

The image features a dark blue background with a complex network of glowing purple and blue lines that resemble a circuit board or neural network. In the center, there is a large, multi-layered sphere with a gradient of colors from dark blue to light purple. The letters "AI" are prominently displayed in white, bold, sans-serif font in the center of this sphere.

AI

**Will artificial intelligence
revolutionize your industry?**

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Introduction

‘If you look at your industry, how will Artificial Intelligence (AI) have changed it by 2030?’

This has been the focal question of our research, in which we asked industry thought leaders, based in Flanders, in three fields (HR, Logistics and Manufacturing) their views regarding AI and the impact this technology will have on their domains.

The participants each displayed a good working understanding of AI: the application of advanced analytics and machine learning algorithms to (big) data.

On a side note, this research is a small-scale research. And although it doesn't have the ambition to be fully representative for all Flemish businesses, it does paint us a vivid picture of the current use of data analytics and AI in Flanders.

The dialogues between these thought leaders have been truly inspiring and we are happy to be able to share our resulting findings and our vision on the way this field will evolve in the next decade

... it all depends on who you ask

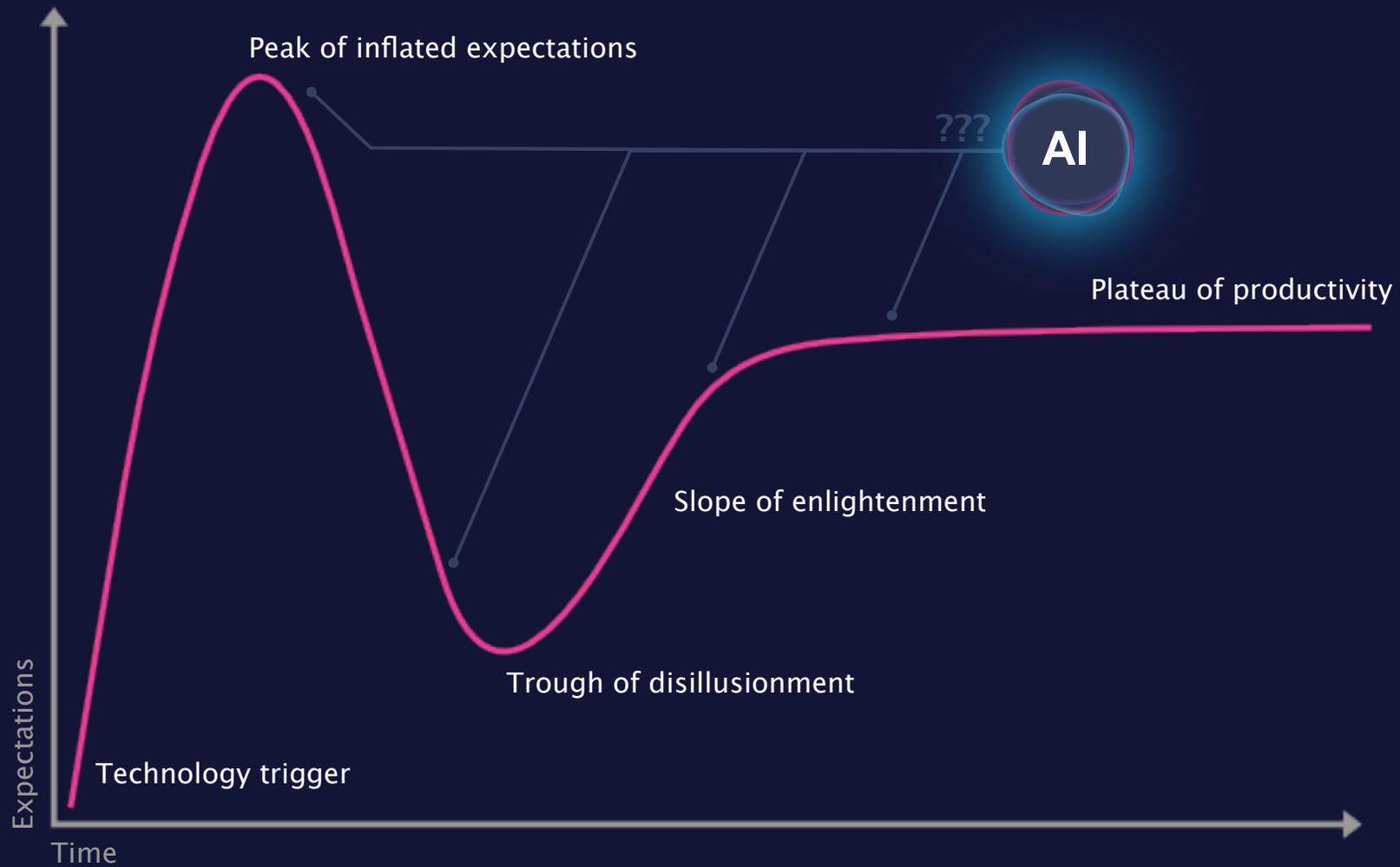
Over the course of our research, we have found that the answers we received strongly depend on whether the expert is describing their own field, or someone else's. Consistently, we have heard people describe the pace of change and AI adoption to be slower in their own field than in others. Although we are not sure why, the observation is undeniable: people see more barriers for applying AI in what they know best.

Perhaps their industry knowledge and expertise make it easier to have a realistic perspective on the current state of their field.

Or perhaps this is simply the “curse of knowledge”, where knowing very well what the current situation is, actually makes it harder to imagine a different future.

If the latter would be the case, there is the real possibility of disruption going forward full speed and breaking the rules of the game.

Gartner Hype Cycle – Position of AI



Key finding 1 – Early experimenting and finding the right use case

When it comes to the actual application of AI in business processes, be it in HR, Logistics or Manufacturing, most participants acknowledged that they were still only at the very beginning of this process.

Most of the companies we spoke to are currently still in an experimentation and pilot phase, and are not (yet) able to generate significant value from applying AI in their business processes.

Core vs periphery

This largely owes to the fact that companies are still trying to discover the right business cases where data and AI can bring the most value.

For example, we have witnessed much (heated) debate on whether or not AI should be implemented in a company's core business (think: long-term strategy, growth, competitive positioning, ...), or rather in more "peripheral" processes, such as marketing, customer acceptance, logistics, ...

Some experts argued that, in order to capture the most value from AI, you need to apply it to the areas where a company needs to scale, namely its core business. And though nearly everyone agreed this would be desirable, many doubted whether this would be possible, arguing that in most industries competitive advantages come from tacit knowledge, expertise and nuance, which cannot be captured by AI algorithms. They do not imagine an AI devising and recommending new business strategies, or being able to predict the big disruptions in the business world (the mobility-as-a-service sector, the boom of e-commerce, the adoption of cryptocurrencies, ...).

Instead, these executives do see potential for AI in those areas of business where the complexity transcends human capabilities. For example, in such cases where multiple devices and software systems are connected, leading to an explosion in the amount of data captured, and making it impossible for a human to keep up and capture the information hidden in the overload of (time-series) features.

Key finding 1 – Early experimenting and finding the right use case

So ... is AI currently being applied in businesses?

While many companies are still experimenting and prototyping with the implementation of AI in their business processes, there are already areas where companies currently make use of AI.

For the main part, we see businesses use AI, when it is already integrated in software applications purchased from third parties, such as marketing automation tools, invoice recognition in accounting software, spam recognition in emailing software, ...

In addition, we have also been seeing a rise in the number of AI consulting firms, providing “AI-as-a-service” solutions to companies. These service providers often possess a mixture of both AI as well as business expertise. They start by connecting to customers’ data sources, selecting and developing the right AI algorithms for the business case, and finally delivering the resulting analyses and insights back to the customer. This delivery is often done by means of custom dashboards, or via direct integration with the customer’s operational systems.

And will it be ... ?

Although companies are still in the process of discovering the right use cases where AI can deliver them the most value, many of them are already experimenting with the use of AI in the form of different pilot projects.

We believe that this trial-and-experimentation approach is necessary and useful. Using AI for the creation of business value is a fairly new competence which companies need to acquire. This involves experimentation and building expertise over time. In addition to this expertise, companies also need to invest in the datafication of their processes; in generating the right data, and making it available for analysis.

One thing is certain however: as the abundance of data in different domains keeps increasing, there will be more and more potential for AI to generate value from this data.

Key finding 2 – Human or AI?

Human in control

The participants in our research all agreed that, instead of AI replacing humans, the ultimate goal should be for AI to assist them in their decision-making, in order to lead to a higher quality of both work and life.

Subsequently, the fact that humans should be able to understand and potentially overrule the decisions made by an AI system found agreement between all participants. However, there was less agreement on how easy it should be to do so. Some participants feared an overly interventionist (and possibly biased) human, who would overrule sophisticated (and correct) AI systems, while others insisted on giving employees the possibility to easily overrule the AI, if they observe it making logical, but senseless or unethical decisions.

Predictive? Yes. Descriptive? Not yet.

Indeed, much of this owes to the current strengths as well as limitations of AI.

Currently, AI is mainly being adopted for its potential in predicting future events (in real-time): “What is the probability this applying customer will commit fraudulent behavior?”, “What is the likelihood of machine breakdown?”, “Will this applicant succeed in this job?”, ... these are all predictive analyses where the accuracy of AI models is rapidly improving and even beginning to exceed the best performing human specialists.

However, while AI shines at these types of predictive analyses and anomaly detections, it is, generally speaking, not yet sophisticated enough to provide us with the next step: namely, what is the best course of action.

An AI that is able to provide us with a such root-cause analysis, planning and decision-support, and probabilistic courses of action to best remedy & optimize a given situation, is known as descriptive AI.

Key finding 2 – Human or AI?

For example, while AI models are very good at predicting planning conflicts in supply chain management, they are currently still less good at recommending what needs to be done, in order to solve the issue.

Without the intervention of a knowledgeable human, it is still difficult for currently used AI systems to recommend or execute the right course of action.

A human expert is required during AI development

Another aspect where human expertise is required, is, evidently, in the development of AI itself. While an AI model can detect and learn patterns which completely escape human detection, it cannot decide what it wants to learn.

And with AI, as with all things in life: “garbage in, is garbage out”. This is why, when developing AI algorithms, besides algorithmic expertise, contextual knowledge of the business domain and the data itself is definitely needed.



Key finding 3 – Desirables from AI in HR, Logistics, and Manufacturing

In each of our round tables, we also discussed what participants expected and desired from AI in their respective fields. Unsurprisingly, in each domain, the dialogue moved towards another central theme.

Empowering people

The central theme for HR participants was how to use data in order to keep a person in control of their life.

Undeniably, societal and economic evolutions will create huge changes for employees and perhaps even pose threats to the employer–employee relationship.

Data Analytics in HR should not just be used to benefit the employer at the expense of the employee, or without absolute transparency towards the employee. First and foremost, it should be used to empower employees to take charge of their own career and competence development.

There are a variety of HR domains which show early results, such as improving people management by supporting team leaders with sentiment data, follow-up of psychological engagement, predicting employee loyalty, and assisting in career success and employability, to name a few.

The participants' view was that only an AI system which is designed and set up to benefit both parties in this relationship will create real value and have a chance to be adopted or implemented in real corporate life.

Sustainability

In the domain of Logistics, the dialogue repeatedly circled towards the question of sustainability.

How can data and AI help to lower the environmental burden of the industry and help move it towards a green future? Participants all agreed that to achieve this, the logistics industry needs more cross-company collaboration (sharing transports, ...), and to achieve such a collaboration, the exchange of data (with proper data governance) is necessary.

Key finding 3 – Desirables from AI in HR, Logistics, and Manufacturing

Improved efficiency

In manufacturing, AI can hardly be seen separate from robotics.

The use of AI in manufacturing has several obvious benefits, such as improved planning and reduced downtime of machines.

Participants noted however, that the real value for manufacturing will result from integrating AI with manufacturing technologies, either by providing workers with the analyses & insights to better assist them in their job, or by complementing the skilled and scarce worker with robots, where most of the heavy lifting will be done by machines, and humans will be responsible for oversight, as well as the finer manipulations.



Key finding 4 – Ethics

Unfortunate as it may be, the thought leaders in our research were convinced that, both in the near and in the further future, things will go wrong. To them, it appeared inevitable that there will be people who misuse the possibilities of AI and apply it in an unethical way.

Privacy

A particularly interesting consideration was raised by multiple participants who have performed analytics experiments in their own companies: “How should an organization act when it ‘stumbles upon’ findings that are sensitive or private in nature?”

Imagine you were to analyze the performance of a line of machines in your factory, and you discover a systematic underperformance of a particular machine. If these machines are operated by individuals, then by default you know the individual who is underperforming.

These types of cases are not rare. By analyzing location data for company security purposes, people have accidentally uncovered that one of their colleagues was suffering from an illness. Performing sentiment analysis on company chats, in order to measure employee satisfaction has even identified two people having an affair.

Most participants agree that waiting for regulatory intervention is a mistake. Regulatory measures always lag industry practice and experimentation, so businesses need to take the initiative, and create their own frame of ethical standards themselves.

In November of 2021, an open letter signed by over 100 academics and practitioners was published in ‘De Morgen’, expressing their fear that regulatory interventions would come too late, and urging politicians to take action.

Key finding 4 – Ethics

... it all starts with the question you are trying to answer

In the absence of such governmental regulations, businesses themselves need to start from a positive intention and back this up with transparency and accountability. It is key for businesses to clarify their intents and data usage to their stakeholders, customers, employees, suppliers and partners.

One way of enforcing this behavior, could be by submitting companies to an 'intention audit', where, starting from a company's stated intent, their processes for gathering, storing and analyzing data are then compared to their stated purposes.

And if everything is perfectly up to standard, a company could then be awarded its ISO certificate.

Some experts in this field are even suggesting the use of self-reporting AI algorithms, as the advantage of an algorithm or a computer is that it can selectively (be made to) forget a piece of information, whereas humans cannot.

Imagine your AI algorithm discovers a particular insight during the course of its analysis, which it flags as a potential privacy threat. Then this particular piece of information could selectively be deleted from the algorithm.

This way of working would be extremely flexible and modular, while still allowing companies to collect and use data, for the right purposes.

Key finding 4 – Ethics

Weighing monetary wealth against human benefit

Besides the ethical considerations already discussed, which mainly revolve around privacy, another fundamental ethical concern was raised.

All participants agreed that AI (and technology in general) should be in the service of humans. However, there is much concern that, in companies, AI will mainly be put to use for profit maximization, and that employees will need to adapt to the recommendations made by AI. More than ever, it will be important to guard the balance between the pursuit of profit (e.g., via cost-cutting recommended by an AI algorithm), and employee wellbeing.

A monopoly

The final ethical concern raised was the effect of AI on the overall economy. AI could potentially accelerate the ‘winner takes it all’ phenomenon, where market power is centralized in one or a few big players, who possess the largest volumes of data and the most sophisticated algorithms.

The resulting elimination of competition would be a clear threat to smaller businesses and the fundamentals of competitive dynamics.

We believe companies need to make their use of data, their strategic intent with analysis and the processes and governing mechanisms very explicit. Moreover, this means that businesses need to be willing and organize themselves to audit the correct implementation of those intentions and processes in order to prevent both intentional misuse or unwanted consequences using advanced analytics and AI.

Key finding 5 – Collaboration and the hurdle of trust

Disruption, the result of sharing data

While most participants are currently seeking to create value from their own proprietary data, at the same time, they acknowledge that for true leaps in performance you often need to combine this with more data from other sources.

A well-known example in the world of logistics is the 'last mile problem', which refers to how the last leg of the supply chain is often the least efficient part, sometimes comprising up to half of the total cost to move goods. Or, from an ecological standpoint: this corresponds to multiple different suppliers, all trying to occupy the same (limited) roads and spaces, causing inefficiencies, congestion and unnecessary environmental burdening.

By having companies operate in close cooperation with a network of partners, suppliers and customers, sharing their (transportation) data in an ecosystem, such problems could be resolved.

What's more, this sharing of specialized, niche data could even enable smaller businesses to compete with and outperform larger companies in certain areas, combatting the 'winner-takes-all' effect previously mentioned.

The hurdle of trust

It is clear that the use of AI can enable radical innovations. However, this will likely require the combination of different datasets from different sources, which has proven to be a huge barrier for organizations.

How can you share data that is considered proprietary and business-sensitive without being exposed to the risk of losing competitive information? Who will process the shared data? And how can we be sure this party will share the gathered insights correctly to all parties?

This distrust is a hurdle which many companies unfortunately have not yet been able to overcome.

Key finding 5 – Collaboration and the hurdle of trust

The distribution of value

A second hurdle to be overcome in this process, lies in the valuation of the data:

1. How can you value the data shared by each party?
2. How do you distribute the value created from the combined data?

First, while there are very active markets, for example marketing-related data, the valuation of datasets between competing companies is still difficult.

Second, what actually created the value: the data shared, or the intelligence which analyzed it? There are currently very few examples of business models that fairly, accurately and profitably distribute the value to involved parties.

Though so-called ‘data marketplaces’ do exist, where companies can sell or buy particular datasets, no analytics or AI modeling is performed on these platforms.

To this end, we firmly believe there is room for the emergence of independent AI & data service providers.

Service providers to whom companies can outsource the handling of data, as well as the creation and distribution of new insights, in an as-a-service model.

Overall conclusions

Early stages

Overall, we can conclude that companies are still in the early stages of their endeavors towards becoming AI-driven. Most have started developing the necessary skills, developing the required datasets, and gaining experience, while all realize this is the beginning of an effort they will have to accelerate.

In product and service development

Today's AI is mostly built on bulk exports of historical data, often requiring considerable efforts for data cleaning and data wrangling.

The next step is often to build a 'layer' on top of already developed products and services and evolve to a 'datafied' organization.

Instead, taking data and AI into account during the design and development stage would allow for the next step in creating products and services which harvest the full potential of AI.

Business model and industry shift

The AI and data-science business is mostly run in a business consulting model. We see the need and expect the rise of a new type of business model, where data-science companies take up a more active, full-fledged role in the ecosystem.

More than a technological revolution

AI is becoming a business practice that needs to find its place in organisations. In addition to the technological challenges, there are still several challenges related to processes, business model, employee relations, ethics and communication.

These are substantial challenges, but when addressed, the exponential power of AI can fuel spectacular improvements.

About us



About cropland

An A.I. service provider

We build A.I. algorithms which contribute to better results & higher efficiency. It is our mission to make sure companies implement a data-driven approach in the domains of performance management and risk management. Our focus is to develop A.I. and implement the generated insights in your organisation. We thereby ensure the datafication of your organisation.

Design – develop & support

CROPLAND develops A.I. algorithms that provide answers to specific business challenges; we set-up data platforms that enable companies to embed the A.I. insights into their daily practices and operations. We ensure datafication, meaning that data is collected appropriately so that it can be used for additional analysis.

Canda.ai

To enable AI As A Service, we provide an cloud-based AI workbench at www.canda.ai. This is an all-in-one data platform and analysis tool for business professionals.



About Studio Dott.

An all-round creative agency

Studio Dott is design studio an innovation consultancy. . We help clients with the design of their digital and physical products, interiors, services and strategies.

IOT Design kit

Studio Dott has created a configurable set of design tools for exploring and defining smart, connected and Internet of Things products.