Synergy in the Digital Age: The Indispensable Human Touch in Finance, HR, and Operations for AI Success
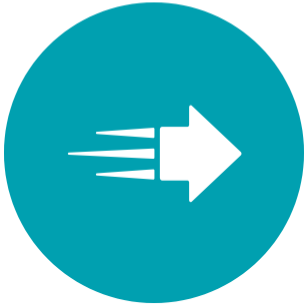
DI 2023 Business Operations Summit, Wednesday October 11, 2023

BY BRAAM DU PLOOY

Objective?

Why it is necessary to discuss Generative Artificial Intelligence (GAI)

CONFUSION

Misconception

Build your presentations in hours, not days

What is "ChatGPT"?

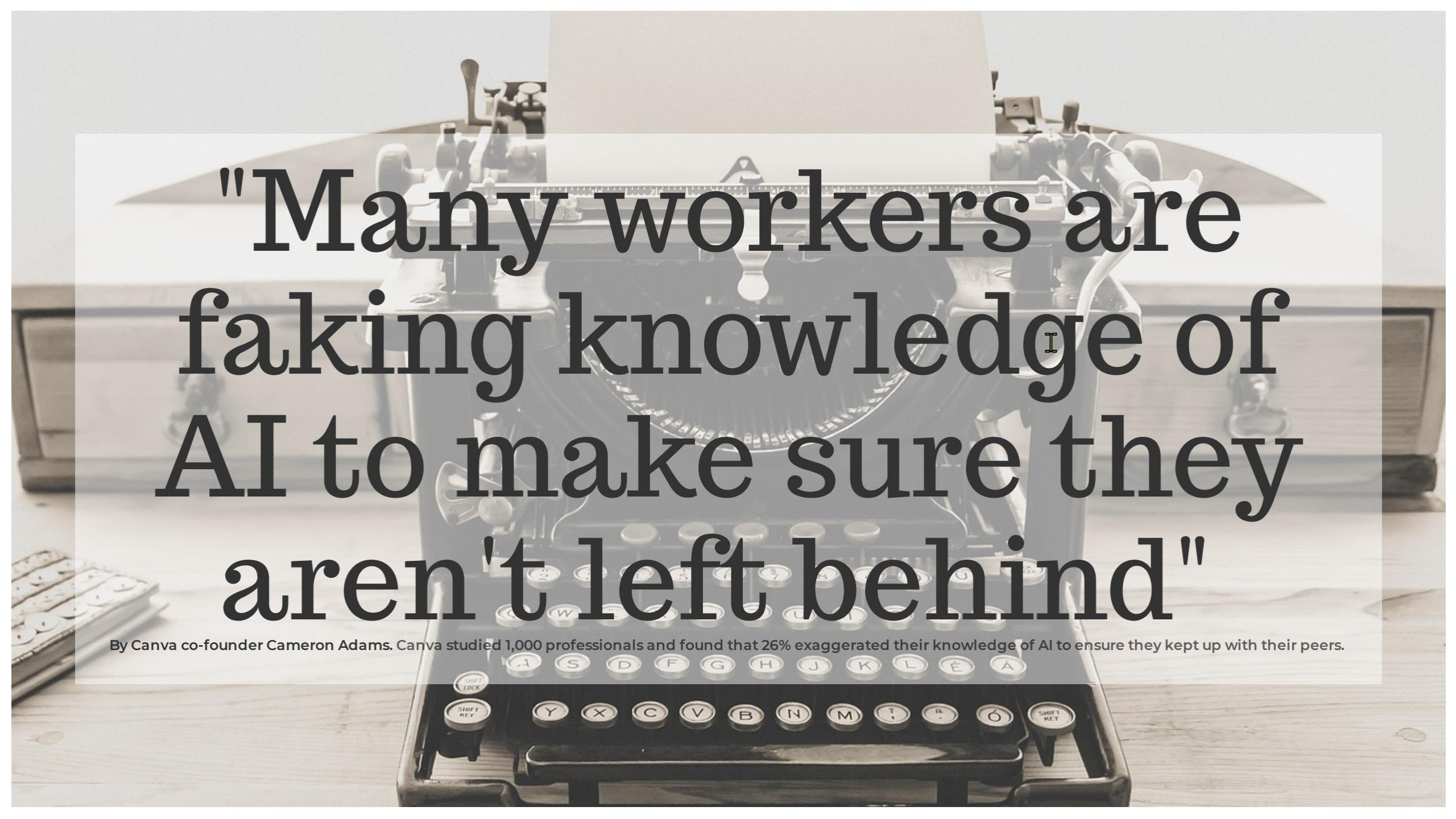Tell a visual story that connects with audiences

Application

You will be amazed at what you already know and use

What is next?

When was the last time you enjoyed making slides?

"Many workers are faking knowledge of AI to make sure they aren't left behind"

By Canva co-founder Cameron Adams. Canva studied 1,000 professionals and found that 26% exaggerated their knowledge of AI to ensure they kept up with their peers.

What is this chat? Who is GPT?

Frank

I heard this GPT thing is taking my job...

Elaine

Hmm, I'll wait and see.

ARTIFICIAL
GENERATIVE
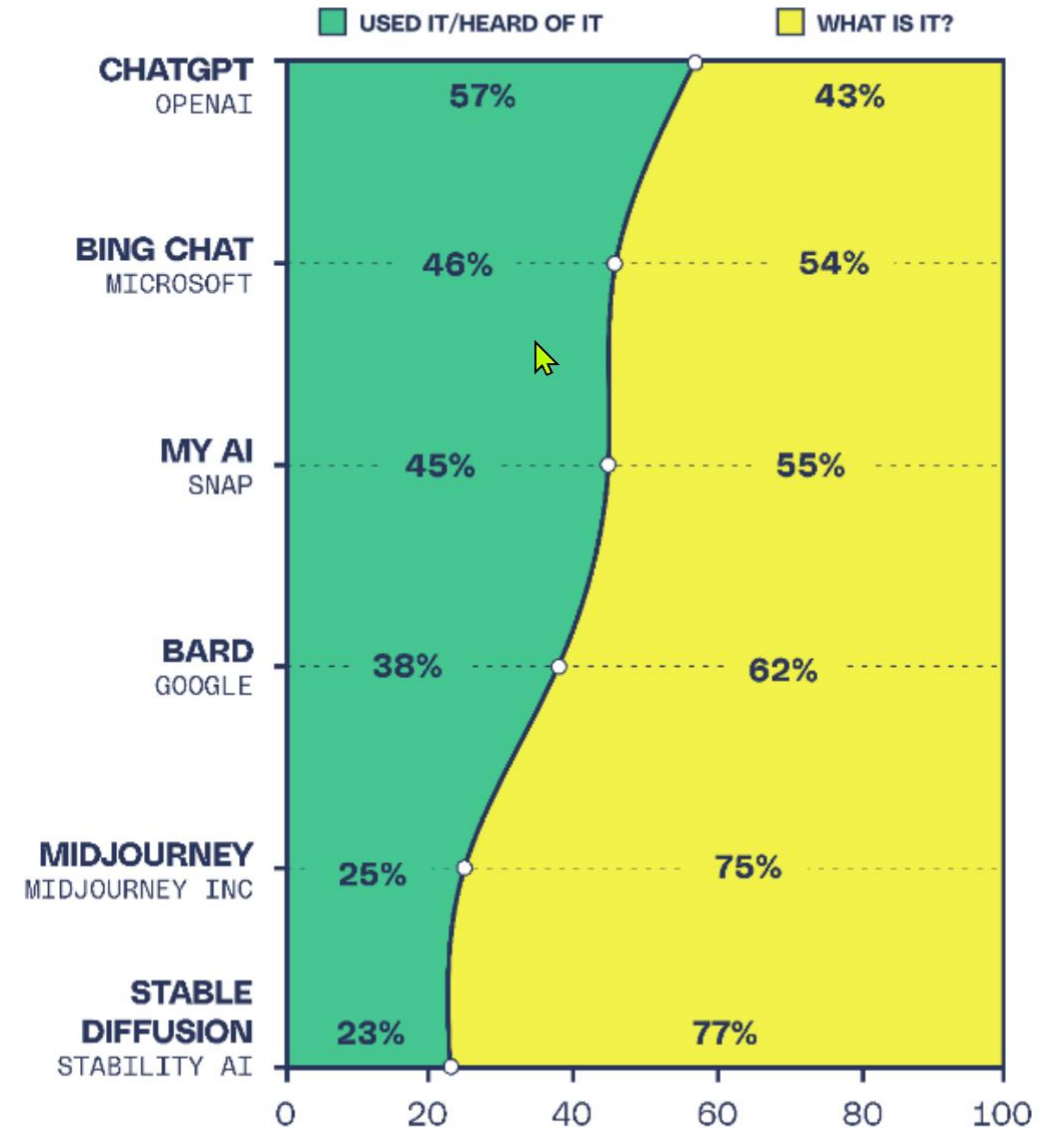INTELLIGENCE

HUMANOIDS
HYPE
DATA
ROBOTS
NEURAL
CHAT
BARD
X-RISK
DIFFUSION
COMPUTING
LLM
AUTOMATION
OPENAI
CHATGPT
LEARNING
QUANTUM
MULTIMODAL-SYSTEM
GPU
HALLUCINATION
MODEL
MACHINE
REGULATION
NETWORK
INTELLIGENCE
AI
UNSUPERVISED-LEARNING
LABELING

I heard something...

Vox's Media Insights and The Circus poll 2,000 professionals

Most people have heard of ChatGPT. Bing and Bard? Not quite.

Legend: USED IT/HEARD OF IT (green) | WHAT IS IT? (yellow)

	USED IT/HEARD OF IT	WHAT IS IT?
CHATGPT OPENAI	57%	43%
BING CHAT MICROSOFT	46%	54%
MY AI SNAP	45%	55%
BARD GOOGLE	38%	62%
MIDJOURNEY MIDJOURNEY INC	25%	75%
STABLE DIFFUSION STABILITY AI	23%	77%

x-axis: 0, 20, 40, 60, 80, 100

Search, brainstorming, and art dominate current AI use
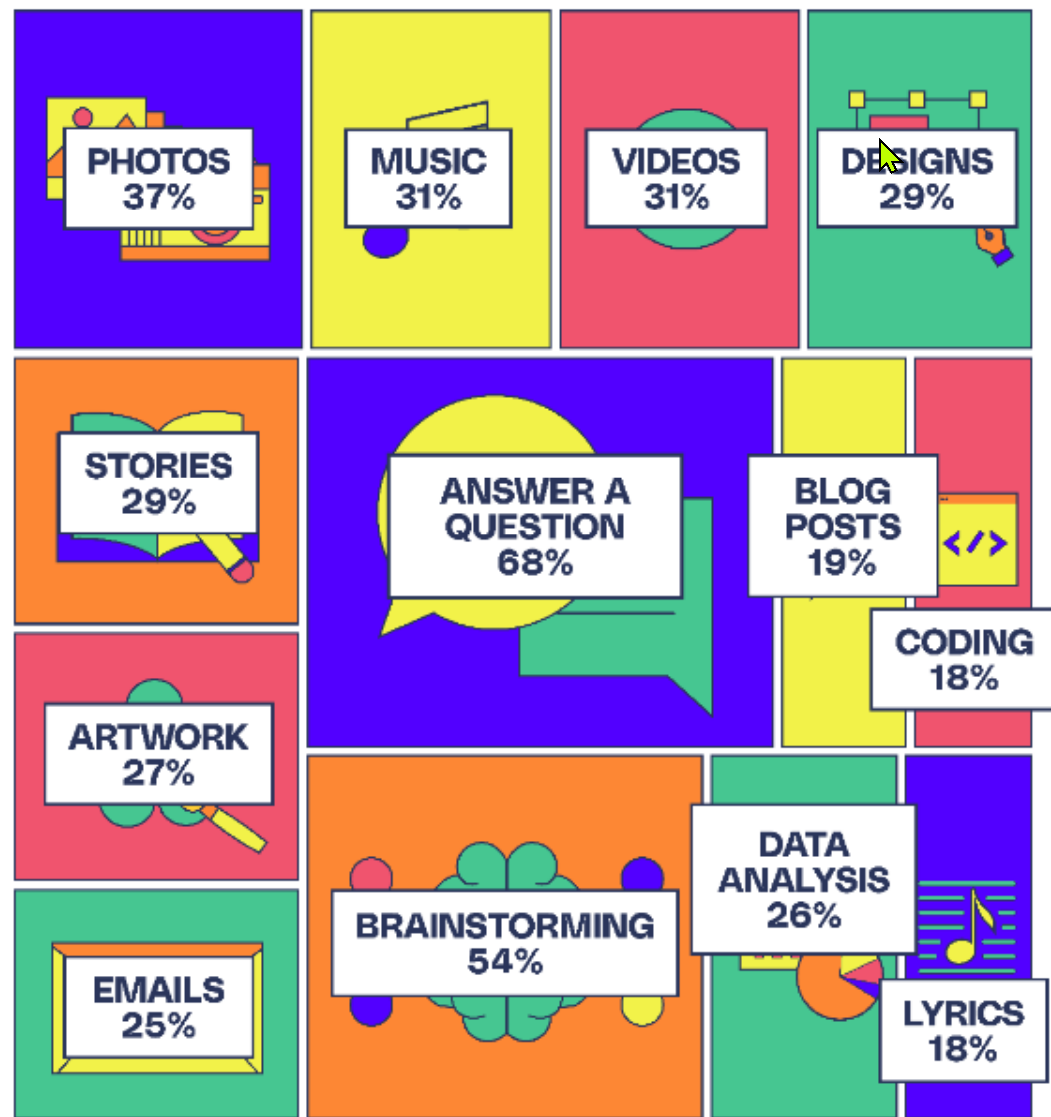
How is AI used?

For those who are using AI tools, creative experiments were most common. People generate music and videos, create stories, and tinker with photos. More professional applications like coding were less common. And above all, people have simply been using AI systems to answer questions

...and what about AI's impact on personal life and jobs?

WORRIED, 31%

EXCITED, 20%

BOTH, 31%

NEITHER, 18%

Worried or excited?

Many people in the AI world are warning about the "existential risk" posed by AI systems — the hotly contested idea that super-intelligent AI could doom humanity. If they want to speak to the population, they'll find more than a few in agreement, with 38 percent agreeing with the statement that AI will wipe out human civilization. Perhaps that's why more people are worried than not.

All I want to know...is AI coming for my job?

Change is happening...

It is happening fast.

Traditional jobs will be rejected resulting in rise of self-employment. Millennials and Gen Zs is becoming the freelance-majority workforce.

Relax

is AI here to help me?

Artificial Intelligence (AI) is a computer tool that possesses a human-like cognitive ability, which is problem-solving at a breakneck speed. Nothing more, nothing less.

Generative artificial intelligence is a powerful force that uses large data sets to identify patterns. It can problem-solve based on these patterns by identifying trends, phrases, and images. As a result, it can provide solutions to problems and make predictions.

Intelligent automation is the forerunner of artificial intelligence (Is what we work with today).

So…it is a tool and not a robot coming for my job.
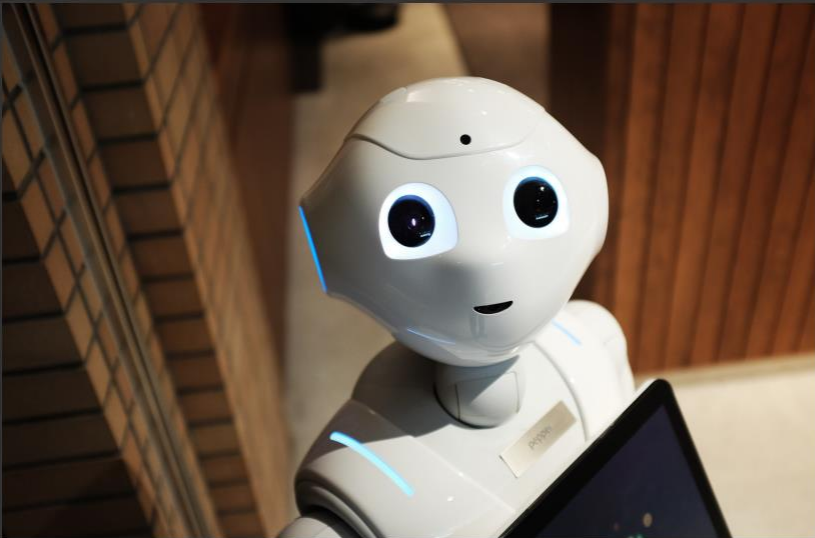
What is this ChatGPT stuff about?

It is important to understand what are these artificial intelligence concepts, their application, and where / how to use them.

Let's look at definitions and terminology...

Artificial Intelligence

Two types of AI: narrow or general. Narrow is a structure of data (model) that has been trained to perform specific tasks. General is a structure of data that has been trained to perform human intellectual tasks.

Narrow (Generative)

Exists today

General

Does not exists

Voice Models (LLM)

Alexa, Google, Siri

Video Models (Diffusion)

Dall-E (creating an image from a text prompt)

Human Text Models

ChatGPT, Bard

Human-like Machine (X-risk)

Will mimic a human. Possible in 20 to 30 years time. Algorithms need to be created.

Generative Artificial Intelligence Myths

#3 Only tech people will work with AI

#7 Is conscious

#1 Will replace all human jobs

#5 Lacks ethics

#4 AI is too complex

#8 Robot discrimination

#2 Is only for large corporations

#6 Bad for humanity

Myths

Debunking AI Misconceptions

AI provides opportunities for career growth, but how?

Firstly, let's look at the misconceptions of AI and how it will affect the workforce.

Individuals and Leaders can take actions to leverage AI's transformative power

Collaborate

EMPOWER!

1 ## Replace all human jobs

Debunking the myth

AI is designed to augment human capabilities to work on repetitive and mundane tasks.

2 ## Is only for large corporations

Debunking the myth

Large companies have been on the forefront but AI is becoming available for all organizations.

3 ## Only tech people will work with AI

Debunking the myth

Techies develop AI systems, but most applications have been designed for the average person and aimed at specific industries.

4 ## AI is too complex

Debunking the myth

The focus is developing AI systems/models that everyone can use.

5 ## Affect ethics, humanity, consciousness, and robot discrimination

Debunking the myth

Ethics -> Data models are updated to address biases. Humanity -> Governments are starting to work on legislation to "protect" humanity. Consciousness -> Data has no feelings. Robot discrimination -> I hate my boss.

The role of Generative AI is becoming clearer.

Human Resources, Finance, and Technology is a design, support, and integration function.

- Data within these functions are all over the business systems.

- Team members are becoming creators, developers, and consultants.

- These teams are building and analyzing "things."

From the water cooler:

Generative AI is the perfect new tool to help find solutions for every challenge they encounter. GAI tools have the same challenges as any processes in a transactional system. They all have an element of learning along the way.
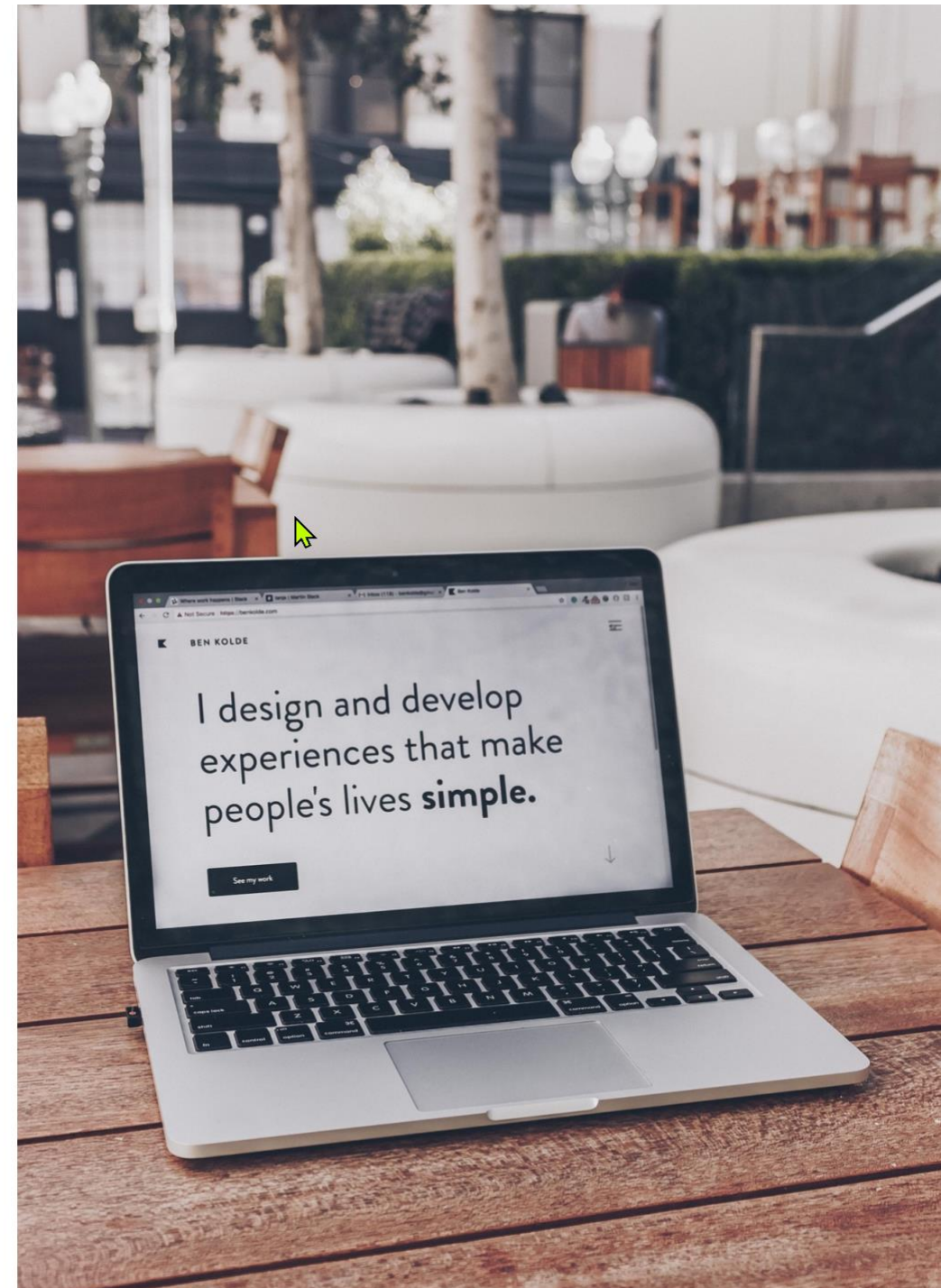
AI today in business operations systems - Intelligent automation (IA)

IA is the intersection of artificial intelligence (AI) and cognitive technologies such as business process management (BPM), robotic process automation (RPA), and optical character recognition (OCR). Sometimes called "cognitive automation" or "hyper-automation," IA automates repetitive tasks and processes. In customer service, intelligent automation helps agents provide faster support in addition to stand-alone options like chatbots.

5 components of intelligent automation

- 1. Artificial intelligence
- 2. Robotic process automation
- 3. Business process management
- 4. Automation tools
- 5. Data

Building blocks of Large Language Models

Moore's law: refers to the quantity/size of transistors that can fit in a chip. Doubling every two years.

Large Language Model (LLMs): For example, ChatGPT, BART, and LaMDA are models where the data were trained by identifying patterns to generate human language.

Machine Learning, Supervised learning and unsupervised learning: The technique of tweaking data patterns over and over. When multiple labeled images of cats are input. the neural network will provide an output of a cat. This is supervised learning. Unsupervised leaning is when unlabeled data is input and the neural network is looking for patterns in the data to provide an output.

Neural Network: This is a machine learning algorithm. Designed to mimic the human brain. The neural network receives input data, processes the data via nodes and provides an output, such as a solution to the problem.

Model, Foundation Model, and Multimodal System: A model is one AI system, for example, ChatGPT. As an AI ecosystem grows, like GPT3.5 and then GPT4, the foundation model is GPT3.5. A multimodal AI system can receive multiple input data types like text and imagery. For example, Gato that can have dialog and play games.

Automation: The historical process of human labor being replaced by machines. For example, an expense reporting system.

Neural Networks and Compute: Supercomputers collect and compute millions of datasets to learn patterns. Powerful graphic processing units (GPUs) are used.

Data and data labeling: Data is the raw ingredient to create AI. Humans label data digits—for example, label videos for self-driving cars.

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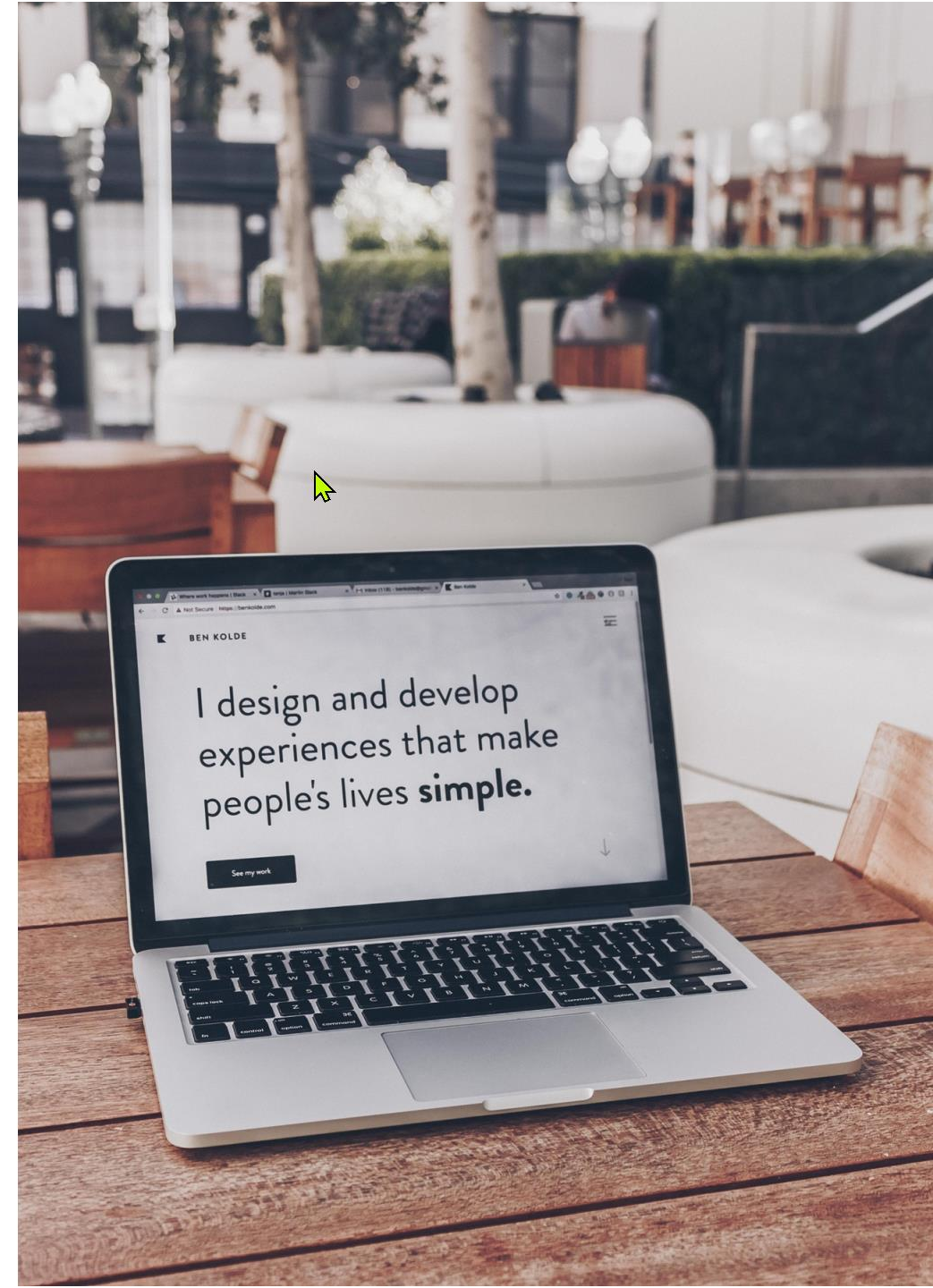
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- 3. Business process management
- 4. Automation tools
- 5. Data

IA in operations (HR/Finance/IT) makes intelligent automation possible using these techniques:

Intelligent automation is the ability of software to assist with repetitive cognitive tasks

Artificial intelligence (AI) is essentially the brains of the operation that uses these techniques

- **Machine Learning:** A type of AI that utilizes algorithms to learn from the data it acquires.

- **Optical character recognition (OCR):** Sometimes known as "text recognition," OPR can identify text and repurpose data from documents, images, and PDFs.

- **Natural language processing (NLP):** A machine's ability to recognize, understand, and output spoken and written human language.

Today, operations (HR/Finance/IT) uses these intelligent automation tools in their processes :

Intelligent automation is the ability of software to assist with repetitive cognitive tasks

Organizations are essentially using these IA techniques which is the forerunner of Artificial intelligencece

- **Optical character recognition (OCR):** Bill and expense receipt information are automatically transposed into the accounting fields. For example BILL, Sage Intacct, SAP Concur, Expensify, Xero.

- **Machine Learning:** An algorithm that has predefined rules to identify anomalies like expense reimbursement policy and general journal outliners. For example, AppZen, Sage Intacct, SAP Concur, Workday-Adaptive Insights

- **Natural language processing (NLP):** A software's ability to recognize, understand, and output spoken and written human language. For example, Beti from Paycom
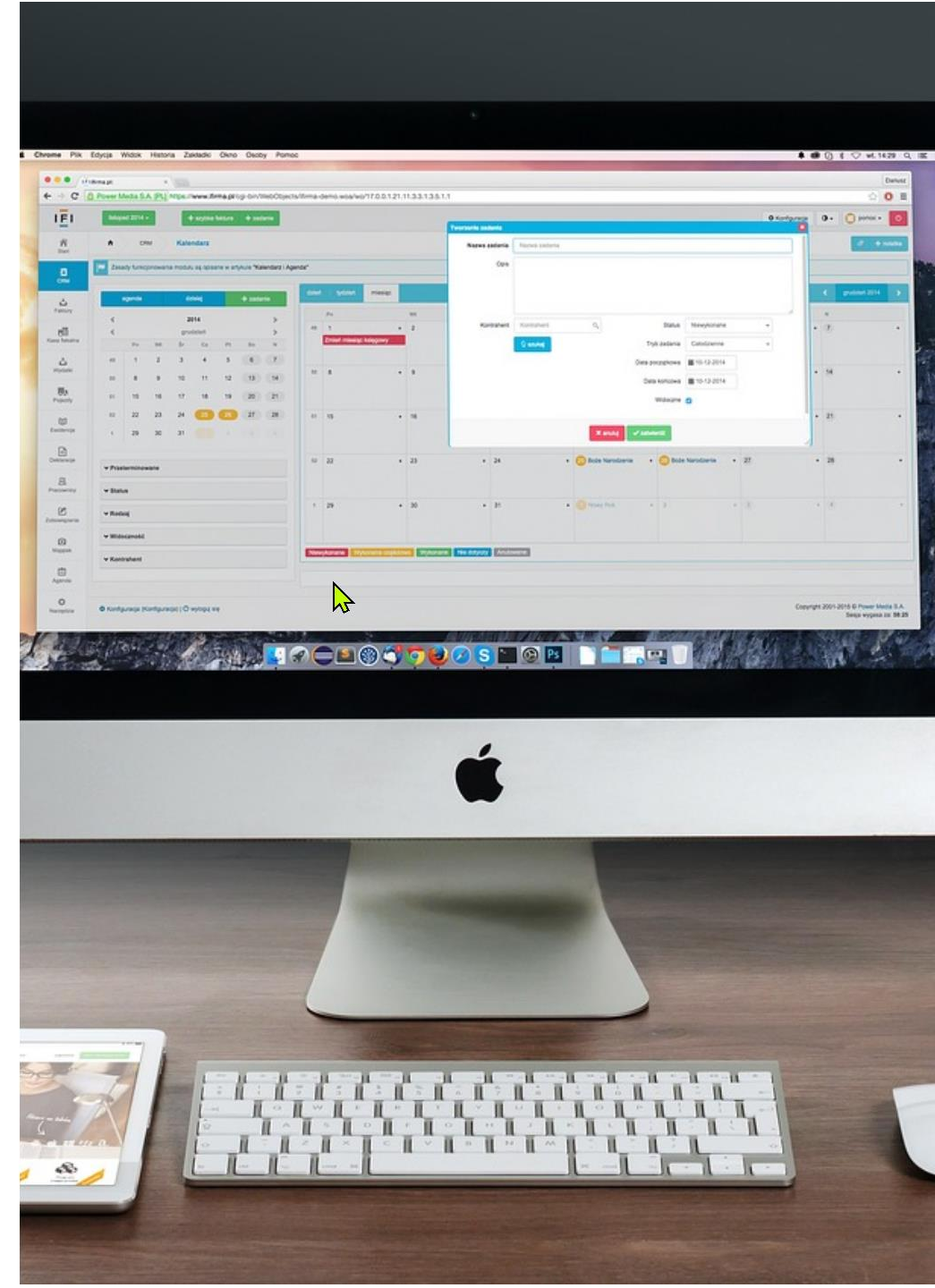
What is coming? Real use cases.

Incorporating Generative AI Tools with Intelligent Automation

Automating entire workflows

With LLMs, ERP software Sage Intacct will hand off to "AI Agents" that can operate autonomously. These agents could own and operate a workflow with the same instructions you might give to an accountant: "Don't let the cash balance fall below X; make sure to pay vendors of type Y early; let me know if you see any bills with substantial amounts."

AI will handle routine interactions with customers and vendors

Most emails an accounting team receives fall into a small set of repetitive interactions. For instance, customers ask for tax information, their latest statement, or remit payment information; vendors send invoices, ask when to expect payment, and provide compliance details. LLMs are exceptionally good at understanding the intent of these emails, determining the steps required to respond (i.e., send an invoice for processing or get an invoice from the accounting system for a customer, and generating a response email.

Digital Assistants will change the way we interact with technology

Today's ERP applications guide user interaction through pre-defined menus, carefully designed data entry forms, lists for sorting and filtering records, and "canned" reports or dashboards for data analysis. These UIs are both limiting and hard to learn. LLMs will replace all this with simple human-language interaction. Imagine working within a spreadsheet and asking a digital assistant to gather the accounting data you need to analyze. Imagine reviewing and approving purchase orders from within Teams. As chat interfaces become the norm, employees won't settle for today's crude tools.

AI will be an expert resource

Accountants will have access to an expert resource for understanding and applying accounting standards. What is the correct accounting treatment for a complex grant contract? What does tax law say about capital asset write-offs? LLMs are also helpful data analysts. Give an LLM access to balance sheet data for the last 24 months and ask it to identify the most significant trends. Give it access to detailed ledger data and ask it to forecast future cash flow. More generally, AI will make every knowledge worker more productive.

How will we get there?
Real use cases.

Human Resources will recruit people new people with new skills and will train current team members with new skills.

Talent intelligence for recruiting

In recruiting, there are plugins to generate job descriptions, use them for different roles, and create personalized candidate emails, and resume enrichment. Use LLM Skyhive, Gloat, Seekout

Employee training and compliance

Cornerstone, Docebo, and Degreed are using AI models to recommend content, produce and recommend micro-learning based on role, team, location, and employee activity, and even use AI as a game to "prompt" the employee to learn more.

Employment experience

Onboarding, job transition, and administration that brings together documents, support materials, and transactional systems into an easy-to-use experience. OpenAI uses "function calling" that lets their system take any input ("I want to log my vacation.") and turn it into a simple call to an API like the vacation page in Workday or SAP.

Performance management and operational improvement

Should AI be used for performance management? I don't expect these systems to write performance reviews, but yes, they will help a lot. Ask BARD to compile a performance review for a specific role based on large NGOs. It did a good job in about ten seconds. Once we get our internal data into the right AI system, this will be a regular and expected thing to do.

It is all about Generative AI going forward

Recent studies by research companies and writers say the following:

McKinsey

According to McKindsey, 50% of organizations used AI in 2022.

Valoir

A survey suggests GAI will automate 40% of the workday. The widespread use of generative artificial intelligence has raised public awareness of its ability to increase productivity and efficiency.

Tiernan Ray, C-net

Any of the many headline achievements of AI, winning at chess, labeling cats and dogs is the form of AI known as generative AI. ChatGBT became the fastest-growing software program in history in January 2023, reaching a hundred million users in less than two months from its public debut. The rush of excitement has prompted an arms race between tech giants Microsoft and Google and their peers and a surge in the business of AI chip maker Nvidia.

Gartner

By 2024, 40% of enterprise applications will have embedded conversational AI. By 2025, 30% of enterprises will have implemented an AI-augmented development and testing strategy. By 2026, generative design AI will automate 60% of the design effort for new websites and mobile apps. By 2027, nearly 15% of new applications will be automatically generated by AI without a human in the loop, which is not happening today.
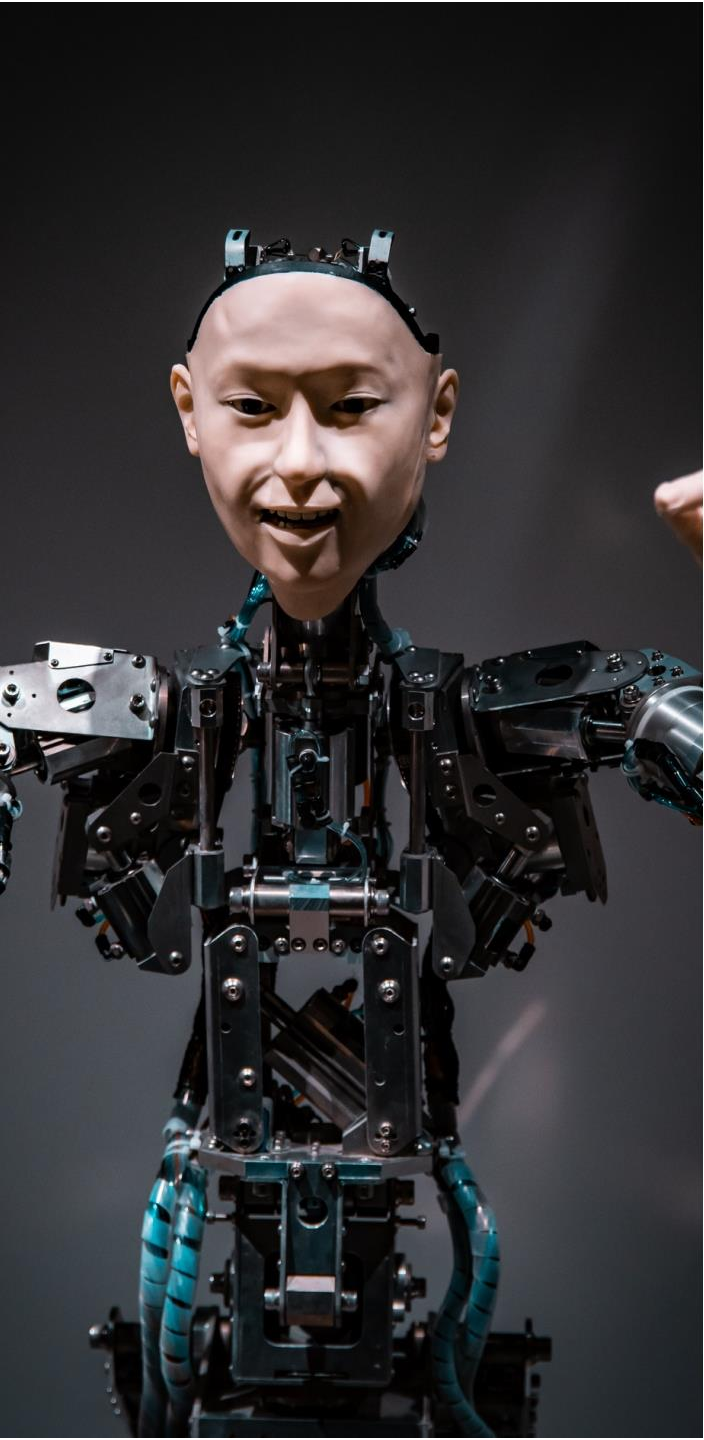
Super-integrated multi-modalities

"ChatGPT was made for entertainment, and it does a lot of things really well, but it's, sort-of, a demo," said Naveen Rao, founder of AI startup MosaicML, in an interview with ZDNET. "Now we have to start thinking about, well, if I'm using this for a purpose, how do I make that better?"

Moving to multiple modalities

- What computer scientists call mixed modalities, or "multi-modality," will take center stage, as programs fuse text, images, "point clouds" of physical space, sounds, video, and entire computer functions as smart applications.

- Combining multiple modalities builds a richer picture of the world for the neural network. Databricks's Rao cites the neuroscience concept of "stereognosis," which means to know the world by sense of touch. If someone asks how much change you have in your pocket, you can feel the coins and tell by size and weight without seeing them. "I have a representation of the world and objects that are represented in multiple modalities," he said. "If I can learn concepts that span modalities, then we've done something interesting."

- While GPT-4 can be powerful, Stability AI's Mostaque said, there's ample evidence that "a lot more specialized models can outperform" the most extensive programs. As a result, "We're gonna have a lot of specialist models, I think, across the modalities," he said, a process of "de-constructing" the technology into its appropriate roles, "and then some multi-modal models that can do everything, and they're called at the appropriate time for the appropriate thing."

Robotics is the next AI frontier

If large LLM and diffusion models can integrate the process of "taking previous images and predicting descriptions, and predicting images," said Levine from Deepmind, "drilling further down in terms of how they understand the world." An example of world knowledge is a robot bartender that Levine has worked on, which checks people's I.D. "You can tell the language model, write me some code for a robot bartender, and it generates some logic to do that, and if someone orders a cup of water, that's not an alcoholic beverage," and therefore doesn't require an I.D. check.

As a result of generative AI, experts assess that technology could achieve human-level performance in some technical capabilities sooner than previously thought.

Technical capabilities, level of human performance achievable by technology

Legend:
- Estimates post-recent generative AI developments (2023)[1] — Median (light blue), Top quartile (dark blue)
- Estimates pre-generative AI (2017)[1] — Median (light gray), Top quartile (dark gray)
- Line represents range of expert estimates

Capabilities (top to bottom):
- Coordination with multiple agents
- Creativity
- Logical reasoning and problem solving
- Natural-language generation
- Natural-language understanding
- Output articulation and presentation
- Generating novel patterns and categories
- Sensory perception
- Social and emotional output
- Social and emotional reasoning
- Social and emotional sensing

Timeline axis: 2010, 2020, 2030, 2040, 2050, 2060, 2070, 2080

[1]Comparison made on the business-related tasks required from human workers. Please refer to technical appendix for detailed view of performance rating methodology.
Source: McKinsey Global Institute occupation database; McKinsey analysis

> ## "Creating a culture of sharing AI experiences and learnings among teams can prevent people from feeling behind and spark new discoveries."
>
> **CANVA CO-FOUNDER AND CPO CAMERON ADAMS**

I understand that ChatGPT, BARD, and others are part of the generative AI revolution. As an operations leader, what should I do?

- **Building a competitive advantage**

  According to McKinsey's Eric Lamarre, Kate Smaje, and Rodney Zemmel, authors of *Rewired: The McKinsey Guide to Outcompeting in the Age of Digital and AI*, a digital transformation fundamentally changes how an organization functions. It's more than just implementing new technology—it's about using technology to improve operations. Digital transformations can build competitive advantage, but only if companies (and their leaders) fully commit to change and are willing to evolve their organizational and tech-based capabilities continually.

- **Operation leaders should start with the following solid foundation**

  1. Responsible AI policy. A well-defined AI policy that outlines fairness, transparency, accountability, and data protection principles.

  2. AI strategy and roadmap and the role of the proof of concept. The AI strategy should include the rules or guidelines for generative AI proofs of concept.

  3. Intelligent architecture. Data privacy, security, and intellectual property protection must also be embedded within this platform architecture.

  4. Reskilling and training. Most organizations do not have the skill sets (data science, data analysis, general IT) hence to take full advantage of generative AI.

FAQs

In conclusion...

Be assured, that generative AI is both over-hyped and under-estimated. If you start small, get your hands dirty, and bring your IT team with you, you will see astounding benefits in any of the areas I discussed.