

## **Automated business process management (BPM) - intimates of digital transformation using machine learning or artificial intelligence**

When one talks about DT, it means high-speed changes in the cooperation due to innovation and implementation of digital technologies and integration into all aspects of human life and society at different dimensions. Behind DT, there are concepts such as Smart Factory, IoT, Intelligence manufacturing, Cloud computing, Big Data and many other more. Regarding Big data, automation play a major role to reduce response time, to avoid back logs, dissatisfied clients and processings errors. Therefore, the opportunity of process management in this case provides in theory agility, flexibility and automation for a whole company as well as stakeholders.

BPM is a management concept for controlling, adapting and optimising business processes. It also can be defined as a systematic approach, to capture, shape, execute, document, measure, monitor and steering automatic and non-automatic process to reach coordinated and sustainable company targets. The aim of BPM is to improve the corporate performance by optimising and managing business process (ERP, CRM and SCM...) of the company. Throughout many steps, BPM-system permits to depict where a process had trouble and to enhance the business process' issues.

AI is defined as a section of informatics and applied computer science to pattern human proceedings of problem solving and transfer the to computers in order to invent efficient and new solutions and course actions. So, AI is a computer program running on any possible device or data center with the skill to interact with its environment. A huge difference has to be made between « intelligence » and « intelligent human behaviour ». To top it all, there are 2 types of AI the « Strong AI » (which has the same abilities as humans or even more) and « Weak AI » (object-oriented programming languages and graphical user interfaces, translation systems and so on).

According to scientific status, the theory shows that methods such as « deep learning » with neural networks are always meant when « AI » is mentioned. So, one can deduct that big data plays a significant role for both concepts.

An anonymous survey has been done among 25 digital companies in Germany in order to identify the status quo and execution status at the economy to this topic, this study contained interviews characteristics and a shadowing (difference between reality/theory and the business application). Inside this survey a recommendation was announced to the participants (which are chiefs with technology or digital responsibilities) and their companies concerning the automated process optimisation with machine learning or AI. More than 75% of the survey's questions were focused on the business execution and the application of information technologies.

Finally, the results show that 100% of the respondents are affected by the digitalisation, but more precisely 59% are concerned in a very strong way, 35% in a strong way: to put it simply, DT and information technology play a major role in companies. Further more, 38% are at the growth phase, 51% in the transition one and 11% are starting to implement the digitalisation. In addition to these, 100% of the participants know and use BPM in their companies and 85% want more process optimisation and BPM applications. Moreover, 75% know AI and machine learning but 29% assess machine learning actually, and 26% have already heard about deep learning but only 2% execute it.

Regarding the application of machine learning & AI, one can conclude that process optimisation is the most important assessed application for participants: respondents have a very strong desire to have more process optimisation and more automation. Also, the biggest step in the field of machine learning is conducted by the sales department.

In the case of the interviews vs the shadowing results, the survey assessment generates 87% of all question and the shadowing 15% which is a huge gap that can result in big problems in cases of missed BPM and missing continual improvement.

In order to conclude, for 80% of the participants deep learning, machine learning and AI are synonymous for the same concept and machine learning is regarded as a subarea of AI. The results of the shadowing reflect that participants estimate their use of BPM and automated process management better than it is in reality and 45% of the complied data from the companies aren't used or controlled effectively. So, deep learning, machine learning and AI can be named as a recommendation to automate and optimise the process and they support the BPM through new algorithms and independent learning via constant data analysis. Thus, it is becoming increasingly important for girls to use the power of their data and to make smart and profitable decisions.

