Artificial intelligence and services for occupational pension schemes – Interview

Barthold Albrecht, Franziska Kühnemund and
Claudio Thum

29 May 2024

Artificial intelligence and occupational pension schemes

Interview with Franziska Kühnemund and Barthold Albrecht

Dr. Barthold Albrecht, Founder & CEO Intelligent Artificials

- Founder & CEO Intelligent Artificials
  Intelligent Artificials advises companies on the identification and implementation of individual AI use cases and develops corresponding AI solutions
- Course Facilitator, Professional Certificate "Artificial Intelligence", Stanford University

Professional qualifications and experience

- Over 15 years of experience in the industry (especially telecommunications and energy) in various management positions at VEBA and E.ON
- Doctorate in Economics, Ludwig-Maximilians-University Munich
- Graduate Certificate "Artificial Intelligence", Stanford University

Contact details:

Dr. Barthold Albrecht
BIA - Berlin Intelligent Artificials GmbH
barthold.albrecht@iartificials.com
www.iartificials.com

Dr. Franziska Kühnemund, Senior Director, WTW

Areas of responsibility at WTW

- Member of the management of the Outsourcing division in Germany
- Responsible for software & design

Professional qualifications and experience

- Over 20 years of experience in occupational pensions in various positions
- Doctorate in mathematics from the Eberhard Karls University of Tübingen

Contact details:

Dr. Franziska Kühnemund
WTW, Reutlingen
franziska.kuehnemund@wtwco.com

Question: How do you explain the boom in generative AI in 2023?

Barthold Albrecht: The introduction of ChatGPT at the end of 2022 has given a huge boost to the public perception of artificial intelligence as a whole and to the development of new models. Anyone can now generate text or images directly in conversational style, and software developers can use these powerful systems to create entirely new applications.

However, this breakthrough did not happen overnight, but is the result of a development over the last ten to twelve years, in which so-called "deep learning", i.e. the training of neural networks, has achieved unprecedented success. Like all algorithms, neural networks benefit particularly strongly from scaling: more data and larger models inspire and are mutually dependent. ChatGPT, for example, has seen more than 300 billion words during its training - this amount of data would not have been available in the past and could only be processed with modern high-performance processors (GPUs) in the first place.

Here's an anecdote: In early 2019, I attended the "Natural Language Processing with Deep Learning" course at Stanford. There, Google's AI researcher Ashish Vaswani gave a guest lecture on the model he developed and on which all major language models are based today - the so-called "Transformer". A few months earlier, Google itself had presented its first pre-trained Transformer, which had about 300 million parameters - a gigantic number at the time. Just a few weeks later, OpenAI announced GPT 2 with around 1.5 billion parameters. In this situation, Ashish Vaswani was asked by a student whether the Transformer could be improved, e.g. for tasks that require logical reasoning. His answer was: "Scale will fix the problem!". He was proved right: GPT 3 then already had around 175 billion parameters and ever larger models solved many problems.

Question: Where do you currently see the opportunities in the use of AI for occupational pensions?

Franziska Kühnemund**:** The integration of AI in occupational pension schemes offers many opportunities and, in my opinion, will gradually penetrate all areas of occupational pension schemes, particularly occupational pension scheme administration and communication, and help to improve our customer services:

In the area of member experience, the increased use of chatbots and virtual assistants to answer questions and provide information through to individual recommendations will further digitalize occupational pension communication. The areas of application extend across all communication channels to members, beneficiaries and corporate functions,

from post, email and telephony to online ticketing systems. The approach to the forms of communication we are used to in the BtoC sector - fast, digital and personalized - will be much more successful with the use of AI.

Furthermore, by analyzing large amounts of data, AI can detect and highlight errors and irregularities in administration at an early stage, which will improve the accuracy and reliability of administration. In addition, I expect that AI can also support us in meeting compliance regulations by analyzing data and pointing out potential risks. AI will help us to protect our sensitive data even better by detecting security gaps and taking preventive measures to avoid data breaches.

AI is also promising for pension analytics. AI is used to automate the analysis and processing of large amounts of data and to gain more precise insights, for example to predict future developments in relation to pension obligations and the behavior of participants, which enables better planning for companies.

Question: Where are the new developments in AI?

Barthold Albrecht: Two fundamental trends are currently supporting each other. Firstly, the growing number of ever better "foundation models" - that's what neural networks are called, usually in the transformer version, which are trained with very large data sets (texts, images, software code or even DNA sequences) - increasingly also multimodal, so that GPT 4 can also be queried using a photo. And secondly, the use of these foundation models in more advanced applications, where they are used and adapted for specific tasks and often retrained with proprietary data.

This connection opens up enormous opportunities because I can transfer the capabilities of the foundation models to my needs and my data. My individual AI can then communicate information defined by me in the style of ChatGPT, for example, or recognize according to my specifications whether customer inquiries may be sensitive or whether my product has a defect according to my specification. The highlight of this so-called "transfer learning" is that even a small amount of proprietary data is often sufficient to achieve excellent results, as the deep text or image understanding of the foundation models is used for the individual use case.

According to a study by McKinsey[1], AI is primarily used in customer service and acquisition, but also in the personalization of products or product recommendations as well as in the improvement of existing products or the creation of entirely new ones. Behind these

[1] McKinsey "The economic potential of generative AI: The next productivity frontier", June 14, 2023, Link: https://www.mckinsey.com/capabilities/quantumblack/our-insights/the-state-of-ai-in-2022-and-a-half-decade-in-review

buzzwords are sometimes "off-the-shelf" solutions, but mostly AI applications tailored to the customer. There are virtually no limits to the imagination here.

Question: *What experience have you had with AI in the occupational pension sector?*

Franziska Kühnemund: We are actively reorganizing or redesigning our services with the help of AI. The more intensively we deal with this topic, the more processes and areas of work will open up that we can improve through the use of AI. I would be happy to give you an insight into the workbench:

For our administration services, we already use AI to recognize and categorize documents. This involves reading documents as part of the scanning process, assigning their content to different types and making the data available for further processing by the system. The aim is to efficiently generate high-quality results by "processing through" the very heterogeneous information available from members. For example, changes of address and bank details, death and survivor data, which generally require rapid processing, can be taken into account directly for the processing of payouts with just a few control checks. Speeding up the process in this way helps to reduce the number of inquiries about individual cases and thus significantly improve customer service.

Germany is feeling the effects of demographic change in all areas: the baby boomers are retiring. In occupational pension administration, we are noticing that the volume of inquiries is increasing on all communication channels. In this respect, we are also pushing ahead with automation in the digital communication channels. For example, we are in the process of automating the processing of emails or online ticketing by using a "conversational agent". Technically, this is supported by the development of special knowledge databases in combination with a generative language model and is already providing us with promising answers. This technical model can be extended to any area of knowledge management in occupational pension administration and communication and represents a promising technology for us from which we will benefit in customer service.

We can also benefit from the use of AI-based assistants such as Copilot for everyday tasks such as translations and template creation.

Finally, by setting up a data warehouse, we have laid the foundations for enabling data analysis and visualization through the use of AI algorithms and thus gaining insights into trends, patterns, predictions and forecasts for our customers. Here, too, we benefit from our global organization with our international experts, who enable us to quickly and efficiently adapt the internationally developed solution to German occupational pension needs.

Question: *How can concerns about the introduction of new technologies be addressed?*

Franziska Kühnemund: The introduction of new technologies, including in the field of AI, requires special attention to data protection, security, reliability and fairness. This is especially true when we use AI to process personal data. It is therefore critical that our data privacy policies ensure that this data is protected and used in accordance with the applicable data protection regulations.

IT systems, as well as AI systems, must be protected from attacks, manipulation and malfunction. Therefore, security measures such as encryption, access controls and regular security audits must be implemented to ensure the integrity of AI systems. Our organization regularly faces audits by customers and regulatory authorities such as financial authorities. We support these information security requirements, for example through ISO 27001 certification. In addition, the European Union has introduced the Digital Operational Resilience Act (DORA), a regulation that adresses cyber security, ICT risks and digital operational resilience. This also creates security requirements for our customer services, which we must comply with. These requirements provide a secure framework for the use of new technologies.

Reliability is also a key factor in the success of AI systems. Through thorough testing, validation and regular maintenance and updates, the reliability of AI systems can be improved to minimize unexpected failures or malfunctions.

Overall, it is important to take a holistic approach to the implementation of AI technologies with appropriate risk management systems that take into account data privacy, security, reliability, fairness and the "human in the loop" principle. This will help build trust in AI systems and unlock their potential for customer service..

Barthold Albrecht: I fully agree with Ms. Kühnemund's comments; they describe essential parts of what is covered by the term "responsible AI". The good news is that a clear understanding and far-reaching possibilities have now been developed in science and practice.

For example, when it comes to privacy, control, and security, solutions can be developed for each use case to meet individual customer needs - from fully local to partially cloud-based implementations to AI as a service. The aforementioned problem of the "hallucination" of large language models can also be greatly reduced, for example by linking to knowledge databases and knowledge graphs or by combining with other AI modules that evaluate results for quality or plausibility before they are output.

It is also important to me that AI is not used and experienced as a black box within the company itself. The full potential can only be realized if the employees from business departments are involved in monitoring during the design and development phase as well as during ongoing operation, because they ultimately know best - regardless of all performance measurements - whether and how well the AI really works.

Question: What are the expectations for the future development of AI?

Barthold Albrecht: It remains exciting and sometimes breathtaking! The ability of neural networks to learn structures and correlations from data that we humans cannot see will lead to further spectacular breakthroughs - such as a few weeks ago with AlphaFold 3 from Deepmind, which can now predict not only the structure of molecules but also how they interact with each other.

AlphaFold is also based on the Transformer model mentioned above, and many new capabilities will emerge simply by training new Foundation Models with new data sets. The possibilities this opens up for applications in medicine, science in general and, of course, in business are immense.

Franziska Kühnemund: I expect that AI to become established in services for occupational pension schemes in Germany, as it offers a number of advantages. In my opinion, a gradual integration of AI solutions into the occupational pension service landscape is the most promising way to achieve the necessary acceptance among all stakeholders. This gradual approach is also necessary in order to be able to weigh up the opportunities and risks of this relatively new technology.

All in all, AI and pensions offer a promising synergy that, with the right use of technology, can lead to a win-win situation for companies and their employees. Striking the right balance between innovation and risk management is critical to maximizing the positive impact of AI in occupational pensions.

Thank you very much for the interview.

The interview was conducted by Claudio Thum, WTW.

Contact:

Dr. Claudio Thum
Senior Director

Willis Towers Watson GmbH
Am Heilbrunnen 47 | Wettinerstraße 3
72766 Reutlingen | 65189 Wiesbaden
Germany

Phone: +49 160 9622 3040
claudio.thum@wtwco.com
LinkedIn: www.linkedin.com/in/claudiothum

About WTW

At WTW (NASDAQ: WTW), we provide data-driven, insight-led solutions in the areas of people, risk and capital. Leveraging the global view and local expertise of our colleagues serving 140 countries and markets, we help you sharpen your strategy, enhance organisational resilience, motivate your workforce and maximise performance. Working shoulder to shoulder with you, we uncover opportunities for sustainable success — and provide perspective that moves you. Learn more at wtwco.com.