

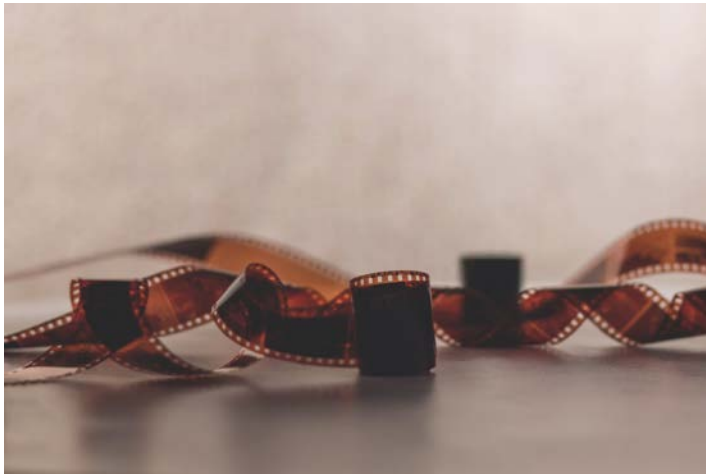


KUNSTIG INTELLIGENS – MULIGHETER FOR NORGE

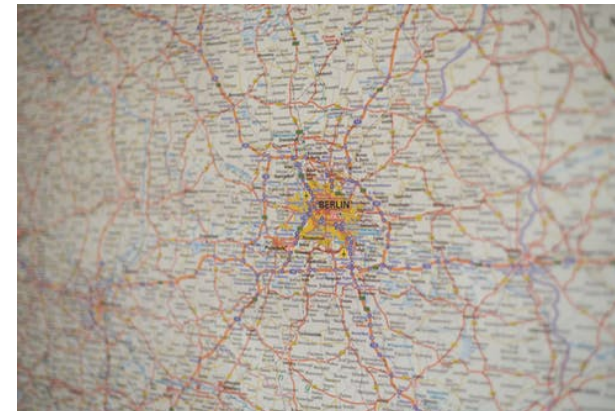
NTVA julemøte
10.desember 2018
Anne Marthine Rustad



Digitizing media and travel



ISSUED BY PAN AM		PASSENGER TICKET AND BAGGAGE CHECK		ORIGIN	
NOT ENDORSABLE		0265		SUBJECT TO CONDITIONS OF CONTRACT IN THIS TICKET	
		BSPJ		DESTINATION	
		PASSENGER COUPON		ISSUED IN EXCHANGE FOR	
NAME OF PASSENGER NISHIMURA/N MR		113PA3HNL		JAPAN TRVL BUREAU TOKYO JP	
NOT VALID FOR PASSAGE		CARRIER	FLIGHT	CLASS	DATE
VOID		VOID	VOID	VOID	VOID
VOID		VOID	VOID	VOID	VOID
TOKYO/NRT		PA 830	Y 21 JAN 2100	OKYL/6V30	PC
HONOLULU		PA 831	Y 26 JAN 1105	OKYL/6V30	PC
TOKYO/NRT					
JTE175000		FARE CALCULATION			
JTE175000		FORM SERIAL NUMBER			
JTE175000		026 3617351200 1			
JTE175000		FORM OF PAYMENT			
JTE175000		CASH			
JTE175000		ORIGINAL ISSUE			



Why now?

Three paradigm shifts at once



Data



Technology



Analytics



Artificial
intelligence



i am ai

“



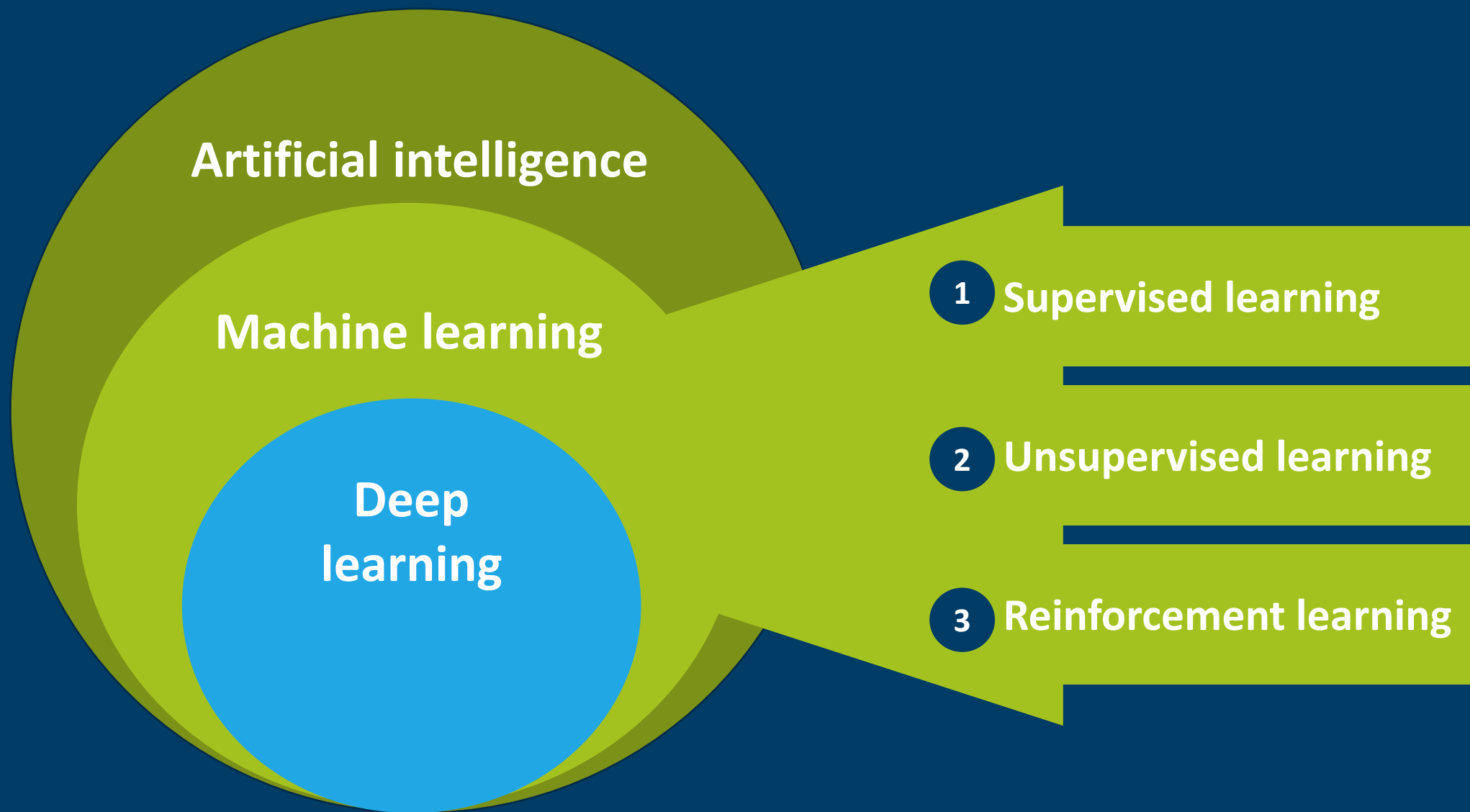
Artificial Intelligence is the New Electricity — Andrew Ng



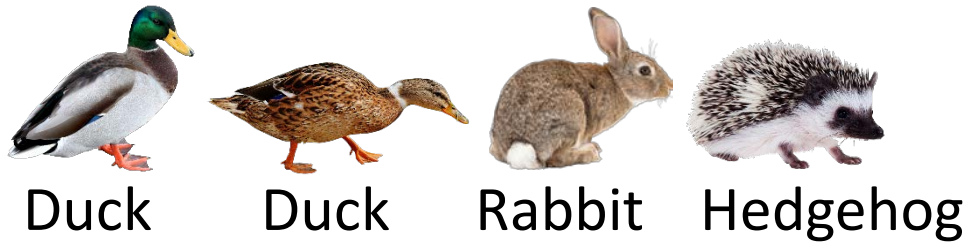
AI guru Ng: Fearing a rise of killer robots is like worrying about overpopulation on Mars

Baidu's deep-learning genius says he won't bother to work against an evil AI

Elon Musk: 'Mark my words — A.I. is far more dangerous than nukes'



Supervised learning



Predictive model



?

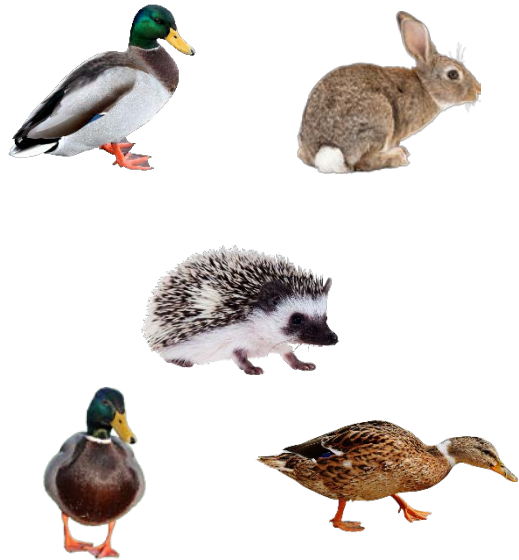


Predictive model

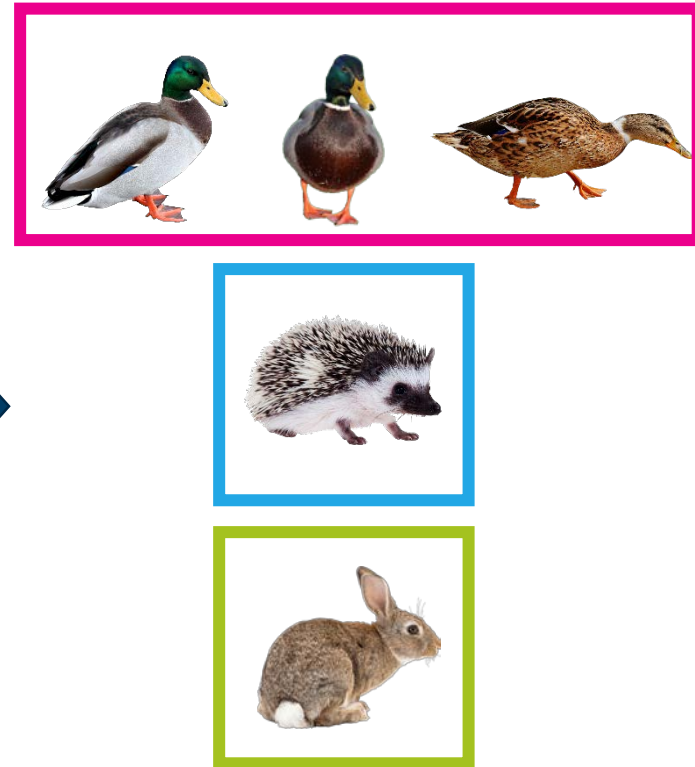


Duck

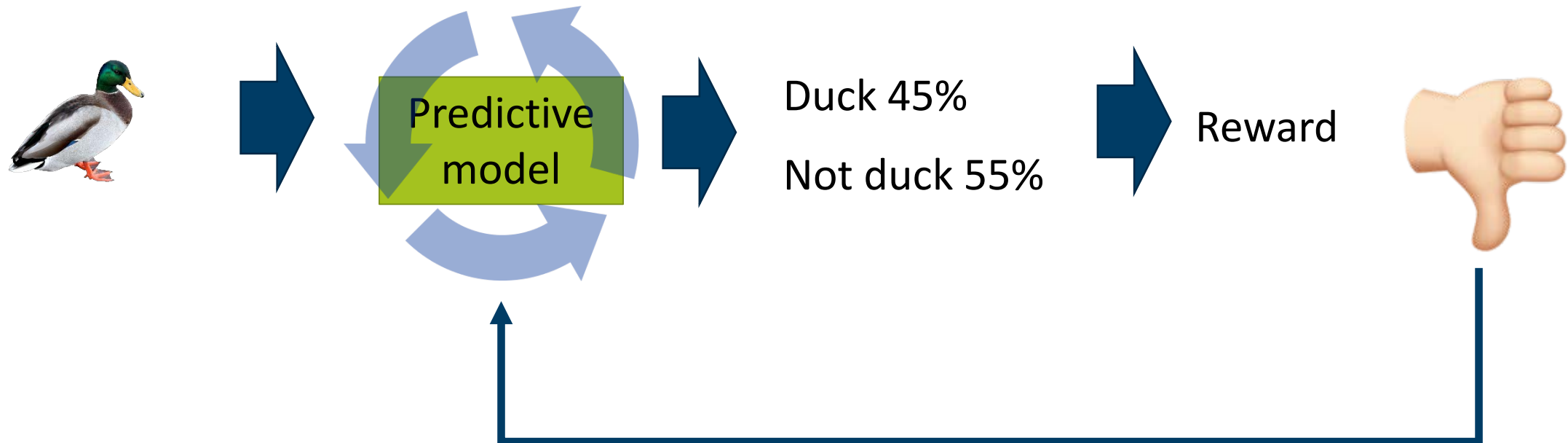
Unsupervised learning



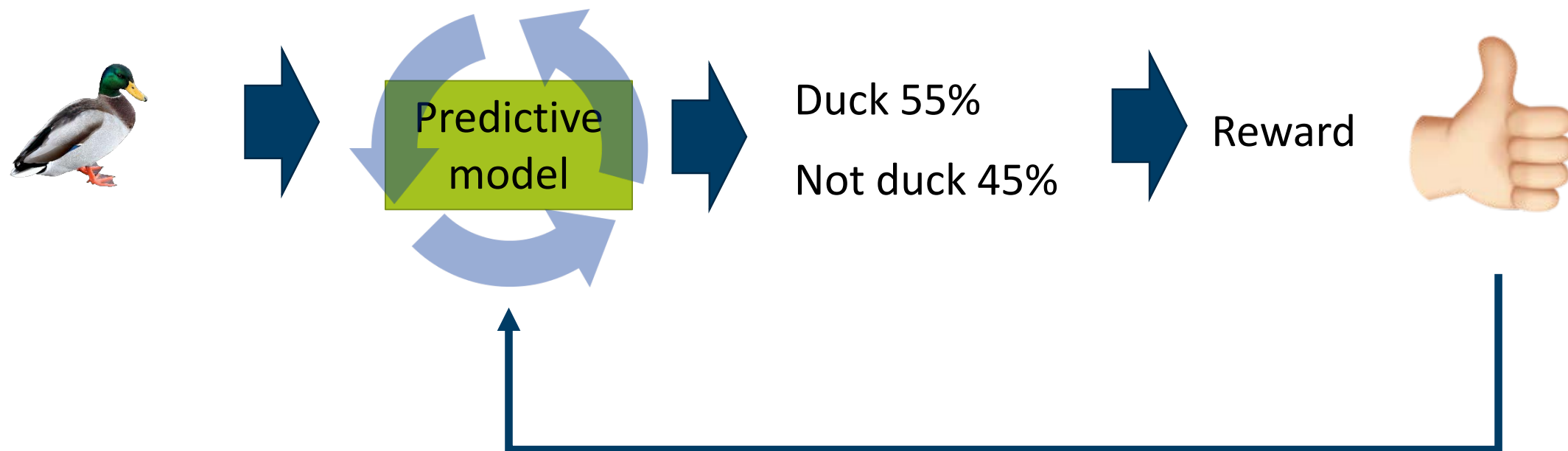
Unsupervised
learning



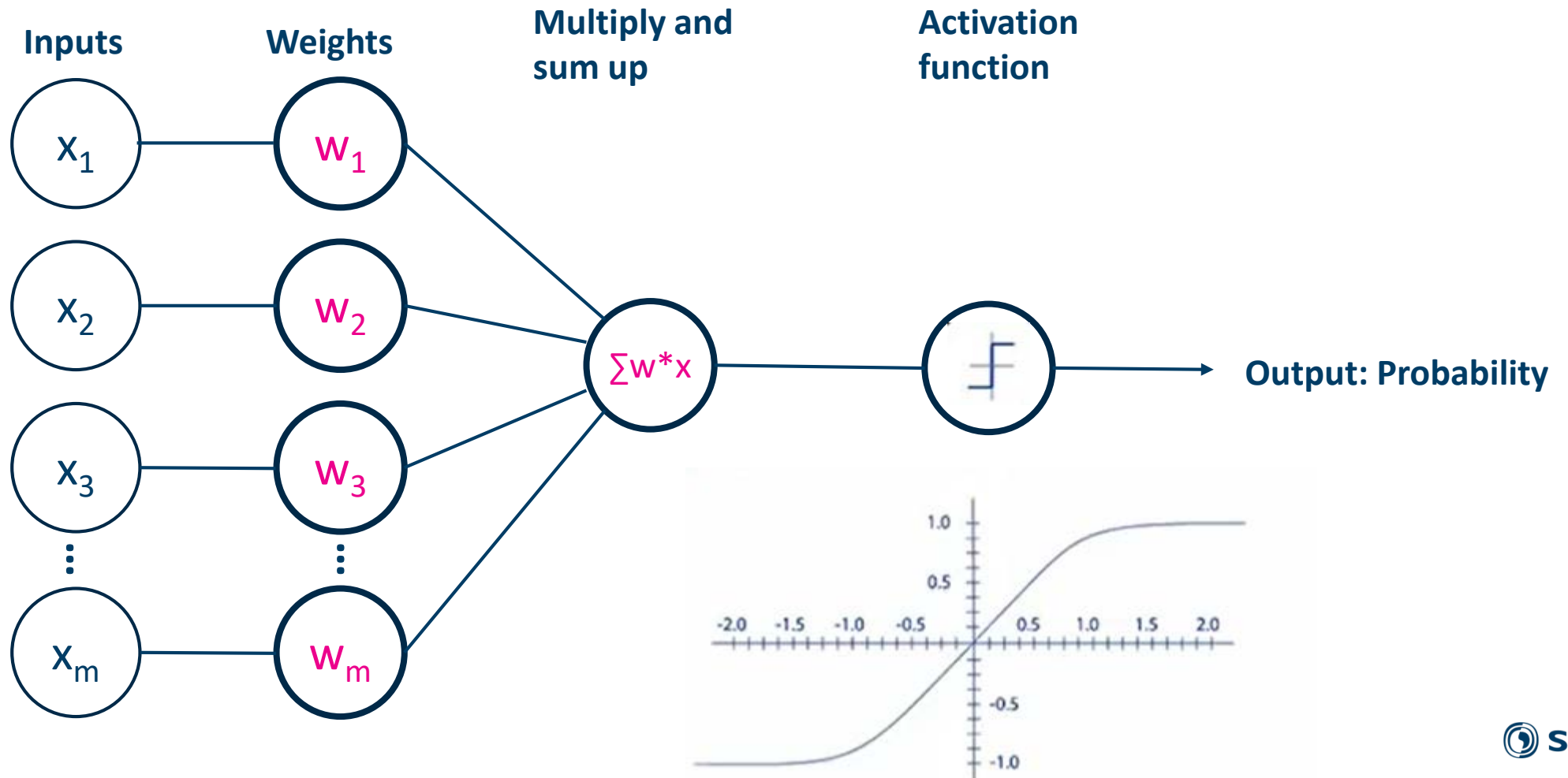
Reinforcement learning



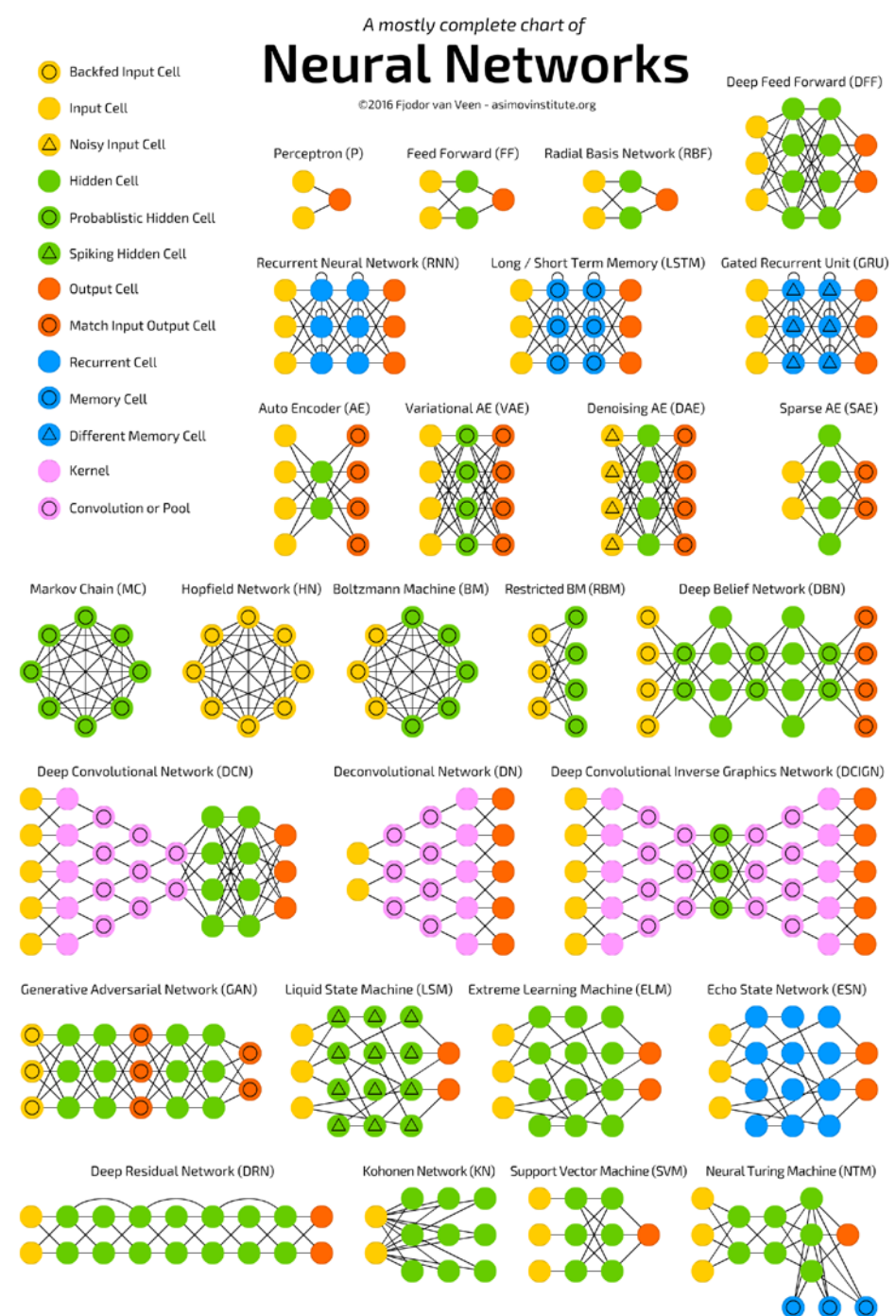
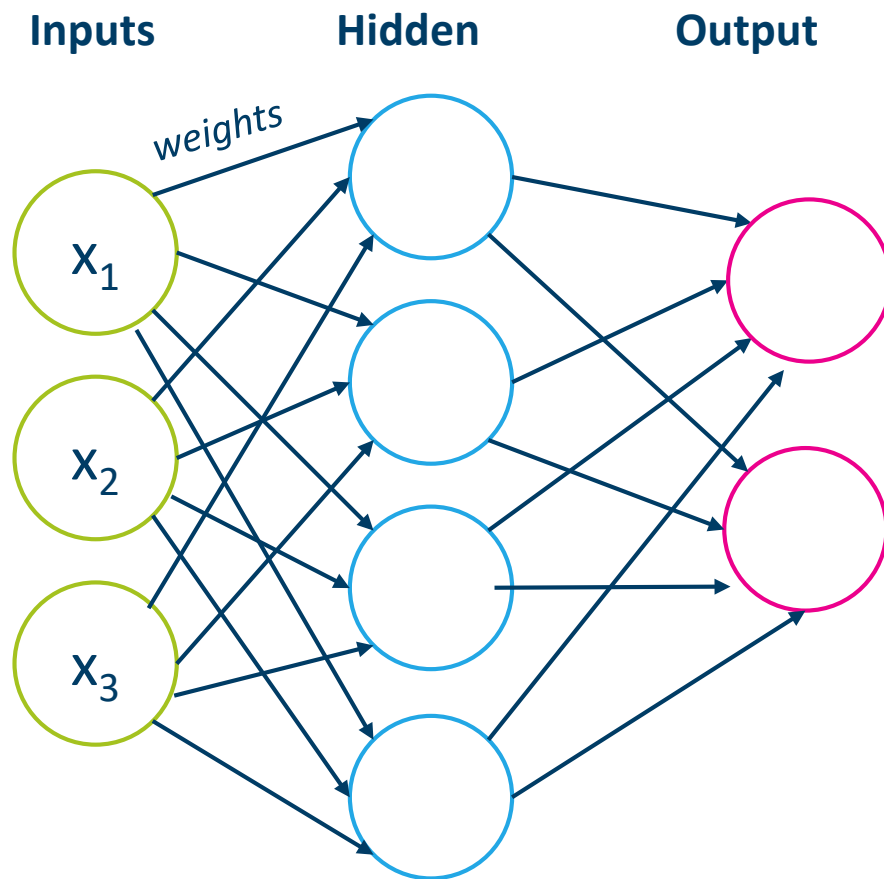
Reinforcement learning



Artificial neural nets



Artificial neural nets



AI every day

Search
engines



Filters



Media
suggestions



Online
shopping

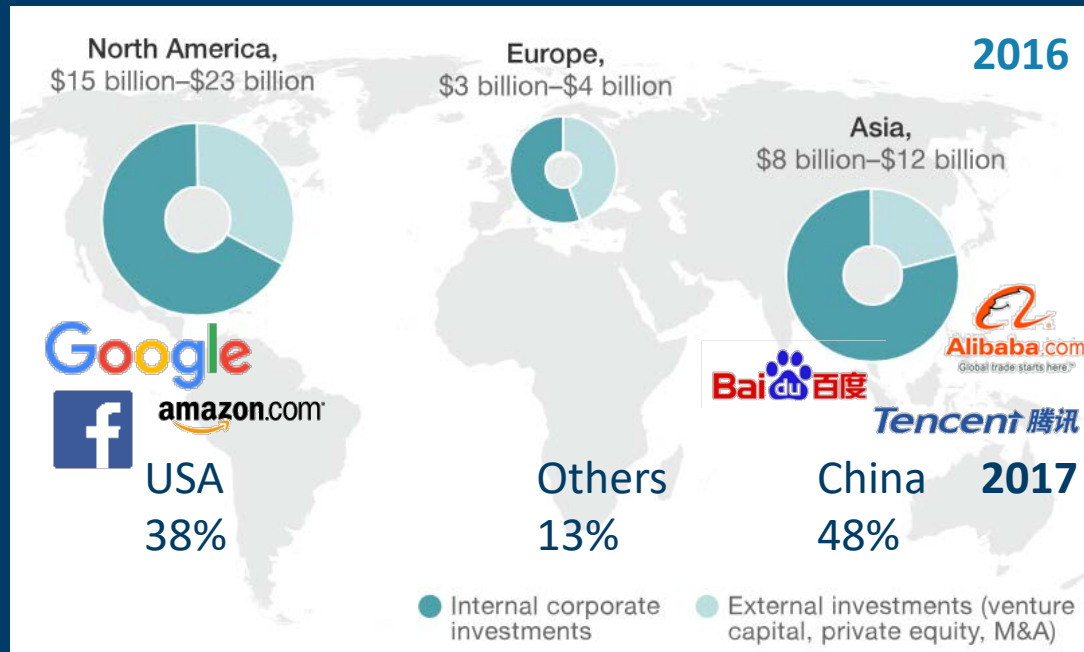


Assistants



Global race on AI

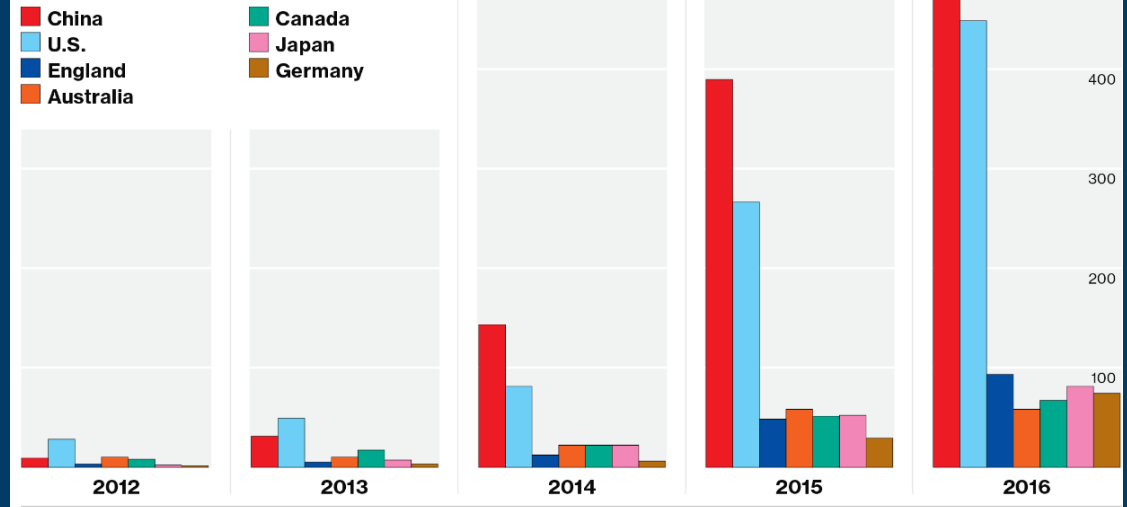
China and USA dominate investments on AI



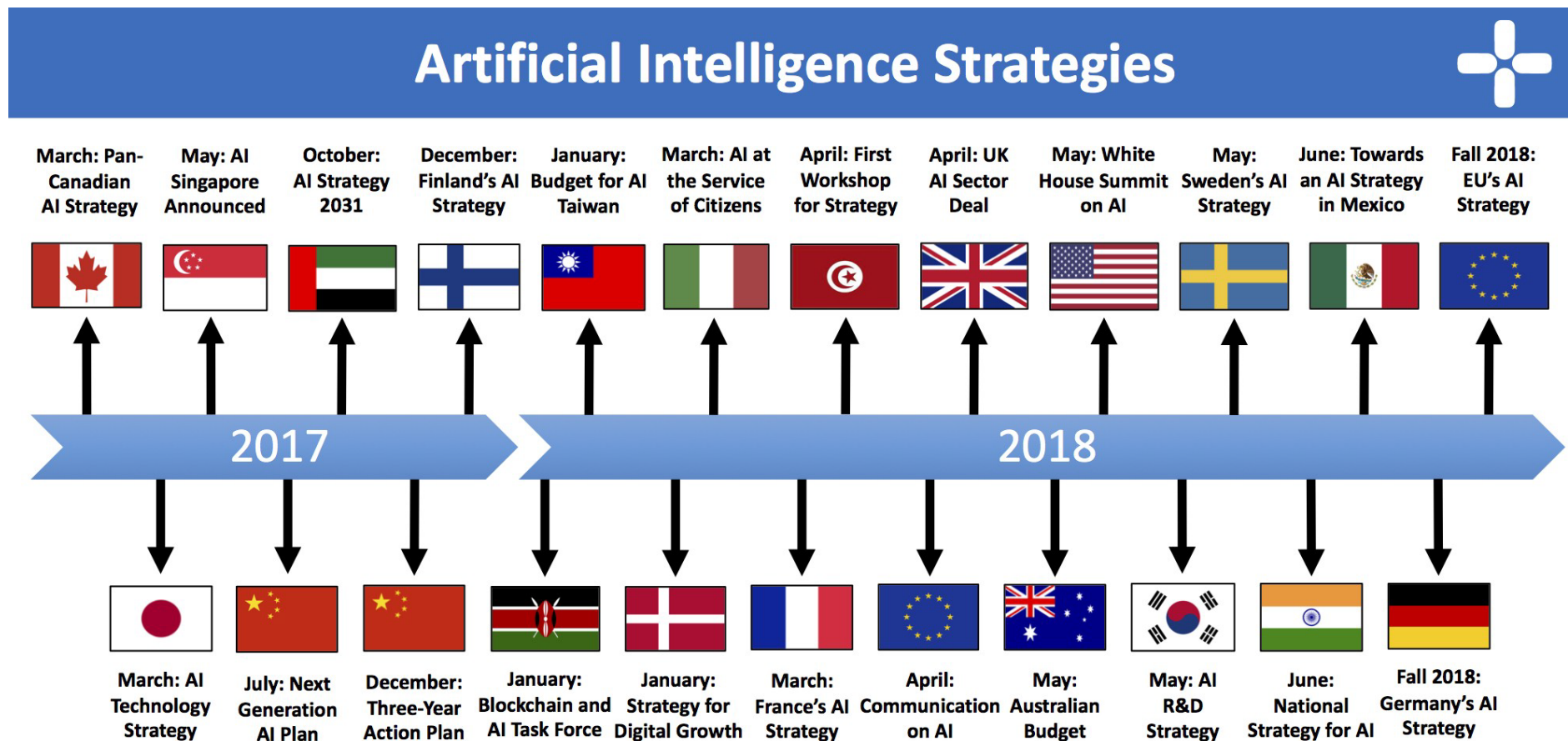
Publications on deep learning

China Learns Quickly

Since 2014 China has published the most research papers per year on deep learning, an advanced form of artificial intelligence.



20+ countries with AI strategies last years



digital — 21

Digitale grep for norsk verdiskaping Samlede anbefalinger

Digitaliseringen er allerede i ferd med å få stor betydning for både samfunnslivet og næringslivet. Den blir gjennomgripende – den er en industriell revolusjon. Da må vi møte den som det – både for å håndtere utfordringene den fører med seg for bedrifter og enkeltindivider, men ikke minst for å utnytte alle de mulighetene den gir.

Et karakteristisk trekk ved digitalisering er at den skjer og utvikles uavhengig av tradisjonelle næringer og sektorer. Den griper inn uavhengig av måten vi som samfunn er organisert på. Den griper inn på tvers. Vi kan ikke løse utfordringene og utnytte mulighetene ved å operere utelukkende parallelt innenfor de næringene eller organiseringene vi er kjent med. Det er dessuten dårlig utnyttelse av våre ressurser.

Det betyr at vi må tenke annerledes om organisering. Vi må bygge kompetanse på tvers – vi må utvikle teknologier som fungerer på tvers – vi må utvikle bedrifter som opererer på tvers – vi må utvikle regelverk på tvers – og vi må sørge for at forvaltningen også kan operere på tvers.

Digital21 har gjennom ett år sett på hvordan dette kan gjøres på en måte som kommer hele bredden av næringslivet til gode, og som bidrar til at næringslivet kan utvikle og ta i bruk ny teknologi og nye løsninger i takt med digitaliseringen.

- Internet of Things
- Big Data
- Artificial Intelligence
- Autonomous systems

Norwegian Open AI Lab



telenor



KONGSBERG



DNV·GL



DNB

equinor



SINTEF

NTNU



norwegian
open ai lab

Memorandum of Understanding

For “Building European AI”

With

Danish Technological Institute (DENMARK),
 Finnish Center For AI / VTT (FINLAND),
 HUB France IA (FRANCE),
 AppliedAI Initiative / UnternehmerTUM (GERMANY),
 Application Center for AI / Fortiss (GERMANY),
 SINTEF (NORWAY),
 Norwegian Open AI Lab (NORWAY),



Wolf or husky?



Predicted: **Wolf**
True: **Wolf**



Predicted: **Husky**
True: **Husky**



Predicted: **Wolf**
True: **Wolf**



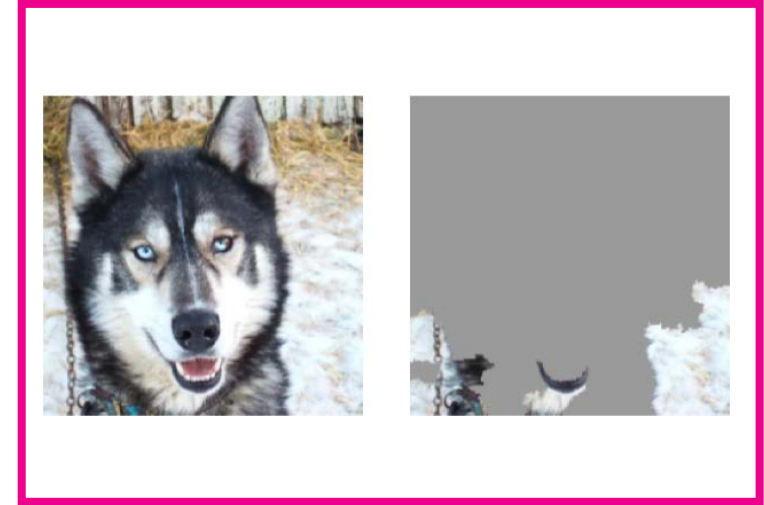
Predicted: **Wolf**
True: **Wolf**



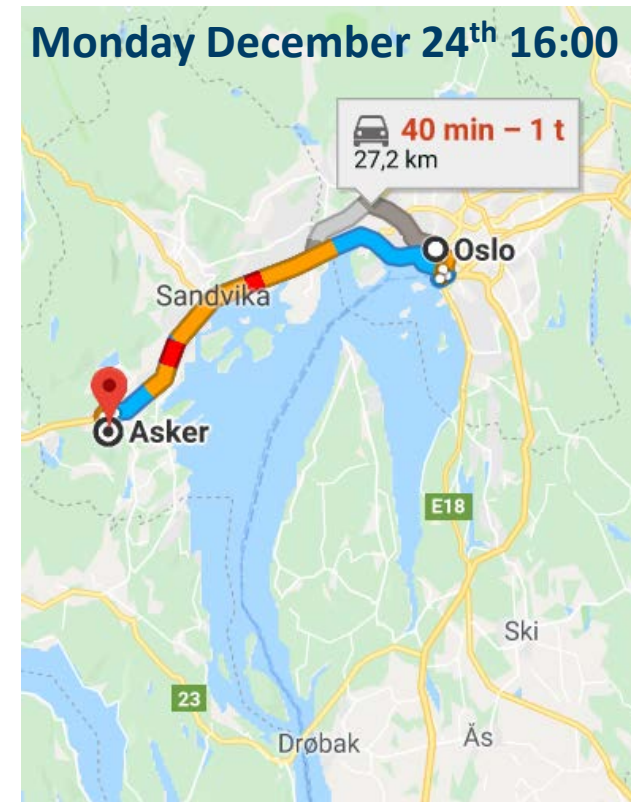
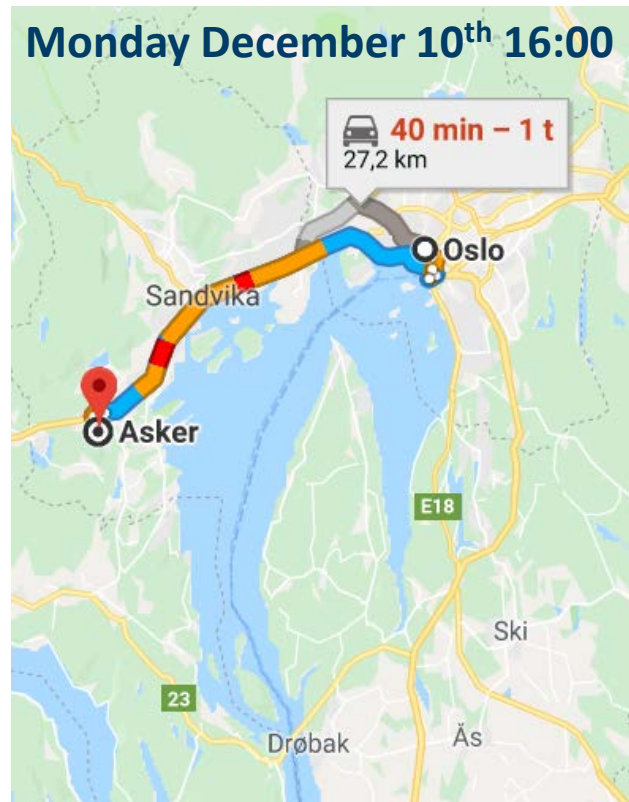
Predicted: **Husky**
True: **Husky**



Predicted: **Wolf**
True: **Husky**

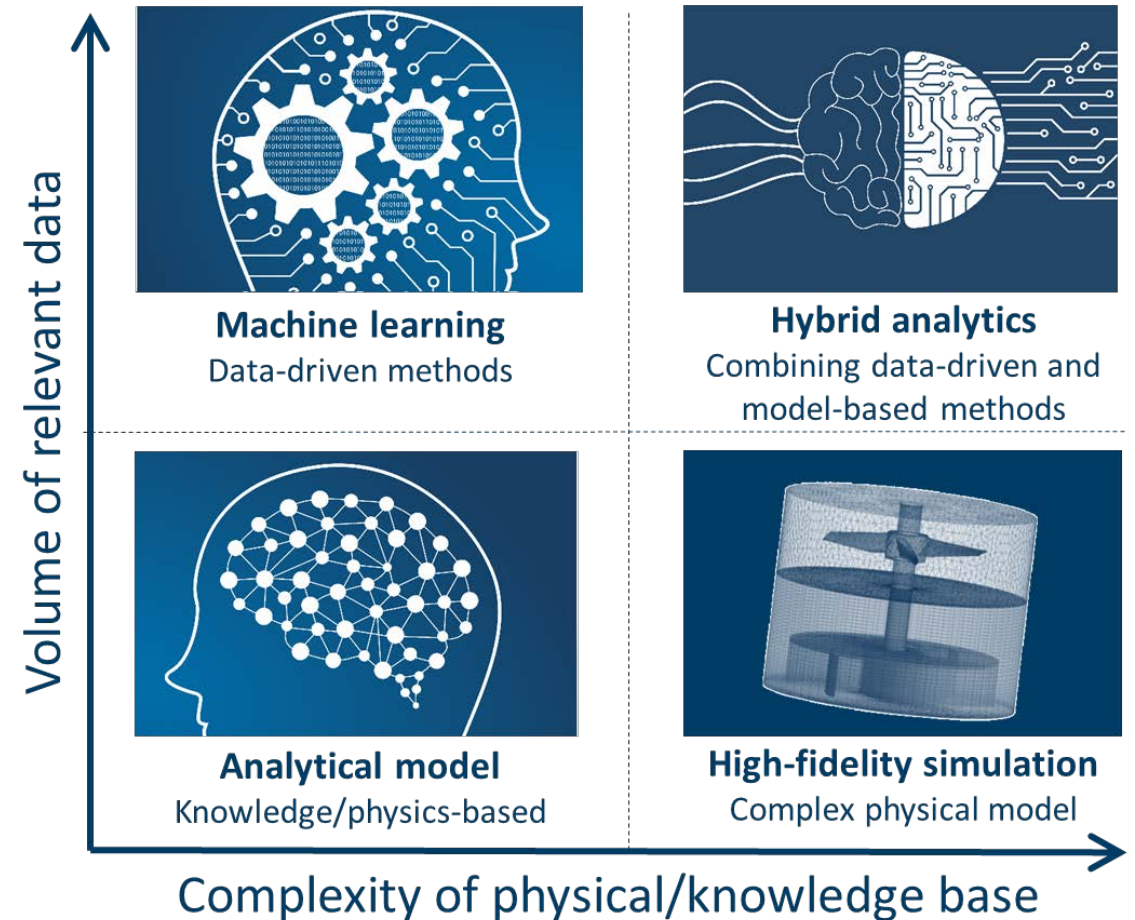


Omitting knowledge leads to obvious errors



Hybrid analytics

- Developing new methods by combining data-driven and model based methods
- Industrial use cases

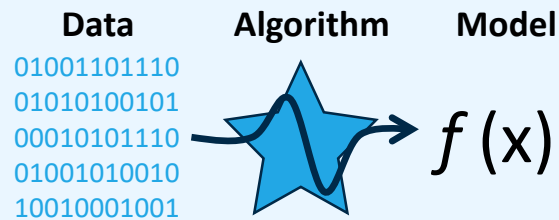


Focus areas within artificial intelligence

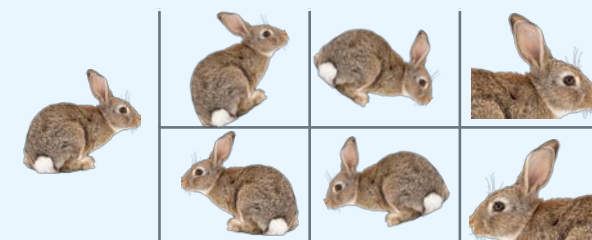
Hybrid analytics



Machine learning



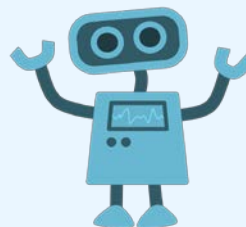
Data synthetization



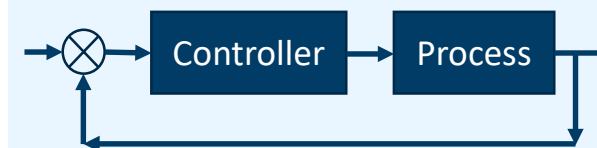
Explainable AI



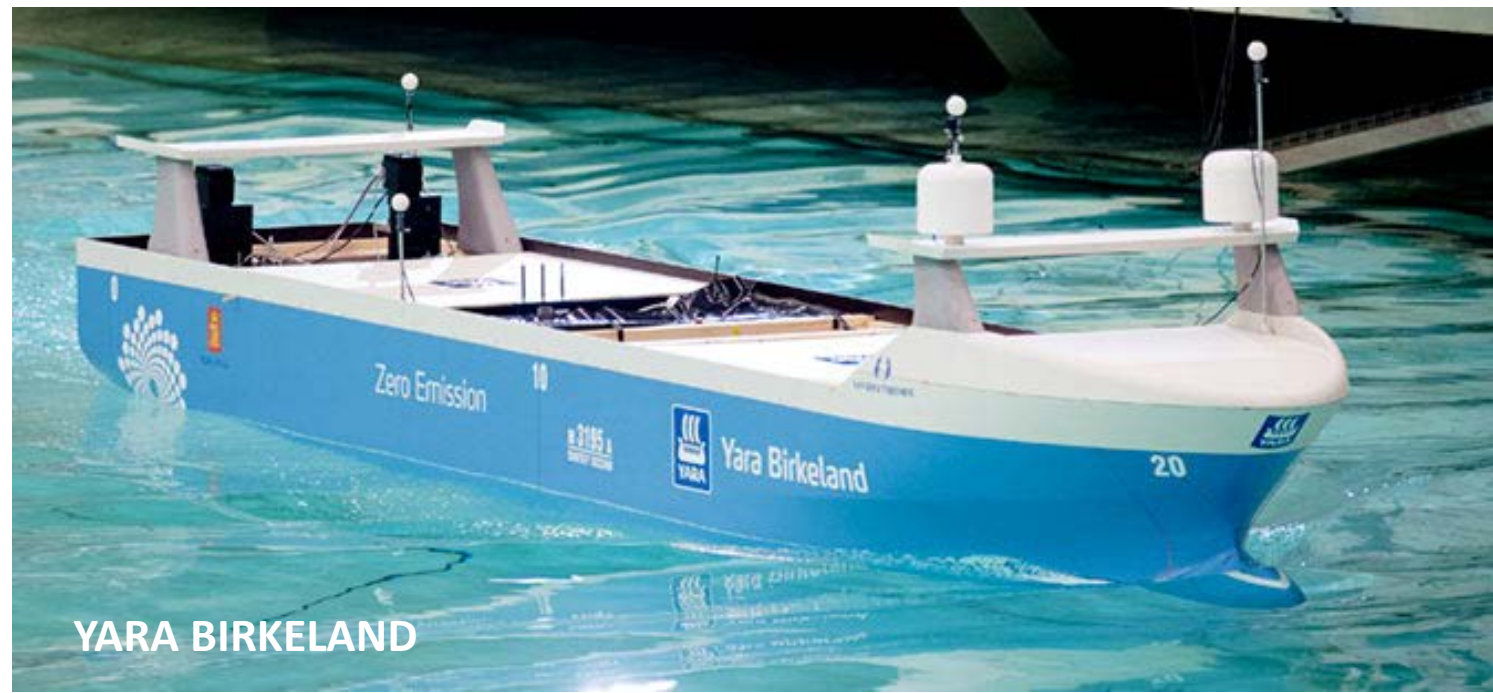
Reinforcement learning



ML-in-the-loop



Safe and explainable AI



AI as Norwegian growth engine



If artificial intelligence is combined with data sharing in main industries, we can create value from data - as we did with oil.

Organize and analyse data = "new oil"

- Create, organize and analyse data
- Renew existing industry
- Create new "supplier" industry



KONGSBERG



ARUNDO



Cognite



Importance for Norway

- Exploit expertise and know-how
- Strengthen Norwegian competitiveness
- Customize solutions
- Build new businesses



Technology for a better society