Comments Submitted by NASSCOM on the Federal Agencies' Request for Information and Comment on Financial Institutions' Use of Artificial Intelligence, Including Machine Learning

Submitted via www.regulations.gov

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Submitted to:

Office of the Comptroller of the Currency (*OCC) via regulations.gov (*Docket ID OCC-2020-0049)

Board of Governors of the Federal Reserve System *via email at regs.comments@federalreserve.gov* (Docket No. OP-1743)

Federal Deposit Insurance Corporation (FDIC) via email at *comments@fdic.gov (*RIN 3064-ZA24)

Bureau of Consumer Financial Protection (Bureau) via email at *2021-RFI-AI@cfpb.gov (*Docket No. CFPB-2021-0004)

National Credit Union Administration (NCUA) via *regulations.gov* (Docket No. NCUA -2021-0023)

Dear Sir or Madam:

The National Association of Software and Services Companies (NASSCOM) is submitting comments in response to the Request for Information and Comment on Financial Institutions' Use of Artificial Intelligence, Including Machine Learning from the Comptroller of the Currency, the Federal Reserve System, the Federal Deposit Insurance Corporation, the Bureau of Consumer Financial Protection, and the National Credit Union Administration; published in the Federal Register on March 31, 2021.

1. Introduction of NASSCOM

NASSCOM is a global trade association with over 3,000 members, including virtually all the major U.S. IT companies in addition to the leading IT industry participants in other geographies. Our membership also includes some of the US financial institutions and others outside the tech sector that have significant captive IT operations in India. Over 500 of our members are either headquartered or do significant business in the United States. NASSCOM members employ hundreds of thousands of workers and serve clients in every state across America and in virtually every sector of the US economy. More than 75% of Fortune 500 companies and thousands of other entities in America rely upon NASSCOM member companies for

operational support, innovation, and for assistance in navigating the digital transformations that are sweeping the business world. Throughout the COVID-19 pandemic, NASSCOM member companies have been providing critically needed "essential services" to financial institutions, hospitals, pharmaceutical and biotech companies and biotech companies, state and local government agencies, technology and communications firms, grocers, manufacturers, and thousands of other businesses across the U.S. Further, these companies deployed the best of their technology innovations to assist organizations across all sectors and people across the globe address and adapt to the serious challenges created by the pandemic. .

NASSCOM's member companies are leaders in the information technology industries, providing software development, software design and system analysis, software products, IT-enabled/business process services, e-commerce services, engineering services, chip design, product development, internet, telecommunications and manufacturing services to clients in every business sector throughout the global economy. Our member companies have designed and developed solutions that enhance the usage and adoption new age technologies e.g., Artificial Intelligence (AI), including Machine Learning, by their U.S. clients, in particular in the Banking and Financial Services sectors.

In the rest of this paper, we elaborate how financial institutions are using AI technologies, the provider landscape of the AI ecosystem, and outline key actions for policymakers to ensure AI technologies are leveraged optimally as part of our concluding remarks.

2. How do Financial Institutions use Artificial Intelligence in their activities?

We are witnessing a revolution in fin-tech that has transformed the banking and financial services (BFS) industry into a far more efficient and profitable business. With the evolution of innovative, new-age technologies like Artificial Intelligence (AI), Machine Learning (ML), and more, financial services are climbing new heights. As COVID-19 defines the new normal, with an increasing adoption of virtual banking, it pushes BFSI players to revisit their existing business models. From generating real-time insights and predicting loan defaults to detecting potential fraud, providing personalized financial recommendations and digitizing customer interaction to enabling automated disbursal of funds enabling higher degree of self service to continuously bettering customer experience, enhancing compliance tools and potentially realizing cost savings and efficiencies; AI will be an integral part of BFS enterprises' strategy going forward.

Throughout the financial services world, AI, whether it is machine learning, deep learning, or a series of algorithms that can crunch an array of big data, is giving enterprises distinct strategic advantages. When a bank, brokerage house, lender, payments system or other financial services firm effectively uses AI, they run more efficiently and are able to connect more effectively with a segment of the population that will never be replaced by machines: their customers.

Technological innovations like AI and ML can optimize the operations of financial services firms like customer onboarding by preventing frauds, building suitable product recommendations, and more. A fully-equipped and developed digital lending software can offer myriad benefits to accelerate digital lending, allowing banks to disburse loans faster. While many prominent technologies drive digital banking operations, a few technologies like AI and ML, Financial APIs (Application Programming Interfaces), and Cloud Technologies play a crucial role.

- Artificial Intelligence (AI) and Machine Learning (ML): AI and ML has successfully helped banks and financial service providers to provide frictionless and innovative banking operations. AI-powered technology like optical character recognition (OCR) enables auto-filling user details from their document proofs in customer onboarding. AI and ML are excellent in preventing fraud and offering automated product recommendations to the users. Whether it is about onboarding a new customer or granting a loan and auto disbursement of funds basis eligiblity, all details and processes have to comply with regulatory bodies. AI and ML play a major role in compliance management.
- Financial APIs: Financial APIs (Application Programming Interfaces) are one of the most important technologies used in digital banking. APIs connect with the application and allow interactions, transactions, payments, and sharing of information. Financial APIs take care of operations like Know Your Customer, the credit assessment, retrieving information while filling out forms, e-sign, etc. Some specific open APIs allow third-party vendors to access consumer accounts, known as open banking. Open APIs can help the customers with additional provisions and services by letting third-party vendors access their accounts.
- Cloud technologies: Digital banking has ramped up the customer onboarding rates, and with a growing number of customers also comes an increased amount of data. Cloud technologies are the most optimal way to store, organize, and retrieve data. Powerful cloud-based technologies can be immensely beneficial for building essential statistics and deriving valuable insights to boost customer onboarding rates.

Rapid transformation across Financial Institutions e.g., rise of FinTech players, growth in mobile banking, rising financial awareness, emergence of multiple financial products/ services and the recent impact of COVID-19 pandemic are altering customer expectations and enterprise business models. Financial Institutions globally are thus faced with a variety of challenges across the value chain as they try to meet evolving customer expectations. Key challenges faced by Financial Institutions across the value chain. A few of the specific AI solutions addressing these can be summarized as follows:

1. Sales and Marketing: Challenges include increasing marketing spend to acquire customers and lack of single view of the customer. AI can help via Predictive prospecting i.e. highly targeted prospecting using data from existing customer profiles and emerging contexts; as well as Omni-channel marketing or integrated data analysis/ storage allowing a single source of customer knowledge instantly.
2. Customer Management: Concerns involve constant pressure to improve customer experience and lack of customer trust. AI based virtual assistants/ chatbots with detailed knowledge of the customer can provide customized responses to each customer based on their past transactions. Biometric

identification using speech and image recognition for transaction authentication, and personalized financial recommendations based on each customers' profile aids in trust building.

3. Core Transactions: Increasing cost of claims and a fractionalized business model involving high cost of system integration are key challenges faced by Financial Institutions. Deploying AI solutions help reduce cost of claims by using better risk mitigation services based on real-time data and past calamities and warn policy holders in advance. AI based research tools also enable operational integration of systems by providing a single, unified window of all customer transaction data.
4. Risk and Compliance: Rapidly evolving regulatory landscape and increasing cyber threats are key risk areas. AI based predictive models provide real-time analysis of transaction patterns to detect and predict frauds, security breaches, money laundering; as well as suggest corrective measures based on operational and external factors

Detailed Use Cases of Artificial Intelligence (AI) by Financial Institutions:

Below we provide an illustrative summary of some specific use cases of AI solutions deployed by Financial Institutions across each segment of the value chain.[1]

1. Sales and Marketing :

1.1 Personalization of Customer Services: Personalized Marketing:

Sub-Sector	Use Case Description	Type of AI
Banking	Personalization of merchant offers based on customer transactional and behavioral data	Algorithm
Banking	Targeted / contextual marketing to improve customer retention and conversion rates	Algorithm
Insurance	Personalization of ads based on details provided by customer	Algorithm, Vision
Insurance	Predictive algorithms scan past claims and hospitalization data to provide incentives to customers to stay healthy, thereby minimizing resources required claims management	Algorithm, Hardware
Financial Services	Uses Machine Learning platform that relies on account based marketing to deliver effective personalization at scale to B2B customers	Algorithm

1.2 Personalization of Customer Services: Personalized cross-selling:

Sub-Sector	Use Case Description	Type of AI
Financial Services	Retention and cross-selling to mortgage customers based on propensity modelling	Algorithm, Voice

[1] Source: NASSCOM EY Report "Indian BFSI – Unlocking the Transformation Potential of AI"

Insurance	AI enabled customer profiling and generation of insights to re-engage inactive customers	Algorithm
Banking	Prediction models to determine the best suited products for customers based on customer segmentation	Algorithm

1.3 Personalization of Customer Services: Product personalization:

Sub-Sector	Use Case Description	Type of AI
Insurance	Personalization of policy packaging is done by an evolving ML algorithm that is based on information from millions of quote requests the organization received so far	Algorithm
Financial Services	Personalization of credit card rewards based on modelling of customer data to predict how clients will redeem their credit card points	Algorithm
Banking	Personalized rewards based on spending patterns, location, travel plans, and also provide advice such as transfer to savings account, and continuous check for fraud transactions	Algorithm

2. Customer Management:

2.1 Personalized Portfolio Management:

Sub-Sector	Use Case Description	Type of AI
Financial Services	Loan pool recommendation for investors in P2P lending marketplaces based on risk, predicted returns, and loan history	Algorithm
Banking	Automated portfolio rebalancing using ML algorithms and improving strategy with periodic guidance from investment experts	Algorithm
Financial Services	Portfolio intelligence and insights to the investment manager to build long term relationships and tools to automate portfolio management	Algorithm
Financial Services	Stock opportunities identification through research and analysis of both structured and unstructured data sources for the customers	Algorithm, Vision, Natural Language Processing

2.2. Personalized Financial Recommendation:

Sub-Sector	Use Case Description	Type of AI
Banking	Predictive banking to provide tailored account insights and	Algorithm

	monitor account activity	
Financial Services	Personalized financial assistance based on customer spend patterns and savings target	Algorithm
Financial Services	AI enabled personalized advisory (in direct contribution pensions) to meet specific financial goals based on age, risk appetite, and spending behavior	Algorithm

2.3 Customer Engagement:

Sub-Sector	Use Case Description	Type of AI
Insurance	Customer segmentation based on risk profile to upsell / cross sell solutions contextually	Algorithm
Banking	Intelligent customer lifecycle management by coming up with new products and better solutions based on the historical transaction data	Algorithm
Financial Services	Machine learning algorithms leveraging transaction history and third party data of an individual to offer personalized credit card rewards / recommendations to customers	Algorithm

3 Core Transactions:

3.1 PE Due Diligence:

Sub-Sector	Use Case Description	Type of AI
Financial Services	Textural analysis on company news and filing information, image-recognition of on-ground operational activities to generate summary reports	Algorithm, Vision, Natural Language Processing
Financial Services	Enables deal due diligence based on firm's financial history and other data available from reliable sources, provide insights, pros and cons that will help PE firms take the decision	Algorithm, Vision, Natural Language Processing
Financial Services	AI model to rate growth potential of prospect start-ups based on past financial history, trends in the market, and time series data of successful companies	Algorithm
Financial Services	Predictive modelling to visualize different investment scenarios and relative returns	Algorithm

3.2 Customer Churn Prediction:

Sub-Sector	Use Case Description	Type of AI
Financial Services	Tracking customer financial activity to predict future retention / churn through AI	Algorithm
Banking	Customer churn rate prediction and savings value attrition prediction using customers / MSME's transaction and behavioral data	Algorithm
Insurance	AI system for predicting SME customer churn and suggesting remediative measures to retain customers as well as drive customer success	Algorithm

3.3 Loan Underwriting:

Sub-Sector	Use Case Description	Type of AI
Banking	AI enabled decision making for underwriting loans based on analysis of applicant data against historical data patterns of similar applicants	Algorithm, Vision
Banking	AI based credit underwriting model using traditional (credit history, past payments, etc.) and new data (public records, satellite images, etc.) to grant loans to previously credit invisible applicants	Algorithm

4 Risk and Compliance:

4.1 Fraud Detection:

Sub-Sector	Use Case Description	Type of AI
Banking	Detection and prediction of fraudulent transactions based on intelligent analysis of buyer / seller behavior patterns	Algorithm
Banking	Intelligent tracking of transaction patterns and bank activities to detect fraudulent activity / money laundering	Algorithm
Banking	Image / face recognition using real-time camera images at ATMs to detect and prevent fraudulent activities / crimes	Vision
Insurance	Monitoring of claims and billing process against historical records to detect, prevent and predict frauds	Algorithm, Vision
Insurance	AI powered engine to track standard vehicle repair prices in market from multiple data sources and matching of claims submitted against those prices to identify fraudulent claims	Algorithm, Vision
Insurance	Determination of travel insurance claim authenticity by monitoring claim data against structured and unstructured	Algorithm, Vision

	market data	
Financial Services	Market surveillance using AI that alerts / notifies unusual price movements, trading errors and potential manipulations	Algorithm, Natural Language Processing
Financial Services	Machine learning model integration into the payment processing stack to analyze a continuous stream of incoming transactions in order to identify fraudulent activities	Algorithm

4.2 Credit Risk Assessment:

Sub-Sector	Use Case Description	Type of AI
Financial Services	Credit reporting based on analysis of customer spending patterns, past financial behavior	Algorithm
Financial Services	Intelligent credit scoring by monitoring and drawing insights from alternative data including utilities payments, real property ownership, address history, wealth, income, bank transaction data, etc.	Algorithm, Vision
Banking	AI based scoring of start-ups' creditworthiness based on cash flows and other factors	Algorithm, Vision
Financial Services	Determining creditworthiness of Small & Medium Businesses based on processing of unstructured data from multiple sources	Algorithm, Natural Language Processing
Banking	Cognitive credit farm scoring based on alternate agricultural data to accurately determine farmer's creditworthiness (past yields, predicting yields and price of produce, etc.)	Algorithm, Vision, Hardware

4.3 Risk Modelling:

Sub-Sector	Use Case Description	Type of AI
Banking	AI led rapid computer simulations to gain better insights into credit risk/market risk/operational risk and analyze complex, non-linear risks efficiently	Algorithm
Insurance	AI prediction models on risks such as hurricanes, earthquakes, etc. provide improved risk insights and dynamic risk management in cases of unforeseen circumstances	Algorithm

4.4 Compliance Check:

Sub-Sector	Use Case Description	Type of AI
Financial Services	AI system for regulatory tests and requirements to support compliance management	Algorithm

3. Provider view of the AI ecosystem

Financial Institutions have benefited tremendously from strategic collaborations with the external AI ecosystem players to develop the right technology, skill-set, infrastructure and service capabilities. Key pillars of the AI provider ecosystem include: (i) product technology companies, (ii) service providers, (iii) start-ups, (iv) dedicated innovation hubs to support experimentation and co-creation, and (v) dedicated innovation networks & funds to either work with/ invest in startups providing niche skills as a strategic decision. Strategic partnerships with these provider enterprises enable Financial Institutions to efficiently integrate AI into their business and ensure faster time-to-market, better resource utilization and regulatory compliance.

These providers enable the necessary AI capabilities availability and adoption across various value chain segments within Financial Institutions. Their portfolio of targeted technology offerings, talent pool and prior AI experience, are driving high business value for their enterprise clients. Below we provide a few illustrative case examples of NASSCOM member companies developing specific AI solutions to address challenges faced by their global/ U.S. BFS clients.

For a major North American bank, **Tata Consultancy Services (TCS)** partnered to create a real-time transaction fraud detection algorithm using advanced machine learning algorithms resulting in doubling the fraud detection rate. Before TCS built the new algorithm, client was struggling with increase in transaction fraud for a particular segment of the portfolio which also had less than 50% fraud detection rate. After implementing the said algorithm, fraud detection rate more than doubled and false positives were brought down by more than 20%. Similarly, for a global banking major, TCS partnered to build a recommendation system for its contact center using which the bank is now able to predict the reason for a customer calling its contact center and prioritize its interactive voice response (IVR) menu based on this prediction. Thus TCS helped the bank make its IVR menu as personalized, intelligent and dynamic as possible using advanced machine learning algorithms. This enabled the customer care officer to receive a dashboard with Customer service journey along with call reason predictions each time a customer called the bank, resulting in better customer experience. Further, for a global financial institution, TCS has enabled General Data Protection Regulation (GDPR) compliance for credit card customers. Customers of the Financial Institution needed to upload the image of their credit cards during online money transfer transactions, leaving themselves sensitive to leakage of information on the Credit Card image like the PAN (Primary Account Number) and the CVV number. These details needed to be masked before anyone including the employees got access to the image, not only for Financial Security but also as a critical GDPR Compliance requirement. TCS partnered with this financial institution to effectively handle this requirement and manage the compliance leveraging computer vision & Natural Language Processing algorithms.

A leading American financial giant had customers with varying degrees of credit risk, and wanted to manage their risk exposure better to plug revenue leakages. They partnered with **Infosys** to accurately

predict the risk profile of new applicants by ingesting data from both internal and external sources to relying on a fully non-linear, supervised machine learning model. The model predicted the significant variables that influence likelihood of default. Automatic documentation of the dataflow provided the necessary audit trail required for regulatory compliance as well. Next, a U.S. financial services company was inundated with over 30,000 payment related queries from vendors annually, most being extremely basic in nature, but gave a tough time to the help desk, resulting in high response time, exasperated staff and poor customer experience. With a large number of queries being only 'requests for information', Infosys deployed an AI-based chatbot for responding to ~40-50% queries. The helpdesk became highly efficient with average handling time brought down to 1 query/ second. In yet another example, Infosys partnered with a U.S. banking major to co-create a Mobile Chatbot Platform as a multilingual bot that can work with various backend systems to manage expense claims for the bank. During travel time, travelers conduct their expenses that include accommodations, rental cars, meals, etc. The expense tracking gets conducted in an actual intelligent Chatbot. The moment expenses occurred on expense card, mobile app gets alert and app triggers the chat with traveler to settle the claim right there or later. Infosys developed integrations with their claims system and interface with bank for financial data that streamlined the claims process. Further, a residential mortgage servicing industry leader partnered with Infosys to transform the paper-intensive mortgage servicing industry digitally. Utilizing artificial intelligence, machine learning, and natural language processing (NLP) on the petabytes of data created with each customer touchpoint, and then collating and correlating those data points is improving the customer experience and reducing costs and risks related to manual processes, compliance, and oversight[2].

Wipro HOLMES, Wipro's artificial intelligence and automation platform, enables enterprises to drive digital transformation via a comprehensive set of cognitive solutions incl. natural language processing, algorithmic intelligence, self-learning and reasoning. It eliminates any inefficiency in the business process to pave out the way for reduced cost of operations, better ROI, enhanced customer experience and assured compliance. A leading U.S. bank achieved regulatory compliance and reduced Know-Your-Customer (KYC) lifecycle by up to 50% by leveraging Wipro HOLMES enterprise-KYC solution. The bank was initially taking 1.5 days to complete a KYC profiling; involving manual processes for information identification, collation, periodic reviews and verification. Wipro deployed the HOLMES enterprise-Know Your Customer (E-KYC) solution for the bank. This brought cognitive search, aggregation and automation capabilities to the enterprise KYC processes; while ensuring regulatory adherence. The solution rollout helped the bank improve content management and accelerate processing time by leveraging machine learning, semantic Web technology tools and natural language processing-based cognitive search. This resulted in up to 50% reduction in the KYC lifecycle, up to 40% cost reduction in processing KYC applications and a 40% reduction in cycle time via automation of checks and processes. Further, a leading U.S. Title Insurance company achieved 5x faster examination of titles with cognitive automation platform HOLMES. Their title deed inspection process was largely manual, error-prone, and time consuming. A case

[2] https://www.forbes.com/sites/patrickmoorhead/2021/04/06/how-digital-transformation-is-helping-you-pay-your-mortgage/?sh=5a9bc3ec3a4e

documentation typically consisted 50-80 pages including multiple types of documents such as conveyance deeds, property index, general index, and affidavits. The immense quantity and document type complexity led to errors during the inspection process. Wipro HOLMES utilized Natural Language Processing to go through all documents in the docket and extracted relevant information based on business rules. This led to improvements in productivity, as time taken for document inspection was brought down five times, and turnaround time for title examination became less than five minutes per case. It also resulted in enhanced accuracy and efficiency with reduced claims due to error-free and diligent search and examination.[3]

Cognizant worked with a large U.S.-based wealth management company to reduce its contact center operating costs. Their existing agents spent much of their day focused on responding to high frequency, low complexity requests, which was a drain on employee productivity and morale. Cognizant leveraged conversational AI to improve responses to common questions, reduce employee workload and provide increasingly personalized service. Progressively accurate algorithms recognized words and phrases to identify a caller's objective from a range of possible conversation flows. This dialogue was then cross-indexed to provide the best answers, while continuing to fine-tune the analytics. Cognizant designed a customer-facing virtual assistant that automates inquiries and performs live agent transfers through text-based chat or by placing customers in a queue to receive a return call, depending on their preference. This automated >400 of the client's more common customer inquiries, leading to $6.7 million reduction in operating costs, 166k fewer calls and 5% improvement in customer experience index score. In yet another successful example, to reduce the incidence of check fraud, a global bank partnered with Cognizant to build a solution based on AI machine learning to speed up check verification and lower costs. The bank already uses optical character recognition and deep learning technology to scan checks, process data and verify signatures. Cognizant used a neural network based model to parse a historical database of previously scanned checks, including those known to be fraudulent. This was then trained to use a set of comparative algorithms to distinguish good checks from anomalous ones. By automatically comparing various factors on scans of deposited checks to those in the database, the model flagged potential counterfeits in real time. This enabled a 50% reduction in fraudulent transactions and a $20 million annual savings on fraud losses. Further, a large U.S.-based issuer of branded credit cards incurred nearly $1 billion in consumer credit debt every year. Employing thousands of agents to recover debt from consumers in default increased the company's collections costs to >$30 million annually, with an agent turnover rate of 40%. Cognizant designed an AI-based model to review voluminous data on both slow and no-paying credit customers. Using AI-based causality engine helped identify factors that determine consumer payment behavior. It showed the company that focusing its collections agents' activities on the subgroup of consumers who are more likely to repay their debts would increase their revenue $5 million to $7 million, while also saving a projected $10 million annually. Furthermore, these higher return collections are expected to increase employee commission compensation, which should lead to a significant reduction in agent turnover rates, hiring expenses and training costs; with an overall $10 million projected call-center savings.[4]

[3] https://www.wipro.com/holmes/
[4] https://www.cognizant.com/content/cognizant/us/en/ai/banking-capital-markets.html

Tech Mahindra's AI offerings in BFSI include Consulting Services, Text Analytics (NLP), Intelligent Automation – Business & IT, Virtual Assistants & Voice, and Advanced Analytics (ML). A leading American Wealth management firm faced challenges as their investors didn't receive personalized advice and evidence based consultation. Their advisors didn't have access to deep investor personality insights and real time market insights. Tech Mahindra's AI based Advisory Solution Rita helped improve the productivity by intuitively providing information to advisors, sales teams, and customers. This solution offered Cognitive & tactical personal advisory based on dynamic persona as well as market dynamics. It empowered human advisors with information in handling investor questions and rebalancing of portfolios across asset classes. It improved firm's understanding of customer behavior and enhanced advisor productivity by 20-30%. It also helped in revenue increase due to deeper insight on customer portfolio performance & market impact. Additionally, Tech Mahindra offers solution for customer sentiment analytics, text analytics and speech to text conversion. This solution uses Deep Learning algorithm to recognize customer intention and emotion in conversation. It utilizes sentiment analysis models to capture customer feedback and public opinions trending. This solution provides key benefits of improvement in call capture rate, better customer service and monitoring. With this, banks can swiftly act on negative, issue-based feedback and resolve customer issues. Further, Tech Mahindra provides Intelligent AI solution for insurance companies. This solution enables auto processing of claim forms submitted through paper, Chat, Email and Contact Center. Webforms, Chatbot and unattended Robots are used for handling inquiries, claims submission and follow-up queries. Recognition based data Capture, Mail room automation, Automated customer verification during claim submission is used for this solution. This helps Insurance companies reduce their claim processing and settlement time by 25%, increase customer satisfaction with self-service and offer 24/7 availability. In addition Tech Mahindra also offers solutions in areas of AI driven Video KYC, AI Agent Prompter, Conversational AI, Lending Analytics and AI-Powered Model Risk management platform.

HCL Technologies provides a range of AI solutions for their Financial Institution clients that enable them to identify transaction problems as they happen, drill down to uncover root cause and respond to issues relating to excessive denials, transaction failures, or response time. This also enables alert to administrators when a problem occurs; i.e. before customers or merchants call to complain. As an example, their DRYiCE Software offers robust AI Ops-enabled products based on next-gen technologies. A Fortune 500 Financial Services firm was seeking to address increased complexity of Big Data with intuitive visualization of critical business processes. DRYiCE iControl was deployed to sort and analyze ready business data and aid in decision-making. This allowed the top management to handle situations better and improve the overall efficiency of the workforce. DRYiCE iControl helped in bringing together 'off-the-shelf business intelligent systems' and the underlying data; measured the business impact, criticality of incidents, and determining deadlines for corrective action; enabled proactive application monitoring and management leading to

improved end-to-end system visibility; and implemented customizable visualizations across business, technical, and operations areas to enable business and infrastructure impact analysis reporting.[5]

4. Concluding Remarks

Financial Institutions worldwide are witnessing a fundamental shift in their operations and services provided to, and expected by, customers. With growing availability of digitalized data and growing customer demands, AI can structurally transform the sector, while enabling Financial Institutions to create more value for the customer. The COVID-19 crisis has further accelerated this move, as Financial Institutions realize the urgency of implementing solutions aimed at detecting and preventing fraud and maximizing top-line growth while ensuring highest customer satisfaction levels. This rapid AI adoption by Financial Institutions has been made possible by the vast AI provider ecosystem who are constantly innovating and delivering cutting-edge technology solutions.

In this context, the role of global policymakers becomes extremely critical in ensuring a business friendly regime that enables AI adoption and usage to its full potential. Policymakers should invest in the development and adoption of AI to secure its many benefits for Financial Institutions in particular, and the economy and society at large. This can be done by investing in fundamental and applied AI research across sectors, train specialized AI talent domestically and attract international talent; develop digital infrastructure and related technologies. It is important that AI ensures de-risking by not only being responsible, from development to deployment, but also digitally reskilling talent to promote seamless human-machine co-working. There needs to be a continuous and rigorous methodology to nurture, re-skill and cross-skill talent pool to meet the demand. This addresses the need for workers to have the skills to incorporate digital technologies that drive creativity and change both internally and for clients, while being future ready. While the opportunities are immense, there are also various challenges associated with enabling research and development programs for niche AI skills. One is access to high quality and standardized datasets; another is being able to find and hire people with the right combination of skills to build reliable, high quality products. Limits on immigration and work visas can further exacerbate the shortage of AI professionals and researchers. Updating educational programs to introduce AI training at early ages is another important component to build the AI talent pool. Additionally, it is important to enable an open and fair market environment including the free flow of information, while adhering to applicable frameworks for privacy and data protection for AI innovation. AI and other such tools will greatly enhance both the industry's capacities and the customer's experiences. Policy makers across the globe should encourage and help foster these developments. At the same time, policy makers should work with industry and consumer groups to explore the development of new regulations as needed to help ensure basic and equitable rules guiding Responsible AI use and development, which address various ethical issues (e.g., algorithmic bias, opaqueness, fairness, discrimination, etc.).

[5] https://www.dryice.ai/

Finally, these questions and technologies are not isolated to the United States. Collaboration across various AI fields could be a big boost to the overall U.S.-India bilateral and strategic partnership. Research and development of AI technologies is a key area for collaboration, e.g., AI Systems Research alliance on developing novel algorithms, software and hardware techniques for AI/ML. Accelerated application of AI in key sectors, e.g., via creating a U.S.-India AI Task Force to cover health, finance, defense, manufacturing, commerce; comprising of industry representatives from both sides could be a great way for Industry-Government cooperation from both sides. AI regulation is another important collaboration area: jointly identifying mechanisms to get access to right and clean data to enable use of AI and ML to address issues of national security e.g., terrorism, cyber threats, misinformation in public domain. Another example could be co-creating a global framework for Responsible AI; via collaboration on ensuring ethical, accountable and transparent use of AI consistent with societal laws, values and expectations. Finally, partnering on building AI Talent, Skilling & Standards e.g., developing certification/ qualifications in new-age job roles in AI/ ML, data science, natural language processing et al. could be a great step to boost the AI talent pool in both countries.

NASSCOM is pleased to provide our inputs and we would welcome an opportunity to discuss our suggestions and next steps with your agencies.

Sincerely,

Shivendra Singh
Vice President
NASSCOM