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Daniela Hoffmann on June 13, 2019 at 8:56 AM

## Tidying up with AI experts

The right data, combination with detailed labels and appropriate time stamps, of course DSGVO compliant: the fuel for AI applications are prepared.

Artificial intelligence has similar principles as those used in data mining, says Christoph Schlueter Langdon, Head of Data Innovation Development and Partner On-Boarding at T-Systems' Telekom Data Intelligence Hub. Without a hypothesis of cause and effect, fishing expeditions have little use. "Statistics only provides correlations, not causality. For example, health and economic performance are positively correlated, but where should you invest the next Euro in, health or economic growth?" Explains Schlueter Langdon, who is also Professor of Data Science and Analytics at Claremont Graduate's Peter Drucker School of Management University is. First, it requires causality, which almost always comes from theory and research. Especially for the use of AI in the production environment, it is important to include the physical laws and the corresponding domain expertise of employees: without "old hands" who are able to contribute their expertise, AI projects fail.

It's an illusion that a data scientist team can automatically develop successful models, says Bob De Caux, VP of AI and RPA for business software provider IFS. "Deep understanding of the business process is essential, otherwise it is easy to get lost in communication. Often the AI teams are isolated and do not have domain knowledge," says Bob De Caux. Disappointments are inevitable. As companies tackle the issues of AI and machine learning, there are some things they do need pay close attention to: where in the process are decisions made and where would decision supposed to be most helpful? Where are the biggest difficulties for the employees? "It's very important to find the problem you want to solve at the first step- and then think about how the result should look like. What can I get out from the data model to gain a better understanding: just get a number as result, or do I need more information," explains Bob De Caux.

It's important at the beginning to concretize a question that you want to get answer with data analysis. Then it's about narrowing the focus by forming hypotheses and derivation of a so-

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called causality models. "If the causality model cannot be sketched on a napkin, then you should not continue at all." Schlueter Langdon states. Only then will the correct data be identified, prepared and finally analyzed. Another firm principle when getting started with Artificial Intelligence: All needed information has to be included in the data, otherwise it would take risk of GIGO (garbage in, garbage out), "No raw iron without iron ore in the rock: It has to be ensured beforehand that from the conclusions about the problem are possible," Although many companies have already collected data, they are often not in the right format for KI Analytics. "Data storage and data cleaning are absolutely vital: you need not only to get the various data sources together, but also organize it before you start with AI, "says Bob De Caux, adding that artificial intelligence is not something you just apply existing structures to your question. "It's a strategic move that not only has to clarify what data should be collected, but more important, with a clear goal."

In the view of Schlueter Langdon, the hype surrounding analytics and artificial intelligence often leads companies with exaggerated expectations to go into projects, while the experienced data scientists are much more reluctant. "Especially with Neural Networks, the quality of the results depends almost exclusively on the quality of the training data," explains the Data Science expert. For example, in so-called Convolutional Neural Networks (CNN), the quality of the labeling directly determines the successful analysis of images. "The description of the training data must be very granular for each object," the expert emphasis. An application scenario, for example, is the quality check whether all components have been correctly installed. For a part is recorded by video and the algorithm detects whether everything is properly screwed. All parts must be clearly described. From the point of view of the IFS specialist, one of the biggest challenges is the quality of the training data: For one there used to be a shortage of the data, that raised around an error, for example, sensor data from machines. For AI data models, however, learning from all data is particularly relevant, both before and, of course, during the error. However, data that appears before an error is often overwritten or not saved.

In addition, the transparency of which data flows into the model and drives it is significantly lower in the Artificial Intelligence than in conventional algorithms. "It's hard to understand how results came about, the algorithms are more like a black box. Transparency is very important in some areas. That's why transparent data preparation is crucial if you want to avoid hidden costs later, "says De Caux. In retrospect, rational results and digging backwards through the data is extremely time-consuming. De Caux advises that if you are already collecting targeted data for problems which you would like to solve with AI at some point. The aim of the ERP manufacturer is to provide users within the system answers based on deep learning on neural networks - without the user having to deal with the underlying technology. Now, this is especially true for complex advanced planning processes. Again, there is a lot of work to bring together the different types of data, such as ERP data i classic database systems with sensor, audio and video data.