

OBTAIN BENEFITS USING AI

Enterprises stand to gain multiple benefits from using strong statistics and machine-learning algorithms. However, they do not achieve these benefits if they focus on the technology first. They must start with a genuine, key business goal, understand which critical capabilities they lack, identify relevant data and use the right algorithms in a small, agile team.

Both nationally and internationally, AI (Artificial Intelligence) in the form of strong statistics and machine-learning algorithms is now within the reach of the vast majority of companies. This is because the cloud (i.e., modern data centres) can accommodate huge quantities of data as well as provide enormous amounts of CPU power. In addition, over the past five years, many companies have offered services such as data handling and algorithm-based analysis, eliminating the need for enterprises themselves to invest in the platforms required for handling data and running strong, resource-intensive algorithms.

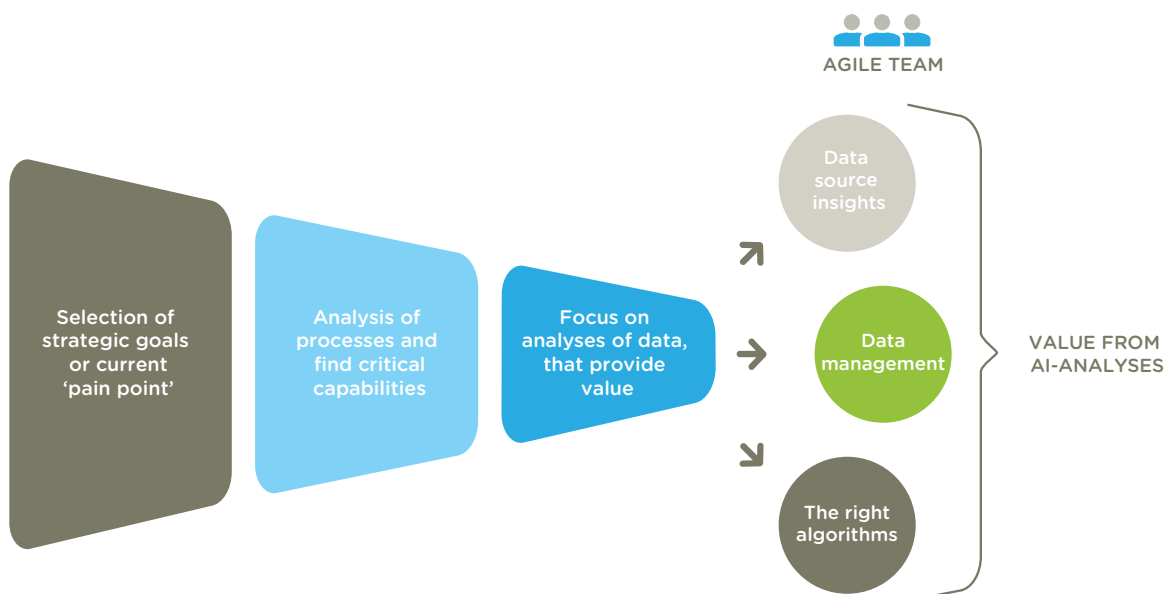
Accordingly, there are no immediate technical obstacles to putting strong, advanced statistics and machine-learning algorithms to use. However, deciding where your company could usefully deploy AI can be a problem. An enterprise must target its use of this form of AI to generate benefits.

To address this problem, companies should start by considering their efficiency needs or product and service development before looking too closely at the technologies. Provided that enterprises can find sufficient data concerning a given field, it is enough simply to know

that the tools needed to create knowledge from this data are available. Algorithms can describe data, predict a development with a certain degree of probability or offer recommendations for what is required to achieve a goal. Useful knowledge about your customers includes what characterises them as your company's customers. A given algorithm can use data as a basis for grouping comparable customers based on the information the data contains. Another algorithm can predict whether a customer is about to stop using your company, while a third can suggest actions to persuade

TAKE A KEY BUSINESS GOAL AS THE STARTING POINT

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the customer to stay, giving customer recommendations that the customer is highly likely to follow. Algorithms can also be used to predict the load on your company's functions, for example, how many customers the company would have to serve simultaneously. This could be the number of calls to a call centre or how many patients a hospital should be able to handle in the course of a week. Other algorithms can be used to recognise various issues in a production line and then act on the result, or predict machine component fatigue by using data from sensors that measure temperature, sounds and vibrations from the machine components.

Take the business as a starting point by identifying one or more of the company's current, key strategic goals or current "pain points" and asking: what knowledge gap could we fill to boost the work of realising the goal or solving the problem? This provides a basis for identifying the business processes and value streams involved in realising these goals or solving these problems.

Processes and value streams will then point to the field of information characteristic for the analytical area. This area may be vast, in which case conducting a capability analysis of the critical skills the organisation needs to achieve its goal could prove extremely useful. What information do we need to realise this critical capability within the organisation?

The critical capabilities will pin down what knowledge the company needs and provide pointers as to what information is required to attain this

knowledge. Accordingly, this kicks off the search to find all the available data representing this information. The advantage of such AI tools is that all types of data can be used:

- Unstructured data in the form of documents, images and e-mails.
- Continuous data flows from sensors and traffic and behaviour logs.
- Semi-structured data from dialogues in a support function, a loyalty programme or accessible social media.
- Structured data from the company's planning and transaction systems that sell products and services.

Data does not have to originate exclusively from the company's own systems, but may come from other data collectors. The most important thing in both cases is that the personal data protection rules are respected.

Here again, it is an advantage to have conducted a capability analysis and narrowed down the scope of the process as well as the information area, since this enables you to determine which data you are processing, its origin and what is to be done with it. This makes the task of respecting the EU data protection legislation and the Danish data protection act easier to manage.

Once the capabilities that need strengthening have been selected and the source of available data about the knowledge area determined, the next step is to choose the right algorithm – or combinations of algorithms – for the analysis.

When choosing algorithms, you should ally yourself with employees – either by hiring people or using a specialised supplier – who understand the strengths and weaknesses of the various algorithms. You can also apply to DABAI, a Danish university partnership that develops effective algorithms for handling Big Data. Other possibilities include networks and conferences arranged by the Danish Confederation of Industry or DANSK IT. Once the right algorithm (or combination of algorithms) has been chosen, take care to apply the following important lessons:

- 1) Be certain about what your source data means as well as how valid and up-to-date it is. Talk to the source owner about whether these qualities have been described. Although data-cleaning can be surprisingly demanding, it is a critical step in achieving good results.
- 2) The source or sources must be copied to a platform for the analysis. If this task is complex, data wrangler tools are available to make the work easier.
- 3) Put together a small team dedicated to the analysis and task it with working experimentally, iteratively and agilely. The team must include both business and analytical experts (data scientists), as this produces the best results.

ACTION ITEMS



Use the gap in our knowledge as the starting point for resolving genuine, key problems.



Conduct a capability analysis of the processes and value streams involved and identify the critical capabilities needed to achieve the goal. Such capabilities narrow down the field of information to be analysed.



Find all the data sources that represent information about the capabilities, both inside and outside the organisation. Assess how data protection rules come into play and how to handle them.



Put together a small, agile team of business specialists and data analysts, and have them work experimentally to find the right algorithm or algorithms for the task at hand.