How AI & Big Data changing global economy?

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Key concepts

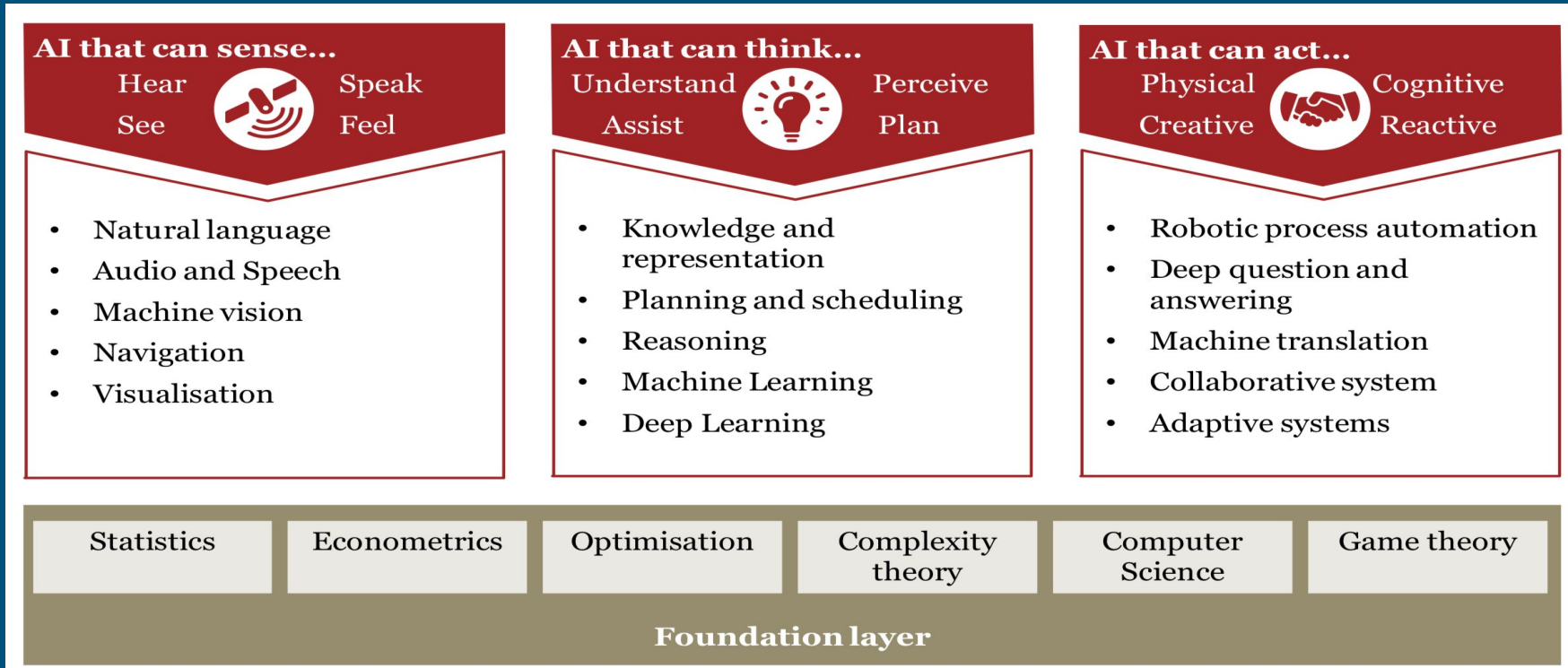
Artificial intelligence - is the simulation of human intelligence processes by machines, especially computer systems. These processes include learning (the acquisition of information and rules for using the information), reasoning (using rules to reach approximate or definite conclusions) and self-correction.

Data science - is a multidisciplinary field that uses scientific methods, processes, algorithms and systems to extract knowledge and insights from structured and unstructured data.

Big Data - is an evolving term that describes a large volume of structured, semi-structured and unstructured data that has the potential to be mined for information and used in machine learning projects and other advanced analytics applications.

Machine learning - is the scientific study of algorithms and statistical models that computer systems use to effectively perform a specific task without using explicit instructions, relying on patterns and inference instead. It is seen as a subset of artificial intelligence.

AI areas by layer



Data source: PWC Global AI report 2018

Areas of implementation

- Healthcare
- Business
- Education
- Law
- Manufacturing
- Transport & Logistic
- Culture and entertainment
- Science

Facts and only facts

- For a typical Fortune 1000 company, just a 10% increase in data accessibility will result in more than $65 million additional net income
- Walmart collects 2.5 petabytes of unstructured data from 1 million customers every hour.
- Less than 0.5% of all data we create is ever analysed and used.
- By 2020, about 1.7 megabytes of new information will be created every second for every human on the planet.
- **90%** of the data that exists in the world was generated in the past 2 years.
- Experts predict a 4,300% increase in annual data production by 2020.
- Machine learning patents grew at a 34% Compound Annual Growth Rate (CAGR) between 2013 and 2017, the third-fastest growing category of all patents granted.
- Deloitte Global predicts the number of machine learning pilots and implementations will double in 2018 compared to 2017, and double again by 2020.

Every minute of every day in 2018:

- Amazon ships **1,111** packages
- **400** hours of video are uploaded to YouTube
- Google conducts **3,877,140** searches
- **2,083,333** snaps are sent on Snapchat

- Facebook users send on average 31.25 million messages and view 2.77 million videos every minute
- Every 2 days we create as much data as we did from the beginning of time until 2003
- Cost of data storage declined from 10$/GB in 2000 to $.02 today.

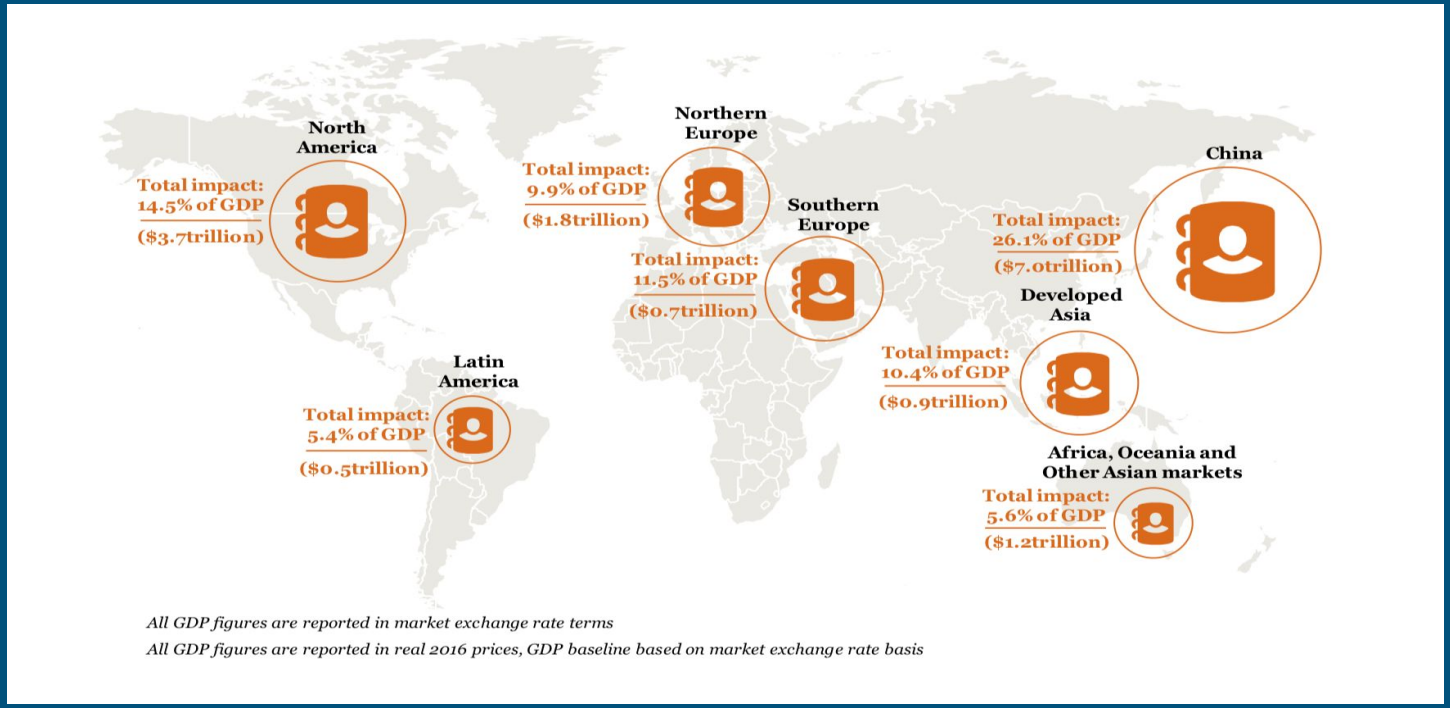
Business cases

- Netflix saved **$1 billion** as a result of its machine learning algorithm which recommends personalized TV shows and movies to subscribers.
- Same-day shipping from Amazon is available because of machine learning. In fact, their current ML algorithm has decreased the **'click-to-ship' time by 225%**.
- Uber uses machine learning to improve arrival times, pick-up locations, and UberEATS' delivery estimations by **26%**.
- Alibaba claims that smart logistics have resulted in a 10% reduction in vehicle use and a 30% reduction in travel distances.
- Amazon's recommendation engine drives 35 percent of total sales.
- Coca-Cola Amatil gained 1.3% market share due to execution image-based technology to take pictures of stores shelves with their mobile devices
- Cognizant 85,000 risk patients have been identified through this system with savings to organizations of $60 million.
- GLOBAL TECH LED used used Google's Conversion Optimizer to automatically adjust potential customer bids for increased conversions. Traffic to the company's website grew by more than 100%.

Macroeconomic impact prediction

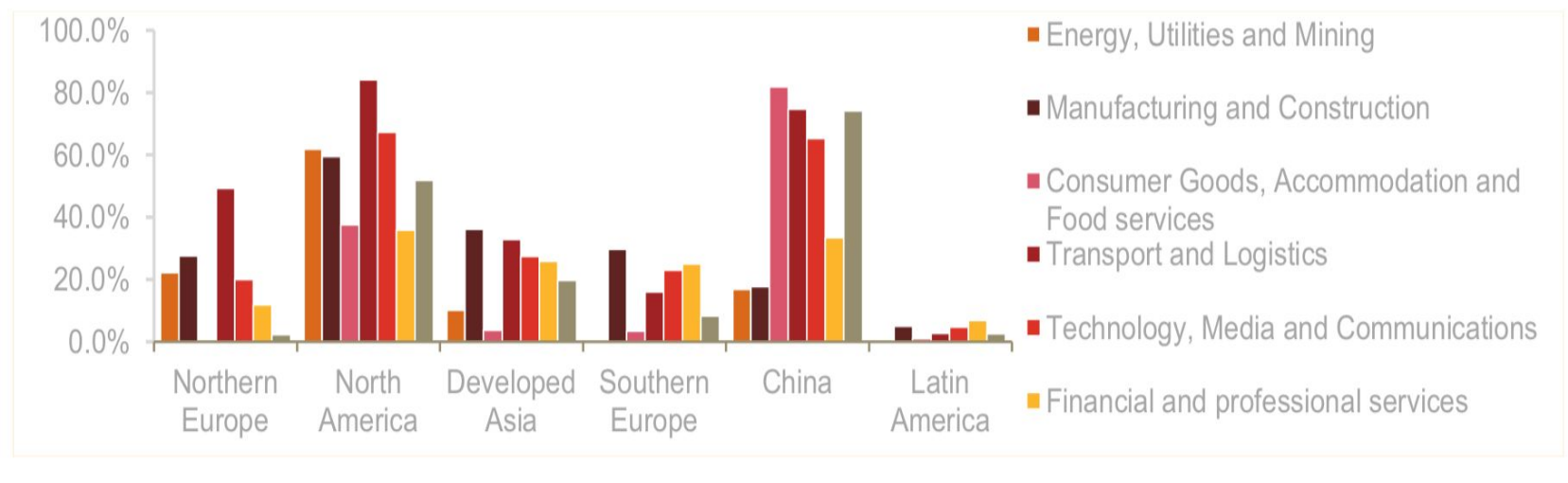
- Global GDP will be 14% higher in 2030 as a result of AI.
- AI will redefine ‘the new normal’ as a period of high and long-lasting economic growth. AI has the potential to be not just another driver of TFP, but an entirely new factor of production.
- Boosts in labour productivity of 11-37% in 2035 depending on country (US 35%).
- In the not-so-distant future, without an acceleration in productivity growth, there will not be enough workers for countries to meet their aspirations for growth in GDP per capita.
- 326m jobs will be impacted by AI in 2030, however these should be interpreted as jobs both created and impacted by AI (i.e. jobs which have either been created by AI, are ‘AI- dependent’ or are heavily impacted by AI), rather than net jobs created by AI.
- Economic impact of AI is likely to be especially large in North America (14% of GDP in 2030) and China (26% of GDP in 2030).
- In the sector-side of the story, the health, education, public services and recreation sector is set to see the largest GDP gains from AI (21%), which is particularly driven by the substantial AI-driven product enhancements expected in this sector. Encouragingly, retail and wholesale trade, accommodation and food services, as well as other labour intensive sectors are also expected to see a large boost (15%), while transport and logistics, and financial and professional services will also benefit a substantial 10%.

Economic impact of AI by geographical region



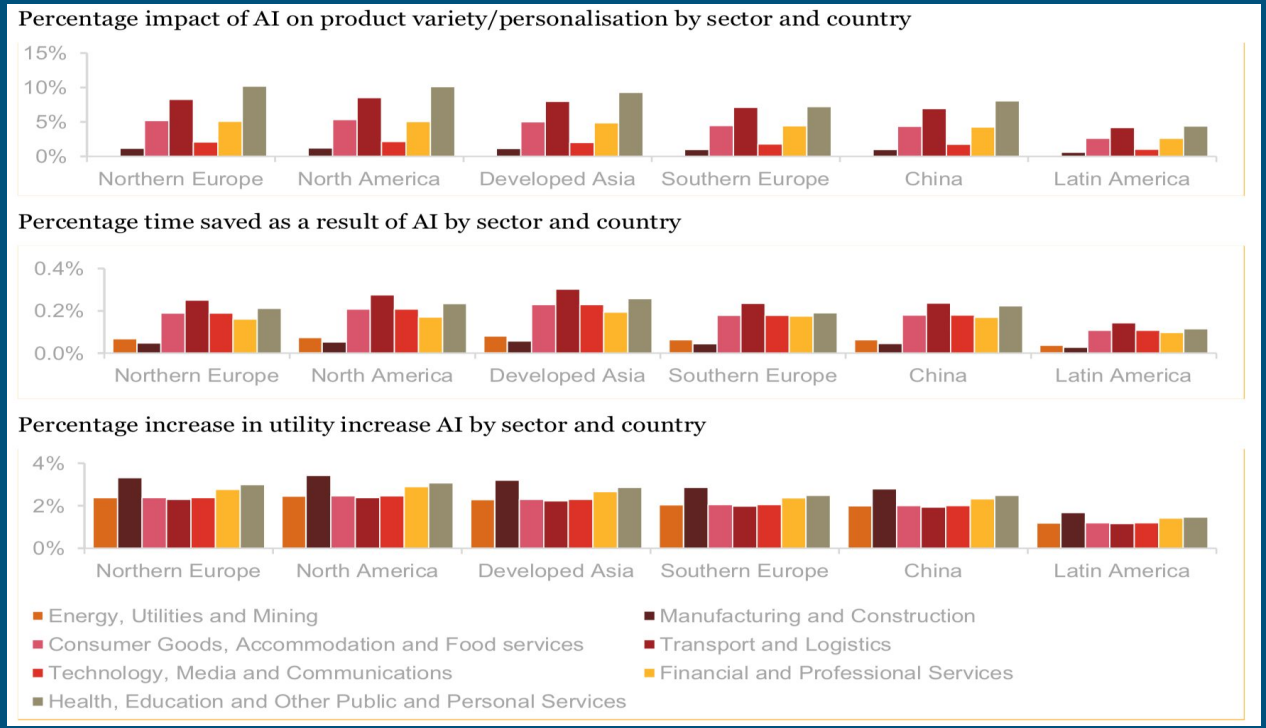
Data source: PWC Global AI report 2018

Cumulative labour productivity input by region and sector from AI uptake (by 2030)



Data source: PWC Global AI report 2018

Cumulative product enhancements



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Treats

1. Security and ethics concerns
2. Killing existing jobs
3. Possible inappropriate military usage
4. Possible inappropriate government usage (modern China rating system)

What it means for business?

1. Determine what AI means for your business

On the automation side, you'll want to consider what areas are ripe for improvement– pain points like rote data entry, time-consuming contract review, or error-prone processes like reconciliations across multiple systems. In some cases, cost-savings from these quicker winners can be reinvested into longer-range AI efforts.

2. Prioritise your response — and your data

Every executive in the organisation, as well as board members, should be able to articulate what the organisation is setting out to accomplish with AI, how it connects to business strategy, and how its value will be measured. The goal is to develop a coherent response that brings to bear all of the organisation's resources.

3. Focus on people and culture

As data become even more central to the business, it's essential to instil a data-driven culture that blends intuition and analytical insights with a focus on practical and actionable decisions across all levels.

4. Emphasise trust and transparency

As you anticipate the tremendous changes that AI will bring, it's important to remember that we are only at the beginning of the AI revolution.

General thoughts

- AI will be new important factor of global economy
- It can increase gaps between development countries and wealthy countries
- … but on the other side it can be some kind of ‘social elevator’ for development economy
- AI will change quality of life, educational and working paradigm.
- Government, companies and individuals need to be prepared. And best preparation of course is knowledge.