

EVRY SURVEY

Industry 4.0 – Automation,
Artificial Intelligence and Robotics



EVRY

Content

Foreword by CEO Björn Ivröth	4
Automation and Manual Labour	6
Cognitive Systems and Artificial Intelligence	10
Drivers and barriers for new technology	15

Foreword

A new steam engine

The internet is probably as important to the development of artificial intelligence as the coal-fired steam engine was to the development of the coal industry.

The American author and vlogger John Green explains in an interesting way how the industrial revolution gathered speed. The invention of the steam engine made coal itself important to the coal industry, as coal-fired steam engines made it cheaper and easier to extract more coal. More coal in turn laid the foundation for more coal-fired steam engines. Railways were important to the steel industry in the same way; railways made it much easier to transport heavy steel, including rails, and this made it easier to extend the railways and to extract even more steel. John Green thus provides a good illustration of what exponential growth looks like in practice.

Researchers and analysts believe artificial intelligence is central to the fourth industrial revolution. Artificial intelligence is not a new concept, having arisen as long ago as the 50s. For a long time, the concept of artificial intelligence was primarily associated with science fiction. In recent years, however, things have moved on, as exemplified by driverless cars, voice-operated

applications, and voice and image recognition technologies. Try, for example, something as simple as taking five group photos with your phone and uploading them to Google Photos. Google will 'look' at your photos, and will probably, without you even having asked it to, create a sixth photo that combines the best smiles from the five existing photos – and no-one will have their eyes shut in the sixth photo either. In Google Photos you can also search for mountains, cars, boats, seas, palm trees, dogs etc. to help you find photos of specific things you have captured with your camera.

The internet provides access to a nearly limitless quantity of unstructured information. This, coupled with greater processing capacity and the development of what are known as neural networks, is making it possible for machines to sort information through different layers in a network.

For example, photos can be sorted in a first layer according to whether they are of a living thing or not. They can then be sorted by whether they are of an animal or a human (if a living thing), or by whether they are of scenery or objects. Search results and other programmed responses enable such neural

networks to improve on their own and so to get even better at recognizing images. Machines that learn to learn in this way are expected to show explosive growth. This in turn means that machines may take on work and functions which are a lot less routine in nature than the tasks soda dispensing machines and ticket machines complete today, and even chess machines will come to seem very simple in terms of their 'thought processes' relative to super computers.

At EVRY we are convinced that artificial intelligence and cognitive systems will offer great opportunities in terms of developing existing organisations and business models. However, we cannot brush aside the fact that artificial intelligence is a controversial topic. This is the case from a short-term perspective in relation to jobs, but it is also the case from more long-term and existential perspectives. What will it be like for mankind in a world where machines are smarter than people? The debate has begun and will continue.

Our approach in this survey was more down-to-earth. We wanted to find out what plans Norwegian and Swedish organisations have regarding further automation, including the

use of cognitive systems. We were also seeking to gain greater insight into organisations' motivations and what benefits they expect to see.

At EVRY we are currently deeply involved within fields like smart algorithms and machine learning, for instance when it comes to detect credit card fraud. In addition we are developing prototypes for automated customer advisory services. Through own initiatives and partnerships we will continue to acquire the expertise needed to ensure we are equipped to assist organisations in the fourth industrial revolution. I hope you find the answers to this survey interesting, and, without wanting to say too much, I suspect we currently underestimate the significance artificial intelligence will have. Many things suggest we are about to see a new steam engine. Happy reading!



Best regards

A handwritten signature in black ink, appearing to read 'Björn Ivroth', written in a cursive style.

Björn Ivroth
CEO of EVRY

Automation and Manual Labour

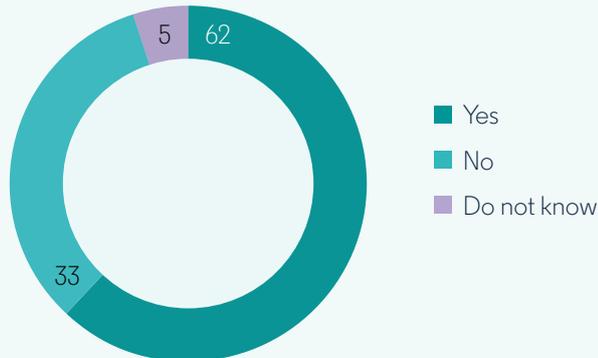
“The first rule of any technology used in a business is that automation applied to an efficient operation will magnify the efficiency. The second is that automation applied to an inefficient operation will magnify the inefficiency.”

- Bill Gates



Technology increasingly replacing manual workers

Has your company during the past 10 years completed the automation of major processes/ functions that have reduced the need for manual labor?

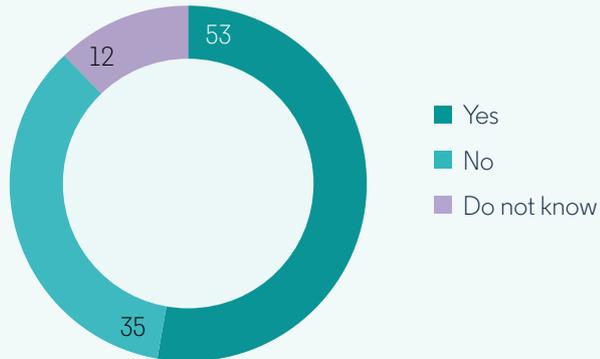


Technology has for a long time, throughout the whole of the third industrial revolution, replaced manual labor in a variety of processes and functions.

62% of the companies in the survey report having replaced manual workers with technology during the past ten years.

The automation of functions and processes will continue with undiminished force

Have your company specific plans to automate functions and / or processes that will reduce the need for manual labor?

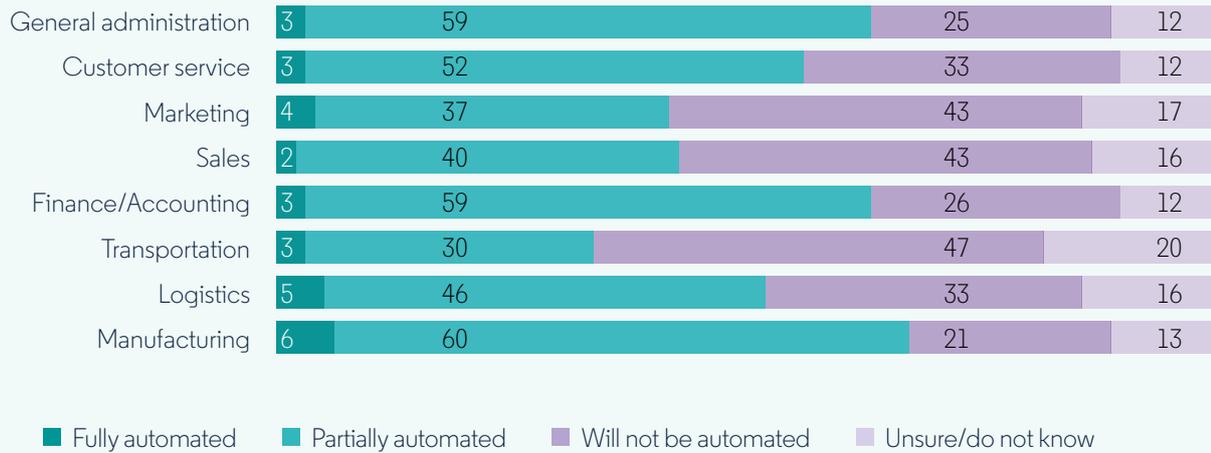


53% of the companies in the survey have specific plans to automate processes and functions that will reduce the need for manual labor.

No job categories or functions are in safe haven

Manufacturing, finance & accounting, customer service and general administration are areas that most likely will be automated.

Which areas will be automated (fully or partially)? (Population: Those who confirmed plans for automation)



Cognitive Systems and Artificial Intelligence

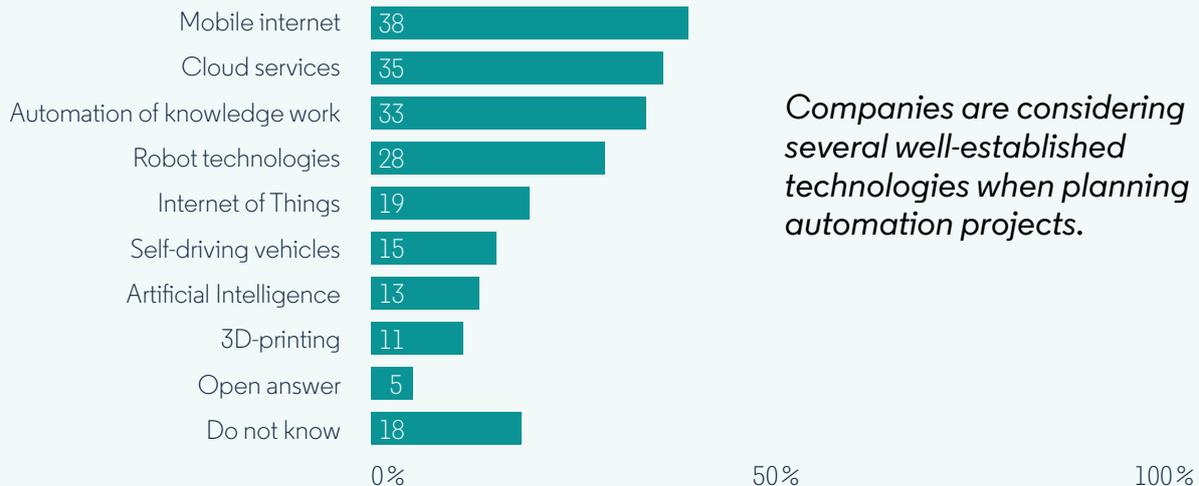
“Artificial intelligence will reach human levels by around 2029. Follow that out further to, say, 2045, we will have multiplied the intelligence, the human biological machine intelligence of our civilization a billion-fold.”

- Dr. Ray Kurzweil, Machine Intelligence Research Institute



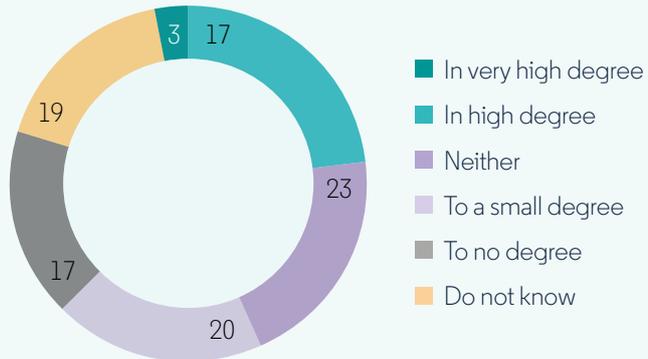
Cognitive Systems are not in top of mind when companies are considering automation technologies

Which technology areas may be appropriate to use in the automation of your business?



Considerable uncertainty about the introduction of solutions based on artificial intelligence

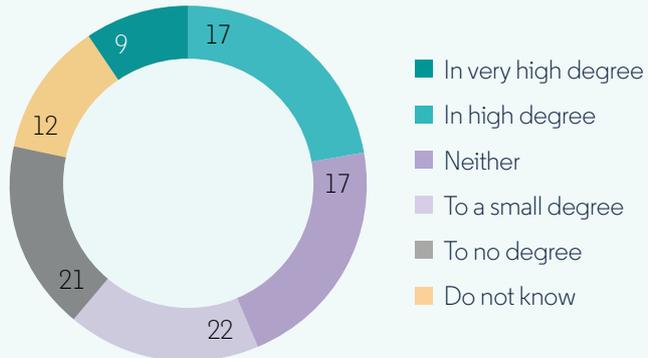
To what extent is it likely that your business will adopt new solutions based on artificial intelligence by 2020?



20% of the companies in the survey believe they will adopt solutions based on artificial intelligence by 2020.

An armada of new robots by 2020?

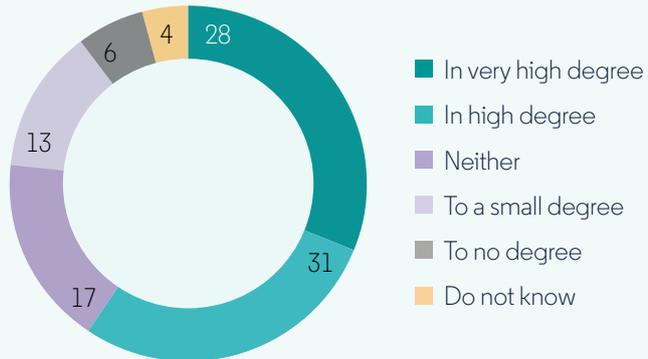
To what extent is it likely that your business will adopt new solutions and systems based on robotic technologies by 2020?



26% of enterprises are answering confirmative on the question about the likelihood of introducing new solutions and systems based on robotics technology.

Adaptation of new technology is seen as essential to stay competitive!

To what extent is the use of new technologies important for your company's competitiveness?



59% of the companies in the survey reports new technology to be essential to remain competitive!

Drivers and Barriers for New Technology

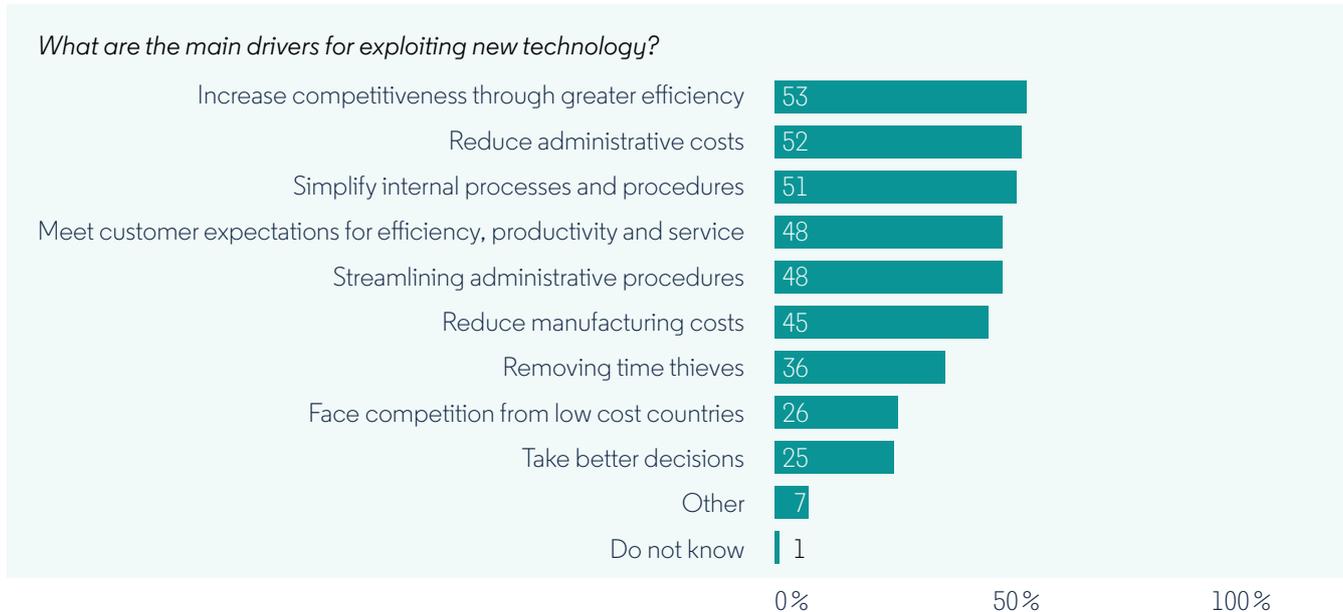
“Good, bad or indifferent, if you are not investing in new technology, you are going to be left behind”.

- Sir Philip Nigel Ross Green, Arcadia Group



Technology for competitive advantage

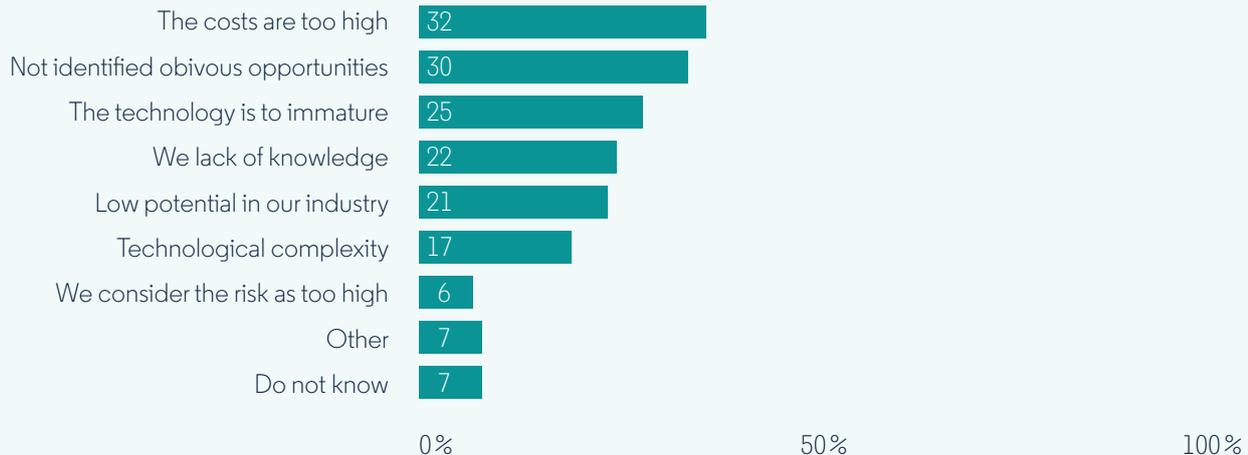
Increased competitiveness, reduction of administrative costs and simplify internal processes are the main drivers for exploiting new technologies.



Struggling to see the potential

High costs are almost always stated as an obstacle, but there are also many companies that are struggling to see the application of new technology.

What are the main obstacles that prevent your business from taking advantage from new technology?



Automation will affect businesses on a wide range of areas

What effect could automation have for your company?



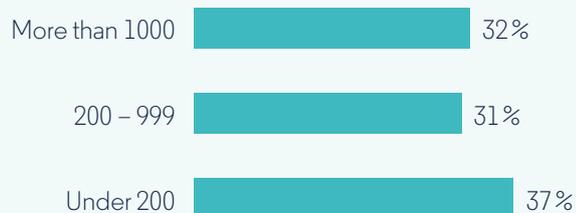
Automation are expected to raise productivity and quality in production, and enhance efficiency in administration. More than one-third also expect that automation will mean reduction in the number of full time employees.

About the Survey

- Opinion conducted 200 interviews in a website survey based on Norstat population panel, 100 in Norway and 100 in Sweden. Target group: Managers in administration, accounting/finance, marketing, IT, as well as specialists in IT.
- All companies represented have more than 100 employees.
- The survey was conducted in May and June 2016.
- Responsible at Opinion: Ole Brauteset.
- Responsible at EVRY: Jørn Bremtun (jorn.bremtun@evry.com)
- Oslo, August 30, 2016.

Facts about the participants in the survey

Number of employees in the company



Your position within the company





Digital
+advantage