



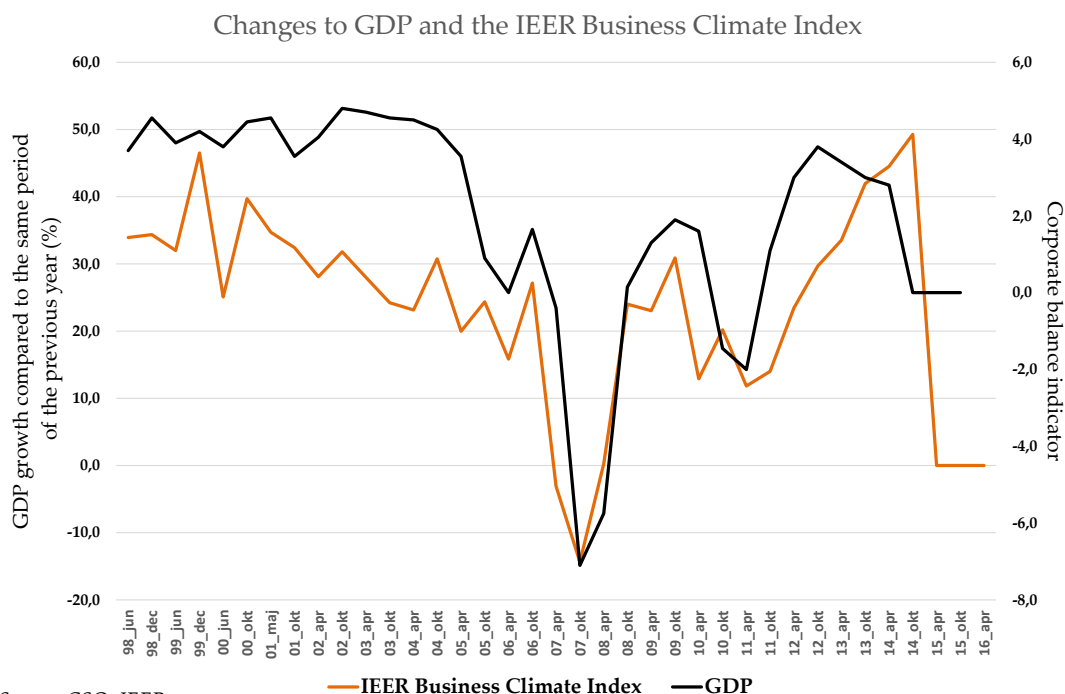
### Results of the April 2016 business climate survey

The business climate survey of the HCCI Research Institute of Economics and Entrepreneurship (IEER), which is the largest business climate assessment of its kind in Hungary, covering most companies, took place for the thirty-seventh time in April 2016. In the following, we present the main results.

#### IEER Business Climate Index

According to the results of the IEER business climate assessment (the number of companies responding: 3178) the positive changes observed since April 2013 continued and intensified: Hungarian firms judged their business position as more favorable than six months ago, and business expectations also continued to improve. The IEER Business Climate Index rose to 49 points in April 2016

from 45 points in October 2015, which is the highest figure since the survey began in 1998. The Uncertainty indicator remained unchanged as its value reached 47 points again. This suggests that, compared to the previous survey in October, the perception of positive trends among Hungarian businesses has not changed.



Source: CSO, IEER

Note: GDP data – semi-annual growth rates computed from balanced data adjusted for seasonal and calendar effects, same period of the previous year = 0

GDP: left axis

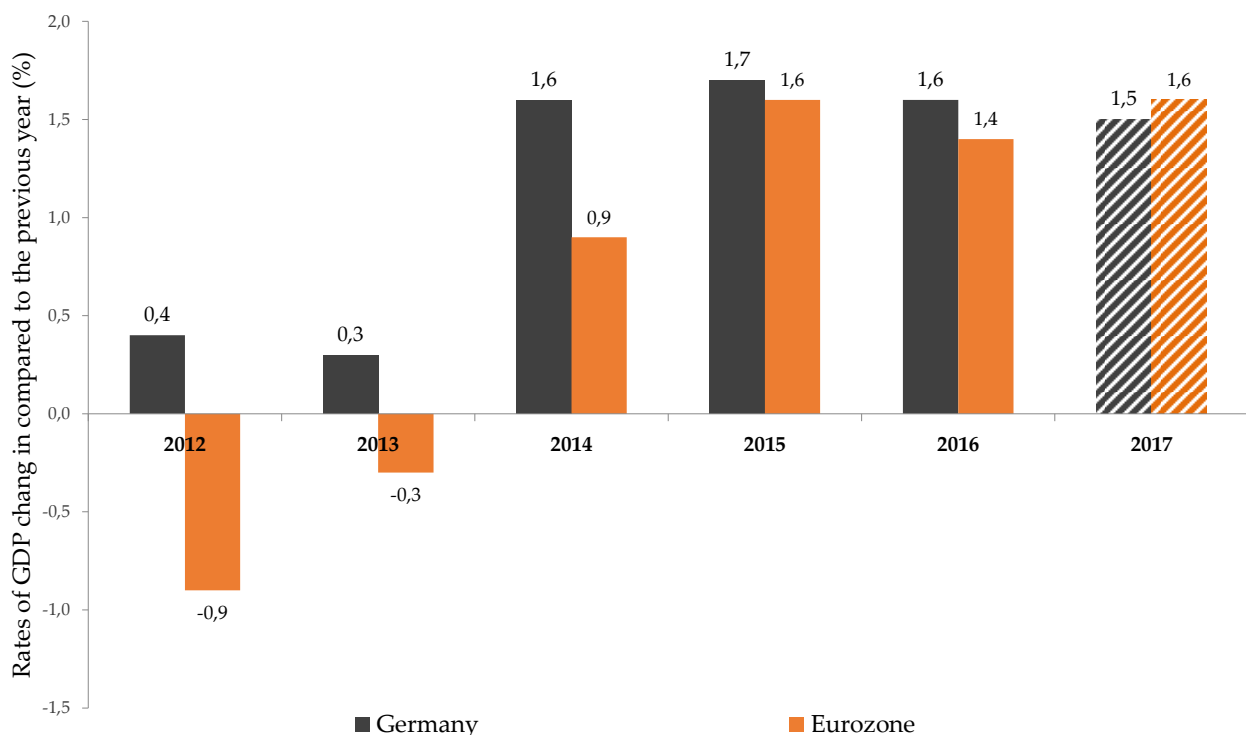
IEER Business Climate Index: right axis

## Economic environment

With regard to the international environment, the Hungarian business climate is most affected by the German economy. Along with Germany's role within the EU, these are why it is important to monitor the developments of its main economic indicators. According to the forecasts of the IFO Institute (Munich), a slight decline in growth for 2016 is expected (growth

rate is supposed to decrease from last year's 1.7% to 1.6% in 2016, followed by 1.5% in 2017). While IFO expects a similar trend for this year in the eurozone as a whole (after last year's growth of 1.6% it is expected to decrease to 1.4%) it forecasts that growth won't pick up again until the year 2017.

GDP changes in Germany and the eurozone



Source: CESifo

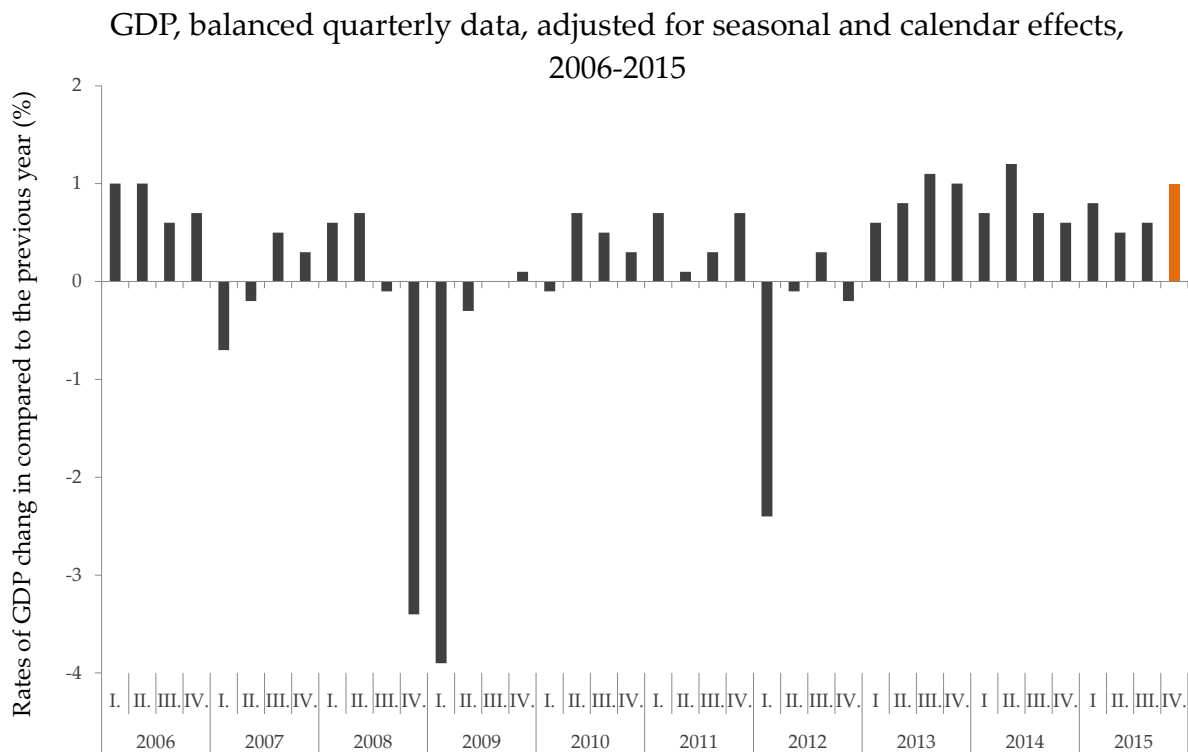
Note: The solid colored columns illustrate real GDP data, while the striped bars show an estimate from IFO.

Note: The chart shows data downloaded from the following link:

<https://www.cesifo-group.de/ifoHome/facts/Forecasts/Gemeinschaftsdiagnose/Archiv/GD-20160414.html>

The Hungarian GDP data show that the economy continues its slow recovery from the 2008 financial crisis. The German economic activity already reached pre-crisis level in the first quarter of 2011. The gap between the Hungarian and German economy has been closing since 2013, and we can expect this

trend to continue in the first half of 2016. However, the fact that out of the V4 countries only Slovenia shows a slower recovery than Hungary, casts a shadow on this progress.



Source: CSO

Note: The chart shows data downloaded from the following link:  
[https://www.ksh.hu/docs/hun/xstadat/xstadat\\_evkozi/e\\_qpt001.html](https://www.ksh.hu/docs/hun/xstadat/xstadat_evkozi/e_qpt001.html)

## Business situation and expectations

In April the average capacity utilization of respondent companies was 77%, which is three points lower than the average of the last survey. The capacity utilization rates were highest for industry (82%), retail (76%), large firms (82%), mainly foreign-owned companies (85%), and businesses with high export activity (84%). The lowest values were obtained by construction companies (72%), micro-enterprises (65%), producers for the domestically market only (73%) and in entirely domestically-owned companies (75%). The balance index for sales in the last six months stands at an 18-point level after a three-point decline.

The current business situation of companies was evaluated 3 points higher than the October 2015 results, thus the balance

indicator reached 37 points. The most favorable situation was reported by industrial enterprises (55 points), while the least favorable came from those engaged in construction (11 points).

The presence on foreign markets and the positive impact of foreign capital on the situation of companies appears clear: balance indicators of mainly exporting firms or companies predominantly owned by foreigners are higher than that of those producing exclusively for the domestic market and domestically owned companies (66 and 70 points respectively compared with 18 and 26 points respectively). According to company size, we experienced significant differences: for those with up to 9 employees the balance indicator for the present business

situation is extremely low (-2 points), while among companies with 10-49 employees it stands at 24 points, for firms with 50-249 persons at 46 points, and for large corporations with over 250 people the balance

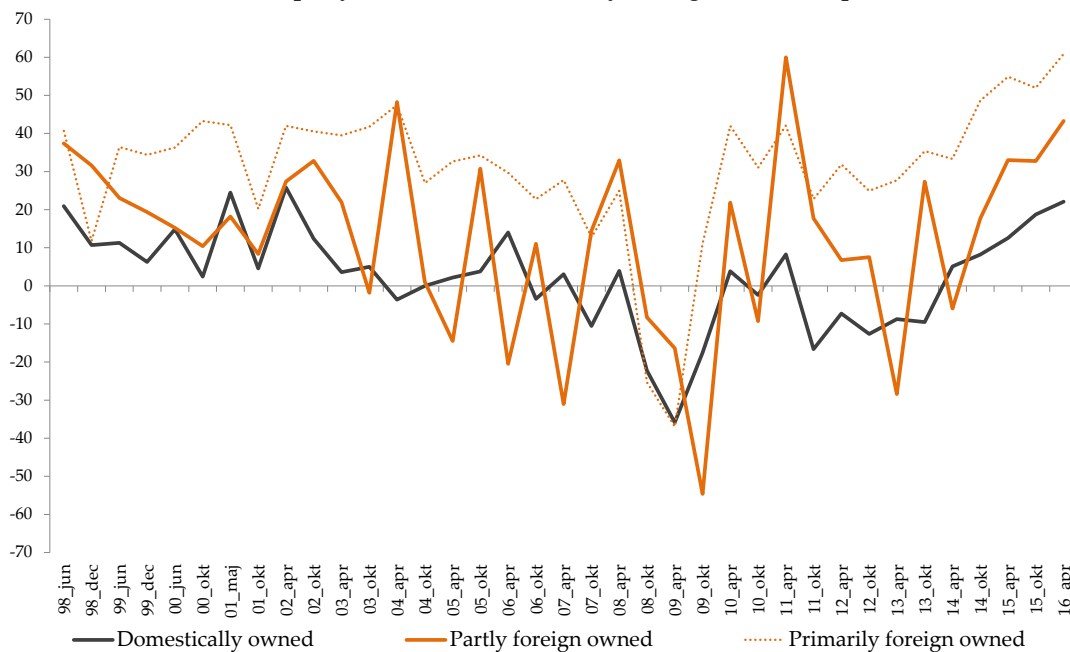
indicator is 56 points. The point scores were significantly risen by the positive ratings of the larger, export-oriented companies concerning both the present situation and expectations.

Company balance indicators by sector



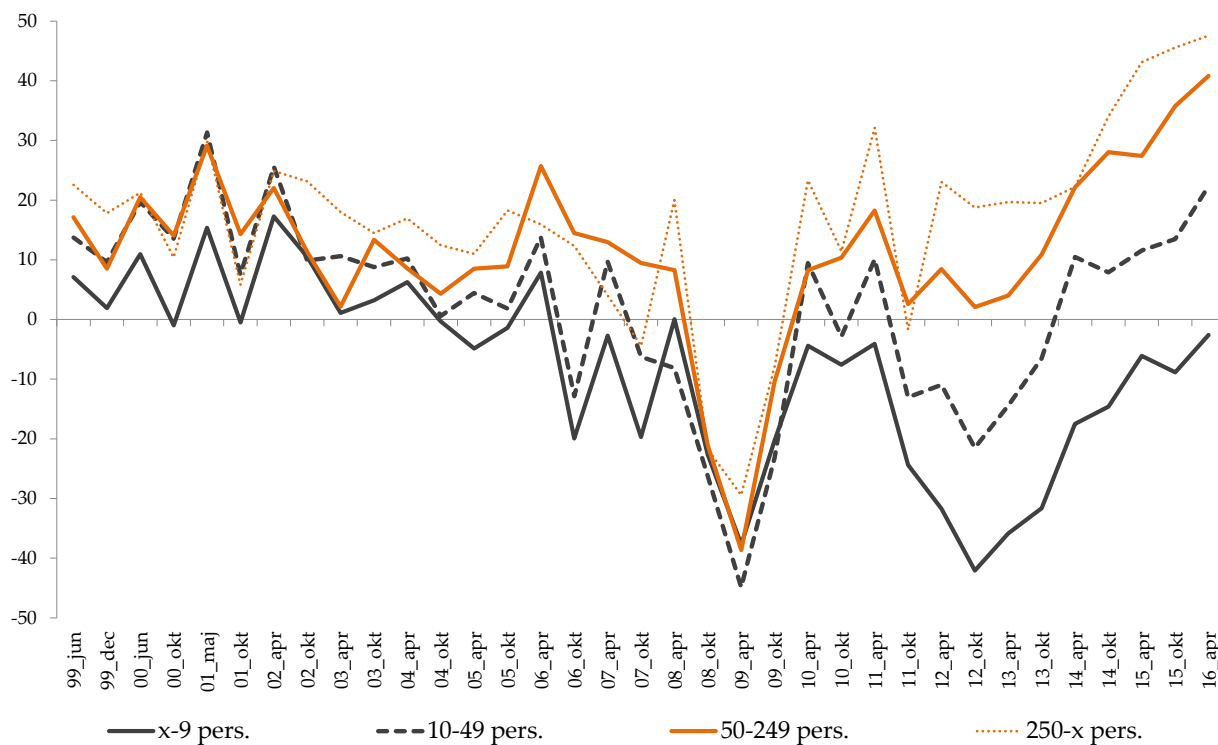
Source: IEER

Company balance indicators by foreign ownership



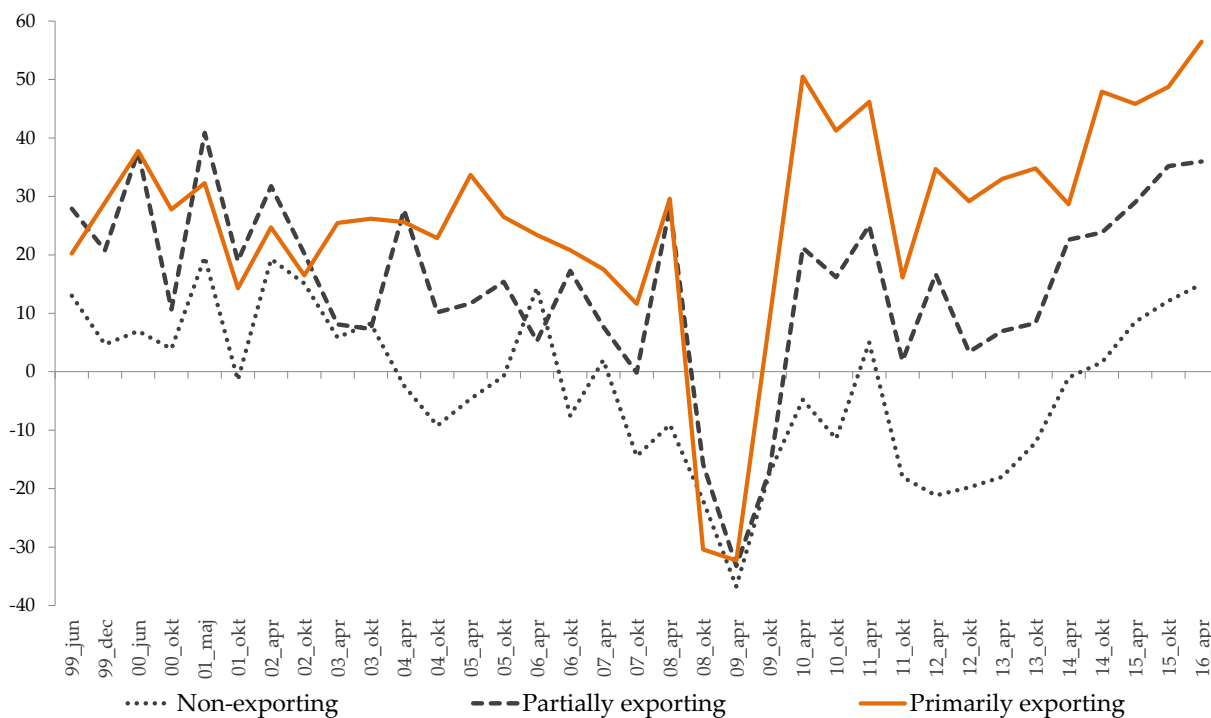
Source: IEER

### Company balance indicators by number of employees



Source: IEER

### Company balance indicators by export activity



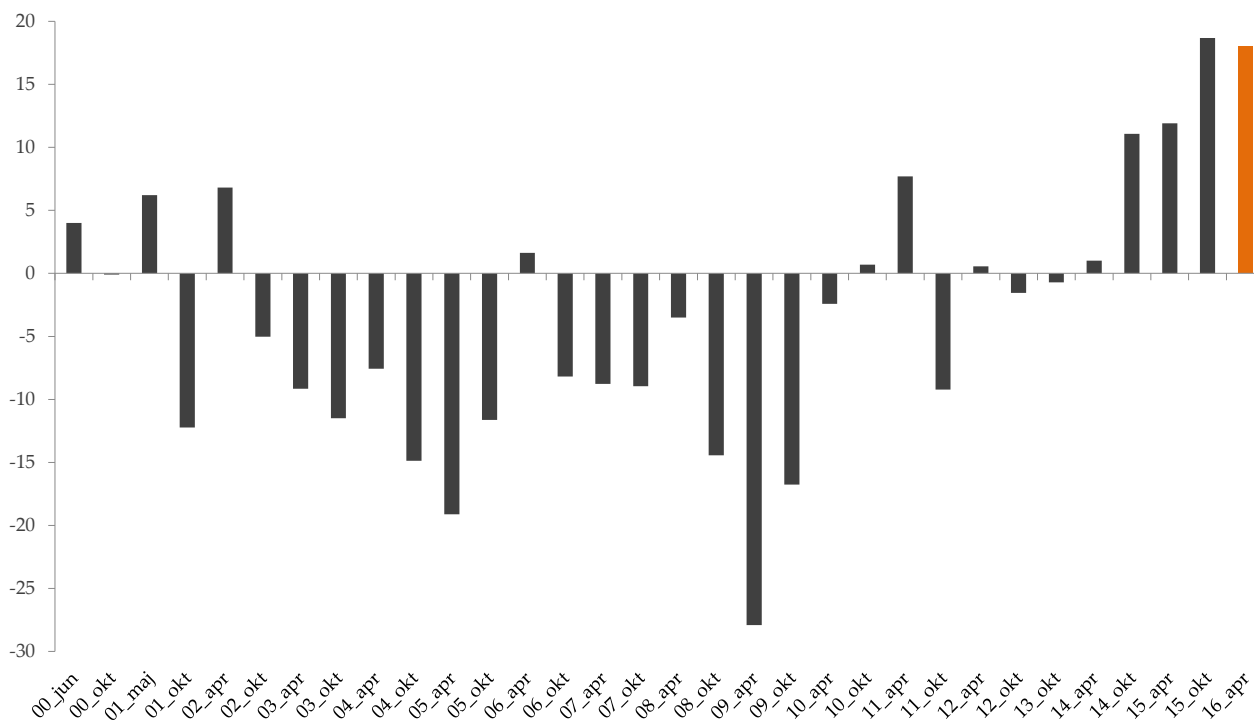
Source: IEER

## Labor demand

Companies count on an increase in labor demand in the next six months: the balance indicator stands at 18 points, with a higher value measured only once (April 2015) in previous surveys; however, compared to the

previous survey (October 2015) the indicator has not changed. Based on this, a continuation in the expansion of labor demand is expected in the private sector over the next six months.

Expected labor demand



Source: IEER

Note: The values shown in the chart are balance indicators projected on a scale of 100. They represent the difference of the rates of companies that provided a positive and a negative assessment of a given indicator. Thus, the index can take values between -100 and +100. -100 means that the replies from all firms are negative while + 100 implies that each company evaluated their situation positively.

## Labor market trends of the future

The development of machines and algorithms launched a new industrial revolution that is taking place today. However, there are concerns that society will adapt to this process slower than it did to the previous industrial revolutions or even may not be able to adapt at all. The reason of these assumptions is the exponential acceleration of development. The process could bring serious changes to the labor market. On the one hand we can expect that some professions will cease to exist new ones will come about; on the other hand it can change the distribution of workforce among occupations. The modernization of education could help society to prepare for these changes, but it seems we cannot keep up with this development.

### The fourth industrial revolution

Since March artificial intelligence can beat humans not only in chess, but also in [Go](#). Again, a period has begun when the development of machines and algorithms cause certain professions or jobs, which had been held irreplaceable, disappear from the labor market. The very quick social and technological changes brought about by the fourth industrial revolution, also referred to as a second machine age, is a serious challenge to socio-economic systems. A good indication of

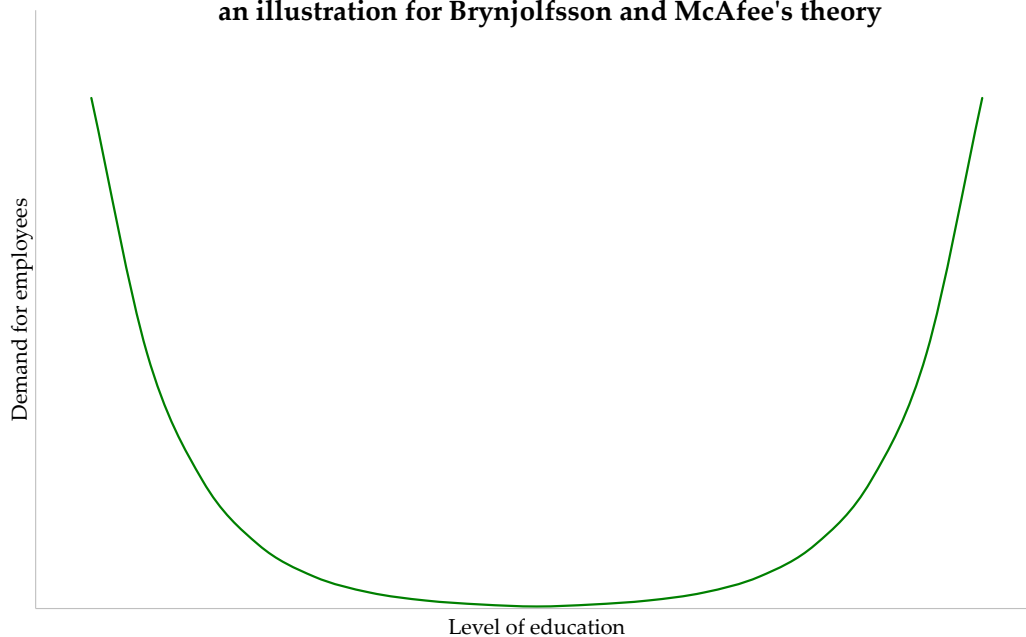
the size of the problem is that nearly half of all professionals with an overview of this area (48%) [feel](#) that society will not be able to handle these new challenges. Unlike previous industrial revolutions, the transition is too quick for economic players and legislators to keep up at an appropriate pace. This process may bring about structural and social changes in such scale, that they could define our possibilities for decades.

### The impact on economic systems

A number of possibilities and likely outcomes have been thoroughly examined by Andrew McAfee and Erik Brynjolfsson in their book *The Second Machine Age* (2014, W.W. Norton & Co. Ltd.). Their theory concerning labor market changes says that there will be a high demand for low-skilled workers who would fill in low-wage jobs which are not cost

effective to mechanize on the one hand. On the other hand, there will be a great demand for highly educated workers whose work is so complex that it cannot be automated or who work in the field of automation itself. The authors conclude that moderately skilled workers will suffer the biggest decline of demand in the labor market.

**Demand for employees in the future by level of education -  
an illustration for Brynjolfsson and McAfee's theory**



*Based on Brynjolfsson-McAfee (2014): The Second Machine Age*

Another important change would be that with machines that never get sick, nor take cigarette breaks, do not raise children, and never demand wage increases, a significant growth in productivity can be achieved while reducing production costs. Both quantity and quality of products on the market would improve, which normally increases the general welfare of the society. However, this process would result in the majority of today's workers leaving the labor market, meanwhile non-automated jobs and the mass flow from other segments would exert pressure on wages. The additional revenue resulting from the automation will enrich the possessors of the robots, which is why the social surplus resulting from the conversion would lead to an extremely unequal distribution of wealth within society. This would bring about a reduction in effective demand, which would create a gap between increased productivity and market opportunities.

The authors attempt to summarize the characteristic of the changes in this age in five phenomena:

**1. The appearance of new technology skills**

Previously – even in 2004 – it was believed that in the near future machines could not replace human employees in areas that require complex communication and sample recognition. However, the appearance of the self-driving cars seems to be refuting this.

**2. Constantly accelerating technological progress, which is exponential, combinatorial and digitized at the same time**

A generalization of [Moore's Law](#) states that the value of indicators measuring technological development doubles approximately every 18 months. According to the authors, this acceleration has three main features.



It is exponential, which means that the speed of development grows explosively. It is digital, which enables creation of new sciences and the exploitation of new resources through the acceleration of the flow of information. And finally, the development is combinatorial, which implies the appearance of a new form of innovation – the type that does not require new knowledge, but development is achieved by new combinations of pieces of information that we already have.

### 3. Separation of productivity and employment

During the past industrial revolutions productivity and employment grew together: unemployment generated by technological progress was soon offset by the creation of new jobs. The current development speed, however, as noted above, means that some groups of the society may not be able to adapt, so this effect may not occur.

### Restructuring of the labor market

According to a [research](#) of the World Economic Forum approximately 7.1 million jobs will disappear in the next 5 years from 15 of the world's dominant economies (Australia, Brazil, China, France, Germany, India, Italy, Japan, Mexico, South Africa, Turkey, United Kingdom, United States besides two groups of countries from Southeast Asia and the Arabian

### 4. The development of "winner takes it all" type markets

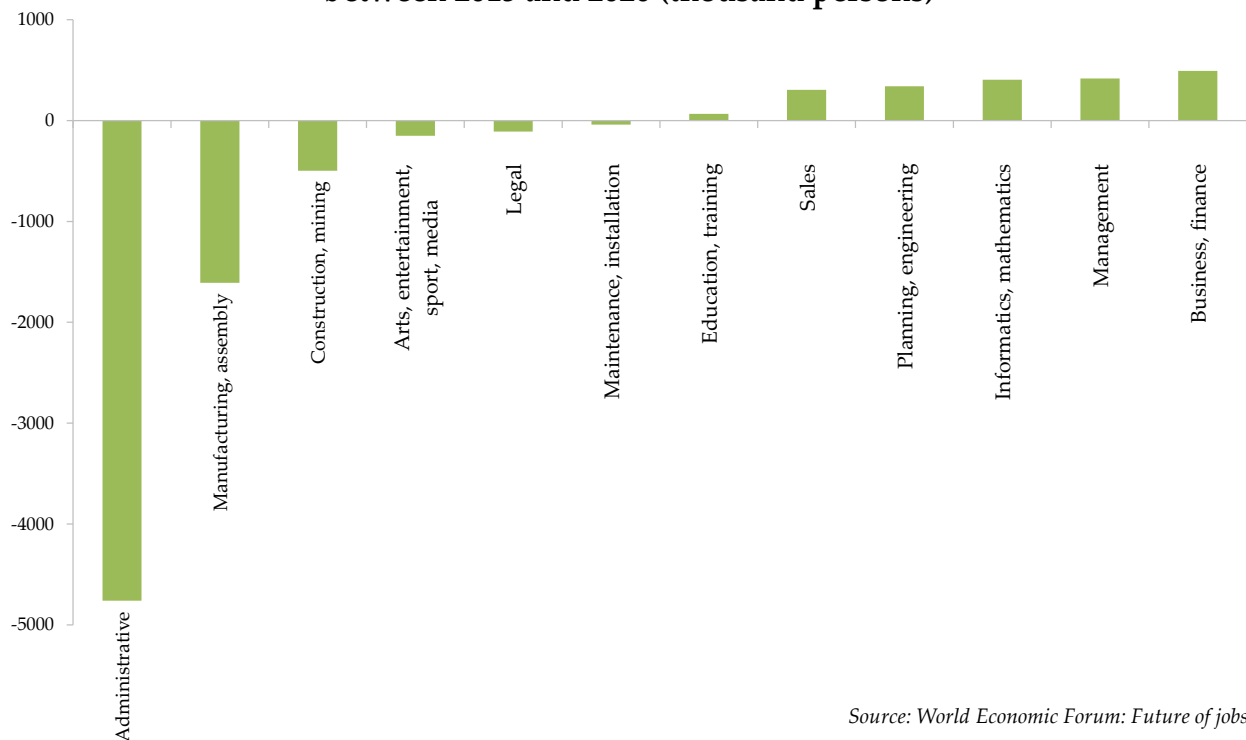
It is becoming more and more typical on digital markets that the best product, or the one that meets the needs most accurately, obtains the majority of the profit. This helps the formation of oligopolistic and monopolistic market structures that hinder market competition and reduce consumer surplus.

### 5. Increase and extreme distribution of total assets

Next to the increase of assets and the creation of new values, another important impact of the business-driven automation might be a sharp rise in wealth inequality. Brynjolfsson and McAfee call this a *capital-biased technical change* in their book. On the other hand, those who can adapt to the quick changes and the digital challenges may make extremely great fortunes. This is called *skill-biased technical change*.

Peninsula). It is important to note that robotization, which mainly endangered blue-collar workplaces so far, now also can make the work of white collar workers replaceable. At the same time, 2 million jobs may be created for highly skilled workforce for tasks that cannot be automated.

### Estimated changes in the number of employed in developed countries between 2015 and 2020 (thousand persons)



Source: World Economic Forum: Future of jobs

Out of the 7.1 million decrease 4.76 million will affect administrative jobs, while the automation of manufacturing and assembly will also rise quickly (the study estimates a 1.61 million decline of workplaces in this area). Every job that requires driving vehicles is highly endangered. This includes road, air and water transportation of passengers and freight as well as machinery operation. Along with [Google](#) and [Tesla](#), Mercedes-Benz is also engaged in serious research about self-driving cars, as a marketing [video](#) shows; what is more, a few weeks ago it became known that [Uber](#) has joined the ranks of testers for self-driving vehicles as well. In Hungary the jobs of agricultural machine operators and drivers are directly threatened by technology. For example, a GPS-based fleet tracking system is already in use in many places today and from that it is only one more bigger step to change

or self-driving tractors and combine harvesters.

In Hungary security guards have the highest headcount-to-population ratio as there are nearly 105 security guards for every 10 000 inhabitants. Their numbers are also significant within the European Union: it is the fifth largest occupational group. However, developments in security technology and smart-homes will lower the needs for their work as well.

The increase in jobs foremost affects business and finance sectors (here 492,000 new jobs are expected), as well as management (with an expected growth of 416,000), as well as the areas of information technology and mathematics (405,000 new jobs forecast).

Although for now the benefits of flexible work hours for white-collar workers and other atypical forms of employment (which are

rapidly created by the so-called sharing economy, for example) are more emphasized, it is important to see that a relatively high degree of uncertainty comes with the changes. In addition to the transformation of the types of employment, uncertainty also increases due to the continuous creation of new professions; a significant proportion of current primary

## Education

In addition to regulations, education is also adapting to the new trends slowly, while the taught materials become obsolete faster and faster. It would be important to put more emphasis on digital education, for the significance of lexical knowledge has been decreasing since practically any information can be easily found on the Internet.

## Options

The consequences outlined above must be viewed critically for they are predictions, and uncertainty (partly arising from the development of innovation) is one of the major features of the digital age. However, current trends designate several main directions, which both employers and

school students (according to some estimates up to [65%](#)) will perform jobs that [do not even exist](#) today. We can find examples for this also in the currently working generation: nobody knew 15 years ago that there would be a need for social media managers or SEO experts.

More and more companies have to train the manpower they need themselves. This is partly due to increasingly specific demands, which the educational system cannot keep up with, and partly because even if graduates did get a training in the areas that the company needs, often they do not have the skills required for employment. This trend will most likely continue in the future.

employees could give more adequate answers to. For example, strengthening digital skills should be considered on both sides; employees should prefer complex and creative professions, while employers, should prepare for the use of automation and for taking advantage of the benefits offered by it.

## International trends

Development of production, consumption and employment in certain globally significant economies, compared with expectations and values of the previous period.

		Period in review	Actual data	Expectations	Previous period
Germany	Unemployment Change (thousand persons)	(May)	<b>-11</b>	-5	-16
	Manufacturing Purchasing Managers Index	(May)	<b>52.4</b>	52	51.8
	IFO Business Climate Index <sup>1</sup>	(May)	<b>107.7</b>	106.8	106.7
France	INSEE Business Climate Index <sup>2</sup>	(May)	<b>102</b>	101	101
USA	Nonfarm Employment Change (thousand persons)	(May)	<b>173</b>	175	166
	CB Consumer Confidence Index	(May)	<b>92.6</b>	96.0	94.7
	Manufacturing Purchasing Managers Index	(May)	<b>50.5</b>	51.0	50.8
China	Manufacturing Purchasing Managers Index	(May)	<b>50.1</b>	50.0	50.1

<sup>1</sup> <https://www.cesifo-group.de/ifoHome/facts/Survey-Results/Business-Climate/>

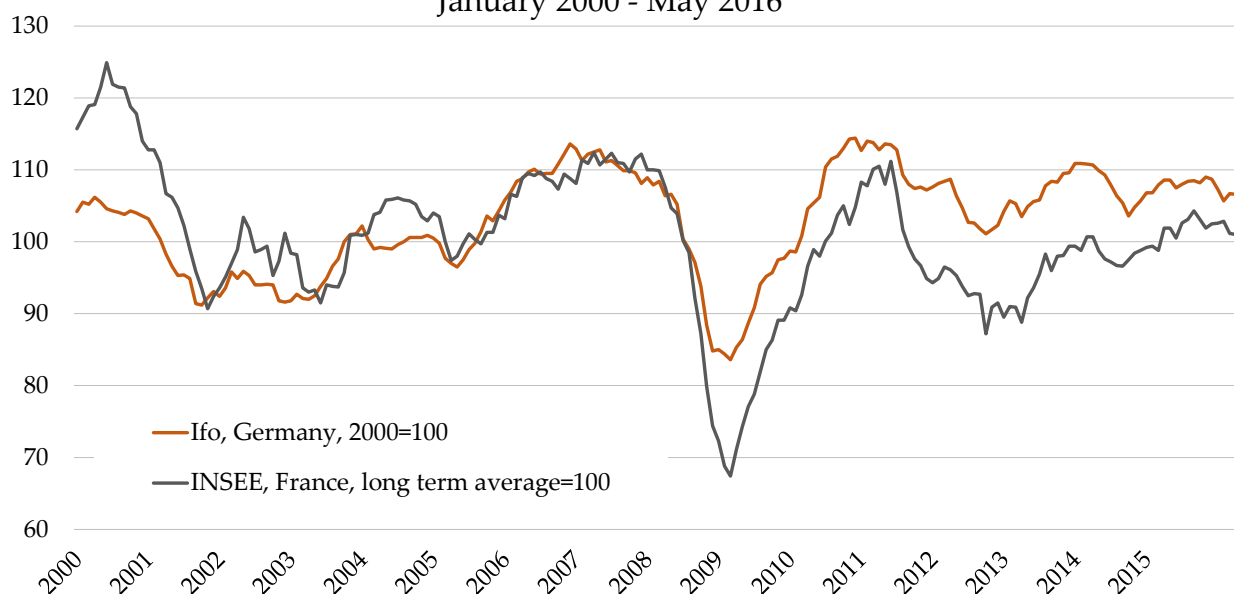
<sup>2</sup> <http://www.insee.fr/en/themes/indicateur.asp?id=105>

Source of the remaining data: <http://worldeconomiccalendar.com>

The German data show a larger-than-expected decrease in the number of unemployed, while the German Manufacturing PMI also improved. The IFO Business Climate Index increased in May, although stagnation was forecast. In the United States the number of the employed grew less than expected, while the CB Consumer Confidence Index and the Manufacturing Purchasing Managers Index decreased in spite of the expected rise. The Chinese Manufacturing PMI remained unchanged, in line with the forecasts.

## Long-term changes in business confidence indices

Business confidence in Germany and France, based on the Ifo and INSEE business climate surveys,  
January 2000 - May 2016



Source: [www.cesifo.de](http://www.cesifo.de), [www.insee.fr](http://www.insee.fr)

### Contact

Address: MKIK GVI  
1034 Budapest, Bécsi út 120.  
Tel: 235-05-84  
Fax: 235-07-13  
e-mail: [gvi@gvi.hu](mailto:gvi@gvi.hu)  
Internet: <http://www.gvi.hu>

### Prepared by:

Tamás Bacsa, intern, MKIK GVI  
Zsófia Limbek, analyst, MKIK GVI  
Emília Kompaktor

### Research director:

István János Tóth, research fellow, MTA KRTK KTI,  
Managing director, MKIK GVI  
e-mail: [tothij@econ.core.hu](mailto:tothij@econ.core.hu)

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