

Artificial Intelligence

The engine of the future

AI – desire and reality

73% <> **6%**

of the company are of the opinion that AI is the most important future technology.

have been using AI themselves so far.

Source: <https://www.bitkom.org/Presse/Presseinformation/Companies-find-Artificial-Intelligence-difficult-to-handle>

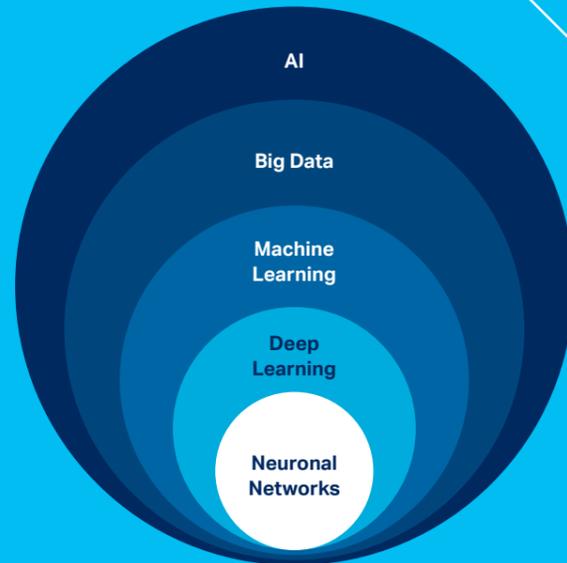
In order for AI to function smoothly, an optimal interaction of hardware and software is required. At IAV, the AI and IT specialist is taking over together with Germany's No. 1 provider of engineering cloud services: IAV subsidiary CPU 24/7.

The currently fastest computers in the world:

1. Supercomputer Fugaku (Japan) 415.5 PetaFLOPS
2. Summit (USA) 148.6 PetaFLOPS
3. Sierra (USA) 94.6 PetaFLOPS
4. Sunway TaihuLight (China) 93 PetaFLOPS
5. Tianhe-2A (China): 61.4 PetaFLOPS
13. SuperMUC-NG (Germany): 19.4 PetaFLOPS

Date: June 2020; considered value: Rmax (PFLOP/s)
Source: <https://www.top500.org/lists/top500/list/2020/06/>

AI – here's what it involved



AI: technical automation of intelligent behavior

Big Data: modern techniques for processing and evaluating huge volumes of data

Machine Learning: Algorithms for data analysis, pattern recognition and derivation of forecasts and decisions

Deep Learning: Method of information processing for decision-making based on large neural networks

Neural networks: multi-layered networks for data analysis based on the functioning of the human brain

AI strategy of the German government:

1. Germany as a leading location for AI technologies
2. Responsible development and use of AI
3. Ethical, legal, cultural and institutional embedding of AI in society

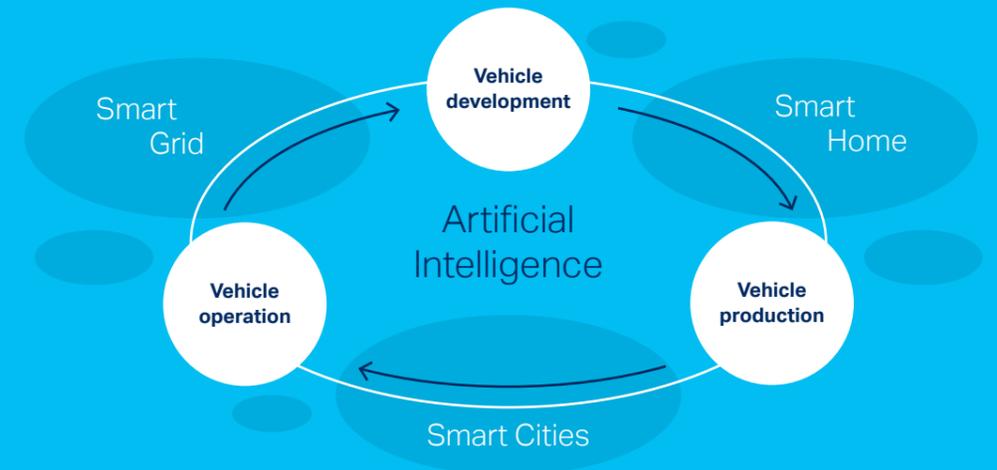
Five competence centers and the German Research Center for Artificial Intelligence (DFKI) strengthen Germany as a location for AI.

In addition, a large number of universities, institutes, research facilities and centers of excellence with a strong AI focus are establishing themselves – many of them in close cooperation with IAV.

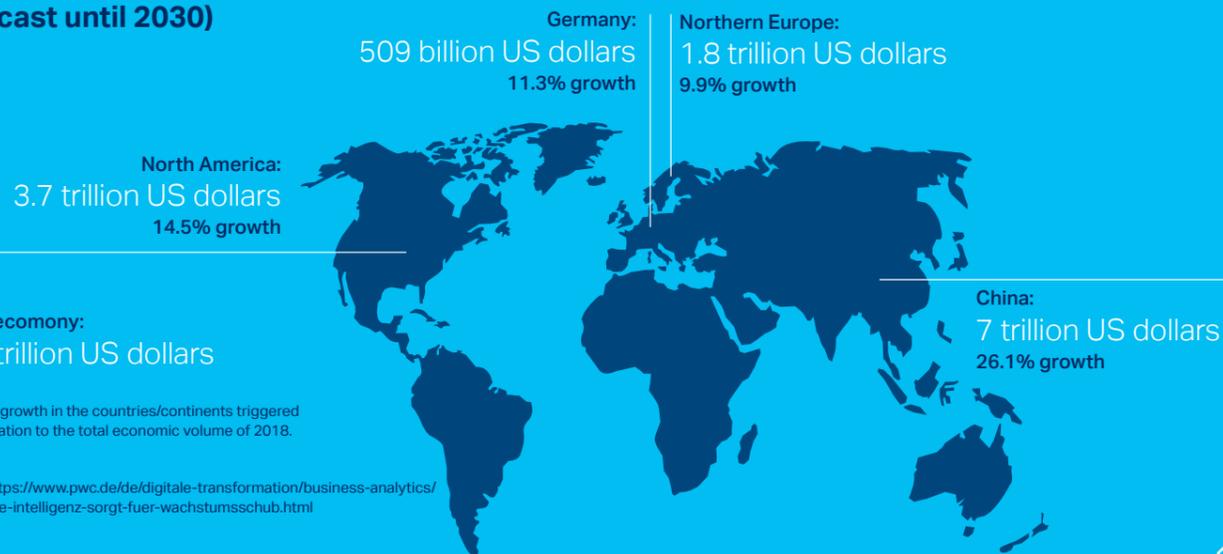
Source: <https://www.bmbf.de/de/kuenstliche-intelligenz-5965.html>



The special quality: overcoming system limits with AI



AI makes the economy grow (forecast until 2030)



Economic growth in the countries/continents triggered by AI in relation to the total economic volume of 2018.

Source: <https://www.pwc.de/de/digitale-transformation/business-analytics/kuenstliche-intelligenz-sorgt-fuer-wachstumsschub.html>

AI tools

The basis for customized solutions are powerful AI tools.

< PyTorch /> < MLflow />
> < Python /> < pandas />
> < NumPy /> < SciPy />
> < scikit-learn /> < TensorFlow />
> < Kubernetes /> < Microsoft Azure /> < Keras /> < spaCy />

Those who invest stand to win

In the past five years, there has already been a lot of investment in future technologies. The top 3 in international comparison:

- 1st place:** USA 92 billion US dollars
- 2nd place:** China 22 billion US dollars
- 3rd place:** UK 6 billion US dollars

Source: <https://venturebeat.com/2020/03/16/tech-nation-u-s-companies-raised-56-of-global-ai-investment-since-2015-followed-by-china-and-u-k/>