

INVESTMENT COMMENT

June 2017

Robotics and Industry 4.0

Investing in the future

Is the world about to be conquered by robots? Will the prediction of Alibaba founder Jack Ma - "In 30 years, a robot will probably make the cover of Time Magazine as best CEO" - become reality? And will this be a positive or negative development? All this remains to be seen, but the fact of the matter is that our lifestyles are becoming ever more entwined with technology with each day that passes.

New waves of technological innovations are changing all aspects of our lives. Robots were originally conceived as work slaves, machines assigned to execute unpleasant, physically arduous, or monotonous tasks. But the picture is changing, and robots are now destined for higher things. Never have we been so dependent upon them as we are today; never have robots been deployed in so many spheres of activity. Household robots are taking over tasks like vacuuming or mowing with increasing precision and self-reliance. Autonomous driving has long since emerged from the world of science fiction. Computer-assisted surgery is delivering significant improvements on traditional human intervention, greatly reducing the invasive nature of operations. Robots do not get tired, even during operations lasting many hours; they do not tremble, and their degree of accuracy is incomparably superior. All this means that post-surgical complications can be reduced by more than two thirds, and the proportion of cases requiring follow-up surgery is just 0.9 percent, which is a sixth of the standard figure. Land-based and airborne drones are no longer just used in the military sphere - i.e. for deactivating explosives or air reconnaissance - but can carry out airborne searches for survivors in disaster zones, or indeed deliver packages

and letters. Finally, the term "cyborg" - a being half human and half machine - is gradually encompassing an ever wider spectrum of developments. Whereas at the dawn of this development the focus was on pacemakers and artificial limbs, scientists are now predicting an ever greater fusion of man and machine. Examples of this include intelligent skin or so-called exoskeletons, which can restore mobility to disabled people.

Industrial revolution

Every industrial revolution has had a lasting impact on society. The first industrial revolution (1750 - 1850) accelerated productivity and simplified the transportation of goods thanks to hydropower and steam power. At the beginning of the 20th century, the phenomenon of electrification facilitated assemblyline work and mass production. Finally, the advent of information technology (IT) in the 1970s sparked off the third industrial revolution.

The fourth industrial revolution has only just begun. Over the coming years, robots and machines will leave their stamp on many areas of economic activity, thereby increasing productivity, product quality, and safety. This megatrend, known as "Industry 4.0" and also commonly referred to as the "internet of things and services", is making increasing inroads into the world of manufacturing. Thanks to the sophistication of modern connectivity, productive entities such as man, machine, product component and operating system can work together hand in hand, thereby delivering a significant improvement in productivity. The networking of all the above entities is leading us away from traditional value creation chains and towards

value creation networks.

Industry 4.0 is resolving the contradiction between individual production and efficiency gains through scaling. Intelligent production units are combining the virtual world with physical production. This enables them to respond to market fluctuations and changing client requirements in real time. For example, networked robots can actively learn from one another via "the cloud". How might this work? A robot working on a fridge production line in Japan could independently learn certain working stages from his German "colleague" on an automotive production line.

What will the future bring?

According to research undertaken by Bank of America Merrill Lynch, the market for robots and artificial intelligence (AI) is likely to increase from a volume of just under USD 40 billion in 2016 to some USD 160 billion within just four years. This equates to a growth rate of 35% p.a. What is more, procurement costs can be amortised much more quickly nowadays, as robot technology has become ever cheaper, smaller, swifter and more energy-efficient since the 1980s. In a simultaneous development, wage unit costs have risen sharply in many emerging markets, as wage inflation has proved significantly higher than the (also large) productivity advances. As a consequence, the trend towards the outsourcing of production to low-wage countries appears to be gradually going into reverse. It is therefore hardly surprising that the leading industrialised nations have the highest density of robots.

Growth market China

The problem of the ageing of Chinese society and the associated risk of massive production losses should not be underestimated. This in turn explains the increase in the Chinese hunger for automated assistants. The Chinese government is determined to make its

manufacturing sector a technological world-beater, which is why state-sponsored takeovers of European companies – a good example being the takeover of German industrial robot manufacturer KUKA – are likely to become increasingly commonplace. A comparison of robot densities reveals huge catch-up potential in China. In 2014, a total of 36 robots per 10'000 workers were in use in the Middle Kingdom. This is just an eighth of the German equivalent and a ninth of the Japanese equivalent. China is expected to become one of the world's top 10 nations in the sphere of automation by 2020, with the density of robots rising to as much as 150 units per 10'000 workers. This equates to annual growth of more than 20%.

How to invest?

We recommend investing in this theme in a diversified way, i.e. by selecting an active or passive fund that invests in a robotics index drawn up according to special criteria, or alternatively investing in a certificate based on carefully selected stocks that cover the entire value creation chain in the area of robotics and automation.

Conclusion

By definition, progress is unstoppable. Technological developments and falling costs are making robots or AI more affordable and therefore more attractive to companies. Industry 4.0 is developing in tandem with a wholly new kind of production logic and logistics. This will have huge repercussions for traditional industries as well as our personal lives; whether or not this will be for the better is something we would not venture to say. But the further increase in robot densities worldwide is simply inevitable in our view – particularly in China, where the potential in this area is huge. An investment in the robotics sector would give the long-term investor an opportunity to participate in the growth of future technologies – whose significance to the global economy is likely to become increasingly apparent.

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