



# Economic outlook

2/2016

- ELECTRONICS AND ELECTROTECHNICAL INDUSTRY • MECHANICAL ENGINEERING
- METALS INDUSTRY • CONSULTING ENGINEERING • INFORMATION TECHNOLOGY

## Global and Finnish Economic Outlook

Global growth rate in 2016  
in line with 2015 pg. 3

## Technology Industries in Finland

New orders at last year's level,  
order books bolstered by ship  
orders s. 5





# Global growth rate in 2016 in line with 2015



Global growth forecasts have been revised slightly downwards since the beginning of the year. In April, the International Monetary Fund (IMF) lowered its projection for global growth in 2016 to 3.2 per cent. The world economy expanded by 3.1 per cent in 2015.

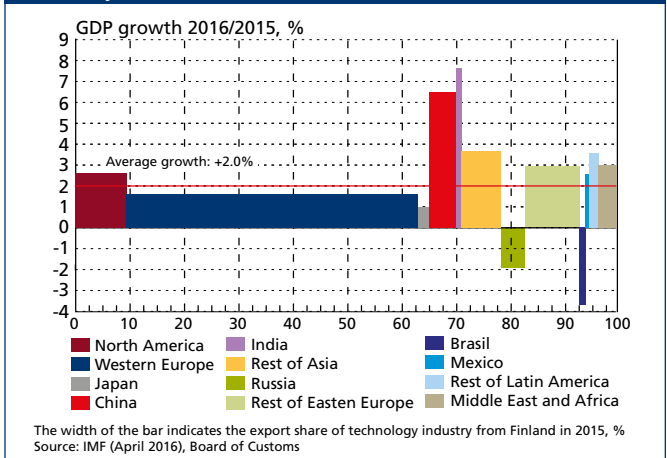
A global growth rate of three per cent is a sign of modest economic development. The average annual economic growth rate was 4.2 per cent in 1998–2007, 5.4 per cent immediately after the financial crisis in 2010 and 4.2 per cent in 2011.

Since then, the growth rate has gradually slowed to around three per cent. At the same time, real interest rates have fallen to close to zero globally. This is of historical importance. The last time this happened was in the 1970s when high inflation resulted in real interest rates being negative by 6 to 7 per cent. Today, the low level of real interest rates is a sign of sluggish demand and investment activity, as well as the massive monetary stimulus measures taken by central banks. Central banks have introduced negative interest rates in the euro area, Denmark, Japan, Sweden and Switzerland. These countries account for one quarter of the global economy. This situation is problematic for the finance sector, as yields are weak.

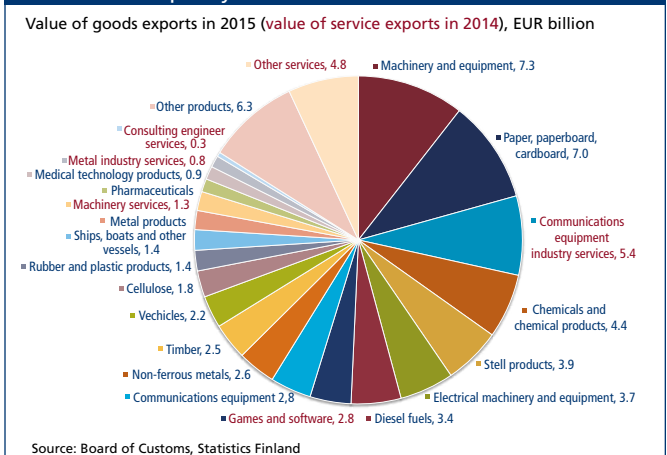
Future development is subject to great uncertainty at the moment. Uncertainty is also arising due to China, as well as other developing economies such as Brazil and Russia. These countries are either reporting weaker investment and manufacturing activity, or a considerable slowdown in growth. The instability of the Chinese economy is being caused by the country's growing rate of indebtedness and risks related to the stability of its financial system. The overall debt burden of Chinese corporations, households and the government is close to 250 per cent of GDP, which is comparable to the level of the United States and the euro area. The need to arrest the fast pace at which debt is accumulating increases the worry of reduced investment and problems in the banking sector.

Export demand for the Finnish technology industry and Finland's entire export sector depends on economic growth in Europe, because Europe accounts for some 70 per cent of all Finnish exports. In 2015, exports of goods by the Finnish technology

## Export Demand for Technology Industry in Finland Will Grow by 2.0% in 2016



## Services Complement Finland's Export Palette, Problems Related to Capacity and Lack of Growth



industry increased by some two per cent. Western and Central Europe was the only geographical area where exports from Finland grew. A similar development may occur this year if the actual growth rate is as projected by the IMF. The GDP growth rate in EU member states is projected to be 1.8 per cent, which is close to the growth rate of 2015.

## Increasing the level of investment is of vital importance in Finland

The weak trend in corporate investment in Finland since 2008 is a cause of concern. Development has been much weaker in Finland than in competing countries. According to statistics compiled by the OECD, while fixed corporate investment will also grow slightly in Finland in 2016, it will remain almost 10 per cent below the 2005 level. The level has dropped by as much as 25 per cent from 2008. Fixed investment refers to companies' productive investments and software purchases.

Fixed corporate investment has developed much more favourably in competing countries in recent years. In 2016, investments in Sweden will be some 40 per cent higher than in 2005, while in the USA and the Netherlands it will be just under 40 per cent higher. In Germany and Switzerland, investment growth from 2005 will be just under 25 per cent.

There is another angle to consider. Corporate investment in Finland remains at a lower level than the rate of depreciation. This means that companies' consumption of capital exceeds their level of investment. In this comparison, consumption of capital is measured against both fixed and R&D investment.

Finland's current economic problems are due to the significant drop in exports and the resulting multiplier effects on the national economy as a whole. The production capacity of the Finnish export sector, which in practice means Finnish industry, has dropped by a total of around 20 per cent since 2008. Even if demand were to increase significantly, the currently available production capacity would be insufficient to meet the levels of production and exports recorded in 2008. Reaching those levels would require a significantly higher level of corporate investment. This can take many forms, such as creating new production, extending the utilisation of automation and robotics, the wide-range utilisation of digital technologies and investment in R&D.

The broad-based weakening of Finnish industry is clearly indicated by the sharp decline in the number of industrial companies

in recent years. In 2007, there were 6,457 industrial companies in Finland with five employees or more. In 2014, the number had dropped to 5,523. This represents a reduction of 15 per cent. It is misleading to claim that this problem is due only to the reduced importance of Nokia and the paper industry.

Finland was an appealing location for foreign companies in the late 1990s. The situation completely reversed in the early 21st century. In 2003–2012, the value of foreign investment in Finland was equal to two per cent of GDP. The corresponding figure in Sweden was twofold, in Ireland almost threefold and in Estonia nearly fivefold.

Likewise, relatively few foreign companies operate in Finland and place their headquarters here. Foreign companies account for 19 per cent of jobs in industry and 16 per cent of jobs in commerce. The corresponding figures in Sweden are 35 and 23 per cent. The figures for Estonia are similar to those in Sweden, whereas in Ireland, as much as 48 per cent of industry jobs and 23 per cent of jobs in commerce are provided by companies under foreign ownership.

### Services complement Finland's export palette

Finland's goods exports include machinery and equipment, paper products, chemicals, steel products, fuels, communications equipment, timber, vehicles, cellulose, rubber and plastic products, ships, pharmaceuticals, etc. Our goods exports are complemented by services, such as communications equipment industry services, games and software, as well as metals industry and other industry services. Consulting engineering services also play a role in the export sector. Enterprise service exports include royalty income, licence fees and similar profits earned by Finnish companies through their foreign subsidiaries.

In terms of employment and the public finances, it is essential that corporate investment be increased. It is up to companies themselves, according to their ability and willingness to do so, to make independent investment decisions. During the last 15 years, investment activity has shifted to countries outside Finland. Reversing this trend would require major improvements in our operating environment. Finland needs bold and decisive reform based on independent, determined decision-making. Finns are paying a high price for the lack of boldness of their decision makers.

Finnish governments tend to favour cosmetic changes in order to promote investment. To turn the tide, we need universal changes in areas such as the labour market, corporate taxation and deregulation, as well as simpler authorisation procedures.



# New orders at last year's level

The turnover of technology industry companies in Finland fell slightly from 2014 to 2015, amounting to some EUR 66 billion. In 2008, prior to the financial crisis, the corresponding figure was EUR 86 billion. In January of this year, turnover was five per cent lower than twelve months earlier.

The level of new orders received by technology industry companies between January and March remained at the same level as in the corresponding period in 2015, but significantly lower than in the preceding quarter. Order books contracted slightly in early 2016, but were almost 20 per cent higher at the end of March than in 2015. The expansion of order books since early 2014 is largely due to previously received, large ship orders.

Industry companies reported growth in the number of calls for tenders in early 2016. The market situation in all technology industry sectors had revived a little.

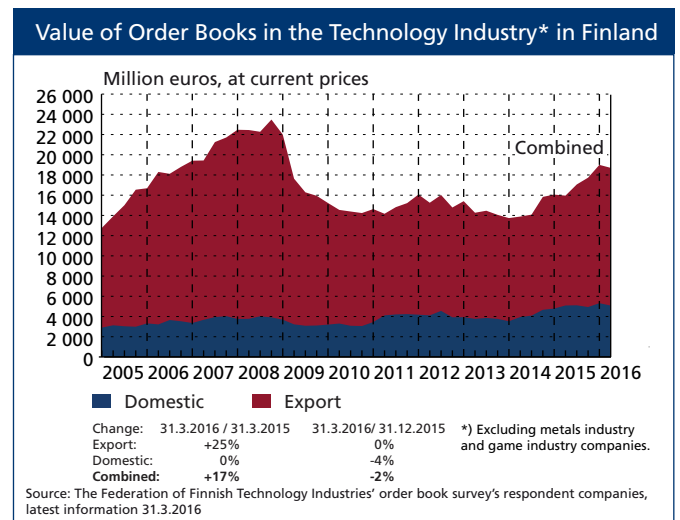
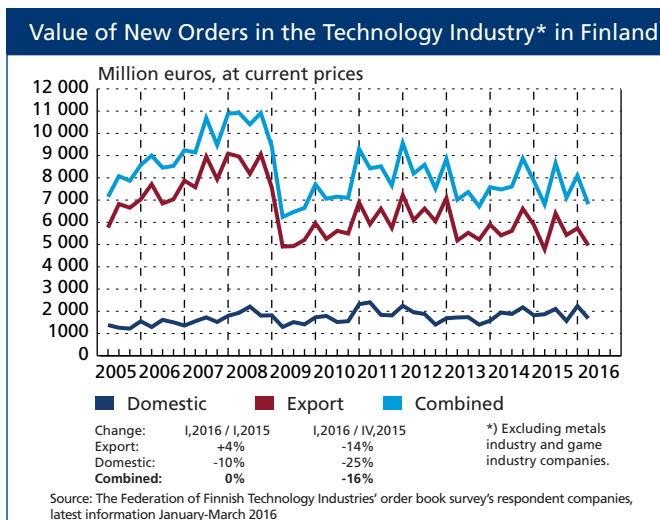
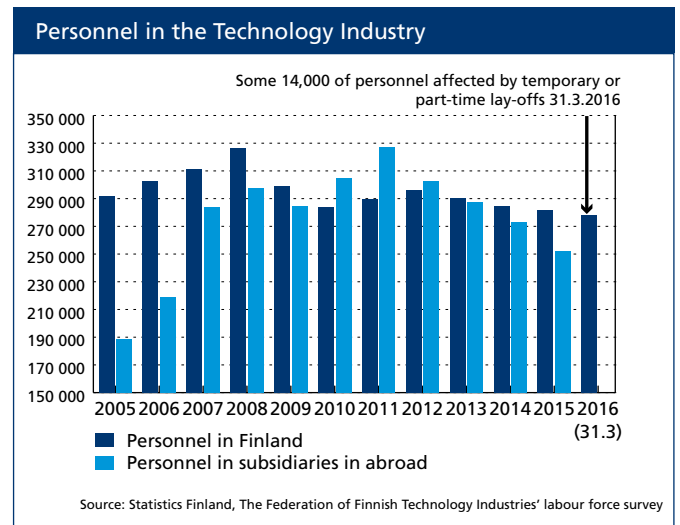
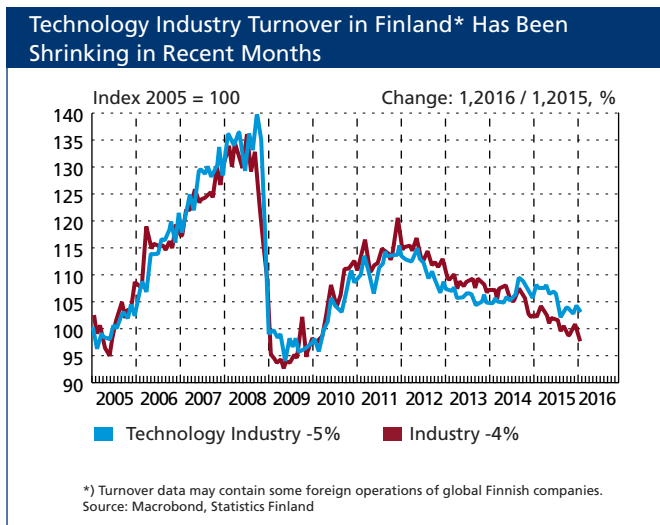
The companies that took part in the Federation of Finnish Technology Industries' survey of order books reported that the monetary value of new orders between January and March was at the same level as in the corresponding period in 2015, but 16 per cent lower than in the preceding quarter. Of the respondents, 51 per cent said the number of new orders was down from October–December, 44 per cent said it was up and five per cent said it had remained stable.

At the end of March, the value of order books was up 17 per cent from the corresponding period last year, but two per cent below the value reported at the end of December. Fifty-two per cent of companies reported an increase in the level of orders from December, while 38 per cent reported a drop and 10 per cent had seen no change.

Judging from order trends in recent months, the turnover of technology industry companies is expected to remain at the same or a slightly lower level in the spring of 2016 than in the corresponding period last year.

The number of personnel employed by the technology industry in Finland fell a further one per cent or by 3,000 employees in the period between January and March, from the average number in 2015. The total number of personnel was 278,000 at the end of March. Some 14,000 employees were affected by temporary or part-time lay-offs. In 2008, the industry employed a total of 326,000 people in Finland.

Despite this overall reduction, technology industry companies recruited a total of 7,500 new employees in January–March. In 2015, recruitments averaged 7,100 per quarter. Some companies were increasing their personnel, while others were hiring new employees due to retirements and employee turnover.







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## Orders slightly up from the previous year

The turnover of companies in the electronics and electrotechnical industry (telecommunications equipment, electrical equipment and medical technology) in Finland fell by 11 per cent from 2014 to 2015. The decrease in turnover was especially noteworthy in the telecommunications equipment sector. Total turnover in 2015 amounted to EUR 13.2 billion. In 2008, prior to the financial crisis, turnover was approximately EUR 30.4 billion. In January of this year, turnover was 15 per cent lower than twelve months earlier.

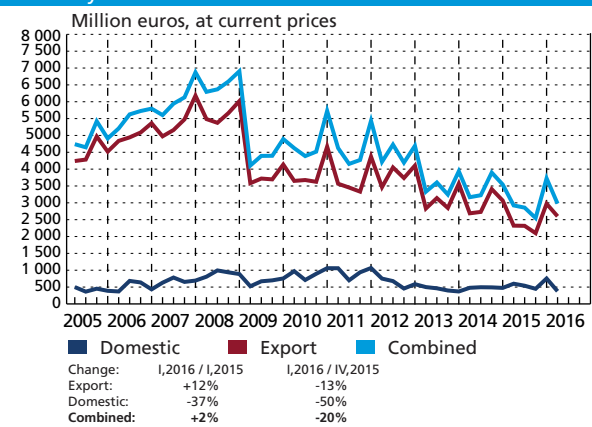
Burdened by the slump in the telecommunications equipment sector, both new orders and order books in the electronics and electrotechnical industry fell notably from the preceding quarter. Even so, order volumes were slightly higher than between January and March in 2015.

The electronics and electrotechnical industry 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 two per cent higher than in the corresponding period in 2015, but 20 per cent lower than in the preceding quarter.

At the end of March, the value of order books was up seven per cent from the corresponding period last year, but 13 per cent below the value reported at the end of December.

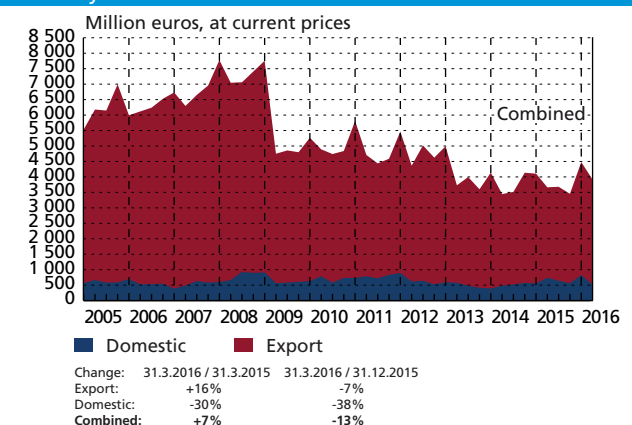
Judging from order trends in recent months, the turnover of electronics and electrotechnical industry companies is expected to remain at the same level in the spring as in the corresponding period last year.

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



Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information January-March 2016

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

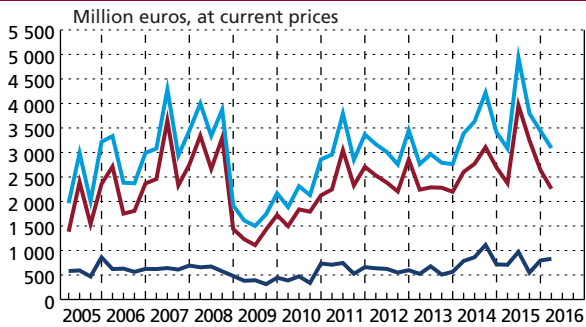


Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information 31.3.2016



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## Value on New Orders in the Mechanical Engineering in Finland



|           | I,2016 / I,2015 | I,2016 / IV,2015 |
|-----------|-----------------|------------------|
| Change:   | -5%             | -15%             |
| Export:   | +17%            | +4%              |
| Domestic: | 0%              | -10%             |
| Combined: |                 |                  |

Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information January-March 2016

## New orders at last year's level

The turnover of mechanical engineering companies (machinery, metal products and vehicles) in Finland grew by almost two per cent from 2014 to 2015 and came to EUR 27.7 billion. In 2008, prior to the financial crisis, turnover was approximately EUR 33.3 billion. In January of this year, turnover was three per cent lower than twelve months earlier.

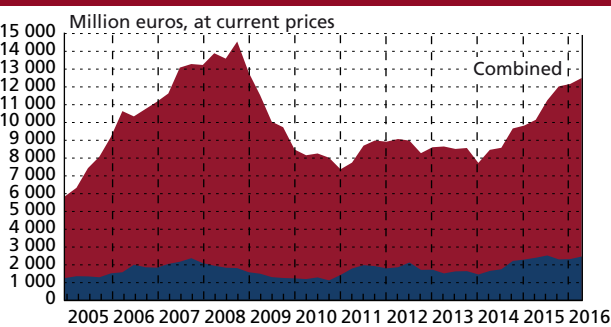
The level of new orders received by mechanical engineering companies between January and March was lower than between October and December, but at the same level as twelve months earlier. However, the order books expanded in early 2016. The expansion of order books since early 2014 is largely due to previously received large ship orders. Since these ship deliveries will be scheduled for the coming years, their effect on turnover and production in the mechanical engineering industry will be gradual over a long period leading up to 2020.

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 at the same level as in the corresponding period in 2015, but 10 per cent lower than in the preceding quarter.

At the end of March, the value of order books was 28 per cent higher year-on-year, and two per cent higher than at the end of December.

Judging from order trends in recent months, the turnover of mechanical engineering companies in the spring of 2016 is expected to remain at the same or a slightly lower level than in the corresponding period last year.

## Value of Order Books in the Mechanical Engineering in Finland



|           | 31.3.2016 / 31.3.2015 | 31.3.2016 / 31.12.2015 |
|-----------|-----------------------|------------------------|
| Change:   | +36%                  | +2%                    |
| Export:   | +3%                   | +2%                    |
| Domestic: | +28%                  | +2%                    |
| Combined: |                       |                        |

Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information 31.3.2016





## Metals Industry in Finland



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### Price level burdens turnover, production volumes up

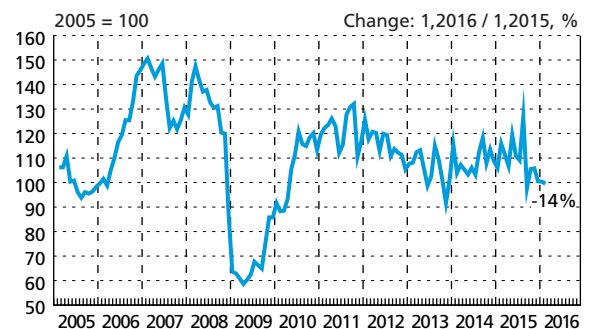
The turnover of metals industry companies (steel products, non-ferrous metals, castings and metallic minerals) in Finland grew by more than one per cent from 2014 and amounted to EUR 9.1 billion in 2015. The corresponding 2008 pre-crisis figure was EUR 11.2 billion. In January of this year, turnover was 14 per cent lower than twelve months earlier.

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 steel products and metallic minerals increased, production of non-ferrous metals remained unchanged, and the production of castings decreased.

Global steel production shrank by some three per cent between January and March from the corresponding period in 2015. Production fell by seven per cent in the EU, by three per cent in Asia and by one per cent in North America.

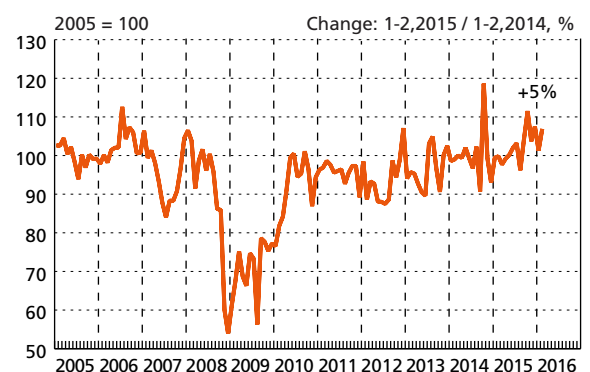
China, Japan, India, the United States and Russia were the largest producers in March. China accounted for 51 per cent of global steel production.

#### Turnover of the Metals Industry in Finland



Seasonally adjusted turnover index, latest information 1/2016  
Source: Statistics Finland

#### Production Volume of the Metals Industry in Finland



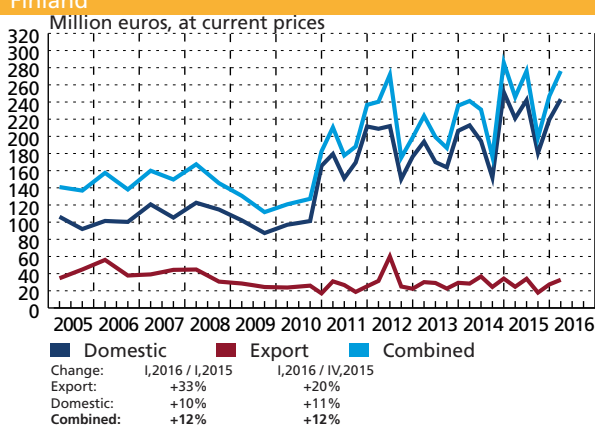
Seasonally adjusted volume index, latest information 2/2016  
Source: Statistics Finland





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## Value of New Orders in the Consulting Engineering in Finland



Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information January-March 2016

## New orders and order books pick up

The turnover of consulting engineering companies (industrial, social and construction expert services) in Finland increased by some six per cent from 2014, totalling EUR 5.5 billion in 2015. In 2008, prior to the financial crisis, the industry's turnover in Finland was the same, EUR 5.5 billion. In January 2016, turnover was 14 per cent higher than twelve months earlier.

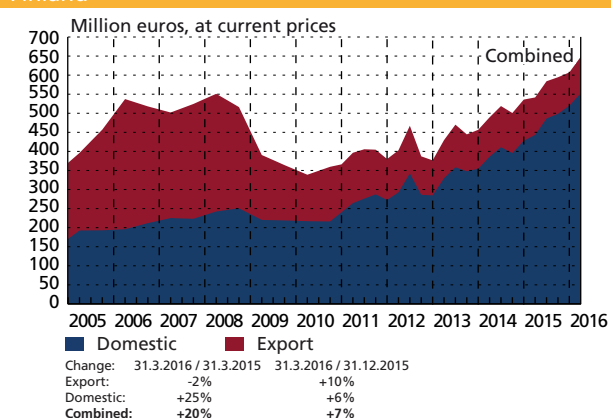
Both new orders and order books continued to pick up in the consulting engineering sector in January–March. There were no major differences between individual companies. New order volumes tend to fluctuate strongly from one quarter to another in this sector.

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 12 per cent higher than in the corresponding period in 2015 and 12 per cent higher than in the preceding quarter.

At the end of March, the value of order books was 20 per cent higher year-on-year, and seven per cent higher than at the end of December.

Judging from order trends in recent months, the turnover of consulting engineering companies in the spring of 2016 is expected to exceed that of last year.

## Value of Order Books in the Consulting Engineering in Finland



Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information 31.3.2016



# Information Technology in Finland



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## Order books up from last year

The turnover of information technology companies (IT services and software) in Finland grew by 10 per cent from 2014 to 2015. Game industry turnover grew by 33 per cent and the turnover of the rest of the information technology sector by five per cent. The game industry accounted for some 60 per cent of growth in the sector. Information technology turnover in 2015 totalled EUR 10.7 billion. In 2008, prior to the financial crisis, the industry's turnover in Finland was EUR 6.7 billion. In January of this year, turnover was two per cent higher than twelve months earlier.

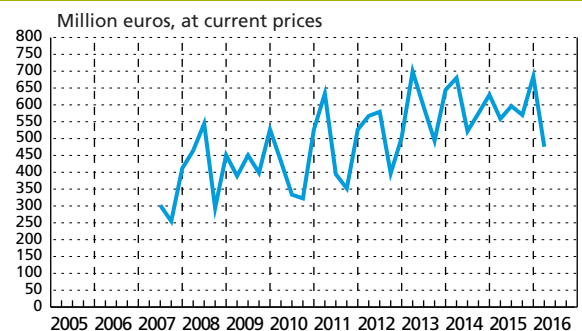
The level of new orders received by information technology companies between January and March was clearly lower than twelve months earlier and in the preceding quarter. Typically for the sector, new order volumes fluctuate strongly from one quarter to another. Order books also shrank slightly in early 2016, but were still higher than twelve months ago.

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 15 per cent lower than in the corresponding period of 2015, and 31 per cent lower than in the preceding quarter.

At the end of March, the value of order books was three per cent higher than in the corresponding period last year, but six per cent lower than at the end of December.

Judging from order trends in recent months, the turnover of information technology companies in spring 2016 is expected to remain at the same level as in the corresponding period last year.

### Value of New Orders in the Information Technology in Finland

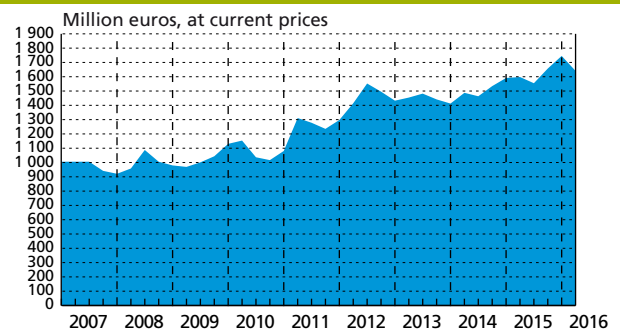


Change: I, 2016 / I, 2015    I, 2016 / IV, 2015  
Combined:            -15%                    -31%

\*) Excl. game industry companies.

Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information January-March 2016

### Value of Order Books in the Information Technology in Finland



Change: 31.3.2016 / 31.3.2015    31.3.2016 / 31.12.2015  
Combined:                    +3%                        -6%

\*) Excl. game industry companies.

Source: The Federation of Finnish Technology Industries' order book survey's respondent companies, latest information 31.3.2016



# Staff numbers fall in Finland and abroad in 2015

The number of Finnish technology staff employed by foreign subsidiaries shrank by around eight per cent in 2015. Staff numbers in Finland fell by approximately one per cent. Finnish companies employed a total of 534,000 people in 2015. Domestic operations accounted for 282,000 jobs, while 252,000 people worked for foreign subsidiaries.

Staff numbers in international subsidiaries fell in all five main technology industry sectors. The biggest drop in staff numbers was in the electronics and electrotechnical industry, where personnel numbers shrank by as much as 16 per cent. Technology industry personnel shrank most in emerging markets, on average by 10 per cent. Personnel numbers in Western Europe fell by some four per cent. In North America, staff numbers were down by six per cent. Significant restructuring in a few companies also affected personnel numbers in 2015.

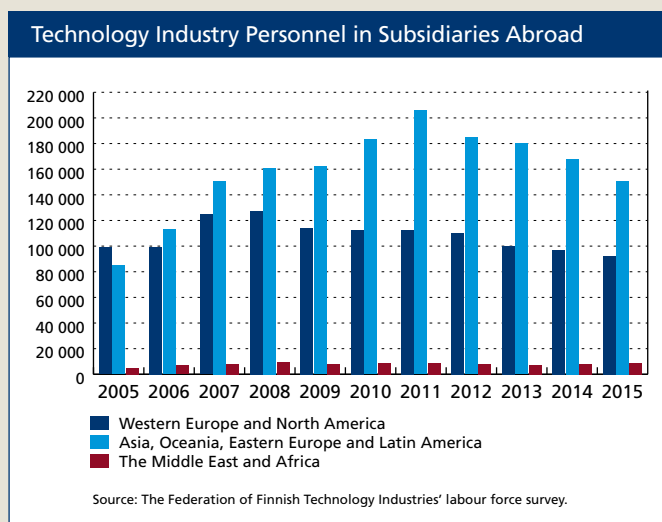
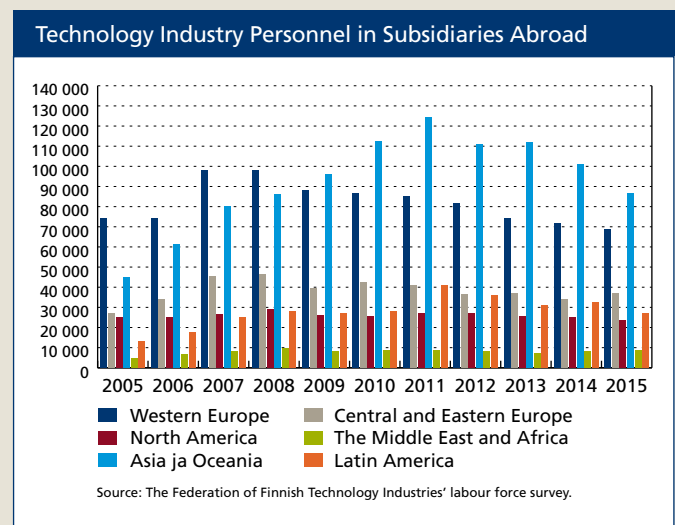
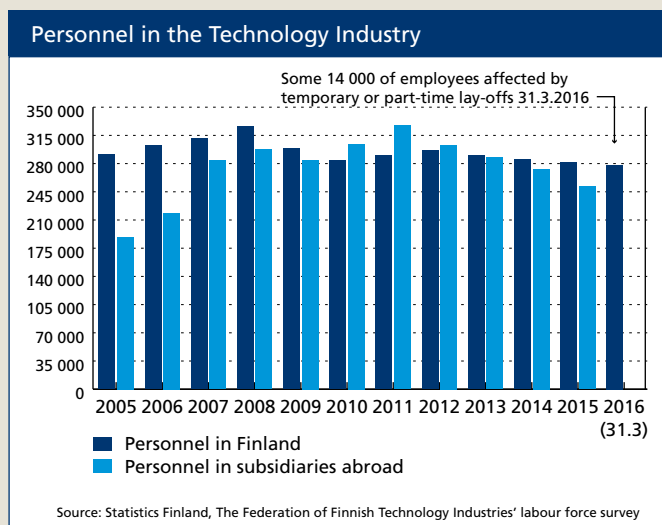
As much as 63 per cent of all staff employed by Finnish technology industry companies abroad are located in low-cost economies in emerging regions: Asia, Africa, the Middle East, Central and Eastern Europe and Latin America. In 2015, the number of personnel in these areas fell by some 17,000 people. 2015 marks the fourth consecutive year of falling staff numbers in emerging markets.

The largest concentrations of foreign subsidiaries in 2015, measured by number of staff, are as follows: China (37,900), India (25,800), United States (20,800), Germany (16,900), Mexico (15,600), Sweden (14,200), Poland (12,800), Brazil (8,000), United Kingdom (6,500) and France (6,000).

In Finland, technology industry companies decreased their staff by around 3,000 people in 2015. Since 2008, the total number of staff has dropped by 45,000.

According to the Federation of Finnish Technology Industries' quarterly survey, the downward trend in personnel numbers continued between January and March 2016. All in all, staff numbers shrank by more than one per cent from the average numbers in 2015. At the end of March, technology industry companies employed 278,000 people in Finland.

The structural changes over the last few years reflect intensifying price competition. To maintain their competitiveness, companies have shifted their production and services towards emerging markets and countries with low labour costs. On a global scale, these changes are expected to continue over the next few years.



In March–April 2016, 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 2015, by country, as well as their turnover during 2015. 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 2016 was investigated as part of the quarterly survey. Information on suspensions, temporary employment and recruitment was gathered separately.

# PERSONNEL DEVELOPMENT

## Electronics and Electrotechnical industry

Finnish electronics and electrotechnical industry companies employed a total of 136,000 people in 2015. About 95,000 employees worked in international subsidiaries and 41,000 in Finland. Staff numbers abroad shrank by 16 per cent in 2015. In 2000, 63,000 employees were based in Finland and 55,000 in subsidiaries abroad.

More than 80 per cent of all international staff employed by Finnish electronics and electrotechnical industry companies are located in the emerging countries of Asia, Africa, the Middle East, Central and Eastern Europe and Latin America. However, the number of personnel in these regions dropped by almost 14,000 people in 2015.

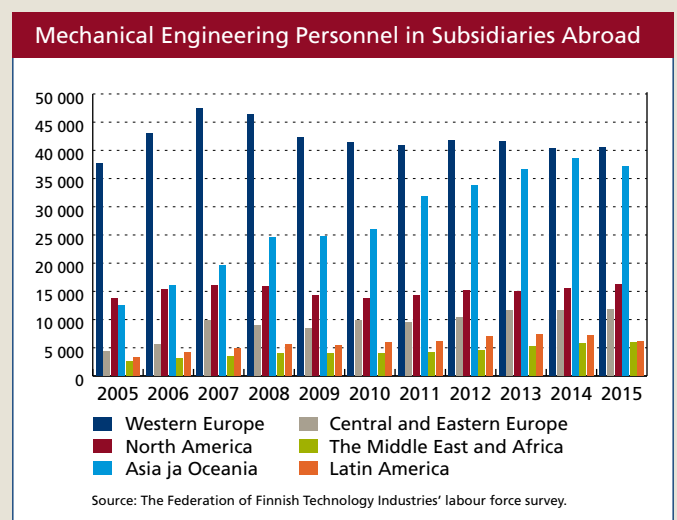
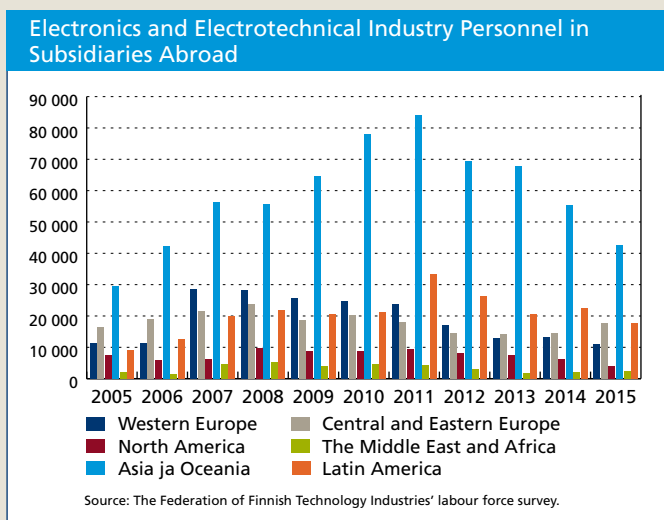
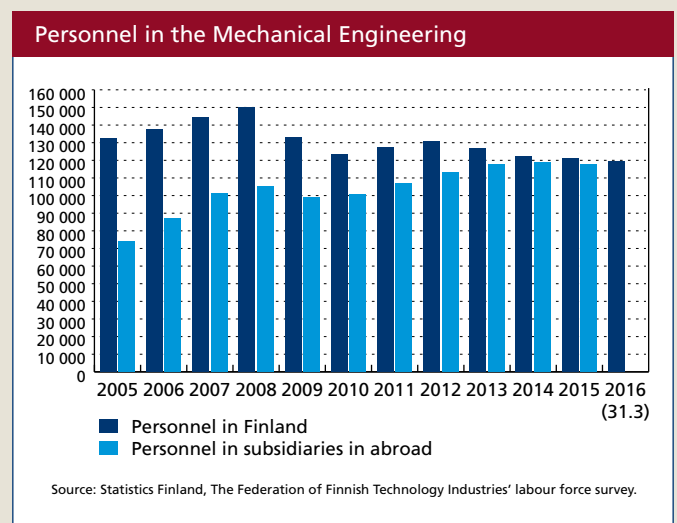
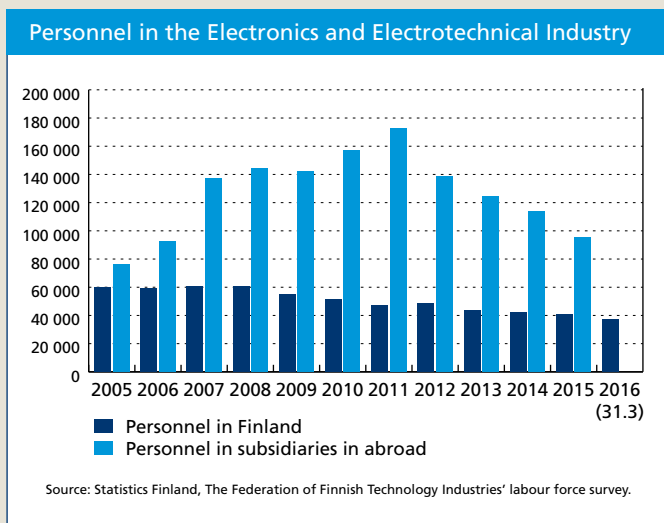
In Finland, electronics and electrotechnical industry companies reduced their personnel by 7.8 per cent in the first quarter of 2016 from the 2015 average, employing 37,000 people in total at the end of March.

## Mechanical Engineering

Finnish mechanical engineering companies employed a total of 239,000 people in 2015. Almost 118,000 employees worked in international subsidiaries and slightly less than 121,000 in Finland. 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 2010–2014, staff numbers in foreign subsidiaries increased by 18 per cent. In 2015, the number of international staff shrank by approximately one per cent, as did personnel in Finland.

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 industry companies reduced their personnel by about one per cent in the first quarter of 2016 from the 2015 average, employing 120,000 people in total at the end of March.





## Metals Industry

Finnish metals industry companies employed a total of 35,000 people in 2015. About 19,000 employees worked in international subsidiaries and 15,000 in Finland. In the reference year 2000, staff numbers were slightly less than 18,000 in Finland and in excess of 12,000 abroad.

In 2015, the average reduction in staff numbers in Finland was 600 employees, or some four per cent. The number of international personnel shrank by around seven per cent. More than 60 per cent of all international staff employed by Finnish metals industry companies are located in Western Europe and North America.

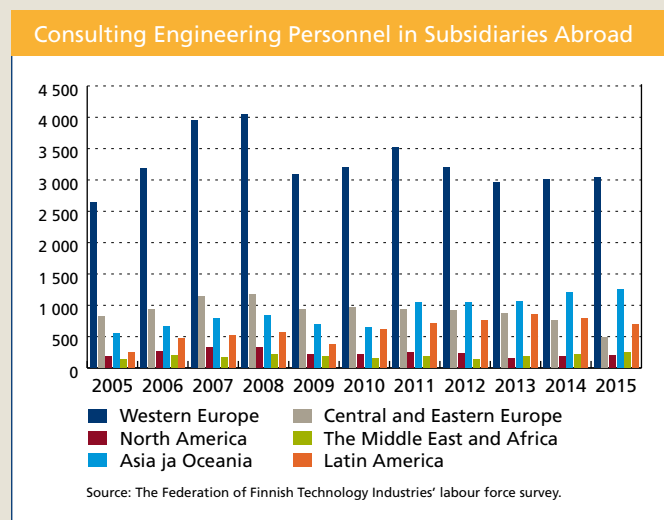
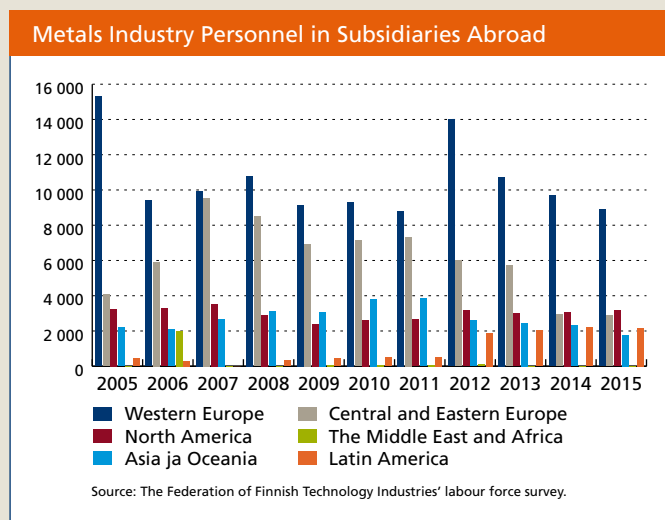
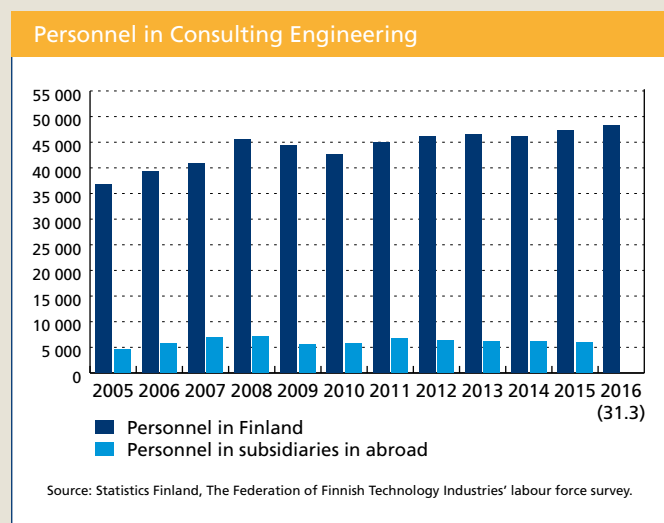
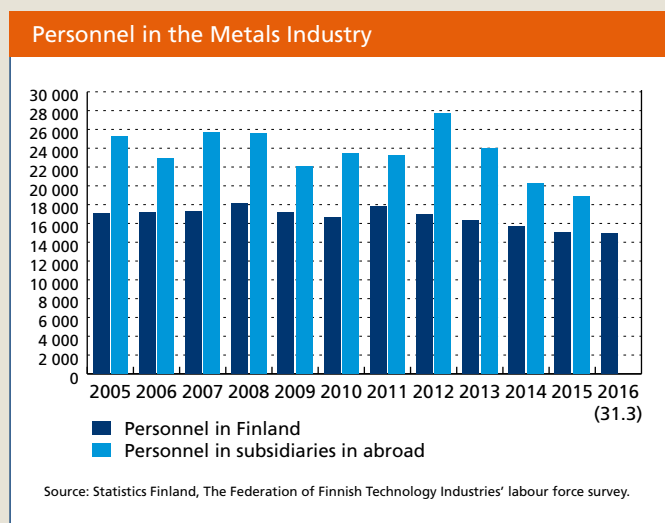
In Finland, metals industry companies reduced their personnel by about one per cent in the first quarter of 2016 from the 2015 average, employing 15,000 people in total at the end of March.

## Consulting Engineering

Finnish consulting engineering companies employed 53,000 people in 2015. A total of 47,000 employees worked in Finland and 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 four per cent from 2014 to 2015.

Slightly over half of the 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 some two per cent between January and March from the 2015 average, employing 48,000 people in total at the end of March.



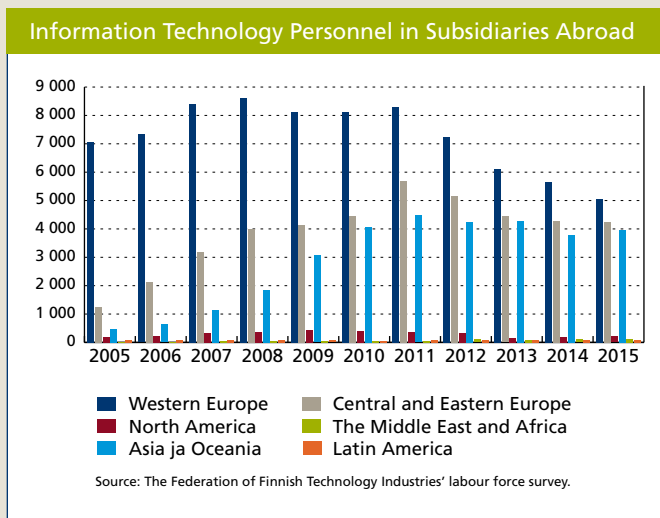
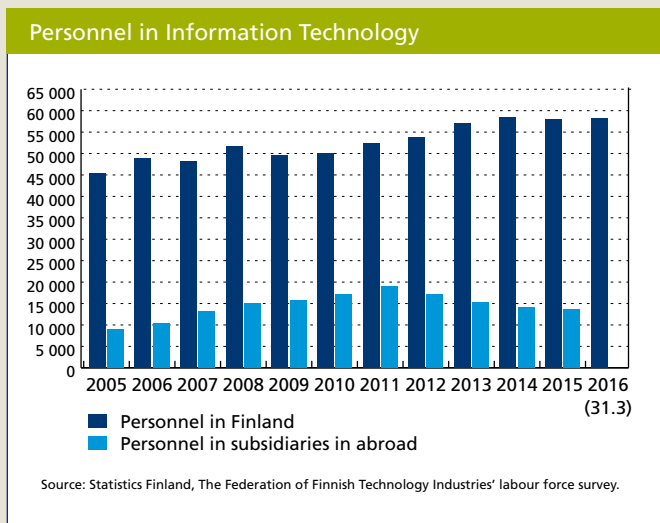
# PERSONNEL DEVELOPMENT

## Information Technology

Finnish information technology companies employed a total of 72,000 people in 2015. Some 58,000 employees worked in Finland and 14,000 in international subsidiaries. In the reference year 2000, staff numbers totalled 37,000 in Finland and slightly over 5,000 abroad. Staff numbers abroad have declined for the past four years. In 2015, international personnel shrank by three per cent.

Slightly fewer than 40 per cent of all international staff employed by Finnish information technology industry companies are located in Western Europe and fewer than 30 per cent in Asia.

In Finland, information technology companies increased their personnel by 0.4 per cent in the first quarter of 2016 from the 2015 average. At the end of March, the industry employed some 58,000 people in total.









**Itella Green**

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The Federation of Finnish Technology Industries  
Eteläranta 10, P.O.Box 10, FI-00131 Helsinki  
tel. +358 9 19231, fax +358 9 624 462  
[www.techind.fi](http://www.techind.fi)