent in 2017 from 2016, amounting to EUR 12.4 billion. In 2008, prior to the financial crisis, the industry turnover in Finland was EUR 6.7 billion.

Growth has been distributed very unevenly between IT companies in the past year. The sales of software and data processing services grew by six per cent in total in 2017, but the turnover of data centres and web portals grew by 18 per cent in total.

While the uneven order trends continued between individual information technology companies in the October–December period, the situation improved in comparison to the early autumn. However, there was no upward turn in the total value of order books.

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

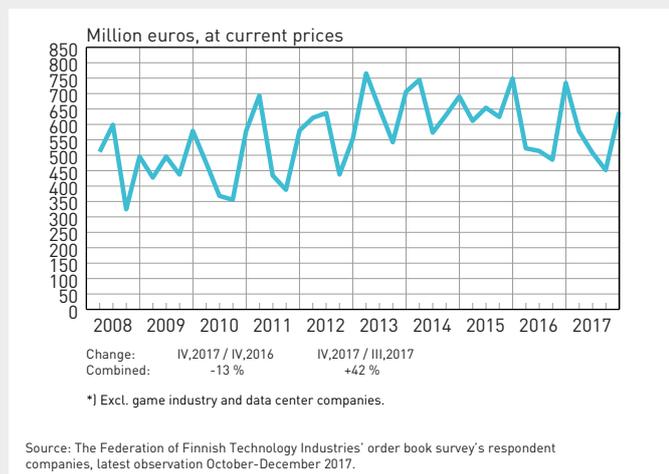
October and December was 42 per cent higher than in the preceding quarter, but 13 per cent lower than in the corresponding period in 2016. Game industry and data centre companies are not included in the survey.

At the end of December, the value of order books was two per cent lower than at the end of September. Order books contracted by 12 per cent from December 2016.

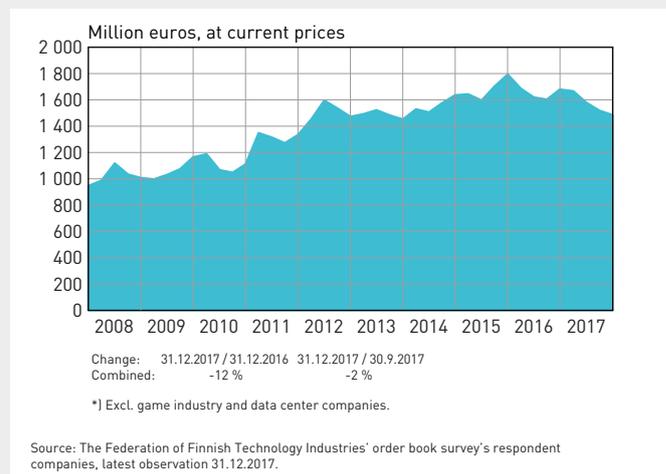
Judging from order trends in recent months and the positive development of the data centre turnover in particular, the turnover of information technology companies is expected to be slightly higher during the spring of 2018 than in the corresponding period last year.

The number of personnel in information technology companies in Finland grew by slightly less than two per cent in 2017 from 2016. On average, the industry employed 62,600 people, up 1,000 from 2016.

Value of New Orders in the Information Technology* in Finland



Value of Order Books in the Information Technology* in Finland



ECONOMIC OUTLOOK 1 | 2018

Information based on the situation on 24 January 2018

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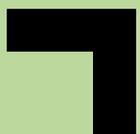
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Please visit the homepage of the Federation of Finnish Technology Industries for additional information on technology industry turnover, exports, investments, personnel and the development of producer prices: www.techind.fi.

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