



# Tax Technology Roundtable: German MNEs eye AI dividends

TP Week hosts a roundtable with German multinationals AUDI AG and Henkel and consultancy WTS to discuss progress in implementing artificial intelligence and automation in tax departments. The clear message is that machine learning is happening now and will amplify tax capabilities exponentially in the future, much beyond our current purview.

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Automated data processing is rapidly spreading in the tax world and the subsequent step of implementing machine learning to apply rule-based processes to tax is what frames artificial intelligence (AI) as one of the biggest opportunities for businesses.

The [TP Week roundtable](#) gives insights into what is required by corporate tax departments to make the leap and foreshadows many of many of the changes tax departments face with the advance of AI.

The German Research Centre for Artificial Intelligence, or Deutsches Forschungszentrum fuer Kuenstliche Intelligenz (DFKI), and global tax consultancy WTS, are in a joint collaboration exploring the potential for practical application of AI in tax and the use of new software prototypes by partnering with German multinationals AUDI AG, Bosch, E.ON and Henkel.

Prof. Dr. Peter Fettke, who spearheads the DFKI's collaboration on AI and tax, believes that significant improvements that have recently been made in machine learning will revolutionise business and tax department processes.

“Complex processes with mass transactions like VAT or customs will quickly adopt AI technologies to efficiently handle large amounts of data and gain valuable insights. Examples include the identification of anomalies in mass transaction data through self-learning systems and the exploitation of further data sources like texts or images for instance by means of optical character recognition,” Fettke says.

As a starting point, and as the minimum requirement to keep up with evolving technologies, companies need to get their data into the cloud. Recognising the potential for enhanced human capabilities and relevant skills training are also key to reaping the benefits.

Fettke foresees the advent of tax technology, a new discipline that combines the knowledge domains of tax professionals with that of AI and data specialists, and applies this to tax processes.

This begs the question: what sort of high-value tasks humans will be performing and what kind of skills will they need? It takes an incredible amount of foresight at the beginning of a process to understand the possibilities.

Most practitioners agree that algorithms can be harnessed to ease complexity and take on a support function in tax departments, but as implementation of machine learning progresses new areas of opportunity are beginning to surface exponentially.

As machine learning becomes more ubiquitous, venture capital investments in AI in 2017 reached a peak of 309 deals in Europe, worth a collective €1.2 billion (\$1.5 billion), according to PitchBook's 2017 European Venture Report.

"While many AI base technologies come out-of-the-box and deliver decent results on standard applications, the real challenge is to select technologies and adopt them to fit a specific use. In most cases, additional training and configuration is necessary which requires both expert knowledge and appropriate amounts of high-quality data," Fettke explains.

## Transfer pricing synergies

Transfer Pricing and customs are two functions that stood apart but now stand to gain from being aligned through automation.

Vanessa Just, project lead for AI at WTS, tells *TP Week* about some of the key findings of the collaboration: "The study clearly revealed indicators that show AI has the potential to tremendously support repetitive tasks that only require a slight extend of social intelligence, creativity and physical interaction. The question of liability is more nuanced as traditional machine learning approaches deliver their results in a black-box-like way, i.e. the results are not explicated or justified. This issue makes it hard to determine liability for results unambiguously and that is why self-explanation is still an ongoing topic in machine learning research."

The capabilities of predictive analysis on a large scale will augment cost-savings and enhance the influence of the tax function in business strategy and decision-making across the supply chain.

Just predicts the next stage of AI evolution will focus on a much deeper integration of today's dedicated, individual technologies into a comprehensive system across all business functions in the next four to five years.

"By integrating data across functional borders, AI will enable more profound decisions and leverage potential for global optimisation," she says.

## AI & Tax Roundtable

To better understand the challenges and requirements to make the leap to AI in tax and transfer pricing, TP Week invited WTS and German multinationals Henkel and AUDI AG to discuss their collaboration and ongoing efforts to integrate and enhance automation and machine learning in their tax departments.



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*Fritz Esterer, CEO, WTS Germany;  
Prof. Dr. Robert Risse, Corporate VP Tax & Trade, Henkel;  
Axel Dewitz, Head of Taxes, Customs and M&A, AUDI AG*

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### **What are the basic requirements for implementing artificial intelligence in tax?**

**Fritz Esterer:** You have to fulfil a few preconditions before AI can bring value to your company, and cloud technology or homogenous databases are very important to gather data. With Henkel we learned that only when all data is available in one cloud, you can make use of this data with AI. Without AI you would never structure a data lake, but with AI you can use data that is totally unstructured. If you use many clouds in many countries it is very difficult to combine the clouds to merge the data. A country or company that is very far from a digitalised process they can still make use of AI if they fulfil these few preconditions.

You can extract the data from Excel or an SAP or Oracle system; you can extract all data from a big data lake by using AI and structuring it. Companies do not have to abolish Excel sheets or the different tax tools they have in place, they only have to make use of the data that is already in those tools in an

intelligent way. With more data quality a company can reduce compliance risks and have better tax planning.

### **How did you get started on the integration of machine learning and robotic process automation?**

**Robert Risse:** The most important and first step: You should have all company data like finance or controlling data available in a cloud. In the course of artificial intelligence, machine learning is an emerging topic, but if you do not have the company data at hand, you won't be able to make use of machine learning or process mining. Therefore, it is most important to work on data availability in the beginning. We – at Henkel – integrated most of our company data in a Microsoft cloud, but of course other cloud solutions like those from Google or Amazon can be used as well. Due to our agile entry in a new field of technology and innovation, we are advanced in the process and to some extent one and a half years ahead of others. The bandwagon effect will reduce the head-start, but it is most important to be up front with the others.

**Axel Dewitz:** We have not implemented AI or modern automation (RPA) in the tax and customs function at AUDI AG. It requires deep and thorough preparation. Before implementing AI you have to have full control of all processes and you need to have an analysis of all relevant processes. Otherwise there is a risk to digitalise a process that is not intelligent. Our first contact with AI for the tax and customs function has been the approach by Mr Esterer and WTS in cooperation with the DFKI and the study they started. This was the kick off for us to start digitalising the tax function. Today I can say it is an integral part of our tax, customs and M&A strategy.

This will be a three-step approach – first processes, then robotic process optimisation and then AI.

We have started a comprehensive processes analysis that is also the base for a sound tax compliance system. Then we are going to kick off robotic process automation, which is a macro, an algorithm that is not only closely linked to one system but can also interlink different systems. AUDI AG as a company has set up an RPA architecture that will be hosted in India in a 'robotics farm'. We have a very specific roof of concepts that we want implemented in that architecture.

Implementation of AI for certain processes should not be done only for the tax and customs function because our value-adding service is that we have full processes in our analysis and those start in marketing, then procurement and controlling and so on.

### **Where are you seeing the immediate benefits of machine learning?**

**Risse:** We started automation and processes leading up to AI usage in the European VAT area. Now we get benefits out of this process documentation and start to implement robots doing this manual work. Downloading SAP reports and filling out tax declarations, this is now automated by the use of five

programmed robots. Based on this exercise, we are going to use machine learning as a further step to combine the robots' activities.

For transfer pricing we have introduced a tool by a small start-up, *Optravis LLC*, a spin off from a Swiss chemicals firm Clariant. The tool provides an automated set up for the mark-ups in cost-plus arrangements. There are machine learning exercises on how to determine the cost-plus amounts in a well-designed process format, but this is programmed by the start up.

At Henkel we apply the residual profit split method, and for the routine function remuneration we use the cost-plus system. This is now automated by the tool and by machine learning so that we can test whether we have used the right or the wrong mark-up. The first test calculation for all Henkel entities for 2018 is done by this machine.

For example, today we are clustering the mark-up calculation in groups. This means we have sub-business units to calculate the cost-plus mark-up amount. With the tool we are able to calculate on a product basis. This benefits us because there might be products in the sub-business unit that are deficit areas. If they are loss-making, it means that the market price is lower than the transfer price calculated by this basket. In a basket there may be to some extent products that are loss-making products because the all-over basket is positive, but some products are negative. By using the tool and machine learning, we can really see that the machine is considering that we eliminate these negative products rather than using a different mark-up. The machine is telling us to which extend this is feasible.

The outcome of these analyses is really brilliant and very detailed. We were not able to do this beforehand in Excel or with other SQL tools, but with this machine learning exercise we are able to do so. This does not only saves efforts, but also creates benefits like some additional tax savings for this year.

### **How great is the potential for transfer pricing and customs optimisation with AI?**

**Esterer:** We have been familiar with big data technology for many years but we learned from our partners in the AI study, especially Henkel, that before they used AI, the analysis of customs data could not have been done in such an efficient way as it is with AI. AI is currently the most exciting and most important area in tax because with AI we can potentially solve a lot of the problems we currently experience.

With AI we can identify processes and anomalies, find mistakes and deviations, which we would not have been able to detect with older existing technologies. Human beings could never identify deviations with fair trade agreements the way AI can.

We see a lot of potential for analysis of big data in taxes in the customs, VAT, transfer pricing and RegTech areas.

**Risse:** A simple example is the combination of transfer pricing, the customs burden and VAT. These are three areas that were never ever put together before. You need a lot of resources, time and money, to pull data out of the systems for these three areas to combine them. Now it is really feasible to optimise the customs burden by considering the right transfer prices, and to optimise the cash-positions for VAT purposes in terms of transfer pricing and customs. Now we can optimise all three areas.

**Dewitz:** There are classical conflicts of interest that may arise from the different functions if they are not under one roof. Customs is interested in having low customs values to not pay too much for customs and excise duties. Transfer pricing may have a different rationale. Transfer pricing is interested in finding the right balance of profit attributions to the countries involved, and that may sometimes be inconsistent. For example, if a company has low costs abroad, that is good for customs but it might shift your profit margin to different countries, and that is not in the interest of German tax authorities. That is a classical conflict and AI could help to resolve that. For example, when looking at the relevant benchmark analysis needed for transfer pricing reasons in order to say, 'ok, what is the right risk profile of my counterpart abroad and what does that imply for the acceptable or correct profit margin?' That is where AI could be of tremendous help to extract, collect and analyse data, and then come up with proposals for the right profit margin systems.

In the customs area we see another aspect that is of strong interest. There are many international free trade agreements, and they partially allow for preferential customs treatment. You could have extraordinary low or zero custom rates, but that depends on the local content that your goods are composed of. Sourcing and procurement decisions within AUDI AG could be different if the information of the preferential free trade agreement customs rate is at hand in the moment you are taking that decision. There might be a supplier that has an inferior price offer but that would come up with the mandatory local content qualification. In the total analysis of the value chain this specific supplier might be beneficial to Audi when buying certain goods for the composition of cars. In those fields AI could be of tremendous help, even if it is just in the first stage of analysis of free trade agreements and correlations between those agreements.

### **What are the challenges in implementing machine learning and AI? A lot of pattern type of functions can be automated but will you still need human oversight?**

**Dewitz:** We are currently working with heterogeneous IT systems in the AUDI AG, and that also holds true for the Volkswagen AG. We do not have one enterprise resource planning system, we have many, so it is difficult to have a uniform approach to extract data from those systems.

In Germany we have grown to roughly 58,000 people. You need to identify and then speak with a lot of different process participants and owners in order to get a process digitalised.

Our focus is on those stages, the pure digitalisation work that comes after that I am not afraid of. That will be the easier part of the process.

In the German market, the profile of people who can do both – understand customs and taxes and are quick in implementing and digitalisation of things – are very, very rare. The requirement for qualifications in the future will be for people that are experts in their specific areas but they will also need to get along with new technologies.

**Risse:** We have to learn what the machine is doing. If you give the wrong data to the machine then you have garbage in, garbage out. We are still learning how to work with machines, starting with robots and machine learning and then deep learning. We are not at the level of deep learning yet; we are still trying to understand what machine learning means. This level however will offer many benefits we would not have been got if we were not to implement AI.

### **Tax authorities are rapidly upgrading in big data analysis and machine learning systems. What will be the impact of AI on tax audits and disputes?**

**Esterer:** AI increases tax planning in a non-aggressive way, a very legal and legitimate way, while also creating compliance security and certainty in a way you cannot achieve with existing technology. Together with blockchain technology as example we can create a lot of additional compliance certainty that we did not have before.

With a dashboard solution you can simulate different transfer pricing systems in the various countries and look at what the outcome is when you use TP model 1. That could be a cost-plus model, resale minus model or a profit split model. So these are very helpful instruments for tax planning in transfer pricing.

Not just documentation, compliance or benchmarking, but AI can also do tax planning much faster much more efficient. And it can prepare a decision on which TP system might be the appropriate one for that company and which TP system leads to a tax-efficient structure. It is important to optimise your tax burden in a very transparent way. You can show it to the tax authorities. You can compare different pricing systems and then use the right one for your specific business. That brings a lot of additional value to the company and creates high certainty when you talk to the tax authorities. You do not need a person on benchmarking now, it can be done by a machine on a global basis.

Mid-sized, globally active companies who have limited access to that data can do benchmarking analysis much easier with AI. For those companies, the use of AI may bring additional value. As companies become more international, more jurisdictions and tax authorities get involved. Globalisation drives that. What that means for companies is tax risk management, country-by-country reporting (CbCR), advance pricing agreements and transparent TP systems. For example, CbCR can be done with AI in a different way and it can create a real time information exchange. The goal is to improve tax risk management through AI.

**Risse:** Specifically looking at TP documentation, with a good AI solution you can prove how the business model in a company is applied for tax purposes. Previously, when the tax auditor used to come in and say 'I would like to challenge you because you applied the wrong transfer price, you were not able to do this nitty-gritty documentation, qualitatively yes but not on quantitative side'. Now we are capable of doing that. It will be significantly more complex for the tax authority to create a different fact pattern because the data treatment is so accurate that it will be very difficult for them to conclude other findings.

Transfer pricing is not a science, it is a practical approach. We are driving this back to science with high-quantitative data accuracy.

With the support of AI we can now tell them that this is our business model and here is all the data, and we can drill down into the materiality of the data. We were never able to do so before. The auditor cannot say 'I do not trust your material number'.

Everybody now, to some extent, likes to identify intangibles. At Henkel, we print shoes with a 3D printing machine. Where is the intellectual property for that? Is it a software, is it in the machine or in the ideas of printing? With these new business models – printing is a part of Germany's Industrie 4.0 – new questions will occur. If you then look to the debate of BEPS Action 2, with this type of industry, where should the intangible be allocated to? I think this will change significantly. But what we are able to do with AI is, we can tell the authorities where our IP is situated in such a detailed, accurate way that we were never able to before. That is the big advantage.

To some extent it seems that tax authorities like to appoint as much compliance as possible to the companies to get them busy with the intention to reduce time for tax planning. I guess we will counteract with AI capabilities i.e. with compliance automation.

**Dewitz:** Our understanding is that the tax authorities in Germany certainly need to keep up with state of the art technology but they have already started. We as corporates also need to kick off these processes because if we do not do anything in the next five years, we will be in a much weaker position. They will be able to extract data, and through data pattern analysis the authorities or auditors will be able to detect the anomalies in the data lake and identify those things that are not accounted for in the correct manner from a tax perspective. So we need to be at least on par and we should be better.

### **How will increasing automation impact on the trend of outsourcing of services and employees' skill requirements?**

**Risse:** Six or seven years ago we started to dedicate big chunks of our work to a shared service centre in Bratislava, Slovakia, which numbers roughly 100 FTEs today, and is split between trade, customs and tax work. For the time being, they have standardised processes for taxes and transfer pricing, and trade



and customs. They would be the first we could replace by machineries but not really. AI tools are going to create new types of new abilities or capabilities for us that will be incredible. So the work content will change in SSC. The SSC will help us to perform what is called Tax compliance in future.

Meanwhile, the tax group here at the Dusseldorf headquarters will have to change their skills more towards technical expertise, too. Looking back at the example of combining transfer pricing, customs and VAT, people at the headquarters have to understand that with their AI enhanced capabilities and sub-processes, they will have an ability to go beyond what we have today.

**Esterer:** In a few countries, some more than others, research and preparatory work is already being done by AI rather than humans, for example in Australia, the UK, Canada and the US. There is partial replacement of humans with computers in terms of research because research can be done much more efficiently with AI. AI can also help you with preparation optimisation and in research. However, we should view AI as an assistant system rather than a total replacement system. The replacement of more repetitive work will of course take place and is already ongoing, not just in the tax area, but also in legal area and the R&D replacing engineers with machines. As a result, tax professionals will have more time for specialist consulting and organisational tasks.

**Dewitz:** In general, the first field of implementation of these new technologies will be the mass data relevancy for VAT, wage taxes and customs. In those areas you would be in the perfect position to integrate compliance issues combined with efficiencies in the processes themselves. We would not need that many humans on those work packages as we do now.

If they're doing their job right and have the processes right at the beginning, then the momentum that is partially seen in different industries to have shared service centres, will be driven down. There is a certain trade-off between digitalisation and a shared service centre that you might want to have in India or the eastern part of Europe that may be cost driven. If certain processes are digitalised the cost gap will not be that tremendous in the future. There will be less need to shift certain services to low-cost countries if you do digitalisation in the right manner. You would have the efficiencies that you need at hand already.

### **What type of competencies do you expect to achieve with AI in the future?**

**Dewitz:** In about five years we should have done our homework regarding processes. These processes will have been analysed and reshaped to an ideal process that is then, at least partially, digitalised. You reduce manual work and have those processes automated. If I could make up the future, I would like to have robotic process automation already installed with AI helping to support the pure customs and tax analysis work. And all those things where you need to ascertain a certain level of quality and compliance that is something machine learning or algorithms can do much better than humans. We would not like to have machines do all of that work but if the machine is coming up with a proposal of what the right accounting treatment would be, that would tremendously drive down process time and shift up quality.

**Risse:** We are at the early beginning of taking this machine learning into account but we see in the first results of machine learning that the machine is able to learn how procedures and processes are treated in the accounting world and what the outcome should be.

Everything that is rule-based can be digitised. Structured data, this you can take very far, which means the learning curve at Henkel is significant. We are currently programming 20 use cases. When we started with the first three we were really wondering what the benefit should be. Now the benefits coming out of the machine work are so accelerated that people are really thinking differently about what is feasible.

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Sonja Caymaz

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