5. Disruptive Innovations in Document Management

Joerg Vollmer, Swiss Post Solutions, Zurich

Almost half of all activities can be automated – with technologies already available today. And when machines are able to understand natural language, it won't be just 45 percent but as much as 58 percent. Management consultancy McKinsey published these figures back at the end of 2015. They relate to the American employment market and are a clear indication that the fourth industrial revolution will not even stop short of activities carried out by the knowledge workers. A radical upheaval has begun. It will bring opportunities for enterprises and for the workforce in that machines will be able to do arduous, monotonous, repetitive and dull jobs in future – around the clock and on 365 days a year. Swiss Post Solutions, an arm of the Swiss Post Group, is pushing this development – in its document management processes, not only in Switzerland but also internationally.

Point of Departure

The digitization of commerce and society is leading to ever greater confluence of the physical sphere and the digital world. By their very nature, the changes which this is bringing will also have an effect on working practices. The jobs of many working people, which have become established and familiar over the years, will change. Economic history is shaped by changes. The human race wrought major changes in the first, second and third industrial revolutions and turned them to their profit both for industry and society as a whole and for the individual. It is the pace of development, however, which is fundamentally different in this fourth industrial revolution. No longer will it take decades for disruptive developments to displace existing processes but it will only take months or years.

But the automation of jobs – if the findings and suppositions of McKinsey are to be believed – will not lead to a situation in which human labor will be replaced at short notice. Just five percent of jobs lend themselves to full automation. And yet up to 30 percent of the processes and steps involved in 60 percent of jobs can already be automated today. This figure can be set even higher for document management. Therefore it is about redefining the division of labor in respect of the large number of activities to be allocated to man and machine. Processes must be reassessed – also to ensure that they are economically efficient – and tackled with the tools of automation. Two tools which are very important for the management of documents are artificial intelligence (AI) and robotic process automation (RPA).

Document Management

Anyone associating the term document management with files and official paperwork would not be entirely wrong. Yet the array of different formats in which information needs to be presented, processed and archived is far wider today, spanning both the physical world of letters and postage right through to digital medical and court records, and ranging from textual information right through to audio or video data.

A document is defined in ISO 8613-1 as a specified quantity and structured compilation of information which can be managed as a unit and exchanged between users and systems. And the definition goes on to say that the information in any given document is to be available in its entirety for a certain period. A rider needs to be added today to take account of the changing nature of the information with its ever more frequent semantic connection and, in many cases, also its dynamic form and compilation. It is with increasing frequency that the use and management of information are becoming decisive factors for success in business.

Documents therefore play a key role in the information and knowledge society. Until recently, human intelligence was needed to decipher their contents, especially in case of documents not containing structured information. Information is said to be structured whenever the meaning is clearly deducible from the character sequence. An invoice, for example, contains structured data or information which can easily be structured. As a general rule, a date will be the invoice date and a further date – usually one which is further back in the past – will be the date on which the service was provided. If an invoice of this kind is received in the conventional way by post, the content can be read with text recognition software and sent to an accounting system by means of simple algorithms.

More complex by far is the processing of documents in any cases where the data are not presented in a structured way. If a customer composes an email, writes a letter or types a social media post, the intention of the sender can only be understood through genuine comprehension of the text. Until now this has been the preserve of the employee. The assistance which can be provided with these tasks by intelligent automation goes a long way towards lightening the workload of employees.

In most cases, communications from customers involve such unstructured content freely formulated by the customer. They may be letters of complaint or emails, or inquiries via messenger or chat applications. In many cases, the only form of automation capable of processing this kind of writing is pure robotic process automation (RPA) based on simple "if-then statements". There is a need for artificial intelligence. It understands and extracts the relevant data in order to then trigger the right follow-up processes on the basis of the information gleaned. Therefore, the future lies in the intelligent automation of business processes and in the combination of the two technologies of artificial intelligence and robotic process automation.

Artificial intelligence understands what people write in unstructured text. Information is extracted from these texts and structured with the aid of AI. AI can therefore do tasks which previously required the input of human intelligence. It works by recognizing patterns instead of keywords, therefore meaning, intention and sentiment can be deduced in context and consequently also complex issues. The system "learns" the process through continuous experience.

RPA is used in the automation of standardized and structured recurring transactions and process steps. Robots are configured in such a way that they will carry out all the steps in a process in the same way as a person has done before.

Examples from Working Practices

This combination of AI and RPA led to a significant reduction in the costs of processing incoming emails in a large Swiss company. The company was receiving several thousand emails a day and, before automation, they were being read and assigned to one of 18 different categories by staff. Around 100 employees were each spending an hour every day on this categorization task because an existing system had an error rate of up to 50 percent. The intelligent automaton system introduced by SPS reads the incoming emails, understands the content, categorizes the emails and sends them to the CRM system. The solution also extracts other important data with the help of AI. Some emails can be answered automatically in this way while others are forwarded to the relevant staff. In addition to the greatly increased speed at which customer inquiries are answered and the reduction of process costs, another key argument in favor of this solution is that no additional staff are needed at peak times or in busy seasons.

A British insurance company saw its process costs drop by almost 70 percent by relying on the know-how of the Swiss. The process in question is dealing with the in-box of a car insurance company and the daily inflow of several thousand emails with attachments. An old solution based purely on character recognition was able to categorize just 30-40 percent of the incoming emails correctly. The intelligent automation system of Swiss Post Solutions now reads, understands and categorizes the incoming emails entirely automatically. If the system comes across an email which it does not understand, it refers it to a member of staff and then observes how it is dealt with. The system therefore learns what to do in respect of future email inquiries.

Swiss Post Solutions Experience and Approach

In contrast to pure technology providers, Swiss Post Solutions takes overall charge of previously analyzed end-to-end processes in all cases and therefore also takes responsibility for the process efficiency. Each project starts with an automation assessment which involves a detailed investigation and evaluation of the potential of individual processes for automation and for improved efficiency.

Not every process lends itself to automation. As a general rule, volume and processing time are the two key criteria. It is usually the case that the more frequently a process is carried out and the longer an employee needs to do it, the more suitable this process is for automation. During this assessment, experts analyze how a process runs, if it is rule-based, if it involves working with structured or unstructured data, and the exact route taken by the data.

The second step is the solution concept. The process engineers build a detailed picture of the specific business case for each process which has been included in the analysis and answer a series of questions. Does the process lend itself to full or partial automation? Which exceptions will be referred to a member of staff in an automated system? Which processes have the greatest automation potential? Which technology will be used – robotic process automation, artificial intelligence, or intelligent automation as a combination of both tools? Which technology, i.e. which concrete "on-site" or cloud-based software solution, can be used for the process in any given case?

The detailed answers to these questions lead to a clear road map with priorities indicating how the automation system can be implemented.

Once the decision has been made to automate a process, a start is made on the actual implementation and the configuration of the software solutions which will be used. The customer is required to provide data at this stage, allowing either the robots to be configured or forming the basis for the artificial intelligence to be taught in. The systems can be sourced from the cloud or hosted by the customer on site. The use of a robot farm in the cloud plays out its strengths in the processing of non-sensitive data in particular, due to an almost infinite scalability and the high degree of flexibility in cases subject to seasonal fluctuations in volumes.

The last step of the implementation process is to take the project live. At this point, the classic technology provider will hand over the project to the customer whereas further advantages of the outsourcing model come into play here. Firstly, the live pilot will provide the figures required as a basis for operation and, secondly, it will kick-start a continuous improvement process which will involve the ongoing evaluation of the system, the constant scrutiny of exceptions, and the search for further potential for automation in every single process. Swiss Post Solutions will then not only be responsible for the automation but will also take charge of the management of the exceptions which are referred on to members of staff for processing or clarification.

Conclusion

Intelligent automation involving the use of AI and robotics offers great scope for efficiency in all sectors of industry. AI pays for itself quickly whenever documents with unstructured data need to be processed. So, it is not surprising that the pioneers come from the sectors in which document management is fundamental to business, such as banks and insurance companies. McKinsey estimates their automation potential to be 67 percent in data processing and as much as 50 percent in data entry. This means that at least half of the jobs can be done by machines. The analysts see similarly promising prospects for automation in other services sectors. The use of RPA alone, according to Gartner, is set to quadruple in large organizations in the next three years. The Swiss Post Solutions approach is to bear the technology risk for its clients and to take responsibility for the process as a BPO supplier. In adopting this method, the Swiss company, whose main foreign market is the USA, is making a key contribution to masterminding the digital transformation of business processes quickly and as productively as possible.

About the author:

Joerg Vollmer is Chief Executive Officer at Swiss Post Solutions in Zurich. He is a member of the Chapter Doing Business in Switzerland of the Swiss-American Chamber of Commerce.