



TRANSFORMING BANKING CUSTOMER EXPERIENCE THROUGH EXPLAINABLE AI

Abstract

The rise of AI in banking industry has been glorious so far. But the flip side poses potential risks especially when banks adopt AI models in the “Black Box” mode to make critical business decisions. An unfair and biased AI model can potentially attract the risks of lawsuits and penalties. As a response to that problem, we have “explainable AI”, which we will discuss in this PoV. We will see why it is required for banks and how banks can infuse explainable AI into their ecosystem to stay compliant and customer-relevant in competitive markets.



Explaining the explainable AI

In the world of “digital in hyper-drive”, AI/ML is an unavoidable subject for the banking industry. The need for faster analysis and on-the-fly insights is quite indispensable for making business decisions. Recent studies around this subject reveals that the influence of AI/ML in banking industry is growing exponentially year after year. Business leaders across 32% of top financial institutions rely on recommendations engines and predictive insights to make important decisions. According to an IHS Markit study, banking and AI would account for \$300B by 2030, and IDC

believes 5.6 billion dollars would be spent on ML-based solutions by 2022.

The rise of AI in banking industry has been glorious so far. but the flip side poses potential risks and challenges. Even a bank’s reputation could be at stake if it makes use of AI in the “Black Box” mode, where inputs and operations are not visible to stakeholders, to make business-critical decisions. A biased or unfair AI model can potentially attract lawsuits and regulatory penalties which would lead the implementing bank to lose money and reputation.

Due to these alarming circumstances, 68% of business leaders expect more explain-ability from AI in next 3 years (according to an IBM research report). Building and scaling AI with trust and transparency is an essential criterion for most of IT transformation projects in banking. Despite the regulatory pressure, the need to measure AI outcomes by deploying explainable AI and its end-to-end calibration are on the rise. Explainable AI can eventually make AI models fair, unbiased, and explainable and will equip banks to stay compliant.

Fostering trust and transparency for banks

Evolution of AI & ML in the banking industry has taken flight, with tons of AI/ML-initiated projects. AI/ML-driven insights have apparently become more intrinsic and

deeply entrenched into business processes and platforms. Financial institutions (FIs) with greater adoption of AI/ML into their

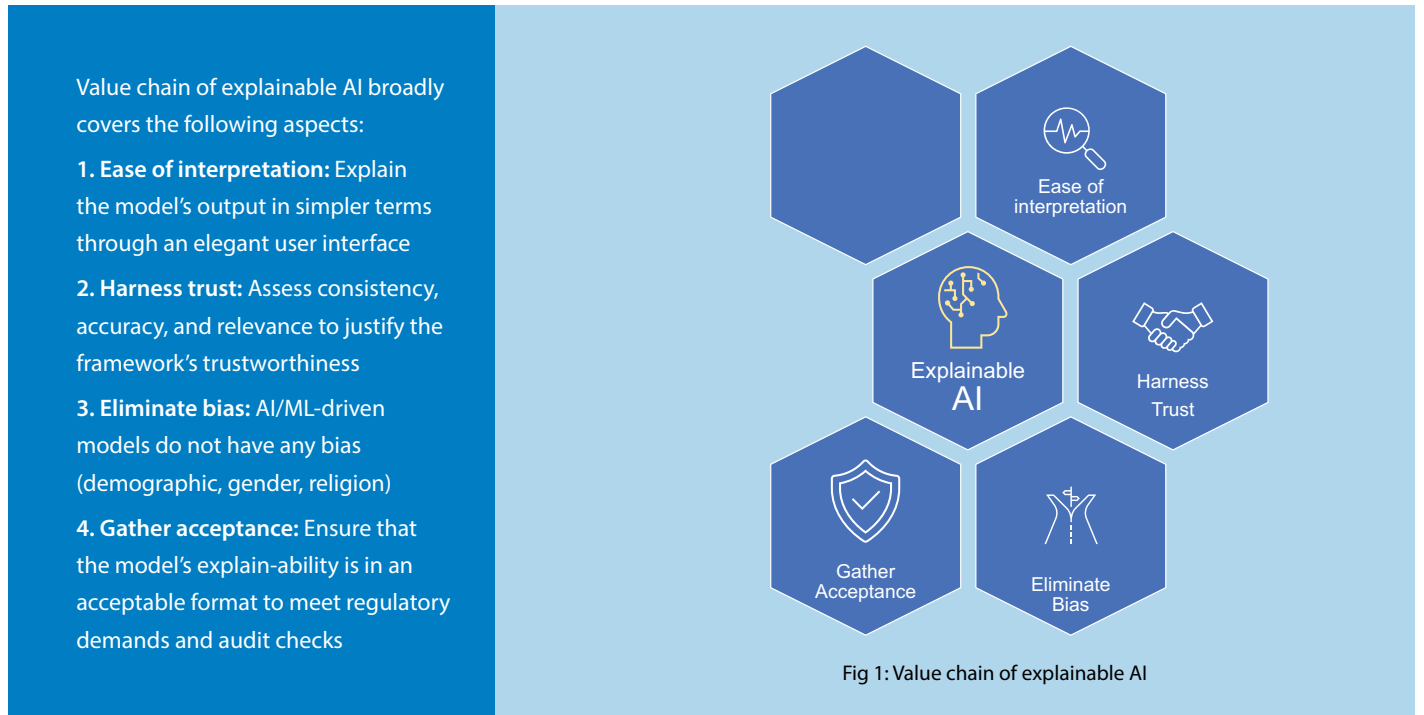
business processes can comply with the requirements of the banking regulators better.

The bias and regulatory compliance of AI/ML interventions are key challenges. If a bank achieves revenue growth and lower operational costs through AI/ML, the business leaders are still unable to explain whether that AI intervention is

biased or violates any regulatory norms. Such knowledge can be gleaned only with the help of data scientists who study such AI interventions. Still, the question on the trust and reliability of AI/ML may prevail.

It's extremely important for business

leaders to understand how deployed AI/ML models derive insights. The value chain of "Explainable AI", given below, addresses these potential gaps and challenges for banks.



How FIs can inject explainable AI into their platforms

Explainable AI can be implemented as a pluggable component on top of existing AI/ML models. It works like a translation layer to effectively comprehend the outcome of complex analytical models with simple representations and insights. Explainable AI requires the following components.

- **API layer:** A utility with standard protocols to transport the model output

for explanatory analysis

- **Configuration library:** A component to choose explanatory models mapped with input and target attributes

- **Explainable models and inferences:** A data instance to store explanatory results and insights

- **Dashboard layers:** A simple representation of charts with descriptive analysis on explanatory results

- **Feed to concerned stakeholders:** A periodic alert or notification to concerned stakeholders

All these components technically harmonize and render the output through a dashboard or presentation layers. This would help business leaders, policymakers, or bureaucrats to comprehend the results better and understand the basis of how the results are scientifically derived.

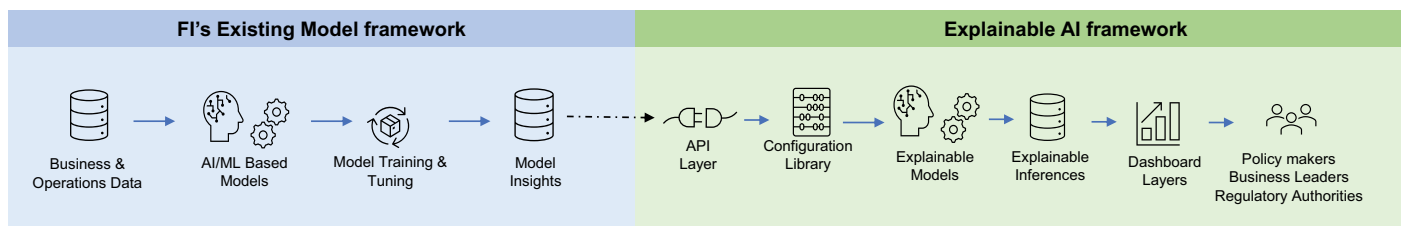


Fig 2: The end-to-end view of Explainable AI

The following indicative use cases will give a sense on overall orchestration of explainable AI in enhancing credit decisions, customer service, and retention.

S.No	Business events	Product class	Sample use case	AI explain-ability (indicative inferences)	Associated AI/ML models
1	Decision making	Mortgage	Credit decision: approve/reject	<ul style="list-style-type: none"> • 80% of mortgage applications are approved for customers having Credit score above 725. • 60% of mortgage applications are rejected for customers not meeting eligibility criteria • 15% of mortgage applications are rejected for construction of flood exposed areas. 	<ul style="list-style-type: none"> • Statistical significance • Correlation models • Decision tree • Association rule mining
2		Credit card	Card limit enhancement	<ul style="list-style-type: none"> • 78% success rate on increased card limit for customers having credit score above 750, PD (propensity to default) below 30, and age below 55 	<ul style="list-style-type: none"> • Decision tree • Statistical Significance
3		Current Account	Account balance maintenance	<ul style="list-style-type: none"> • 80% customers raised complaints when their account hits negative balance, subsequently overdraft charges is applied 	<ul style="list-style-type: none"> • Statistical significance • Correlation models • Decision tree • Association rule mining
4	Cross-selling	Across products	Chatbot interactions & recommendations	<ul style="list-style-type: none"> • 90% of chatbot interactions were responded and recommendations were accepted by customers between 5 to 8pm 	<ul style="list-style-type: none"> • Decision tree • Statistical Significance
5	Customer Retention	Across products	Customer sentiment and satisfaction management	<ul style="list-style-type: none"> • 85% of customers have high propensity to walk out from a bank when their complaints aged more than 21 days 	<ul style="list-style-type: none"> • Decision tree • Statistical Significance
6	Safeguard reputation	Across products	Complaints management	<ul style="list-style-type: none"> • 90% of complaints aged more than 45 days had 90% chances of escalation 	<ul style="list-style-type: none"> • Decision tree • Statistical Significance

Constraints

• **Explainable AI can be tedious and cumbersome:** Crafting explainable AI is highly cumbersome especially on deep learning models. The level of technical complexity will go exponentially high for deep-learning models, which have multiple levels of complex neural layers. This constraint may still exist till quantum

computing hits the road.




• **API integration:** Highly secured and sophisticated API layers are required at additional cost, as they need to regularly stream business-critical and customer-sensitive data for explanatory analysis.

• **Explainable AI is not a silver bullet to resolve all circumstance:** Explainable

AI is essentially required during the justification of fair conducts and business practices in AI/ML processing. As it has an implication of additional cost and skills, it is judicious to use explainable AI only during compelling situations such as business-critical decisions or regulatory adherence.

Benefits

Explainable AI brings all the parties (banks, customers, and regulatory bodies) coherent with more rationale infused into the process. The following are the benefits from the perspectives of all three.

 Bank	 Regulatory body/policy makers	 Customer
<ul style="list-style-type: none">✓ Adopt AI/ML with confidence✓ Business rationale on AI/ML models made simple✓ Equip business leaders with self-service✓ Reduced dependency on data scientists	<ul style="list-style-type: none">✓ Gain quick understanding on the basis of AI/ML models✓ Explanations in layman terms rather than with scientific jargon✓ Boost confidence on fair practices adhered in the process	<ul style="list-style-type: none">✓ Reduced bias and customer fallout✓ Refined and contextualized services✓ Better customer banking experience

Conclusion

Many banks in the industry have already leveraged AI insights for business-critical decisions, but a majority of them are yet to implement explainable AI into their processes. Bureaucrats and policymakers in banking expect an increased adoption of explainable AI as it brings more transparency. Along with offering

simplified explanations on complex AI models, it facilitates to bring more coherence into the process by bringing all the parties (banks, regulators, and customers) together.

As regulatory bodies hammering more and more stringent rules over time, it would be an uphill battle for banks to stay

compliant with products and services and perpetually optimize their banking journey and experience. It's time for banks to evaluate multi-facet benefits of explainable AI and progressively onboard it into their ecosystem to stay ahead in competitive markets.

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Anand is a solution consultant with over 14 years of experience across Retail & Digital Banking, Life Insurance & Analytics domain. Anand has held responsibilities on product ownership, business analysis, requirement gathering & detailing, design thinking & innovation, product management, features and functionality development. Over the past 6 years, he has extended product consulting on advanced and predictive analytics, AI and ML associated projects pertain to Retail Banking, and lending domain.

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*For organisations on the digital transformation journey, agility is key in responding to a rapidly changing technology and business landscape. Now more than ever, it is crucial to deliver and exceed organisational expectations with a robust digital mindset backed by innovation. Enabling businesses to sense, learn, respond, and evolve like living organisms will be imperative for business excellence. A comprehensive yet modular suite of services is doing precisely that. Equipping organisations with intuitive decision-making automatically at scale, actionable insights based on real-time solutions, anytime/anywhere experience, and in-depth data visibility across functions leading to hyper-productivity, [Live Enterprise](#) is building connected organisations that are innovating collaboratively for the future.

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