

Economic Outlook

Technology Industries of Finland

2 | 2022

Global And Finnish Economic Outlook

Technology industry outlook burdened by the war and uncertainty, but growth is expected

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Technology Industries in Finland

Consequences of the war: slower growth, weaker profitability, postponement of investments – and even lay-offs

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ECONOMIC OUTLOOK 2 | 2022

Information based on the situation on 3 May 2022

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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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Technology industry outlook burdened by the war and uncertainty, but growth is expected

In early 2022, it looked like the year was going to be a year of hope in economic terms. Indisputably, increasing risks were discernible even then. Russia's war of aggression in Ukraine has significantly weakened the economic outlook at a single stroke.

Although the economic impact of the war seems quite limited so far, uncertainty has increased dramatically, and risks have multiplied. Russia's aggression has also changed the approach to security policy, in particular in Europe. This will have significant impacts on the European industry.

While the economic impacts of the war seem limited at the moment, wishful thinking is best avoided. Russia's future course of action is still unclear, nor do we have a clear idea on the overall economic impact of the rapidly increasing inflation. Interest rate hikes will have an impact on both the private and public sector. We cannot rule out the risk of stagflation either.

A key question for the European economy in the coming months is whether imports of Russian fossil energy will continue – and to what extent. It is clear that a complete stop of imports will have significant economic impacts, at least in the short term. It is equally clear that as the war continues, the pressure to introduce an energy embargo is mounting and it may be only a matter of time before Russian energy imports are banned.

In April, the International Monetary Fund IMF revised down its global growth forecast by 0.8 per cent from January. According to the latest forecast, global growth is projected to be 3.6 per cent in 2022. IMF sees rising energy and food prices as significant risks, in particular in developing economies.

Concerns increasing in the manufacturing sector

According to recent Purchasing Managers' Indices, concerns are increasing in manufacturing. Output increased only marginally while demand has lost momentum. Operations of the automotive industry in particular has been severely hampered by component shortages. The demand for industrial products is also starting to respond to price inflation. However, the impact of weakened demand will not be immediately reflected in production figures because the shortage of materials and raw materials means that

companies are struggling to meet current demand.

In the supply chain, the overall situation and availability of materials is weakened further by China's significant challenges in controlling COVID. As a result of the zero-tolerance policy, many large Chinese cities have been put under lockdown. This has caused unrest in China, and naturally also hinders the operation of important infrastructure such as factories and harbours.

In Europe, with the lifting of restrictions, the rebounding service sector has compensated for a weakened situation in manufacturing. Overall, the economic outlook in Europe looks promising for the first half of 2022, despite everything.

In the United States, Purchasing Managers' Indices signal that the situation in manufacturing has improved. New orders are at a high level and demand strong. The rate of increase of costs is increasing again in the US. Output prices increased at a record pace in April, the highest in the history of the index.

As a result of the war, economic storm clouds are gathering on the sky in Europe, adding to the previous economic negatives. Overall, increased uncertainty will continue with significant risks.

Inflation poses a challenge to the labour market

Eurozone inflation is hitting record heights the likes of which have not been seen during the use of the single currency. This is mainly attributable to energy and the global imbalance between supply and demand in manufacturing. The war has made the situation even worse. Threat of stagflation hangs over the economy.

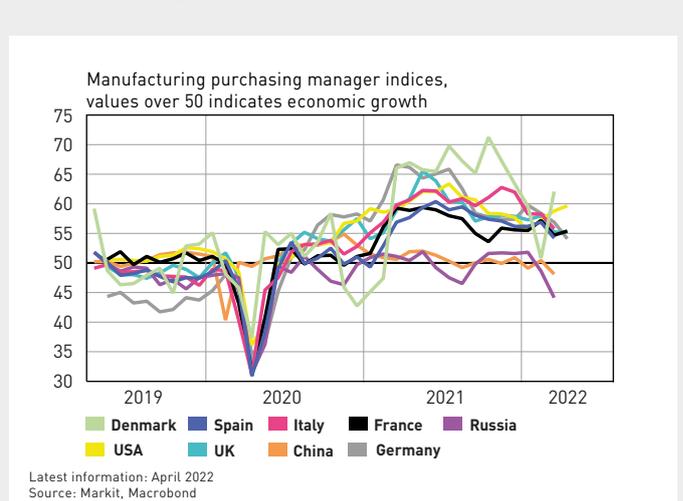
It is a complex issue. On one hand, inflation is the price we pay for Russia's war of aggression in Ukraine. It is a price we cannot afford not to pay.

In terms of Finland's future, the key question will be how the labour market will react to the rapid rise in the rate of inflation this autumn. The high rate of inflation we have seen in 2022 is mostly due to external factors beyond our control. However, we have an opportunity to influence the rate of inflation in 2023. It is up to us whether we make decisions that will cause wage inflation or whether we will aim to boost purchasing power on the long term.

Eurozone growth continues as driven by service sector despite the war



In manufacturing industry situation and outlook has deteriorated



Consequences of the war: slower growth, weaker profitability, postponement of investments – and even lay-offs

Based on the results of a comprehensive survey conducted by Technology Industries of Finland in April on the impact of the war among its members, the impact on new orders, turnovers and production volumes, investments and personnel numbers may be less severe than expected, at least in the near future. However, the availability of materials and raw materials as well as weakened profitability as a result of the increase in costs are of great concern to the companies.

Approximately one in three respondents estimated that their order intake for the March-April period fell either clearly or slightly below their pre-war expectations. However, some two-thirds estimate that new order intake met or even exceeded expectations. The results signal that while the war has clearly had a negative impact on order intake, the overall impact has, at least for now, remained moderate.

Also somewhat reassuring are the companies' expectations on their turnover and output development in 2022. In total, 19 per cent of companies expect to see their turnover shrink, 29 per cent expect it to remain unchanged and 52 per cent expect to see turnover growth.

Since rising production costs also contribute to turnover growth, it is important to assess companies' output expectations. In total, 23 per cent of respondents expect to see a drop in their production volumes, 37 per cent expect to see no change and 40 per cent expect to see an increase. A cautious interpretation based on current expectations is that the output and turnover of Finnish technology industry will continue to grow in 2022 despite the war.

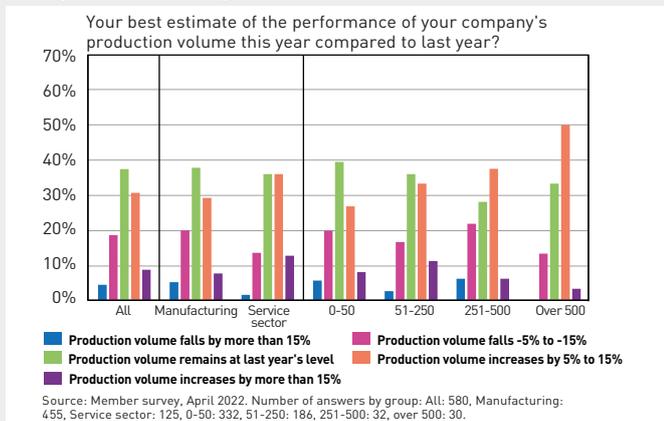
Seventy-five per cent of respondents reported that the war has had no effect on their investment plans. Twenty per cent of the respondents had put their investment plans on hold while another 5 per cent had cancelled investments. This is mainly due to the uncertainty about future price trends. The overall uncertainty caused by the war has also made companies more cautious. At the same time, Finland's increasing geopolitical risks are also of concern.

The main effects of the war are related, in particular, to the availability of materials and raw materials as well as cost inflation. As many as 85 per cent of companies in the manufacturing sector reported a further weakening in the availability of materials and raw materials since the war started, and 82 per cent expects to see the situation deteriorate further in the coming months. Various production disruptions are likely as the year progresses.

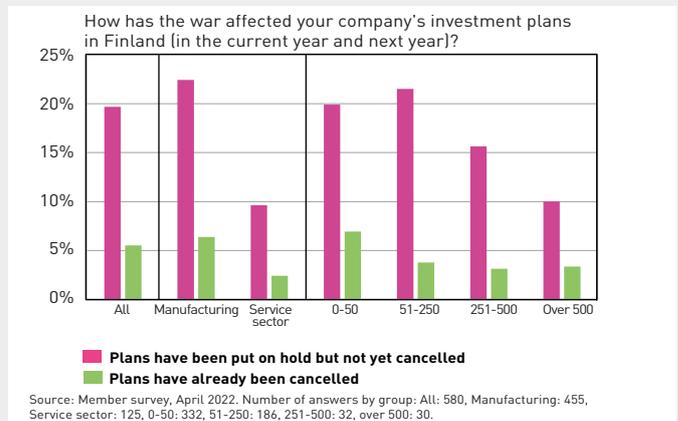
Availability of materials, raw materials and components was already problematic before the war. Since the start of the war, shortages have increased significantly. This has resulted in a sharp increase in production costs. The rapid increase of costs is of great concern for companies. As many as 53 per cent of them expect to see their profitability weaken year-on-year because of it. Differences between individual companies are huge at the moment. Some are seeing excellent results, while others are struggling to be profitable.

Personnel will also be affected. Seventeen per cent of respondents reported that they will have to lay off or reduce their personnel due to direct or indirect effects of the war.

Companies estimates of the development of production volumes anticipate continued growth



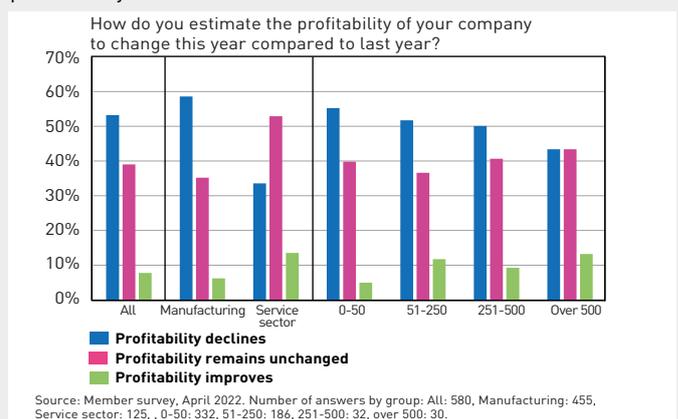
Negative effects of war on investments, but still few investment cancellations



The war has greatly eroded access to raw materials and components



Strong increase in input prices puts strain on companies' profitability



Results of the order book and personnel survey

The turnover of technology industry companies in Finland grew by approximately 10 per cent in 2021 from 2020. Turnover grew in all main sectors. The significantly higher level of costs contributed to turnover growth. In 2021, their turnover in Finland amounted to almost EUR 90 billion.

The order intake for the first quarter of the year was significantly lower than in the previous quarter. The monetary value of new orders in the January-March period was 28 per cent lower than in the previous quarter, but 5 per cent higher year-on-year. The quick rise of producer prices has contributed to the increase in the value of order intake.

Despite the war, the number of tender requests remained at a relatively good level. The balance figure for April was +7. The information gathered during April signals that demand has not weakened significantly as a result of the war.

At the end of March, the value of order books was 8 per cent lower than at the end of December, but 10 per cent higher than in March 2021.

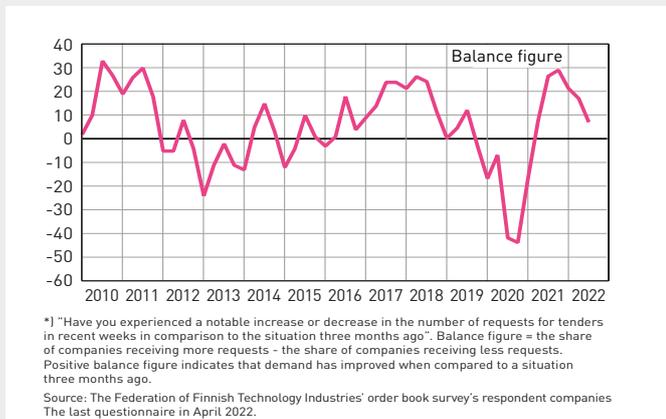
Judging from order trends at the end of 2021 and early 2022, the turnover of technology industry companies in the summer of 2022 is expected to be higher than in the corresponding period last year. However, as a result of the war, uncertainty remains high, and it is impossible to make predictions with much certainty.

The number of personnel employed by technology industry companies in Finland at the end of March was 1.8 per cent higher

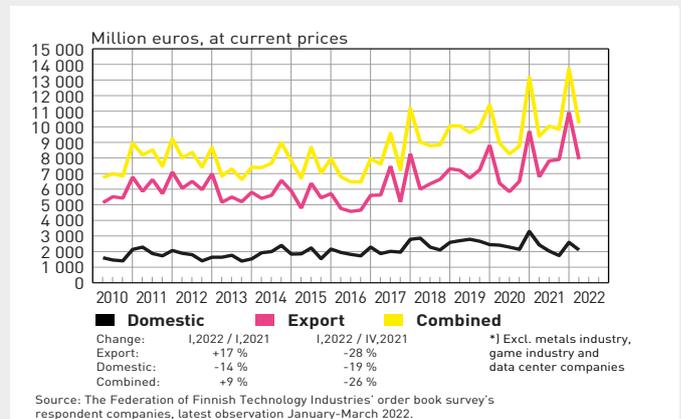
than at the end of December. At the end of March, the industry had approximately 324,000 employees. According to the personnel survey by Technology Industries of Finland, the number of employees affected by lay-off procedures at the end of March was only approximately 1,600. The figure was exceptionally low.

Recruitment of new employees reached record levels in the January-March period. In total, recruitments came to 14,800. Some companies were increasing their personnel, others were hiring new employees due to retirements and employee turnover.

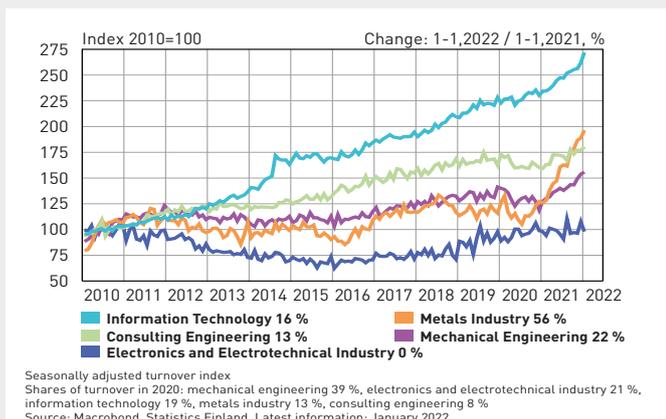
Tender requests* received by the technology industry companies in Finland



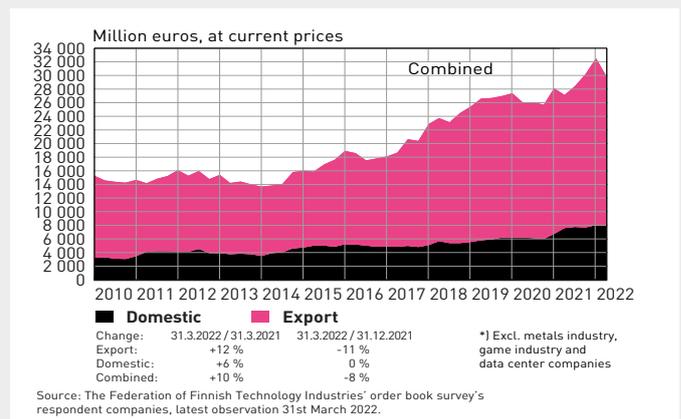
Value of new orders in the technology industry* in Finland



Turnover of the Technology Industry in Finland



Value of order books in the technology industry* in Finland





Electronics and Electrotechnical Industry in Finland

Value of new orders up year-on-year

The turnover of companies in the electronics and electrotechnical industry (telecommunications equipment, electrical equipment and medical technology) in Finland grew by approximately 3 per cent in 2021 from 2020. In 2021, their turnover in Finland amounted to slightly less than EUR 18 billion.

The value of both new orders and order books decreased considerably in the January-March period from the preceding quarter.

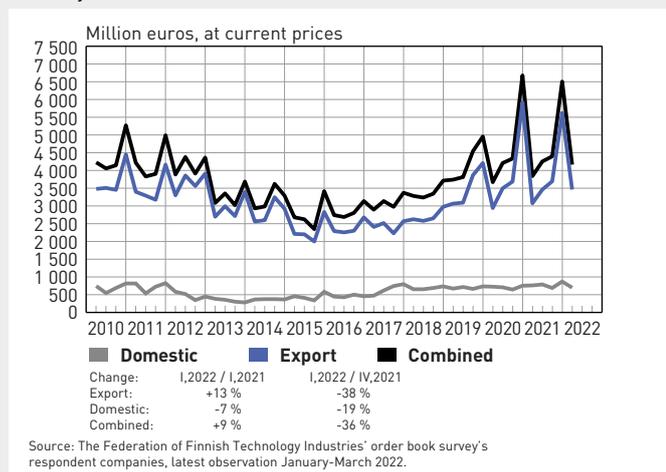
The electronics and electrotechnical companies that took part in Technology Industries of Finland's survey of order books reported that the monetary value of new orders between January and March was 36 per cent lower than in the preceding quarter, but 9 per cent higher than in the corresponding period in 2021.

At the end of March, the value of order books was 27 per cent lower than at the end of December, but 9 per cent higher than in March 2021.

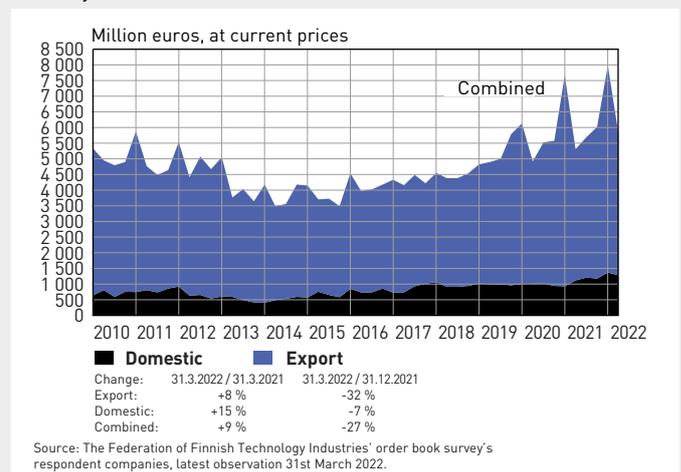
Despite the healthy demand and order books, the shortage of semiconductors and components is a serious burden for companies and turnover development may fall short of expectations.

The number of personnel employed by electronics and electrotechnical companies in Finland at the end of March was 1.4 per cent higher than at the end of December, totalling 39,500.

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

Healthy order intake in early 2022

The turnover of mechanical engineering companies (machinery, metal products and vehicles) in Finland increased by almost 9 per cent in 2021 from 2020. In 2021, their turnover in Finland amounted to almost EUR 35 billion.

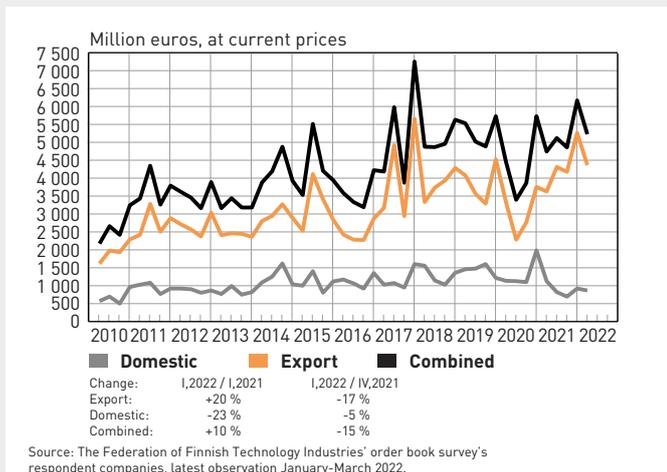
The value of new orders in mechanical engineering fell by 15 per cent in the January-March period from the preceding quarter. Year-on-year, the value of new orders increased by 10 per cent. The quick rise of producer prices has contributed to the increase in the value of order intake.

At the end of March, the value of order books was 3 per cent lower than at the end of December, but 9 per cent higher than in March 2021. It remains necessary to consider that the shipyards' share of the total value of order books is exceptionally large.

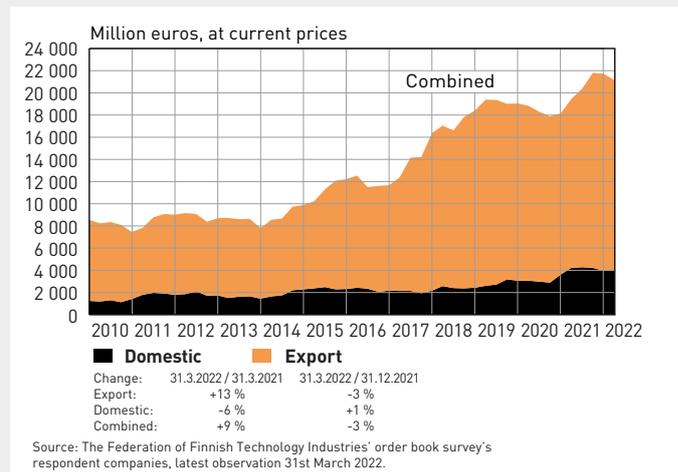
Judging from order trends towards the end of 2021, the turnover of mechanical engineering companies in the summer of 2022 is expected to be higher than in the corresponding period last year. The large increase in production costs will boost industry turnover, while at the same time, the delivery problems caused by the shortages of materials and components will have a negative impact.

The number of personnel employed by mechanical engineering companies in Finland at the end of March was 1.7 per cent higher than at the end of December, totalling approximately 136,500.

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

Strong turnover growth continues

The turnover of metals industry companies (steel products, non-ferrous metals, castings and metallic minerals) in Finland increased by almost 35 per cent in 2021 from 2020. In 2021, their turnover in Finland amounted to almost EUR 14 billion. The sharp rise in producer prices has contributed significantly to the turnover growth in the metals industry.

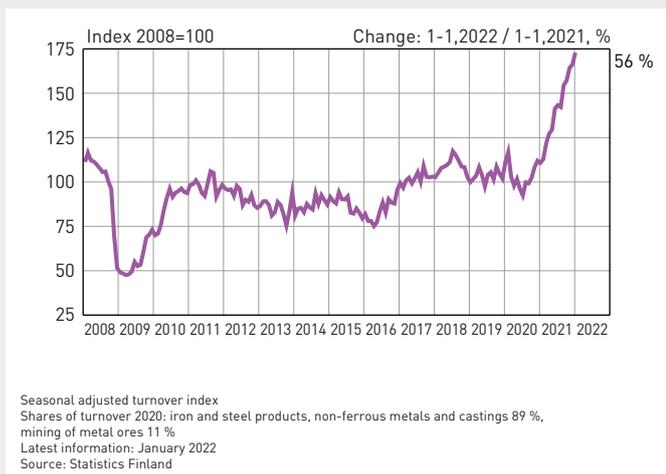
The total production of steel products, non-ferrous metals, castings and metallic minerals in Finland in the January-February period increased by approximately 9 per cent year-on-year.

The number of personnel employed by metals industry companies in Finland at the end of March was 1 per cent higher than at the end of December, totalling approximately 16,300.

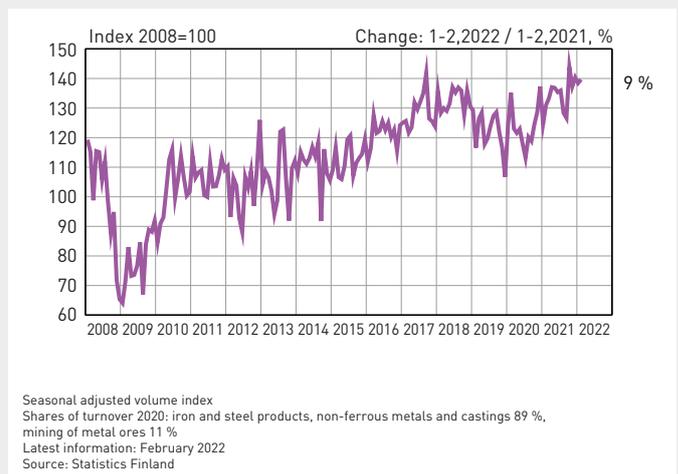
Year-on-year, global steel production decreased by 6.8 per cent between January and March. Production decreased by 7.8 per cent in Asia, by 3.8 per cent in the EU and by 0.9 per cent in North America.

China, India, Japan, the United States and Russia were the largest producers in early 2022. China accounted for approximately 53 per cent of global steel production.

Turnover of the metals industry in Finland



Production volume of the metals industry in Finland





Consulting Engineering in Finland

Steady growth in the value of order books continues

The turnover of consulting engineering companies (industrial, social and construction expert services) in Finland increased by more than 4 per cent in 2021 from 2020. In 2021, their turnover in Finland amounted to approximately EUR 7 billion.

The value of new orders in consulting engineering increased in the January-March period from the previous quarter. Order books also strengthened further.

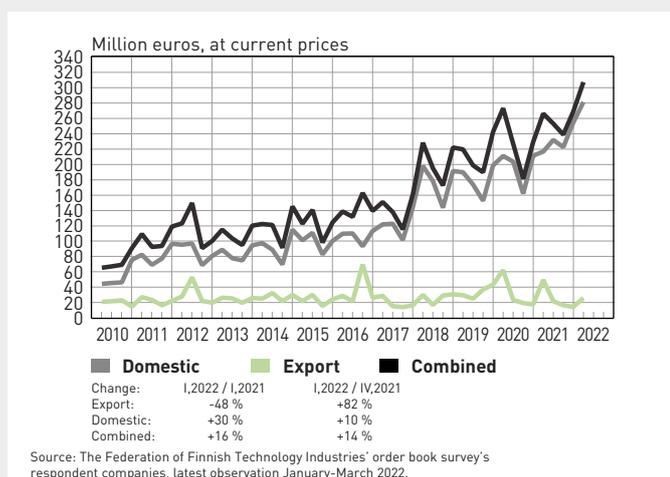
The consulting engineering companies that took part in Technology Industries of Finland's survey of order books reported that the monetary value of new orders between January and March was 14 per cent higher than in the preceding quarter and 16 per cent higher than in the corresponding period in 2021.

At the end of March, the value of order books was 3 per cent higher than at the end of December and 21 per cent higher than in March 2021.

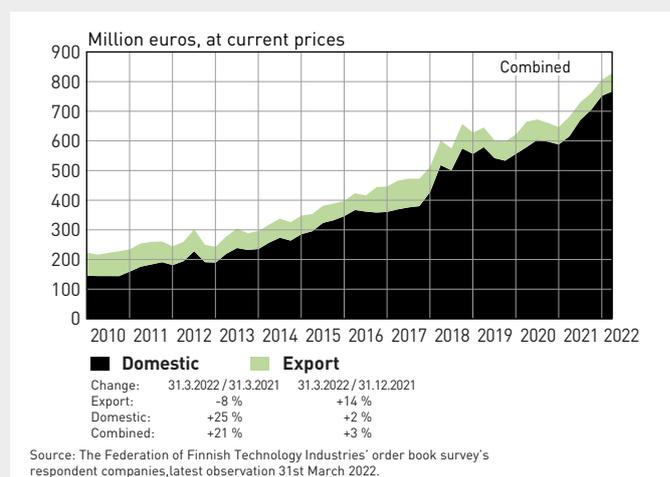
Judging from order trends towards the end of 2021, the turnover of consulting engineering companies in the summer of 2022 is expected to be higher than in the corresponding period last year.

The number of personnel employed by consulting engineering companies in Finland at the end of March was 1.7 per cent higher than at the end of December, totalling approximately 56,100.

Value of new orders in the consulting engineering in Finland



Value of order books in the consulting engineering in Finland





Information Technology in Finland

Healthy order intake

The turnover of information technology companies (IT services and software) in Finland grew by more than 8 per cent in 2021 from 2020. In 2021, their turnover in Finland amounted to slightly less than EUR 17 billion.

Order intake for the January-March period was significantly lower than in the previous quarter. However, order books strengthened further. Typically for the sector, order volumes can fluctuate strongly from one quarter to another.

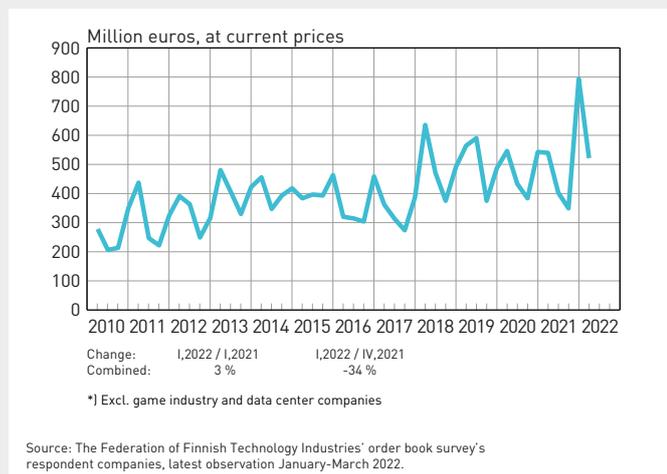
The companies that took part in Technology Industries of Finland's survey of order books reported that the monetary value of new orders between January and March was 34 per cent lower than in the preceding quarter and 3 per cent lower than in the corresponding period of 2021. Game industry and data centre companies are not included in the survey.

At the end of March, the value of order books was 3 per cent higher than at the end of December and 23 per cent higher than in March 2021.

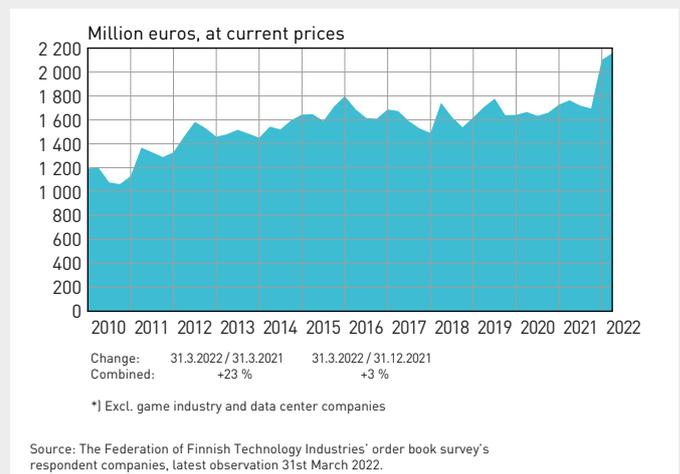
Judging from order trends towards the end of 2021, the turnover of information technology companies in the summer of 2022 is expected to be higher than in the corresponding period last year.

The number of personnel employed by information engineering companies in Finland at the end of March was 2.5 per cent higher than at the end of December, totalling approximately 76,100.

Value of new orders in the information technology* in Finland



Value of Order Books in the Information Technology* in Finland





Personnel increased both in Finland and in international subsidiaries in 2021

Finnish technology industry companies employed a total of 614,000 people on average in 2021. Domestic operations accounted for 316,000 jobs, while 298,000 people worked abroad. Staff numbers in Finland increased by less than 1 per cent, or approximately 2,200 people. Staff numbers in international subsidiaries increased by 3 per cent, or by approximately 10,000 in total.

According to the quarterly survey by Technology Industries of Finland, personnel numbers at the end of March were up 1.8 per cent from the end of December. At the end of March, technology industry companies employed approximately 324,000 people in Finland.

Staff numbers in international subsidiaries increased by 3 per cent in mechanical engineering, by 35 per cent in consulting engineering and by 26 per cent in information technology. Metals industry personnel decreased by 5 per cent. Staff numbers in electronics and electrotechnical industry remained practically unchanged. In regional comparison, technology industry personnel decreased by

1 per cent in advanced markets but increased by 6 per cent in emerging markets. In Western Europe, personnel numbers remained nearly unchanged. In North America, personnel numbers decreased by 3 per cent. Significant business restructuring affected personnel numbers abroad again in 2021.

As much as 63 per cent of foreign staff employed by Finnish technology industry companies is located in low-cost economies in

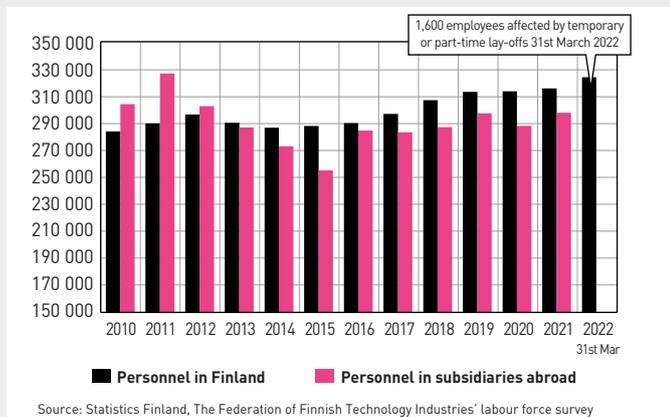
emerging regions: Asia, Central and Eastern Europe, Latin America, Africa and the Middle East. The ten largest concentrations of foreign subsidiaries in 2021, measured by number of staff, are as follows: China (47,700), India (31,500), United States (24,600), Poland (19,400), Germany (16,800), Sweden (14,900), Mexico (13,600), France (10,000), United Kingdom (7,600) and Norway (7,600).

In March–April 2022, the Technology Industries of Finland conducted a survey of the number of domestic and international staff employed by its member companies/foreign subsidiaries at the end of 2021, by country.

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.

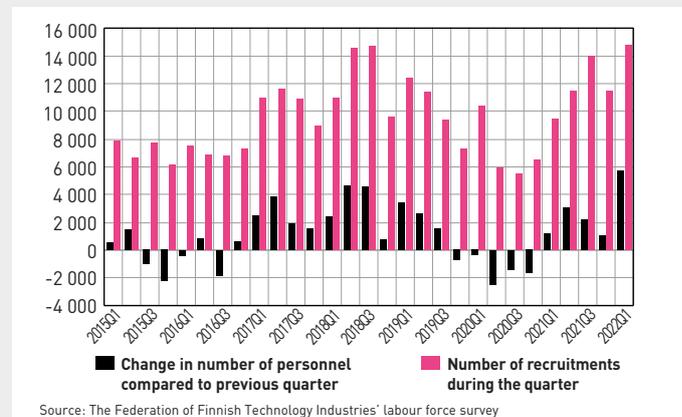
The number of staff in Finland by the end of March 2022 was investigated as part of the quarterly survey. Information on lay-offs and recruitments was gathered separately.

Headcount in foreign subsidiaries returned to pre-corona levels last year



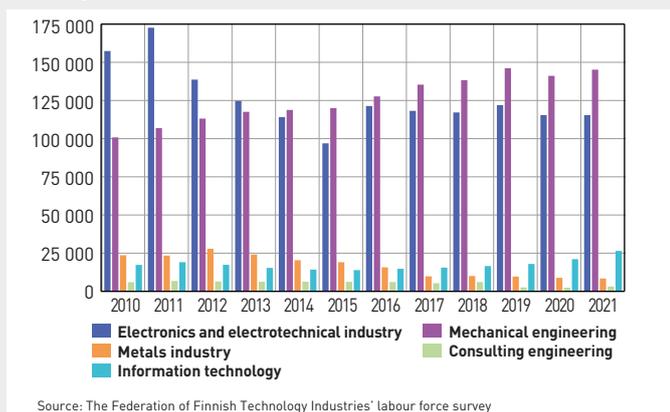
Source: Statistics Finland, The Federation of Finnish Technology Industries' labour force survey

The number of staff in the technology industry in Finland grew swiftly in the beginning of the year, record number of recruitments



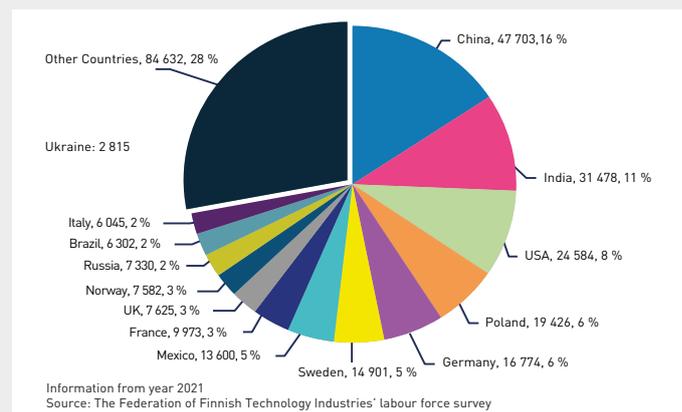
Source: The Federation of Finnish Technology Industries' labour force survey

Technology Industry Personnel in Subsidiaries Abroad by Industry



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

Technology Industry Personnel in Subsidiaries Abroad by Country



Information from year 2021
Source: The Federation of Finnish Technology Industries' labour force survey



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