

# Economic Outlook

Technology Industries of Finland

2 | 2017

**Global And Finnish  
Economic Outlook**  
Broad-Based Global  
Economic Growth  
**s. 3**

**Technology Industries In Finland**  
Turnover and orders  
picking up  
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## Broad-Based Global Economic Growth

According to the latest reports from around the world, economic growth seems to be gaining momentum and is becoming more broad-based. The International Monetary Fund (IMF) also revised up its world economic growth forecast in April. The world economy's growth is now expected to rise to 3.5 percent in 2017 and 3.6 percent in 2018. The world economy expanded by 3.1 per cent in 2016.

GDP growth continued in Europe and Northern America between January and April. In the euro area, the pace of expansion in early 2017 even exceeded that of last year. The Brexit referendum and other political uncertainty in Europe have not hindered economic development, at least for the time being. Sentiment surveys also signal an increase in consumer confidence.

Manufacturing activity has picked up across the world in recent months as well. Growth has been especially robust in emerging economies, but is also picking up in advanced Western European economies, the United States and Japan. This situation will also boost industry investments.

A rebound in commodity prices is of benefit to emerging economies in particular, as raw materials account for a large proportion of their exports. Russia and Brazil benefit from this trend. Stronger rouble and real in turn boosts their purchasing power. In both countries, GDP is expected to bounce back in 2017 after two consecutive years of contraction.

While stagnant in the first half of 2016, global trade started to pick up towards the end of the year. In recent months, trade is bouncing back in Asia in particular. There has been a significant rise in exports from several countries to China for example. The EU member states and the United States have also benefited from a rise in exports. Likewise, there has been a slight upturn in EU exports to Russia. However, the recovery of global trade has also increased freight rates.

## Finland lags behind

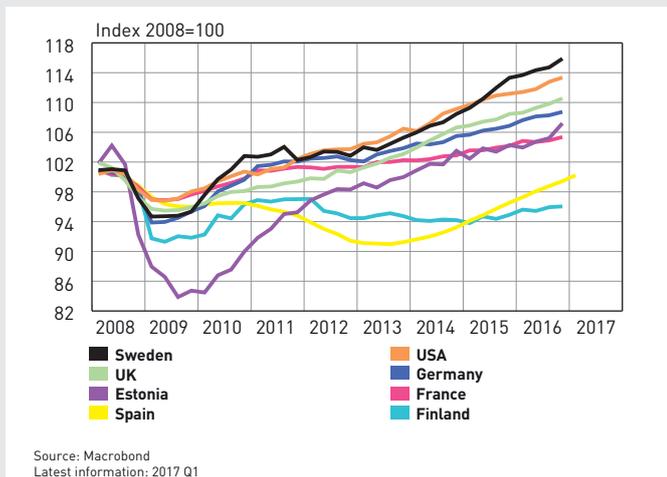
In real terms, economic development in Finland since the financial crisis has been markedly weaker than in rest of EU member states. The pace of growth is lagging well behind our main competitors. The volume of Finland's GDP is 4 to 5 per cent below the level reported in early 2008. In other EU member states, GDP has exceeded the level of the comparison year, and is markedly higher in some countries. In 2016, Finland's GDP was EUR 214 billion.

Sweden has emerged from the 2008 financial crisis as one of the most robust economies in Europe. Germany is experiencing a more modest pace of growth. Technology Industries of Finland have calculated that Finland's GDP would be EUR 40 billion higher today had it grown at the same pace as Sweden's between 2009 and 2016. The difference between the calculated value and Finland's actual 2016 GDP is as much as 19 per cent.

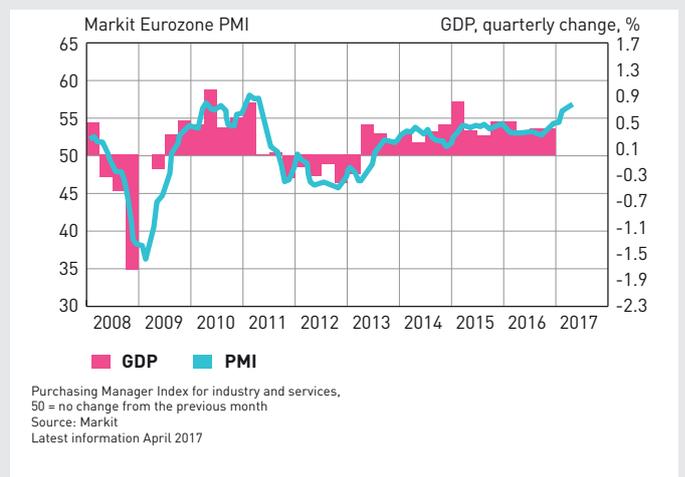
Finland's GDP would be EUR 23 billion higher today if the growth rate had been similar to Germany's. In this case, the difference between the calculated value and Finland's actual 2016 GDP is 11 per cent. Had it grown at the EU average rate, Finland's GDP would have been approximately six billion more than it was in 2016. The average EU growth rate remains more modest than the rates achieved by countries such as Germany and Sweden because of muted growth in Spain and Italy in particular.

The recent slight economic growth in Finland has mainly been driven by private consumption and construction. Positive impact of exports has at least so far been marginal at best. However, the value of exports is expected to rise gradually in the future. The ship orders in Turku, increased car manufacturing in Uusikaupunki and the new Äänekoski pulp mill will increase the value of exports by approximately 1.5 per cent per annum between 2017 and 2019. Finland needs more significant investments such as these three.

Gross Domestic Product Has Grown in Europe and in the US, in Finland Less



Gross Domestic Product Growth in the Euro Area Has Intensified in Recent Months

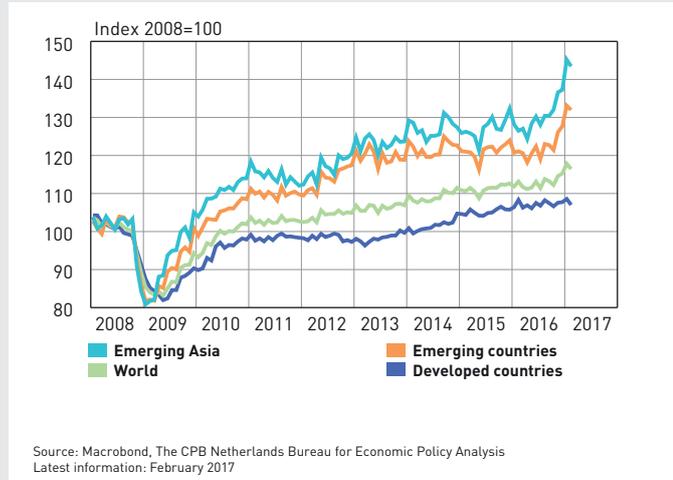




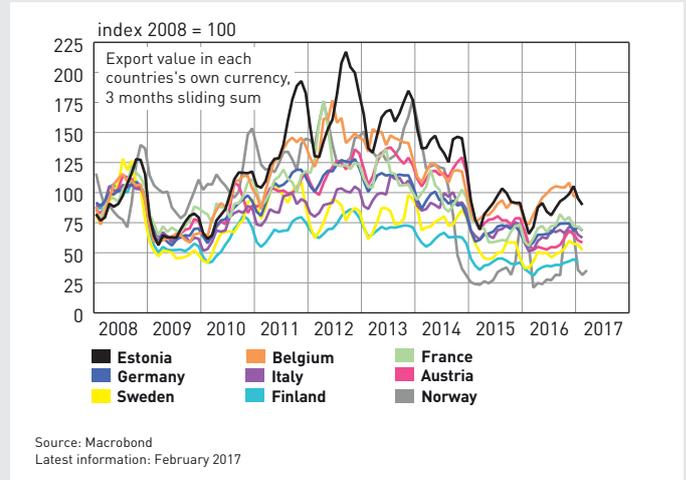
Positive global economic development is of vital importance to Finland, to drive stronger growth of our exports and the economy as a whole. It is up to the government to support this change by all possible means to improve the operating environment of companies in Finland. Companies themselves are responsible for making

sure they remain competitive. In many cases, this requires international business activities such as production.

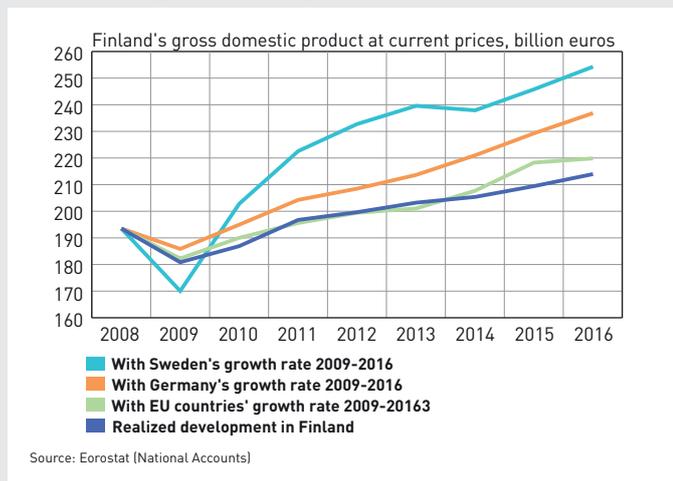
#### World Trade Has Picked Up Again Development of import volume



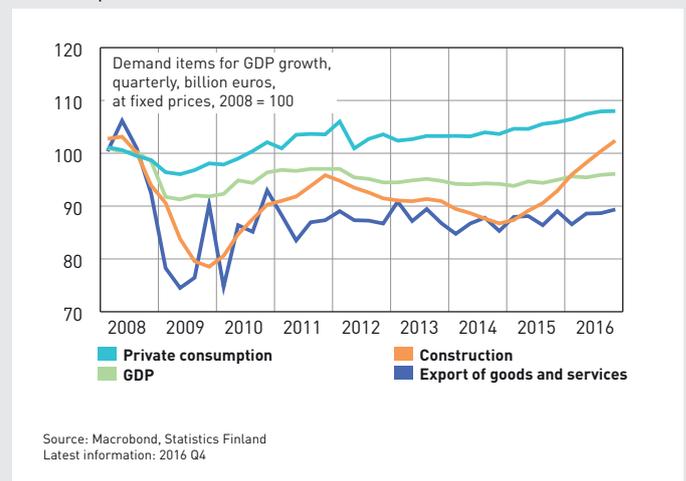
#### EU Exports to Russia Have Recovered Slightly



#### With Sweden's Growth Rate, Finland's GDP Would Be EUR 40 Billion More than Today, with Germany's Growth Rate EUR 23 Billion More



#### Finland's Recent Growth Has Been Due in Particular to Private Consumption and Construction



## Turnover and orders picking up

The turnover of technology industry companies in Finland totalled EUR 68.7 billion in 2016. This is about one-half per cent higher than in 2015. The turnover of all main sectors expanded towards the end of 2016. In January 2017, turnover was 14 per cent higher than twelve months earlier. Export turnover also picked up. In 2008, prior to the financial crisis, the turnover of technology industry companies in Finland was EUR 86 billion.

Technology industry orders were up between January and March. New orders were at a higher level than twelve months earlier, although slightly down from the previous quarter. Order books were stronger than in December. The number of requests for tender received by technology industry companies continued to increase. Competitiveness determines the extent to which these translate into actual orders.

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 January and March was four per cent lower than in the preceding quarter, but 13 per cent higher than in the corresponding period in 2016. Of the respondents, 57 per cent reported that the number of new orders was up since the October-December period, 36 per cent said it was down and seven per cent said it had remained stable.

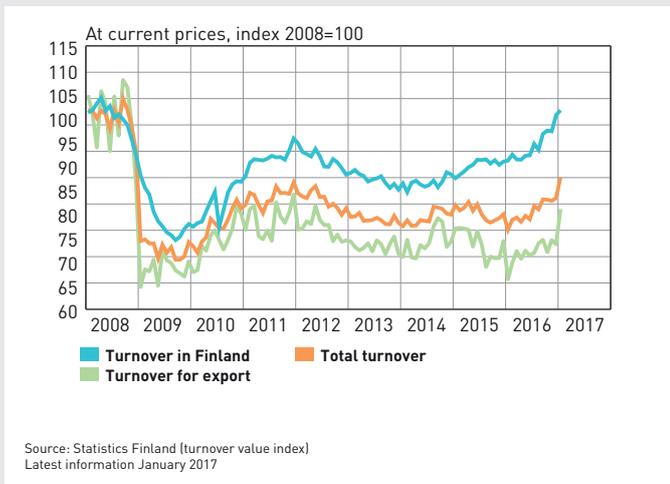
At the end of March, the value of order books was three per cent higher than at the end of December, and slightly higher than in March 2016. Fifty-nine per cent of companies reported an increase in their order books after December, while 31 per cent reported a decrease and 10 per cent had seen no change.

Judging from order trends in recent months, the turnover of technology industry companies is expected to be higher in the spring of 2017 than in the corresponding period last year.

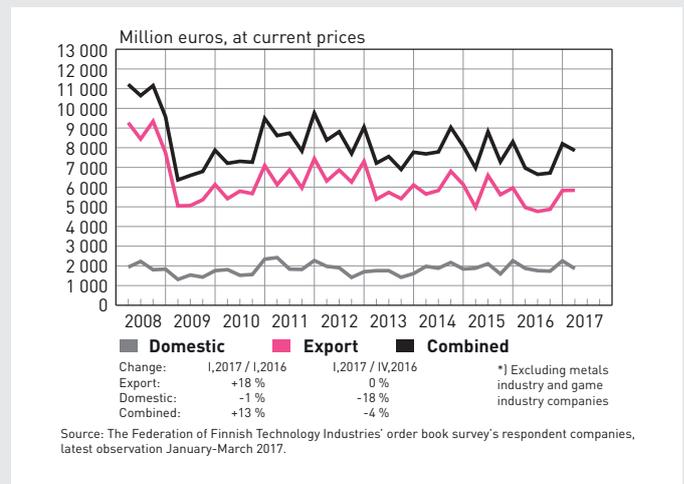
The number of personnel employed by technology industry companies in Finland increased slightly in the first quarter and totalled some 288,000 at the end of March. Personnel increased by less than one per cent, or more than 2,000 employees from the 2016 average. Temporary or part-time lay-offs affected 7,000 employees. Compared with the end of 2016, personnel increased in 53 per cent of technology industry companies, decreased in 27 per cent and remained unchanged in 20 per cent.

Technology industry companies' recruitment activities picked up markedly in early 2017. They recruited 11,000 new employees between January and March. 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.

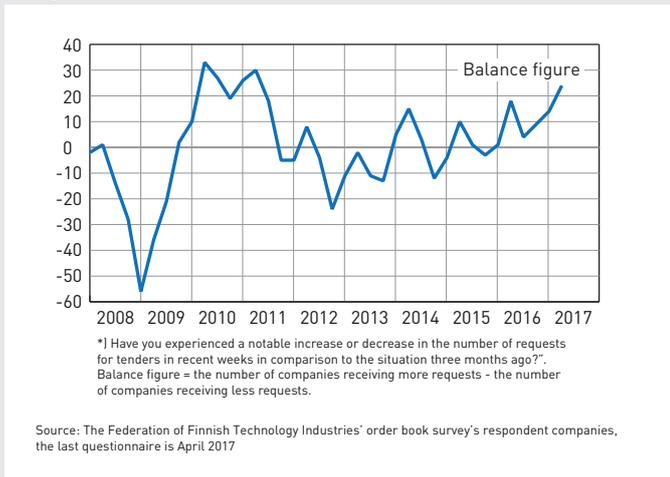
Turnover of the Technology Industry in Finland



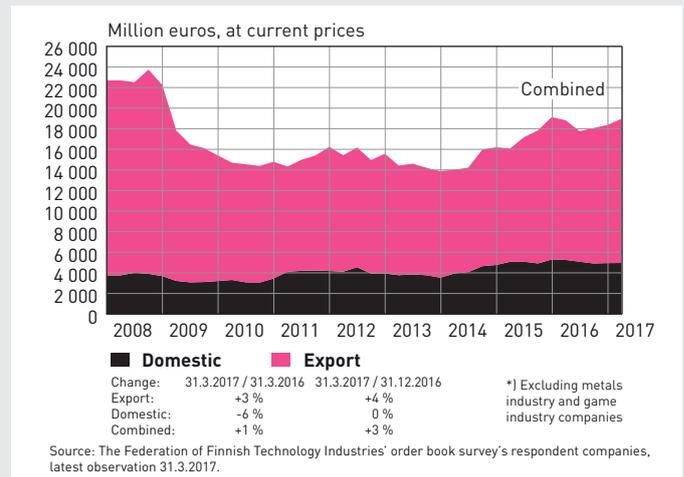
Value of New Orders in the Technology Industry\* in Finland



Tender Requests\* Received by Technology Industry Companies in Finland



Value of Order Books in the Technology Industry\* in Finland





## Electronics and Electrotechnical Industry in Finland

### Order trends augur well for turnover growth

The turnover of companies in the electronics and electrotechnical industry (telecommunications equipment, electrical equipment and medical technology) in Finland totalled EUR 14.3 billion in 2016. This is two per cent less than in 2015. In January 2017 however, turnover was 21 per cent higher than twelve months earlier. In 2008, prior to the financial crisis, turnover in Finland was EUR 30.4 billion.

Both new orders and order books in the electronics and electrotechnical industry were higher in early 2017 than twelve months earlier. However, the value of orders did not quite reach the level recorded at the end of 2016.

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 in the industry between January and March was eight per cent lower than

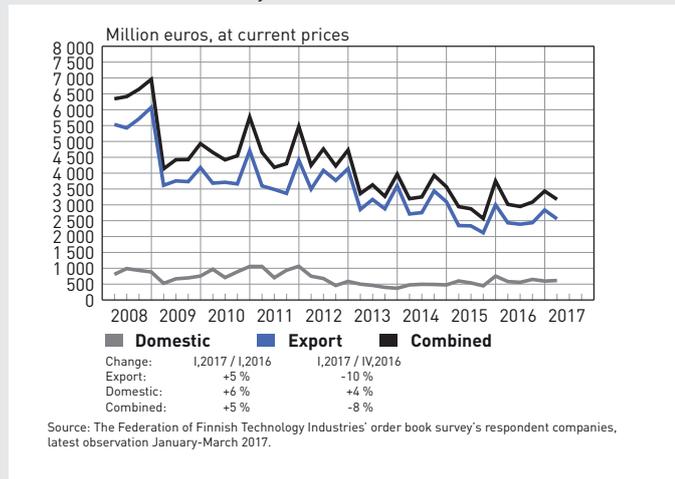
between October and December, but five per cent higher than in the corresponding period in 2016.

At the end of March, the value of order books was down four per cent from the end of December, but five per cent higher than in March 2016.

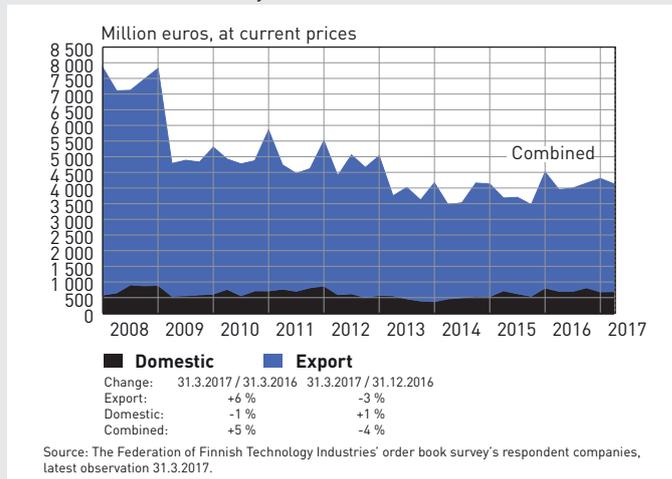
Judging from order trends in recent months, the turnover of electronics and electrotechnical industry companies is expected to remain higher in the spring of 2017 as in the corresponding period last year.

The number of personnel in electronics and electrotechnical companies in Finland declined slightly in the January-March period, totalling some 37,200 at the end of March. Personnel decreased by more than two per cent, or some 800 employees from the 2016 average.

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



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





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## Mechanical Engineering in Finland

### Orders continue to expand

The turnover of mechanical engineering companies (machinery, metal products and vehicles) in Finland totalled EUR 28.2 billion in 2016. Turnover was up one-half per cent from 2015. In January 2017 however, turnover was 19 per cent higher than twelve months earlier. In 2008, prior to the financial crisis, turnover was EUR 33.3 billion.

The level of new orders in mechanical engineering was significantly higher in early 2017 than twelve months earlier. Order books were stronger than in December.

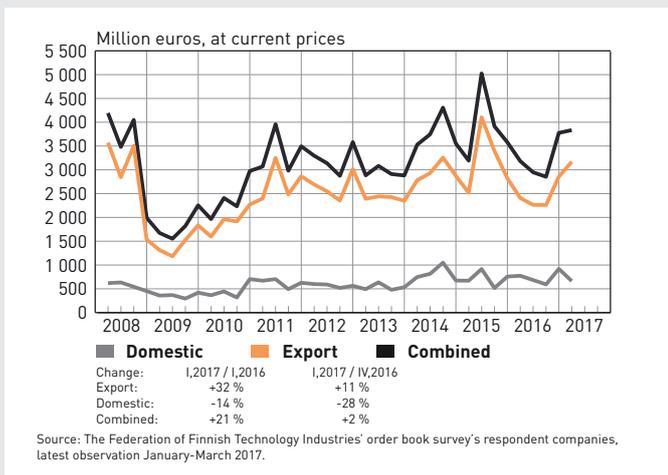
The mechanical engineering companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary value of new orders between January and March was slightly higher than in the preceding quarter, and 21 per cent higher than in the corresponding period in 2016.

At the end of March, the value of order books was up six per cent from the end of December, but slightly lower than in March 2016.

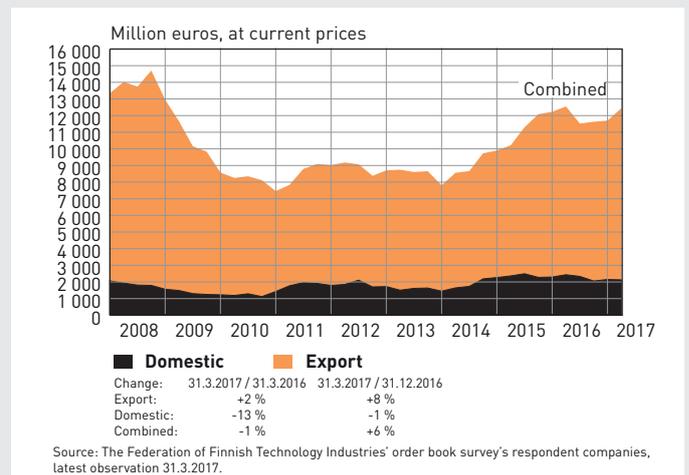
Judging from order trends in recent months, the turnover of mechanical engineering companies is expected to be higher in the spring of 2017 than in the corresponding period last year.

The number of personnel in mechanical engineering companies in Finland increased slightly in the January–March period, totalling some 124,200 at the end of March. Personnel increased by slightly more than one per cent, or about 1,800 employees from the average number in 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

### Rising prices and production volumes boost turnover

The turnover of metals industry companies (steel products, non-ferrous metals, castings and metallic minerals) in Finland amounted to EUR 8.7 billion in 2016. This is almost four per cent less than in 2015. The turnover contracted due to the year-on-year decline in prices. However, producer prices have risen significantly since the summer of 2016, and as a result, the turnover in January was 22 per cent higher than twelve months earlier. In 2007, prior to the financial crisis, the metals industry turnover in Finland totalled EUR 11.2 billion.

The total production of steel products, non-ferrous metals, castings and metallic minerals in Finland between January and February increased by five per cent year-on-year. Production of non-ferrous metals, metallic minerals and castings increased in particular.

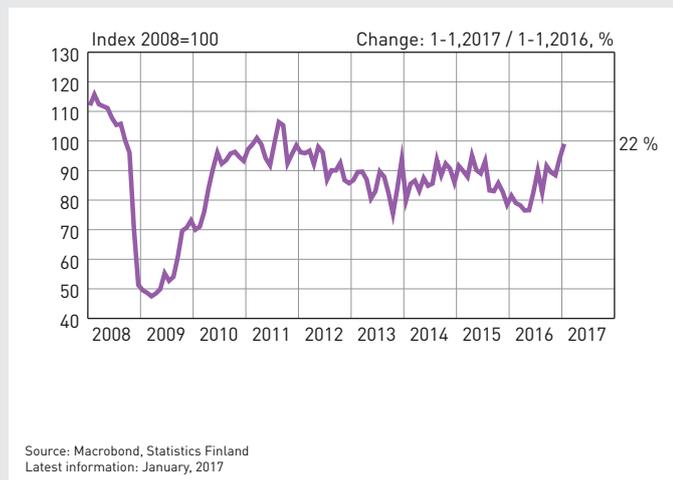
Global steel production was up six per cent in the January–March period from twelve months earlier. Production increased by four per cent in the EU, by seven per cent in North America and five per cent in Asia. The global crude steel capacity utilisation ratio in March 2017 was 72.7 per cent, which is the highest level reported in two years.

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

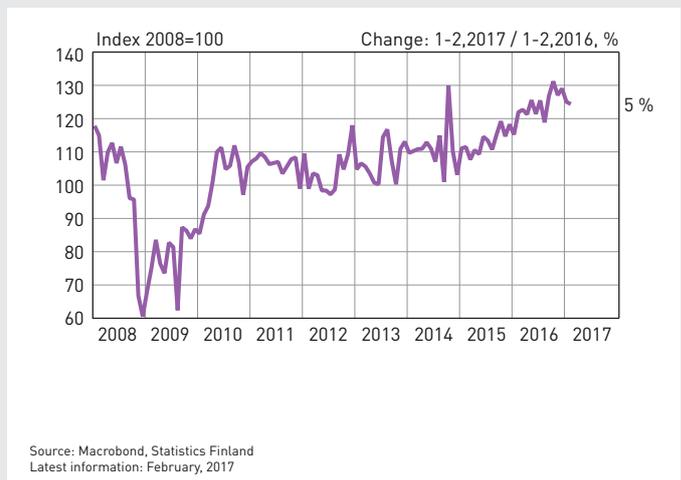
The turnover of metals industry companies in the spring of 2017 is expected to be higher than in the corresponding period last year.

The number of personnel in metals industry companies in Finland declined slightly in the January–March period, totalling some 15,000 at the end of March. Personnel decreased by more than two per cent, or some 350 employees from the 2016 average.

Turnover of the Metals Industry in Finland



Production Volume of the Metals Industry in Finland





## Consulting Engineering in Finland

### Order growth remains strong

The turnover of consulting engineering companies (industrial, social and construction expert services) in Finland totalled EUR six billion in 2016. Turnover was up nine per cent from 2015. In January 2017, turnover was 13 per cent higher than twelve months earlier. In 2008, prior to the financial crisis, turnover in Finland was EUR 5.5 billion.

Strong growth of both new orders and order books continued in early 2017. Typically for the sector, new order volumes tend to 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 January and March was seven per cent higher than in the preced-

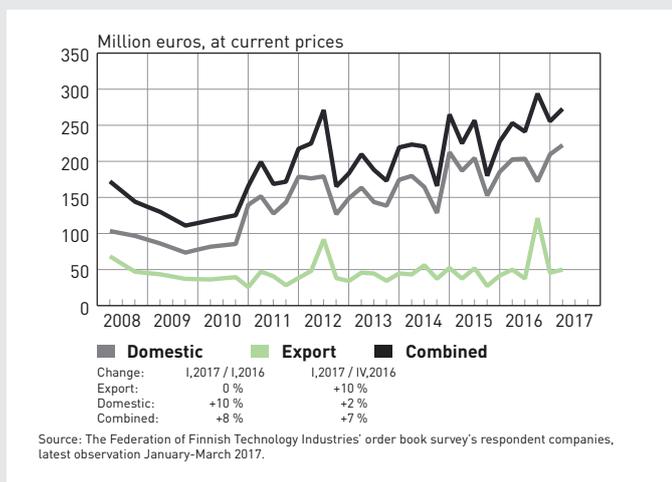
ing quarter and eight per cent higher than in the corresponding period in 2016.

At the end of March, the value of order books was four per cent higher than at the end of December, and 12 per cent higher than in March 2016.

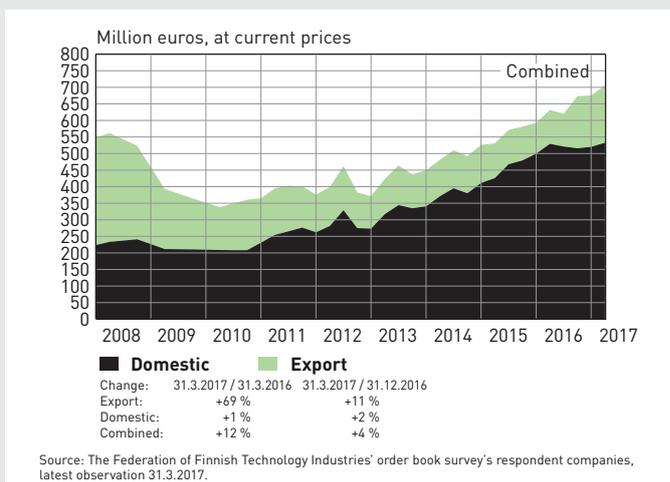
Judging from order trends in recent months, the turnover of consulting engineering companies is expected to be higher in the spring of 2017 than in the corresponding period last year.

The number of personnel in consulting engineering companies in Finland increased slightly in the first quarter, totalling some 50,800 at the end of March. Personnel increased by some two per cent, or close to 1,000 employees from the 2016 average.

Value of New Orders in the Consulting Engineering in Finland



Value of Order Books in the Consulting Engineering in Finland





## Information Technology in Finland

### New orders bounce back after the drop in 2016

The turnover of information technology companies (IT services and software) in Finland totalled EUR 11.4 billion in 2016. Turnover was up almost four per cent from 2015. In January 2017, turnover was 10 per cent higher than twelve months earlier. In 2008, prior to the financial crisis, turnover in Finland was EUR 6.7 billion.

New orders were at a higher level than twelve months earlier in the first quarter. However, they remained lower than in the October–December period. Order books remained steady. Typically for the sector, new order volumes tend to fluctuate strongly from one quarter to another.

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 January and March was 22 per cent lower than in the preceding quarter,

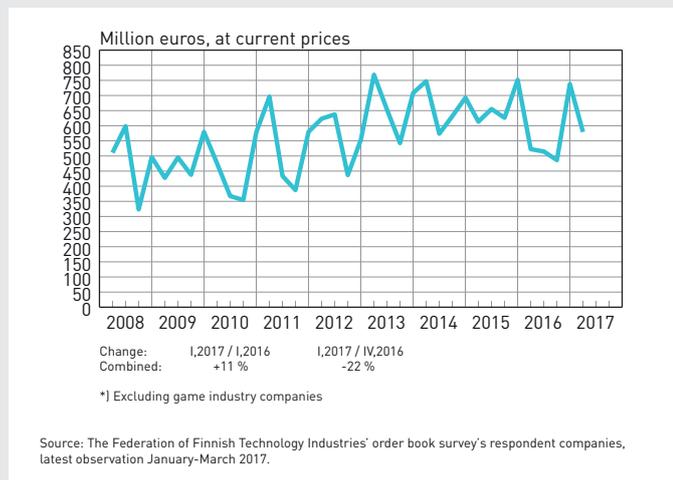
but 11 per cent higher than in the corresponding period in 2016. Game industry companies are not included in the survey.

At the end of March, the value of order books was similar to the value reported at the end of December. There was no change from March 2016 either.

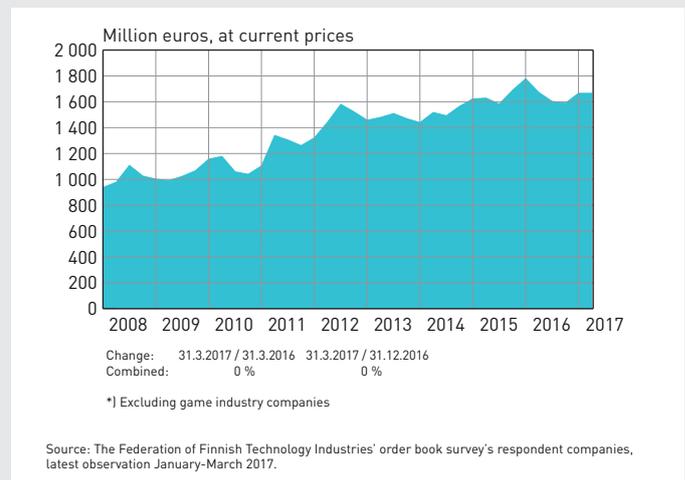
Judging from order trends in recent months and the positive development of game industry, the turnover of information technology companies is expected to be higher in the spring of 2017 than in the corresponding period last year.

The number of personnel in information technology companies in Finland increased slightly in the first quarter, totalling some 60,900 at the end of March. Personnel increased by almost one per cent, or 500 employees from the 2016 average.

Value on New Orders in the Information Technology in Finland



Value of Order Books in the Information Technology\* in Finland





# Staff numbers up abroad, slightly down in Finland in 2016

Staff employed by Finnish technology industry companies' foreign subsidiaries increased by 12 per cent in 2016. At the same time, staff numbers in Finland fell by approximately one per cent. Finnish technology industry companies employed a total of 571,000 people in 2016. Domestic operations accounted for 286,000 jobs, while 285,000 people worked abroad.

Staff numbers in international subsidiaries increased in the electronics and electrotechnical industry (+25%), mechanical engineering (+6%) and information technology (+6%). Foreign staff numbers fell in metals industry (-18%) and consulting engineering (-2%). In regional comparison, technology industry personnel increased in both advanced (+22%) and emerging markets (+5%). In Western Europe, personnel numbers were up by some 14 per cent. In North America, staff numbers were up by 45 per cent. Significant restructuring in a few companies also affected personnel numbers in 2016.

As much as 60 per cent of foreign staff employed by Finnish technology industry companies is located in low-cost economies in emerging regions: Asia, Africa, the Middle East, Central and Eastern Europe and Latin America.

The largest concentrations of foreign subsidiaries in 2016, measured by number of staff, are as follows: China (40,700), India (31,600),

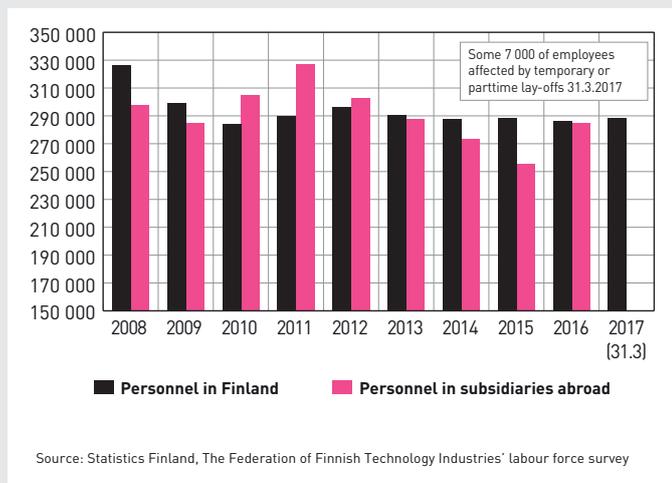
United States (29,400), Germany (18,600), Sweden (14,900), Poland (14,800), Mexico (14,000), France (9,600), Brazil (8,100) and United Kingdom (7,500).

In Finland, technology industry companies decreased their staff by some 2,500 people in 2016. Since 2008, the total number of staff has dropped by 40,000.

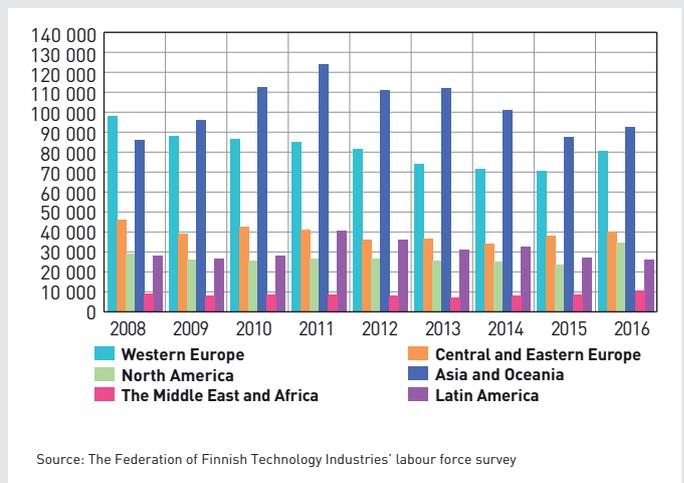
According to the Federation of Finnish Technology Industries' quarterly survey, personnel numbers were growing in Finland between January and March. All in all, staff numbers were up by slightly less than one per cent from the average numbers in 2016. At the end of March, technology industry companies employed 288,000 people in Finland.

Technology industry companies face global competition both in Finland and the countries where their international subsidiaries are based. To maintain their competitiveness, companies have shifted their production and services to emerging markets in particular and to countries with low labour costs. The challenges of the global economy are expected to continue over the next few years.

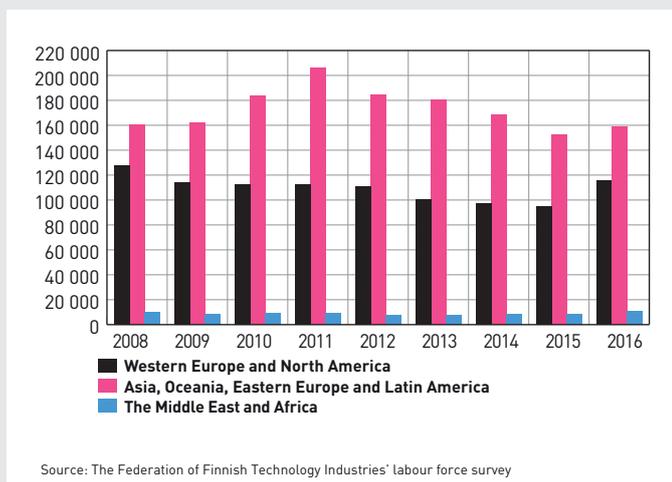
Personnel in the Technology Industry



Technology Industry Personnel in Subsidiaries Abroad



Technology Industry Personnel in Subsidiaries Abroad



Survey of overseas staff

In March–April 2017, the Federation of Finnish Technology Industries conducted a survey of the number of domestic and international staff employed by its member companies at the end of 2016, by country, as well as their turnover during 2016. Member companies of the Federation of Finnish Technology Industries account for around 80 to 90 per cent of all technology companies operating in Finland, measured by turnover.

Foreign subsidiaries are companies in which the Finland-based parent company has a share of at least 50 per cent. The number of international staff can change by way of company acquisition/divestment, expansion/reduction of operations, or increase/decrease in the percentage of ownership.

The number of staff in Finland by the end of March 2017 was investigated as part of the quarterly survey. Information on suspensions, temporary employment and recruitment was gathered separately.



## Electronics and electrotechnical industry

Finnish electronics and electrotechnical industry companies employed a total of 159,000 people in 2016. Of them, 121,000 employees worked in international subsidiaries and 38,000 in Finland. Staff numbers abroad increased by 25 per cent in 2016. In 2000, 63,000 employees were based in Finland and 55,000 in subsidiaries abroad.

More than 70 per cent of all international staff employed by Finnish electronics and electrotechnical companies are located in the emerging countries of Asia, Africa, the Middle East, Central and Eastern Europe and Latin America. In 2016, the number of personnel increased in advanced countries in particular.

In Finland, electronics and electrotechnical industry companies reduced their personnel by more than two per cent in the first quarter of 2017 from the 2016 average, employing 37,200 people in total at the end of March.

## Mechanical engineering

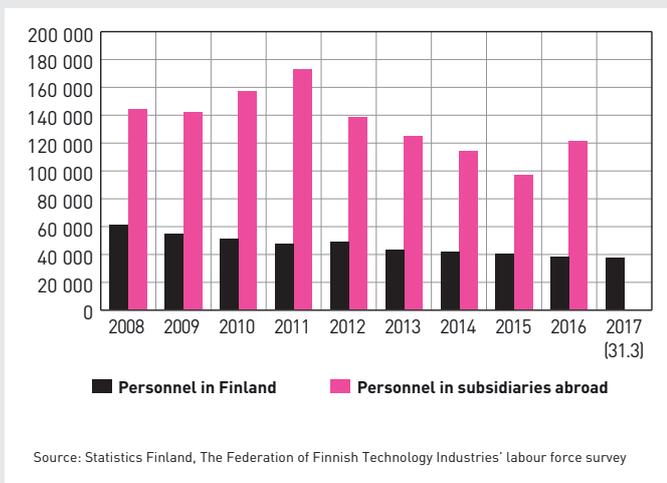
Finnish mechanical engineering companies employed a total of 250,000 people in 2016. In excess of 122,000 employees worked in Finland and slightly less than 128,000 abroad. In the reference year 2000, staff numbers were 130,000 in Finland and 63,000 in foreign subsidiaries.

In 2005–2008, international staff grew by almost 50 per cent (35,000 new employees) due to investment projects and corporate restructuring, but shrank by almost six per cent in 2009. In 2010–2015, staff numbers in foreign subsidiaries increased by slightly less than 20 per cent. In 2016, the number of international staff increased by six per cent. Personnel in Finland shrank by some two per cent.

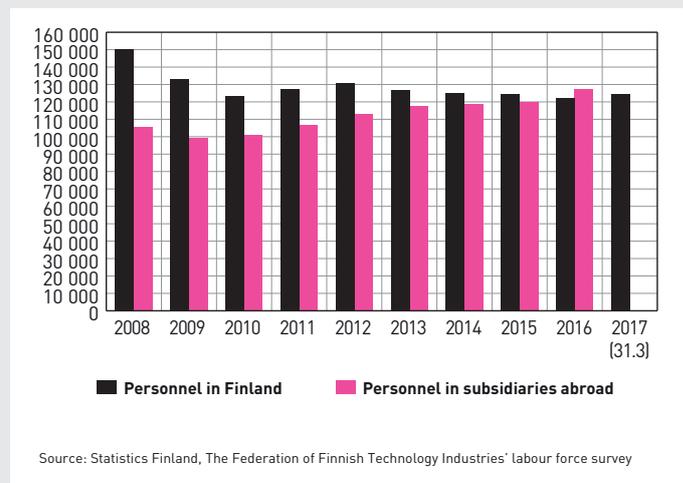
About half of all international staff employed by Finnish mechanical engineering companies are located in the developed countries of Western Europe and North America.

In Finland, mechanical engineering companies increased their personnel by some 1.5 per cent between January and March from the 2016 average, employing some 124,000 people in total at the end of March.

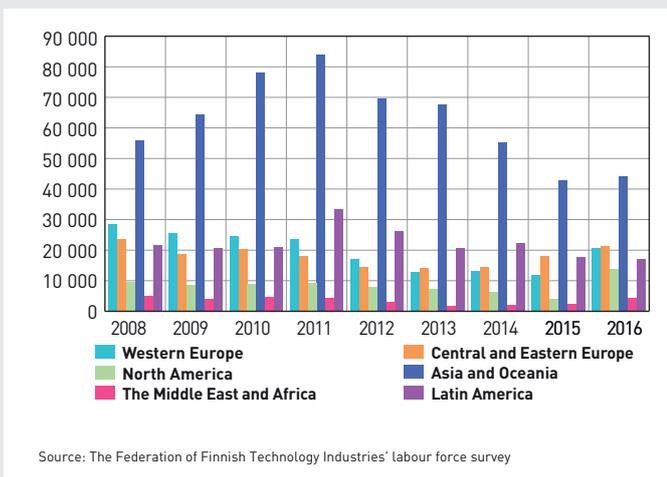
Personnel in the Electronics and Electrotechnical Industry



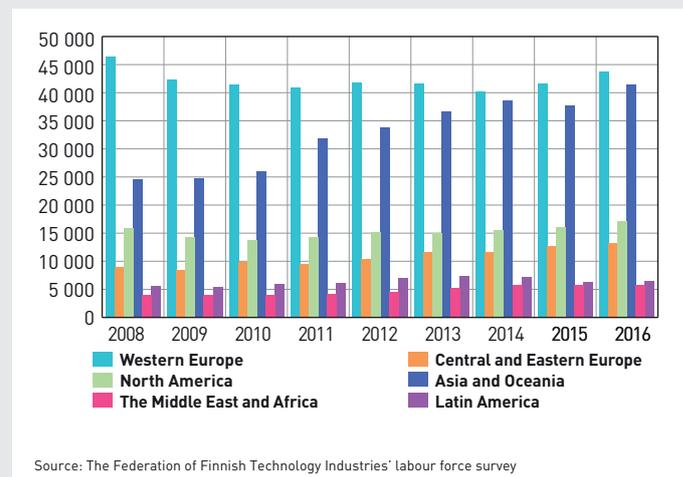
Personnel in the Mechanical engineering



Electronics and Electrotechnical Industry Personnel in Subsidiaries Abroad



Mechanical Engineering Personnel in Subsidiaries Abroad





## Metals industry

Finnish metals industry companies employed a total of 31,000 people in 2016. About 15,500 employees worked in international subsidiaries and 15,500 in Finland. In the reference year 2000, staff numbers were in excess of 12,000 abroad and slightly less than 18,000 in Finland.

In 2016, the average reduction in staff numbers in Finland was 350 employees, or 2.5 per cent. International staff decreased by almost 20 per cent. Significant corporate restructuring contributed to the decrease. More than 70 per cent of all international staff employed by Finnish metals industry companies are located in Western Europe and North America.

In Finland, metals industry companies reduced their personnel by about two per cent in the first quarter of 2017 from the 2016 average, employing some 15,000 people in total at the end of March.

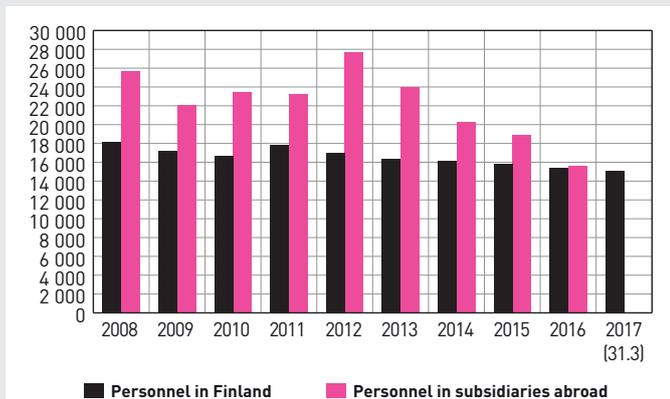
## Consulting engineering

Finnish consulting engineering companies employed slightly less than 56,000 people in 2016. Slightly less than 50,000 employees worked in Finland and some 6,000 in international subsidiaries. In the reference year 2000, staff numbers totalled 31,000 in Finland and slightly fewer than 3,000 abroad. Personnel numbers abroad shrank by some two per cent from 2015 to 2016. In contrast, personnel numbers in Finland grew by more than three per cent.

Slightly over half of international staff employed by Finnish consulting engineering companies are located in Western Europe and slightly fewer than half in emerging countries.

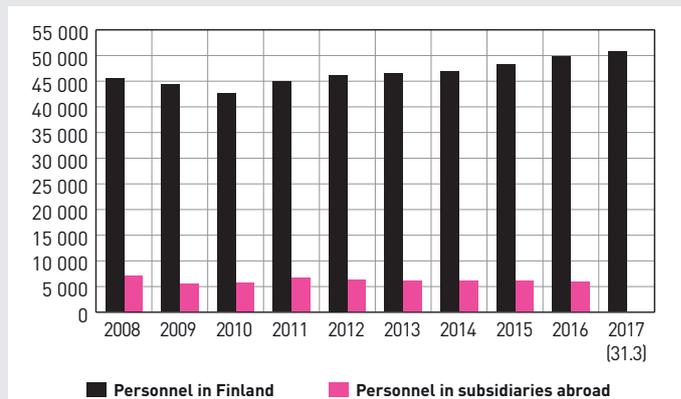
In Finland, consulting engineering companies increased their personnel by approximately two per cent between January and March from the 2016 average, employing 51,000 people in total at the end of March.

Personnel in the Metals Industry



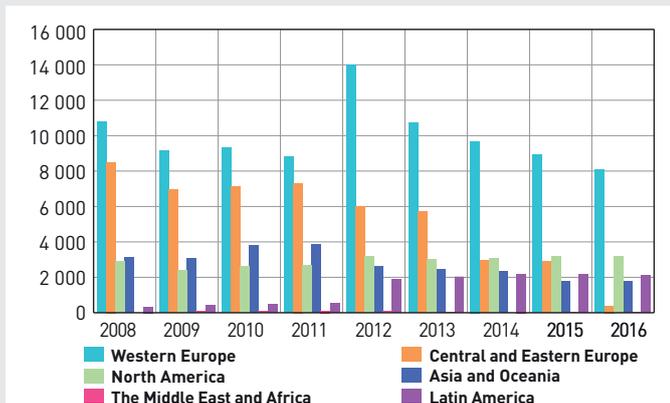
Source: Statistics Finland, The Federation of Finnish Technology Industries' labour force survey

Personnel in Consulting Engineering



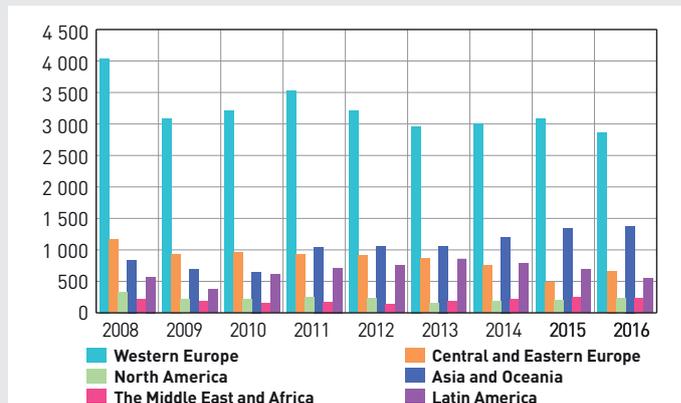
Source: Statistics Finland, The Federation of Finnish Technology Industries' labour force survey

Metals Industry Personnel in Subsidiaries Abroad



Source: The Federation of Finnish Technology Industries' labour force survey

Consulting Engineering Personnel in Subsidiaries Abroad



Source: The Federation of Finnish Technology Industries' labour force survey

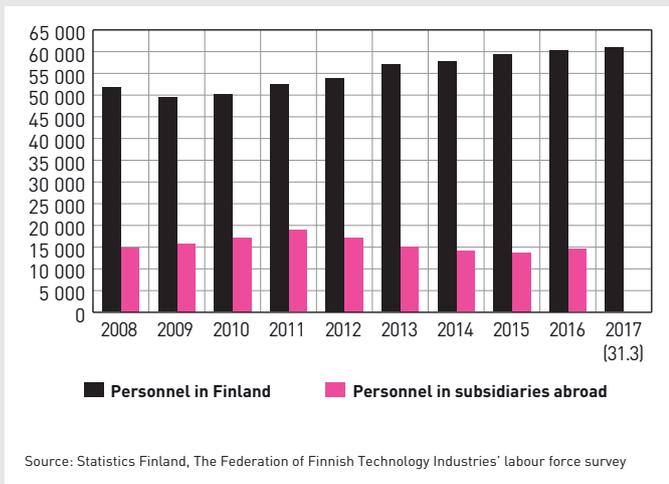
## Information technology

Finnish information technology companies employed a total of 75,000 people in 2016. More than 60,000 employees worked in Finland and some 14,500 in international subsidiaries. In the reference year 2000, staff numbers totalled 37,000 in Finland and slightly over 5,000 abroad. In 2016, the number of international staff employed by Finnish information technology industry companies increased by six per cent. In Finland, personnel increased by two per cent.

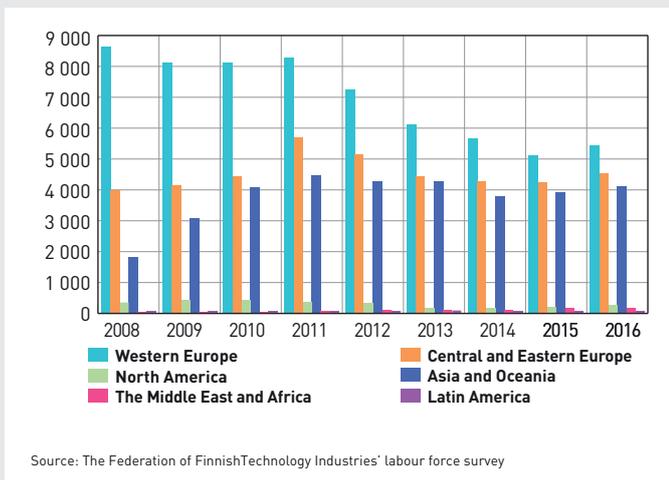
Some 40 per cent of all international staff are located in Western Europe and fewer than 30 per cent in Asia.

In Finland, information technology companies increased their personnel by about one per cent in the first quarter of 2017 from the 2016 average, employing 61,000 people in total at the end of March.

### Personnel in Information Technology



### Information Technology Personnel in Subsidiaries Abroad



## ECONOMIC OUTLOOK 2 | 2017

Information based on the situation on 2 May 2017

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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 and metal prices: [www.techind.fi](http://www.techind.fi).

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