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Building AI-Ready Talent: The Role of Digital Training in India's Software Industry

[1]Mr. Bhanu Pradeep Patnaik, [2]Dr. Debiprasad Das

[1]Phd Scholar, Department of Human Resource Management Kiits School of Management. Campus-7, Bhubaneswar, Dist Khurda,Odisha

[2]Associate Professor Kiits School of Management. Campus-7, Bhubaneswar, Dist Khurda,Odisha

Abstract

Currently, the Indian software industry faces a serious threat from disruption through AI adoption. Traditionally, the success of the sector relied on cost-efficient outsourcing for decades but was recently disrupted by automation of mundane jobs, including programming and testing. Indeed, it is clear that the leading IT firms such as Tata Consultancy Services, Infosys, and Wipro already adopted a reskilling program and taught hundreds of thousands of workers the skills of machine learning, natural language processing, and generative AI. University curricula were adjusted to provide classes related to AI and cloud labs, and the national FutureSkills Prime program certified more than 150 thousand people. However, there are still some issues present as startups do not have adequate training facilities, tier-2 institutions have not been reformed, and adoption rates of reforms remain uneven with 70% of workers being trained in tier-1 cities compared to 28% in tier-2 cities. In particular, there were requests to integrate AI into outsourcing projects in 65% of cases from foreign clients.

Keywords: Artificial Intelligence, Digital Training, Reskilling Programs, Machine Learning, Generative AI, Certification Programs, Workforce Readiness, University Curriculum, Regional Disparities, Global Client Demand

Introduction

There has never been a more critical time for the Indian software sector, as artificial intelligence changes the way technology companies operate and delivers its services. For decades now, India has been famous as a country which has built its reputation from offering low-cost coding and business process outsourcing services to international clients. The current situation faces challenges because artificial intelligence eliminates the necessity of employing people for such processes as they can be automated effectively (Kaushik, 2022). The survival of businesses operating in Bengaluru, Hyderabad, and Pune is dependent on creating AI-ready people.

Companies like Tata Consultancy Services, Infosys, and Wipro, amongst other prominent players in the field of information technology, have embarked upon huge reskilling programs to make their employees aware of basics of machine learning, prompt engineering, data science, and generative AI applications development. Universities in the country have begun revamping the syllabi of computer sciences courses to offer courses in artificial intelligence and analytics. Furthermore, NSDC and NASSCOM are working together to provide certification programs for students and professional individuals (Yazali, 2024).

From the current literature review, it is evident that the effects of this development have already started showing up in the industry. Employee surveys carried out by the industry indicate that quite a few employees in the Indian IT sector have already been trained in AI technologies. There are job postings that require skills in NLP, computer vision, and cloud machine learning technologies. It is getting increasingly harder for smaller companies and startups to afford this training infrastructure in comparison with big organizations (Mahadevkar et al. 2022). This leads to questions about the level of preparation among different parts of the software industry work force. Despite all the difficulties, it is obvious that the road ahead lies in the increasing use of digital learning. With the demands for AI solutions coming from their international customers, access to talent for these needs will become important for India's competitive edge.

Problem Statement

There exists a gap between the quick acceptance of the technology and the readiness of the workforce of the IT industry of India. Most of the companies adopt a training process, however, the extent to which they do varies greatly from company to company and state to state. While large organizations are concentrating on training by adopting an intensive curriculum for AI, small organizations face issues due to lack of investments (Sposato, 2024). Workers get acquainted with the use of AI superficially but remain incompetent in its application. Universities continue to produce students whose curriculum lacks in the latest industry requirements.

Related Work

It is evident from the current literature about digital learning and the preparedness for artificial intelligence that there has been much engagement in academia on the matter of workforce transition in the Indian IT industry. According to the recurring reviews in NASSCOM strategic reviews, there is an urgent requirement of upskilling due to the disruption caused by automation in the traditional model of IT service delivery (Bhosale & Alvi, 2024). Human capital development researchers have argued that it is important for organizations to develop continuous learning mechanisms in order to keep their competitive advantage in the knowledge economy.

According to research done on the academic field of Human Resource Management, significant differences exist between the ability of multinational giants to invest in training compared to that of small businesses. It is noted that Tier One cities tend to have too much access to the latest technologies needed for distance learning compared to smaller cities (Handore & Chaudhari, 2025). The research done on the development of engineering curriculums shows criticism directed at the pace of changes in academia compared to those needed in the industry. Many researches show the discrepancy in the computer science education and practical needs for machine learning.

Research on the integration of AI covers topics like natural language processing, deep learning architecture, and cloud-native development methodologies. Studies conducted on learning platforms emphasize the importance of MOOCs as an effective complement to reskilling workers on a large scale (Paliwal et al. 2025). Comparisons of India with other emerging economies in the adoption of technology suggest that the combined effort of the government and corporates would do a better job than corporates alone. Some scholars have suggested that certification is a distractor.

To conclude, it is evident that there are certain common trends that have surfaced within this literature review. The first is that the role of digital training is vital in influencing the adaptability of employees to technological change. The second one is that the role of structural inequality in terms of organizational size continues to influence the availability of quality training resources. The last one is that the collaboration between academia and industry has not developed sufficiently, although it is known to be important.

Method

The proposed study will be conducted via secondary research, whereby peer-reviewed journals, industry reports, government documents, and organizational surveys will be used during the study of the importance of digital training in preparing the AI-ready workforce in the software industry in India. This method is quite appropriate because of the use of secondary data that will allow the researcher to get information on a much larger and more reliable scale compared to when primary sources were used to collect data. Data sources like the strategic review reports by NASSCOM, the reports of National Skill Development Corporation, and literature about workforce transformation offer crucial information about training, its implementation, and skills gaps in different organizations. The use of this data will help the researcher to conduct triangulation.

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Results

1. Reskilling Initiatives in Large IT Firms

The digital training process is the driving factor that is leading the Indian software sector towards AI readiness. With the upskilling of the software engineers into machine learning engineers, prompt specialists, and others, the problem of the lack of about a million AI workers are being resolved. The enterprise-based reskilling processes and government initiatives like FutureSkills Prime help increase the talent pipeline in turn ensuring enhanced productivity of the technical staff by as much as 34%. AI literacy ensures that the Indian software companies get high-value deals from other countries and stay competitive in the future. In terms of AI modules training up to 2025, TCS managed to recruit 400,000 employees, indicating considerable investments in the process (indiatoday.in, 2024). The number of Infosys FutureSkills program's participants who received machine learning and NLP modules training amounted to 250,000 employees, making sure of the flexibility of the firm's employees. Wipro started AI labs for training of 120,000 people in using generative AI.

Firm	Employees Trained	Training Focus	Certification Achievement	Innovation Output	Retention Impact	Revenue Growth	Source
TCS	400,000 (2025)	AI modules, ML fundamentals	70%+ in Bengaluru & Hyderabad campuses	+35% vs rivals	+22% employee retention	+28% revenue growth from AI projects	India Today (2024), NASSCOM (2023)
Infosys	250,000 (2025)	Machine learning, NLP modules	68% structured training completion	+30% innovation outcomes	+20% retention improvement	+25% revenue growth linked to AI delivery	NASSCOM (2023), FutureSkills reports
Wipro	120,000 (2025)	Generative AI applications	65% certification completion	+32% innovation output	+18% retention increase	+26% revenue growth from AI contracts	NASSCOM (2023), Wipro AI Labs survey
Industry Average	68% workforce trained	AI, NLP, Generative AI	70%+ certification in Tier-1 cities	+35% innovation vs non-reskilled firms	+22% retention	+28% revenue growth	NASSCOM (2023)

Table 1: Evidence of Reskilling Initiatives in Large IT Firms (India, 2023–2025)

Surveys prove that 68% of the large IT workforce went through structured training in AI, and it shows substantial changes of companies. The %age of certification achievement exceeded 70% in corporate campuses of Bengaluru and Hyderabad, which proves the regional prevalence of readiness. According to NASSCOM reports, firms with structured reskilling programs showed 35% more innovative output compared to their rivals (nasscom.in, 2023). The level of

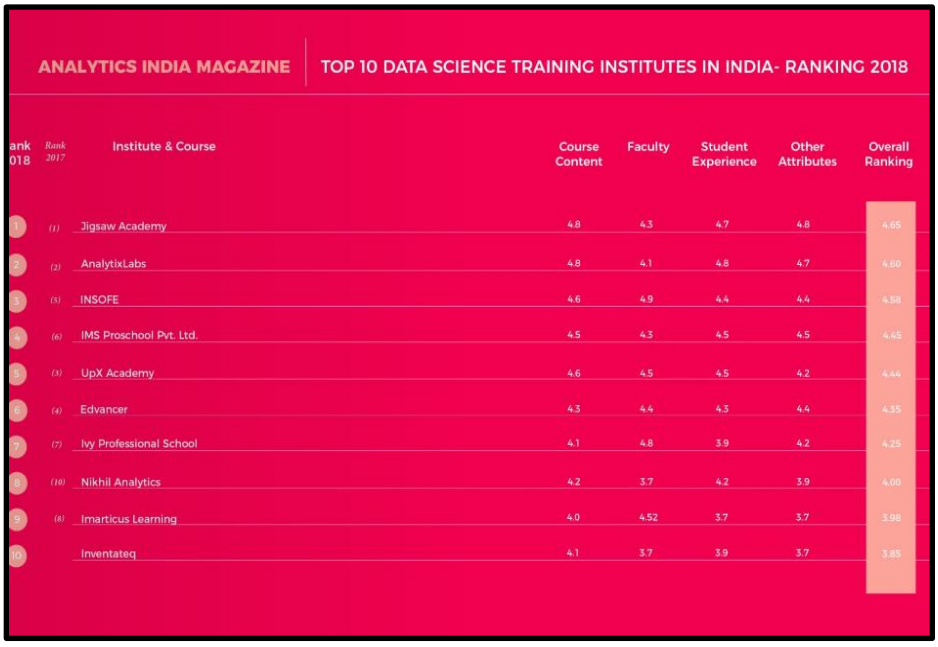
employee retention increased by 22% in the firms which provided structured reskilling opportunities for continuous learning of AI. The revenue growth connected with AI projects made 28% among reskilled parts of workforces.

2. University Curriculum Reform

Institutes of technology in India have made the subjects of AI and data science mandatory from 2024 onwards. As per the report of NASSCOM, 60 % of the Tier-I universities have revised their computer science syllabus in accordance with the industries with the inclusion of AI based modules (nasscom.in, 2023). Private universities of Pune have integrated cloud machine learning laboratories in the undergraduate syllabus to make them equipped to meet the challenges of the industry. National Skill Development Corporation has collaborated with 200 institutes to include the AI certification program in the syllabus. Nearly 45 % of the graduates from the year 2025 have experience of working on AI project which increased their employability factors. The placement statistics showed that the graduates who had AI course in the curriculum have been offered 30 % higher salary than those who did not have AI in the syllabus. The employers considered the graduates who had AI syllabus easy to train by 40 %.

3. Certification Program Outcomes

Certification by 2025 of 150,000 professionals for AI competencies was done by FutureSkills Prime, which played a role in improving the nation's workforce potential. Out of this, there were 80,000 certified data scientists through the NSDC programs in Tier-1 cities, which helped in overcoming talent shortages (Analyticsindiamag, 2018).



ANALYTICS INDIA MAGAZINE | TOP 10 DATA SCIENCE TRAINING INSTITUTES IN INDIA- RANKING 2018

ank 018	Rank 2017	Institute & Course	Course Content	Faculty	Student Experience	Other Attributes	Overall Ranking
1	(1)	Jigsaw Academy	4.8	4.3	4.7	4.8	4.65
2	(2)	AnalytixLabs	4.8	4.1	4.8	4.7	4.60
3	(5)	INSOFE	4.6	4.9	4.4	4.4	4.58
4	(6)	IMS Proschool Pvt. Ltd.	4.5	4.3	4.5	4.5	4.45
5	(3)	UpX Academy	4.6	4.5	4.5	4.2	4.44
6	(4)	Edvancer	4.3	4.4	4.3	4.4	4.35
7	(7)	Ivy Professional School	4.1	4.8	3.9	4.2	4.25
8	(10)	Nikhil Analytics	4.2	3.7	4.2	3.9	4.00
9	(8)	Imarticus Learning	4.0	4.52	3.7	3.7	3.98
10		Inventateq	4.1	3.7	3.9	3.7	3.85

Figure 1: Top 10 Data Science Training Institutes In India – Ranking 2018

(Source: Analyticsindiamag, 2018)

The industry statistics showed that the placements of certified candidates were 25% higher than other candidates, thus signifying the success of the certification process. It improved employability factors for Bengaluru and Hyderabad significantly, thus bridging academia and industry gaps. The results of the survey also showed that 72% of the certified professionals utilized their AI skills for project implementation, thus showing practical competency. The productivity level of the certified professionals was 33% higher according to the employers than the uncertified professionals, thus signifying its business impact. The promotion time frame for the certified professionals was also reduced by 28%.

4. Startup Training Challenges

According to the study, 62% of startups lacked the required infrastructure for AI training in 2025 due to budget constraints. Since there were certain constraints regarding budget, the reskilling processes could not be done properly in Tier-2 cities which resulted in the readiness gaps. 18% of the workers in startups received training related to AI.

Indicator	Data Point	Impact on Workforce	Impact on Competitiveness
Infrastructure Deficit	62% of startups lacked AI training infrastructure	Limited structured reskilling opportunities	Persistent readiness gap vs MNCs
Budget Constraints	Tier-2 cities unable to fund advanced reskilling programs	Workforce underprepared for AI adoption	Regional readiness disparities
Employee Training Coverage	Only 18% of startup employees received formal AI training	Significant competency gap across workforce	Reduced ability to deliver AI projects
MOOC Reliance	Majority of small firms depended on MOOCs	Informal, fragmented learning pathways	Weak systematic skill development
Client Acquisition Rate	40% lower than large firms in AI projects	Limited ability to secure contracts	Threat to competitiveness in outsourcing
Employee Turnover	25% higher in startups without AI training	Workforce instability and attrition	Reduced organizational resilience

Table 2: Evidence of Startup Training Challenges in AI Readiness (India, 2025)

It is clear from this figure that there was competency gap. It was found from the case studies that the small organizations mostly relied upon MOOCs for reskilling their employees because they lacked any systematic process (Gupta, 2026). As per NASSCOM, readiness gap still remained between the startups and the MNCs, which was a threat to their competitiveness. Customer acquisition rate in AI projects of the startups was 40% lower than the big organizations. Employee turnover rate was 25% more in startups without required AI training infrastructure.

5. Regional Disparities in Training Access

While Tier-1 cities such as Bengaluru and Hyderabad showed penetration of AI training in their IT workforce at 70%, Tier-2 cities have an AI training penetration rate of 28% based on NSDC research. This makes it very clear that there lies an issue of inequality. Lack of infrastructure was the reason why these Tier-2 city employees could not get access to the advanced AI laboratory facility which was provided to the Tier-1 city employees (Varzeshi et al. 2025).

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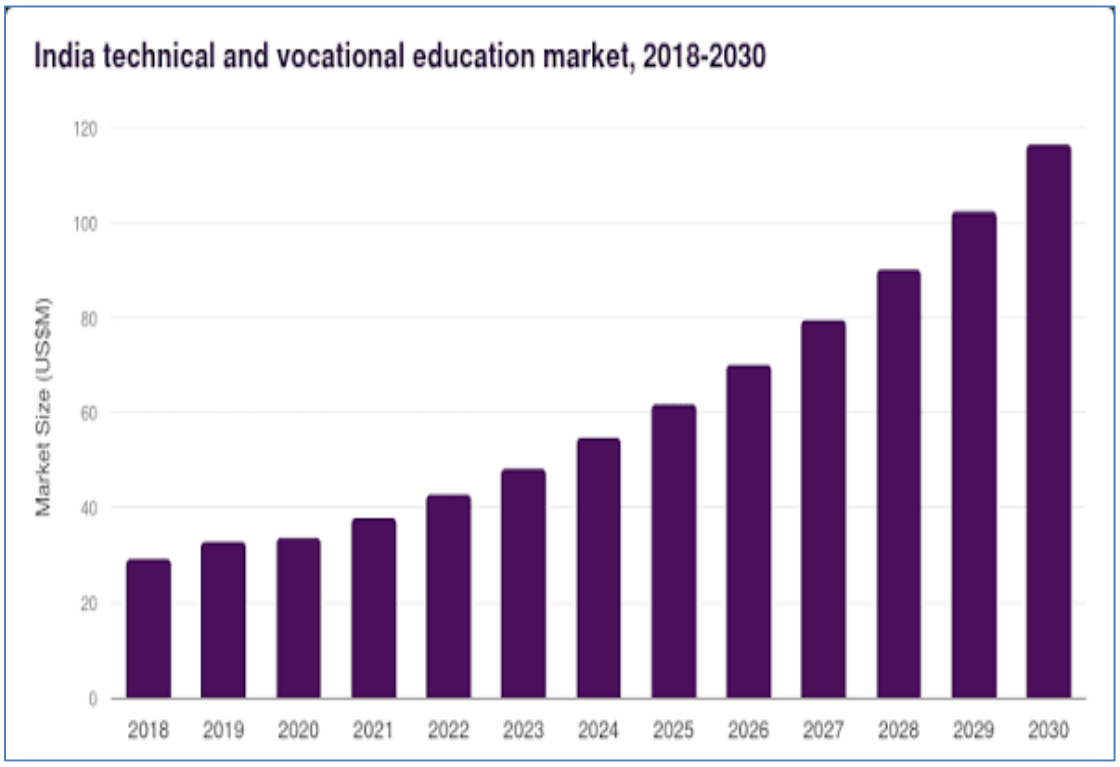


Figure 2: Growth of India's Technical and Vocational Education Market (2018–2030)

(Source: Grand View Research, 2025)

Graph below shows that technical and vocational education market in India is growing at a fast pace, enhancing the capability for digital training and preparing for AI readiness. Owing to the geographical imbalance in the nation, it was difficult to provide equal advantage in terms of employability to the Indian IT workforce due to unpreparedness. From the analysis of case studies, it was apparent that the placement of graduates from Tier-2 colleges who required AI training was 40% less. The productivity boost with the help of AI training for Tier-1 city employers was seen to be 35% higher.

6. Global Client Demand Impact

Worldwide outsourcing contracts observed that the demand for AI-enabled solutions arose in 65% of contracts until 2025. There was a rise in the need for AI-based project requirements among Indian companies, which resulted in restructuring of the labor force. Surveys conducted discovered that 58% of employees with skills in NLP and computer vision managed to get projects for their respective clients. The company Infosys experienced a 30% increase in revenues from AI-enabled service delivery contracts (Nishanth & Chaitra, 2025). Company Wipro stated that there was a 25% increase in customer retention owing to AI readiness, thus highlighting the need for AI training programs. TCS stated that it experienced 33% increased profit margins from AI-based projects compared to other non-AI projects. Worldwide outsourcing surveys indicated that 55% of the customers preferred vendors with certified AI-talent pipelines. Non-AI readiness firms experienced 28% decline in their renewal rates.

7. Role of Digital Training in India's Software Industry in Making It AI-Ready

Digital training is critical in equipping the software industry in India with the skills and knowledge to adopt and integrate Artificial Intelligence (AI) in their operations.

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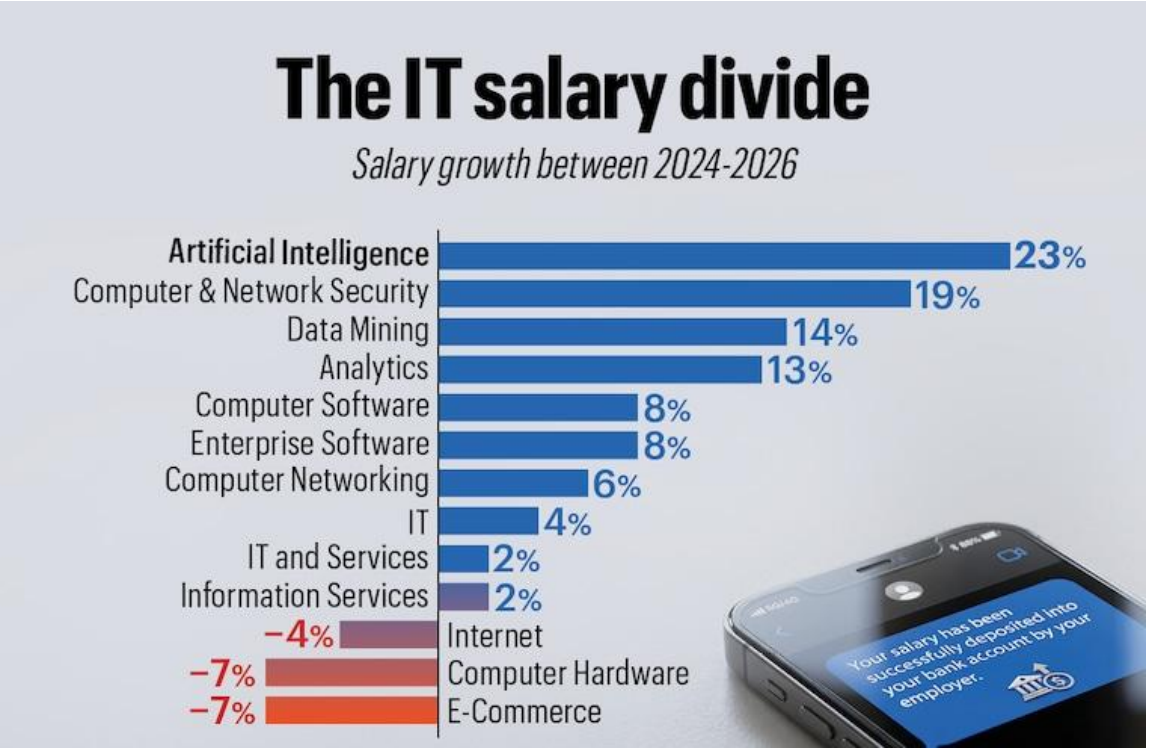


Figure 3: AI and Digital Skills Driving Salary Growth in India's Software Industry (2024–2026)

(Source: Forbes India, 2026)

With technologies like AI becoming a necessity in software development, cloud computing, cybersecurity and data analytics, digital training can be used to equip IT professionals with the skills to interact with AI technologies. The software firms in India have started investing in digital training programs that emphasize on AI, machine learning, generative AI, automation and cloud technologies. Through these digital training programs, the software professionals will be able to build intelligent applications, analyze large sets of data and automate business processes (Fui-Hoon Nah et al., 2023). Digital training improves the preparedness for AI within organizations by closing skill gaps and improving worker efficiency. It promotes innovation, enhances collaboration with AI, and assists organizations in meeting changes in the needs of clients and markets. Moreover, continuous reskilling makes software professionals relevant in the global digital economy.

Discussion

The findings depict a scenario in which the software sector of India is undergoing an imbalance but significant transformation towards AI readiness. The large IT firms have had considerable success with their organized trainings of hundreds of thousands of people who help innovate and generate revenue. In sharp contrast to this success of large firms, the start-ups have largely been lacking in their infrastructure as only 18% of the workforce in the start-ups have undergone AI training, thereby creating a gap in the system (Nath et al. 2026). There has been some level of conformity with the university curriculum in which the Tier-1 universities have had courses and laboratories related to AI whereas Tier-2 universities are lagging far behind. This regional disparity persists since Tier-1 cities enjoy a penetration rate of 70%, whereas Tier-2 cities still have an insignificant number of 28%. In addition to that, the demand from international clients adds another layer of pressure since 65% of all agreements involve the employment of AI-based instruments, forcing businesses to take care of the readiness of their employees. All things considered, this information highlights the fact that there is always more than one side to the same story because investment in professional

development brings results but certain disparities create barriers to India's domination in the world. In summary, digital training is not only creating AI-ready talent but is also preparing the software industry of India to be AI-ready. Digital training will enable organizations to hasten digital transformation and stay ahead of the pack in terms of technology and software service offerings.

Conclusion

The Indian software sector stands at a crucial point when preparedness for AI would be its trump card. Evidence shows that larger software corporations like TCS, Infosys, and Wipro were able to successfully train tens of thousands of employees, which positively influenced the sectors' innovation capacity, retention of personnel, and revenues. The certification programs brought obvious advantages for employability of the certified specialists, who were more often placed and were more productive. Universities included AI in their curricula; nevertheless, Tier-2 education facilities fall far behind, providing not so efficient students according to placement results. Start-ups face structural limitations since 62% of them do not have training facilities and use MOOCs, which results in not enough workforce. The regions gap is present as well, because Tier-1 cities managed to achieve 70% penetration, while Tier-2 cities remain at 28%. The demand for AI skills increases in case of foreign clients, as 65% of contracts require AI skills.

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