



Summary

- Artificial intelligence involves machines having the ability to learn, be it from humans or through self-teaching.
- The pensions industry is lagging behind other financial sectors with its use of AI.
- Potential AI applications within the pension industry include robo-advice, dashboards, chatbots and administrative functions.
- Data quality and security, and lack of up-to-date systems are all reasons for the slow take up of AI within the pension sector.

The future is now

► Laura Blows considers the use of artificial intelligence within the pensions industry

Artificial intelligence' (AI), machines that can 'learn', and therefore work for, with, or even outsmart, human intelligence, has captured the public's imagination ever since its beginnings in 1952. Over the years, high-profile examples demonstrating its capabilities have elicited excitement, from IBM's Deep Blue computer beating world champion Garry Kasparov at chess in 1997, to 20 years later, Google DeepMind's AI software AlphaGo Zero

teaching itself to become the world's best player of board game Go.

But AI is more than just fun and games. While headline-grabbing examples may lead to joy or fear about what self-thinking machines may mean for humankind, what is not always realised is that we are already living with, and interacting with, these intelligent machines – take Netflix's use of AI to enhance user experience and recommendations, for example.

AI is broadly defined as computer

systems being able to perform tasks normally requiring human intelligence, such as visual perception, speech recognition, decision making, and translation between languages. This is achieved through the machine actually 'learning', as opposed to simply regurgitating masses of dictionaries, for example. This can be either through a human 'teaching' it, such as through the inputting of processes, or, in the 'purist' definition of AI, the machine learning for itself.

Trafalgar House managing director Garry Wake finds there is very little consistency with the use of the term 'artificial intelligence'. "Some organisations are merely re-badging automated or batch processing systems as AI solutions, but these examples don't do justice to the concept or opportunities," he explains.

Smart Pension co-founder and MD, Will Wynne, agrees, stating: "It's fairly easy to programme a computer to recognise individual spoken words or instructions, so the fact that a computer can respond to spoken commands doesn't necessarily mean it's 'AI'. But

understanding different accents and different contexts of words, making judgements on the basis of things said earlier in the conversation, or on the basis of one type of member versus another, requires a level of intelligence too complex to simply be programmed using traditional 'If X then Y' type logic."

Chatbots – the use of a computer to handle customer queries – are often the first thought that comes to mind when considering the application of AI for the financial services industry. Many examples of this have already occurred globally.

For instance, Dunstan Thomas chief innovation officer Andrew Martin highlights the Royal Bank of Scotland using the IBM Watson machine learning platform to create the bank's digital assistant chatbot, 'Cora'. A Brazilian bank uses the same machine for its chatbot, which is 'trained' on 62 of its banking products, answering 283,000 voice-based customer questions in 10 months, with average response times reduced from 10 minutes to mere seconds and a 95 per cent accuracy rate, he states.

Moving on from just answering queries, Martin also notes that the Bank of America (BoA) developed a financial management chatbot, 'Erica', which works on an understanding of the person's money movements within their BoA account. "As the platform matures, it's possible the chatbot could offer options designed to improve customers' cashflow management or avoid breaching overdraft levels, for example," Martin says.

Pension uses

That's not to say there aren't any examples of AI being used within the pensions sector. In April, the Finnish Centre for Pensions announced that it had taught a machine-learning algorithm to predict those retiring on a disability pension, based on socioeconomic, earnings and benefit data. It managed a 78 per cent accuracy rate.

Over in Denmark, PensionDanmark

has automated around 80 per cent of its administrative decisions, and aims to increase this further. Meanwhile, Mercer global product strategy leader Chris Lomas mentions his company's Australian business having the Mercer 'Superbot', which is a financial advice chatbot accessed through Facebook Messenger.

Even in the UK, the Department for Work and Pensions is using AI to crack down on benefits fraud.

Despite these notable exceptions, it is generally agreed that the pensions industry lags behind other financial sectors in its adoption of AI.

However, there are many potential applications for AI within the pensions sector. On the customer-facing side, potential AI applications for pensions include the pensions dashboard, robo-advice and chatbots. According to PwC's *Pensions Technology Survey 2018*, 53 per cent of employers surveyed plan to invest in automated member communications in the next three years. These chatbots in particular, with their speech interaction, could provide alternative access for people with disabilities (such as partially sighted, motor impairment etc), AHC head of web consulting and development Sam Charles notes.

Wynne gives the example of how AI could be used within a pensions dashboard. "Let's say there are 30 different possible elements you may include on a dashboard. AI could be used to understand how thousands of members interact with their dashboards, and what they appear to find most useful. When a new member first logs into their dashboard, it could therefore automatically provide them with the handful of five or six elements they'd find most valuable on the basis of their profile. As their needs change over time, it could automatically suggest different dashboard elements they may find useful in reaction to that," he says.

Over the past year we have already seen companies work with home digital assistant Alexa to enable their clients

to access pension services through this interface, along with the first white-labelled robo-advice system to assist IFAs [see boxouts].

Increasingly, such technology will also do more to fill the gaps in the industry in providing automated guidance or advice, PASA eAdmin knowledge partner Chris Connelly says.

"Initially we have seen these tools act as a triage mechanism to increase the throughput of cases that are relatively straightforward to provide guidance for, whilst automatically referring those exception cases that require a human intervention. Increasingly, these automated rules will evolve so that more of these exceptions or fringe cases become automated. Also there will increasingly be acceptance that these tools can provide actionable advice, rather than guidance. However much of this advance will be about adoption and regulatory approval rather than the ability of the technology," he explains.

For PASA board sponsor and chair of the eAdmin working group, Girsish Menezes, the best use of artificial intelligence he has seen in the market is delivering cost-effective, automated advice post a fact find. "This compresses the time taken to analyse all of the member's permutations and combinations from eight hours to 20 seconds," he says.

On the savings side, AI could be used to improve an individual's retirement saving investment strategy, Mercer UK DC and individual wealth innovation leader Shri Rengasamy says. "As members get older, their investments automatically move into more conservative, less risky options. This is already achieved without AI, but lacks customisation based on a user's specific financial circumstances, risk preferences and lifestyle habits – things which can be taken into account using AI, leading to a personalised portfolio recommendation."

Scheme benefits

But is not just the members who can

benefit from this technology. For the pension scheme itself, AI could be implemented so that certain activities trigger scheme-level transactions, such as re-underwriting scheme members or re-initiating buyout quotations based upon market movements, Connelly suggests.

It is on the administration side where the most benefit is likely to be seen for schemes, such as chatbots taking on ever-larger volumes of routine administrative enquiries, freeing up staff to concentrate on complex tasks.

AI will also be able to improve automation of services, even with paper and voice as part of the process, Connelly adds. “There will be more applications allowing us to analyse and assess paper and voice interactions – automating decisions or processing based on those inputs will then avoid the need for a customer agent to re-key any instructions or updates,” he explains.

Real-time member activity can be monitored using AI, enabling schemes to use this live, accurate, data to further personalise member interaction.

Fraud would also be easier to spot, as the system could learn to spot abnormal activity and flag up any potential issues.

The result of this increased response times and improved data is both time and cost-efficiencies for the management of the scheme, along with the potential to improve member engagement.

According to Lomas: “The biggest wins in artificial intelligence today are often discussed as those ‘narrow’ tasks in which humans would perform very poorly. A good example of this is evaluating large data sets. In the pensions industry there is a vast amount of data that is rarely activated. Artificial intelligence has the potential to highlight populations in employers’ schemes that will not be able to retire (due to insufficient savings), or those that will face other decisions, like what to do when saving in to a pension is no longer efficient. The loop then goes back to personalisation and education, to drive new actions.”

Reluctance

But pension schemes are not rushing out to obtain these ‘wins’. According to Wake: “Data quality and levels of digital engagement remain the persistent issues. To achieve a sufficient return on investment for this type of technology you need to have complete confidence in the underlying data, as well as a membership who interact through digital channels. With relatively low levels of digital member engagement and poor quality data still presenting challenges for many schemes, investing in AI, beyond the augmented customer service interactions, demands more of a compelling business case.”

The tighter personal data security demanded by GDPR means that access to sensitive personal data demands very tight cybersecurity protection with multiple layers of authorisation and authentication, Martin states, which could be another challenge for schemes.

AI is about organising IT systems so that databases can be accessed and analysed to provide insight and generate actions, so as Martin warns, “AI is only as good as the accuracy of the algorithms sitting behind it making sense of all the data coming in”.

Therefore you need to allow a period of several months for interaction numbers and larger data quantities to feed through to greater accuracy and speed of response, he adds.

Older systems may not even be capable of effectively integrating AI. “Many DC platforms are often 30 years old, Wynne says. “Some elements of technology can be applied on top of very old systems, but to truly take advantage of things like AI, your tech set-up has to be built in such a way to allow data to be joined up securely, and accessible to AI algorithms without adding risk.”

Redington head of DC and financial wellbeing Lydia Fearn agrees that the implementation of AI will be easier for newer administration systems. “Clearly cost can be a barrier too, but as AI becomes the norm, this should be less of

an issue,” she adds.

Addressing this problem may not be high on the list of pension managers’ priorities however, but according to PASA working group member Michael Watkins, there is a learning curve for the industry. “The reticence, I’d imagine, would be due to the use of legacy systems, and poor data,” he says. “However, the benefits far outweigh the cost of change in this instance. We’ve reached a sweet-spot in society where speed of the development of, and the cost of, technology mean that it’s more accessible and more useful than ever before.”

But the reasons why the pensions industry has been shy to take up this technology may not all be internal. Its implementation has not always been perfect. Take Swedish bank SEB’s chatbot Amelia, which was used as a customer service agent for simple queries, with the ability to learn from the human responses when referring on a query it couldn’t answer itself. In its first three months it handled 60 per cent of customer service calls. However according to LCP head of flexible benefits Dipa Mistry Kandola, writing for *HR Magazine* in August, Amelia has been fired due to its “underwhelming performance”.

Martin notes that in the pensions market, there is “inevitably a degree of nervousness” around chatbot ‘chatting’ linked to highly-regulated products as it creates the potential to inadvertently provide false or misleading information.

“The circa 95 per cent accuracy levels on offer (and that’s when chatbots are well bedded-in) would still make most heads of risk and compliance lose sleep if applied to pensions transactions; especially when past experience tells us that when things go wrong in the pensions industry they typically go very wrong and could prove very difficult to unwind,” he says.

Rengasamy agrees that decision making that has heavy fiduciary requirements will be quite low on the AI opportunities list, and the

implementation must be extremely conservative. “Paying out a death benefit due to human error versus a machine making the error has very different optics, and any mistake an AI makes once, potentially means it can do so over and over again.”

To minimise these risks, Connelly recommends a thorough test plan to ensure that the rules being taught, or learned by AI are delivering the required outcomes.

The human touch

However, “in principle, applying specific examples of automated tools to replace or decrease human interaction should reduce risk rather than increase it”, he says. “The fundamental risk being removed is that of human error, or human inconsistency.”

But as early AI development quickly plateaus as the sophistication and complexity of member enquiries rapidly escalates beyond a pool of very relatively basic interactions, Wake says, “many providers are developing forms of AI to support human interaction, rather than take it over completely”.

For Charles, “the advantage of a human operator for complex tasks is they can ask a question in different way if a customer doesn’t understand, they can change their tone to be appropriate

for the line or questioning/response, they can manage ‘off-script’ or ‘edge case’ questions throughout the course of the process”.

However, PwC’s *Pensions Technology Survey 2018* finds younger generations in particular are to interact with this technology, with 48 per cent of millennials saying they would use an automated pensions advice app, rising to 60 per cent of Generation Z workers.

And yet. “One of the most prominent issues members have is confidence and trust in the industry,” Wake says. “If it’s a routine, basic issue then people are happy to interact with automated or AI systems. As those transactions become more sophisticated, user confidence tends to diminish.”

The FCA was recently told by the Work and Pensions Committee to undertake a review on the outcomes of automated advice, with a view of reassuring customer that it can be a useful service.

The biggest barrier [*to the pensions industry’s adoption of AI*] is likely to be the inertia of the customer population, Charles believes. “People will stick with what they know until something is shown to be much better. It will likely take a number of generations of AI solutions and initiatives before it starts to become a de-facto means of digital

Turo the robo-adviser

Wealth Wizards, working with LV=, has created a white-labelled robo-adviser called Turo, which can generate advice for the financial adviser to use, or can verify cases the human adviser has generated.

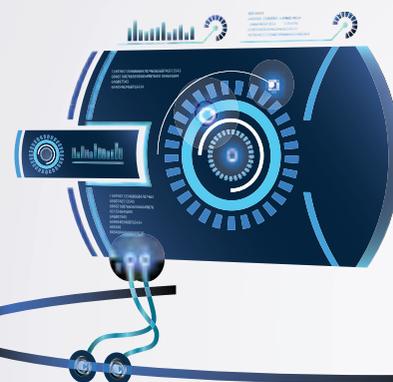
Turo is able to make an annuity or drawdown decision, or decide whether to take a DB transfer, by balancing a number of factors, including hard facts and softer goals from the client. It learns from past cases and provides an explanation as to why it came to its decision. It also provides a confidence level and highlights when human checks are recommended.

providing solutions,” he says.

However, according to Connelly, member interest – or lack thereof – in this technology is missing the point.

“Instead of worrying about whether a member is concerned that a robot is giving them financial guidance/advice, we should be asking them what they want to achieve,” he says.

“If we give the members what they want, when they want it, at a cost they believe to be good value, then they are not going to worry too much about what tool we used.”



Written by Laura Blows

“Alexa, tell me about my pension...”

For those saving into a pension through Smart Pension, Mercer or Aviva, and who have one of Amazon’s Echo family of home hub smart speaker devices, finding out more about their pension has never been easier. They can simply ask Alexa questions such as how much their pension is worth and how much they are paying into it.

Smart Pension members can use Alexa to make contribution changes, as it immediately emails the account holder and employer about this change. Smart Pension is also developing a conversational avatar that will be able to deliver advice in accumulation and retirement, its co-founder and MD, Will Wynne says.

According to Aviva MD of UK and international digital, Blair Turnbull, it decided to embrace Alexa as there are now over 100 million smart speakers in the world, and the company’s research showed people would engage more if they had easier ways to access their pension balance. “Work on Alexa is in the early stages at the moment as we want to understand if consumer behaviour matches our expectations,” he adds.