

<https://blog.en.erste-am.com/artificial-intelligence-as-investment-in-the-future/>

Artificial Intelligence as investment in the future

Bernhard Selinger



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Investments in future technologies are exciting and open up opportunities to reap rewards further down the line. We have already discussed the most important developments in numerous blog entries, among them questions of healthcare and environmental technologies. Today, we want to talk about Artificial Intelligence (AI). Bernhard Selinger, fund manager of [ERSTE FUTURE INVEST](#), will give us an insight into the megatrends that will be changing our lives in the coming years.

AI, by definition a field in information technology, combined with automation and machine learning, is expected to be able to upend numerous areas of our daily lives. Digitisation can be regarded as somewhat of a pioneer in this context. It has been an unstoppable, advancing force for years, permeating every area of life. As a result, the requirements in terms of computational and storage capacity as well as internet bandwidth have been on an exponential trajectory. AI is to be rolled out to more and more fields of application.

The mobile telephony evolution from 5G to 6G

Everybody talks about 5G nowadays – about the ultra-fast mobile telephony network that is being rolled out as we speak. However, according to the latest forecasts, 5G could be a thing of the past less than ten years from now. Higher frequencies (4G with about 3GHz vs. 5G with up to 30GHz) that are required for larger bandwidths usually come with reduced reach. This is a problem, not the least as the infrastructure is still somewhat lagging behind requirements – in this country as much as in many others. The number of required base stations could therefore rise even more as a result of the switch to 6G.



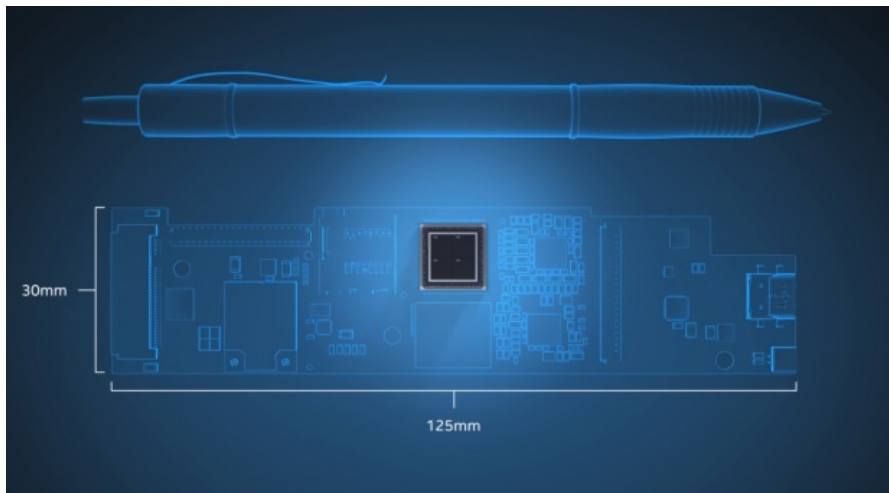
The security requirements from telecommunication network infrastructure will be on a steady increase as well – which will provide niche players that provide solutions in this field (e.g. Cyan) with interesting opportunities.

Source: Erste Asset Management GmbH

Computing power doubles every few years

The available data have to be processed and analysed within a reasonable amount of time. According to Moore's Law, the processing speed of computers doubles every few years, while the costs stay roughly the same. In recent years, this development has lost some of its momentum, not the least since chip design has been getting close to its physical boundaries: modern processors of a few square millimetres hold billions of transistors.

Circuit paths are only a few atoms wide anymore these days. Industry estimates expect that on the basis of the current silicon technology, 5 to 7 nanometres (1 nanometre = 1 millionth of a millimetre) is the final frontier of size reduction. The US chip producer Intel introduced the first 10-nanometre chips ("Ice Lake") in August 2019. 7-nanometre chips are currently in the development phase and should hit the market in 2021 at the earliest.



Source: Intel

Applications that are heavy on graphics such as 3D design or virtual reality (Dassault System) rely on special graphics chips. We regard NVIDIA as particularly well positioned in this field.

The big race of Netflix vs. Disney

The big race of Netflix vs. streaming newcomer Disney will be decided not only on content, but also by AI. Which of the two has trained its algorithm best on the basis of their collected user data to recommend suitable films and TV shows to new viewers?

The Chinese as pioneers in automated fast-food orders

The same is true for fast-food self service terminals. Whereas some only display the menu, smarter terminals make recommendations on the basis of personalised data: for example, one enters one's bonus club data, which contain age, gender, and previous orders. Other factors such as day, time, and weather can also be taken into account.

Yum China has been pioneering this field for years. KFC – along with Pizza Hut and Taco Bell the most important brand of Yum China – goes beyond that and uses a voice-activated order robot, “Dumi”. The robot was developed in cooperation with Baidu and is able to understand different local dialects. It recognises gender, age, and even the mood of the person ordering and adjusts its meal recommendations accordingly.



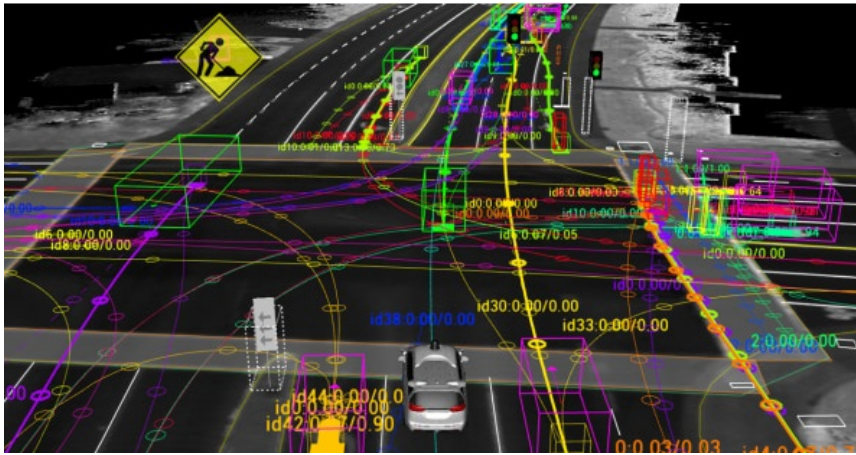
Source: YUM China

The industry giant McDonald's has only recently realised that it has some catching up to do and has increased its investments in digital order terminals, apps, and data analysis, albeit with a delay of years.

Autonomous driving - the software makes the difference

One of the currently most demanding applications of AI is autonomous driving. In addition to a plethora of technical systems such as processors, cameras, and various sensors (radar, LIDAR, ultrasound) it is mainly the software that can recognise objects and put them into spatial context on the basis of an algorithm.

The term “machine learning” describes the process by which an algorithm is trained by adding more data, as a result of which its predictive powers improve. When for example thousands of images of red traffic lights (from various angles, at different weather conditions etc.) are entered into the system and specific characteristics are defined, the algorithm can reliably recognise a “real” red traffic light on the road from the images provided by the cameras and react accordingly.



Source: Waymo

When the training with new data is done independently, i.e. when the algorithm uses its experience in order to improve itself, this is called deep learning. Waymo, a company of the listed Alphabet, is one of the most promising candidates in the field of autonomous driving.

The company has developed the best algorithm in the sector on the basis of an enormous set of data: in the past ten years, Waymo vehicles have driven about 10 million kilometres autonomously. At the moment, about 600 vehicles are in use in Phoenix, Arizona. Also, Waymo launched its first commercial robo-taxi service at the beginning of the year.

ERSTE FUTURE INVEST - the fund for all megatrends

Not every hype or trend turns into a megatrend. AI has the potential to effect important long-term changes in technology. The development of AI does not only influence our daily lives, but it also opens up new investment opportunities.

If investors recognise megatrends early and invest in equities of those respective fields at an early stage, they may earn significant returns. Therefore, the new equity fund [ERSTE FUTURE INVEST](#) invests in five potential megatrends that we regard as attractive for investors – healthcare, lifestyle, technology & innovation, environment & clean energy, and emerging markets.

⚠ Risk notes according to 2011 Austrian Investment Fund Act

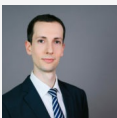
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