

Artificial and Collective Intelligence

Ingvild Bakken 24.04.2024

Source:
The material in this presentation is based on the course MIT Sloan + CSAIL Artificial Intelligence: Implications for Business Strategy Program



executive.mit.edu

28 March 2024

Confirmation of Program Completion | Ingvild Bakken

To whom it may concern,

This letter serves to confirm that **Ingvild Bakken** successfully completed the MIT Sloan School of Management **MIT Sloan + CSAIL Artificial Intelligence: Implications for Business Strategy Program 2024-01-31** online program, delivered in collaboration with online education company, GetSmarter.

Ingvild Bakken attended the entire **January 2024** presentation of the program and fulfilled the requirements to complete the program.

Please see the table below that outlines the modules covered:

Module	Grade
Module 1	Complete
Module 2	Complete
Module 3	Complete
Module 4	Complete
Module 5	Complete
Module 6	Complete
Final Grade	Complete

Kind regards,
MIT Sloan Executive Education

“

How can people and computers be connected so that - collectively - they act more intelligently than any person, group or computer has ever done before?

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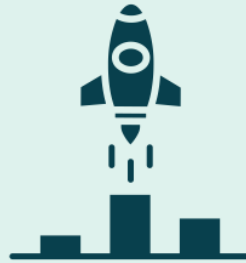
Technology-enabled collective intelligence: Computers in the team



Strategic Advantage in Business by use of AI



Cost leadership



Differentiation



Focus

Types of AI technologies



Machine Learning

Computer programs that learn from experience. A process that starts with a body of data and aims to derive a rule that explains the data or predicts the future.

Area of use

- Prediction
- Modelling
- Controlling

Steps to implement

- Formulate the problem as a machine learning problem.
- Identify input data
- Define the output
- Select tool/model
- Collect and pre-process data (label data)
- Train and Evaluate 🔄



Natural Language Processing

Type of machine learning concerned with interaction between computers and human (natural) languages.

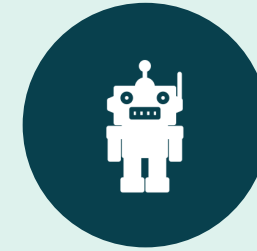
Involves the development of algorithms and techniques that enable computers to understand, interpret, and generate human language in a way that is meaningful and useful.

Area of use

- Improve human – machine collaboration

Realized by

- Allowing both statistical and linguistic approaches
- Neural networks and deep learning architecture
- Computer power



Robotics

Definition 1: Robots are automated devices that perform physical tasks in the real world.

Definition 2: Robotic process automation is software robots running on a physical or virtual machine.

Three types of automation:

- Robotics Process Automation (RPA)
- Cognitive Automation
- Social Robotics

The objective of robotics is not to replace humans by mechanizing and automating tasks; it is to find ways for machines and humans to be more effective together.

Strengths and Weaknesses of Machines in AI Implementation



- Processing Power
- Consistency
- Memory and Recall
- Speed
- Learning and Adaptation



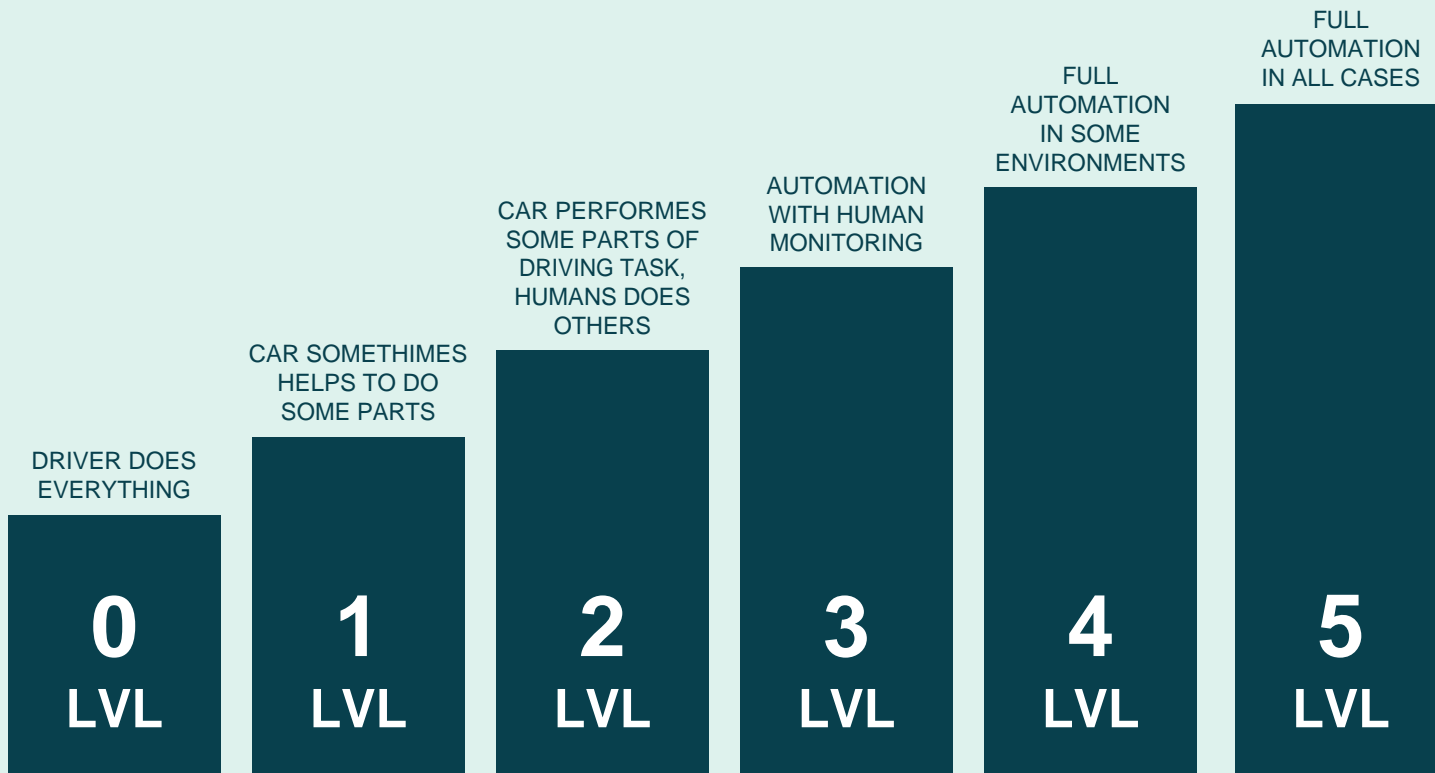
- Lack of Common Sense
- Creativity and Innovation
- Emotional Intelligence
- Ethical and Moral Judgment
- Adaptability to Novel Situations

A good goal is to let machines do the things they do better than people, and people do the things they do better than machines.

Machine-human collaboration

CASE: Autonomous driving

STEPS TOWARDS LEVEL 5 AUTONOMY



Source: National Highway Traffic Safety Administration

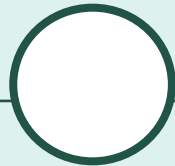


WHERE IS YOUR TARGET?

Challenges

- No universal tools
- Churning large amounts of data does not translate to knowledge
- Making complex calculations does not produce autonomy
- 99.99% correct is exponentially harder than 90% correct

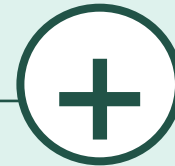
From ZERO Sum Automation to Positive Automation



ZERO Sum Automation

Automation technologies designed to maximize productivity tend to limit flexibility by:

- Not readily adaptable to changes in their external environment.
- Require specific, deeply technical skills to program and repair.
- Tend to be “black boxes,” operating without human feedback or input.
- Restrict innovation by employees due to rigid ways of working.



Positive Automation

To achieve positive-sum automation, companies must design systems for both productivity and flexibility.

Keys to automating flexibly:

- Design easily comprehensible tools and invest in training.
- Use a bottom-up approach.
- Choose the right KPIs.

How Automation Will Affect the Organization

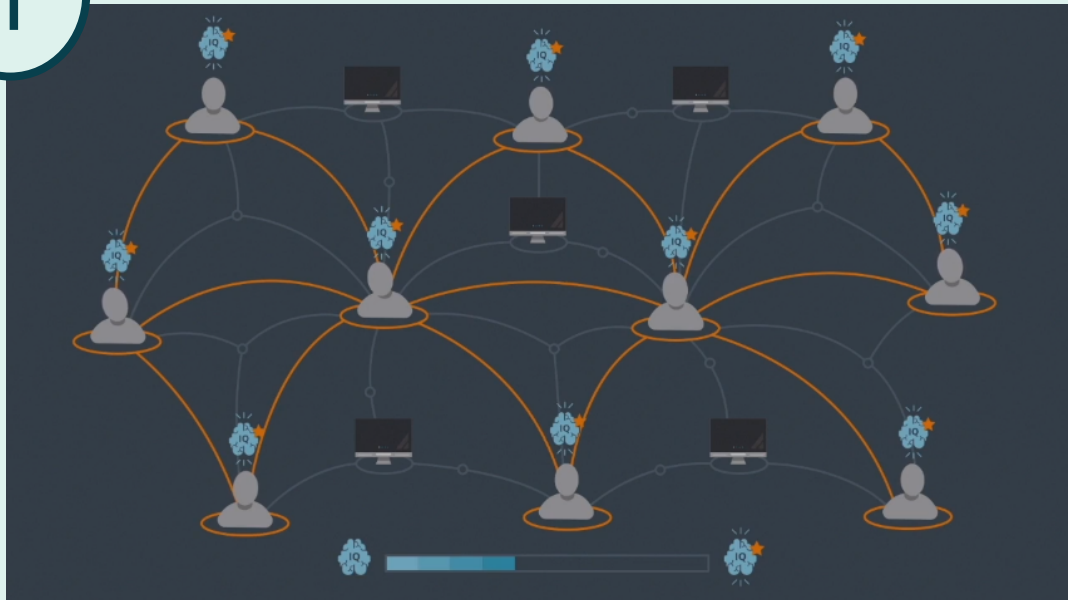


“We need not only different kinds of artificial intelligence, but we also need different kinds of human intelligence”

What makes a group smart?

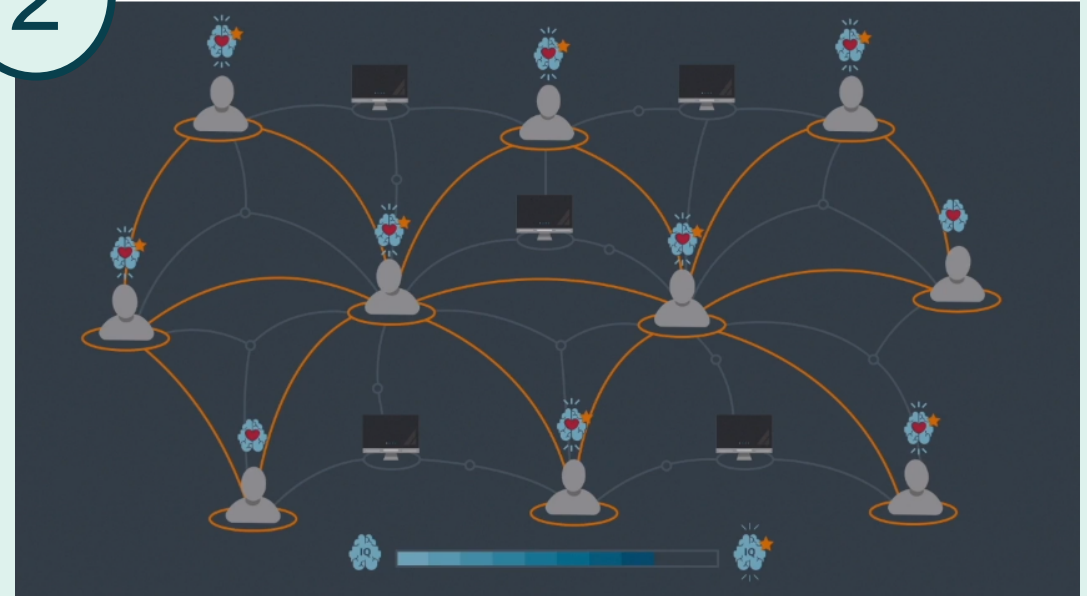
MIT research shows that there are two things that are required to have smart groups or smart organizations

1 Smart individuals

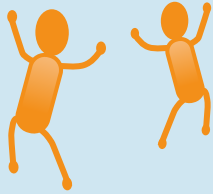


- We need smart individuals, whether they are people, or computers, or some combination.
- And the individuals, together, must have the abilities needed to do whatever the basic tasks are.

2working well together



- For people, that means they need interpersonal skills. And these interpersonal skills may be even more important than we think in the electronically connected world of the future.
- For computers, that means we need to design computers that can work well with people.



MENNESKER



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DATA

TEKNOLOGI



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