

MACHINE LEARNING – STILL LOTS OF POTENTIAL

Cognitive solutions with machine learning are becoming part of everyday life. They are taking care of routine tasks and support us when it comes to efficiently completing complex tasks. But not only that: They also enable business model innovation. IT consultants Nina Zurbuchen and Zsolt Czinkan talk about the current state of play.

In the 1970s, artificial intelligence was a trend for a while before people forgot all about it. How do you account for the fact that it is back at the forefront of people's minds?

NZ: There are several reasons for that: First of all, machine learning algorithms have been further developed and today we know much more about which algorithm can be used where. And then of course hardware now has more power. This means that even large amounts of data can be processed very quickly. Another factor is the rediscovery of neural networks. People were experimenting with neural networks back in the 1940s but at that time there simply was not enough computing power. Today, neural networks are experiencing their renaissance in the form of deep learning.

ZC: Another aspect is that today data is captured and managed systematically. Everything is networked with everything else, all systems produce data and log files and store data. These massive amounts of data can be evaluated and also used to train algorithms.

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How do you train algorithms?

NZ: Data is often spread over various systems and it first has to be standardized before we can use it. Then we analyze the data using algorithms and create a model. How that is done depends on whether you know the expected results. If you know the results, this is referred to as supervised learning.

In this case you use some of the data set as test data. This makes it possible for you to test how reliable the model works. If you don't know the results, the data is analyzed and clustered and the relations between the data are interpreted. The aim is to detect deviating behavior. For example, this is how you can discover that someone is using a stolen identity to transfer money.

What cognitive approaches do your customers use?

ZC: Our customers use cognitive solutions, for example, to optimize the customer advisory process. Algorithms compile information about customers from different sources and then link them to present customer advisors with an integrated overview.

NZ: A lot of companies are just starting to use cognitive solutions. There is still a lot of potential here.

Where do you see the greatest potential for cognitive solutions?

ZC: Wherever people have to work with massive amounts of data. Let's take a look, for example, at the processing of damage claims in an insurance company. Cognitive solutions can single simple cases out and process them to take the pressure off the damage experts so that they can devote their time and attention to more complex tasks.

What other advantages are there of automatically processing large amounts of data?

ZC: For example, it helps detect fraud. If you have large amounts of data and a high volume of damage claims, you can detect certain patterns and recognize cases which deviate from these patterns. These cases are then examined by the damage expert. It is not a question of the machine making a decision for the person but of supporting and accelerating the decision process.

What are the prerequisites for companies to be able to use cognitive solutions?

NZ: On the one hand the availability of data in the required quality, and, on the other, the willingness of the company to use such solutions. Time also plays a role. When you see the result at the end, you are always thrilled. But it takes a certain amount of time to get that far. That is why we suggest to our customers they begin with a proof of concept (PoC) mapping a reduced use case. This helps you to get results fast and provides the basis for you to decide how the project should progress. Very often, a PoC can give rise to interesting "sideline products" which can also be used for other use cases. That is why it is a good idea not to define the project scope until after the PoC.

ZC: Here it is important to understand that there is a big difference between traditional software engineering projects and machine learning projects. A company makes available a certain budget, resources and time for traditional projects. And the project has to be carried out within the confines of this. When it is finished, it will be used for five to ten years, often with minimal adaptations. In our case, the entire process is iterative. We keep looking at the machine learning solution to fine-tune and adapt it. Partly because the data used as the basis for the model can change.

WE KEEP LOOKING AT THE MACHINE LEARNING SOLUTION TO FINE-TUNE AND ADAPT IT.

What hurdles have to be overcome when introducing cognitive solutions?

NZ: For a company to be able to use machine learning, it has to know which data is available. In addition, it is good to know what the purpose of using machine learning is. We check whether this is possible with the existing data and ensure that we can offer the right tools. Sometimes, certain questions can be addressed using methods simpler than machine learning. This is why it is always a good idea to take a look at all possible solutions and then opt for one of them.

ZC: There are actually cases in which machine learning cannot be used because there is not sufficient data or the data that is available is not the right data.

NZ: Another hurdle that has to be faced is the fear employees have of losing their job. Everyone knows that every industrial revolution led to a certain number of professions disappearing. And that is why they say: "If a machine can do my job, they won't need me anymore." We have to explain to people that it is worth their while to get to know the new possibilities. The tools will help them take care of their work more efficiently.

ZC: That's right. Being afraid of losing your job is an interesting point. I feel that some job profiles will disappear and others will crop up. This often brings with it some organizational consequences and you have to have a certain degree of flexibility to deal with these changes. A company has to be prepared to be open to this change process.

What effect does using cognitive solutions have on business?

NZ: In some cases, cognitive solutions can lead to entirely new business models, something which is referred to as business model innovation. A well-known example of this is a tool maker working on an international scale. For example, the company offers their customers service subscriptions instead of drills, as the customer ultimately does not want drills, but holes.

So the customer no longer buys a machine but holes?

NZ: That's right; through a service subscription the customer has access to the entire machine catalog at all times. Machine learning supports the new model in different ways: for example, it allows for flexible pricing, supports resource planning or predicts when a machine will have to be replaced. Thanks to the service subscription, the customer always has exactly the right machine at hand and does not have to maintain an inventory of machines himself.

However, this does not mean that personal service is no longer important today, as the example of a car importer shows. This importer has a large call center as only a small proportion of its customers use the electronic ordering possibilities and around 8,000 garages prefer to order by telephone. Calculations show that the around 40 call center employees take 1,700 calls per day and require around 2.5 minutes for each one.

Would a machine learning solution not pay off in this case too?

NZ: That is exactly what the importer was wondering, whether a machine could take the calls just as quickly as an employee – or whether they should change over completely to a new business model. Now the call center employees don't just sell spare parts during the phone calls but also offer additional services. And this is where the machine learning software comes in: It tells the call center employee how probable it is that a customer will buy an additional service, for example order a liquid. And in fact it is the case that every second caller purchases this kind of product.

ZC: This example clearly shows that it is often a question of generating additional value with existing resources rather than cutting existing resources or jobs.

People say, "Digital insights are the new currency of business." How do you see that?

ZC: Companies with strong competition can only stand out from the crowd by becoming digital and gaining new insight from data, giving them a lead.



Nina Zurbuchen and Zsolt Czinkan: use cognitive solutions in customer projects.

Companies today do actually have a lot of data at their disposal, but can't use the data properly. What can they do in such a case?

ZC: A lot of companies collect data and use it to create what are referred to as data lakes, central databases which store masses of data. Now they want to use this data and generate assets from it. In this case, data science or data mining as it used to be called can help.

Do companies do that themselves or do they need specialists to help them?

ZC: On the one hand they need experts who know all about data science and algorithms. On the other, they need people within the company who know the data – in other words understand both the content and context of the data. Once a company has detected a certain use potential, it requires IT specialists to implement specific measures.

TO STAND OUT FROM THE CROWD, COMPANIES NEED TO BECOME DIGITAL AND GAIN NEW INSIGHT FROM DATA.

To what extent do cognitive technologies reinforce the trend toward monopolization?

ZC: If someone creates such considerable added value for the customers that they then change to the supplier's platform and this supplier then grows so much that all others become insignificant, this of course can result in a monopoly situation.

NZ: Although if we take a look at the development of large retail shops, we can see that boutiques are nevertheless still around. Highly specialized online shops are unlikely to die out because they cater to specific customers.

ZC: Amazon is becoming ever stronger in retail business in Germany. A lot of people find this development very worrying. We really have to hope that some strong competitors enter the market.

NZ: Or the market will be regulated by the competition authorities.

Will the company not just change to another country in that case?

NZ: Conceivable, yes. But there are laws to be taken into consideration everywhere. For example, there is quite a lot that Swiss law does not allow. It could be that companies have data that they are not actually allowed to evaluate.

So in other words the laws are an obstacle for your projects ...

NZ: I would not say that. After all laws are there to prevent

unjustified and dangerous data evaluation – something we wholeheartedly support. What's more, the risks are not to be underestimated and most companies have very little if any experience with using cognitive solutions. And it is also very difficult to find experts in this field. That is why we recommend starting off with something small and then extending the solution step by step.

LAWS ARE THERE TO PREVENT UNJUSTIFIED AND DANGEROUS DATA EVALUATION.

ZC: Most companies are just starting out with cognitive solutions. They are primarily concerned with collecting the necessary information. The next step is then the evaluation, connection, accumulation, etc. of the data. Of those that already have data, there are many that are sitting on hundreds of data pots that are not connected to each other. Another point is data protection. Data that is collected for a specific purpose cannot just be used for something different, and that is particularly the case if we are talking about personal data. ■

Nina Zurbuchen

Nina Zurbuchen, who has a degree in Business Information Technology and in Business Administration, has been at AdNovum since 2015. As a consultant, she spent several years dealing with strategy, governance and compliance as well as risk and process analysis, before she became involved with the developments in the area of cognitive solutions. Together with her customers, she develops solutions best suited to their needs and if so desired supervises their implementation. Blockchain is another subject she is driving forward. She likes spending her free time with her family, playing tennis or reading.

Zsolt Czinkán

Zsolt Czinkan, MSc, is an information technology engineer and has been working at AdNovum since 2012. As principal consultant he advises key accounts on IT innovation, organization and implementation. Since 2017, he has been responsible for AdNovum's consulting practice for the insurance sector. He enjoys spending his free time most of all with his family in the Swiss mountains or traveling.

Better results thanks to cognitive solutions

Customized cognitive solutions combine data analysis, intelligent search and machine learning. They allow companies to gain information and insights from structured and unstructured data that leads to more efficiency, faster response as well as better customer service and business results.

The increased and automated use of existing data is best done in small steps. In this way, an organization can focus on the most profitable cases and learn continuously.

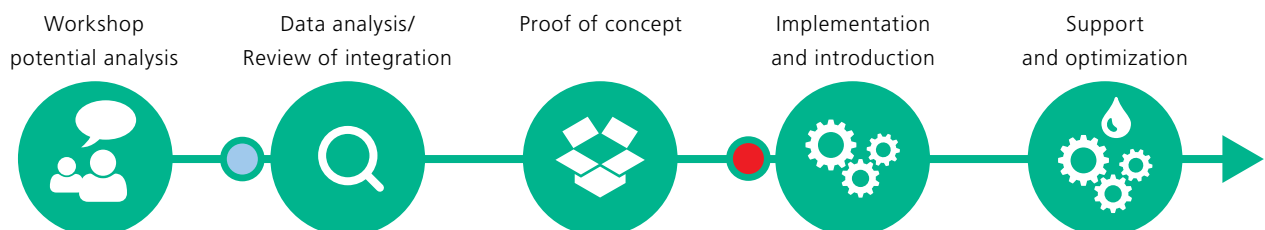
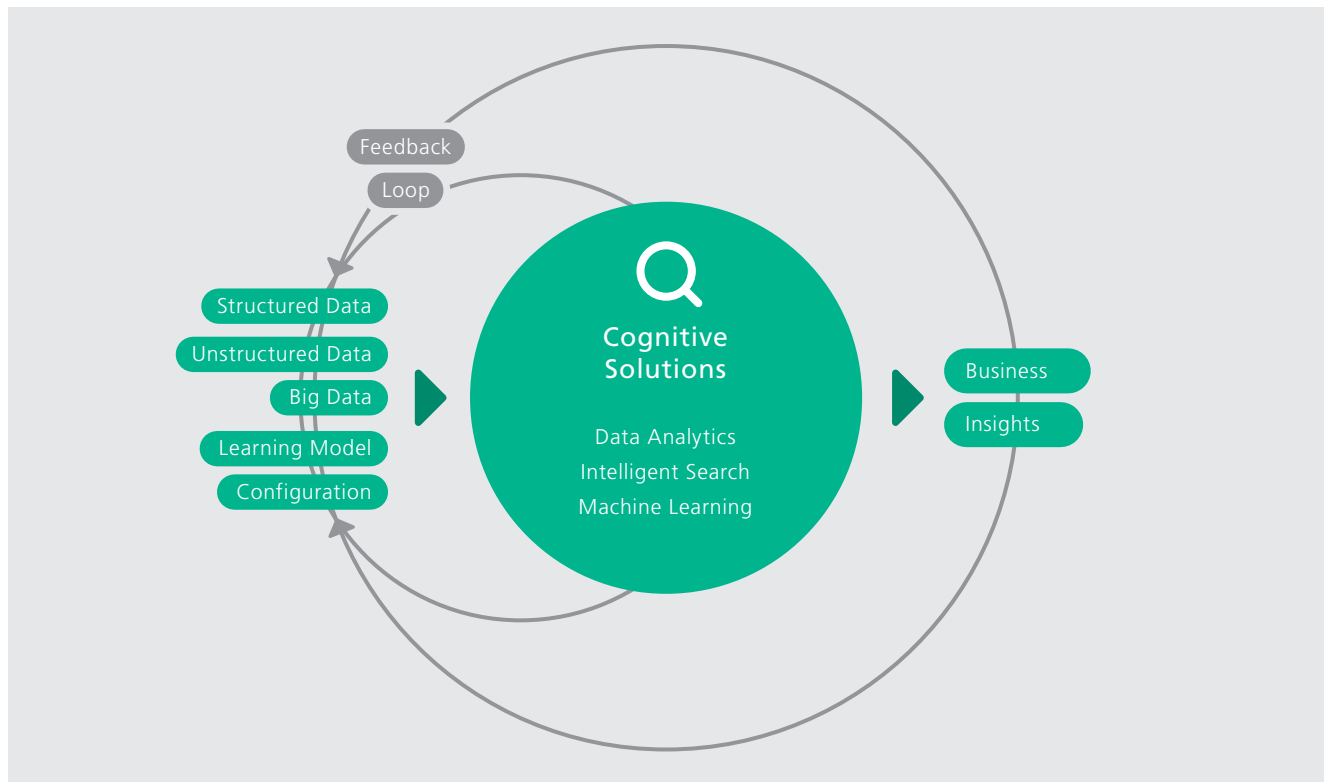
For companies that want to generate more benefits from their data, AdNovum provides the following services:

- Potential analysis for cognitive solutions (1–2 days)
- Introduction and market overview of cognitive solutions for

decision makers (1 day)

- Use case workshops for cognitive solutions (1 days)
- Data analysis: Where are the values hidden in the data?
Formulation of hypothesis (usually 1 week)
- Review of hypothesis by means of prototypes (2–8 weeks)
- Implementation of customized cognitive solutions
- Continuous optimization and maintenance of cognitive solutions

Our interviewees Nina Zurbuchen and Zsolt Czinkan will be happy to answer your questions or provide more detailed information.



A step-by-step approach to a cognitive solution.