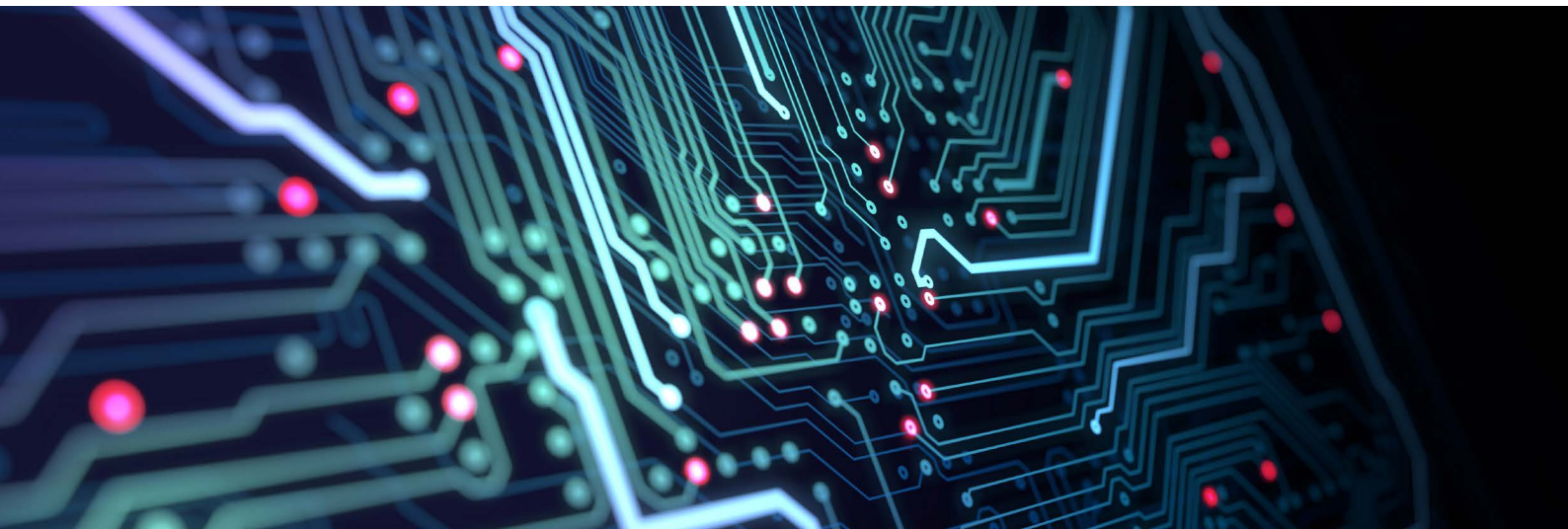


From Buzz to Reality: The Accelerating Pace of AI in India



AI is no longer a fringe technology; enterprises and providers have a lot to gain from successfully deploying AI and machine learning technologies



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Acknowledgements

This report is a joint effort between Bain & Company, Internet and Mobile Association of India (IAMAI), and Microsoft.

The authors would like to express a special thanks to Dr. Rohini Srivathsa, National Technology Officer at Microsoft India, for her support and guidance in designing the study and its direction. They are grateful to Dr. Shubo Ray, President, IAMAI for his counsel and thought leadership. They also extend their gratitude to Mr. Vinay Kumar, Director Corporate Business Development, Microsoft & Chairperson IAMAI AI and Big Data committee, and the below members from the AI and Big Data committee, for their invaluable support, guidance, and insights in developing this report

- Mr. Chinmaya Saxena, Venture Partner, BEENEXT
- Mr. Rahul Agarwalla, Managing Partner, Sense AI Ventures
- Mr. Gyan Gupta, Founder & CEO, Chamko
- Mr. Ramprakash Ramamoorthy, Director of AI Research, Zoho Corporation
- Mr. Piyush Kumar, Vice President and Head of Data Platform Engineering, MakeMyTrip
- Mr. Rachit Batham, Associate Partner – Hybrid Cloud Management & AIOps Leader, IBM

The authors wish to thank Chaitanya Sinha, Akash Bansal, Anka Minhas, Ankit Mahajan, and Mrigank Sanghvi from Bain & Company for their analytics support and research assistance in preparing this report.

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From Buzz to Reality: The Accelerating Pace of AI in India

Executive summary

Artificial intelligence (AI) is no longer a fringe technology for Indian companies. According to International Data Corporation (IDC), India's AI market was valued at \$3 billion in 2020, which is approximately 1% of the global pie. However, the market is expected to grow at the second-fastest rate of 20% among major economies over the next five years, behind only China. Over the last few years, India has demonstrated rapid adoption of different technologies with rise in penetration of the internet, fintech, e-commerce, edtech, healthtech, and uptick in enterprise investment in cloud and information technology (IT). This has created a foundation of knowledge, data, and infrastructure which can drive value through AI. India is also a global source for talent in data and AI skills; it produces 16% of the world's AI talent pool, placing it among the top three talent markets.

Firms in India have seen a significant uptick in their interest in adopting AI to drive business outcomes. However, there is plenty of hype and hyperbole around what constitutes AI—companies are not shy about making AI claims around systems that are rules-based at best.

In this report, we look at India's AI landscape from the perspective of enterprises and providers. Enterprises are organisations that have embedded AI or machine learning (ML) into their end products or leveraged it across their internal operations. Providers are technology players that provide building blocks for enterprises to incorporate AI into their systems or products, or companies that offer products and services with AI as a central functionality. This report aims to help enterprises and providers understand how companies are leveraging AI to drive business value and provide a view of high-value AI use cases within their industries. It also provides a framework to help them assess their relative position compared to industry peers on the extent of AI adoption and the relative strength of crucial technology enablers. In the case of providers, the report provides insights on capabilities required to win in the AI market for each provider segment and the buying preferences regarding AI solutions and tools among end user enterprises.

The findings of this report are based on the results of a comprehensive survey completed by 148 providers and 343 enterprises. The survey respondents were C-level executives, senior vice-presidents, vice-presidents, and heads of business units/verticals who have the responsibility for their company's decisions related to AI and ML. The enterprises covered were spread across multiple sectors such as financial services, healthcare, consumer packaged goods (CPG) and retail, while for providers we had representation from segments such as cloud platforms, enterprise and consumer software/SaaS players, and system integrators. The target companies included both SMEs and large enterprises headquartered and founded in India, and Indian offices of multinational corporations.

The pervasiveness and interest in AI among Indian enterprises is evidenced by majority of the respondents reporting that they are considering the adoption of AI. Among providers, 64% have AI/ML as a core element in most of their products, while the same is true for 56% of their global counterparts. However, most organisations are still in the early stages of AI adoption, implementing just a few use cases.

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The thrust in adoption for enterprises is maximum in sectors such as communication, over-the-top (OTT) and gaming, technology, and financial services, which have seen broad AI adoption (more than three AI/ML models in production at scale) among 40%–55% of organisations.

Providers in India are either ahead of or on par with their global counterparts when it comes to AI capability on scale implementations. Indian providers state that 65% of their prototypes reach production scale—a significant lead over global providers’ 49% success rate. However, there is scope to improve model maturity, such as the use of self-learning/autonomous models enabled by feedback loops (e.g., contextual instead of rule-based chatbots) and managing large data sets.

Providers in India are either ahead of or on par with their global counterparts when it comes to AI capability on scale implementations. Indian providers state that 65% of their prototypes reach production scale—a significant lead over global providers’ 49% success rate.

Among providers, cloud platforms (Microsoft, Amazon Web Services, Google, etc.) are leading through their approach to managing their data, using AI/ML techniques, and scaling their products. Cloud platforms have played a dominant role in the Indian market by offering an end-to-end ecosystem of infrastructure, tools, libraries, and frameworks to encourage experimentation, accelerate development, and enable scaled deployment. The provision of fail-safe mechanisms (e.g., charging solely for production application programming interface calls, shutting off the instance as soon as data processing is done) helps in cost optimisation for platform users. Other providers are increasingly building their solutions with the help of the infrastructure and tools provided by cloud platforms.

“Attribution of value” to AI is challenging for an enterprise given the embedded nature of AI with the software, but 85% of executives from early adopters who have leveraged AI at scale feel it has driven substantial and differentiating value. The level of value added is consistently high, especially among the more mature organisation. Such organisations spend ~0.4%–0.7% of their revenues on AI/ ML and realize an ROI of about 2–4x. In our experience, value addition by AI is not a gradual curve but a binary one. Well-executed AI can significantly differentiate enterprises from their competitors.

Enterprises have realised value from AI investments in two ways: (1) cost optimisation through AI/ ML-enabled automation across multiple verticals (e.g., optimisation of supply chain and logistics

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and automated diagnostics) and (2) personalisation at scale for end customers (e.g., targeted and personalised marketing and customer experience), predominantly limited to CPG and retail. Adoption of these use cases is expected to broaden as data quality and infrastructure scalability improve.

High adoption of cost optimisation use cases stems from a clear articulation of return on investment (operational cost savings) and progression of use cases (spending analytics, logistics, and forecast optimisation) from advanced analytics to ML. We expect healthcare and CPG and retail to grow fastest in AI/ML spending (~25% year-over-year) with high-value use cases such as drug discovery (healthcare) and targeted personalised marketing (CPG and retail), respectively.

A clear and increasing requirement among Indian enterprises is to 'build' for their own customised needs while leveraging the market's building blocks, tools, and infrastructure. In the next three years, 49% of enterprises plan to increase the proportion of build, compared to 29% that plan to increase the proportion of 'buy'. A higher preference to increase the proportion of build is seen in industries such as technology (70%), CPG and retail (52%), and industrial goods and manufacturing (48%) fuelled by industry-specific nuances and unique data sets required for AI implementation.

A clear and increasing requirement among Indian enterprises is to 'build' for their own customised needs while leveraging the market's building blocks, tools, and infrastructure.

The need for customisation and integration provides an opportunity for providers to offer professional services for customising models and integrating with existing systems and data for training and deployment. SaaS companies that have traditionally relied on standardised multi-tenant offerings have recognised the sensitivities around data sets and are offering customised AI solutions with bespoke integration.

Compared to large enterprises, small and medium-sized enterprises have predominantly used pre-built models due to their limited ability to build AI in-house. They experiment with easily accessible open-source tools and frameworks for cases they want to develop.

AI leaders differentiate themselves by employing best practices in data management and model development.

Currently, data quality, scale infrastructure, and sensitivity/risk emerge as the top barriers for enterprises, hindering greater adoption. On the other hand, providers face constraints in scoping features and developing the minimum viable product (MVP) due to inadequacy in processes, infrastructure, and tools. In terms of talent, Providers have observed a lack of skills in data science

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and data operations. Enterprises report a lack of domain-specific expertise, data analytics, and data engineering. Companies are looking to retrain and upskill their existing employees in AI/ML building blocks to bridge the talent gap.

To characterise enterprises and providers in terms of AI maturity, we created an index to chart their relative strengths across metrics such as level of adoption, deployment of use cases, data management, technology adoption, and talent. Among enterprises, communication, OTT and gaming, technology, and auto logistics fare better than other industries. In contrast, cloud platforms and Internet of Things (IoT) providers emerge ahead of different segments of providers.

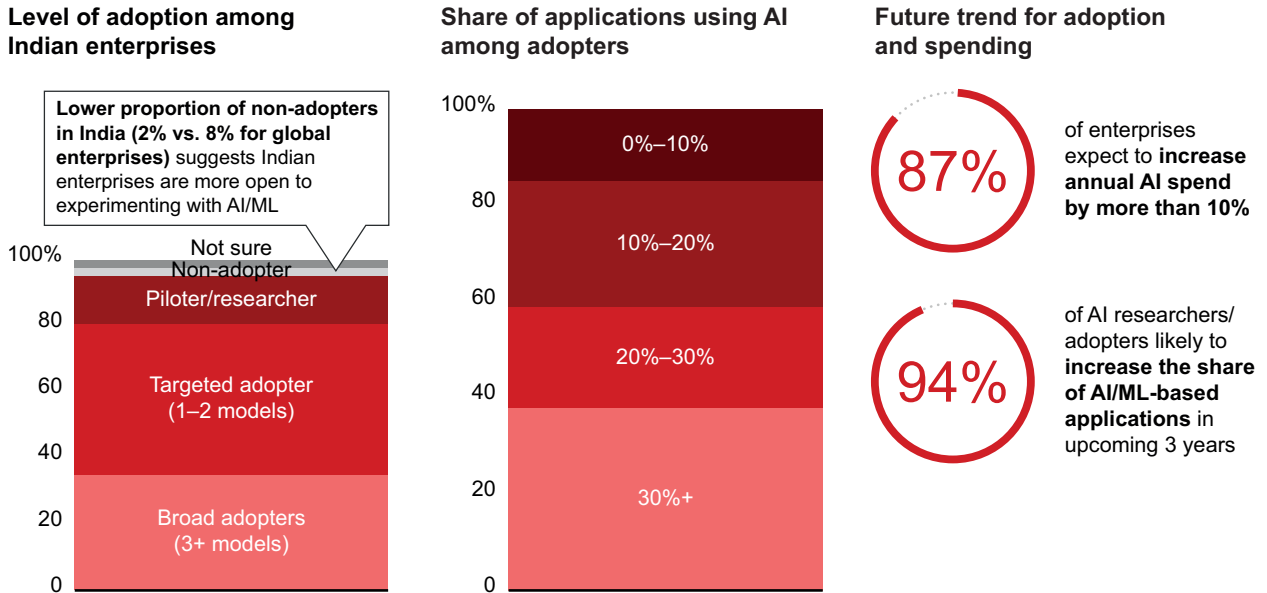


Market dynamics: How enterprises adopt AI

- ▶ Approximately 80% of enterprises have at least one AI model in production, indicating extensive penetration of AI/ML across enterprises. However, usage of AI across functions and use cases is still low, with only 35% broad adopters (i.e., more than three models in production at scale) among enterprises.
- ▶ The extent of broad adoption is prominent in sectors such as communication, OTT and gaming (55%); technology (48%); and financial services (39%). Further, more than 90% of the digital native companies in CPG and retail and financial services have demonstrated AI/ML adoption. Due to the availability of vast amounts of data and the ability to leverage AI to solve problems at scale, adoption in large enterprises is much higher than in smaller enterprises.
- ▶ Enterprises that have adopted AI consider improved automation of existing workflows and operational efficiency to be significant sources of value. Leveraging AI for cost optimisation through automation (supply chain optimisation, operations and logistics optimisation, risk management) becomes a key component in auto and logistics, industrial goods and manufacturing, and financial services. As the pandemic has moved the end consumers towards online channels, digital native companies in CPG and retail and financial services are leveraging customer data to their advantage to personalise at scale and optimise their marketing spends.
- ▶ Despite increasing AI adoption, a few challenges hinder AI maturity in Indian enterprises. Poor data quality, unsuitable data infrastructure, and sensitivity in sharing data emerge as enterprises' top barriers for greater adoption.
- ▶ ROI articulation for customer-facing AI is a challenge—customers pay for the complete experience of the software or product, not just the AI components. Pricing attribution independently for AI remains a challenge.

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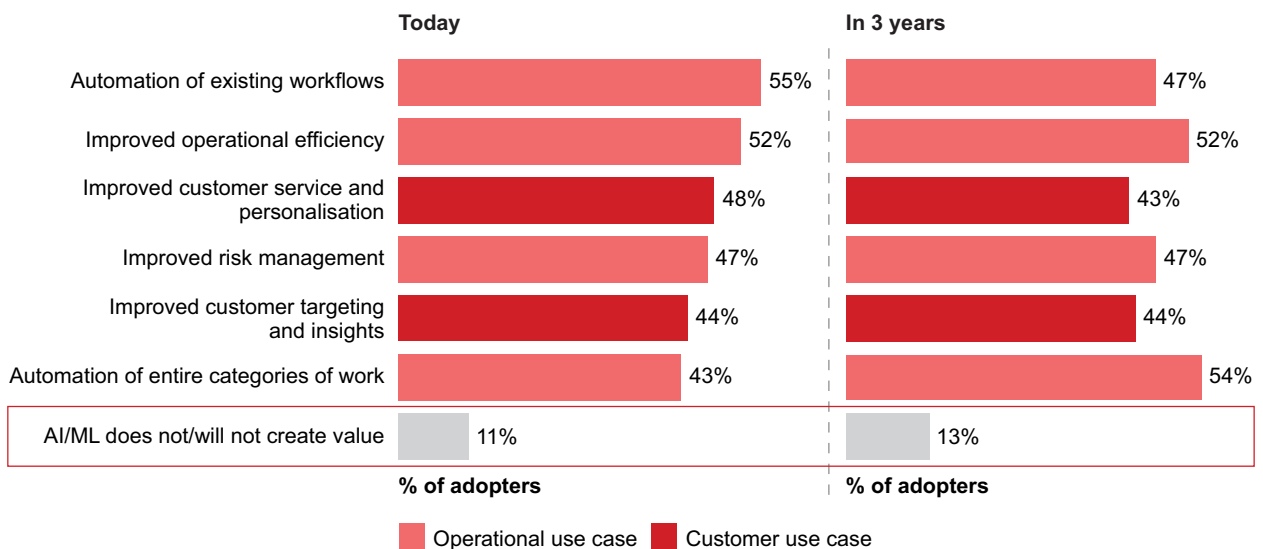
Figure 1: High level of adoption in India shows that AI is no longer a fringe technology, although relative depth of penetration is low



Notes: Piloting/researching refers to companies in the experimental stage of developing AI models to be used for a few potential use cases; targeted use refers to companies with 1–2 models deployed in production; broad adoption refers to companies with 3+ models deployed in production
 Sources: Bain 2021 AI/ML Customer Survey, US, Sep 2021 (n=105); Bain AI Customer Survey, India, Dec 2021 (n=343)

Figure 2: Adopters expect to derive significant operational value by automating entire categories of work in the future

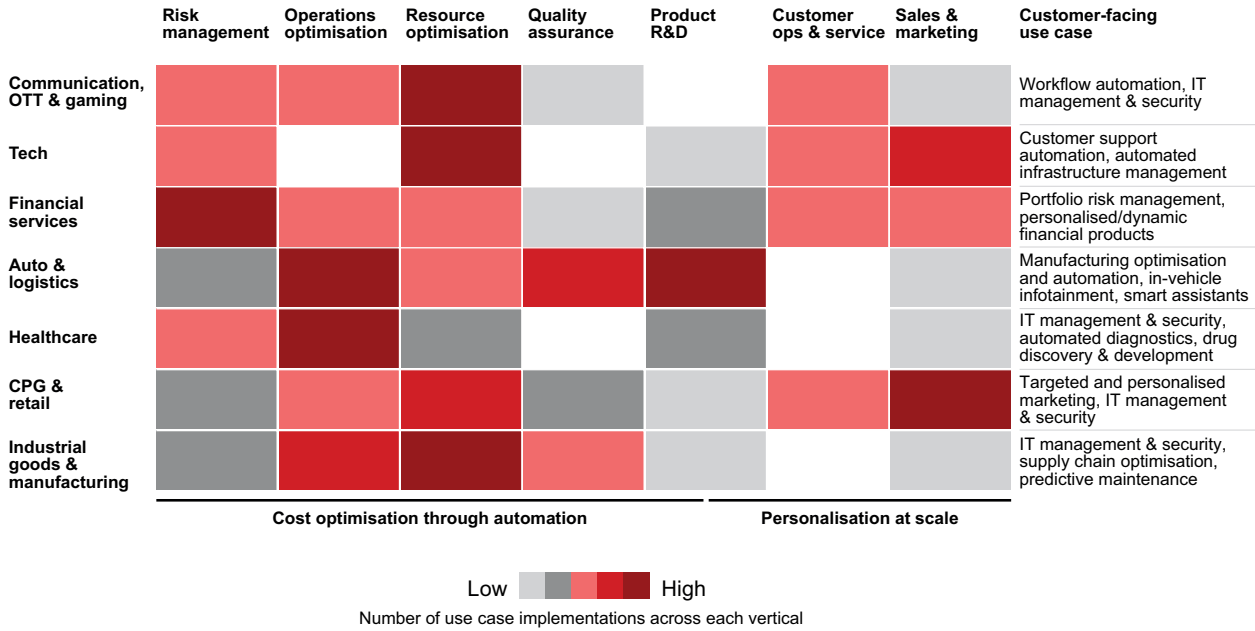
Sources of value for enterprises from AI adoption



Source: Bain AI Customer Survey, India, Dec 2021 (n=343)

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Figure 3: Cost optimisation through automation defines AI adoption across most verticals, with retail and financial services using AI for personalisation at scale



Source: Bain AI Customer Survey, India, Dec 2021 (n=343)



Market dynamics: How providers approach AI

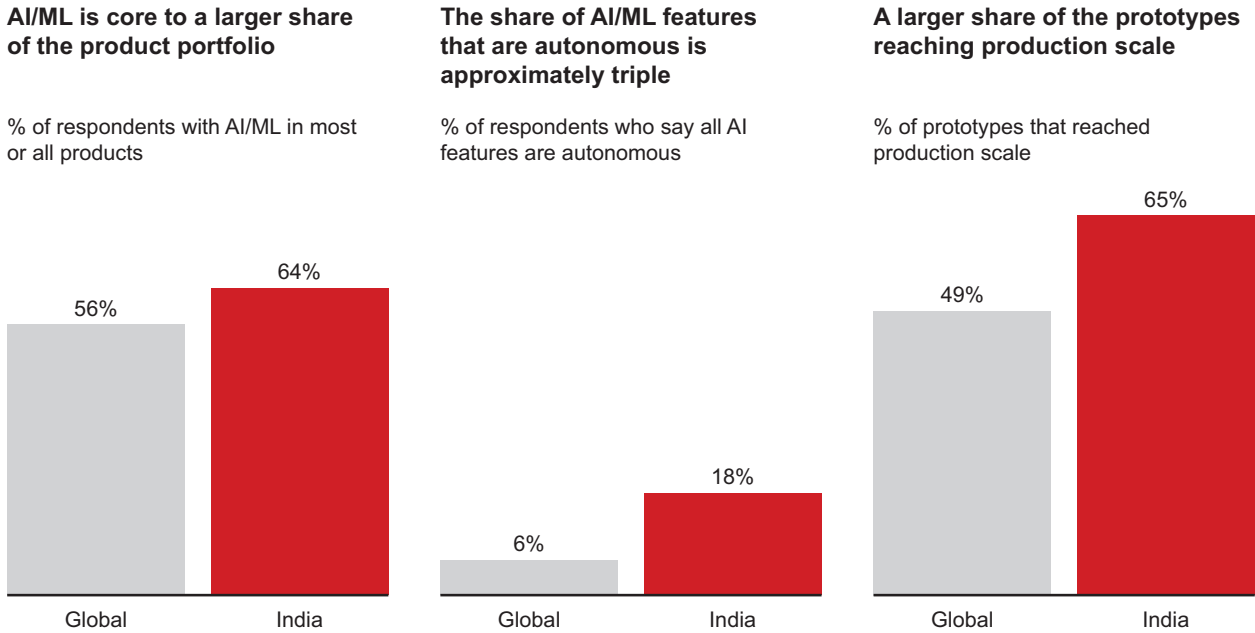
- ▶ Technological solution providers are the drivers of AI adoption in India. There are six segments of providers: cloud platforms, enterprise software/SaaS, consumer software/SaaS, hardware and original equipment manufacturers (OEMs), IoT/Industry 4.0, and system integrators (SIs) and IT integrators/consulting/professional services.
- ▶ Providers predominantly focus on leveraging AI to drive information processing (speech, text, image recognition), enhance customer support (in-app recommendations, chatbots, customer interaction coaching), and automate across security, risk management, and infrastructure provisioning. Each segment has demonstrated adoption of different use cases with varying levels of business impact.
- ▶ Led by cloud platforms and AI-first SaaS companies, Indian providers are demonstrating an edge over their global counterparts in AI adoption. In India, 64% of providers say that AI is a core element for over half of their product portfolio, compared to 56% of their global counterparts. On average, 65% of the prototypes introduced by Indian providers (49% for global providers) scaled to production. However, there is scope to improve model maturity based on advanced data annotation/labelling techniques and the size of data sets used.
- ▶ Cloud platforms demonstrate greater maturity in managing their data, using AI/ML techniques and technologies, and scaling their products. 43% of cloud platforms (and 19% of other providers) continuously update their AI/ML models. 76% of cloud platforms (versus 57% of other providers) specifically instrument their AI products to capture labelled outcomes. More than 80% of the AI/ML features introduced by cloud platforms in India reached production scale and exceeded the expected gains.

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- ▶ The pre-eminence of the system integrators and professional services market in India enables AI products and solution players to leverage their presence in a range of enterprises to gain new customers and to help enterprises successfully integrate their solutions into the current tech architecture.
- ▶ While providers in India are doing well in their experimentation with new AI features, some of the attempted innovations do not achieve the planned scale. This is mostly because providers face challenges in scoping the feature and developing the MVP due to inadequacy of development processes.

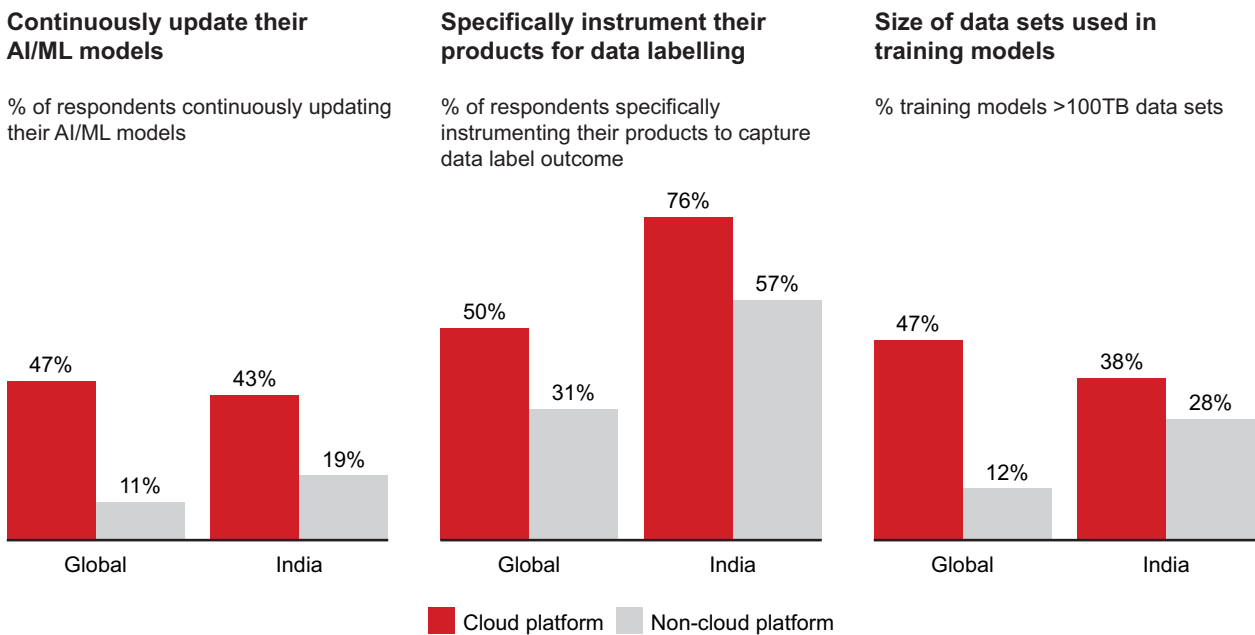
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Figure 4: Providers are driving AI adoption in India and have an edge over their global counterparts in terms of breadth and depth of adoption



Sources: Bain 2021 AI/ML Provider Pulse Survey, US, Sep 2021 (n=137); Bain AI Provider Survey, India, Dec 2021 (n=148)

Figure 5: Cloud platforms are leading the charge among providers, demonstrating an edge when it comes to product development and overall model maturity

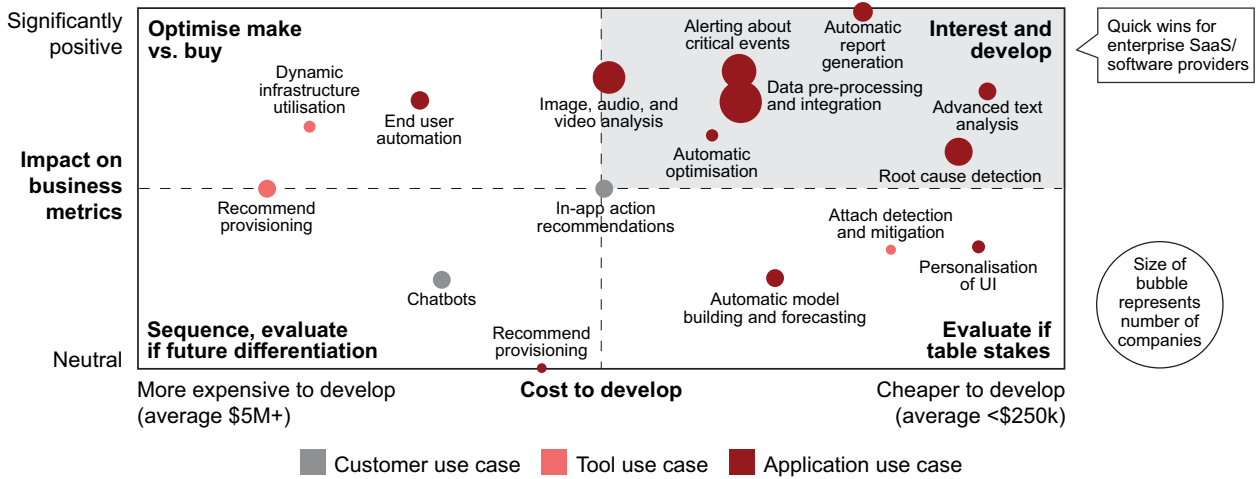


Sources: Bain 2021 AI/ML Provider Pulse Survey, US, Sep 2021 (n=32 for cloud platforms, n=105 for non-cloud platforms); Bain AI Provider Survey, India, Dec 2021 (n=21 for cloud platforms, n=127 for non-cloud platforms)

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Figure 6: Some use cases emerge as quick wins, but tech providers should carefully weigh business impact and costs when prioritising investments

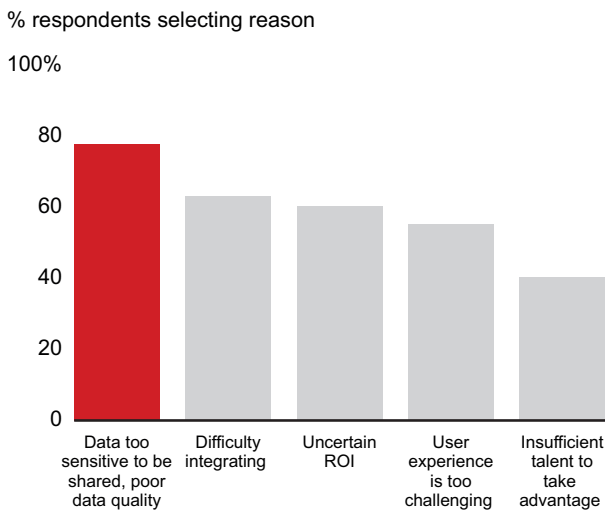
**How did the following use case(s) impact your business metrics (such as revenue, ROI, costs)?
How much financial investment in talent and technology was needed to deploy the use case(s)?**



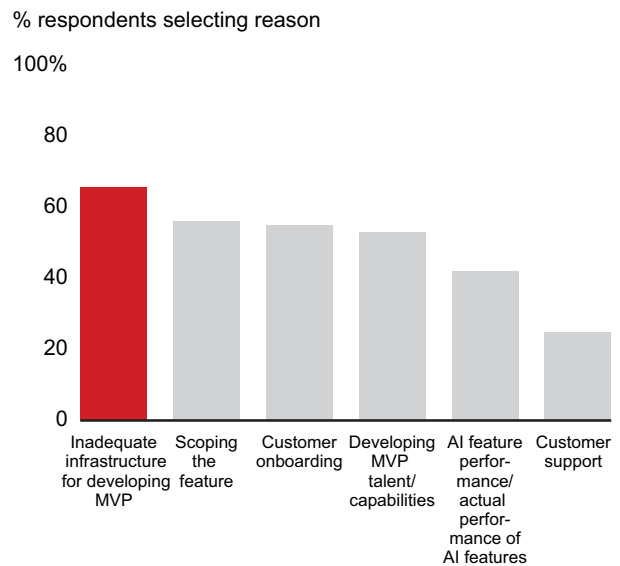
Notes: Showing use cases where N>=3; respondents answered for their top 5 priority use cases, excludes use cases that are not yet out of experimental phase; business impact calculated as [% of respondents who see significantly positive impact from use case] – [% who have seen no impact, negative impact, or cannot determine impact]; customer use cases are solutions servicing the enterprises' end customers; application and tool use cases are AI/ML features/solutions for product design and application development
Sources: Bain AI Provider Survey, India, Dec 2021 (Enterprise Software/SaaS n=27)

Figure 7: Concerns related to data and development infrastructure and tools emerge as challenges in adopting and scaling new models for enterprises and providers, respectively

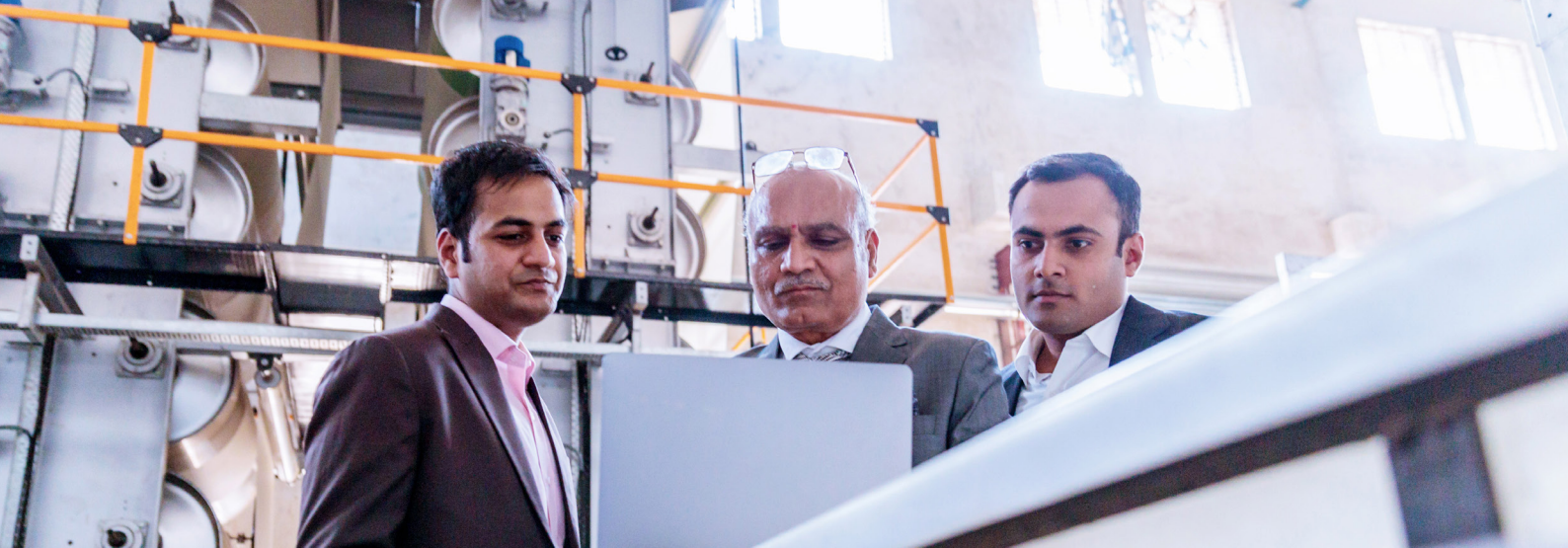
Barriers to adoption among enterprises



Reasons behind failure in adoption for providers



Sources: Bain AI Customer Survey, India, Dec 2021 (n=343); Bain AI Provider Survey, India, Dec 2021 (n=148)



Build vs. buy: Which way are enterprises and providers leaning?

- ▶ The build vs. buy preference for enterprises in AI is not a binary choice. It is relevant for each of the components of the AI stack—infrastructure, workbench tools, data solutions, and AI models. Enterprises that build everything in-house, including their own custom infrastructure, occupy one end of the spectrum, while enterprises that buy end-to-end packaged solutions occupy the other end.
- ▶ The proportion of direct plugged-in use cases is lower than global. Recent adopters especially go for options with a lower cost of data transfer, storage, and development. Solutions and the underlying ML models must be customised specifically to customer context and data sets, which drives the preference to build.
- ▶ In the next three years, half of enterprises plan to increase the proportion of build, compared to 29% that plan to increase the proportion of buy, with a higher preference to increase the proportion of build seen in industries such as technology (70%), CPG and retail (52%), and industrial goods and manufacturing (48%).
- ▶ While small enterprises prefer to buy pre-built models (45%) due to the high cost of building in-house, they also experiment with easily accessible open-source tools and frameworks for cases they want to develop. Digital native companies have shown a similar trend.
- ▶ Providers, too, are inclined towards building their models using third-party support or open-source tools/services. Their reliance on cloud platforms for pre-built models and packaged solutions is expected to decrease in the coming years (from 36% of the AI features/use cases in 2019 to a projected 29% in 2023).
- ▶ While Indian enterprises are keen to build their AI/ML models in-house, they exhibit a preference to buy the commoditised cloud infrastructure and AI work benches, which helps them to experiment at will on an elastic compute-storage enablement. Cloud platforms have played a dominant role in increasing the preference to build by offering an end-to-end ecosystem of infrastructure, tools, libraries, and frameworks to encourage experimentation, accelerate development, and ensure scaled deployment. Provision of fail-safe mechanisms provides cost optimisation for enterprises looking to experiment and build AI on their own using cloud infrastructure and tools.

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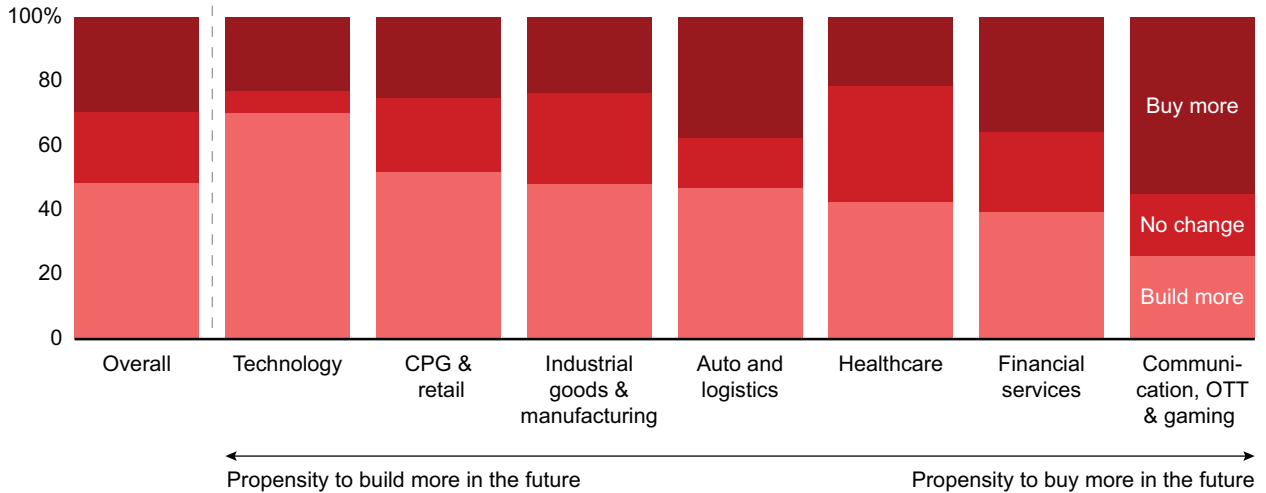
- ▶ The migration of workloads from on-premise to cloud has further increased the usage of cloud platform tools and infrastructure. Among non-cloud platform providers, 80% are expected to shift to the public cloud for running their AI workload in 2023, compared to 30% in 2019. Use of cloud platforms vs. in-house tools will increase from 28% in 2019 to 78% in 2023 for AI workload on the public cloud.
- ▶ Based on the level of adoption and the build vs. buy preferences, Indian enterprises can be characterised into four major segments: (1) 'Innovators' that are broad adopters and have a high preference to build custom models internally, (2) 'Traditionalists' that are broad adopters looking to implement AI across the organisation but burdened by legacy infrastructure and data quality issues, (3) 'Opportunists' that are looking to implement AI for only high-value use cases and would prefer easy-to-integrate and easy-to-use tools, and (4) 'Experimenters' that are about to start on their AI implementation journey and are looking for ecosystem support and solutions that can be integrated seamlessly. Providers can shape their strategies according to the segment they wish to target.

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Figure 8: Enterprises are expected to build more in the future as ML models and packaged solutions become more customised to the company context

Future build vs. buy preferences in different verticals

How will your organisation's proportion of built AI/ML solutions vs. bought AI/ML applications change in the next 3 years?

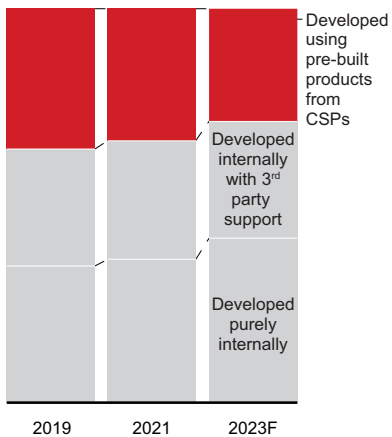


Source: Bain AI Customer Survey, India, Dec 2021 (n=343)

Figure 9: Providers are also leaning towards developing AI models in-house, even as infrastructure and tools provided by CSPs are becoming commoditised

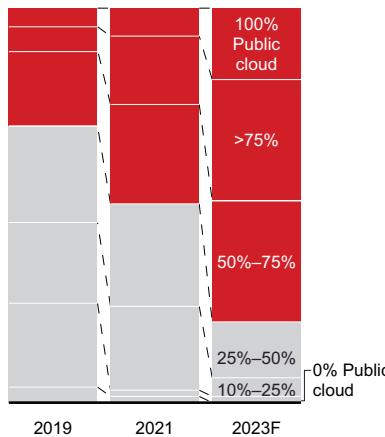
Share of AI use cases developed internally, developed with third party support, and developed using pre-built models from CSPs

% of AI features/use cases



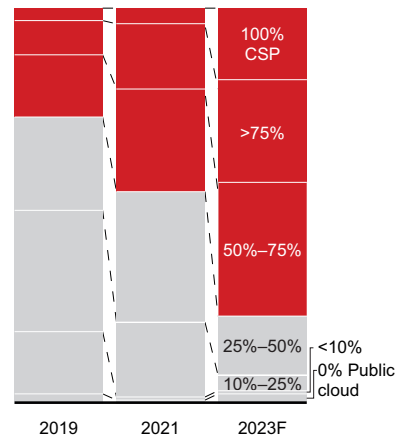
Mix of AI workload that is run on public cloud services and is internal infrastructure

% of respondents



Split of AI use cases developed using CSP AI/ML tools vs. developed in-house for AI workloads run on public cloud

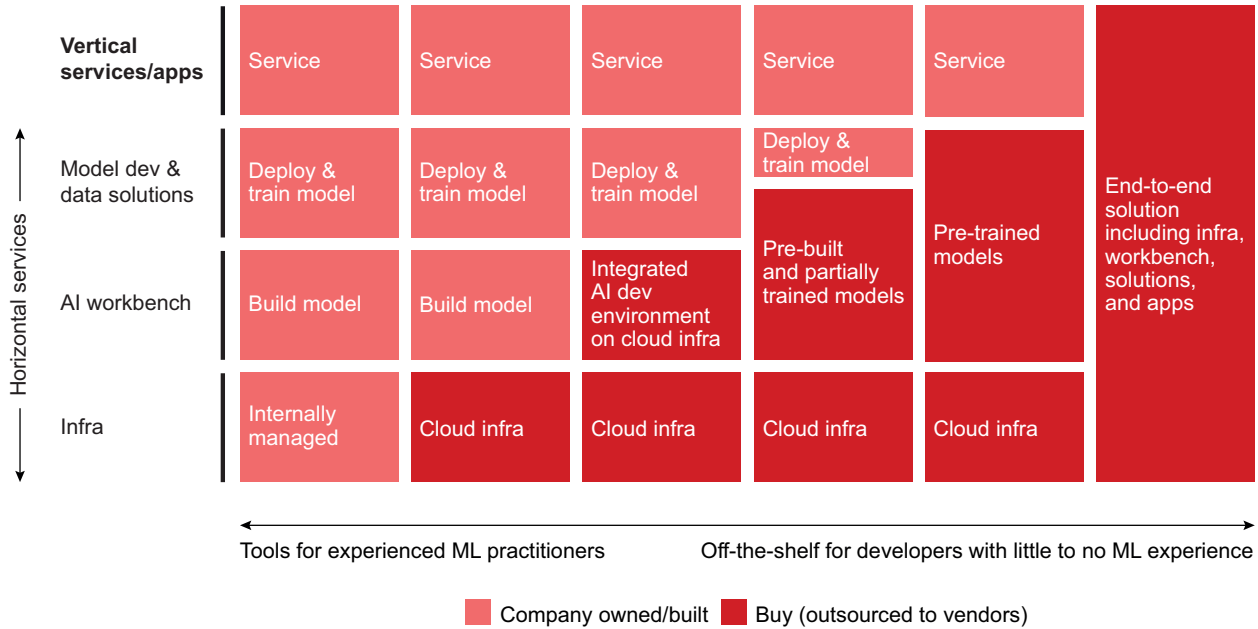
% of respondents



Note: Question not asked to cloud platforms
Source: Bain AI Provider Survey, India, Dec 2021 (n=127)

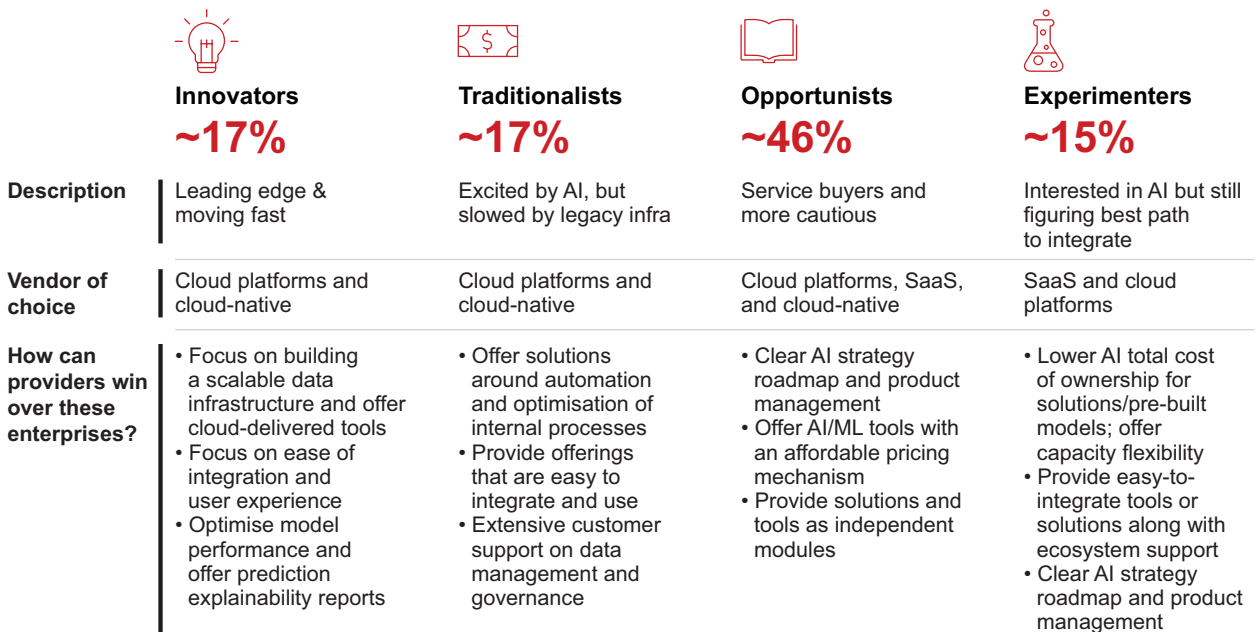
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Figure 10: Enterprises are on a spectrum in terms of build vs. buy as it involves a series of choices across the different components of AI stack



Source: Bain analysis

Figure 11: Four distinct types of enterprises are adopting AI



Note: Remaining 5% composed of non-adopters and respondents that could not be categorised into any of the 4 segments due to lack of appropriate responses
Source: Bain AI Customer Survey, India, Dec 2021 (n=343)



Data and technology: Key enablers for AI success

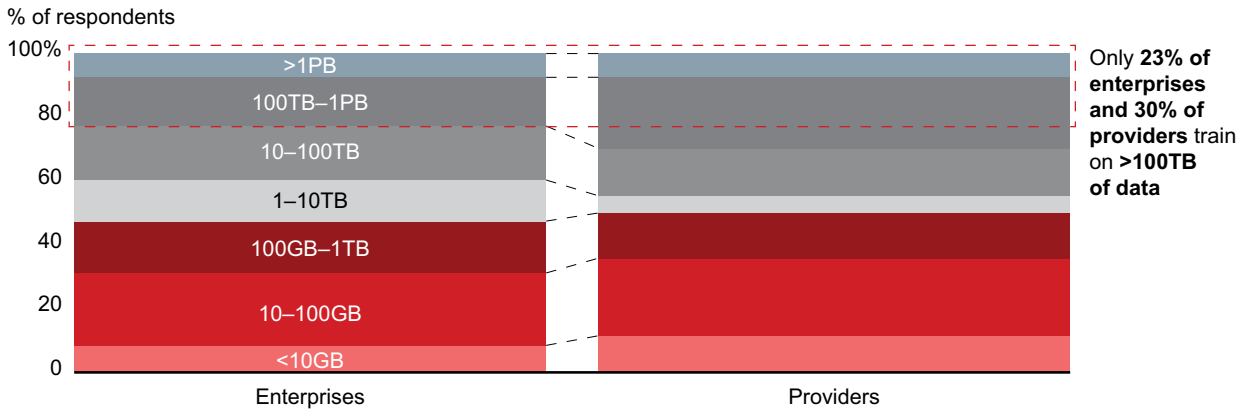
- ▶ While the availability of data and cloud-based infrastructure have aided AI adoption, concerns related to data security, infrastructure, and management continue to be the most significant barriers for enterprises. 53% of enterprises do not have a unified view of their customers. Only 45% of enterprises that build AI solutions specifically instrument their products to capture labelled outcomes. Providers fare slightly better in this regard.
- ▶ Among enterprises and providers that have succeeded in their AI endeavours, the leaders have differentiated themselves by following certain best practices regarding data management and use of different techniques and technologies. Some of these common best practices include instrumenting products to capture labelled outcomes; using failure injection during testing, online learning, model monitoring, graceful degradation of models in production; and having a centralised repository of ML models with documentation.

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Figure 12: For enterprises, there are gaps related to centralisation and data enrichment through data labelling, providers fare better on these terms

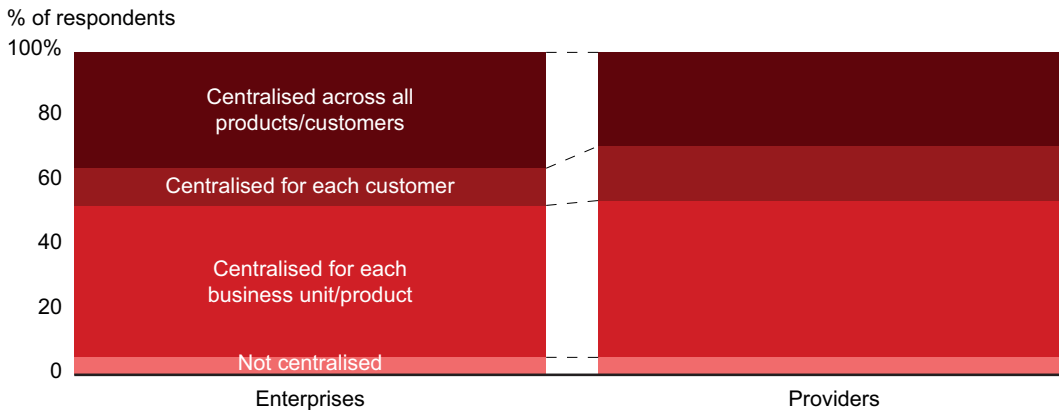
Size of data sets used to train AI models:

Availability of large volume of data is yet to translate into large size of data sets used for training



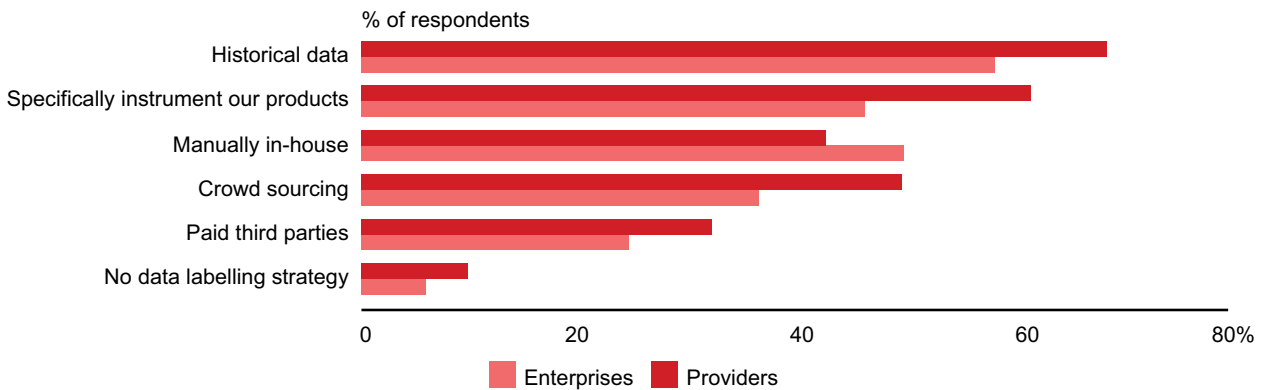
Data centralisation:

More than 50% of enterprises and providers don't have a centralised view of their customers



Methods used for data labelling:

59% of providers and 45% of enterprises instrument their products to get labelled outcomes



Sources: Bain AI Customer Survey, India, Dec 2021 (n=343); Bain AI Provider Survey, India, Dec 2021 (n=148)



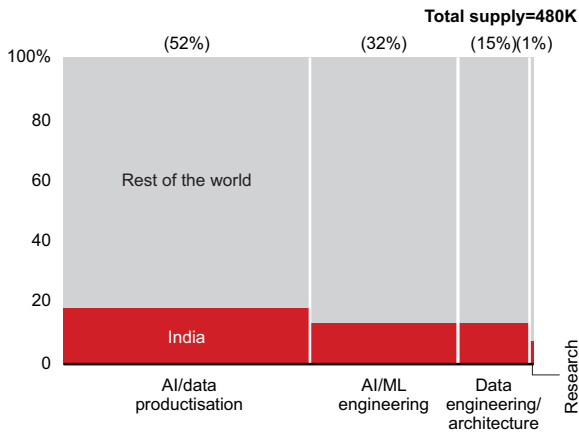
Talent: Key enablers for AI success

- ▶ Although India constitutes a small share of the global AI market, it produces 16% of global AI talent, placing it among the top three contributors in the world. With a legacy of exporting tech talent globally, India produces more talent than it consumes. India's technology workforce grew up in an internet/cloud-first world. Its ability to assemble solutions from combinations of legacy, cloud, and SaaS components is world-class.
- ▶ Micro, small and medium enterprises (MSMEs), focused on addressing niche industry-specific opportunities, are innovating far above their weight by leveraging their workforce and specialist contractors to incorporate AI/ML modules into their e-commerce ventures and digital business processes. Similarly, there has been a spike in demand from large conglomerates wanting to transform their operations with AI/ML, spurred on by the pandemic. An analysis of AI-related employment trends on LinkedIn in 2020 showed that India is leading the way in AI skills penetration across occupations, and there has been a significant uptick in AI-related hiring.
- ▶ The willingness of managers to experiment has led to a war for AI talent, which is still relatively scarce in relation to the demand. Skill gaps are most widely observed for providers in data science, data operations, and legal/compliance areas. On the other hand, enterprises lack domain-specific expertise, data visualisation/analysis talent, and data engineers. Much of the talent today exists in AI application development due to avenues available for upskilling, retraining, self-learning, and experimenting with open-source tools.
- ▶ To systematically build AI talent for enterprise demand, support from academic institutions is needed to introduce comprehensive formal education in core AI technology. Steps have been taken to this effect with the establishment of National Education Policy 2020, which includes provisions to include AI in each stage of education and has directed universities to work towards offering masters and doctoral programmes in this field.
- ▶ The talent equation in India in terms of quantity will only get better, but a clear distinction will emerge between the data engineers, data scientists, and product managers. Cloud platforms and providers with better quality data scientists and product managers will be better placed to lead in the market.

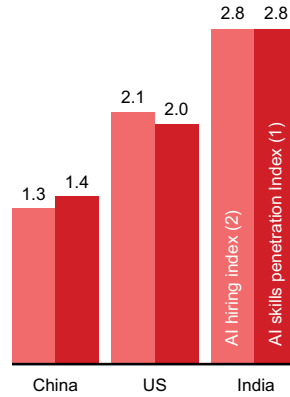
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Figure 13: With a generation that grew up in an internet world, India's talent pool, when nurtured properly, can serve the global AI needs

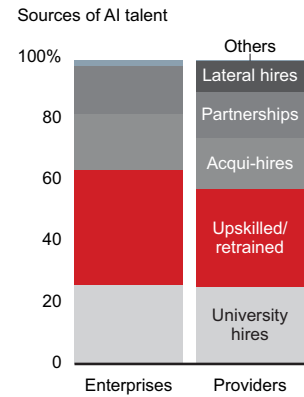
Indians compose about 16% (workforce of ~76K) of the global supply of specialised AI technical talent



Rise in demand for AI talent in India



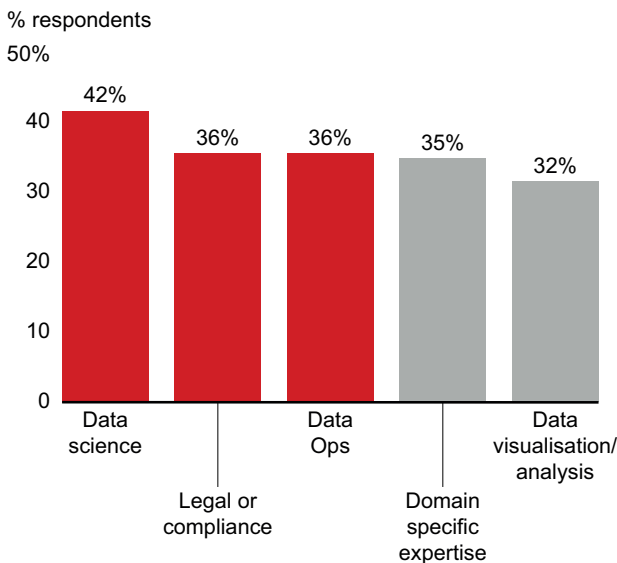
Largest source of AI talent is reskilling existing employees



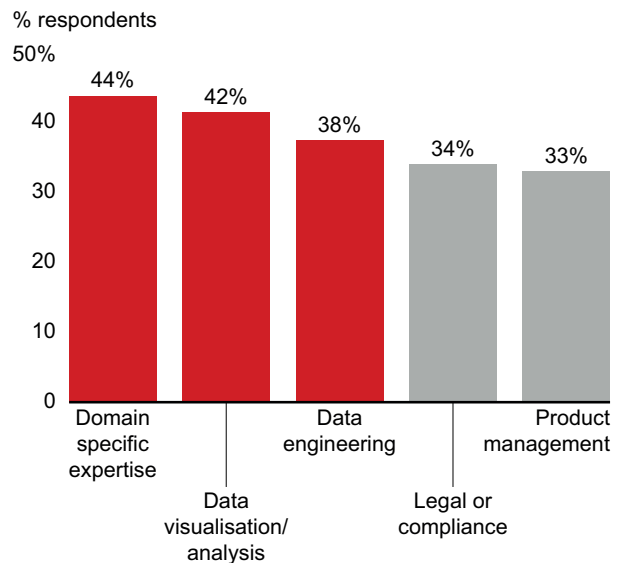
Notes: Talent supply data collated based on self-representation data on social media using keywords for AI-related roles and skills and countries such as China may be underrepresented in the global set; (1) AI penetration index=country's penetration rate/global benchmark; (2) LinkedIn AI hiring rate = (number of LinkedIn members identified as AI talent and added a new employer in the same month the new job began) / number of LinkedIn members in the country; AI Hiring index=country hiring rate of 2020/hiring rate of 2016
 Sources: Bain AI Provider Survey, India, Dec 2021 (n=148); Bain AI Customer Survey, India, Dec 2021 (n=343); JFGagne.AI, <https://jfgagne.ai/global-ai-talent-report-2020/>; "The AI Index 2021 Annual Report," AI Index Steering Committee, Human-Centered AI Institute, Stanford University, Stanford, CA, March 2021

Figure 14: While enterprises have gaps in areas that combine ML skills with domain-specific understanding, providers grapple with gaps in data science

Providers see skill gaps in areas such as data science and data operations



Enterprises are struggling to fill gaps in domain-specific expertise and data visualisation



Sources: Bain AI Customer Survey, India, Dec 2021 (n=343); Bain AI Provider Survey, India, Dec 2021 (n=148)

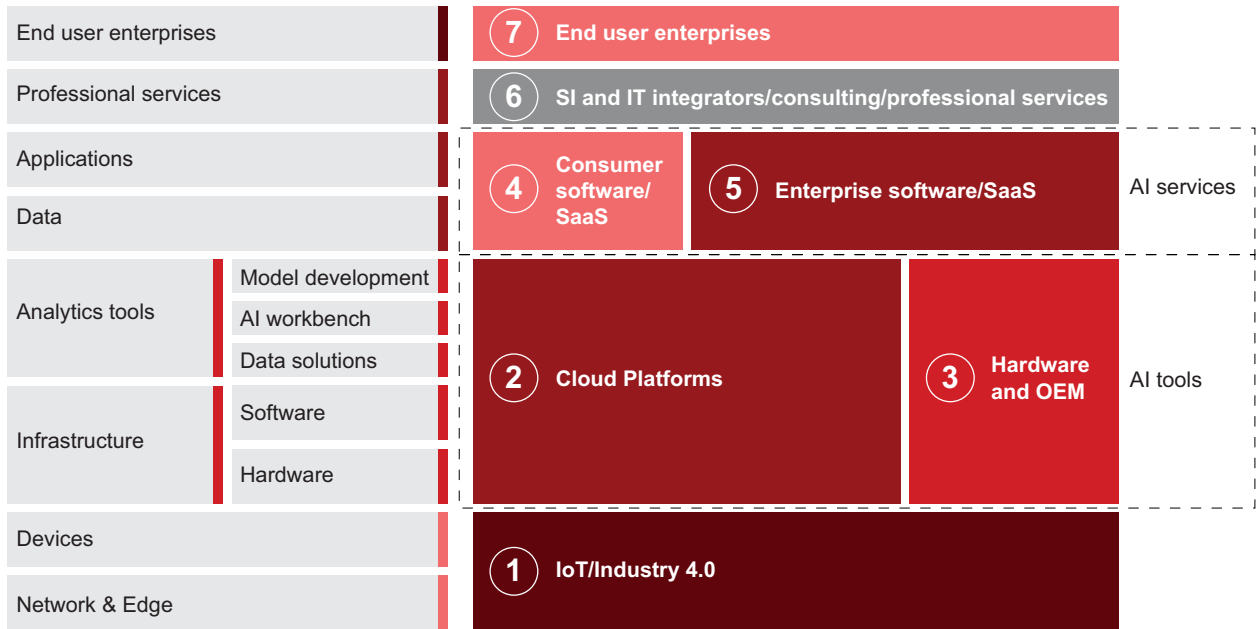


Key battlegrounds: How to win

- ▶ The Indian AI market can be segmented into seven major segments or battlegrounds: end user enterprises, cloud platforms, enterprises software/SaaS providers, consumer software/SaaS providers, hardware providers and OEMs, IoT/Industry 4.0 providers, and SI and IT integrators/consulting/professional service providers.
- ▶ The extent of AI maturity and the ability to leverage AI for each of these significant battlegrounds was assessed through an AI index, which was calculated for each segment's basis factors, such as level of adoption, deployment of use cases, and strength in the three critical capabilities required for AI implementation: data, technology, and talent.
- ▶ Communication, OTT and gaming, technology, and auto and logistics have fared well. In addition to having some of the highest proportions of adopters, communication and OTT and gaming organisations have also implemented AI across the most significant number of use cases compared to other industries. Auto and logistics organisations have demonstrated relative strength in critical data, technology, and talent capabilities.
- ▶ Industrial goods and manufacturing and healthcare lag most other industries. The healthcare sector is hampered with respect to data processing and governance technologies.
- ▶ On the provider side, cloud platforms and IoT providers emerge ahead of other segments on the AI index. While IoT providers invest in hiring the right talent, cloud platforms have demonstrated greater maturity by deploying complex deep learning algorithms, continuously updating their models, and adopting practices for customers to securely share their data.
- ▶ We find SaaS companies need to improve their data strategy. SIs and IT consulting companies have the scope to deploy more number of use cases and increase the share of AI talent in senior/managerial positions.
- ▶ The AI index is a diagnostic tool that gives an overview of strengths and areas of improvement in each segment or vertical. The business and function leaders from each major battleground and enterprise can take the diagnostic results into account to adopt some measures and practices that increase the likelihood of success in introducing and implementing new AI features.

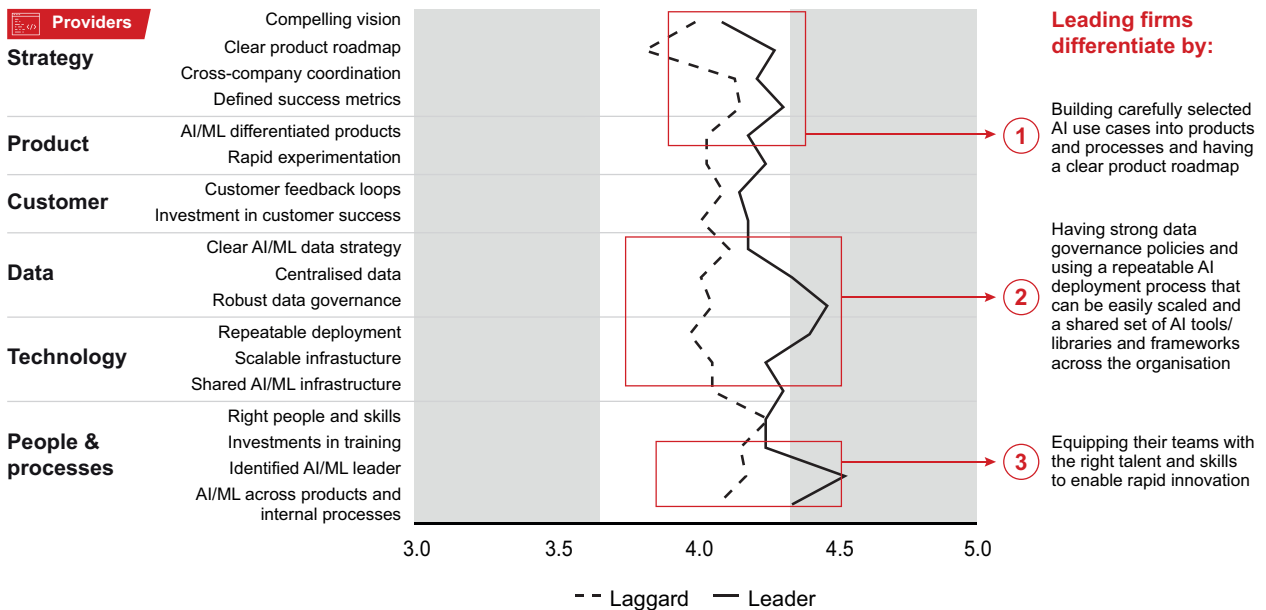
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Figure 15: The Indian AI market can be segmented into seven major segments or battlegrounds



Source: Bain analysis

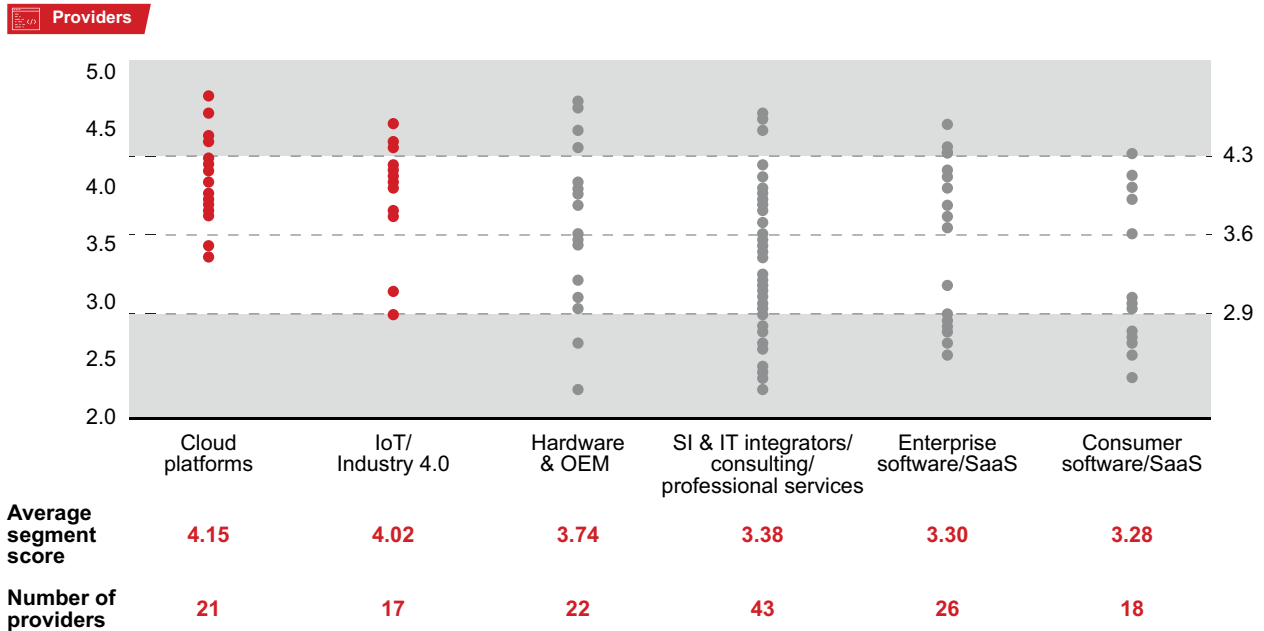
Figure 16: AI self-scorecard demonstrates that leaders among providers outperform others with robust use cases, good data governance, and the right processes



Notes: Showing 18 of 21 scorecard metrics; leaders (n=32) are defined as respondents with >20 use cases in experimentation phase or deployed to customers; Laggards (n=50) have <=10 use cases deployed/in experimentation
Source: Bain AI Provider Survey, India, Dec 2021 (n=148)

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Figure 17: Cloud platforms and IoT providers are ahead when it comes to extent and maturity of AI adoption



Notes: Scores are assigned out of 5; Eliminated results for one respondent in Enterprise SaaS that was emerging as an outlier
Sources: Bain AI Provider Survey, India, Dec 2021 (n=147); Bain analysis

Figure 18: Performance of providers across the metrics of the AI rating index

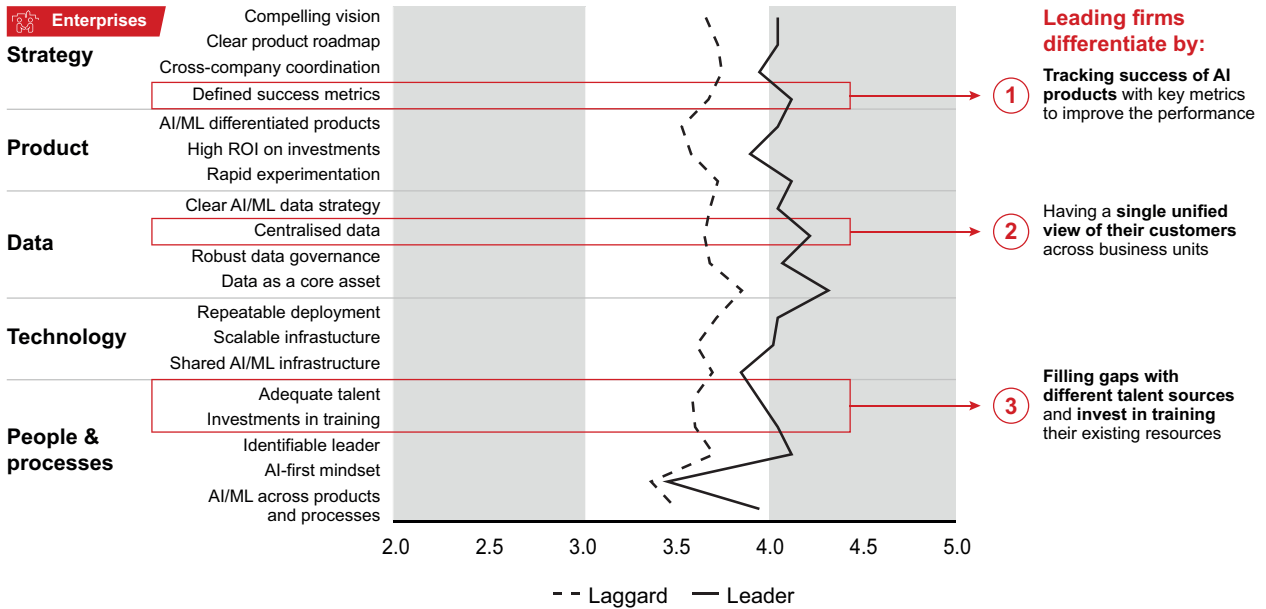
		Cloud platforms	IoT/ Industry 4.0	Hardware and OEM	SI & IT integrators/ consulting/ professional services	Enterprise software/SaaS	Consumer software/SaaS
Vision	Number of years since AI strategy has been implemented	Experienced players	Experienced players	Experienced players	Moderately experienced	New players	Moderately experienced
	Percentage of companies with AI/ML as core element of majority of their products	~70%	~90%	~55%	~50%	~60%	~80%
	Percentage of companies with majority of the AI features autonomous	~80%	~90%	~75%	~65%	~60%	~90%
Level of adoption	Percentage of prototypes taken to production scale	~80%	~75%	~70%	~55%	~60%	~65%
	Number of use cases implemented	High	High	High	Low	Moderate	Low
Data	Data labelling	Instrument products to capture labelled outcomes	Instrument products to capture labelled outcomes	Use historical data	Use historical data	Use historical data	Manually/ paid third parties/ via crowdsourcing
	Number of measures to enable data sharing (e.g., data anonymisation, risk indemnification)	High	Low	High	Moderate	Moderate	Low
	Size of training data sets	Large	Large	Moderate	Moderate	Small	Moderate
Tech	Frequency of model updates	High	Low	Low	Moderate	Low	High
	Algorithms used	Supervised or unsupervised deep learning	Reinforced deep learning	Supervised or unsupervised deep learning	Supervised or unsupervised deep learning	Supervised or unsupervised deep learning	Traditional ML
Talent	Number of employees working in AI/ML	Moderate	High	High	Moderate	Low	Moderate
	Managers/engineers with deep understanding of AI	High	High	High	Low	Moderate	Moderate

High performance ■ ■ Lagging performance

Sources: Bain AI Provider Survey, India, Dec 2021 (n=147); Bain analysis

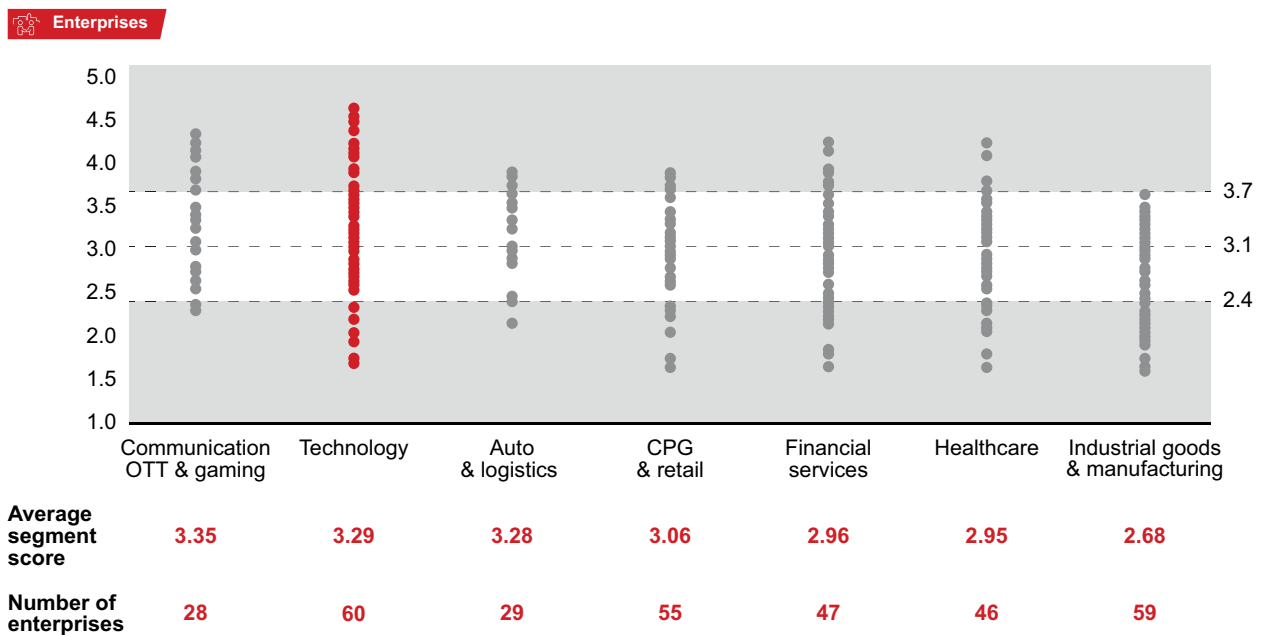
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Figure 19: Among enterprises, leaders place comparatively higher emphasis on data centralisation, investment in training, and defining key metrics for success



Notes: Broad adopters that have implemented greater than 5 use cases have been classified as leaders; Enterprises that have implemented less than 3 use cases for AI/ML have been classified as laggards
 Source: Bain AI Customer Survey, India, Dec 2021 (n=343)

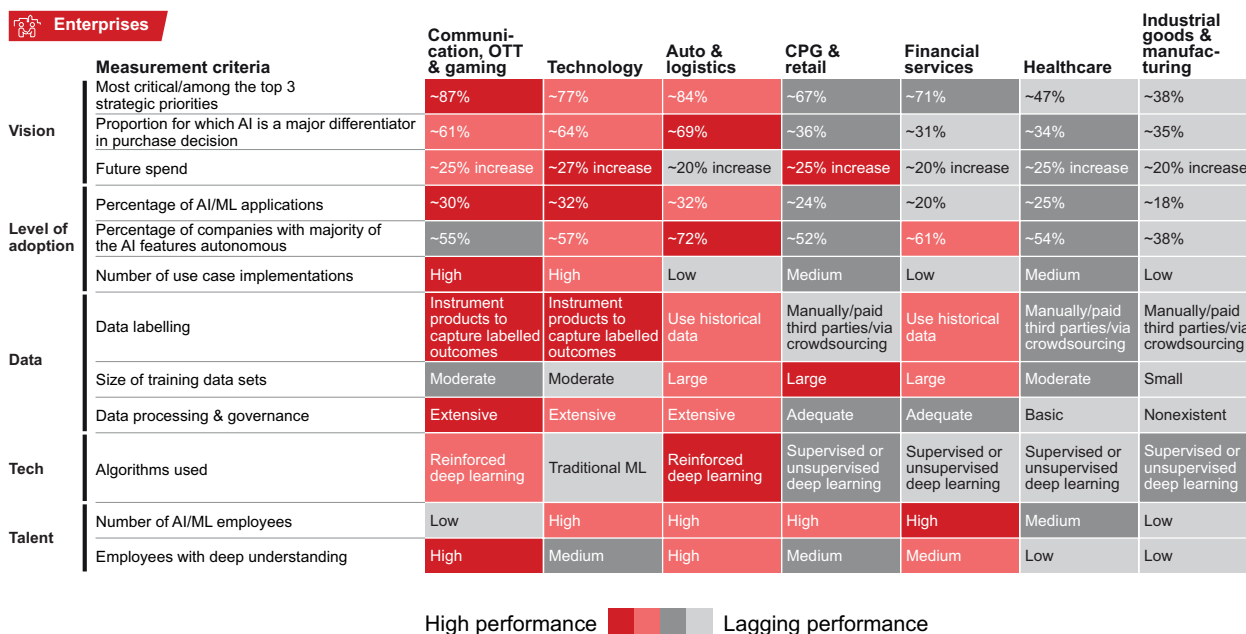
Figure 20: Communication, OTT and gaming, and technology outperform the other sectors, while CPG and retail is characterised by greater variation



Note: Scores are assigned out of 5; 11 outliers and the 8 non-adopters have been eliminated from the analysis
 Source: Bain AI Customer Survey, India, Dec 2021 (n=324), Bain analysis

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Figure 21: Enterprises perform differently across the metrics of the AI rating index



Source: Bain AI Customer Survey, India, Dec 2021 (n=343), Bain analysis

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Figure 22: Battleground strategies for providers

Segment	High-impact use cases	Strategy implications
Cloud platforms	Cloud provisioning optimisation, root cause detection, alerts for critical events	<ul style="list-style-type: none"> • Improve underlying infrastructure and AI workbench layers by identifying pain points in the ML operations development cycle. • Develop the right channel partnerships with SIs/IT consulting service players to drive adoption among traditional enterprises. • Invest in plugging skill gaps in data science and platform engineering through retraining and university hiring. • Provide a holistic ecosystem covering end-to-end needs from model development to deployment along with cost optimisation features to increase platform stickiness.
IoT/Industry 4.0	Data pre-processing and integration, end user automation, cluster analysis, predictive maintenance	<ul style="list-style-type: none"> • Capitalise on data advantage, Maximise problem domain expertise and deployment and maintenance capabilities. • Focus on upskilling existing talent, Invest in employee training to build an internal talent pipeline for senior/more technical roles. • Enhance customer support, Provide demonstrations, proof of concept, implementation support, and integrated solutions. • Charge premiums, Increase the price of unique AI-embedded solutions provisioned to customers. • Prioritise speed for development, Implement rapid trials, use the public cloud to push production, and update models frequently. • Invest in hybrid architecture to support cloud to edge to on premises AI devices/appliances, Maximise performance and cost.
Hardware and OEMs	Root cause detection, alerts for critical events, end user automation, content localisation	<ul style="list-style-type: none"> • Build products that can be deployed in edge AI solutions and are compatible with the latest infrastructure software. • Set up robust data governance and management processes to gain trust with consumers and leverage data. • Invest in building talent for domain-specific expertise and platform engineering.
SI and IT integrators/ consulting/ professional services	Tailored communication, configuration changes suggestions, alerts for critical events	<ul style="list-style-type: none"> • Partner with enterprises across the breadth of operations, Increase co-dependence and foster AI innovation. • Leverage cloud platform ecosystem, Use cloud platform infrastructure, AI/ML tools, and algorithms for development and continuously update models. • Build talent at mid-senior level, Supplement lateral hiring with retraining and bridge the skill gap in metadata analytics.
Enterprises software/SaaS	Automatic report generation, alerts for critical events	<ul style="list-style-type: none"> • Build data asset, Cross-pollinate data sources, invest in product instrumentation to capture labelled data outcomes, work with customers on data sovereignty, and proactively address evolving data privacy/governance requirements. • Build talent at mid-senior level positions, Hire product managers capable of scoping problems and designing the model. • Consider mergers and acquisitions, Acquire talent, vertical expertise, expanded product functionality, and entrenched market position. • Add a layer of professional services, Provide model customisation, implementation, and maintenance.
Consumer software/SaaS	Predictive customer health score, data pre-processing and integration, configuration changes suggestions	<ul style="list-style-type: none"> • Enable data sharing, Anonymise data, make usage transparent, and provide storage and management and comprehensive service-level agreement. • Build products to improve model performance, Capture labelled outcomes and incorporate feedback loops. • Use extensive customer research, Get a better understanding of customer pain points and types of data sets used. • Target acquisitions, Access new data and AI talent sources, especially in niche segments. • Develop proper fallback mechanisms, Protect features with high-risk implications for customer experience.

Source: Bain analysis

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Figure 23: Battleground strategies for enterprises

Segment	High-impact use cases	Strategy implications
Communication, OTT and gaming	Workflow automation, IT management and security	<ul style="list-style-type: none"> • Build in-house talent through university hiring and acquisitions. • Develop an internal infrastructure that is flexible and scalable to alleviate the difficulty in integration of AI models or solutions. • Inculcate an AI-first mindset among employees to achieve a higher ROI in investments.
Technology	Customer support automation, risk management	<ul style="list-style-type: none"> • Incorporate global best practices on design architecture to integrate solutions or tools in an effective manner.
Auto and logistics	Optimisation of supply chain and logistics, design and specifications	<ul style="list-style-type: none"> • Develop multiple sources of data, centralise data, and build robust data governance and management processes. • Invest in training existing resources and explore alternative sources of talent.
CPG and retail	Targeted and personalised marketing, marketing campaign assessment/optimisation	<ul style="list-style-type: none"> • Develop a scalable infrastructure for AI use cases and a clear product strategy with well-defined business key performance indicators (KPIs) to track the success of AI projects. • Enhance the existing data by incorporating best practices in data labelling, such as instrumentation of products to capture labelled outcomes.
Financial services	Automated and personalised customer experience, personalised/dynamic financial products	<ul style="list-style-type: none"> • Build a talent pool through external hires and acquisitions and leverage partnerships to access domain-specific expertise to fill critical skill gaps. • Build an infrastructure that allows the use cases to scale in a more effective manner.
Healthcare	Automated diagnostics, drug discovery, development	<ul style="list-style-type: none"> • Develop a clear AI strategy and product roadmap with crucial business KPIs to track the success of AI initiatives. • Institute robust data governance and management practices to leverage data more effectively.
Industrial goods and manufacturing	Operations and logistics optimisation, predictive maintenance	<ul style="list-style-type: none"> • Build data assets through digitisation of core internal processes and prioritise setting up robust data governance and management processes to leverage data as a core asset. • Build a talent pool by investing in training existing resources and exploring alternative sources, such as partnerships.

Source: Bain analysis

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