

OPPORTUNITIES AND RISKS ON THE RADAR

Big data and machine learning have the potential to substantially improve existing risk management. This is the conclusion from a pilot project by E.ON SE in their CFO program "Digital@Finance", using the intelligent text analysis tool Global Risk Radar from Horváth & Partners' Steering Lab. Currently the Group Risk Management department at the energy supplier is testing the specific use scenarios for employing this instrument in Credit Risk Management.

Learning algorithms evaluate mass data extremely effectively. In an avalanche of data that humans can no longer handle, they can identify relevant information very quickly and intelligently. E.ON SE wants to use this potential for risk management and is therefore testing Horváth & Partners' Global Risk Radar. The pilot project is of particular interest to the group's credit risk management. This is because in future the department wants to identify the risk profile of business partners, who they call counterparties, more effectively and in a more targeted manner, based on automated text analysis of unstructured big data from the Internet.

Bernd Kälber, Program Manager Advanced Analytics & Artificial Intelligence at "Digital@Finance", attended the first live presentation of the newly developed application at the 2017 Corporate Risk Minds conference. He was immediately struck by the tool's potential. As a physicist with a focus on theoretical mathematics, he is convinced that "Automated analysis of big data will be indispensable in future in making competitively sound strategic and operational decisions".

SUPPORTING ENTREPRENEURIAL TRANSFORMATION

The pilot project started in November 2017. Bernd Kälber reviewed jointly with the machine learning and risk management experts at Horváth & Partners to what extent the critical information for evaluating risks could be generated using the Global Risk Radar. The focus was initially on the use cases relating to the topics of solar and wind energy, innovative storage technologies and pricing in an international context. During the course of the study it became apparent that the Global Risk Radar was particularly strong in detecting early warning signals for potential rating changes to counterparties.

Given increasingly decentralized generation mainly from energy sources that are sensitive to weather conditions, and the development of new digital technologies, providers need to be turning themselves into digital "green", service-oriented solution providers. "This realignment affects all levels within our group, including permanent changes in the finance area," says Bernd Kälber. "Intelligent algorithms and machine learning can potentially provide major support for this transformation."

MAKING ALGORITHMS INTELLIGENT

Machine Learning enables computers to independently analyze very large, complex and unstructured data sets using specially developed algorithms, and to process the results without further input. Initially, the algorithm itself has no relevant knowledge. It needs to be trained for each separate question. Different starting points require different approaches. These can be classified into three categories:

- 1. Supervised learning:** In this case, the algorithm is trained in a focused manner using known input-output data sets, teaching it the connections between data.
- 2. Unsupervised learning:** The input-output context is not known in advance, and the algorithm itself classifies the data and recognizes potential patterns.
- 3. Reinforcement learning:** An algorithm learns a specific task by attempting to improve itself using feedback from its context.

The machine text analysis capability of the Global Risk Radar is based mainly on the first approach, supervised learning. For the pilot project, the Radar analyzed several million text documents from thousands of data sources on the Internet. The semantic analysis capability of the tool is constantly improving while it works, thanks to continuous machine learning.

RECOGNIZING THE EARLY WARNING SIGNS

In E.ON's "Digital@Finance" program, the pilot project provides the central component for text analytics. In order to rate counterparties, text-based mass documents from the Internet are analyzed by the Global Risk Radar looking for early warning signals. This means that information relevant to a decision can be taken into account well before it is published in traditional sources, such as rating agencies. Following the completion of the pilot phase, the energy company will therefore review the options for operational application of the tool for credit risk management. ■

// Klaus Martin Jäck
 KMJaeck@horvath-partners.com
 Tel. +49 711 66919-1505

THREE QUESTIONS TO BERND KÄLBER, PROGRAM MANAGER
FOR ADVANCED ANALYTICS & ARTIFICIAL INTELLIGENCE
"DIGITAL@FINANCE", CORPORATE HEADQUARTERS E.ON SE



Why did E.ON set up the pilot project?

KÄLBER / In E.ON's Group Risk Management it was assumed that there would be information relevant to risk assessment available in the mass of text documents published daily on the Internet, but this is not accessible to standard analysis models. We wanted to test this hypothesis. Our goal was to fill in as far as possible the "blank spots on the map of usable data" by using the Global Risk Radar technology.

What are your most important findings?

KÄLBER / Using semantic analysis, the Global Risk Radar structures the unstructured part of mass data in E.ON's business context. In this way, opinion leaders who are scattered among the masses of text documents on the Internet become measurable, so that we can use them for risk assessment. In addition, machine-trained algorithms can, of course, also take on some completely different tasks. In addition to risk management, in the financial area planning, forecasting or model-based management approaches are also possible. All processes that are based to a large extent on data and rules can also be partially or fully automated using machine learning combined with robotics.

Where do you see the biggest challenge for quantitative business analytics?

KÄLBER / We will only be able to fully exploit the potential of the new technologies once we have specific job profiles and skills. On the one hand we need Data Scientists with expert digital knowledge, and on the other hand business experts who can assess the relevance of this technology for specific applications. The latter are particularly critical for success as they provide the link between highly complex technology and business requirements. This particular mix of skills is currently especially difficult to find in the job market. ■



Through semantic analysis, the unstructured part of big data from the Internet, and in particular the views it contains, become measurable so that they can be used for risk assessment.