

A Big Bank Buys into AI

UBS embraces machine learning and chatbots as the influence of robo-advisors and wealthy young clients grows

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Look at the challenges facing incumbent players in the financial services industry and it's easy to see artificial intelligence (AI) as at once a major source of the disruption and its solution.

According to research by PwC in the report entitled [Sizing the prize: What's the real value of AI for your business and how can you capitalise?](#), global GDP could be 14% higher (\$15.7 trillion) in 2030 as a result of AI, making it the biggest commercial opportunity in today's fast changing economy. Financial services is set to experience some of the biggest gains.

Marching across the landscape are FinTech upstarts offering intuitive customer service and low-cost, algorithm-driven portfolio management — a trend that is spreading beyond the retail market into other areas, notably wealth management. Adding to the challenge is the enormous transfer in wealth from older generations to their tech-savvy and demanding heirs, who want results in an environment defined by low interest rates and complex financial markets. It's no wonder that many established firms are starting to innovate and act, in their new focus on AI and in their partnerships, more like the FinTechs themselves.

UBS is among the big players taking action in the face of this upheaval. “It's something that, as a bank, leads you to consider actual business model change and not just incremental change,” says Annika Schröder, director of group innovation and AI program lead at UBS, which has stepped up its research and development in AI over the past year. “We always put the client in the center of every innovation initiative, so we're working on intelligent

machines that are going to make banking more accessible, leaner, and faster for the client.”

The Approach

UBS sees clusters between the client-facing functions and the back office — including risk, security, and compliance — where it can deploy AI. The bank’s partnerships reflect its firm steps toward automation using machine learning, vision and speech recognition, and natural language processing. “In terms of the processes to be automated, it makes sense to pick some lower-risk and lower-complexity fields to start with — and that’s what we’re doing,” Schröder says. “You don’t pick the risky areas to install AI capabilities in the beginning.”

Process and security automation. Operations and back-office processes are among the first and most obvious areas where UBS is deploying AI. Pattern recognition from powerful machine learning systems can be applied to threat intelligence and security functions, for example, and significantly boost anomaly detection. Events such as unusual network traffic, fraud and rogue trading can be discovered and countered, with greater speed and effectiveness. Ultimately, measures that increase security and reduce risk will tighten the bonds of trust with clients and deepen the brand’s value.

“There are new ways of doing endpoint protection or intrusion detection using deep learning methods,” Schröder says. “You can improve authentication. You can improve the accuracy of your surveillance. You can protect yourself from data loss. You can improve the know-your-client process, the anti-money laundering types of investigations around the compliance function.”

With those goals front and forward, UBS partnered with Digital Reasoning, a Tennessee-based cognitive computing firm that uses machine learning software to spot rogue and rule-breaking behavior such as trading abuse, collusion, and market manipulation. UBS uses the company’s platform to analyze data at a massive scale to gather context and reasoning patterns in language, filling in the ‘understanding gaps’ around the mostly manual and rule-based work of surveillance. “The messages are screened and unusual patterns are identified,” Schröder says, “and it can identify when an employee might be using code language to cover up what they are intending to do.”

Another partnership — this one with Arago, a Frankfurt and New York City-based AI engineering firm — brings machine learning to the process automation of IT support and infrastructure management. UBS uses problem-solving platforms to autonomously solve and perform IT tasks, the kind that many banks outsource. “The agent watches how typical tickets are solved, and over time it will learn to resolve them on its own,” Schröder says. “Machine learning is a way to keep knowledge in-house because you actually feed the knowledge into the



AI in Asia

Currently, the region lacks the fertile ecosystem pushing artificial intelligence ahead in the U.S., but it will catch up fast

As an executive director and equity analyst for global technology at UBS Wealth Management in Singapore, Sundeep Gantori has a bird’s eye view of innovation in Asia. How does he see AI evolving in the region?

The AI Ecosystem. Two recent disruptive technologies quickly took root and thrived in Asia — e-commerce and the sharing economy. In an eye-blink, China became the largest ecommerce market in the world and ride- and apartment-sharing brands took off. One driver of this success was the absence of legacy systems to hinder penetration. To Gantori, the path toward AI is different.

“Right now there is a lack of an ecosystem in terms of developers, data, investment startups, even in terms of the technical skills and the understanding of AI’s importance from a corporate culture point of view,” Gantori says. “A lack of the legacy systems can spur adoption, but AI is not comparable to what we’ve seen in e-commerce and the sharing economy, where Asia now leads the West in adoption.”

Regulators as facilitators. Late adoption of AI in Asia, however, may be transformed within ten years, according to findings from PwC’s Sizing the Prize analysis of the economic impact of AI, owing to the influence of the Chinese economy. It found that after a slow start, China’s AI uptake in particular would pull ahead of the gains in productivity made earlier by the US. It could eventually enable the region to embed more effective systems and processes directly using cutting-edge

algorithm. It's a very good way of decreasing the operational risk, because we're no longer so heavily dependent on people."

Customer service and engagement. Banks are starting to bring AI into the customer relationship in ways that improve service-related tasks and the overall client experience. Chatbots are helping clients understand investments and spending; AI-driven engines are personalizing recommendations. New technology is at the disposal of increasingly bionic relationship managers, whose skills and expertise are being fused with the capabilities of machines.

It highlights how the value of AI enhancing and augmenting what enterprises can do is large, if not larger than automation. "The mindset today is man versus machine; what we see as the future is man and machine together can be better than either one of them. We call this augmented intelligence", says Anand Rao, Global AI Leader, PwC US.

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The AI that UBS is bringing into their investment and trading businesses is intended to help advisors deliver more personalized service to clients — “everything around investment-related data and strategies, improving alpha, taking algorithmic trading a little bit further, but also managing risks around investments,” Schröder says.

In 2016, the UBS Americas operation formed a strategic alliance with SigFig, a San Francisco-based FinTech firm, to create digital financial tools and services for the 7,000 advisors in the region. The two companies formed an Advisor Technology Research and Innovation Lab to work together on new technologies.

Another partnership UBS has is with Amazon to develop its chatbot Alexa as a way for UBS to help its private clients educate themselves about financial markets and investments. With Ask UBS, clients can pose questions and the reply will come from the bank's Chief Investment Office Wealth Management Research organization, which gathers insight from investment personnel around the world.

technologies as their industries develop, rather than through a later transformation. Gantori believes the stage is being set for the region's vast and emerging talent pool to be enabled by an increasing flow of capital. In fact, according to UBS projections, the combined AI talent bases of China and India should surpass the U.S. by 2025.

Another optimistic sign is the proactive stance of regulators in Hong Kong and Singapore toward AI development. And he points to banks in India and Indonesia that are acquiring millions of new customers and scaling quickly by leveraging new technologies, such as chatbots, that reduce the need for a branch presence. “Every regulator in the region recognizes the fact that we need to develop AI,” Gantori says. “The role of regulator has evolved from just being a regulator to a facilitator.”

In the long run, Asian financial services will be focused less on chatbots and other virtual-presence technologies and more on mission-critical process such as know-your-customer and other compliance issues. The talent will arrive; the AI gap with developed regions will close. As PwC's research estimates, across all sectors, the impact of AI on China and developed Asia will be a gain of over 26% and 10% GDP by 2030, respectively. “By 2025, we'll see Asia with talent that actually exceeds what we see the West, in particular the U.S.,” Gantori says. “We could see a significant improvement in ecosystems, even the number of companies focusing on AI over the next three to five years. And I won't be surprised if, on the consumer side of financial services, Asia leads the West.”

“Amazon Alexa was actually, for us, a very new channel,” says Schröder, who believes that the current capabilities of chatbots overall remain very narrow, given the limited number and breadth of user intents they can understand. She also points to the issue of data ownership as systems like Alexa gather more and more historical information about customers for financial institutions and their vendors or partners to craft new products and solutions. “There are obviously solutions — on-premise deployments or adequate legal language on IP ownership and rights. But the data ownership issue is a central thought you have to put into the conversational interfaces.”

On top of that challenge is the cultural aspect of introducing a new interface — let’s call it a new voice — into the brand. Issues of ethics, transparency and understanding the wider societal not just economic impacts of technology have come to the fore. In a recent report by PwC on Responsible AI entitled [‘Accelerating innovation: How to build trust and confidence in AI’](#) leaders are cautioned that effective controls need to be built into the design and implementation phase to ensure AI’s positive potential is secured, and address stakeholder concerns about it operating beyond the boundaries of reasonable control. This is echoed by UBS’s Schröder:

“Transparency is really key in order to create and keep trust,” Schröder says. “If the client is talking to a machine, we want to avoid making the mistake of hiding the fact. We want to give the machine or the virtual aide a persona. And that’s a learning process.”

Deep learning, the human kind. UBS is focused on applying design thinking to AI by doing prototype sprints and involving clients in proof-of-concepts and innovation projects, as it is doing with the Ask UBS pilot. Teams build new offerings from the perspective of the end user. Schröder adds that, for all its power to augment or replace certain aspects of human work, AI is a creation of humans.

“The machines are designed and built and trained and controlled and governed by humans,” says Schröder. To her and UBS the importance of upskilling and building digital literacy from the line manager to the senior levels will be critical. “It’s not that we’re turning everyone into data scientists,” she says, “but we are increasing the digital literacy of the overall workforce.”

The Future

Chatbots will not soon match humans in their reasoning and empathy, in the deep levels of their intent. Algorithms alone will not soon replace the bond of great relationship managers have with their clients. Both technology and humans will evolve, in many ways together. Says Schröder, “Many new human roles that we cannot even think of today will develop from the implementation of AI.”

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