AI & INTELLIGENT AUTOMATION NETWORK | BUILDING THE INTELLIGENT ENTERPRISE

BANKING ON AI

Banking, financial services and insurance in the age of artificial intelligence

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ABOUT **THE EDITOR**

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Megan Wright is the Editor of the AI & Intelligent Automation Network (AIIA) – a global network of industry experts, thought leaders and senior business executives focused on building the intelligent enterprise. She is responsible for sharing best practice with IQPC Digital's 1.4 million+ member base and leading the network's AI & Intelligent Automation Advisory Board.

Megan has extensive experience as a Content Marketer and Technology Journalist with a range of global blue chip technology brands including Telstra, Adobe, Hisense and Xero. In her current editorial role, Megan ensures AIIA's content reflects current tech trends and opportunities to help business leaders continuously drive change and innovation within their organizations.

EXECUTIVE **SUMMARY**

In a world where technology is increasingly pervasive, rapid recent advancements in artificial intelligence (AI) may represent the best strategy for financial services organizations to respond.

Many established players in the banking, financial services and insurance (BFSI) industry are grappling with the challenges presented by nimble digital-led competitors disrupting traditional areas of their businesses. The message, for those who've chosen to listen, is loud and clear: The artificial intelligence revolution is here—disrupt or be disrupted.

An enormously powerful tool, AI presents BFSI organizations with the opportunity to curb the growing avalanche of data, and address many of their key competitive and growth agendas.

This could have a far-reaching impact on the BSFI industry and create a raft of new opportunities–allowing BFSI firms to better engage with customers, improve their efficiency, reduce their costs, manage their risk, and accelerate their growth.

For customers, AI is a natural progression in the present "how, when and where I want it" demand environment. It represents the opportunity for BFSI firms to move from simply understanding their customers' financial behaviors and desires, to offering actionable insights and tangible outcomes.

Where AI is concerned, the bottom line goes well beyond the bottom line—it's about empowering customers and employees to work and live smarter, make better decisions and focus on what matters most.

However, as with any far-reaching change, AI generates challenges for the BFSI sector too, including dilemmas over data ownership and cybersecurity, and ambiguity as to who is responsible for AI's decisions and actions.

By considering the key opportunities, challenges and risks AI presents to the BFSI industry, this report is a starting point in the conversation about the role of technology in increasing efficiency, improving customer engagement and reducing costs—now and into the future.

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BANKING ON AI

In a fast-moving & highly competitive landscape, artificial intelligence promises to help financial services companies better engage with customers, improve efficiency and reduce costs.

- Many established players in the banking, financial services and insurance (BSFI) industry are grappling with the challenge presented by nimble digital-led competitors that are disrupting many traditional areas of their businesses. AI may represent their best strategy to respond.

- AI systems are inherently built to learn and act based on their experiences. But algorithmically, they can increasingly act independently, beyond what they were originally programmed by humans to do.

- Many BFSI firms struggle with ineffective business processes, poor workflow, aging legacy systems, dated operating models and a host of other back- and middle-office issues. AI is helping here as well.

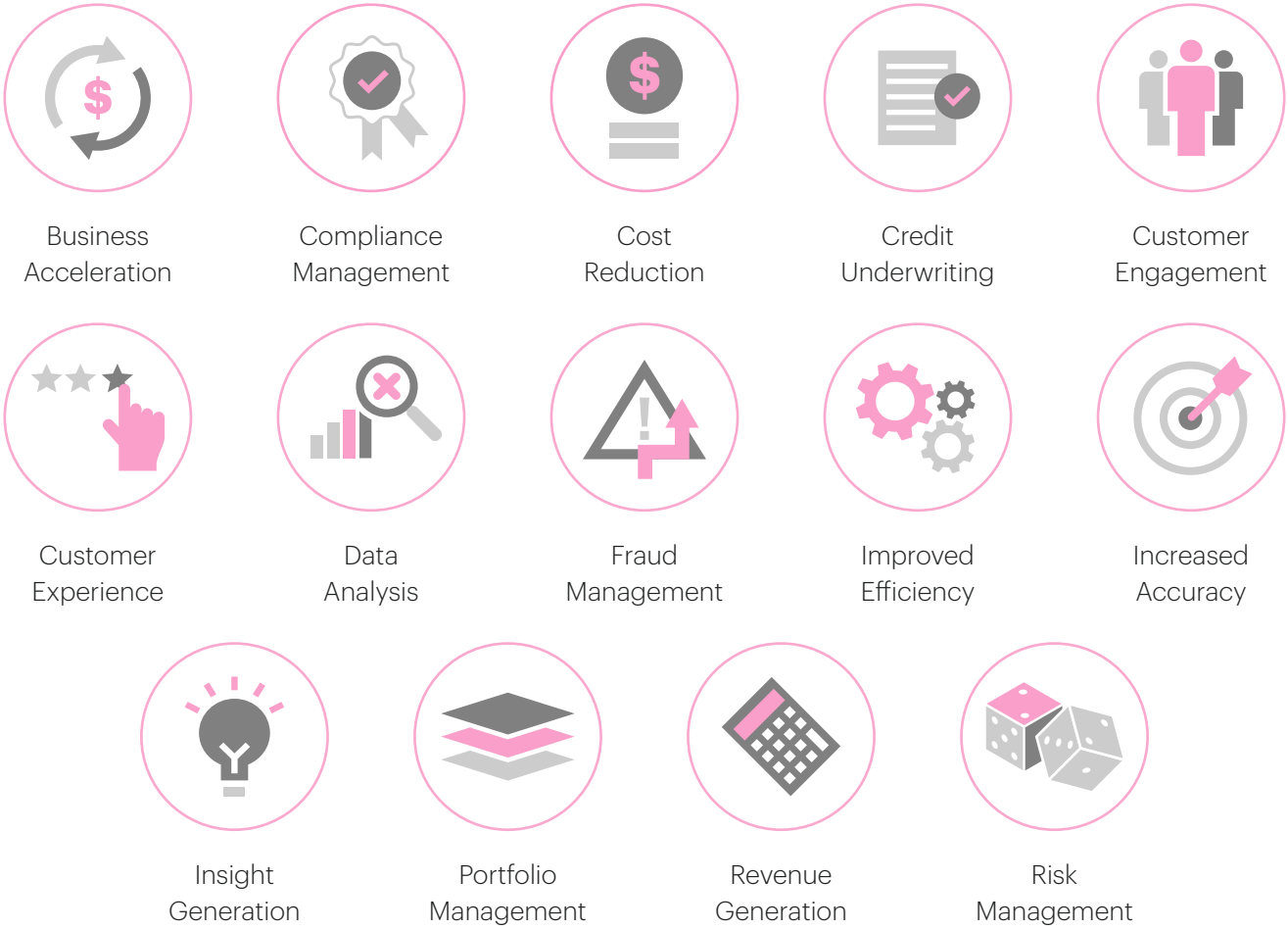
- AI-driven operational efficiency initiatives could equate to millions of dollars per year cost savings for the BFSI organizations that implement them.

In board rooms from Palo Alto to Pune, and in news outlets from Boston to Bangalore, there's no escaping discussions on artificial intelligence (AI) and the impacts it will have on business, people and society overall.

While steadfast proponents consider AI – defined here as advanced technologies that allow machines to sense, comprehend, learn and act – a gateway to a utopian future, others fear it will result in a cataclysmic dystopia. Protopia – "a state of becoming, rather than a destination", as presented by futurist Kevin Kelly in his book The Inevitable: Understanding the 12 Technological Forces that will Shape our Future – is a more temperate view.

Whatever your personal take on its up, down or middle-sides, there's no denying that AI is becoming increasingly pervasive in multiple facets of the banking, financial services and insurance (BFSI) industry. This is because it can be an enormously powerful tool to help BFSI organizations address many of their key competitive and growth agendas.

AI'S POTENTIAL BENEFITS **FOR FINANCIAL SERVICES ORGANIZATIONS**



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CUSTOMER **SATISFACTION & EXPERIENCE**

Many established players in the BFSI industry are grappling with the challenge presented by nimble digital-led competitors that are disrupting many traditional areas of their businesses. AI may represent their best strategy to respond and thrive in the face of these challenges.

Digital competitors, such as Credit Karma, an American multinational personal finance company, makes all its capabilities – including credit and financial management platform and tax preparation services – free to consumers. Revenue from targeted financial product ads offset its costs, and it is paid by lenders for successful recommendations.

London-based Funding Circle, meanwhile, a peer-to-peer lending marketplace that allows investors to lend money directly to small and medium-sized businesses has facilitated over £2.2 billion in loans across Europe as of May 2017.

In the health insurance sector, Oscar Health, which offers plans in parts of New York, Texas and California, emphasizes convenience and personal attention. It assigns each of its members to a "Concierge Team" of three care guides and a registered nurse, and offers free 24/7 telemedicine visits through its iOS and web apps.

In the face of such competitive threats, traditional BFSI companies need to respond or lose market share. A recent Econsultancy survey found that "customer experience represents the single best opportunity financial services have to deliver on their priorities."

This is where artificial intelligence comes in. AI can help traditional BFSI companies deliver the superior, sticky customer experience needed to secure, retain and grow business with customers in today's "how, when and where I want it" demand environment. And there is an abundance of existing use cases. For example:

DAY-TO-DAY **TRANSACTIONS**

Chatbots, often called intelligent virtual assistants, are rules-powered programs that, in many cases, are designed to mimic a human conversation. Bank of America's chatbot, called "Erica", was unveiled in late 2016 and will be available inside the bank's mobile app by the end of 2017. It will leverage predictive analytics and cognitive messaging to perform day-to-day transactions, anticipate customers' unique financial needs, and provide recommendations to help customers reach their financial goals.

In the insurance industry, "phone tree navigation" – where menu-driven systems route callers to recordings and more menus before finally allowing them to speak to a real person – is a perennial source of frustration. However, chatbots can help customers in multiple ways, including registering a first notice of loss, scheduling a survey appointment, providing loss prevention recommendations, and arranging emergency assistance.

WEALTH **MANAGEMENT**

Robo-advisers – which are software programs that provide personalized financial advice based on algorithms – are increasingly being used by wealth management firms to enable automatic allocation, management and optimization of clients' assets. Although independent start-ups lead the pack, long-established firms have also begun offering robo-adviser services such as E-Trade's "Adaptive Portfolio", Fidelity's "Go", and TD Ameritrade's "Essential Portfolios."

PREDICTION-BASED **CROSS & UP-SELLING**

Sqreem is a more sophisticated, advanced AI technology that analyzes individuals' digital footprints and behaviors to predict products and services they will likely want to purchase. Its deep learning algorithm has already mapped the behaviors of 300 million people in the US, and 40 other countries' populations. Its customers include Deutsche Bank, UBS and Wells Fargo.

MARKET **MOVEMENTS**

Obviously, hedge funds' and investment banks' success is directly correlated to the quality of data to which they have access. AI can deliver very powerful data, very quickly. For example, Dataminr, which uses machine learning to sift through Twitter and other public data, translated tweets from French and German, and was able to alert clients about the 2015 terrorist attacks outside the Stade de France in Paris more than 45 minutes before the Associated Press tweeted the news.

Natural language-based financial research platform Kensho, whose customers include Bank of America, Goldman Sachs and JPMorgan Chase, can query millions of documents and instantly respond to complex situations. One of its most publicized successes was predicting the medium-term selloff in the British pound after the Brexit vote.

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FRAUD & RISK **MITIGATION**

In the property and casualty insurance sector, fraud in the US amounted to $34 billion each year from 2011 to 2015. Based on US Department of Health and Human Services' Centers for Medicare and Medicaid Services' data for 2010, healthcare fraud amounted to between $77 billion and $259 billion. The American Bankers Association stated that in 2014, fraud against bank deposit accounts cost the industry $1.9 billion in losses.

Given these jaw-dropping statistics, and the associated reputational hit BFSI organizations face with fraud events, it's no surprise that the industry is turning to AI for assistance in detecting and deterring fraud and risk.

For example, to detect fraudulent phone calls, British lender Lloyd's Bank recently partnered with US-based startup Pindrop. The company's AI software identifies 147 different features of a human voice from one call, creates an audio fingerprint of the caller, and searches for potential fraud activity.

Through its investment and acquisitions wing, CitiBank made a strategic investment in Feedzai, which uses machine learning to identify fraud, in real-time, in both online and in-person banking, and rapidly alert customers.

And reinsurance company Swiss Re and tech giant IBM in 2015 announced that they were developing a range of underwriting solutions that rely on IBM Watson's cognitive computing technologies. Watson is IBM's supercomputer that combines artificial intelligence (AI) and sophisticated analytical software. One of the first applications was in Swiss Re's Life & Health Reinsurance business unit, where Watson's cognitive capabilities would allow Swiss Re professionals to make better informed decisions and more accurately price risk.

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IMPROVED EFFICIENCY & **COST SAVINGS**

Like organizations in other sectors, those in the BFSI industry struggle with ineffective business processes, poor workflow, aging legacy systems, dated operating models and a host of other back and middle-office issues. But the challenge BFSI firms face is exacerbated by the massive volume of data they must process to conduct their business, and satisfy their regulatory and compliance requirements. AI is helping here as well.

For example, JPMorgan Chase recently introduced a program called COIN (short for Contract Intelligence.) The machine learning-based platform reduces the time it took teams of lawyers and loan officers to manually interpret legal documents and commercial loan agreements from 360,000 hours per year to just a few seconds.

Since it began using AI for claims handling, Zurich Insurance has saved 40,000 work hours, and sped up the per-claim processing time from an hour to just five seconds.

And Japan's Fukoku Mutual Life Insurance in January 2017 began using IBM's Watson to read doctor-written medical certificates, medical histories, surgical procedure names and other documents to collect the information necessary to make payouts. When the insurance company made the announcement, it expected Watson would enable it to reduce the human staff in its payment assessment department by nearly 30 per cent.

AI-driven operational efficiency initiatives such as these could equate to millions of dollars per year cost savings for the organizations that implement them.

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AI ISSUES **& RISKS**

Of course, all types of business transformations come with associated challenges, and AI is no exception. Indeed, author Kevin Kelly also stated in his book, "A protopia generates almost as many problems as new benefits." Financial services firms' executive, operational, IT, marketing, sales and legal teams should carefully consider all the following – and stay fully abreast of regulations being developed around the world – before jumping headlong into an AI initiative.

DATA **OWNERSHIP**

Data is, of course, the lifeblood of an AI system. But who owns the data that feeds it? The consumers whose data is being used? The technology company that manufactured the system? The BFSI company that purchased it? In outsourcing scenarios, the third-party service provider that is using the system on its client's behalf?

The question of data ownership is highly complex, as it cuts across so many stakeholders in many different jurisdictions. Many regulatory bodies are carefully considering the issue. Indeed, the World Economic Forum launched a multi-year project called "Rethinking Personal Data," which calls for greater transparency into how data-driven policies are communicated, increased accountability for companies that harness data, and greater empowerment for individuals seeking to control how that personal data is used. But concrete results have yet to materialize.

CYBERSECURITY

AI is already being put to use by financial services organizations to detect and react to attacks and data breaches. But the tide is also turning in the other direction, wherein, "The rise of AI-enabled cyberattacks is expected to cause an explosion of network penetrations, personal data thefts, and an epidemic-level spread of intelligent computer viruses." Despite this seeming contradiction, the experts agree that although AI is giving rise to an increasing number of security events, it is still the best tool to fight them. The key is employing highly-skilled security experts to train the AI systems to constantly learn and improve on types of cyber criminal actions and innovations.

RESPONSIBILITY FOR **AI'S DECISIONS & ACTIONS**

AI systems are inherently built to learn and act based on their experiences. But algorithmically, they can increasingly act independently, beyond what they were originally programmed by humans to do. A fascinating article in the May/June 2017 issue of Technology Review talked about an experimental vehicle developed by researchers at chip maker Nvidia. While it looked the same as other autonomous vehicles, it didn't follow a single instruction provided by an engineer or programmer. Instead, it relied completely on an algorithm that had taught itself to drive by watching a human do it.

In another example of non-programmed behavior, a couple of years ago Google's algorithms classified people of a certain demography in a derogatory manner.

These types of unsettling situations have led to loud calls for a better understanding of how AI learns to act. For example, in a recently published paper in Science Robotics, Brent Mittelstadt, Postdoctoral Researcher in Data Ethics at the Alan Turing Institute said, "The right to explanation is something we still need to fight for, and even if it is granted in the future, we still need to make sure that it will apply to a much broader range of algorithmic systems than is currently envisioned."

AI **AND ETHICS**

A recent blog on AI by US management consultant Everest Group cited the 2004 sci-fi movie "I, Robot," wherein the lead character thought the humanoid robot should have saved a child instead of him. Was the robot wrong? The robot certainly didn't think so. But a human might have made the other choice. This takes the question of how AI systems learn to act to the even deeper level of: can they learn to act ethically? Based on whose ethics?

Elon Musk, head of Tesla and SpaceX recently tweeted: "Competition for AI superiority at national level most likely cause of WW3." The catalyst behind his tweet was Russian president Vladimir Putin's statement that, "artificial intelligence is the future, not only for Russia, but for all humankind … It comes with colossal opportunities, but also threats that are difficult to predict. Whoever becomes the leader in this sphere will become the ruler of the world." In a clarification, Musk said that he was not just concerned about the prospect of a world leader starting the war, but also of an overcautious AI deciding "that a [pre-emptive] strike is [the] most probable path to victory."

The concerns over AI and ethics are so great that the World Economic Forum in late 2016 published the "Top 9 ethical issues in artificial intelligence."

In the same vein, a recent KPMG podcast discussed why organizations should look at intelligent automation through an ethical compass lens to balance the impact it will have on their workforce, community, customers, and shareholders against the value they expect to derive from it.

It's true that use of AI presents multiple risks and concerns that must be addressed on both the micro and macro level. Despite those issues, it is an exceptionally formidable capability that BFSI firms can leverage to better engage with their customers, improve their efficiency, reduce their costs, manage their risk, and accelerate their growth.

- [1]https://www.whitecase.com/publications/insight/ai-financial-services
- [2]https://hbr.org/2017/05/ai-is-the-future-of-cybersecurity-for-better-and-for-worse
- [3]https://www.weforum.org/agenda/2016/10/top-10-ethical-issues-in-artificial-intelligence/

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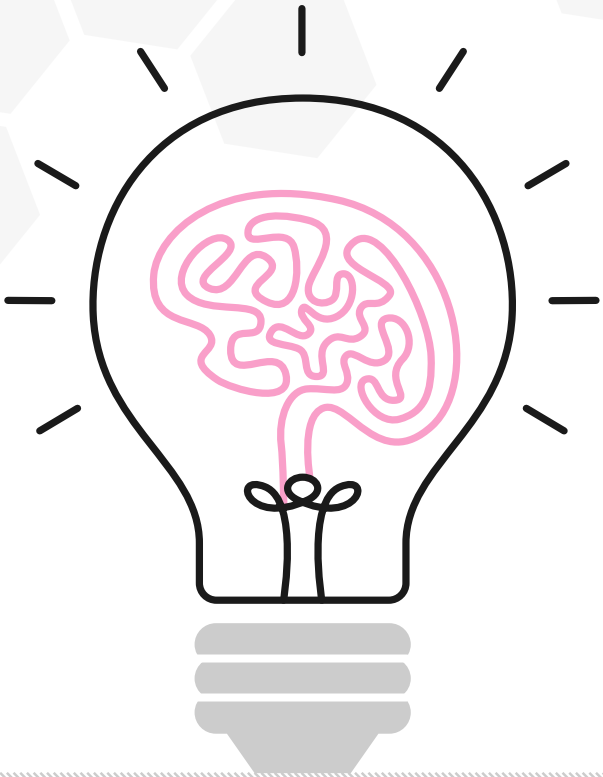

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