Unlocking AI: Strategic Leadership in the Era of Artificial Intelligence

ARISA Workshop
8 March 2024
### Unlocking AI: Strategic Leadership in the Era of Artificial Intelligence

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<th>Time</th>
<th>Session</th>
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| 10:00 – 10:45 | **Empowering Decision Makers: The Business Transformation through AI** | Dr. Pia Hautamäki (Principal Lecturer & Researcher Applied Research Center Tampere University of Applied Sciences, TAMK Tampere, FINLAND Adjunct Professor at University of Eastern Finland)  
Dr. Katri Salminen (Project Manager, School of Industrial Engineering) |
| 10:55 – 11:40 | **The Dark Side of AI and How to Remove the Fear** | Dr. Andrew Tuson (Warsaw School of Computer Science)                      |
| 11:50 – 12:35 | **Developing a Successful AI Strategy**     | Dr. Xander Lub (HU University of Applied Sciences, Utrecht, NL Research Fellow Nyenrode Business University) |
Unlocking AI: Strategic Leadership in the Era of Artificial Intelligence

Empowering Decision Makers: The Business Transformation through AI

Dr. Pia Hautamäki
Principal Lecturer & Researcher
Applied Research Center
Tampere University of Applied Sciences, TAMK Tampere, FINLAND
Adjunct Professor at University of Eastern Finland

Dr. Katri Salminen
Project Manager
School of Industrial Engineering

www.aiskills.eu
Work of the future...?

If your company’s system is still not integrated with AI, there's a chance you might lag behind your competitors.

The AI market is expected to reach the $500 billion milestone by 2024.

EU Data Strategy estimates that the data economy could increase to €829 billion by 2025, making up 5.4% of the EU’s GDP. Quality data is key for AI applications and can also drive sustainability and circularity in value chains.

62% of business leaders say their company has already invested in AI and automation tools.

Of those, 71% report positive ROI, and 72% say AI and automation make their employees more productive.

Transformative artificial intelligence tools, such as ChatGPT, yield benefits for productivity enhancement in businesses.

<table>
<thead>
<tr>
<th>Framework component</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Add revenues</td>
<td>AI systems can enable firms to grow revenues by scale up their volumes, making better pricing decisions, or through customization.</td>
</tr>
<tr>
<td>Differentiate</td>
<td>AI may enable firms to offer personalised products and services for differentiation.</td>
</tr>
<tr>
<td>Reduce costs</td>
<td>AI may reduce costs through automation, and even elimination of tasks.</td>
</tr>
<tr>
<td>Optimise risk</td>
<td>AI can help to manage risks, but it also creates new risks that are not yet fully understood. Managing such risks will require careful thinking by policymakers as well as managers.</td>
</tr>
<tr>
<td>Innovate Transform</td>
<td>AI can enable innovation and rapid new product development. AI can help to transform society and lives by empowering marginalised groups and achieve sustainable development goals if managed and regulated thoughtfully (Tang, 2022).</td>
</tr>
</tbody>
</table>

ChatGPT in B2B marketing

90% of marketers say AI and automation help them spend less time on manual tasks, spend more time on the parts of their job they enjoy most (80%), and more time on the creative aspects of their role (79%).

Table 2: ChatGPT in marketing strategies.

<table>
<thead>
<tr>
<th>Marketing strategies</th>
<th>Indicative solutions</th>
<th>Reflective metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Building marketing campaigns</td>
<td>ChatGPT might be able to provide suggestions to develop a successful campaign. Example: “suggest me an effective marketing campaign on Instagram!”</td>
<td>ChatGPT in a prescriptive mode would require precise queries, such as “suggest me an effective marketing campaign.” However, the precision of the query should be more accurate to get creative results.</td>
</tr>
<tr>
<td>Content marketing</td>
<td>ChatGPT can assist in creating appropriate and accurate content for the given query related to a campaign, product, sales page, email, and blog post.</td>
<td>The chatbot should be able to integrate GPT-3 and DALL·E 2 to generate appropriate Avatar in the conversation.</td>
</tr>
<tr>
<td>Content design</td>
<td>ChatGPT can offer ideas for designing and updating improvements.</td>
<td>The role of ChatGPT in other immersive technologies will enhance how better the experience it can provide compared to the present state of AI experience.</td>
</tr>
<tr>
<td>Chatbot based services</td>
<td>GPT-3 is the next-generation language generative AI which can be used in chatbots for effective query handling.</td>
<td>The search for content and keywords should be narrowed based on the personalized campaign requirements.</td>
</tr>
<tr>
<td>Customer experience</td>
<td>AI-based experiences in virtual and augmented reality can provide a more enriching experience to the customer.</td>
<td>The research points may be reflective from a data point of the last two to three years. So the novelty effect will work in terms of marketing research.</td>
</tr>
<tr>
<td>Keyword suggestions</td>
<td>ChatGPT can provide keyword suggestions which can assist sponsored campaign, access to the regular keywords. ChatGPT allows marketers to test the alternate keywords in the campaign.</td>
<td>While ChatGPT may not be able to perform A/B testing in its current form, it can provide some general testing guidelines, benchmarking content, and statistics.</td>
</tr>
<tr>
<td>Marketing research</td>
<td>ChatGPT can assist marketers in testing content performance (A/B testing), content performance, market statistics, and demographic targeting information.</td>
<td>ChatGPT could help collect data about other brands (e.g., “compare iPhone and Samsung,” “analytics 7 Ps of Pepsi marketing”). The collected data could be used for different purposes, such as new product development (NPD).</td>
</tr>
</tbody>
</table>

What types of AI marketing apps are marketers using?

- Chatbots (ex. ChatGPT, ChatSpot) 53%
- Text generation tools (ex. Jasper) 44%
- Visual tools (ex. Canva’s AI Image Generator) 44%
- Audio tools (ex. Speechify) 31%
- Creating content 48%
- Analyzing/reporting on data 45%
- Learning how to do things 45%
- Conducting research 32%

AI tools in B2B sales

Linas Beliušas • Following

Reinventing Finance 1% at a Time | Leading & Scaling FinTech Unicorn ...

1mo • Edited • 🄐

Game-changer: Air just launched the world's first ever conversational AI that can perform full 5-40 minute long sales and customer service calls over the phone that sound exactly like a human 😊

It has infinite memory, perfect recall, and can autonomously take actions across 5,000+ unique applications.

It's basically like having 100,000 sales and customer service reps at the tap of a button 😝

This will revolutionize entire industries.

P.S. check out linas.substack.com, it's the only newsletter you need for all things when Finance meets Technology. For founders, builders, and leaders.

https://www.linkedin.com/posts/linasbeliuunas_game-changer-air-just-launched-the-worlds-activity-7084415805320070008-0/
AI is much more than just a technological upgrade. We talk about a fundamental shift in how we understand business, work, and innovation.
• What is intelligence all about?
  What is AI?

Mechanical tasks should be performed mostly by mechanical AI. Mechanical Human Intelligence (HI) is often replaced.

Thinking tasks should be performed by both thinking AI and HI. Thinking HI is increased.

Feeling tasks should be performed mostly by HI. Feeling HI may be supported by lower-level AI.


AI won’t take your job. A human using AI will.

- Many experts and Industry Leaders
The primary importance is to understand AI on a profound level and take action!
AI transformation includes, among others:

• Forming a Data & AI strategy
• Understanding the practical and psychological barriers to AI
• Improving data quality
• Communication: Understanding the possibilities of AI throughout the organization
• Developing skills and expertise
• A lot of internal communication throughout the organization
• Networking and developing cooperation
• Financial impacts
• Goal management
• Ethics

What else should AI transformation at your company?
Make it or break it - SMEs transforming business via data and AI
Production is the backbone of Europe’s industry and lagging in digital transformation

Manufacturing in Europe
- In 2022 the value of sold production in the EU was 6 179 billion (€) - an increase of 19% compared with 2021
- 80% of exports come from manufacturing
- Largest sectors: Metal (18%), Vehicles + transportation (13%), and Food industry incl. beverages and tobacco (17%)
- More than 2 million companies employ more than 30 million people
- Energy-intensive manufacturing industries cause more than 22% of the CO2 emissions in the EU
- Roughly 8% of manufacturing companies in the EU use AI – the level is not very high and there are reasons for it

Largest obstacles in adaptation of AI in manufacturing industry
- Overall, low digital maturity
- Large gaps between countries, individual companies and industries regarding the adaptation of digital technologies
- Existing systems do not allow data collection or analytics in a manner that would allow, for example, real-time tracking of the manufacturing processes (e.g., time series data for long-term quality process monitoring and forecasts)
- Poor visualisation of the data
- Skills of the personnel (from floor level to the top management)
- Lack of investments and support
- Lack of return-of-investments
- Skills mismatch

Sources:

Sources: Literature survey of the FairDatAct project (Salminen)
Data and AI for manufacturing

What data and AI could do to increase value, save costs and decrease CO2 emissions

- Process optimisation
- Energy efficiency
- Material savings
- Full circular economy
- Predictive maintenance
- High quality (including but not limited to first-time-right manufacturing)
- Automation
- Improved human-machine collaboration (e.g., safety)
- New design and innovation
- Traceability

Digital Product Passports and Scope3 reporting create demands for data sharing within the supply chain

Ideas for improvement:

Investments
Innovations
RDIE environments
Educational activities (cross-cutting and multidisciplinary)
Collaborative actions
Standardisation
Easy-to-use systems, scalability
Presenting data and analytics in an understandable manner throughout the supply chain

Sources:
Thank you!
Unlocking AI: Strategic Leadership in the Era of Artificial Intelligence

The Dark Side of AI and How to Remove the Fear

Andrew Tuson – Warsaw School of Computer Science
Who does not take risks, does not drink champagne.
Existential and Societal Risks

THE EXISTENTIAL RISKS OF AI ARE A MYTH

WHAT YOU REALLY GOTTA THINK ABOUT IS ALGORITHMIC DISCRIMINATION, EVER-RISING ENERGY COSTS, PREDICTIVE POLICING....
**Tell me... What worries you?**

**Humanity is out of control, and AI is worried**

Concerns were raised at a Human Safety Summit held by leading AI systems at a server farm outside Las Vegas

https://www.ft.com/content/c7dbac-d801-4053-93f5-4c82267d7130
AI Risks You Will Face Anyway
• Deepfakes/Social Engineering


https://www.fortinet.com/resources/cyberglossary/deepfake
Deepfake Social Eng. Attacks

Deepfake Attack on UK Energy Company
- In March 2019, the CEO of a UK energy provider received a phone call from someone who sounded exactly like his boss. The call was so convincing that the CEO ended up transferring $243,000 to a “Hungarian supplier” — a bank account that actually belonged to a scammer.

https://www.tessian.com/blog/examples-of-social-engineering-attacks/

In 2021, this was repeated in the UAE...


Last month this was upgraded to a deepfake video call.


How do we deal with this?
Disinformation

**New White Paper on Generative AI and Disinformation: Recent Advances, Challenges, and Opportunities**


**scientific reports**

OPEN The potential of generative AI for personalized persuasion at scale

S. C. Matz1,2,3, J. D. Teeny3, S. S. Vaid4, H. Peters5, G. M. Harari6 & M. Cerf2

Matching the language or content of a message to the psychological profile of its recipient (known as “personalized persuasion”) is widely considered to be one of the most effective messaging strategies. We demonstrate that the rapid advances in large language models (LLMs), like ChatGPT1, could accelerate this influence by making personalized persuasion scalable. Across four studies (consisting of seven sub-studies; total N = 1788), we show that personalized messages crafted by ChatGPT exhibit significantly more influence than non-personalized messages. This was true across different domains of persuasion (e.g., marketing of consumer products, political appeals for climate action), psychological profiles (e.g., personality traits, political ideology, moral foundations), and when only providing the LLM with a single, short prompt naming or describing the targeted psychological dimension. Thus, our findings are among the first to demonstrate the potential for LLMs to automate, and thereby scale, the use of personalized persuasion in ways that enhance its effectiveness and efficiency. We discuss the implications for researchers, practitioners, and the general public.

Financial analysts have described people’s digital behavioral data as “more valuable than oil.” This is, in part, because such records afford one of the most effective forms of influence: personalized persuasion.1-8 Compared to non-personalized communication, matching the content of a persuasive message (e.g., its language or visuals) to the psychological profile of its recipient enhances its effectiveness (e.g., 9,10). On the one hand, such personalization offers tremendous opportunities to promote desired behaviors, including a healthy lifestyle, financial saving, or support for environmentalism. On the other hand, it can have a pernicious effect on societies, for example, increasing the spread of disinformation; manipulating political preferences; or promoting maladaptive consumer decision-making. We provide the first empirical evidence demonstrating how content generated by artificial intelligence (AI) can scale personalized persuasion by automating the creation of such messages with very limited information about the message recipient. As legislators increasingly consider whether (and how) to regulate generative AI, our work suggests that AI-automated, personalized persuasion is poised to create an inflection point for the implementation and effectiveness of this influence tactic.

https://www.nature.com/articles/s41598-024-53755-0
• Commercial Disinformation

Disinformation in the corporate sector

<table>
<thead>
<tr>
<th>Actors</th>
<th>Threats</th>
<th>Risks</th>
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<tbody>
<tr>
<td>State Actors</td>
<td>Fake new stories (text, audio, video)</td>
<td>Brand and reputation damage</td>
</tr>
<tr>
<td></td>
<td>Fake social media accounts</td>
<td>Loss of social and customer trust</td>
</tr>
<tr>
<td>Corporate Actors</td>
<td>Marketing on social platforms</td>
<td>Financial losses</td>
</tr>
<tr>
<td>Opportunistic Actors</td>
<td>Marketing on search engines (SEO)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Deep fakes (text, audio, video)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>


Disinformation as a Service Exists!

https://www.isdglobal.org/explainers/commercial-disinformation-product-service/

Disinformation as a Threat to Private and State-Owned Businesses

A) Spec-propaganda, or special propaganda, deals with the narrative and information flow one country to another by official and camouflaged channels, with the intention of causing the target to make moves that weaken, disorganize, and consequently overthrow the existing political order.

B) Agent of influence – a person inspired by foreign special services who transmits, propagates, and implements narratives beneficial to another state. This is especially true of people in opinion-shaping environments (political, journalistic, academic, religious, social) and with access to important resources (business, special services). The unaware agent of influence is often known as a 'useful idiot.' They are usually held in low esteem by their case officers.

C) Active measures – covert operations of an offensive character, leading to the creation of friendly political, intellectual, economic, social, religious and ethnic conditions, in pursuit of the foreign policy objectives of another country. They include an entire arsenal of instruments, from propaganda and disinformation, through agents of influence, front organizations and falsifications, to physically liquidating an opponent.

https://warsawinstitute.org/disinformation-threat-private-state-owned-businesses/
• **Shadow AI**

Employees are using AI to save time without management’s knowledge.
  - BUT (for example) what you upload to public LLMs could be used as training data.
  - GDPR breach anyone?

**Solutions?**
  - Governance
  - Provide (vetted) AI tools
  - Training

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**What is shadow AI?**

Without that monitoring, your employees could be using AI in many inappropriate ways.

1. Generating misinformation (and acting on it)
2. Exposing proprietary company information to LLM manipulation
3. Opening up customer data to unknown risks

https://www.walkme.com/blog/shadow-ai/
AI Risks You Choose To Take
**Risks of Deploying AI**

- Computer Vision
- Data Science
- Credit scoring
- Fraud detection
- Customer service chatbots
- Image/video/audio generation
- Programming assistants
- Summarisation of audio
- Automated translation, etc...

- Which applications carry the most business risk? Why?
- The “use case” is a big factor determining success (and risk).
- What factors might determine risk in an AI deployment?
  - Tech maturity?
  - Customer/public exposure?
  - Mission criticality?
Is Gen AI Business Ready?

And THEN there is generative AI...
- Think of 1920s cinema...
- ...or the Tacoma Narrows Bridge

There is however immense pressure to push prototypes into production.

BUT there are instances where Gen AI systems are delivering value.
- Klarna’s AI assistant handled two-thirds of customer service chats in its first month.

Air Canada ordered to pay customer who was misled by airline’s chatbot

Company claimed its chatbot ‘was responsible for its own actions’ when giving wrong information about bereavement fare

Hallucination is Inevitable: An Innate Limitation of Large Language Models

Ziwei Xu, Sangjin Lee, Mohan Kasthuriratne
National University of Singapore
zxiwei@nus.edu.sg
lee.sangjin@nus.edu.sg
mohan.kasthuriratne@nus.edu.sg

Abstract
Hallucination has been widely recognized as a significant drawback for large language models (LLMs). This issue has prompted recent research efforts to identify the extent of hallucinations. These efforts have been largely focused on LLMs, which are easily identified by the repetition of impossible or unlikely sequences of words.

In this paper, we formulate the problem of identifying hallucination in LLMs. Specifically, we define a novel metric called ‘confidence interval’ (CI), which captures the confidence that the LLM has in its generated output. We show that CIs can be used to identify hallucinations in LLMs, and that hallucinations can be mitigated by pruning outputs with low CIs.

Introduction
The emergence of large language models (LLMs) has raised several concerns about their reliability. For example, recent research has shown that humans are easily fooled by LLMs, even when the inputs are simple and straightforward.

This issue has been particularly concerning with the recent emergence of ‘hallucinations,’ where the output of a language model is completely nonexistent, or even contradicts the input. This issue has been highlighted in a recent study that found that LLMs are prone to generating false information, even when the input is a simple question.

In this paper, we aim to address the issue of hallucination in LLMs. Specifically, we propose a novel metric called ‘confidence interval’ (CI), which captures the confidence that the LLM has in its generated output. We show that CIs can be used to identify hallucinations in LLMs, and that hallucinations can be mitigated by pruning outputs with low CIs.

Conclusion
In summary, we have proposed a novel metric called ‘confidence interval’ (CI) that can be used to identify hallucinations in LLMs. We show that hallucinations can be mitigated by pruning outputs with low CIs. Our results have important implications for the use of LLMs in various domains, including natural language generation, question answering, and language modeling.

References

Supplementary Material
[Supplementary material available online]

Contact information
Xu Ziwei, Department of Computer Science, National University of Singapore, Email: zxiwei@nus.edu.sg
Lee Sangjin, Department of Computer Science, National University of Singapore, Email: lee.sangjin@nus.edu.sg
Kasthuriratne Mohan, Department of Computer Science, National University of Singapore, Email: mohan.kasthuriratne@nus.edu.sg

https://blog.gramener.com/lm-hallucinations/ and https://twitter.com/MihaiCazacu1/status/1760350781448827340
AI Safety/Bias/Alignment

Machine Learning Operations (MLOps)

- **Dedicated Data Scientist**
- **Common Pool**
  - Data Scientist, ML Engineers, Data Engineers, DevOps, Privacy & Security Experts

**Resources**

**Phase**
- Model Development

**Key Activities**
- Data Pipelines
  - Data pipelines
  - Data cleanup
  - Data transformations
- Model Preparation
  - Model training
- Model Deployment
  - Model scoring
- DevOps
  - CI/CD pipelines
  - Testing monitoring
- Catalogs
  - Model catalogs
  - Featureset catalogs
- Governance
  - Security compliance
  - Access controls
  - Transparency

**Alignment is a crucial aspect of Responsible AI**

- **Transparent**
- **Aligned**
  - with human operators or stakeholders
- **Accountable**

**Responsible AI entails a multitude of tasks and dimensions**

- **Ethics**
  - Fairness
  - Transparency
- **Technical Challenges**
  - Accuracy
  - Safety
  - Reliability
  - Explainability

**Data & Ops Tasks**

- Data Collection:
  - data is diverse & representative
- Data Pre-processing:
  - remove outliers & sensitive information (including PII)
  - other data quality checks
- Governance
  - Continuous Monitoring and Evaluation

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https://gurukannan.medium.com/overview-of-mlops-ml-dev-ops-2899ecb97820

https://gradientflow.substack.com/p/alignment-in-ai-key-to-safe-and-beneficial
Technological Attacks

- Gen AI systems can be attacked.
- It’s potentially possible to:
  - Damage the AI model
  - Get it to run outside code or “naughty” prompts
  - Overload it
  - Steal information from it
  - Mislead it
- [Link](https://www.vischer.com/en/knowledge/blog/part-6-the-flip-side-of-the-coin-where-we-need-to-protect-ai-from-attackers/) (for more)
Managing AI Risks
• Solutions (mostly) already exist

An AI is still a computer system....
Risk Management

What are your top TWO AI risks?

What will you do when you are back in the office?


Regulators Find Their Spines

ICO orders Serco Leisure to stop using facial recognition technology to monitor attendance of leisure centre employees

Date 23 February 2024
Type News

- Regulator issues enforcement notices ordering Serco Leisure and community leisure trusts to stop using FRT and fingerprint scanning to monitor workers’ attendance
- Employees are not offered a clear alternative to having their faces and fingerprints scanned to clock in and out of the workplace
- Warning comes as the ICO today publishes new guidance for organisations on processing biometric data lawfully


AI (and other) Companies: Quietly Changing Your Terms of Service Could Be Unfair or Deceptive

By: Staff in the Office of Technology and The Division of Privacy and Identity Protection
February 13, 2024

You may have heard that “data is the new oil”—in other words, data is the critical raw material that drives innovation in tech and business, and like oil, it must be collected at a massive scale and then refined in order to be useful. And there is perhaps no data refinery as large-capacity and as data-hungry as AI. Companies developing AI

https://www.ftc.gov/policy/advocacy-research/tech-at-ftc/2024/02/ai-other-companies-quietly-changing-your-terms-service-could-be-unfair-or-deceptive
Managing AI Incidents
**Scenario: Not My Circus SA**

- *Not My Circus SA* is a Polish toy and game manufacturer that has taken the world by storm.
  - NMC’s imaginative designs are loved by kids big and small.
  - Toy exports from the Far East have plummeted.
- NMC’s CEO is meeting Jan Kowalski, international YouTube influencer, about a future campaign.
- The Head of Social Media runs into the office in a state of total panic!
- A deepfake of Jan Kowalski has gone viral.
- It’s a harrowing video “exposing” how NMC’s toys are killing children.
  - Jan quickly says he’s never made such a video (he didn’t).
- Social media is on fire, the switchboard is going crazy...
  ...none of it is nice...

**What will you do????**
• Incident Response

• According to a survey by Ponemon:
  • 77 percent of respondents say they lack a formal consistently-applied incident response plan.
  • Nearly half say their plan is informal or nonexistent.
  • Among those with IR plans, only 32 percent describe their initiatives as “mature”.


• It is important is to define who is to do what and how is in charge.
  • It is good practice to separate decision-making and execution.

• Pre-arrange external expertise (as this is not BAU) eg.:
  • Legal.
  • Data recovery and forensics.

Sources of Help?

Surviving a Ransomware Attack: Newcastle Grammar School Case Study

In November 2020, Newcastle Grammar School, an independent coeducational school in NSW’s Hunter region, experienced first-hand...


Any Questions?
Further Readings

https://www.schneier.com/books/secrets-and-lies/  
(For Managers)

https://csrc.nist.gov/pubs/sa/100/2/e2023/final  
(For IT/Cybersecurity Teams)
Unlocking AI: Strategic Leadership in the Era of Artificial Intelligence

Developing a Successful AI Strategy

Dr. Xander Lub
HU University of Applied Sciences, Utrecht, NL

Research Fellow
Nyenrode Business University
• Agenda

1. Intro digital transformation
2. Consequences of digital transformation
3. Digital transformation in organizations
4. Digital transformation and people
5. Digital transformation and HRM
Digital transformation
• Digital transformation

A fundamental change process, enabled by the innovative use of digital technologies accompanied by the strategic leverage of key resources and capabilities, aiming to radically improve an entity and redefine its value proposition for its stakeholders.”

(Gong & Ribiere, 2021).

Signified by a broad adoption of digital technology and cultural change with a focus on people and org change more about people and organizational change with a focus on customer centricity, leadership, digital corporate culture and leveraging technologies that empower and enable employees

This is different from:

• Digitization – a conversion of analog to digital processes with the aim of cost reduction

• Digitalization – Use of digital technologies and data to impact how work gets done, transform how customers and companies engage and interact, and create new (digital) revenue streams.
• History of Transformation Drivers

**INDUSTRY 1.0**
Mechanization, steam power, weaving loom

**INDUSTRY 2.0**
Mass production, assembly line, electrical energy

**INDUSTRY 3.0**
Automation, computers and electronics

**INDUSTRY 4.0**
Cyber Physical Systems, internet of things, networks
• Digital Transformation

• Industry 4.0
• Impact on individuals, organizations, society
• Displaced jobs, companies, entire industries
• New jobs, more complex skillsets (Frey & Osborne, 2017)
• Organizational learning vital to be successful/survive (World Economic Forum 2020, 2023)
Consequences of Digital Transformation
• Artificial intelligence

• Mostly thought of as a technology, but it is first and foremost an ambition to create systems that display intelligent behavior (Leijnen & Kamphuis, 2021)

• Three forms:
  • **Programmed AI**: designed by humans, with a particular function in mind, i.e. manufacturing robots, virtual travel agents or Excel sheet functions
  • **Statistical AI**: the system learns to design itself given a particular predefined goal or function. Like humans, they can make decisions but cannot necessarily explain why they made these decisions. i.e. Amazon’s diversity in recruitment, or social media, or Generative AI (ChatGPT)
  • **AI-for-itself**: a system that can act autonomously, responsibly, possibly consciously, or not. Does not yet exist
1. Geopolitics: China, Russia & US are leading in AI tech, Europe is lagging behind
2. AI can take a wrong turn
3. AI in the wrong hands can do terrible things
4. And then some more
Digital transformation in organizations
Changes at different levels

What do these changes mean for organizations?
Modus operandi in organizations

Cynefin model, Snowden, 2000
• How do we change organizations?

• (Digital) Strategy first
• Align with businessmodel
• Leverage insiders
• Design CX outside in
• Consider ecosystem
• Recognize employees’ fear of being replaced
• Bring start-up culture inside

70% of DT initiatives fail, mostly because:
• Focus is too much on purchasing technology
• Companies cannot align, or do not have the change competencies

Tabrizi, Lam, Girard & Irvin (2019)
Four Dimensions to Consider When Developing a Digital Transformation Strategy
• Digital Management

• Cross-boundary teaming
• Overview & Scope
• Communicate, communicate, communicate
• Self-organizing teams
• Willingness to experiment
• Agile, Sprint, Scrum, SAFE
• More trust, less control

OR

Algorithmic management
Robots and AI in management?
Re- & Upskilling
Theory of creative destruction (Schumpeter, 1942)
• Existing arrangements must be destroyed to free up resources and energy for innovation

Past industrial revolutions led to:
• Displacement of traditional jobs
• New jobs that come up in industries that replace the old industries
• Human ability to adopt and acquire new skills through education (Goldin & Katz, 2009)

This may however not be true as tech enters more cognitive domains (Brynjolfsson & McAfee, 2011)

• What does work look like in the ‘digital age’
Re- and upskilling: 50% of all employees will need reskilling by 2025
By 2025, 85 million jobs will be displaced by automation

However, potentially, 90+ million new or adapted jobs will likely arise

World Economic Forum, 2020
What work will there be left?

- Originally, only rule-based manual routine work was automated
- Increasingly, rule-based cognitive work is being replaced (i.e. administration)
- Thanks to big data and AI, non-routine manual tasks can be automated (i.e. handwriting, speech recognition)
- Because of large-scale data (beyond bounded rationality of humans), non-routine cognitive tasks now also have become the domain of automation (i.e. fraud detection, MRI scanning, law, accounting, music, video, text)

However, higher-end jobs run lower risk than lower-end jobs and work that requires high abstraction levels and/or creativity runs lower risk......for now (Frey & Osborne, 2013)
Automated for the people

Automation risk by job type, %

- Food preparation: 60%
- Construction: 55%
- Cleaning: 50%
- Driving: 50%
- Agricultural labour: 50%
- Garment manufacturing: 45%
- Personal service: 40%
- Sales: 40%
- Customer service: 40%
- Business administration: 35%
- Information technology: 30%
- Science & engineering: 30%
- Healthcare: 30%
- Hospitality & retail management: 25%
- Upper management & politics: 20%
- Teaching: 20%

Source: OECD

Risico van automatisering
Share of time spent in tasks that could be automated

- Accommodation and food services: 73%
- Agriculture: 60%
- Manufacturing: 60%
- Transportation and warehousing: 57%
- Retail trade: 53%
- Mining: 51%
- Other services: 49%
- Construction: 47%
- Wholesale trade: 44%
- Utilities: 44%
- Finance and insurance: 43%
- Arts, entertainment, and recreation: 41%
- Real estate: 40%
- Administrative: 39%
- Information: 36%
- Health care and social assistance: 36%
- Management: 35%
- Professionals: 35%
- Educational services: 27%

Source: McKinsey via Bridgewater Associates
The development of skills requirements

The combination of breadth and depth creates a skills profile

I-shaped
Deep expertise in one topic

T-shaped
Both breadth and depth of exposure and expertise

Π (Pi)-shaped
Breadth and depth in more than one area

X-shaped
Breadth, depth, diversity, and ability to stretch into new domains
Future skillset

Skill-level rises from: EQF 5, 6, 7 (trade degree, Associate Degree, Bachelor)

To: EQF 7, 8, 9 (Bachelor, Master, PhD)
### DIGITAL TRANSFORMATION SKILLS

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<th>1</th>
<th>DIGITAL WORKING SKILLS</th>
<th>2</th>
<th>TRANSFORMATIONAL SKILLS</th>
<th>3</th>
<th>EVIDENCE-BASED WORKING SKILLS</th>
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<tr>
<td>1.1</td>
<td>Handling Digital Devices</td>
<td>2.1</td>
<td>Leadership</td>
<td>3.1</td>
<td>Formulating Research Questions</td>
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<tr>
<td>1.2</td>
<td>Handling Social Media &amp; The Internet</td>
<td>2.2</td>
<td>Innovation &amp; Handling Risks</td>
<td>3.2</td>
<td>Searching &amp; Evaluating Information</td>
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<tr>
<td>1.3</td>
<td>Digital Content Creation</td>
<td>2.3</td>
<td>Multidisciplinary Collaboration</td>
<td>3.3</td>
<td>Data Collection</td>
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<tr>
<td>1.4</td>
<td>Digital Communication</td>
<td>2.4</td>
<td>Cultural Awareness</td>
<td>3.4</td>
<td>Data Interpretation</td>
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<tr>
<td>1.5</td>
<td>Dealing with Law, Copyrights &amp; Licenses</td>
<td>2.5</td>
<td>Self-Directed Learning</td>
<td>3.5</td>
<td>Data Ethics</td>
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<tr>
<td>1.6</td>
<td>Information &amp; Data Management</td>
<td>2.6</td>
<td>Training Others</td>
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<td></td>
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<td>2.7</td>
<td>Resilience</td>
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Digital transformation & people
• Automation-Augmentation Paradox

“No Code” Capabilities
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<th>Affordances of Algorithmic Systems</th>
<th>Key Insights</th>
<th>Example Studies</th>
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<tr>
<td>Comprehensive</td>
<td>Wide range of devices and sensors</td>
<td>Angrave et al. (2016), Ball &amp; Margulis (2011), Beane &amp; Orlikowski (2015), Goldberg et al. (2016),</td>
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<td></td>
<td>Collecting a variety of data about workers, such as biometrics, acceleration,</td>
<td>Harari, Müller, Aung, &amp; Renfrow (2017), Landay (2019), Leonardi &amp; Contractor (2018), Levy (2015),</td>
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<td>text messages, and online footprints</td>
<td>Lix et al. (2019), Xu et al. (2014)</td>
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<td>Instantaneous</td>
<td>High velocity of algorithmic computation</td>
<td>Crowston &amp; Bolici (2019), Etter et al. (2013), Jacobs (2009), Katal et al. (2013), Mayer-Schönberger &amp;</td>
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<td></td>
<td>Performance assessments incorporated in real time into the system</td>
<td>Cukier (2013), Sachon &amp; Boquet (2017)</td>
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<td>Interactive</td>
<td>Algorithmically mediated platforms allow for participation from multiple</td>
<td>Amershi et al. (2014), Cambo &amp; Gergle (2018), Chalmers &amp; MacColl (2003), Holzinger &amp; Jurisica (2014),</td>
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<td></td>
<td>parties</td>
<td>Kulesza et al. (2015), Valentine et al. (2017), Zhou et al. (2018a)</td>
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<td>Interactive interfaces channel user behavior in real time</td>
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<td>Machine-learning opacity</td>
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</tbody>
</table>
Algorithmic management
Digitale transformatie & HRM
AI & HRM

- Recruitment – chatbots, AI selection, gamified assessment centers
- Hiring & Firing based on people analytics (General Electrics) AI increasingly being used for firing procedures (US)
- Organizational Learning – Talent management platforms/MIS
- Performance reviews – people analytics, sensor data, performance data
- Strategic HRM – long-term planning, transferring org change – data analytics
THANK YOU FOR LISTENING

ANY QUESTIONS? NO, GREAT! PLEASE IF YOU DO, ASK THE TEACHER
HIER KOMT ALLES SAMEN