



STATE OF ENTERPRISE AI IN INDIA 2019

BY ANALYTICS INDIA MAGAZINE & BRIDGEi2i



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EXECUTIVE SUMMARY

// *“A year spent in artificial intelligence is enough to make one believe in God”*

- Alan Perlis, early computer science pioneer

It's futile to deny it, but Artificial Intelligence (AI) is no longer the buzzword of tomorrow, it's a striking reality of today, and the enterprise landscape of AI has never looked more promising than it does today!

By 2022, the global business value created by AI will touch a whopping \$3.9 trillion, and spending on AI systems is expected to reach [\\$79.2 billion](#)¹. Forecasts estimate that AI technologies will pervade every [software product](#)² next year, and AI software revenue is expected to grow to [118.6 billion by 2025](#)³. All these are tantamount to the fact that AI is no longer just a differentiator but a core part of business functions!

In India, the enterprise AI market is heading towards much wider adoption. An industry expert associates the

Indian Enterprise Market for AI to be estimated to be \$100 million, growing at 200-250% CAGR. Futuristic growth of this sort clearly underscores the potential in the big revolution that business leaders should prepare for!

AI is increasingly being used by software vendors and AI solution providers as embedded products and services to deliver more value across a host of business problems. This journey has roots in core business applications like ERP & CRM, but today, almost every sector is using AI in their auxiliary processes as well, such as customer support, recruitments sales, or marketing. For example, a majority of banks and insurance companies in India have AI-driven chatbots that are fast becoming the first

point of customer interactions. While the scale and complexity of these implementations may vary, it's soon becoming the norm in the market.

C-suite executives have gone beyond committing 'digital experimentation' to hardcore Digital Transformation. This has led to a surge in demand for enterprise-ready AI services, applications, and tools across organizations. There are plenty of forerunners in the market: Enterprise AI solutions like the IBM Watson platform, which is portable across any cloud, is used by customers to manage multiple customer service touchpoints like chatbots, email or phone, forecast inventory and demand, or improve customer care. Salesforce Einstein empowers sales and support

while Google's latest offering — Contact Center AI provides the best of Google's AI and machine learning solutions with software that allows businesses to improve customer experiences and operational efficiency at the same time.

As the industry evolves, certain sub-sectors that are creating disruption have risen to prominence; Enterprise AI has made inroads in areas like diagnostics (healthcare), salesforce automation (CRM), automated trading (financial services) and anomaly detections (oil & gas, utilities).

We believe as the adoption grows, AI will become increasingly interdependent on core business functions.



// *“It's not just AI, but AI+X that is going to be the game-changer, X being your core business function. The future is about AI being tightly coupled with all our everyday tools until it becomes an integral part of existing tools and processes.”*

- Ramprakash Ramamoorthy, Product Manager, Zoho Labs

As companies look for additional capabilities to turbocharge innovation — we believe large-scale AI consultancies will

play a critical role in bringing in pre-built customizable solutions that can drastically reduce the time-to-market and speed up

innovation. With deep domain expertise and trained workforce, AI consultancies are better positioned to educate customers, offer pilots, and scale up the use cases.

According to our [2017 report on the State Of Analytics In Domestic Firms In India](#)⁴, captives account for 75% of the Indian analytics market, while service providers account for 5% market share. With the adoption

of AI solutions increasing, we foresee rapid expansion in the number of use cases tailored for specific business functions creating an opportunity for AI consultancies to bring deeper relationships and in-depth domain knowledge to the table.

The Re-envision of Digital Transformation is responsible for the flutter in global markets. We need to take a moment to comprehend that digitization isn't

merely changing business models or creating new businesses, but it's about keeping up with faster and better techniques of accessing, utilizing, and getting value out of the existing tonnes of data. The speed with which enterprises are getting onto the digital bandwagon speaks of the critical urgency in which transformation initiatives are being carried out by organizations.

But despite the buzz, organizations aren't able to fully seize the opportunity presented by AI and turn it into actionable results. IT leaders across sectors face tremendous challenges at the start of their AI journey. While we often hear about AI PoCs advancing from the project stage, success is limited as deployments often fail to turn into actionable items. In addition to this, there is no established playbook for enterprise leaders to follow.

Most organizations are very early in this paradigm shift, and while CXOs know there's value in AI, they are nervous about making bets. The reason is that to unlock real value from AI, there has to be a perceived tangible return on investment (ROI), or the technology has to be assessed against the key performance indicators. Another hurdle is that most companies lack the AI-specific skills to 'do it alone' and lack the resources to launch test-and-learn cycles. In addition to this, leaders are also looking to embrace AI because they don't want to fall behind in the AI journey.

Against this backdrop, our report 'State of Artificial Intelligence in India 2019' with BRIDGEi2i takes stock of the enterprise AI market in India, the AI player landscape, low-risk, revenue-generating PoCs that organizations can get started with and the rise of AI-as-a-service economy.



"We'll continue to see increasing adoption of enterprise AI solutions as organizations further optimize their IT infrastructure, striving for faster digital product and service development. There will be continued adoption of end-to-end enterprise data management to serve as the foundation for enterprise AI and build an ecosystem of change across analytics and business processes. Also, the growth of digital platforms, which is making it easier for organizations to develop AI applications, will drive business model innovation and optimize the use of Big Data, AI, and IoT."

- Ronald Van Loon, Digital Transformation Influencer



"Unlike earlier technology cycles, we see India being at par with the rest of the developed countries concerning technologies such as AI, ML, and others. Indian companies have mandated their CIOs for effective adoption of cognitive just as much as the focus is on cloud."

- Anil Bhasker, Business Unit Leader Analytics and Big Data, India/South Asia, IBM India



"We are seeing some of India's largest IT firms utilizing AI extensively internally or with consulting companies. With the potential to revolutionize both the services offered by consulting firms to their clients and how consultants work, AI is imperative."

- Hemal Shah, Senior Vice President & Regional CIO, Asia Pacific, Dell Technologies

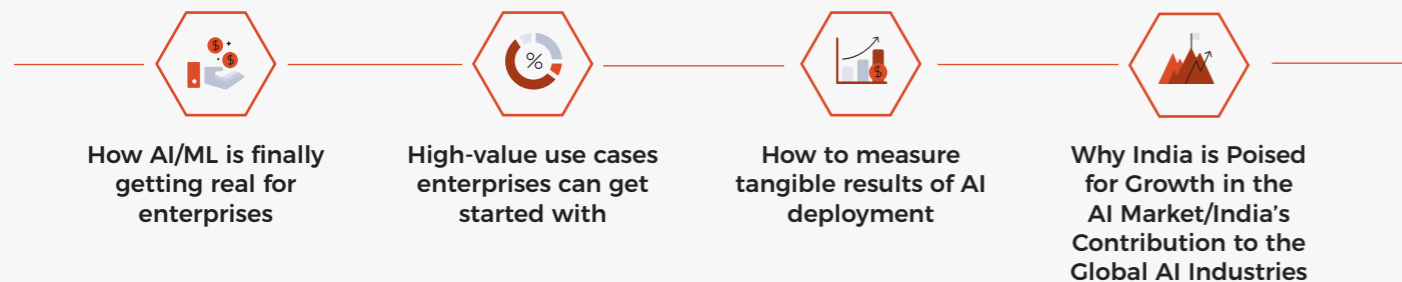
WHAT DOES THE REPORT COVER?

Large-scale advancements in AI over the last five years have presented tremendous opportunities for companies to transform customer experience, automate business functions, and broaden their product offerings. To provide a more informed view of the Enterprise AI market in India, we decided to perform our own research into how users are adopting AI technologies. The report also offers a snapshot of the current state of the rapidly changing AI industry,

looking through the lenses of suppliers and consumers.

The report looks at the scale of opportunity in AI for large-scale organizations that are driving the AI ecosystem in India and how the C-suite can take advantage of PoCs that can deliver the best ROI. It is crucial for business leaders to have a thorough understanding of the AI ecosystem and to target the right PoCs, which can provide the maximum ROI.

THE REPORT ANSWERS QUESTIONS AROUND



WHO SHOULD READ THIS REPORT?

This report is aimed at Executive Leaders, IT Decision Makers, senior managers, data science heads, and investors tasked with

the responsibilities of driving digital transformation, innovation heads, or enthusiasts building delivery capabilities and CoEs.

KEY MARKET DYNAMICS

According to a PwC report, "The business opportunity that AI provides is so vast that by 2030, the global GDP is estimated to 14% higher standing at \$15.7 trillion just as a direct result of AI. This will be augmented by organizations trying to develop an array of AI-based services that can scale across a wide spectrum of software development, different industrial applications, and use cases."

1. The Indian AI sector has seen a total investment of [\\$150 million](#)⁵ in more than 400 companies over the past five years.
2. Industry body [NASSCOM](#)⁶ indicates over 1,200 new

advanced technology startups got added to the ecosystem in 2018, with data analytics being the most significant contributor.

3. Due to its sheer size, BFSI is the largest adopter of AI followed by Healthcare and Logistics.
4. There is an increase in demand for products and services which can attract more investment towards the R&D in the AI sector.
5. With conglomerates and enterprises having a big share in India's market, there is huge scope for AI-based enterprise solutions in the country.

KEY TAKEAWAYS

01	02	03	04
C-SUITE EXECUTIVES CAN GAIN AN OVERVIEW OF ENTERPRISE AI LANDSCAPE AND KEY PLAYERS	OVERVIEW OF AI SERVICE DELIVERY MODELS AND WHY AI AS-A-SERVICE ECONOMY WILL DRIVE THE MARKET FORWARD	TOP USE CASES WITH HIGH RE-USABILITY & ROI	KEY CRITERIA AI SERVICE FIRMS MUST MEET

ENTERPRISE AI LANDSCAPE IN INDIA

SPEND
Source: IDC

\$35.8
Billion

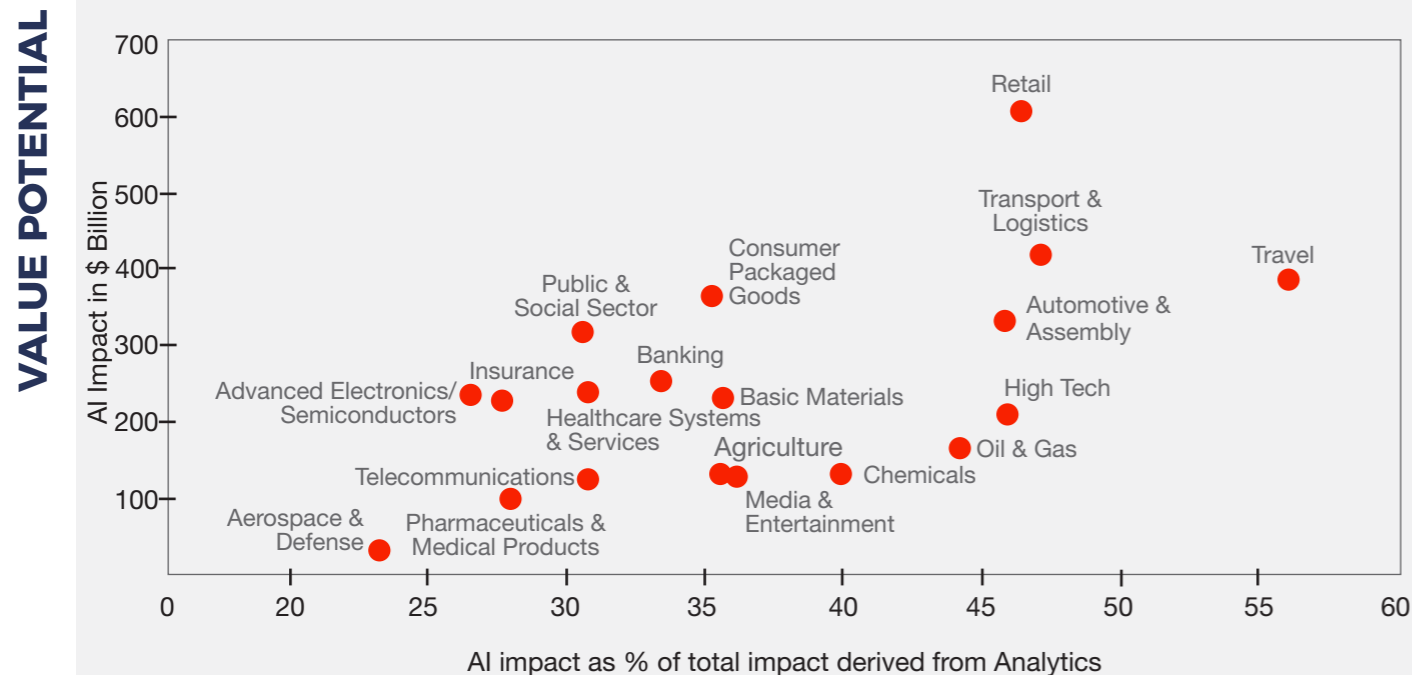
In 2019

\$79.2
Billion

In 2022

\$3.5 to \$5.8
Trillion

AI has the potential to create annual value across sectors totalling \$3.5 to \$5.8 trillion, or 40% of the overall potential impact from all analytics techniques



Source: McKinsey

For many Indian organizations, the rapid rise of AI has become a top corporate agenda with organizations deeming it a critical part of their organizational strategy. IT Decision Makers and Business Leaders want to take advantage of the exponential growth in data and cloud

computing. The news cycle is abuzz with Indian conglomerates and new-age companies who are adopting AI technology at large scale and making strategic investments in technical infrastructure and in building the right talent.



// *“In a nutshell, several factors can be attributed to be pushing the growth of AI in India, including the availability of massively organized and cleansed data sets, the growing sophistication of machine learning and self-improving algorithms and the emergence of hardware.”*
- Prithvijit Roy, CEO, and Co-Founder of BRIDGEi2i

Market Size

As per a [report](#)⁷, the AI market was valued at \$21.5 billion in 2018 and is likely to reach \$190.6 billion by 2025. Meanwhile, the global enterprise AI market is valued at [\\$796.3 million](#)⁸ and is expected to reach \$9880.4 million by 2023. Research by [Accenture](#)⁹ insists that AI has the potential to add US \$957 billion to India’s economy in 2035 if the AI Revolution receives the right support among enterprises, business leaders, and policymakers. India’s AI startup ecosystem is booming

with a number of startups working in the domain of machine learning, computer vision and NLP. More than 50 percent of firms in India are working on advanced analytics and computer-vision based AI technologies. India is contributing significantly to the data labelling market, which is where humans teach machines to recognize familiar human patterns, and this business is expected to reach \$1.2 billion by 2023, according to the research firm Cognilytica.

Investment

India has stepped up the AI game and saw an investment of [\\$73 million](#)¹⁰ in 2017. As per our [research](#) in 2018, startups with operations in India and globally raised approximately US \$529.52 million in funding rounds, and this data includes startups with

investment at varying stages of development, from pre-seed to well-funded companies. As per Gartner, the global business value derived from AI is estimated to be \$1.2 trillion in 2018, a 70 percent increase from 2017.

Adoption by Industry

AI IN FINANCE

As per our report, the size of the analytics industry in the financial sector is currently estimated to be \$1.2 billion (annual) in revenue. Financial institutions have achieved exponential growth and are driving innovation in the industry by building the enterprise-wide analytics capability that is now woven into the key business processes throughout the organization.

Banks and FIs are now investing in several vital dimensions – technology infrastructure, strengthening processes, and people to build sophisticated analytics capability. Some of the top players in this segment are HSBC, American Express, ICICI Bank, Moody's Analytics Knowledge Services, Citi,

JPMorgan Chase & Co., HDFC Bank, Axis Bank, Paytm and PhonePe among others.

IBM and HDFC ERGO General Insurance Company, India's third-largest non-life insurance provider in the private sector, are collaborating to co-create new AI-based solutions on IBM Cloud, that will redefine customer experience in India. Leveraging [IBM Garage](#)¹¹, teams from HDFC ERGO and IBM Services work together to develop and test new solutions that will help to address customer inquiries better, ensure faster turnaround time and draw deeper customer insights for a better omnichannel experience.

AI In Healthcare

The adoption of AI is reshaping the Indian healthcare market significantly. AI-enabled [healthcare](#)¹² services like automated analysis of medical tests, predictive healthcare diagnosis, automation of healthcare diagnosis with the help of monitoring equipment, and wearable sensor-based medical devices are expected to revolutionize medical treatment processes in the country. The applications of AI in the healthcare space will be worth INR~431.97 billion by 2021, expanding at a rate of 40%.

Top players in this segment are Niramai, Sigtuple, Qure.ai, Tricog Health.

Bengaluru-based startup Niramai's diagnostic platform is now using thermal image processing and machine learning algorithms to enable accurate breast cancer screening. Hospitals are now spending only one-tenth the cost on Niramai hardware compared to mammography machines that cost around INR 1 crore.

AI IN E-COMMERCE

The e-commerce market in India is well-placed. One of the fastest-growing markets in the Asia Pacific driven by innovations in personalization, social media analytics, omnichannel service and sharing economy business models. In 2018, e-commerce and consumer internet companies raised over US \$7 billion in private equity and venture capital in 2018, [EY report](#)¹³ indicated.

The interplay of technologies – analytics, AI, cloud, digital, mobility, social and virtualization are driving the industry forward. The innovation is driven by

Amazon which committed \$5 billion investment in India and Walmart-owned Flipkart which acquired Liv.ai in 2018 to reach the next million users. Some of the key areas where AI is leveraged in the e-commerce sector are recommendation engines, virtual assistants, predictive sales and warehouse automation.

Top players in this segment are Amazon, Flipkart, BigBasket and consumer internet majors Oyo, Swiggy, Zomato, Byjus that are disrupting the landscape.

India's largest hotel chain Oyo has a Dynamic Room Pricing model that finds the optimum price point to maximize the overall yield – the combination of price and occupancy. The team watches out for hundreds of signals on the demand – from traffic patterns to conversions, upcoming events, data from offline sources and

AI IN RETAIL

India is Asia's third-largest retail market and the world's fourth largest after the US, China and Japan. The adoption and use of AI in this sector is on the rise with a significant majority of retailers in India deploying AI or automation technology not just for decision-making but also as part of their operations. At the storefront and behind-the-scenes in fulfilment centres, retailers are looking to save costs and boost revenues by deploying AI and automation. AI is deployed in customer facing aspects and optimizing the supply chain backend to enable web-based sales.

While big retailers in India – Future Group, Shoppers Stop, Reliance Retail and Tata Group are still to hit the mature AI adoption curve, the adoption of technologies represents a big leap forward for the sector. Globally, AI represents a \$300

even historical occupancy rates to ensure no room goes vacant. Based on predictive occupancy, the demand exceeds significantly, thereby resulting in an increase in room prices.

billion+ opportunity for retail companies. Deploying and scaling AI should be the next big objective for these retail majors in India.

Every season, a leading fashion brand launches thousands of products and expects them to get sold at full price. But in reality, they end up discounting all along with End of Season Sales accounting for almost 50% of the total sales. GoFrugal built an AI-based recommendation engine that suggests salesperson how much discount to offer as per the customer profile. By looking at customer profile, their prior purchase pattern, the engagement with store, salesperson and product (looks, touch, pick, try) – the ML algorithm can recommend an offer which has been created for just that one garment for that one customer and valid for just that moment. The solutions manages

the problem of too much discounting or too less discounting.

Bestseller – the leading fashion company that owns brands like Jack & Jones, Vero Moda & others uses IBM Watson AI capability to predict the right merchandise for the consumer at the right time. With Watson mining deeply into big data, the retailer can determine the right assortment plan for

each store, predict the next best product to incorporate into its mix, and improve the efficiency of its supply chain. They are working with IBM Watson AI to predict the next big trend and the most relevant styles, colors and size ratios. Higher relevance means a sharper, better selling assortment, helping them meet consumer expectations while becoming more efficient.

AI IN CPG

“The world is moving into new ways of doing businesses. Ecosystems of consumption have been formed. There are 4-5 ecosystems formed by Amazon, Alibaba and Tencent in America and China. We are building our own ecosystem with payments, wallet and insurance. In the future, there will be more consolidation in order to form the right ecosystems. We want to make our ecosystem strong with alliances and partnerships.”
- Kishore Biyani, Future Group CEO



The Consumer Packaged Goods market sees a promising growth in the use of AI both globally and at India level. With AI-powered decision-making systems and recommendation engines being developed on a large scale, the industry is ripe for

transformation. Experts and decision makers in the CPG companies can rely on competitive pricing, prevention of customer churn, and optimization of budget allocation in marketing to enhance their margins at the outset. A BCG

report states that CPG companies are leveraging advanced analytics and AI solutions for local assortments, personalized consumer services and experiences, optimized marketing and promotion ROI, and faster innovation cycles.

While there are many brands in India who have adopted AI-powered solutions, Nestle India stands out for an interesting experiment. They introduced

NINA, a virtual nutrition assistant in collaboration with an Indian chatbot service provider which could interact with users in a human-like manner and offer real-time, personalized advice on nutrition that is balanced, scientifically correct and customized to their unique needs. This was a huge hit – and a different campaign from the rest.

revenues. There is a huge scope of opportunity in traditional sectors like banking, insurance, retail and other industry verticals like manufacturing, automotive and logistics to move fast in order to sustain innovation. Large multinationals and companies are finally seeing the value in developing these partnerships to define their own digital strategy and build new business model innovation.

This outside-in approach results in an ecosystem expansion, leading to scope for partnerships with startups, subject matter experts, stakeholders to fill capability, domain expertise, talent gap and to improve the overall corporate strategy.

This presents a huge opportunity for AI consultancies and technology providers to capitalize on this trend by expanding their role in building partner ecosystems and collaborate with companies to create new revenue streams. In the context of AI, the ecosystem can be built for many things — deliver best-in-class products/services, engage diverse participants to build talent, strengthen relationships with peers and add to the diversity of industries.

Digital has changed the rules of engagement:

We are seeing businesses pursue two distinct approaches to digital transformation — outside-in and inside-out. While an outside-in approach is largely driven by the market and demand for new digital services, an inside-out approach is about modernizing the core systems and architecting their business for change.

● Partnership Ecosystem



// *“We don’t see large enterprise customers going to specialised AI vendors, rather they will expect their current vendors to adopt/bring AI features to their existing solution stack. As compared to established IT companies and digital disruptors, AI Consultancies and service firms are better positioned to educate the customers, offer pilots and scale up the use cases.”*

- Kumar Vembu, CEO and Co-Founder, GoFrugal

Partnership ecosystems open a great window of opportunity for organizations around the globe to scale fast and seize the opportunity to drive revenue growth and develop innovative business models. Today, CIOs face incredibly high expectations

not just to enable digital transformation, but to build sector-specific solutions/ services that can leverage new digital technologies. These digital technologies — AI/ML are also enabling companies to move into adjacent markets and drive



Organizations are leveraging partnership ecosystems by:



Focusing on creating new revenue streams, driving business growth through collaboration with AI Consultancies/ Technology Partners



Collaborating with technology partners to plug the capability gap and kickstart business model innovation



Leveraging partnerships to improve business efficiency internally and remove data silos

India's third-largest bank — Axis Bank went a step ahead and launched [Thought Factory](#), an Innovation Lab in Bengaluru to give Axis Bank a fintech advantage and a better understanding of today's "technologies and better focus of

tech solutions". The innovation lab partners with fintech startups to deliver the much-needed agility to stay ahead of the curve.

// "You can't drive transformation alone. You need partners, co-innovation with customers, continuous re-skilling of talent."
- Tiger Tyagarajan Genpact CEO



BUSINESS MODELS – NICHE PLAYERS, CAPTIVES, LARGE AI CONSULTANCIES

The AI Player landscape in India can be divided in 3 ways — mega ISVs (Independent Software Vendor), captives and AI consultancies.

1. Mega ISVs

Mega ISVs — Microsoft, Google, AWS, IBM, Intel, NVIDIA have become foundational to AI by providing the building blocks and computational resources for driving AI applications. These top innovators are also the AI leaders, offering solutions that can handle functions like sentiment analysis or speech recognition with minimal

infrastructure. The mega ISVs have built a formidable ecosystem by taking a platform approach and supplying the underlying components that form the building blocks for AI-led innovation.

1. Hardware: GPUs, ASICs which complement general-purpose processors CPUs
2. Deep Learning Frameworks: TensorFlow, BigDL, MXNet, Caffe, PyTorch, PaddlePaddle
3. Toolkits for AI Deployment: OpenVINO, Amazon Sagemaker, AutoML

STACK ELEMENTS	DESCRIPTION
APPLICATIONS & SERVICES	Software applications leveraging AI for 'intelligence' including vision processing, customer-support chatbots, smart assistants, algorithmic trading.
AI PLATFORMS	Ready-to-use building blocks & services that provide capabilities including ML, data analytics, NLP, agents, data solutions that can be leveraged to build AI applications.
AI FRAMEWORKS, TOOLS & INTERFACES	Technology that leverages underlying ML algorithms to design, build and train deep learning models for specific applications. Many are open source and broadly supported.
AI LIBRARIES	Low-level software functions that help optimise the deployment of an AI framework on a specific target hardware.
AI HARDWARE	Processor units and semiconductor logic circuits designed and optimised to accelerate execution of AI workloads and computations.

Source: PwC

2. Captive Units of Global IT corporations

In India, GICs/captives have become a potent force for AI innovation. With their scale, agility, highly-skilled team, an enabling infrastructure, a roadmap, and an innovation mindset — captives are making the most of the AI wave by not just overhauling traditional operations offshored but building disruptive solutions. Many large global organizations with GIC presence in India are strategically building prototypes in a relatively low-risk environment that can be implemented into the broader organizations. Some captives have built innovation centres to experiment with low-level PoCs.

1. **WalmartLabs:** Builds new platforms and software solutions to support e-commerce and store businesses globally
2. **Tesco Labs:** Tesco Bengaluru centre was set up in May 2004 to enable standardization and build centralized capabilities and competencies which can be leveraged across the Tesco Group. With a technology focus on Big Data Analytics, AI, cloud, AR & VR, the innovation lab applies [analytics](#) and AI for Tesco operations.

3. **MasterCard Labs:** Set up in 2017, Mastercard Labs in India is the company's ninth lab in the world and the second in the Asia Pacific (following Singapore). Mastercard Labs work with financial institutions and merchant partners and the Fintech community to identify and experiment with future technologies in a few key areas, including digital payments, data solutions, financial inclusion, alternative payments, and safety and security.

Many non-traditional companies and Indian conglomerates have also turned into top innovators like Siemens, Bosch, Reliance Communications, Tata Group and automakers like Nissan, Mahindra & Mahindra who are reinventing the wheel by setting up dedicated CoEs.

3. Deep-Dive on AI Consultancies

On the other end of the spectrum are AI Consultancies that are turning out to be the most valued firms with vertical-focused AI/analytics solutions providers.



“There is a tremendous move towards offering tools and solutions that allow AI functions “as a service.” Rather than starting everything from scratch, enterprises can make AI derive insights and optimize operations from custom-ready AI solutions. These AI solutions are trained from a large and complex set of data, taking into account the various business scenarios in advance so businesses can instantly derive insights after they plug in their own data.”

- Prithvijit Roy, CEO & Co-founder, BRIDGEi2i

AI Consultancy stack can be divided into three categories:

- Niche AI Service firms focused on AI-led business transformation like BRIDGEi2i, Cartesian Consulting, Tech Mahindra, Synechron and Virtusa (<\$20 million powering business innovation with domain agnostic solutions).
- End-to-end service providers like Mu Sigma, Fractal Analytics, NTT Data, KPMG, Capgemini, Cognizant, Abso-lutData, NEC drawing revenues (\$20 - \$100 million).
- Large tech Consultancies led by the Big 4 and Accenture with revenues (>\$100 million).

How AI Consultancies Solve Specific Business Problems (enablers)

1. Given the current stage a company is in — whether it is enabling data-driven processes or looking to push the current system to the next edge, AI Consultancies play a pivotal role in operationalizing AI
2. AI Consultancies bring on-board specialist teams of data scientists, developers, consultants and product managers who can deliver end-to-end AI solutions
3. Organizations today prefer the pay-as-you-go model where every service is compartmentalized and available to them as per their consumption. Solutions/accelerators from service firms can also be viewed as a scalable plug-and-play format.

AI consultancies have also been early players in offering AI-based solutions and accelerators — pre-built customizable solutions that significantly reduce the time-to-market and also lower the entry barriers for organizations looking to stay ahead of the game. These consultancies are bringing forth a set of distinct business agnostic tools built for specific narrow business problems.

Proprietary AI accelerators coupled with consulting expertise, can deliver contextual AI-powered insights wherein self-learning algorithms provided by the accelerators can map relationships across business metrics, derive correlation, and detect anomalies to provide real-time actionable insights. BRIDGEi2i's proprietary AI accelerators: Watchtower™ | Recommender™ | Optimizer™ | Converser, enable the democratization of analytics

insights to drive faster and more accurate business actions for digital transformation outcomes.

- The Watchtower™ provides real-time KPI monitoring and alerting through surveillance systems.
- The Recommender™ aids effective decision-making by providing personalized insights.
- The Optimizer™ helps businesses simulate and test scenarios for better forecasting and planning, optimal spend allocation and effective utilization of resources.
- The Converser™ makes the entire experience real by leveraging its conversational AI and interactive experiences in conjunction with Watch Tower™, Recommender™, and Optimizer™.



WATCH TOWER™



RECOMMENDER™



OPTIMIZER™



CONVERSER™

Suppose for a Customer Experience situation, a firm wants to ascertain how to keep customers satisfied. We can deploy Watchtower™ to predict which customer will escalate his grievance to the Customer Care;

the customer care executive will then be given a set of recommendations by the Recommender™ to solve his issues. The end result is a happy customer.



“AI as technology was incubated in the consumer world first, and the enterprise world has been playing catch up. A good example is how five to six years back, we didn’t have many enterprise mobile apps, but today a substantial amount of enterprise work is done via these apps. So enterprises, despite the late-mover advantage, are now doubling down on capitalizing on the AI advantage. The benefit is that enterprises have observed the pitfalls of AI in the consumer world and can now work around it.”

- Prithvijit Roy, CEO & Co-founder, BRIDGEi2i



“Our biggest innovation lies in the creation of the AI and Innovation Lab with 50 experts who work across a wide spectrum of data-driven domains.”

- Venkat Subramanian, VP, Marketing, BRIDGEi2i



EVOLVING AI DELIVERY MODELS

Gradually, we shall see the rise of AI as a separate function, and it will be tightly coupled with the solutions/services a particular enterprise offers. AI has given rise to three distinct delivery engagement models — AI-as-a-Service, AI-as-a-Solutions & AI-as-a-Product.

The modern AI stack consists of — infrastructure components that include computer hardware, algorithms, and data. From managing the building blocks to implementing production-level AI solutions that can generate results within a period of 7-8 months, AI delivery models will significantly change the enterprise AI landscape.

1. AI-as-a-Service

Industry experts forecast that AlaaS will soon evolve as the preferred delivery model that enables rapid, cost-saving onboarding of AI without being too heavily reliant on AI experts in-house. AlaaS consumption model enables enterprises with readily available cognitive capabilities and accelerators, allowing their team to focus on

the business problem without having to worry about the underlying AI hardware/infra components. Another instance of AlaaS is when Solutions Providers list several of their Deep Learning and Machine Learning algorithms through a tie-up with AWS Machine Learning Marketplace.

2. AI-as-a-Solution

Solution providers deliver production-level AI solutions, custom-built around narrow business problems. In this delivery model, AI solutions providers and boutique vendors follow a collaborative approach — co-development of solutions that involve industry domain expertise. The solutions are deployed on-premise or on cloud infrastructure. By following iterative agile methodology and making the build cycles more iterative, solution providers can co-create solutions that deliver business value.

3. AI-as-a-Product:

AI-as-a-Product is when an AI software product can be configured according to the needs

of an enterprise. An example of AI as a product would be BRIDGEi2i's sales enablement product BRIDGEFunnel which leverages proprietary accelerators Watchtower™ & Recommender™ to deliver granular deal level insights with real-time alerts.

The critical decision point will be choosing the right AI partner with domain experts, analysts, AI solutions and engineering teams

who can build the best solution in the shortest span of time. We believe with the shift in the scale of adoption, the role of AI Solution Delivery Leader will evolve as the one who enables the creation of production grade AI-based automation solutions that lends business value.



“Companies today prefer the pay-as-you-go model where every service is compartmentalized and available to them as per their consumption. Cloud is a major reason behind this requirement being in vogue today.”

- Anil Bhasker, Business Unit Leader, Analytics Platform-India/South Asia, IBM for Analytics India

Rise Of AI-As-A-Service Economy

According to [Dell Technologies' Digital Transformation Index](#)¹⁴, India is the most digitally mature country in the world. With the third-largest startup ecosystem and a strong developer base, India is on the cusp of a massive digital transformation. As digital organizations move further up the ladder to harness the potential of AI across enterprises, the AI-as-a-

Service model (AlaaS) model will become a necessity in the near future from provisioning pre-built accelerators, data access, right AI tools and APIs as self-service trend gathers momentum.

Veteran IT leader Kris Gopalakrishnan posited that AI and machine learning could be as big as [\\$177 billion](#)¹⁵ in the IT services industry. Given how the AI disruption is here to stay, we

see India playing a more significant role in strengthening the global AI ecosystem. India is the third-largest startup ecosystem across the globe, with 40,000 AI developers. We are also the youngest country in the world, which means that not only do we have the talent base to fuel trans-

formation, we can also upskill and align the talent to harness the potential of AI. Home to some of the largest service providers, global system integrators and consulting companies, India is poised to become a global AI hub.



India is no longer a test-bed for AI applications but is championing world-class solutions. By being early to market, having a strong machine learning expertise and developing powerful specializations around specific business functions, mid-size AI service providers are now well-positioned to deliver business value and specialization across the globe.”

- Prithvijit Roy, CEO & Co-founder, BRIDGEi2i



The burgeoning AI Services market, led by global consulting majors like Accenture, Deloitte, PwC, KPMG, and EY is complemented by mid-size and niche AI Service providers like Mu Sigma, BRIDGEi2i, Cartesian Consulting and Fractal Analytics that are offering high quality AI expertise and in-built

accelerators — pre-designed and pre-validated solutions which can accelerate “on-ramp” to AI effectively. With stronger competencies, AI talent base, and competencies in specific verticals — mid-sized firms are well-positioned to provide more value to larger enterprise customers.

WHICH SECTORS ARE FRONT-RUNNERS IN AI ADOPTION & WHERE'S THE MOMENTUM BUILDING

BFSI, due to its sheer size, is the largest adopter of AI. We see Machine Learning, Computer Vision, and robotic processing getting very widely adopted in BFSI. Telecom, Retail, Healthcare & Manufacturing are the next two sectors digitizing their processes that will be the torchbearers soon.

1. Banks Are Detecting Fraud and Managing Risk With AI

FSI industry generates enormous amounts of data mostly in a transactional form, which can be analyzed in real-time to make smart decisions. For banks, one primary application of AI is the

automated underwriting of loans based on a customer's entire history of transactions and credit scores. This would also eliminate human bias and errors that usually occur in loan approvals. AI is on top when it comes to security and fraud identification. By analyzing millions of transactions, machine learning systems are helping financial organizations identify anomalous patterns in transactions, which is reducing cases of fraud and strengthening trust among parties.



“In India, we see a lot of AI adoption in the area of using machine learning to build Risk Scorecards. The FSI sector has taken in a big way to this.”

- Ashwini Agrawal, Director, Financial Services, BRIDGEi2i

2. Telecommunication Players Are Using AI For Network Optimisation

Telecommunications is another sector that is leading in the adoption of AI. This is because there will be [20.4 billion connected devices](#)¹⁶ across the globe by 2020, and Customer Service Point (CSPs) understand that untapped value can be generated with the data being generated. CSPs are adopting AI/ML for purposes like network optimization, virtual assistants, and process automation. AI is essential for CSPs to create self-optimizing networks (SONs), which gives telecom operators the capability of automatically optimizing network quality for a particular geography and time.

3. AI Is Critical For Customer Experience In Retail

For retail companies, AI creates an opportunity to BRIDGE the gap between virtual and physical sales channels. From daily task management to gaining customer insights, AI is a key technology in a retail setting. The AI market in the global retail market size is expected to exceed [\\$8 billion by 2024](#)¹⁷, according to Global Market Insights. Factors like demand for supply chain optimization,

enhanced business decision making, and forecasting among retailers are proliferating the use of AI in the retail market. Retail organizations emphasize the interaction between the business and customers is critical for the success of the business to create customer loyalty. As most retail businesses today are omni-channel, the use of AI helps them optimize their processes across different platforms, be it web, app, or the physical store.

4. AI is Driving Personalized Healthcare

The growth of artificial intelligence in the healthcare market is mainly driven by fast-rising demand for precision medicine and predictive diagnostics. Apart from providing better healthcare services, AI can also help with effective cost reduction in healthcare expenditure. Healthcare personalization is crucial due to its use in medical diagnostics, where a patient's present and historical data is used to detect and predict serious health conditions. In addition, the growing need for accurate and early diagnosis of chronic diseases and disorders further supports the growth of this market.

5. Manufacturing Is Leveraging Sensor Data For Predictive Automation

In manufacturing, production processes are being automated, monitored, and integrated to create optimum use of resources. The staggering amount of data available in manufacturing processes through IoT sensors create the ideal environment to help train AI

models. One major use case where AI is being leveraged is predictive maintenance of machines, where the analysis of various parameters of AI systems can alert companies on impending failures. AI algorithms are also being used to optimize manufacturing supply chains, helping companies adapt to market variables.



IMPACT OF AI ON BUSINESS - USE CASES

Use Case I: Enabling Data-driven Digital Transformation for FS firm

A leading Financial Services firm in India with over 8 million active customers and 15,000+ merchant locations across the country wanted to leverage data to enhance their digital transformation journey, including understanding their customer profiles and underlying personas, creating personalized recommendations and offers and reducing their fraud rates.

Business Challenge

- Need to identify the next best/cross-sell offers, personalized recommendations for customers based on life stage and affluence to enhance customer experience
- Reduce fraud rates for first EMI default
- Improve IVR leakage and drop-off rates
- Developing an Accurate Booking Forecasting Engine

What BRIDGEi2i Did?

- Use machine learning model to improve first EMI default scorecard
- Identify classes of information available in data and change in the mix by seasonal months, use sparsely populated but important variables to drive higher 20% higher lift in model
- Drop off & Leakage analysis and recommendations to improve the existing IVR menu

BRIDGEi2i explored multiple recommendation algorithms for identifying the next best product recommendation. By leveraging BRIDGEi2i's assortment recommender engine with its Gradient Boosting Technique, the team recommended the next most probable products for each customer. The team mapped life-stage product recommendations for each customer micro-segment, stamped for each customer.

The Impact

- Customer Life Cycle: 75% accurate top two loan recommendations & 33 cross-sell profiles identified across 3 segments.
- Affluence Segmentation: Migrated to 17 bands, reduced concentration in low affluent segments.
- IVR Optimization: Quantified IVR drop off (65%) – key nodes for improvement identified.
- Fraud: 70% outlier frauds detected; 2 investigated fraud captured & 40% reduction in First EMI frauds.

Use Case II: AI-enabled recruitment solution for a low-cost carrier that caters to global ground management and air transportation.

Business Challenge

The client wanted a robust and efficient recruitment solution that is capable of handling vast quantities of data and process massive applications. The client wanted to digitize the process of recruitment with AI-based stack rankings of the applicants with profiles and performance parameters.

What BRIDGEi2i Did?

BRIDGEi2i, in partnership with a technology vendor, created a single platform for all requirements with an intuitive, user-friendly design. The solution is a one-stop for requisition to onboarding. Bots are deployed for basic transactions and responding to frequently asked questions. API linkage and contact with Job Boards, online Document Management, Background Screening, and Medical integration was also carried out.

The Impact

- The client found the process to be more efficient and obtained instant access to the talent pipeline.
- Overall, the client got the Dashboard view, which provided better management and also reduced the candidate acquisition costs.
- The client was able to re-use the profiles for relevant roles and focus solely on sourcing and selection.

CHALLENGES & OPPORTUNITIES IN ENTERPRISES

India is primed for Enterprise AI owing to the huge base of consumers and a sheer number of use cases. The global and Indian landscape is fast evolving to introduce AI across enterprises. Over the next few years, we expect AI-as-a-Service & AI-as-a-Solution to flourish. We also see an extended ecosystem with the Open Source community, AI Consultancies, and Service Partners who build their own assets so that the package can be offered to end-users as a service.

But challenges still exist — as compared to the consumer world, AI in enterprises has to work on smaller amounts of data; for example, clickstream data in the consumer world versus user transaction details in the banking world. Hence, the accuracy of the predictions that AI provides is mission-critical. As compared to typical IT-based projects, uncertainty in outputs is inherent in AI and ML projects.

Explainable AI will also be a key factor for enterprise AI adoption. A well-defined enterprise IT solution for marketing-to lead works in a deterministic manner, but an AI solution that predicts new customer acquisition would give very different and unexpected results based on the training data.

Key growth enablers for enterprise AI in India are:





- Availability of usable structured data across various domains
- Availability of tech expertise in the talent market
- Market demand for cheaper options of automation
- Mobile and IoT availability of the high-end technology
- A growing number of sector-specific use cases across India, APAC & North America
- New business models and AI-based solution will drive synergies

Top-most bottlenecks holding back AI adoption

- There's a lot of confusion in the market with non-AI solutions getting mislabeled as AI solutions.
- Lower awareness at the CXO level on how to make investments in AI and drive the ROI.
- Data protection laws in India are maturing, and enterprises have to implement privacy. Explainable AI will be a

crucial factor for widespread adoption. As opposed to typical IT-based projects, AI solutions are probabilistic, not deterministic. Hence the results expectations need to account for its nuances.

- A strong absence of industry-academia ecosystem.
- An acute need for AI talent and skill augmentation.

<p>IT'S TIME CONSUMING AND PRODUCTIVITY IS SUFFERING</p>  <p>Developing AI applications is complex, time consuming and requires multiple steps in model training</p>	<p>THERE IS A LACK OF ACCURACY</p>  <p>Data scientists are facing technology limits which impede accuracy scalability to tackle complex challenges as precision medicine</p>	<p>IT'S EXPENSIVE DUE TO INAPPROPRIATE IT RESOURCES</p>  <p>AI applications are frequently very resource-demanding. The use of inappropriate resources generates performance failures and extra costs</p>	<p>ENTERPRISES ARE FACING THE MOST ACUTE SKILLS SHORTAGE</p>  <p>There are not enough skilled data scientists</p>
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“Companies are in need of AI talent specialization to help lead by performance and innovation, and the industry is seeing an increasing interest in AI from up and coming professionals. Some of the top AI talent right now surrounds skills in IoT, cloud computing, and industrial robotics, and we’ll see more demand for expertise in Deep Learning, and Cloud and Distributed Computing. Recruitment for AI talent is going to shift towards more skill specialization, and more in-house talent augmentation to help address the shortage.”

- Anil Bhasker, Business Unit Leader Analytics and Big Data, India/South Asia, IBM India

C-suite needs to meet certain criteria before implementing AI solutions at scale

- Identify situations and use cases where AI can deliver the most value
- Need to have access to computing power that can process and explore these massive amounts of data
- Build a company culture that recognizes the need for AI
- Put in place data governance policies to manage data securely



At one level, BRIDGEi2i has AI labs and Smart Apps, a committed CoE of over 100 people researching, analyzing, and deploying solutions to business problems. BRIDGEi2i doesn't believe in confining these results to the labs; with its knowledge community SCaLA the employees are taken through a learning path disseminating that knowledge and expertise to apply it to the real world.

By virtue of working closely with businesses and understanding the issues that concern them the most, BRIDGEi2i has been able to devise and pin-point the four troublesome areas that most

businesses struggle with:

- Monitoring extensive data and real-time alerts
- Aiding Decisions
- Planning and Optimization
- Interactive overlays

We can solve some of the most complex business problems through contextual solutions that leverage consulting expertise, advanced data engineering, and our four proprietary AI accelerators.

Here are some scenarios where we feel AI capabilities increasingly find usage:



Data Extraction: Data is now collected in many types, handwritten notes, excel sheets, images, the video that is almost impossible to parse in a short time manually. So, Image processing and Computer Vision being used to make sense of the data.

Identity recognition with Computer Vision: Customers are being on-boarded with a video recording that records their facial features and this is used to identify them at PoS, access points, etc. to confirm identity.

Insurance Underwriting: Customers record a video of the scratches and dents on a car

damaged by accident, and that is being analyzed to ascertain claim reimbursement in insurance.

NLP for topic mining and chatbots: A chatbot or voice-assistant is mining the data with NLP and then provide customer resolution.

Anomaly Detection: Finding out anomalies in patterns about what is not normal and flagging it off as "Risk" or "Likely Fraud."

Preventive Maintenance: Monitoring machine performance through the linked sensor and being able to predict when preventive maintenance is required so that shutdowns can be avoided.

CONCLUSION & WAY-FORWARD

Looking ahead, the AI-as-a-Service model offers a multi-billion dollar opportunity to service providers. AI consultancies are poised to ride the growth wave and compete for a bigger market share by providing an accessible path to AI, deep AI talent bench, a more responsive relationship coupled with the best-of-the-breed AI technologies and lower cost as compared to large vendors. Some of the major differentiators of AI Service providers are sizeable AI workforce, best-in-class solutions for specific domains, and presence across multiple sectors and geographies.

Today, many organizations have more data now than in the past. However, the key challenge for building relevant AI applications is a learning data set. Most organizations taking their first steps in AI seek solutions around specific business problems that can deliver tangible returns against KPIs. AI consultancies with strong AI delivery competencies are highly valued for providing a swift “on-ramp”

to AI tech through pre-built accelerators that can be easily integrated with existing IT systems and provide returns in 7-8 months. As PoCs mature into broader deployments, in the longer term, we’ll see AI Service firms becoming valuable partners in the digital transformational journey, and help enterprises deliver early wins in AI, even in the test and learn phase. In the next few years, we shall see more companies outsourcing AI initiatives. Some of the dynamics shaping the AI-related outsourcing market are a lack of talent, fear of going all alone on AI initiatives, and the rise of managed AI delivery models.

As captured in the report, the AI Services market is dominated by the Big 4, mid-sized AI firms, and boutique vendors. To stay ahead of the pack, AI consultancies will have to integrate strong AI teams, bolster outsourcing capabilities, and build sector-specific capabilities. The focus will also shift on acquiring tech assets that can augment in-house capabilities and reduce the cost to serve.

On the other hand, before onboarding AI vendors, buyers should understand how PoCs can deliver tangible ROI against the KPIs or specific business functions, the deployment

methodologies, and how outsourcers can provide advanced capabilities.



“So far, the focus on Enterprise AI has leveraged standard models published by researchers in computer vision, speech, and NLP. These have made various new products possible and simplified consumer experience. As the field matures, capabilities like Differentiable Programming are making it possible to use AI technologies to solve core business problems. Combining the power of new hardware with flexible programming stacks and programming languages, it will become possible to embed business logic in Enterprise AI systems.”

- Viral Shah, Co-founder & CEO, Julia

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