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Outlook Study on Artificial Intelligence and Gender in South Asia

UNESCO Women for Ethical AI

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SHORT SUMMARY

Half the region, a fraction of the room: AI and gender in South Asia

How are women positioned across the rapidly expanding AI ecosystem in South Asia? Who participates, leads and benefits from the technologies increasingly governing everyday life? This report seeks to answer these questions by establishing a regional baseline on AI and gender in South Asia.

This report adopts a life-cycle approach, examining women's participation across AI education, research and the AI workforce. It traces how gendered patterns emerge and compound across these interconnected stages, shaping pathways into AI knowledge production, employment and leadership.

The analysis maps gender distribution across AI-relevant education pipelines, focusing on tertiary-level STEM and computing enrolments, and examines women's participation in AI research and academia, and across the AI value chain – from upstream data work to model development and downstream applications. The report is grounded in case studies and qualitative interviews with women across the region, bringing lived experiences into conversation with quantitative evidence.

The findings of this report reveal how gender inequality is reproduced across the AI ecosystem, and where targeted interventions can shift outcomes. Readers will find regional evidence, comparative insights, and policy recommendations to support more inclusive AI futures in South Asia.

This report is intended for policymakers, educators, development organizations and private companies working at the nexus of gender, ethics, technology and AI.

Only
26 per cent
of primary authors
of AI research in
South Asia are
women



"Since wars begin in the minds of men and women, it is in the minds of men and women that the defences of peace must be constructed"

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UNESCO Women for Ethical AI

Preface

Artificial intelligence (AI) is emerging as one of the defining technologies of our time, transforming the ways people learn, work, communicate and participate in society. AI could be an accelerator of gender equality by expanding access to knowledge, services, opportunities and participation. Yet AI systems can and do reproduce, or even exacerbate, existing social inequalities when they are built on biased data, exclude diverse voices or operate without adequate safeguards. Ultimately, the question is whether this transformative technology will help reduce or further reinforce existing gender inequalities in South Asia. This study seeks to contribute to a deeper understanding of this issue by examining women's participation, representation and experiences across the AI ecosystem.

Developed by UNESCO in collaboration with the Women for Ethical AI (W4EAI) South Asia Chapter, this outlook study builds on and regionalizes the insights of *UNESCO Women for Ethical AI: Outlook Study on Artificial Intelligence and Gender*. That global study established a foundational evidence base on women's participation in AI, the neglect of gender in AI governance, and the disproportionate risks AI systems pose to women and girls. The present South-Asia-focused outlook study responds to the recognition that gender and AI dynamics are not uniform across regions, and that global trends often obscure the social, economic and institutional realities shaping AI ecosystems in the Global South.

South Asia is not a monolith. The six countries examined in this report – Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka – are situated at markedly different points along the AI life cycle. India hosts one of the world's fastest-growing AI and digital economies, with expanding research capacity, a large private sector, and growing

influence in global AI governance debates. Smaller economies such as Bhutan and Maldives are navigating AI adoption with more constrained domestic ecosystems. Bangladesh, Nepal and Sri Lanka reflect varied trajectories shaped by labour migration, evolving higher education systems, an uneven pace of digital transformation, and ongoing fiscal and political pressures. These differences translate into differentiated national priorities, aspirations and risk profiles in relation to AI.

The challenges identified across South Asia mirror broader global patterns. Worldwide, women comprise only around a quarter of the AI workforce and hold just a small fraction of AI research and leadership positions. Women and girls remain less likely than men to acquire advanced digital and programming skills, participate in AI innovation, or shape the technologies that increasingly influence everyday life. At the same time, women are disproportionately represented in occupations most vulnerable to AI-driven transformation and automation. Against this backdrop, the experiences of women in Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka offer important insights into how existing gender inequalities could be reduced, reproduced or enhanced as AI systems become more deeply embedded in economies and societies.



Tim Curtis
Director
UNESCO Regional Office for South Asia

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We express our sincere gratitude to the Women for Ethical AI (W4EAI) South Asia Chapter for coming together to conceptualize and support this outlook study on artificial intelligence and gender in South Asia. The network's collective vision, regional engagement and sustained collaboration were central to shaping the scope, priorities and country-level grounding of this study.

We extend our special thanks to the Publication Steering Committee, comprising members from the W4EAI network, for their guidance and oversight throughout the development of this report. The committee members dedicated their time to participating in steering committee meetings, reviewing preliminary chapter drafts, and providing strategic direction that strengthened the analytical depth and policy relevance of this study. We thank Aditi Namdeo, Afsana Atuly, Anita Gurumurthy, Ankita Bhat, Aparajita Bharti, Arpita Kanjilal, Bhavani Rao, Mihna Zahir, Nimita Pandey, Preeti Banzal, Sahishnu Poudyal, Shreya Krishnan, Urvashi Aneja and Yashita Jhurani for their continued support and efforts.

We acknowledge LinkedIn for its collaboration in providing data inputs that enabled novel insights into gender gaps in the AI workforce, particularly through access to LinkedIn Economic Graph data. We thank Aditi Jha, Casey Weston, Ishita Trivedi, Rosie Hood, Sarah Steinberg, Silvia Lara, Tejasie Mendonca and Yao Huang for this collaboration.

We extend our gratitude to Geetika Jain Saxena, Amit Pundir, Sanjeev Singh and Nitisha Aggarwal, and their team of students and volunteers from the Institute of Informatics and Communication, University of Delhi, for co-conducting a bibliometric study on AI scholarship that strengthened our

evidence base for mapping women's participation in research and academia.

We are grateful to the Central Board of Secondary Education (CBSE), India, for sharing school-level AI enrolment data, which enabled deeper life-cycle-based analysis within this study.

We thank Manu Chopra, and Anmol Narain from Karya, for sharing their workforce data, which allowed this report to incorporate empirical insights on gender representation across data work.

We are deeply grateful to all the women who generously shared their journeys and contextual insights through interviews. Their perspectives appear throughout this report, enriching and grounding its quantitative analysis. We thank Anisha Singh, Disha Verma, Jahnnobi Rahman, Karma Yangzom, Kuenga Zam, Leki Choden, Nandana Sengupta, Nova Ahmed, Poornima Meegammana, Radheeka Abeyweera, Rimjhim Agrawal, Riya Shahi, Saumya Kalia and Thushari Silva.

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Finally, we acknowledge the tremendous support we received from members of the Social and Human Sciences Team at the UNESCO Regional Office for South Asia, New Delhi, particularly Jhanvi Sonakia and Abhishek Venkateswaran, whose contributions were integral to the completion of this report.

Abbreviations and acronyms

a2i	Access to Information (Bangladesh)	IoT	Internet of Things
AI	artificial intelligence	ISCED	International Standard Classification of Education
AISHE	All India Survey on Higher Education	IT	information technology
API	application programming interfaces	KGUMSB	Khesar Gyalpo University of Medical Sciences of Bhutan
BIMSTEC	Bay of Bengal Initiative for Multi-Sectoral Technical and Economic Cooperation	KII	key informant interview
BPO	business process outsourcing	LLM	large language model
BUET	Bangladesh University of Engineering and Technology	MeitY	Ministry of Electronics and Information Technology (India)
CBSE	Central Board of Secondary Education (India)	ML	machine learning
CST	College of Science and Technology (Royal University of Bhutan)	NAIS	National Artificial Intelligence Strategy (Bhutan)
GCIT	Gyalpozhing College of Information Technology (Royal University of Bhutan)	NITI Aayog	National Institution for Transforming India
GDP	gross domestic product	NLP	natural language processing
GenAI	generative AI	PhD	Doctor of Philosophy
GER	gross enrolment ratio	PG	postgraduate
GNH	gross national happiness (Bhutan)	RAM	readiness assessment methodology
GPU	graphics processing unit	R&D	research and development
HPC	high-performance computing	RUB	Royal University of Bhutan
ICT	information and communication technology	SAARC	South Asian Association for Regional Cooperation
ICTA	Information Communication Technology Agency (Sri Lanka)	SaaS	software as a service
IIT	Indian Institute of Technology	SC	scheduled caste (India)
		SLASSCOM	Sri Lanka Association for Software and Services Companies

SSS	Supernumerary Seats Scheme (India)	UGC	University Grants Commission (India)
ST	scheduled tribe (India)	UIS	UNESCO Institute for Statistics
STEM	science, technology, engineering and mathematics	UNDP	United Nations Development Programme
TVET	technical and vocational education and training	UNESCO	United Nations Educational, Scientific and Cultural Organization
UG	undergraduate	VC	venture capital
		W4EAI	Women for Ethical Artificial Intelligence

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CHAPTER 1

Introduction

Artificial intelligence (AI) has emerged as a critical enabler of economic transformation, social development and public-sector innovation. Across South Asia, governments, industry actors, academic institutions and civil society organizations are beginning to articulate varied pathways for AI adoption and governance. However, this expansion of AI is taking place alongside long-standing structural inequalities in education, labour markets, and access to decision-making. AI systems are being introduced into public services, private enterprises, and everyday digital platforms in contexts where gender gaps in literacy, employment, unpaid care work, and political representation remain pronounced. In such settings, the impacts of AI are unlikely to be neutral. Instead, they are shaped by who participates in building these systems, what data they rely on, and whose social realities they encode.

Global discussions¹ on AI and gender have largely been informed by evidence, policy debates and institutional arrangements from high-income

countries, offering limited insight into regions characterized by informality of work, labour structures and institutional arrangements; linguistic diversity; and uneven digital infrastructure. As a result, women's participation in AI ecosystems in South Asia – whether as students, workers, researchers, entrepreneurs or users – often remains statistically invisible or analytically marginal.

Against this backdrop, the *UNESCO Women for Ethical AI: Outlook Study on Artificial Intelligence and Gender in South Asia* is designed as a foundational baseline and diagnostic exercise, documenting what can currently be measured and where evidence remains partial or uneven, and how existing data constraints shape analysis and interpretation.

This introduction sets out the purpose, scope, methodological approach and working definitions underpinning this report. It clarifies the analytical boundaries of the study, the data sources used, and the limitations that shape its interpretations.

Purpose and scope of the study

The purpose of this outlook study is threefold. First, it seeks to establish a regional baseline on AI and gender in South Asia by systematically mapping women's participation, representation and visibility across key domains of the AI ecosystem. Second, it aims to identify critical data gaps, measurement limitations, and structural blind spots that constrain evidence-based

policymaking and gender-responsive measures and interventions across the AI ecosystem. Third, this report is designed to inform future policy dialogue and action, including through the regional work of the UNESCO Women for Ethical AI (W4EAI) network, and to serve as a foundation for subsequent editions of South-Asia-focused outlook studies.

¹ UNESCO and EQUALS Skills Coalition, 2019; Jobin et. al., 2022; Roche et al., 2023; Global Partnership on AI, 2024.

This regional outlook study draws conceptually and methodologically from the *UNESCO Women for Ethical AI: Outlook Study on Artificial Intelligence and Gender* (2024), co-developed with the W4EAI global network. While the global study provides a comprehensive overview of AI and gender dynamics across the world, this South Asia edition adapts and extends that framing to reflect South Asia's data environments, labour structures, institutional capacities and social stratification, contributing to a contextualized regional evidence base.

The scope of this report is intentionally focused on the data status quo. Rather than offering a technical audit of AI systems or algorithms, this report examines how gender bias and exclusion manifest through data, representation and institutional structures across the AI ecosystem. This includes women's participation in education and skills pipelines, research and academia, workforce and entrepreneurship, and leadership and decision-making, and their access to AI policy processes. These domains are treated as interconnected rather than discrete, recognizing that exclusion at early stages – such as education or data work – has cascading effects on who builds AI systems,

whose knowledge is valued, and whose realities are reflected in datasets and models.

Within this framing, “gender data in AI” is understood broadly. It encompasses not only gender-disaggregated statistics on participation, but also the absence or under-representation of women and gender-diverse populations in datasets, training data and institutional decision-making processes. Such gaps have direct implications for algorithmic bias, system performance and downstream social impacts – particularly in South Asian contexts where AI systems are increasingly deployed in public-facing, high-stakes domains such as welfare delivery, finance, education and health.

This outlook study focuses on **six South Asian countries²: Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka**. While these countries share certain historical and regional linkages, they differ significantly in population size and diversity, economic structure, digital infrastructure and governance capacity. Therefore, this report balances regional synthesis with country-level nuance, avoiding a one-size-fits-all narrative and highlighting differentiated AI pathways within South Asia.

Methodological approach and data sources

This report adopts a mixed-methods research approach, combining quantitative and qualitative sources to triangulate evidence and address persistent data limitations in the AI and gender landscape of South Asia. Given the rapid acceleration of AI adoption following the COVID-19 pandemic, the analysis prioritizes post-pandemic data wherever available. Where such data are unavailable, the most recent and credible data points have been used, with their limitations clearly acknowledged.

This study's quantitative analysis draws on internationally comparable datasets such as those

published by the UNESCO Institute of Statistics as well as national survey statistics, labour force and education datasets, bibliometric databases, policy documents, and publicly available administrative data. However, it recognizes that national datasets often lack AI-specific occupational classifications and thus fail to capture emerging and informal forms of AI-related work, which are particularly prevalent in South Asia. Gender-disaggregated data are also not uniformly applied or collected as a standard practice and, even when available, are most often understood in binary gender categories.

² These countries fall within the geographic and programmatic mandate of the UNESCO Regional Office for South Asia.

To address these gaps, this study has also included selected industry-led and private-sector datasets, including from professional networking platforms and skilling ecosystems like LinkedIn, where methodologically appropriate. These datasets are treated as indicative rather than exhaustive, offering the closest available approximations of workforce composition, skills distribution and occupational trends in the absence of comprehensive public data. Their use is accompanied by explicit caveats regarding coverage, representativeness and potential bias.

Qualitative methods – including key informant interviews, policy analyses and document reviews – are used in this report to contextualize quantitative trends, surface institutional dynamics and capture lived experiences that remain invisible in formal datasets. Individual chapters also incorporate illustrative case studies and insights from interviews with women working across different AI-related fields, to supplement the data-driven analysis.

These qualitative examples help to ground aggregate trends in lived experience, while also recognizing and documenting the contributions of partners, practitioners and trailblazers aiming to shape gender-responsive AI ecosystems across the region.



When we close our eyes and imagine an AI engineer, most of us still imagine a man. That mental image matters – it shapes who feels they belong in this field.



Nova Ahmed

Professor, North South University, Bangladesh

Gender, intersectionality and women in AI in the South Asian context

While intersecting inequalities are a global reality, gendered disadvantage in South Asia is especially shaped by its interaction with caste, age, religion, class, disability, and rural–urban divides. These intersecting factors shape access to education, digital infrastructure, labour markets and institutional power in ways that are both historically rooted and contemporarily reinforced in digital and AI-enabled systems. Therefore, gendered outcomes in AI across South Asia cannot be understood in isolation from broader social and economic structures.

In the context of AI, these intersectional dynamics have material and uneven implications. For example, women from marginalized communities, women from rural and remote regions, and women

engaged in informal or platform-based work are more likely to be excluded from high-value segments of the AI ecosystem, while simultaneously being over-represented in low-paid, low-visibility roles such as data annotation, content moderation and routine digital labour.³ These forms of participation are rarely captured in national AI strategies or global AI datasets, yet they are central to understanding how AI reshapes opportunity, risk and inequality in South Asia. Accordingly, wherever possible, this report foregrounds intersectional nuances through disaggregated indicators, contextual analysis and qualitative evidence, while also noting where data limitations constrain deeper intersectional analysis.

³ Hung, 2024.

Within this framing, this report adopts an inclusive and structural understanding of women and gender in AI. Women are not treated as a homogeneous group, nor is gender reduced to a binary or descriptive variable. Instead, gender is understood as a structural factor that interacts with institutions, labour markets, education systems and governance arrangements to shape participation, leadership and impact across the AI ecosystem. Women in AI are understood to include technical professionals and developers; researchers and academics; educators and students across formal and non-formal pathways; decision-makers and leaders shaping AI governance, policy and enterprise; and users and communities whose rights, livelihoods and access to services are increasingly mediated by AI-enabled systems. AI-related roles are therefore defined broadly, reflecting the realities of South Asia's digital economies and encompassing technical-, policy-, governance-, product- and service-oriented functions.

Across the region, digital access remains uneven. The divide is sharper among women from marginalized communities and rural populations, where women's digital exclusion intersects with caste and poverty^{4,5}. In Sri Lanka and Bangladesh, low-income girls often drop out of secondary school due to economic pressures, making it difficult to enter digital skilling programmes – even when such programmes are subsidized.^{6,7}

Methodologically, this outlook study adopts a life-cycle approach that is applied consistently across chapters, tracing women's journeys through AI, from access and infrastructure to education and skills development, research and academia and into the workforce and entrepreneurship. This life-cycle framing is essential for understanding where attrition, concentration and exclusion occur across South Asia, and for situating workforce outcomes within earlier structural constraints and opportunities.



Bias starts very early – sometimes from the moment a child receives a toy. There was a study that analysed science textbooks and found that men were shown three times more often than women in leading roles. One of our 12-year-old students once said, “I didn’t know women could be engineers until I came to this class.” That moment stayed with me.



Poornima Meegammana

Program Director – NextGen Initiative,
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Within this broader life-cycle lens, the workforce chapter applies an AI value-chain framework⁸ to map women's participation across upstream, midstream and downstream segments of AI production and deployment. This approach enables cross-country comparability while remaining sensitive to South Asia's labour market structures, where countries occupy different positions along the AI production spectrum and where women's labour is frequently concentrated in upstream data-related roles or service-layer functions rather than in core model development.

The AI sector in South Asia is a constellation of interconnected domains, core and adjacent – from foundational areas such as machine learning (ML), data science and computer vision

4 Ramesh B, 2024.

5 Padhy and Panbude, 2025.

6 Senavirathna and Senavirathna, 2023.

7 UNICEF, 2024.

8 Heeks and Spiesberger, 2024.

to adjacent functions like data annotation, cloud computing infrastructure and AI-enabled digital public platforms.⁹ This report distinguishes “AI-core” occupations – such as ML engineers and algorithm developers – from “AI-adjacent” roles, including data annotators, cloud operators and digital platform workers, whose contributions are vital yet often informal and under-recognized. Similarly, AI skilling needs span three intersecting domains: core technical (ML engineering, natural language processing (NLP), computer vision, agentic AI systems); applied (ethics, data governance, socio-technical compliance, AI safety, prompt engineering); and interdisciplinary (domain expertise in health / agriculture, human-centred design). Thus, the terms AI-core and AI-adjacent appear throughout the report.

Lastly, this report recognizes AI policymaking and governance as a critical domain within the AI and gender landscape. However, a systematic comparative analysis of women’s participation in AI policymaking is beyond the scope of this edition. Across South Asia, AI governance structures remain emergent, unevenly institutionalized, and often

embedded within broader digital technology, information and communication technology (ICT), or science and technology portfolios, limiting the feasibility of consistent cross-country comparison. Where relevant, therefore, this report draws on qualitative insights from interviews and consultations with women in policymaking and governance roles to contextualize national trajectories and institutional dynamics.

In sum, this outlook study provides a regional baseline on measurable dimensions of AI and gender in South Asia, while documenting the limitations that constrain comparability and interpretation. It does not claim completeness, nor does it resolve the structural data gaps it documents. Instead, it establishes a foundation upon which future research, improved data collection and subsequent outlook studies may build. This report seeks to contribute to more inclusive, evidence-informed and gender-responsive AI governance in South Asia – ensuring that AI systems developed and deployed in the region reflect its diversity, address its inequalities and advance its development priorities.

Report overview

The following chapters of this report provide an empirical mapping of women’s participation across the South Asian AI ecosystem, following a life-cycle approach.

Chapter 2

Chapter 2 examines the AI education pipeline, documenting women’s enrolment in formal tertiary programmes and the “leaky pipeline” effect, whereby female students often move away from technical AI-core engineering disciplines

towards science-oriented or health-related fields. Skilling initiatives across South Asia are growing but uneven – ranging from India’s largely private-sector-driven AI skills ecosystem to government-led science, technology, engineering and mathematics (STEM) and ICT programmes in Bangladesh and Sri Lanka. Across the region, these efforts remain fragmented and poorly aligned with labour market needs, with consequences for women and marginalized groups seeking pathways into AI.¹⁰

⁹ As outlined in Heeks and Spiesberger’s AI value chain model (2024), these interdependent layers collectively drive value creation, positioning AI as both a stand-alone industry and a deeply embedded driver across the digital economy.

¹⁰ UNDP and Aapti Institute, 2024.

Chapter 3

Chapter 3 focuses on AI research and academia, which are central to AI knowledge production. A large-scale bibliometric analysis of research published between 2015 and 2025 highlights a persistent leadership gap across South Asia. While women's participation in AI research has increased in recent years, with more than two-thirds of AI-related publications including at least one female author, there is no comparable representation in research leadership. Women account for only around a quarter of corresponding or primary authorship roles, indicating persistent gaps in senior visibility and agenda-setting. These patterns vary across countries and research systems.

Chapter 4

Chapter 4 maps the workforce of women in AI using Heeks and Spiesberger's AI value-chain framework,¹¹ which situates AI work across upstream, midstream and downstream layers

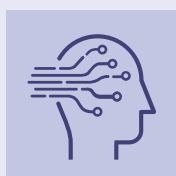
rather than treating AI as a single occupation. Across the countries examined, women's representation remains consistently low at the midstream layer, which comprises AI-core technical roles such as model development, ML engineering and advanced research. The findings indicate that gender gaps in AI employment across South Asia are driven less by attrition within AI careers and more by structural constraints across the education-to-employment life cycle, which shape women's positioning across the AI value chain. Women's participation in AI entrepreneurship across the region is shaped less by individual capacity and more by structural conditions that determine access to technical expertise, capital, and institutional support.

Chapter 5

Chapter 5 lists this report's recommendations, emerging from its extensive review, designed for all stakeholders.

CASE STUDY 1

Bhutan – aligning artificial intelligence with Gross National Happiness



Bhutan offers a distinctive approach to AI governance by anchoring technological development within its long-standing philosophy of **Gross**

National Happiness (GNH). Introduced in the 1970s by the fourth king, Jigme Singye Wangchuck,¹² GNH prioritizes collective well-being, cultural integrity, environmental sustainability and good governance alongside economic progress.¹³ Over time, GNH has been institutionalized as the country's guiding development framework, including through periodic nationwide GNH surveys conducted by the Centre for Bhutan & GNH Studies.¹⁴ This values-based context shapes Bhutan's emerging

approach to digital transformation and AI adoption.

As Bhutan transitions towards a digitally empowered state, the government has invested in information and communication technology infrastructure, connectivity, and digital governance systems in alignment with GNH principles. Digital technologies are viewed not as ends in themselves, but as tools to enhance holistic well-being and sustainability. This orientation is reflected in the country's National Artificial Intelligence Strategy (NAIS) 2025, which articulates a vision of "AI for GNH". The strategy positions AI as a pillar of national development while emphasizing human-centric, ethical and inclusive design.¹⁵

¹¹ Heeks and Spiesberger, 2024.

¹² Gawel, 2016.

¹³ GNH is a multidimensional development framework built on four pillars: sustainable socio-economic development; environmental conservation; cultural preservation and promotion; and good governance. These pillars are further elaborated into nine domains and 33 statistical indicators, ranging from health and education to community vitality and psychological well-being.

¹⁴ Centre for Bhutan & GNH Studies, 2022.

¹⁵ GovTech Agency, 2025 (Bhutan).

The NAIS proposes the integration of AI across priority sectors that closely correspond to GNH domains, including agriculture, healthcare, education, tourism, green energy, public service delivery, natural resource management, and culture and language. Planned applications aim to improve service efficiency, support equitable economic opportunities, strengthen environmental stewardship and preserve cultural heritage. The strategy also highlights Bhutan's intent to leverage its renewable hydropower resources to support energy-efficient data infrastructure, aligning AI deployment with climate and sustainability goals.

Several pilot and exploratory initiatives illustrate how AI could support GNH objectives in practice. These include proposals to modernize GNH data collection and analysis through digital and AI-enabled tools, enabling more timely insights into well-being trends. AI applications are also being explored for cultural preservation, such as digitizing Dzongkha texts, transcribing oral histories, and documenting heritage sites using machine learning and imaging technologies.¹⁶ In governance, AI-enabled

chatbots and decision-support systems are being considered to improve access to public services, particularly for citizens in remote or underserved areas.

At the same time, Bhutan faces notable governance challenges. These include gaps in digital inclusion, limited domestic AI expertise, linguistic diversity constraints, and the need for robust ethical and regulatory frameworks. Women and marginalized groups remain under-represented in AI design and decision-making, posing risks of bias and exclusion. Recognizing these challenges, the NAIS underscores capacity-building, ethical safeguards and inclusive participation as core priorities.

Bhutan's experience demonstrates how a small state can frame AI governance around societal values rather than purely economic or technological imperatives. By embedding AI within a holistic development philosophy, Bhutan provides a policy-relevant example of aligning emerging technologies with well-being, sustainability and cultural continuity.

16 GovTech Agency (Bhutan) and UNDP, 2024.

CHAPTER 2

Gender distribution in AI education pipelines

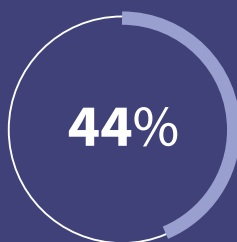
Key facts & figures

Women make up only about **one-third of STEM students** overall across South Asia.¹

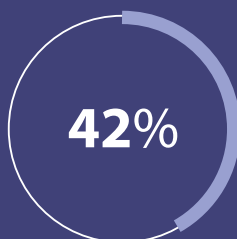
Women account for



of STEM graduates in Bangladesh



of STEM graduates in India



of STEM graduates in Sri Lanka.²



MALDIVES

Approximately **78 per cent of university students are women**, yet only **about 2 per cent enrol in science and technology**.³



BANGLADESH

Women comprise 50 per cent of college students but only **27.5 per cent enrol in technical / vocational institutions**.⁴



BHUTAN

Women comprise 47 per cent of university students, but only about **32 per cent enrol in technology colleges**; there are no postgraduate programmes in AI or computer science.^{5, 6}



INDIA

UG: women comprise only **35.65 per cent of AI-core courses**.⁷

PhD: near parity – women make up **47.4 per cent** of AI-relevant doctoral enrolments.⁸



NEPAL

Women comprise only **24 per cent of computing and IT courses** and **17 per cent of engineering courses**; men outnumber women **3:1 in STEM**.⁹



SRI LANKA

55 per cent of overall STEM graduates are women – but they are under-represented in engineering, ICT and AI-linked fields.^{10, 11}

1 UNESCO, 2024.

2 UNESCO Institute for Statistics, 2025.

3 Women in Tech Maldives, 2024.

4 Bangladesh Bureau of Educational Information and Statistics, 2024.

5 Royal University of Bhutan, 2025.

6 Bhutan's College of Science and Technology offers only two master's

programmes in engineering: renewable energy and construction management. Neither is related to the AI pipeline.

7 Ministry of Education, 2022 (India).

8 Ibid.

9 National Statistics Office, 2021 (Nepal).

10 Adikaram and Razik, 2025.

11 World Bank, 2023.

TABLE 2.1

Women's enrolment in tertiary education vs in technical / engineering / AI courses (percentage)

Country	Women's enrolment in tertiary education	Women's enrolment in technical / engineering / AI courses	Source
Bangladesh	50.47	27.5	Bangladesh Education Statistics 2023 Table A1, College Education Table A1, Technical-Vocational ¹²
Bhutan	~47	31–38 (engineering & technology, bachelor's / diploma)	A proxy indicator analysing gender representation at colleges offering engineering within the Royal University of Bhutan, Thimphu ¹³
India	47.8	36 (AI-core UG); 43.75 (AI-core PG); 47.37 (AI-core PhD)	All India Survey on Higher Education (AISHE) ¹⁴ 2021–2022
Maldives	~78	~1.7 (science & technology)	Women in Tech Maldives, 2024 ¹⁵
Nepal	~53	17 (engineering); 23.3 (computing & IT)	Table 27, Nepal National Population and Housing Census 2021 ¹⁶
Sri Lanka	~ 49 (UG STEM)		

Framing AI-relevant education pathways: definitions, scope, data constraints and a regional overview

South Asia faces persistent gender gaps across science, technology, engineering and mathematics (STEM)¹⁷ education pipelines, particularly in computing and AI-related fields.

In this chapter, “education pipelines” refers primarily to formal education pathways, with a focus on tertiary-level education, including undergraduate, postgraduate and doctoral programmes that provide AI-relevant knowledge and skills.

These formal pathways constitute the most visible and consistently reported routes into AI-related disciplines across South Asia, in part because they align with areas where data are routinely collected and reported.

This chapter acknowledges the growing prominence and importance of non-formal and vocational pathways such as private skilling initiatives, short-term training programmes and community-based

¹² Bangladesh Bureau of Educational Information and Statistics, 2024.

¹³ Royal University of Bhutan, 2025.

¹⁴ Ministry of Education, 2022 (India). Data are drawn from the All India Survey on Higher Education, an annual administrative dataset based on institution-level self-reporting to India's Ministry of Education. Figures are indicative of system-level trends and should be interpreted with appropriate caution.

¹⁵ Women in Tech Maldives, 2024.

¹⁶ National Statistics Office, 2021 (Nepal).

¹⁷ Please note that this report uses the term STEM to indicate science, technology, engineering and mathematics. Any variation in the use of the term, as employed by other studies, has been clarified in footnotes.



The difference is not in ability – the difference is in confidence. Women perform just as well academically and in research, but they are far less likely to say, “I am an AI expert” or to put themselves forward for leadership roles.



Nova Ahmed

Professor, North South University, Bangladesh

technology interventions, particularly in contexts where formal AI education remains limited. These non-formal and vocational pathways are still relatively nascent, and are not systematically captured in national education statistics, limiting their comparability across countries. As a result, women’s participation in technical and vocational education and training (TVET) and non-formal AI education pathways is only partially reflected in the analysis presented in this chapter. Selected case studies in this chapter examine how such programmes, especially in Maldives, Sri Lanka and Nepal, are supplementing formal education by helping girls and young women acquire foundational AI-relevant skills, build confidence and sustain interest in technology-related fields.

This report relies on broad disciplinary categories such as STEM, science and engineering, and information and communication technology (ICT) as the closest available proxies for AI-relevant skills. This reflects a pragmatic methodological choice, given that formal, stand-alone AI degree programmes remain relatively recent, unevenly established, and often embedded within computer

science, information technology, or broader engineering curricula across the region.

However, the use of these broad categories entails important limitations. STEM encompasses a wide range of disciplines, many of which are only indirectly connected to AI. While women in South Asia are relatively well represented in areas such as life sciences and medicine, their participation remains considerably lower in computer science, advanced engineering and machine learning (ML) – the primary pipelines feeding the AI workforce.

As a result, reliance on STEM- or science-and-engineering-level indicators may overstate women’s effective presence in AI and mask structural barriers, from unequal access to advanced AI curricula and research infrastructure to the lack of targeted industry linkages and supportive workplace policies.

While the indicators used in this report provide the most feasible baseline given current data availability, a more accurate assessment of gender inclusion in AI will require greater granularity in national reporting, clearer differentiation of AI-specific education pathways, and targeted data collection across AI skilling, research and workforce participation.

Within these constraints, participation trends in tertiary STEM education reveal substantial cross-country variation across South Asia. While female enrolment in STEM has generally grown since 2015, women make up only about one-third of STEM students overall.¹⁸ In some contexts, access remains a key challenge leading to stark gender imbalance. In others, overall access for women is high but does not translate into equal participation in technology-driven fields. Maldives illustrates this paradox vividly: while approximately 78 per cent of university students are women, only about 2 per cent of these are enrolled in science and technology disciplines.¹⁹ These contrasts demonstrate that expanding women’s access to higher education alone does not guarantee gender parity in AI-related fields.

¹⁸ UNESCO, 2024.

¹⁹ Women in Tech Maldives, 2024.

FIGURE 2.1
Female STEM graduates in South Asia (percentage)²⁰

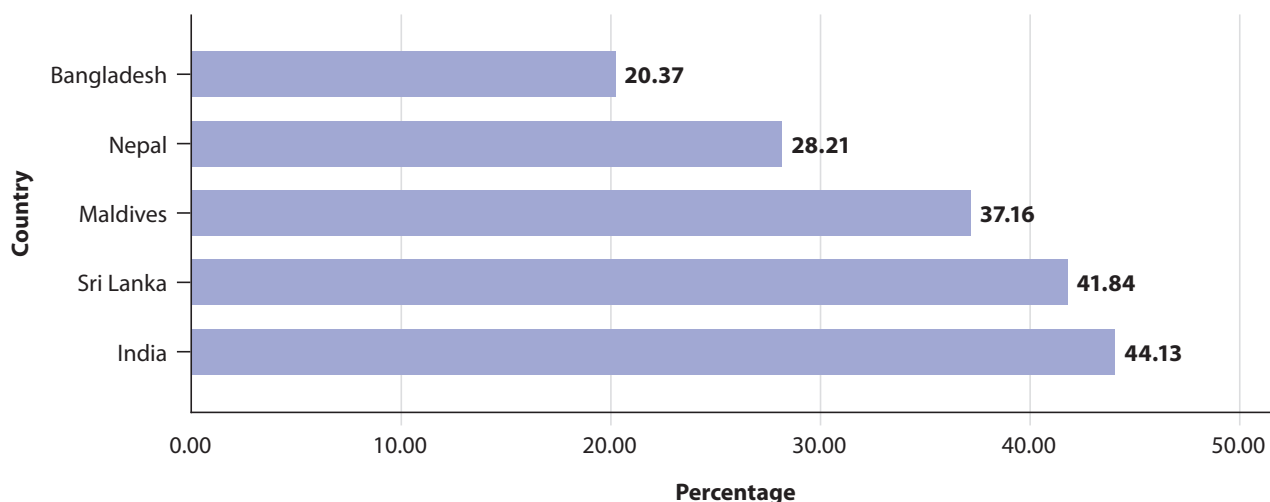


Figure 2.1 highlights these disparities, with the proportion of female STEM graduates ranging from just over 20 per cent in Bangladesh to above 40 per cent in India and Sri Lanka, underscoring uneven progress across the region. Overall, while women's participation in STEM education has improved

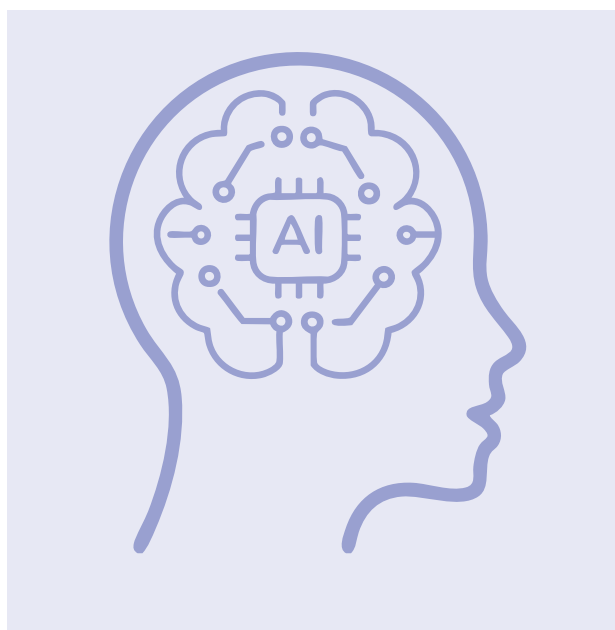
incrementally, engineering and computing programmes remain significantly male-dominated across South Asia. These persistent gaps in tertiary STEM education shape the pool from which AI-relevant skills are drawn, with direct implications for the inclusiveness of future AI workforces.



Earlier, students typically aspired to become doctors or engineers. Today, we increasingly see young people wanting to become AI engineers. The demand for AI education has grown exponentially, particularly in the last four years, reflecting how quickly artificial intelligence has moved from a niche academic field to a central driver of future careers.



Thushari Silva
 Professor of AI, University of Moratuwa, Sri Lanka



²⁰ UNESCO Institute for Statistics, 2026 (as per data available in October 2025).

Country-level analysis

To ensure analytical coherence and cross-country comparability, this chapter applies a harmonized set of definitions for AI-relevant roles and tertiary education²¹ pathways, as established in Chapter 1. These definitions guide the country-level analysis of education systems and their alignment with AI-related skills and workforce participation across South Asia (discussed in subsequent chapters).

This report distinguishes between AI-core and AI-adjacent roles. AI-core roles refer to occupations directly engaged in the design, development, training, deployment and optimization of AI systems. These include occupational roles like ML and ML operations engineers, AI research scientists, natural language processing (NLP) engineers and computer vision specialists, and algorithm developers. AI-adjacent roles encompass functions that support, govern or apply AI systems without direct involvement in model development, such as data annotation, labelling, training and analysis, as well as specialized expertise in AI safety, ethics, governance, compliance, prompt engineering and sector-specific domain applications.

This distinction is analytically relevant from a gender perspective, since evidence suggests uneven participation across the AI ecosystem, with women more frequently concentrated in AI-adjacent and applied roles and under-represented in AI-core, model-centric and senior technical pathways.

Within this framing, AI-core pathways in education refer to degree programmes, courses and specializations in artificial intelligence, machine learning, data science, computer science and related engineering disciplines. While this approach is applied across all countries, the India country section undertakes a more detailed examination of AI-core courses, reflecting the scale and diversification of AI-specific degree offerings within India's higher education system.

By adopting these definitions, this chapter ensures comparability across diverse higher education systems while making visible the structural points at which gender gaps emerge or widen along tertiary education pathways into AI-core and AI-adjacent domains.



Bangladesh

Higher education data reveal slow but steady gains in women's enrolment. In 2014, university records synthesized in a national study showed that women constituted 30.23 per cent of all university students (public education 37.07 per cent, private education 26.71 per cent).²² In 2023, women accounted for 37.47 per cent of students (29.72 in private and 41.03 in public institutions). While these figures confirm improvement, they also show that roughly two-thirds of tertiary university students were male through the mid-to-late 2010s – a gap that the 2023 figures have narrowed only minimally.

In 2023, Bangladesh's technical and vocational education sector enrolled 1.8 million students across 10,595 institutions (averaging 172 students per institution). Women comprised just 29.5 per cent of total enrolment. Women were also under-represented among instructors in these programmes – accounting for only 13,575 of 55,338 technical education teachers (about 24.5 per cent). In the same year, 50.47 per cent of students in college education and 61.5 per cent in professional education (a category that is health-related) but only 27.5 per cent of students in independent technical-vocational institutions were women. These patterns underscore how women's presence in tertiary education is strongest in health-focused professional tracks and weakest in technical/TVET streams, with university participation between these poles.²³

21 For the purposes of this chapter, tertiary education is defined uniformly across all countries as formal, degree-granting higher education delivered by recognized institutions. This includes bachelor's programmes (pass and honours, typically three to four years), master's programmes (one to two years), MPhil programmes where applicable (largely research-oriented, pre-doctoral degrees of approximately two years and currently being phased out in India), and doctoral (PhD) programmes. Short-term certifications, bootcamps and non-degree training are excluded from the core quantitative analysis due to limitations in data availability and comparability. They are addressed separately through contextual discussions and case studies.

22 Naher et al., 2019.

23 Bangladesh Bureau of Educational Information and Statistics, 2024.

This under-representation is most pronounced in technical fields. Across Bangladesh's five major public engineering universities, women account for between 9 and 23 per cent of students and between 16 and 26 per cent of faculty (Table 2.2). At the Dhaka University of Engineering and

Technology (DUET), women students constitute just 9.37 per cent of enrolment and women teachers 16.3 per cent. At Chittagong University of Engineering and Technology (CUET), women comprise 21.58 per cent of students and 16–26 per cent of faculty.

TABLE 2.2

Women students and faculty at public engineering universities in Bangladesh, 2023 (percentage)²⁴

University	Women students	Women teachers
Bangladesh University of Engineering & Technology	22.26	15.84
Chittagong University of Engineering & Technology	21.58	25.79
Rajshahi University of Engineering & Technology	20.98	20.47
Khulna University of Engineering & Technology	19.88	16.20
Dhaka University of Engineering & Technology	9.37	16.30



There were programming labs where I didn't feel safe going alone because it was full of men. I had to ask my male friends to accompany me. I was lucky that my co-founders were my college friends. They never let me go alone, and they built a protection and support system around me.



Jahnnobi Rahman
CEO, Relaxy, Bangladesh

The under-participation of women in higher STEM education is rooted partly in persistent social barriers. Many Bangladeshi girls drop out before or during secondary school – due to factors such as poverty, early marriage, safety concerns and household responsibilities – limiting the pool that even reaches tertiary STEM programmes.^{25, 26, 27} Longitudinal research on women in computing education in Bangladesh finds that female students frequently experience social prejudices and isolation in male-majority classrooms.²⁸

**Bhutan**

Of Bhutan's three universities, the Royal University of Bhutan (RUB) is the primary public university offering bachelor's and diploma-level engineering and technology education through its nine constituent colleges – most notably the College of Science and Technology (CST), Gyalpozhing College of Information Technology (GCIT) and Jigme Namgyel Engineering College (JNEC).^{29, 30}

²⁴ Ibid., Table 8.4.

²⁵ Alam and Hoque, 2023.

²⁶ Population Council, 2020.

²⁷ Hussain, 2021.

²⁸ Naher et al., 2019.

²⁹ The three universities in Bhutan are the Royal University of Bhutan (RUB), the Khesar Gyalpo University of Medical Sciences of Bhutan (KGUMSB) and Dorden Tashithang Buddhist University.

³⁰ Sherubtse College also offers two courses on data science and analytics, but a course-wise gender breakdown of enrolments was not available for this college; therefore, it is not included in this analysis.

Given this institutional concentration, enrolment patterns within these colleges provide a useful approximation of women's participation in Bhutan's tertiary engineering and IT pipeline.

As per RUB statistics (2024–2025),³¹ women constitute 47 per cent of total student enrolment across the university system. However, female representation is considerably lower in technology-focused colleges: women account for 32 per cent of

enrolment at CST and 31 per cent at GCIT, as against 60 per cent or higher in colleges specializing in education, humanities and natural sciences. Faculty gender patterns mirror this unevenness across colleges, with GCIT standing out for higher female representation among academic staff relative to the other technology-focused colleges (see Table 2.3). This contrast highlights persistent gender differentiation by field of study, with the university's overall gender balance not extending uniformly to technical disciplines.



Women account for **32%** of enrolment at CST and **31%** at GCIT, as against **60%** or higher in colleges specializing in education, humanities and natural sciences.

TABLE 2.3

Female students and academic staff in the Royal University of Bhutan and key engineering / technology colleges, 2024 (percentage)³²

	Female students	Female academic staff
Royal University of Bhutan	47	30
College of Science and Technology	32	32.47
Gyalpozhing College of Information Technology	31	48.8
Jigme Namgyel Engineering College	38	17.6

At advanced levels, the domestic pipeline remains limited. RUB statistics indicate that only 6 per cent of students are enrolled in master's or diploma programmes and less than 1 per cent are enrolled in PhD programmes. Notably, the annual statistics do not list any master's-level programmes in computer science, engineering³³ or AI-related fields, indicating that advanced training in these disciplines is largely absent within the domestic higher education system. Qualitative interviews indicate that students seeking postgraduate education in computing, data science or AI typically study abroad, reflecting the limited availability of advanced domestic programmes in these fields.

This pattern is consistent with existing national and international evidence, which shows that tertiary-educated Bhutanese increasingly migrate to high-income, English-speaking countries, most notably Australia, primarily for education, with "study" serving as the principal entry pathway for longer-term migration.³⁴ World Bank analysis indicates that over 40 per cent of current migrants and nearly two-thirds of aspiring migrants cite access to better education opportunities as their primary motivation for migration, particularly at the postgraduate level, where domestic options are constrained.³⁵ A survey conducted at CST suggests that decisions to pursue engineering are

³¹ Royal University of Bhutan, 2025.

³² Ibid.

³³ CST offers only two master's programmes in engineering: renewable energy and construction management. Neither is related to the AI pipeline.

³⁴ Penjore, 2025.

³⁵ World Bank, 2025.

often made relatively late: 43 per cent of students reported deciding after receiving their Grade 12 results, while 38 per cent did so in higher secondary school. Personal interest was the most frequently cited motivator, with parental influence reported more often than in earlier studies, while teacher influence remained limited. These patterns point to potential entry points for earlier exposure and career guidance within secondary education.³⁶



ICT was introduced to us from Grade 7, and I always chose it as a subject because I was interested. When I went to college for computer science, I realized that the field was still very male-dominated. In my class of around thirty students, only about ten were women, and that ratio hasn't really changed over the years. At school level, there was not much career counselling around ICT. We chose subjects mostly based on interest, not because someone explained what careers in technology could look like. I think this lack of early guidance affects how many girls eventually choose ICT.



Karma Yangzom

Formerly Assistant ICT Officer, GovTech Agency, Bhutan

Recent policy changes in Bhutan suggest a stronger emphasis on early skills development and institutional capacity building, as can be witnessed in Bhutan's National AI Strategy 2025, which has integrated Python programming into the national school curriculum from Grades 9 to 12, and in selected higher education institutions – including Sherubtse College, Gyalpozhing College of Information Technology, and the College of Science and Technology – which now offer data science and AI-related specializations.³⁷ These efforts are supported by a mix of long- and short-term government training programmes – including the five-year AI Lab Program targeting over 1,000 trainees – alongside private-sector-led infrastructure such as the Bhutan Innovation and Technology Centre, which has incubated dozens of tech startups through subsidized workspace, connectivity and technical support.^{38, 39}

Finally, persistent data gaps constrain a comprehensive assessment of gender dynamics in STEM and technology education in Bhutan. While progress in girls' participation at earlier education levels is well documented, consistent and gender-disaggregated data across tertiary and technical pathways remain limited.



India

India presents the most extensive and granular data on gender participation in tertiary STEM education within the region. Due to concerted efforts in recent years, more women than ever are enrolling in higher education – between 2013–2014 and 2021–2022, female undergraduate enrolment in India rose by 46 per cent, and postgraduate enrolment by 55 per cent.⁴⁰ India's overall gross enrolment ratio (GER) for women now slightly exceeds that of men, reflecting improvements in women's access to tertiary education. However, this aggregate figure masks significant variations across disciplines and educational levels.

³⁶ Lhamo et al., 2014.

³⁷ GovTech Agency, 2025 (Bhutan).

³⁸ Omdena, 2024.

³⁹ GovTech Agency (Bhutan) and UNDP, 2024.

⁴⁰ Ministry of Education, 2024 (India).

Overall trends in women's participation in tertiary STEM education

According to the All India Survey on Higher Education (AISHE) 2021–2022,⁴¹ women constitute

42.5 per cent of total STEM enrolment, as against 57 per cent for men, across bachelor's, master's, MPhil and PhD programmes.

FIGURE 2.2

Gender distribution in enrolment for science, engineering and tech disciplines in India, 2022 (percentage)⁴²

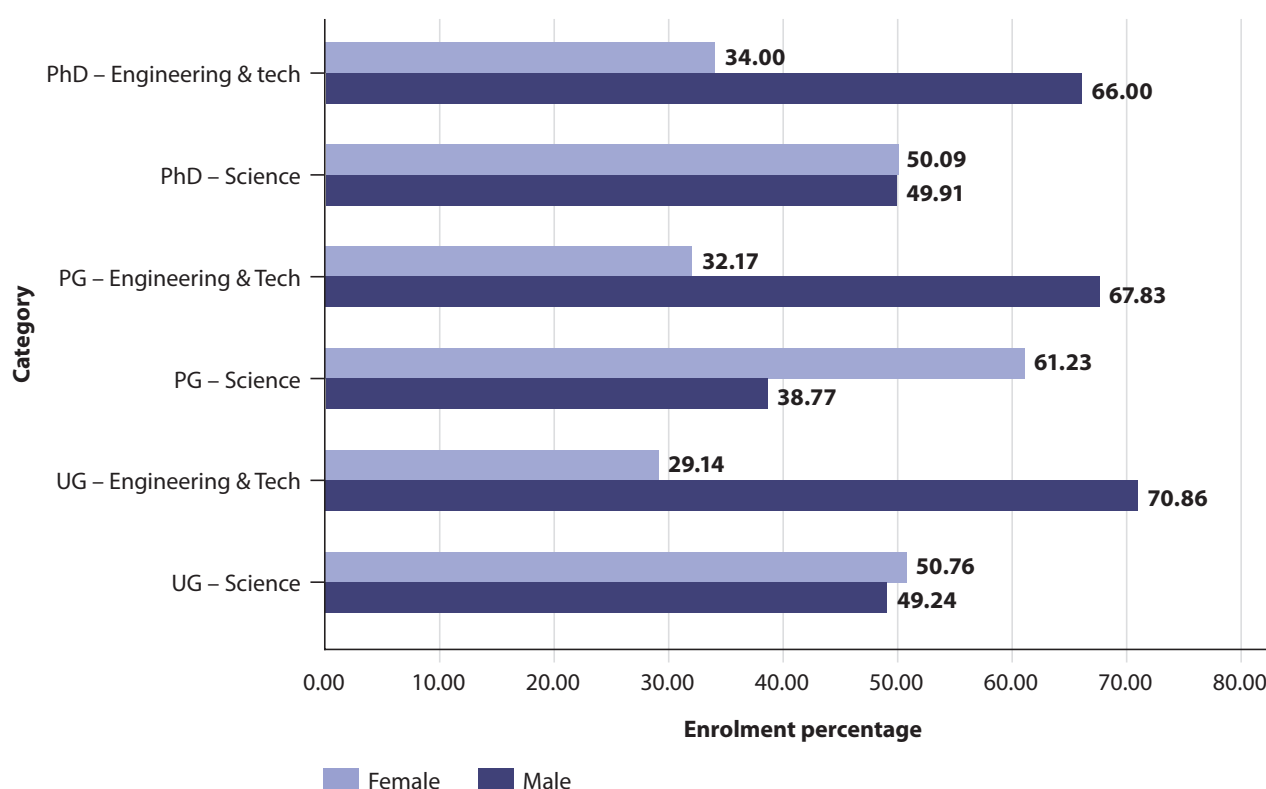


Figure 2.2 illustrates the gender distribution of enrolment in science, engineering and tech disciplines in India across tertiary levels. At the undergraduate (UG) level, men substantially outnumber women studying engineering and technology, with almost 70.8 per cent representation. By contrast, science disciplines display near parity, with women slightly exceeding men in enrolment (2.5 million women versus 2.42 million men). Within the disciplines, however, gender patterns vary markedly by field. Certain

disciplines record high female participation, most notably the life sciences and microbiology, where women account for over 65 per cent of enrolments, and information technology and computer science, where women constitute approximately 54 per cent of enrolments across tertiary levels. These contrasts underscore the uneven distribution of women within STEM education, with relatively stronger representation in science- and application-oriented fields and persistent under-representation in engineering-intensive pathways.⁴³

41 Ministry of Education, 2022 (India). AISHE coding of STEM broadly mirrors UNESCO Institute of Statistics (UIS) / International Standard Classification of Education (ISCED) data. In India, computer science / information technology streams are reported under engineering and technology / ICT (UG, PG, PhD).

42 Ibid.

43 Ibid.

The postgraduate level tells a partial story of progress. Women's strong presence in science (with 62.6 per cent women postgraduates) sits alongside a notable decline in their representation in engineering and technology compared to undergraduate levels, pointing to a leaky pipeline in the most technically intensive disciplines. These aggregate trends indicate that women's overall gains in STEM education in India are driven primarily by science disciplines rather than engineering- and technology-oriented pathways.

Women's enrolment in AI-relevant disciplines within STEM

Notably, computer engineering has one of the highest shares of women students (around 34 per cent), whereas fields like mechanical engineering

have among the lowest – women made up a mere 9.5 per cent of mechanical engineering doctoral enrolments in 2021–2022. These figures illustrate that even as the absolute number of women in engineering has grown, their representation remains uneven across subfields.

To examine women's participation in AI education pathways, this section focuses on disciplines that feed directly into AI development and deployment and applied AI roles, as reflected in national higher education classifications.

Table 2.4 indicates a persistent and pronounced gender imbalance across AI-relevant undergraduate programmes, with women accounting for only 35.65 per cent of total enrolments.

TABLE 2.4

Gender-wise enrolment in undergraduate AI-related courses, 2021–2022 (percentage)⁴⁴

Category (as used by the Ministry of Education, India)	Course/ Category	Male	Female
Engineering and technology	Artificial intelligence	70.18	29.82
	Artificial intelligence and data science	66.84	33.16
	Artificial intelligence and machine learning	67.19	32.81
	Automation and robotics	83.96	16.04
	Computer engineering	65.84	34.16
	Computer science and design	72.05	27.95
	Data science	72.10	27.90
	Information technology	63.05	36.95
	Data science and engineering	78.37	21.63
Information technology	Information technology	55.56	44.44
IT & computer	IT and computer	62.40	37.6
	Weighted average*	64.35	35.65

* Weighted by student enrolment per course

⁴⁴ Ibid., Table 12.

At the postgraduate level, the gender gap narrows. Across AI-relevant disciplines, women constitute 43.75 per cent of enrolments. While women are comparatively better represented in computer

science and computer application programmes, their participation is lower in engineering-oriented AI pathways, indicating uneven retention across subfields.

TABLE 2.5

Gender-wise enrolment in postgraduate AI-related courses, 2021–2022 (percentage)⁴⁵

Category (as defined by the Ministry of Education, India)	Discipline	Male	Female
Engineering and technology	Artificial intelligence and data science	50	50
	Computer engineering	55.7	44.26
	Information technology	48.55	51.44
IT and computer	Computer application	59.12	40.87
	Computer science	46.01	53.98
	Information technology	56.14	43.85
	IT and computing	54.67	45.33
Weighted average*		56.25	43.75

* Weighted by student enrolment per course

At the doctoral (PhD) level, women constitute 47.4 per cent of enrolments in AI-relevant programmes, mirroring parity trends observed in science PhDs more broadly. This suggests that women who persist within AI-core academic pathways are more likely

to remain engaged at advanced research levels. PhD research enrolments in specifically AI-related fields are encouragingly in line with the near parity in the sciences at undergraduate and overall PhD levels (see Table 2.6).

TABLE 2.6

Gender-wise enrolments in AI-related PhD programmes, 2021–2022 (percentage)⁴⁶

Category (as defined by the Ministry of Education, India)	Discipline	Male	Female
Engineering and technology	Computer engineering	55.59	44.4
	Information technology	43.33	56.67
Engineering science	Data science and engineering	70.27	29.73
	Computer application	50.86	49.14
IT and computer	Computer science	43.33	56.67
	Information technology	63.08	36.92
	IT and computing	66.67	33.3
Weighted average*		52.63	47.37

* Weighted by student enrolment per course

⁴⁵ Ibid., Table 13.

⁴⁶ Ibid., Table 13.

BOX 1

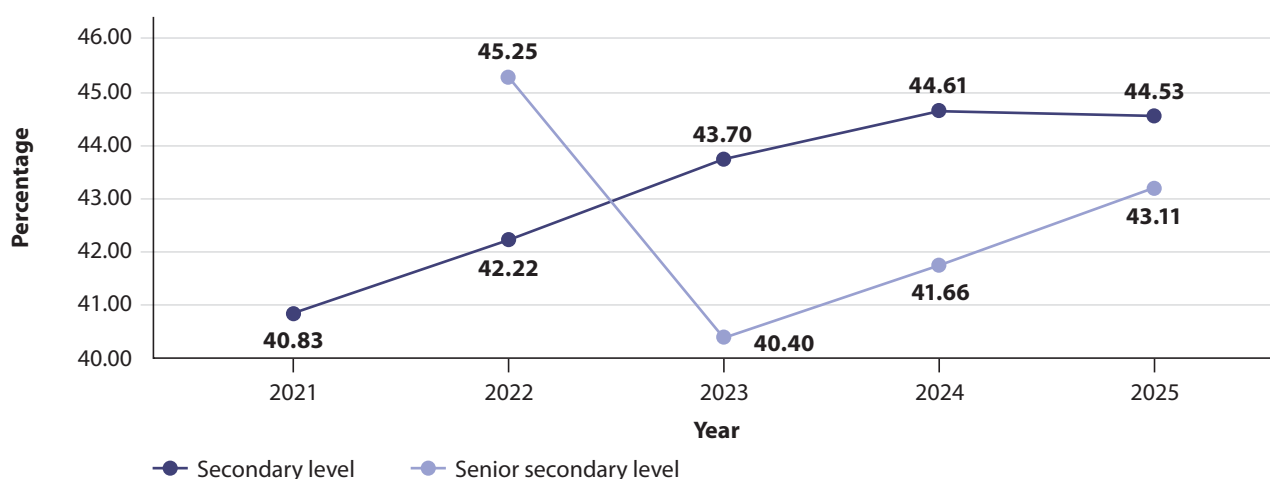
Early pipeline signals: secondary and senior secondary AI education in India

Data on AI subject uptake at secondary and senior secondary levels offer early and policy-relevant insights into gendered entry points into the AI education pipeline. Following sustained government-led efforts to mainstream AI exposure in school curricula, female and male participation are at near parity, with women trending upwards at both levels. At the secondary level, the share of girls opting for AI rose steadily, from 40.8 per cent in 2021 to 44.5 per cent in 2025, indicating a gradual

normalization of AI learning at earlier stages of schooling. At the senior secondary level, while participation exhibits greater volatility, female enrolment remained relatively high, peaking at 45.3 per cent in 2022, dipping to 40.4 per cent in 2023, and partially recovering to 43.1 per cent by 2025. This near-parity participation at school levels suggests that early and structured exposure to AI may play a critical role in widening the future pipeline into AI-core pathways in tertiary education and, over time, into the AI workforce.

FIGURE 2.3

Female students opting for AI as a subject at secondary and senior secondary levels in India, 2021–2025 (percentage)⁴⁷



Maldives

Maldives faces unique challenges in developing STEM education capacity. For example, a 2024 study showed that about 64.7 per cent of biology students, 55.2 per cent of chemistry students and 54.2 per cent of physics students in upper secondary school (Grades 11–12) were female, as against only 47.2 per cent of those studying computer science.⁴⁸ The percentage of girls enrolled in all science and

technology-related subjects (except in computer science) was even higher than the figures cited above, at both lower secondary and higher secondary levels. However, girls' study of science and maths in school does not translate into an equivalent pursuit of STEM at the university level. In fact, the share of women enrolled in STEM disciplines drops significantly between secondary and tertiary education levels.

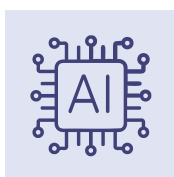
⁴⁷ Refers to students who opted for AI (subject code: 417) at the secondary level and AI (subject code: 843) at the senior secondary level in CBSE-affiliated schools in India. CBSE has 27,000+ affiliated schools within India and abroad. The data used in the section are not publicly available but have been shared with UNESCO for the purposes of this report.

⁴⁸ Women in Tech Maldives, 2024.

Very few students of any gender (around 5 per cent) choose STEM fields at university, and those who do are predominantly male. Table 2.7 shows that while women constitute an overwhelming majority of university students overall, this proportion is reversed when it comes to their representation in science and technology disciplines.

TABLE 2.7
University enrolment in Maldives by gender, 2021 (percentage)⁴⁹

	University enrolment	Enrolment in science and technology
Male	21.73	73.33
Female	78.26	26.6



AI is booming, but we don't have any AI degree here [Maldives]. We have a national

university, private colleges, private universities – none of them are offering artificial intelligence courses. Maybe one module, but you graduate in computer science, not in AI. If you want to study AI or data science, you have to go abroad. Even for student loans, you need a guarantor – many families don't have that. So even if someone is very interested, they might not have the opportunity.



Mihna Zahir

Vice President, Women in Tech Maldives

Most female tertiary students in Maldives gravitate to non-STEM subjects such as education, business or the arts. Of all the women enrolled in tertiary education, only 1.7 per cent were enrolled in STEM fields.⁵⁰ This trend is foreshadowed by subject choices in upper secondary school: while girls excel in science subjects in school exams, these young women are far less likely to pursue science or tech degrees at university. Stakeholders note that despite girls' strong academic performance, societal expectations and limited local programme offerings in STEM discourage women from continuing in these fields. The net effect is that women's representation in Maldives' STEM education pipeline remains very low, even while women outnumber men in college overall.

Perhaps the clearest manifestation of the gender-stratified pipeline is seen in the transition from education to employment. Even where South Asian women obtain AI-relevant degrees, they often do not translate such qualifications into AI or tech careers. This globally documented "leaky pipeline" phenomenon applies to Maldivian women too.⁵¹



Nepal

National data show that women now account for just over half of overall enrolment in higher education: a 2024 gender-equality report estimated that women hold about 53 per cent of total enrolments across all university programmes.⁵² However, the data indicate that this aggregate parity masks two important caveats. First, female enrolment is concentrated in a limited set of non-STEM disciplines, notably education, management and the social sciences (see Table 2.8). Second, men's participation within STEM fields is three times higher than that of women. In computing and information technology (taken as the closest proxy for AI-relevant educational preparation) women's enrolment is approximately one-third that of men, pointing to a narrow pre-tertiary pipeline into AI-adjacent education and employment. This pattern reinforces this chapter's broader finding that progress in STEM does not automatically translate into participation in AI-related fields, even where girls perform well in science education.

⁴⁹ Ibid.

⁵⁰ Ibid.

⁵¹ Shifna, 2021.

⁵² Ministry of Women, Children and Senior Citizens, 2024 (Nepal).

TABLE 2.8

Gender distribution across fields of study in Nepal, 2021 (percentage)⁵³

Gender	Humanities and social sciences	Management	Education	Science and technology	Health / medical sciences	Engineering	Computing and IT	Agriculture
Male	53.49	56.36	44.04	66.39	40.22	85.29	75.85	58.11
Female	46.51	43.64	55.96	33.61	59.78	14.71	24.15	41.89



It was not that people were openly unwelcoming, but there were question marks on their faces. It was more like surprise – “Oh my God, are you really going to participate?” For many organizers and participants, it was the first time they were seeing a group of girls in a robotics competition.



Riya Shahi

Program Head – Miss Tech, Robotics Association of Nepal

Table 2.8 reveals a gendered education pipeline with direct implications for AI-related pathways. Women are relatively well represented in non-STEM disciplines, including humanities and social sciences (46.51 per cent), management (43.64 per cent) and education (55.96 per cent). Within STEM fields, however, women’s participation is more uneven: they are strongly represented in health and medical sciences (59.78 per cent) and approach parity in agriculture (41.89 per cent), but their presence declines markedly in science and technology (33.61

per cent). The most pronounced gaps emerge in AI- and computing-relevant disciplines, which are core feeders into AI occupations. Women account for only 24.15 per cent of computing and IT and 14.71 per cent of engineering enrolments; men are overwhelmingly dominant in these fields.

Qualitative research on female computer science and IT students highlights how external motivators (family support, financial security, prestige) heavily influence women’s decisions to enter these fields. A narrative-inquiry study by Ganga Subba and Bal Chandra Luitel found that participants often saw IT as a lucrative alternative to medicine, yet many lacked visible female role models and were deterred by societal expectations.⁵⁴



Sri Lanka

Sri Lanka presents a unique paradox. On the one hand, Sri Lankan women enjoy comparatively high representation in STEM education: women made up 55 per cent of STEM graduates in 2018.⁵⁵ Sri Lanka stands out as a country that produces more female STEM graduates than males. This achievement is particularly noteworthy given the global trend of male dominance in many STEM fields.

However, disaggregation by field reveals that women’s presence is strongest in the biological sciences, medicine and allied health fields, and remains weak in disciplines linked to the AI and digital technology economy – such as engineering, technology and computer science. The country’s

⁵³ National Statistics Office, 2021, Table 27 (Nepal). Population aged 15 years and above with 10+2 or equivalent and higher level of education by major field of study. These are not tertiary enrolment shares, but refer to qualifications already completed.

⁵⁴ Subba and Luitel, 2025.

⁵⁵ Adikaram and Razik, 2025.

university statistics for 2023⁵⁶ show that women comprise 65.4 per cent of all undergraduate students across the university system. However, while women enrol in faculties of science and medicine in near-equal or majority proportions at the undergraduate level, women's enrolment falls well below 40 per cent in engineering, ICT and computing / technology programmes. Engineering faculties reflect similar patterns, with women still comprising under one-third of students in many streams.

An analysis of 2022–2023 graduate outcomes across undergraduate courses brings out this disparity more clearly. Women accounted for 69.9 per cent students overall, but only for 28.3 per cent of engineering graduates and 37.8 per cent

of technology graduates. Computer science is a partial exception, with women comprising 47.7 per cent of graduates, a notably stronger number that may be partly explained by the field's strong employment outcomes.

A World Bank report⁵⁷ noted that in 2016–2017, 100 per cent of computer science / IT graduates were employed, compared with 92 per cent from engineering. Additionally, 82 per cent of computer science / IT graduates secured employment either during their studies or immediately after their final examination, as against 63 per cent of engineering graduates. Where labour market returns are visible and rapid, women's participation is likely to follow.

TABLE 2.9

Undergraduate degrees earned by field and gender, 2023⁵⁸

Faculty / academic programme	Women	Total	Women (%)
Arts	10,978	13,151	83.5
Education	507	552	91.9
Allied health sciences	822	960	85.6
Management and commerce	5,298	7,673	69.1
Science	2,243	3,518	63.8
Medicine	751	1,260	59.6
Computer science	627	1,314	47.7
Architecture	156	348	44.8
Technology	276	731	37.8
Engineering	614	2,173	28.3
Total	23,272	33,306	69.9

TABLE 2.10

Postgraduate degrees earned by field and gender, 2023⁵⁹

Faculty / academic programme	Women	Total	Women (%)
Veterinary science	7	8	87.5
Arts	1,041	1,571	66.3
Agriculture	132	212	62.3
Medicine, dental and allied health sciences	531	920	57.7
Education	435	775	56.1
Science / IT	561	1,005	55.8
Management and commerce	909	1,812	50.2
Architecture	42	90	46.7
Engineering	120	522	23.0
Total	3,802	6,955	54.7

56 University Grants Commission – Sri Lanka, 2023.

57 World Bank, 2023.

58 University Grants Commission – Sri Lanka, 2023.

59 Ibid.

The Bachelor of Science degree in artificial intelligence at the University of Moratuwa enrolled just **29 women** out of 116 total students in 2022–2023, a 25 per cent share.

This pattern resonates into the only AI-specific programme in the country: the Bachelor of Science degree in artificial intelligence at the University of Moratuwa enrolled just 29 women out of 116 total

students in 2022–2023, a 25 per cent share. Critically, this gender divergence does not originate at university but is established at the A-level gateway.

As Table 2.11 shows, female students accounted for only 16.3 per cent of those admitted through the engineering technology stream and 36.9 per cent of those from the physical sciences stream in 2022–2023 – the two principal pathways into engineering and computer science degrees. By contrast, women represented 73.2 per cent of biological science stream admissions and 84.9 per cent of arts stream admissions. This system-wide majority obscures the near-exclusion of women from technology and engineering streams before they reach university at all.

TABLE 2.11

Candidates qualifying for and selected to undergraduate courses by subject stream and gender, 2022–2023⁶⁰

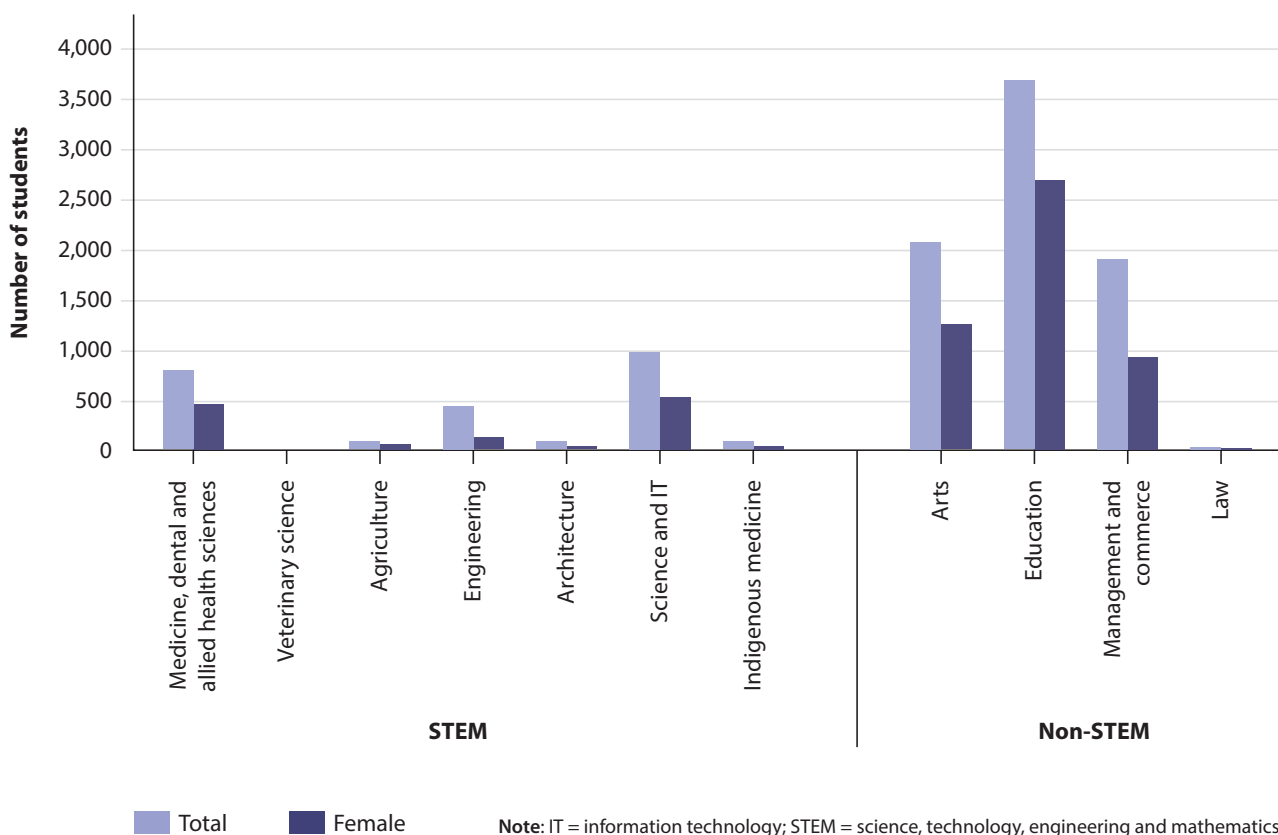
Subject stream	Women admitted	Total admitted	Women (%)
Arts	11,087	13,055	84.9
Commerce	5,417	8,001	67.7
Biological science	7,398	10,104	73.2
Physical science	3,029	8,204	36.9
Engineering technology	381	2,333	16.3
Biosystems technology	1,216	1,553	78.3
Total	28,825	43,978	65.5

This trend persists at the postgraduate level, but with a slightly lower share of women students. At the postgraduate level, women account for 54.7 per cent of all graduates. In science / IT, female representation rises to 55.8 per cent at the postgraduate level, up from 47.7 per cent at the undergraduate level, suggesting that women who persist in these fields actively pursue advanced qualifications. Engineering, however, tells the opposite story: female representation falls from 28.3 per cent at the

bachelor's level to 23 per cent at the postgraduate level, pointing to a leaky pipeline in which women exit engineering at the point of transition into research and professional specialization – precisely the pathway that feeds into AI research, R&D roles and technology leadership. On the contrary, fields like life sciences and arts continue to attract women in significant numbers, while engineering and computer-related fields remain male-dominated.

⁶⁰ Ibid.

FIGURE 2.4

Gender distribution across postgraduate disciplines in Sri Lanka, 2023⁶¹

Recent qualitative research on women STEM entrepreneurs underscores the persistence of cultural and institutional barriers.⁶² While women are motivated by pull factors – role models, perceived opportunities, desire for work-family balance – they must often navigate lack of networks or support

in technology-intensive entrepreneurship. These findings echo a broader systemic challenge: Sri Lanka's strong educational pipeline does not fully convert into participation in the AI and digital economy.

⁶¹ World Bank, 2023.

⁶² Adikaram and Razik, 2025.

CASE STUDY 2

Women in Tech Maldives – Girls to Code programme



Women in Tech Maldives is a non-profit working to expand women's participation and leadership in technology, data science and emerging AI-

related fields, with a particular focus on reaching women and girls beyond the capital.

Its flagship Girls to Code programme targets young women and girls aged 16–30 years with little or no prior technical background, using interest and commitment – rather than formal qualifications – as the primary entry criteria. This approach lowers early barriers that often prevent women from entering technology and AI learning pathways.

Since 2019, the programme has reached 113 participants across six island communities through a three-month hybrid model combining in-person and online learning. This flexible structure enables participation by women balancing education, employment

and care responsibilities, which are particularly pronounced in island contexts.

The programme integrates foundational coding skills with introductory data and AI concepts, supporting participants through mentorship as they develop individual capstone projects that translate learning into real-world problem-solving.

Girls to Code addresses persistent structural barriers, including limited access to digital skills training outside urban centres, gendered perceptions of technology careers, and the absence of visible female role models in tech. It highlights the importance of confidence building, visible female role models, and locally grounded delivery models in enabling women's entry into technology and AI pathways.

This case study was developed based on information provided by the implementing organization, Women in Tech Maldives, and an interview with the Vice President, Ms Mihna Zahir.

CASE STUDY 3

Increasing women's participation in elite engineering education: India's Supernumerary Seats Scheme



Introduced in 2018, the Supernumerary Seats Scheme (SSS) is a targeted, affirmative action scheme to raise the proportion of women in

Bachelor of Technology programmes in the Indian Institutes of Technology (IITs) to 20 per cent.⁶³ The target was deliberately calibrated as an achievable benchmark rather than a purely aspirational goal, reflecting both historical trends in women's participation in national engineering education and their share among entrance examination applicants. The

scheme marked a departure from incremental approaches, signalling a policy recognition that entrenched gender imbalances required direct and time-bound corrective measures.

The SSS created additional "supernumerary" seats, exclusively for female candidates, without displacing existing seats, and divided all seats within each programme into two categories: female-only seats and gender-neutral seats. Under the SSS, female candidates must be considered for female-only seats before being eligible for gender-neutral seats, introducing

63 Verma, 2018.

a distinct allocation logic with both operational and normative implications.⁶⁴

The scheme has been highly effective. Female enrolment in IITs, which hovered below 10 per cent before 2018, rose sharply to nearly 20 per cent by 2021–2022.^{65, 66} The SSS enabled more women to convert their eligibility into allotment of seats, suggesting that the scheme effectively addressed bottlenecks in seat allocation rather than simply expanding the pool of applicants.⁶⁷

The scheme has nudged academically strong women to apply in greater numbers to highly competitive and historically male-dominated disciplines, including computer science, electrical engineering and mechanical engineering.⁶⁸

An important though not originally foregrounded outcome of the SSS has been its intersectional impact. Historically, female enrolment has been lowest among scheduled caste (SC) and scheduled tribe (ST) categories. Under the SSS, 20 per cent of seats within each reserved category are also designated as female-only. Given that 22.5 per cent of all IIT seats are reserved for SC and ST categories, this design establishes a minimum mandated share of 4.5 per cent for SC / ST women in each programme.⁶⁹ In doing so, the scheme mitigates the risk – frequently observed in affirmative action systems – of benefits being disproportionately captured by relatively advantaged subgroups within reserved categories.



One of the criticisms of affirmative action has been that people get into the system but they're not able to catch up or there's a mismatch between abilities. So, we show in another research that there is no mismatch, that girls do start at a lower rank, but they catch up by the end. Girls are performing as well as boys, even though they're coming in through affirmative action. They're not wasting any resources, they're not coming down at lower CGPA levels, they're not dropping out, they're not missing semesters.



Nandana Sengupta

on the Supernumerary Seats Scheme in IITs in India,
Associate Professor, School of Public Policy, IIT Delhi, India

64 Sengupta et al., 2025.

65 Press Information Bureau, 2022 (India).

66 Priyadarshini and Paritosh, 2025.

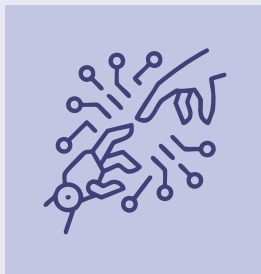
67 Government of India, 2025.

68 Sengupta et al., 2025.

69 Ibid.

CASE STUDY 4

Miss Tech: Expanding women's entry into robotics, STEM and AI in Nepal



“

One of the biggest challenges we still face is lack of family support. Many girls tell me their families don't see a future in robotics. They ask, “How will you connect robotics with your career? How will this help you later in life?” That uncertainty stops many girls from even registering.

”

Riya Shahi

Program Head – Miss Tech, Robotics Association of Nepal

In Nepal, women's participation in robotics, AI and advanced STEM fields remains limited due to gender stereotyping in STEM education, restricted access to hands-on technical learning, geographic isolation, and the lack of visible female role models – challenges that are particularly acute in rural and mountainous regions.

Miss Tech, led by the Robotics Association of Nepal (RAN), is a women-led, non-formal education initiative launched in 2016. RAN emerged as a response to these layered barriers, creating alternative entry points for girls and women to access robotics, AI-adjacent skills, and applied technology learning outside conventional school and university curricula.

Rather than a single intervention, Miss Tech operates as a pipeline-based ecosystem, targeting girls and women at multiple entry points – from high school and undergraduate students to early-career professionals and educators. Across its interventions, Miss Tech provides hands-on training in robotics, drones, programming, AI, hardware systems, and niche areas such as geospatial information

technologies. Leadership, entrepreneurship and career-readiness components are integrated throughout, supported by strong mentorship and peer networks led by women technologists. It positions women not only as users of technology but as creators and leaders within Nepal's emerging digital and AI ecosystem.

The initiative has navigated challenges common to gender-focused STEM and AI programmes in South Asia, including funding constraints and connectivity gaps, and sustaining long-term mentorship. It shows that reaching women at different stages of life helps accommodate non-linear education paths and differing levels of family and institutional support. This approach has helped reduce attrition and sustain women's engagement in AI and emerging technology domains over time.

This case study was developed based on information provided by the implementing organization, Robotics Association for Nepal, and an interview with the Program Head for Miss Tech, Ms Riya Shahi.

CASE STUDY 5

Poornima Meegammana and the NextGen Girls in Technology, Sri Lanka



There are many technology programmes in Sri Lanka, but very few address gender intentionally. Gender-neutral programmes are not enough when girls start from a position of lower confidence, fewer opportunities and stronger social constraints. That is why programmes like NextGen are necessary.



Poornima Meegammana

Program Director – NextGen, Shilpa Sayura Foundation, Sri Lanka

NextGen Girls in Technology (NextGen GiT) was developed by the Shilpa Sayura Foundation as a gender-responsive intervention focused on early engagement, skills relevance and sustained participation. The initiative combines school-facing interventions to build early competence and university-facing skilling pathways in emerging and employable domains, including machine learning, cybersecurity, the Internet of Things, and design.

A defining feature of NextGen GiT is its local-language, culturally contextualized curriculum, designed to overcome linguistic barriers and make technology learning accessible and relatable. The programme delivery follows a blended learning model, integrating in-person instruction through schools and community computer centres with online modules that enable flexibility and self-paced learning. The programme also incorporates mentorship, peer learning and hands-on project-based activity to reinforce confidence and practical application. Since its inception, NextGen GiT has reached over 7,700 beneficiaries, including school students, university students and teachers, across urban, rural and conflict-affected regions of Sri Lanka.

The initiative is closely linked to the leadership journey of Poornima Meegammana, who began as a learner in Shilpa Sayura's programmes when she was 12 years old. She founded NextGen GiT in response to the gender gaps she observed in Sri Lanka's ICT pipeline. Her trajectory – from participant to programme leader – reflects the initiative's broader pipeline-to-leadership approach, which supports girls not only to begin learning technology but also to become mentors, educators and leaders within the ecosystem.

NextGen GiT addresses key structural barriers, including early confidence gaps, lack of female role models, skills mismatch between education and employment, and limited access in rural and marginalized areas. Its experience highlights the importance of early exposure, contextualized curricula, mentorship and leadership development in building inclusive pathways for women into technology and AI-related fields.

This case study was developed based on programme documentation and data provided by the implementing organization, Shilpa Sayura Foundation, and conversations with the Program Director, Ms Poornima Meegammana.

CHAPTER 3

Gender presence in AI research and academia:

findings from a UNESCO and University of Delhi bibliometric study

Key facts & figures

71.76%

of publications include at least one female author.

26.01%

of corresponding / primary authorship roles¹ are held by women.

INDIA

Male corresponding authors lead **2.7x** more AI publications than women.²Women hold only **16.6 per cent** of STEM faculty positions, under **10 per cent** of national science academy fellowships, and run **about 24 per cent** of R&D projects.⁶

BANGLADESH

Male corresponding authors produce **8x** more publications; female corresponding authorship only **11.2 per cent**.³Women's senior research representation is only **about 24 per cent** at senior levels despite stronger junior participation.⁷

MALDIVES

Male corresponding authors lead **14x** more publications than women; female corresponding authorship is only **6.67 per cent**.⁴

NEPAL

3x more male-led papers.

BHUTAN

2x more male-led papers.

SRI LANKA

The narrowest gap, with **1.4x** more male-led papers.⁵Demonstrated the highest share of female corresponding authorship among all six countries, at **40.9 per cent**.⁸

1 UNESCO – University of Delhi Bibliometric Study Analysis, 2025.

2 Ibid.

3 Ibid.

4 Ibid.

5 Ibid.

6 Muralidhar and Ananthanarayanan, 2024; IWWAGE et al., 2024.

7 Naher et al., 2019.

8 UNESCO – University of Delhi Bibliometric Study Analysis, 2025.

Introduction: Global and South Asia overview

Research and academia constitute a core pillar of the artificial intelligence ecosystem, shaping technological trajectories, research agendas, and the knowledge infrastructures through which AI systems are developed and evaluated. Gender diversity within AI research communities is therefore about representation and epistemic inclusion – affecting what problems are studied, how methods are designed, and which social contexts are reflected in AI systems.

Globally, AI research output has expanded rapidly since 2015, driven by advances in computing power, data availability, and applied machine learning (ML) techniques. Yet participation within AI research ecosystems continues to mirror long-

standing structural inequalities in education systems, academic labour markets, access to research funding, and leadership pipelines.

This chapter draws on a large-scale bibliometric analysis, conducted for this report by UNESCO and the Institute of Informatics and Communication (IIC), University of Delhi, of AI-related research publications from Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka produced between 2015 and 2025. The analysis focuses on women's participation across authorship, corresponding authorship, institutional affiliation, funding trends in research, and thematic engagement, offering a comprehensive empirical assessment of gendered participation in AI research in South Asia as of this report's publication.

Bibliometric study: women's participation and leadership in AI research

UNESCO, in collaboration with the Institute of Informatics and Communication, University of Delhi, conducted a bibliometric analysis to examine gendered participation in AI research across South Asia. The bibliographic data were retrieved from the Scopus database using a carefully defined search strategy. The keywords "Artificial Intelligence", "Machine Learning" and "Deep Learning" were applied simultaneously to the title, abstract and keywords fields to ensure comprehensive coverage of relevant research. The search was further filtered by language (English only), time frame (2015–2025) and geographically restricted to Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka.

The first retrieval yielded 268,679 publications, reflecting substantial variation in AI research

output across South Asia. Following data retrieval, a rigorous data-cleaning and validation process was undertaken to ensure analytical robustness. Records with missing or incomplete metadata – such as absent author names or titles – were excluded, as such inconsistencies can compromise the reliability of bibliometric indicators. After applying these quality-control measures, the final analytical corpus comprised 248,265 publications,⁹ which forms the study's empirical basis for assessing gendered participation patterns in AI research across South Asia. For country-level analysis, further refinement was applied. Of the cleaned dataset, 213,790 publications could be uniquely assigned to one of the countries covered in this study based on the affiliation of the corresponding author. This country-assigned subset is used for the country-

⁹ Note that the number 248,265 refers to all publications whose title / abstract / keywords include at least one or more of the terms "Artificial Intelligence", "Machine Learning", "Deep Learning", and have one author / co-author affiliated to one of the six countries studied in this report. When papers were distributed across the six countries based on the affiliation of corresponding authors, the number of unique publications came down to 213,790.

wise analyses presented later in this chapter (see methodological note in Annexure 1).

A key methodological challenge of the bibliometric analysis concerned the reliable identification of authors' genders. Initial tests using commonly available automated gender-identification application programming interfaces (APIs) revealed substantial inaccuracies in South Asian contexts, due to linguistic diversity, cultural naming conventions, and transliteration practices that are poorly represented in existing global tools. Reliance on such APIs risked introducing systematic bias into the analysis. To address this limitation, a regionally appropriate, AI-enabled gender identification framework¹⁰ was developed. An additional manual validation step was undertaken to cross-check a subset of automated predictions, ensuring consistency and reliability. The resulting gender-labelled bibliometric dataset enabled a robust examination of women's participation in AI research across authorship roles, collaboration patterns and thematic areas. For methodological details, including text pre-processing and topic modelling procedures, see Annexure 1.

Women's participation in AI publications

Across the cleaned bibliometric dataset, women are present in a substantial share of AI research outputs in South Asia. Of the 248,265 AI-related publications included in the final validated corpus, 67.6 per cent featured at least one female author, indicating broad participation by women at the level of research contribution. However, a closer examination of authorship roles reveals significant gender disparities in senior and corresponding authorship positions.

For country-level analysis, this section focuses on publications that could be uniquely attributed to a single country based on the affiliation of the corresponding author ($n = 213,790$). Within this analytically relevant subset, 153,424 publications (71.76 per cent) include at least one female author. By contrast, women account for only 26.01 per cent of corresponding or primary authorship positions (55,615 publications), underscoring a persistent leadership gap.

TABLE 3.1

Distribution of publications across the six countries studied¹¹

Indicator	Number	Percentage
Total publications (final dataset)	213,790	100
Publications with ≥ 1 female author	153,424	71.76
Publications with women as corresponding / primary authors	55,615	26.01

This pattern points to a consistent stratification within AI research across South Asia: while women participate extensively as contributors, they remain significantly under-represented in authorship roles associated with intellectual leadership, visibility and agenda-setting.

Year-wise trends further illuminate the temporal dynamics of women's participation. Women's authorship in AI research has grown sharply since 2019, with particularly rapid growth after 2020. As is evident from Figure 3.1, women's authorship has risen in tandem with the recent institutionalization

¹⁰ The gender identification framework developed for this analysis operates on a binary classification of male and female. This is a methodological limitation: gender exists on a spectrum, and non-binary, genderqueer and other gender identities are not captured in this dataset. This constraint reflects both the current limitations of automated gender identification tools and the absence of disaggregated data beyond the binary in available bibliometric sources. The findings should be interpreted with this limitation in mind, and future research should seek to develop more inclusive approaches as data and tools allow.

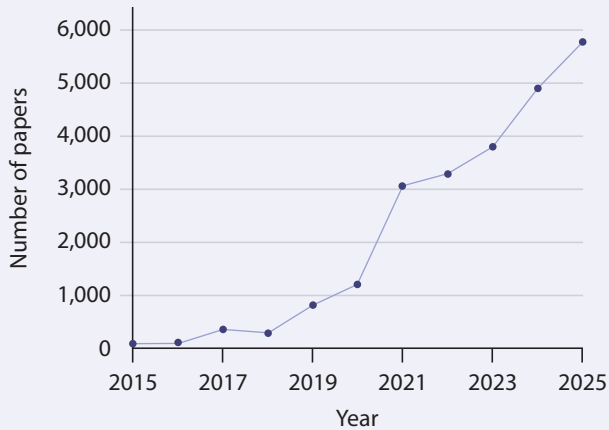
¹¹ UNESCO – University of Delhi Bibliometric Study Analysis, 2025.

of AI programmes, laboratories and doctoral training pathways across the region. While this trend signals growing entry and visibility of women in AI research,

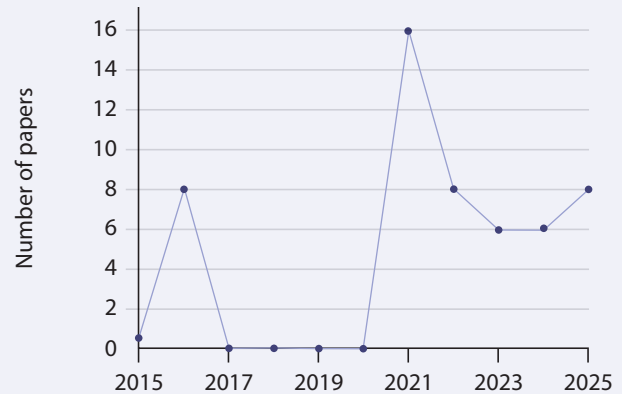
it remains uneven across countries and highly concentrated within the last five or six years – raising questions about the durability of these gains.

FIGURE 3.1
Year-wise publications by women, 2015-2025¹²

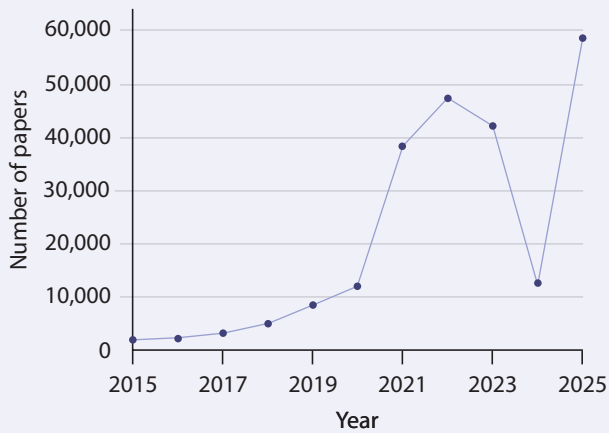
Yearly publications: Bangladesh



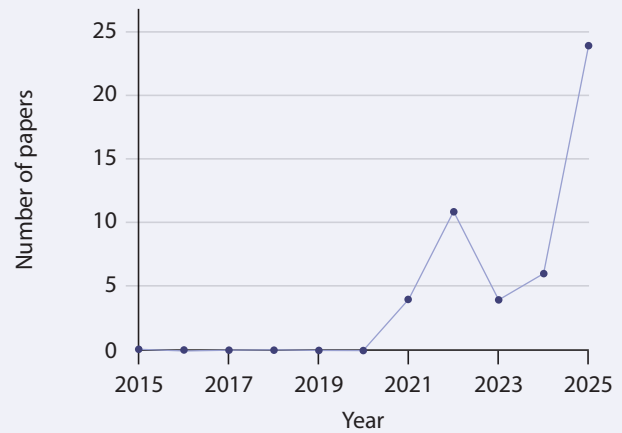
Yearly publications: Bhutan



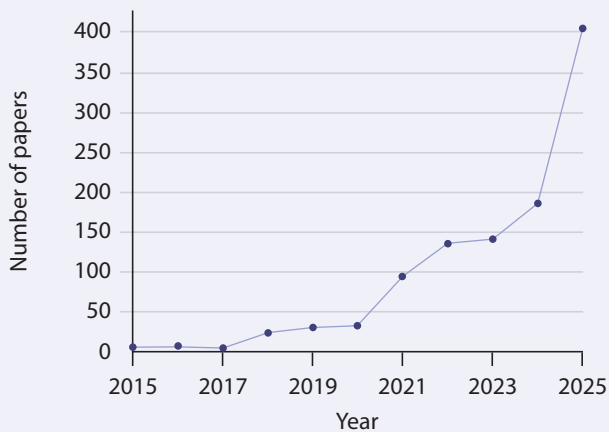
Yearly publications: India



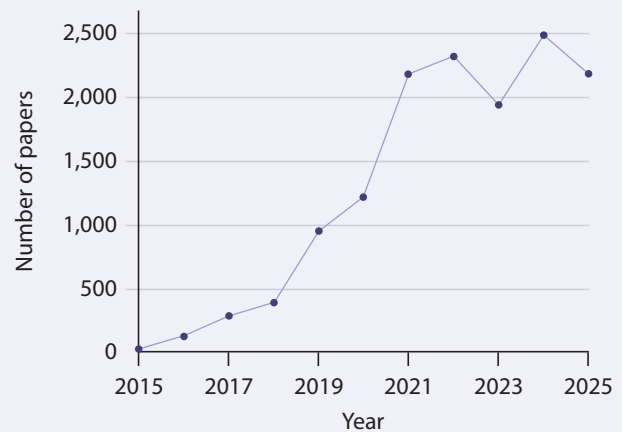
Yearly publications: Maldives



Yearly publications: Nepal



Yearly publications: Sri Lanka



¹² Ibid.



One positive aspect at the college level was that we had many women lecturers and professors – sometimes even more than men. Seeing women teaching advanced technical subjects made a difference, because it showed us that women can also build long-term careers in technology.



Karma Yangzom

Formerly Assistant ICT Officer, GovTech Agency, Bhutan

India exhibits the most dramatic absolute increase in female-authored AI publications, with output almost tripling after 2020. Bangladesh also records a multifold increase in women's AI publications over the same period, while Sri Lanka shows a more moderate, near-doubling trajectory with signs of stabilization after 2022. Nepal displays a slower but consistent upward trend, suggesting gradual capacity building within a smaller research system. The broadly synchronized timing of these increases across countries points to a regional structural shift in AI research activity after 2020, rather than isolated national effects.

By contrast, Bhutan and Maldives demonstrate highly uneven and episodic publication patterns, characterized by sporadic spikes rather than continuous growth. These fluctuations reflect the nascent stage of AI research ecosystems in these countries, where small changes in absolute publication numbers can appear as sharp year-on-year variation.

Corresponding authorship and research leadership

While the inclusion of at least one female author in AI-related publications is relatively widespread across South Asia, deeper indicators such as corresponding authorship and institutional leadership reveal more uneven patterns. Corresponding authorship is commonly used as a proxy for research leadership and intellectual ownership.¹³ Within the study's dataset, only 55,615 publications (26.01 per cent) had a female corresponding author, identified either through explicit corresponding author metadata or, where unavailable, through first authorship as a proxy. This disparity highlights a persistent leadership gap in AI research. While women increasingly participate as co-authors in AI publications, they remain significantly under-represented in roles that shape research direction, visibility and institutional recognition.

¹³ Corresponding authorship is commonly used in bibliometric research as an indicative proxy for research leadership, as corresponding authors typically manage manuscript submission and coordination with journals. However, its interpretation requires caution, as corresponding author metadata may be inconsistently recorded across databases, and the substantive role of corresponding authors varies by discipline, institutional context and national research cultures (Chinchilla-Rodríguez et al., 2024).

In cases where corresponding author information is not explicitly available, this analysis uses first authorship as a secondary proxy, reflecting common bibliometric practice in STEM fields where first authors are generally understood to have led the conceptualization and execution of the research. While first authorship also varies in meaning across fields and collaborative settings, it provides a more substantive indicator of intellectual contribution than co-authorship alone when corresponding author metadata is missing. The combined use of corresponding and first authorship is therefore retained as a pragmatic, comparative indicator in the absence of consistently available, gender-disaggregated contribution data. When interpreted alongside complementary indicators – such as overall authorship participation, publication volume and institutional affiliation – it offers a useful signal for examining gendered patterns of visibility and leadership within AI research ecosystems. Findings should therefore be read as indicative rather than definitive, and as part of a broader constellation of bibliometric measures rather than a stand-alone assessment of intellectual ownership.

TABLE 3.2

Country-wise analysis of publications¹⁴

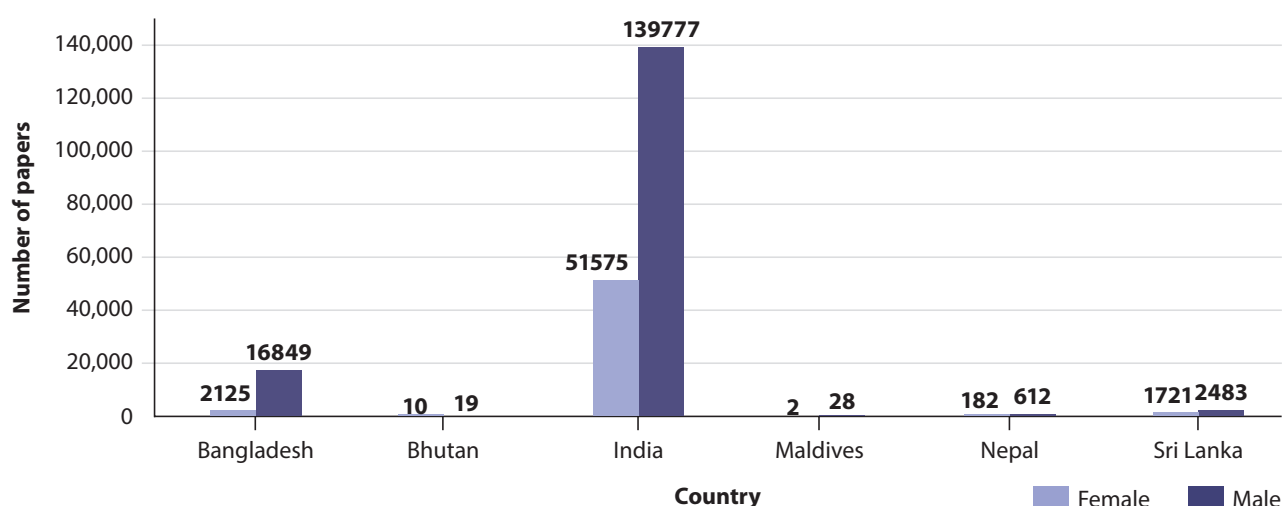
Country	Number of AI-related publications based on corresponding author's affiliation	Number of publications with at least 1 female author	Number of publications with female corresponding author	Percentage of AI-related publications with female corresponding author
India	189,769	137,686	51,575	27.17
Bangladesh	18,970	10,856	2,125	11.2
Sri Lanka	4,203	4,286*	1,721	40.9
Nepal	789	539	182	23.06
Maldives	30	33*	2	6.67
Bhutan	29	24	10	34.48
Total	213,790	153,424¹⁵	55,615	26.01

* The number of publications with at least one female author may exceed the number of country-assigned publications for a given country because the two figures are derived independently. Country assignment is based solely on the corresponding author's affiliation (column 1), whereas female authorship is identified if any author on a publication is a woman, irrespective of their role or affiliation. Researchers from the six countries covered in this study who contribute as co-authors – rather than as corresponding authors – on publications led from outside these six countries are therefore captured in the female authorship count (column 2) but not in any country's publication total. This methodological distinction accounts for the apparent discrepancy observed in the case of Sri Lanka and Maldives.

The distribution of female AI researchers across countries reflects both overall research capacity and the depth of national academic ecosystems. India accounts for the largest absolute number of

female AI researchers, followed by Bangladesh and Sri Lanka. By contrast, Bhutan and Maldives have extremely few women authors, indicating their early stage of AI research development.

FIGURE 3.2

Corresponding / primary authorship by gender and country¹⁶

¹⁴ UNESCO – University of Delhi Bibliometric Study Analysis, 2025.

¹⁵ Publications were assigned to countries based on the institutional affiliation of the primary (corresponding) author. While a total of 167,876 AI-related publications in the dataset include at least one female author, this figure captures female co-authorship irrespective of geographic location if the corresponding / primary author is based in one of the six countries covered in this study. When restricting the analysis to female authors affiliated with institutions in one of the six countries, the corresponding total is 153,424 publications.

¹⁶ UNESCO – University of Delhi Bibliometric Study Analysis, 2025.

2.7x more male-led than women-led papers in India may indicate persistent gender hierarchies in senior academic and research leadership roles.

Figure 3.2 allows more insight into the gender gap in research leadership by showing how corresponding authorship is distributed across countries by gender. Across all six countries in this study, male corresponding authors outnumber female corresponding authors by substantial margins, though the scale of disparity varies significantly. In India, male researchers lead nearly three times as many AI publications as women (there are approximately 2.7x more male-led papers). Given India's scale as the region's dominant research producer, this imbalance may be indicative of persistent gender hierarchies in senior academic and research leadership roles, which require deeper exploration.

In Bangladesh, the gap is substantially wider, with male corresponding authors producing almost eight times more publications than female corresponding authors, underscoring a sharp drop-off in women's representation at senior authorship levels despite their participation as co-authors. Sri Lanka shows a narrower but still-present gap, with men 1.4x more likely to be corresponding authors than women.

In smaller countries, gender gaps in corresponding authorship remain pronounced: in Nepal, male corresponding authors produce over three times more papers than women; in Bhutan, the number of male-led publications is nearly double those led by women; and in Maldives, male corresponding authors account for about fourteen times more publications than female corresponding authors. In Bhutan and Maldives, female corresponding authorship is sporadic, highlighting the combined

effects of nascent AI research ecosystems and narrow senior academic pipelines.

The pronounced gender gap in corresponding authorship reflects broader patterns of attrition across stages in academic careers. In India, women account for nearly half the PhD enrolments in engineering and technology but their representation declines sharply at senior levels: women hold only 16.6 per cent of STEM faculty positions; have less than 10 per cent of fellowship memberships across national science academies; and run only about 24 per cent of R&D projects.^{17, 18} This disconnect between a strengthening doctoral pipeline and limited senior representation indicates persistent barriers in academic progression and recognition.

Comparable dynamics are observed in Bangladesh, where women occupy a substantial share of junior scientific roles within certain research institutions but see their representation fall markedly at senior levels, declining to approximately 24 per cent.¹⁹

This evidence from India and Bangladesh indicates that women's under-representation in senior AI research leadership and corresponding authorship is not driven by limited early-career participation. Rather, it reflects structural barriers within promotion pathways, institutional hierarchies and leadership pipelines that shape who ultimately holds decision-making and agenda-setting power in AI research.

Institutional distribution of women-led AI research

This section examines how women-led AI research is distributed across different types of academic and research institutions in South Asia, highlighting the institutional locations through which women most frequently access, conduct and lead AI research.

In India, women-led AI research is predominantly concentrated within private academic institutions, particularly private universities and deemed-

¹⁷ Muralidhar and Ananthanarayanan, 2024; IWWAGE et al., 2024.

¹⁸ Press Information Bureau, 2024 (India).

¹⁹ Naher et al., 2019.



to-be universities²⁰ offering engineering and technology programmes. This pattern reflects the rapid expansion of private higher education in AI, computer science and allied fields, which has created entry points for women researchers through newer departments, applied research centres and doctoral programmes. By contrast, women's AI research participation in Sri Lanka and Bangladesh is more strongly anchored in government-funded public universities, particularly within core computer science and engineering departments.

Maldives presents a markedly different institutional profile. Women-led research outputs in AI emerge from a mix of government and private institutions, often rooted in non-traditional AI disciplines such as marine ecology, environmental science, medicine, nursing, health sciences and business.²¹

In Nepal, women-authored AI research is primarily concentrated within government-funded universities and engineering institutes, particularly in computer science, electronics and engineering faculties. At the same time, a notable share of female-authored AI-centric research also originates from medicine, natural sciences and agriculture, indicating cross-disciplinary adoption of AI beyond core engineering departments.

Finally, in Bhutan, women-led research associated with AI-related applications is dominated by government bodies and public academic institutions but is not confined to computer science departments. Instead, female-authored outputs are more frequently linked to disciplines such as civil engineering, geology, environmental studies and law, reflecting the country's applied and policy-oriented research priorities and the relatively early stage of its formal AI research programmes.

Funding patterns in women-led AI research

Funding information was available for only 16–20 per cent of publications in this study's dataset, limiting its ability to draw definitive conclusions about gendered funding patterns across the region.²² As a result, cross-country comparisons of funding dynamics should be interpreted with caution.

In India, within the subset of publications where funding metadata is available, no substantial difference was observed between top funding sources supporting male- and female-led AI research. The top five funding sources were identical for male- and female-led publications, indicating that women-led AI research in India operates within the same primary funding ecosystem as male-led research. Funding in India is led by domestic private academic institutions, followed by public support routed through key government agencies, including the Department of Science and Technology (Ministry of Science and Technology) and the Ministry of Electronics and Information Technology (MeitY).²³

In Nepal, reported funding for AI-related research is largely driven by external and cross-border sources. Prominent funding support is associated with programmes such as Erasmus,²⁴ agencies such as the University Grants Commission of India, and collaborations with international universities. This reliance on international and regional funding reflects both the scale of Nepal's research ecosystem and the importance of transnational academic partnerships in sustaining AI-related research activities.

20 A "deemed-to-be university" as recognized by the University Grants Commission (UGC), Government of India, refers to an institution of higher education, or a cluster of institutions, other than a university, that is granted this status in recognition of excellence in specialized fields of study. Such institutions enjoy academic autonomy and privileges comparable to those of universities, including the authority to design their own curricula and courses. See: <https://deemed.ugc.ac.in/Home>

21 Please note that, in the context of this bibliometric study, "women-led" or "women-driven" research refers to women's leadership as corresponding / primary authors.

22 As the declaration of funding details is optional, only 16–20 per cent of publications in the dataset include such information. This range reflects variations across metadata fields, with funding information appearing in "funding text" for approximately 20 per cent of publications and in structured "funding details" for around 16 per cent.

23 The top five funding sources in this section were identified based on the frequency with which a particular funder appears in the dataset and not based on funding amounts.

24 Erasmus+ is the European Union's programme to support education, training, youth and sport. With an estimated budget of €26.2 billion for 2021–2027, it provides opportunities for participants to study, train, gain experience and volunteer abroad. See: https://www.eacea.ec.europa.eu/grants/how-get-grant_en and https://commission.europa.eu/education/set-projects-education-and-training/erasmus-funding-programme_en.



While women are often treated equally in terms of salaries at the entry and mid-career levels, their presence sharply declines when it comes to leadership positions, access to funding and participation in policy and decision-making spaces. These are precisely the areas where power and influence are concentrated, yet women's representation there remains almost negligible.



Thushari Silva

Professor of AI, Faculty of Information Technology, University of Moratuwa, Sri Lanka

In Bangladesh, the reported funding profile is dominated by domestic academic institutes, indicating that AI-related research activity is primarily supported through institutional and university-level funding mechanisms rather than dedicated national research councils or international programmes.

In Sri Lanka, reported funding sources are concentrated within domestic public academic institutions, reflecting the central role of government-funded universities in supporting AI research and related computational disciplines.

Funding metadata for both Bhutan and Maldives is either inadequate or entirely absent, precluding a reliable assessment of funding patterns for AI-related research. The limited availability of funding information reflects both broader constraints in research reporting and the small scale of AI research output.

Thematic analysis of women-led AI research

Topic modelling reveals substantial thematic overlaps between men- and women-authored AI research, challenging assumptions that women are concentrated in peripheral or non-technical domains. This thematic convergence underscores that women researchers are not marginal

participants in AI knowledge production but are contributing substantively to AI-core fields such as machine learning, deep learning, classification, detection, predictive modelling and data analysis.

At the same time, the analysis reveals nuanced differences in thematic emphasis, which are relevant for understanding how gendered patterns manifest within otherwise overlapping research spaces. Publications authored by men show relatively stronger associations with system-level and performance-oriented themes, including networks, image processing, the Internet of Things (IoT), system architectures, and accuracy-focused modelling. By contrast, women-authored publications, while firmly embedded within AI-core methodologies, demonstrate comparatively greater engagement with applied and context-driven domains. Terms such as “management”, “disease”, “algorithms” and “data-centric analysis” appear more prominently, suggesting stronger alignment with application-oriented research, particularly in areas related to healthcare, disease detection and management-focused AI systems. This pattern indicates that women's research contributions often intersect with socially embedded, public-interest and sector-specific applications of AI, rather than forming a separate or technically distinct research niche.

These findings suggest that gendered differences in AI research are not characterized by divergence in technical competence or disciplinary scope, but by

using, prediction, based, using machine, analysis, techniques, detection

Topic 5: learning, machine, machine learning, data, using, model, analysis, models, accuracy, prediction

Female-authored topics

Topic 2: learning, using, deep, based, machine, machine learning, detection, deep learning, neural, prediction

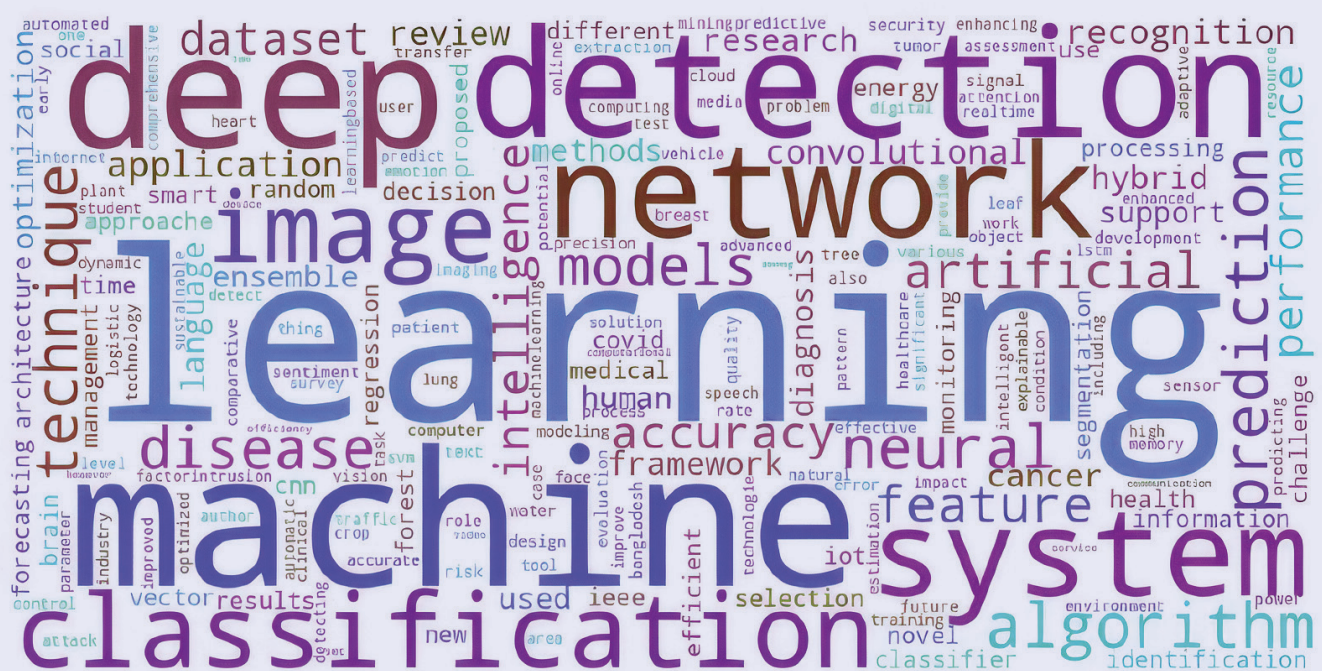
Topic 4: using, learning, deep, detection, machine, deep learning, machine learning, classification, based, disease

Topic 5: learning, using, machine, machine learning, based, analysis, detection, deep, deep learning, data

Topic 1: intelligence, artificial, artificial intelligence, learning, machine, machine learning, IoT, smart, system, based

Topic ②: learning, deep, using, based, detection, deep learning, network, neural, networks, image

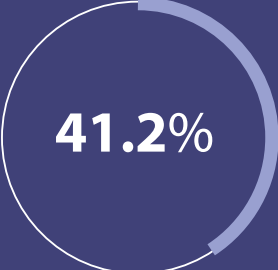
Topic 3: learning, machine, machine learning,



CHAPTER 4

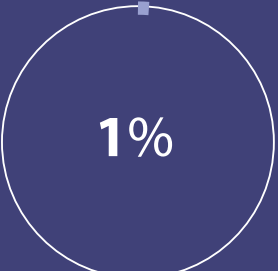
Gender representation across the AI workforce value chain in South Asia

Key facts & figures



41.2%

of the global workforce constitutes women, but only 28.2% of this workforce is in STEM-related fields.^{1,2}



1%

of women globally list AI engineering skills on LinkedIn versus 2% of men.³

Women's work in AI is concentrated in **upstream data preparation** and **downstream service roles**, with limited access to **midstream model development**.⁴



INDIA

Women on LinkedIn in AI engineering jobs / with reported AI skills, in 2024: **about 30 per cent** (vs **70 per cent for men**).⁵

LinkedIn users with generative AI literacy in 2024: women **25 per cent of users**, men 75 per cent of users.⁶

Women well representation in **data science (32 per cent)** and **data engineering (31 per cent)**, but low in **machine learning-specific roles (6 per cent)**.⁷

Annotation workforce (men and women) of about 70,000 workers in 2023, projected to reach **1 million by 2030**; many women recruited via impact sourcing.^{8,9}

Women's share in AI engineering rose from **25 per cent (2016)** to **30 per cent (2024)**.¹⁰

1 World Economic Forum, 2025.

2 World Economic Forum and LinkedIn, 2025.

3 UN Women and LinkedIn, 2025.

4 Heeks and Spiesberger, 2024.

5 LinkedIn collaborated with UNESCO and W4EAI South Asia for this report, providing the authors of this report access to LinkedIn Economic Graph data, which are not publicly available and hereafter referred to as "LinkedIn data". All LinkedIn data are from 2024 unless otherwise specified.

6 LinkedIn data.

7 Kalaari Capital, 2025.

8 NASSCOM, 2021.

9 Impact sourcing is the practice of prioritizing hiring socio-economically disadvantaged people who have limited prospects for formal employment.

10 LinkedIn data.

**BANGLADESH**

Women on LinkedIn in AI engineering jobs / with reported AI skills, in 2024: **15.64 per cent** (vs **84.36 per cent for men**).¹¹

Women “professionals” = **28.78 per cent**; “technicians” = **6.99 per cent**.¹²

95.96 per cent of employed women engaged in informal work.¹³

Women’s employment in the ICT sector = **only 0.07 per cent**; women with professional / scientific roles only **0.13 per cent**.¹⁴

**NEPAL**

Women on LinkedIn in AI engineering jobs, in 2024: **20.57 per cent** (vs **79.43 per cent for men**).¹⁵

**BHUTAN**

Women “technicians” = **24.1 per cent**; “professionals” = **33.4 per cent**.¹⁶

Women comprise only **0.7 per cent** of the ICT workforce.¹⁷

**MALDIVES**

AI talent base is small; women’s participation is limited by low STEM entry and a service-oriented economy.^{18, 19, 20}

**SRI LANKA**

Women comprise **55 per cent** of the public sector scientific workforce (global average = 33 per cent).²¹

The IT-BPO sector is valued at **USD 1.2 billion**, employing **80,000 professionals**. Women made up **36 per cent** of this workforce in **2024**, up from **34 per cent in 2023**.^{22, 23}

Overall labour force participation by women: **31.8 per cent**.²⁴

11 World Bank, 2023.

12 Bangladesh Bureau of Statistics, 2025. Note that under the Bangladesh Standard Industrial Classification (BSIC) 2020, economic activities are categorized into 21 sections (A-U), providing statistics on the broad economic sectors of agriculture, industry and the service sector. The Bangladesh Standard Classification of Occupations distinguishes the following ten major groups: 1. managers; 2. professionals; 3. technicians and associate professionals; 4. clerical support workers; 5. service and sales workers; 6. skilled agricultural, forestry and fisheries workers; 7. craft and related trade workers; 8. plant and machine operators and assemblers; 9. elementary occupations; and 10. other occupations.

13 Ibid.

14 Ibid.

15 LinkedIn data.

16 National Statistics Bureau, 2024 (Bhutan). See Footnote 12 on the categorization of economic activities in Bangladesh, which also applies to Bhutan.

17 Ibid.

18 Women in Tech Maldives, 2024.

19 Maldives Bureau of Statistics, 2024.

20 Maldives Bureau of Statistics, 2023a.

21 National Science and Technology Commission, 2024 (Sri Lanka).

22 JLL, 2021

23 Deloitte and SLASSCOM, 2024.

24 Adikaram and Razik, 2025.

Global and regional overview

South Asia exhibits a paradox, like many parts of the world: while women have achieved growing access to higher education, this has not consistently translated into proportional representation within artificial-intelligence-related workforce pipelines across Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka. While women's representation in

the life sciences and paramedical streams is at parity, their enrolment remains low in engineering, computing and AI-aligned programmes. As a result, the region's emerging talent base is unevenly distributed across disciplines, with comparatively fewer women positioned within AI-core fields at the entry stage to labour markets.

TABLE 4.1

Talent representation²⁸ in AI engineering skill by gender, 2024 (percentage)²⁹

Country	Female	Male
India	29.92	70.08
Nepal	20.57	79.43
Bangladesh	15.64	84.36

Globally, only 1 per cent of women list AI engineering skills on LinkedIn, compared to 2 per cent of men at the global level. Men not only outnumber women in AI engineering but also exhibit greater self-reported confidence in AI literacy and generative AI (GenAI) tools.²⁵ This global trend reflects in the region as well.^{26, 27} As Table 4.1 shows, women constitute one-third, or even less, of AI engineering talent.

Globally, women comprised 41.2 per cent of the total workforce in 2024, a minimal increase from 40.3 per cent in 2023, but their representation at senior levels remains disproportionately low.³⁰ Within fields related to science, technology, engineering and mathematics (STEM), women

account for less than one-third of the workforce (28.2 per cent), a figure that has only crept upwards from 26.1 per cent in 2016. In executive STEM roles, women hold 12.2 per cent of C-suite positions and 24.4 per cent of managerial posts, compared to near parity in non-STEM fields.³¹

This "leaky pipeline" phenomenon, whereby women's representation declines sharply at senior levels (as described in the UNDP's report on women in STEM in the Asia Pacific and the World Bank's report on engendering access to STEM education and careers in South Asia),^{32, 33} persists across geographies and sectors, reversing the significant gains made by women at entry and mid-career

²⁵ Pham and Suresh, 2025.

²⁶ World Economic Forum and LinkedIn, 2025.

²⁷ According to LinkedIn, "AI engineering skills" refer to the technical expertise and practical competencies required to design, develop, deploy and maintain artificial intelligence systems. Top skills within the "AI engineering" skill group include machine learning, natural language processing, artificial intelligence, computer vision, image processing, deep learning, TensorFlow and OpenCV, among others. LinkedIn uses members' self-reported skills, from their LinkedIn profiles, to identify such talent.

²⁸ AI talent representation refers to the proportion of men or women among LinkedIn members identified as AI talent. LinkedIn classifies a member as AI talent if they report at least two AI engineering skills, at least one AI literacy skill, or indicate current or previous employment in an AI-related occupation on their profile.

²⁹ LinkedIn data. Data not available for Bhutan, Maldives and Sri Lanka.

³⁰ World Economic Forum, 2025.

³¹ World Economic Forum and LinkedIn, 2025.

³² UNDP, 2024.

³³ World Bank, 2023.

stages. While these patterns establish the scale and persistence of gender gaps in AI, they do not explain where, within the AI production process, women are located or systematically excluded.

To address this question, this chapter uses an AI value chain framework to map women's participation across distinct functional layers of AI development. The AI value chain and ecosystem model developed by Heeks and Spiesberger was adapted because it is uniquely suited to contexts characterized by uneven capability distribution, outsourcing-led participation, and segmented integration into global AI markets.³⁴ Unlike life-cycle-oriented or governance-centric frameworks that assume vertically integrated AI ecosystems, this model accommodates the reality that many South Asian economies participate selectively in specific segments of the AI value chain, most notably upstream data preparation and downstream service layers, without corresponding presence in model development or frontier research. This distinction is critical for South Asia, where women's work in the ecosystem is disproportionately concentrated in low-visibility data and AI-adjacent service roles, while access to capital-intensive, compute-dependent and model-building activities remains structurally constrained. Within this framework the AI value chain is conceptualized across three broad layers:

Upstream

Encompasses a broad range of data-related roles that precede and enable model development. These include data collection, cleaning,

preparation, annotation, quality assurance, data engineering, and early-stage analytics.

Midstream

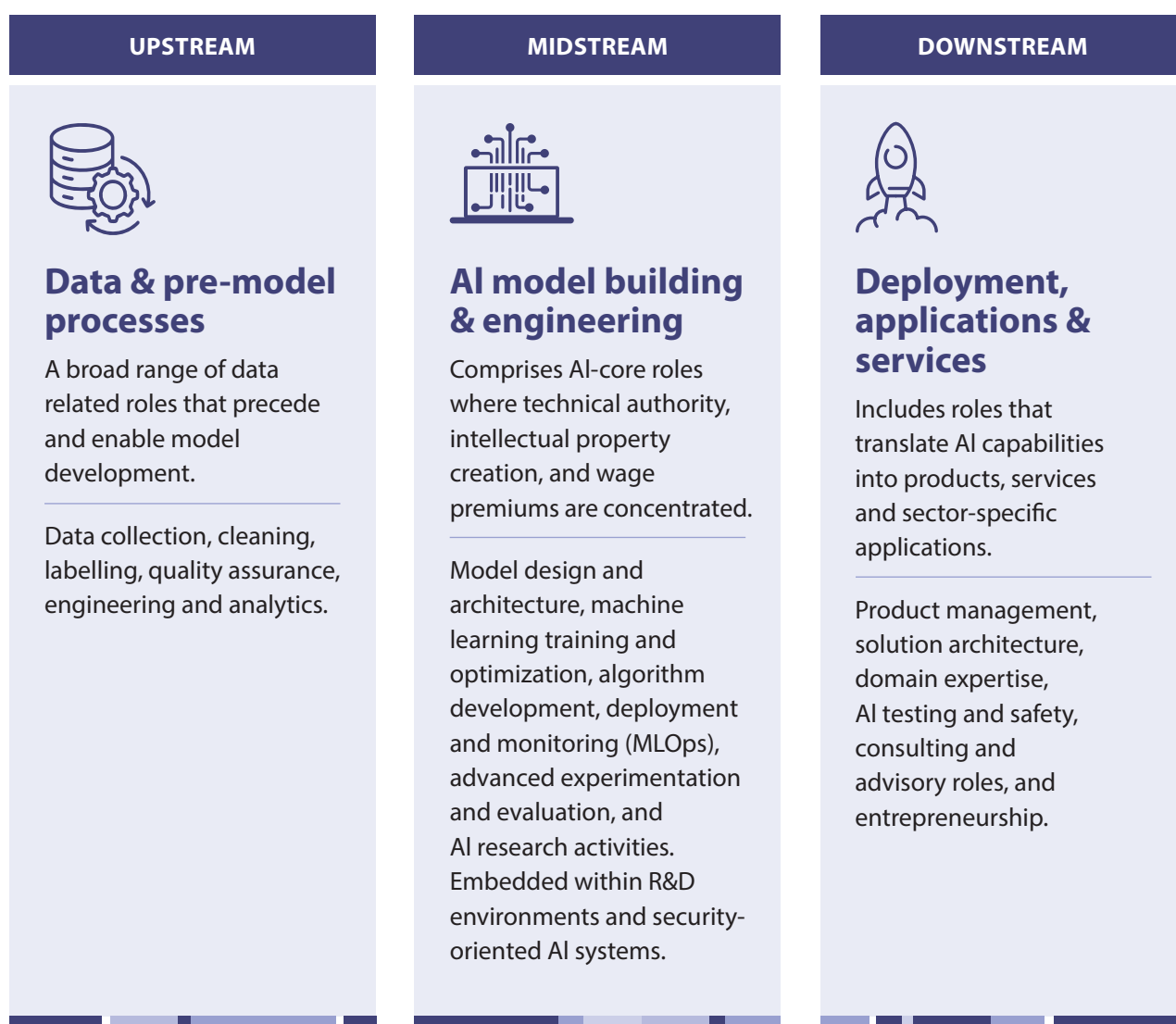
Comprises AI-core roles where technical authority, intellectual property creation, and wage premiums are concentrated. These include AI-core occupations such as data scientist, machine learning (ML) engineer, AI developer, ML operations specialist and AI researcher, and roles embedded within research and development (R&D), academia and security-oriented AI systems. Entry into midstream roles is highly path-dependent, drawing overwhelmingly from formal engineering and computing pipelines.

Downstream

Includes roles that translate AI capabilities into products, services and sector-specific applications. It includes AI-adjacent functions such as product management, solution architecture, domain expertise, AI testing and safety, and consulting and advisory roles, as well as entrepreneurship and startup formation. Participation in this layer depends on a range of enabling ecosystem conditions (including access to capital and compute, supportive regulatory and policy frameworks, and the institutional capacity to adopt and scale innovation) that determine who can convert AI capabilities into sustained economic value. Downstream roles often appear more accessible to women than midstream ones, particularly in application-oriented contexts. However, this visibility can mask persistent structural barriers related to ownership, capital access and technical authority.

³⁴ Heeks and Spiesberger, 2024.

FIGURE 4.1

Heeks and Spiesberger's 2024 framework as adapted for this study³⁵

The following section presents a country-level analysis of women's participation in AI-related work across the three value chains, highlighting

how national education systems, labour market structures and ecosystem conditions shape women's positioning within AI production.

³⁵ Ibid.

Country analysis: AI workforce

Bangladesh

The Bangladesh Labour Force Survey (LFS) 2024 provides nationally representative data on employment status, occupation and sectoral distribution.³⁶ As AI-specific occupational classifications are not yet captured in these statistics, this analysis draws on broader categories – particularly “professionals” and “technicians and associate professionals” – as indicative proxies for potential entry points into formal, AI-relevant technical roles.

Within this framework, women’s occupational distribution remains distant from AI-core pathways. Women constitute 28.78 per cent of workers categorized as “professionals” and only 6.99 per cent of “technicians and associate professionals” nationally.³⁷ Wage disparities within the information and communication technology (ICT) sector further entrench this positioning. Even in entry-level digital roles such as data entry, women in Bangladesh earn less than their male counterparts, limiting the incentive structures and upskilling pathways through which women might otherwise progress towards higher value technical work.³⁸

Bangladesh hosts the world’s second-largest online freelance labour force, accounting for around 16 per cent of global online gig workers.³⁹ However, media reporting indicates that women constitute only about 9 per cent of the country’s estimated 650,000 registered freelancers.⁴⁰ Bangladesh has a 39 per cent gender gap in mobile internet adoption, a 37 per cent gap in smartphone ownership, and a 20 per cent gap in mobile ownership.⁴¹ Given that digital connectivity constitutes a foundational precondition for participation in online labour markets and AI-adjacent digital work, this access deficit is a prior

constraint, narrowing entry points for women even before occupational or sectoral barriers come into play.

The evidence suggests relatively low engagement of women in midstream AI-related roles. Within the industrial classification, “information and communication” activities account for only 0.07 per cent of all female employment, versus 0.52 per cent of male employment. “Professional, scientific and technical activities” account for merely 0.13 per cent of all female employment.⁴² These figures signal that the technical feeder base required for ML engineering and AI model development remains limited overall, with more constrained participation by women. That is, women’s absence from midstream AI roles reflects non-entry rather than attrition, with pipeline deflection occurring well before AI-relevant engineering pathways emerge.

These patterns are compounded by the structure of employment. Approximately 95.96 per cent of employed women are engaged in informal work, versus 78.08 per cent of men; formal employment accounts for only 4.04 per cent of women workers (and 21.92 per cent of men).⁴³ Occupational segregation deepens this gap in technical fields: 75.85 per cent of all female employment is concentrated in skilled agriculture, forestry and fishery, while only 3.89 per cent is in professional roles and just 0.55 per cent in technician-level occupations.⁴⁴



Women are becoming caregivers to datasets: cleaning, scrubbing, filtering out graphic content so that AI systems appear “clean”. We don’t know how to value this work in the current economy. This mirrors unpaid care labour. It is essential, time-intensive and emotionally demanding, but structurally undervalued and invisible.



Saumya Kalia
Journalist, India

36 Bangladesh Bureau of Statistics, 2025.

37 Ibid., Table 14.3.1.

38 UNESCO, 2025a.

39 Lehdonvirta, 2017.

40 Ghosh, 2022.

41 GSMA, 2025.

42 Bangladesh Bureau of Statistics, 2025, Table 6.3.2.

43 Ibid., Table 7.1.1.

44 Ibid., Table 6.2.1.

CASE STUDY 6

Gendered labour in the AI data life cycle: insights from Karya

Across South Asia, women's labour is central to the functioning of artificial intelligence systems – yet remains largely invisible in dominant narratives of AI innovation. From recording speech data in under-resourced languages to validating training datasets, women contribute extensively to the foundational layers of AI development while remaining excluded from its economic rewards, technical authority and governance structures.

This case study draws on emerging evidence from Karya, a digital work platform engaging over 131,000 data workers in Indic languages across 600+ districts in all 28 states and union territories of India. It examines women's participation across the AI data production life cycle, moving beyond the narrow framing of "annotation" to understand data work as a generative, interpretive and evaluative process in which women's labour plays a foundational role.

TABLE 4.2

Gender composition of Karya's workforce, January 2026 (percentage)

Gender	Share of registered workers
Women	58.15
Men	41.7
Transgender and non-binary	0.15

As of January 2026, 58 per cent of Karya's registered workers were women, 41.7 per cent men, and a small percentage transgender and non-binary. Women's engagement was particularly significant in younger age cohorts. Nearly 53 per cent of the women workers were between 18 and 25 years old, indicating the role of AI data work as an entry point into the digital economy for young women, including those from linguistically and geographically marginalized regions. Building on insights from the data provided by Karya, AI data work is not conceptualized as a single task of "annotation," but as a multistage life cycle, comprising:

- 1 data creation and collection;
- 2 annotation and structuring; and
- 3 quality assurance and validation.

In contemporary AI systems, these stages are increasingly interconnected, often involving multimodal tasks that combine audio, text, image and video data. While analytically distinct, they are operationally linked, and available evidence suggests that gendered patterns of participation may vary across them, influencing the distribution of tasks, recognition of skills, and forms of value creation. This life-cycle framing allows for more granular examination of how women's labour is positioned within AI production, with indications of greater concentration in foundational and evaluative stages, and limited representation in higher-value technical and decision-making roles.

Data creation and collection: the generative upstream power

The first stage of AI data work involves the generation of raw data, speech, text, images or video that underpin machine learning processes. Women are represented significantly in this generative layer of AI production.

TABLE 4.3

Gender distribution across AI data life-cycle tasks, raw data (percentage)

Task type	Female participation	Male participation
Audio recording	87.96	11.24
Survey + audio recording (multimodal)	98.34	1.48
Video recording	66.94	32.65

In the South Asian context, where many languages and dialects remain under-represented in AI systems, women's participation at this stage assumes particular significance. Contributions such as speech, linguistic inputs and contextual knowledge form an important part of the data on which speech and natural language processing (NLP) models are trained. This positions women as contributors to upstream stages of AI development, with potential implications for model performance, and representation. From a gender perspective, this points to an important tension: while women contribute to the development

of more inclusive datasets, their roles are not always equally visible or recognized across AI value chains.

Annotation and structuring: interpretive judgement and skill gaps

The second stage involves transforming raw data into machine-readable formats through labelling, segmentation and alignment. While often grouped together as “annotation”, these tasks vary significantly in cognitive demand and technical exposure.

TABLE 4.4
Gender distribution across AI data life-cycle tasks, annotation (percentage)

Task type	Female participation	Male participation
Audio segmentation	76.15	23.26
Transcription	57.81	41.77
Image annotation	25.63	74.09

At Karya, women are well represented in language- and audio-based annotation, with less participation in image annotation work. These patterns may be associated with differences in access to technical training, device availability, or prior exposure to visual computing tools, indicating potential areas where targeted capacity-building efforts could support more balanced participation across emerging AI domains.

Quality assurance and validation: evaluative labour

The final stage of the data life cycle focuses on quality assurance and validation, ensuring accuracy and reducing error propagation across AI systems. Women are consistently represented in this evaluative layer.

TABLE 4.5
Gender distribution across AI data life-cycle tasks, quality assurance and validation (percentage)

Task type	Female participation	Male participation
General validation	56.78	39.04
Segmentation + validation	59.93	39.86

Despite its importance, validation work is often rendered invisible in AI value chains. The data suggest that women play a critical role in maintaining data integrity, yet this labour is rarely recognized as skilled or decision-oriented work, reinforcing patterns of undervaluation of women’s labour within the AI supply chain.

Multimodal work: a cross-cutting female domain

Multimodal tasks – combining audio, text and survey inputs – are an increasingly prominent feature of contemporary AI training. At Karya, these tasks are performed predominantly by women, with “survey + audio recording” activities reflecting particularly high levels of female participation (98.34 per cent). This suggests that women contribute substantially to the creation of complex, multimodal datasets that support advanced AI systems. Such work is often classified as auxiliary within AI production processes, which may not fully reflect the cognitive and coordination skills involved in aligning multiple data modalities.

Conclusion

Across all task types on the platform, women complete approximately 84 per cent of data tasks and men 14.1 per cent. These patterns indicate that women contribute substantially to the foundational data used in speech and NLP models in India, which may influence how different voices, languages and social contexts are reflected in AI systems. Emerging evidence from Karya further suggests that women are strongly represented in both generative and evaluative stages of AI data production, including quality assurance tasks that require critical engagement. However, these contributions are not always reflected in dominant narratives of AI innovation, pointing to potential gaps in recognition and advancement across the AI ecosystem.

The information and data presented in this case study are based on materials and documentation provided by the organization. Gender and task type distributions from Karya platform data may not be indicative of the overall ecosystem of data work in India and the Global South. Gender and task type distributions are not indicative of workers’ abilities or productivity.



Bhutan

Beyond agriculture, the Bhutan Living Standards Survey (BLSS) 2022 indicates that women are more represented in household-based and non-technical income streams than in higher-complexity, capital-intensive activities.⁴⁵ UNDP's AI Readiness Assessment (AIRA) 2024 notes that "advanced AI/ML/data science skills" are a systemic gap nationally, with talent scarcity identified as a barrier for both limited public sector innovation and private sector application.⁴⁶

Available labour market evidence suggests that Bhutan's occupational structure provides a very narrow foundation for women to transition into AI-relevant technical roles. The country's Labour Force Survey (LFS) 2024 shows that women's employment remains predominantly concentrated in agriculture (52.2 percent of all employed women) and non-technical occupations, and women's participation in the labour force is substantially lower in urban centres relative to men.⁴⁷ The distribution of employment amongst women by major occupation categories is highly skewed towards non-professional roles, and the proportion of women in intermediate technical occupations is comparatively limited.

Women account for only 24.1 per cent of all "technicians and associate professionals" and 33.4 per cent of all "professionals" employed nationally.⁴⁸ On the other hand, they constitute almost 50 per cent of skilled agricultural, forestry and fishery workers and nearly 60 per cent of all clerical support workers.⁴⁹

Limited workforce indicators echo a similar story: women hold about 38 per cent of technical positions in Bhutan's public sector but remain a small minority in ICT-specific roles.⁵⁰ The Labour Force Survey shows that only 0.7 per cent and 0.3 per cent of women across occupational categories are working in "information and communication" and "professional, scientific and technical activities" sectors, respectively. The data, therefore, indicate

that the pathway from employment to AI-specific functions remains structurally thin for women.

This observation resonates within the education scenario, too. According to Bhutan's Annual Education Statistics 2024, girls are well represented in secondary schooling but their conversion into tertiary STEM education remains low. Women's enrolment in Bhutan's three engineering and technology colleges is: 32.34 per cent (College of Science and Technology), 31.85 per cent (Gyalpozhing College of Information Technology) and 38.49 per cent (Jigme Namgyel Engineering College).⁵¹ The tertiary calculus thus reinforces the pattern of labour – AI-relevant preparation is bottlenecked before women even reach the labour market.



At the entry point, we now have almost equal men and women. But as we go higher up the career ladder, women tend to drop out because of childcare, eldercare and social responsibilities.



Kuenga Zam

Director, GovTech Agency, Bhutan



India

India's share of the global online labour force, as measured by the Online Labour Index (OLI), increased from 25 per cent in 2017 to 33 per cent in 2021, making India the largest source of online workers globally.⁵² By the early 2020s, approximately 70,000 people in India worked as data annotators (full or part-time), in a sector valued at around \$250

45 National Statistics Bureau, 2022 (Bhutan).

46 GovTech Agency (Bhutan) and UNDP, 2024.

47 National Statistics Bureau, 2024 (Bhutan).

48 Ibid.

49 Ibid.

50 UNDP Bhutan, 2025.

51 Ministry of Education and Skills Development, 2024 (Bhutan).

52 International Labour Organization, 2024.

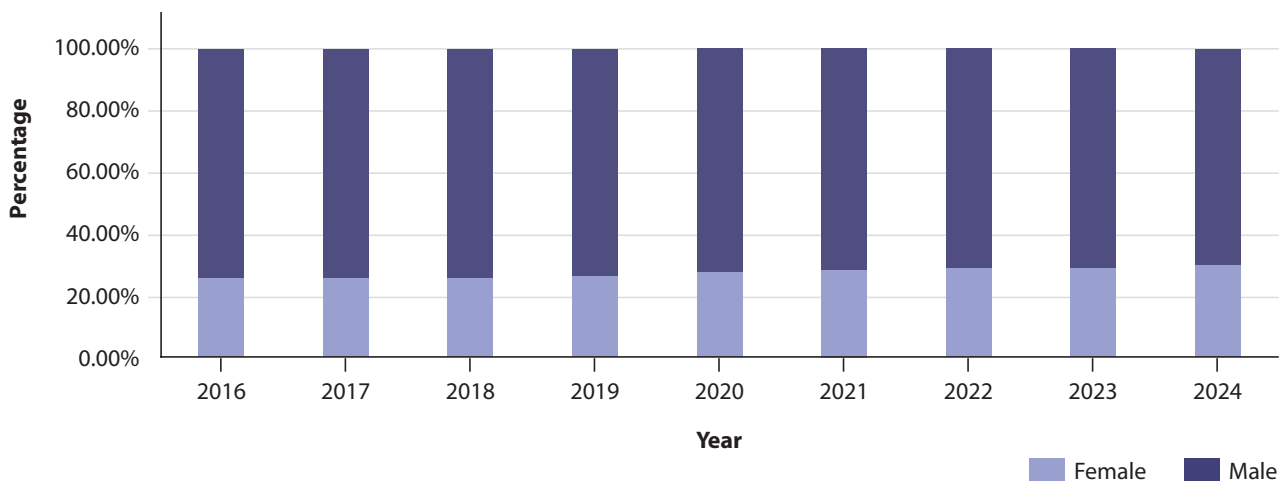
million USD in 2023, with projections suggesting up to one million annotators by 2030 as global AI demand accelerates.⁵³ Notably, 80 per cent of annotation work occurs in Tier II and Tier III cities such as Salem, Meerut, Jaipur, etc. reflecting deliberate cost optimization combined with the availability of educated but underemployed labour. Indian firms operate dual models: centralized annotation facilities and gig-based crowdsourcing platforms. Several enterprises, including iMerit, and Tika Data, explicitly adopt impact sourcing models, recruiting from marginalized communities and particularly women.⁵⁴ Within the AI ecosystem, according to *Wired for Impact: Women in Ind(AI)*, a report by CXXO and Kalaari Capital, women in India

are relatively better represented in data-centric domains such as data science (32 per cent) and data engineering (31 per cent), compared to midstream occupations, such as model development, training and deployment roles, or in the upstream layer, such as machine-learning-specific roles (6 per cent).⁵⁵

According to LinkedIn data for 2024,⁵⁶ men constitute approximately 70 per cent of the AI engineering talent in India, while women account for about 30 per cent.⁵⁷ Trends are similar for GenAI talent in India, of which women accounted for only 25 per cent compared to 75 per cent men. As Figures 4.2 and 4.3 show, the gender gap in both AI engineering skills and GenAI literacy is not only apparent but persistent across the years.

FIGURE 4.2

LinkedIn users in India with AI engineering skills, by gender, 2016–2024 (percentage)⁵⁸



53 NASSCOM, 2021.

54 Ibid.

55 Kalaari Capital, 2025.

56 LinkedIn India's membership is 179+ million as of 2026 (approximately 10 per cent of the Indian population). This dataset reflects digitally visible professionals in the formal sector and measures self-reported skills. It is a conservative snapshot of recognized, credentialed AI participation. All the data are only indicative and should be interpreted within these limitations.

57 LinkedIn members self-report their skills on their LinkedIn profiles. Currently, over 42,000 distinct, standardized skills are identified by LinkedIn. LinkedIn categorizes AI skills into two mutually exclusive groups: "AI engineering" and "AI literacy". Broadly, AI engineering skills refer to the technical expertise and practical competencies required to design, develop, deploy and maintain artificial intelligence systems; AI literacy skills refer to the knowledge, abilities and critical thinking competencies needed to understand, evaluate and effectively interact with AI technologies. Top skills within the "AI engineering" skill group include machine learning, natural language processing, artificial intelligence, computer vision, image processing, deep learning, TensorFlow and OpenCV. A LinkedIn member is considered AI engineering talent if they have added at least two AI engineering skills to their profile, and if they currently hold an AI occupation, or have at least one prior AI occupation.

The skills that comprise AI literacy (or GenAI / GAI literacy) are prompt engineering, GPT-3, GPT-4, stable diffusion, ChatGPT, GitHub copilot, generative art, Dall-E, Midjourney and Google Bard. AI literacy talent defines a member with at least one AI literacy skill. A detailed note on the methodology used by LinkedIn can be found here: <https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/ai-data-partnerships-linkedln-methodology.pdf>

58 LinkedIn data.

FIGURE 4.3

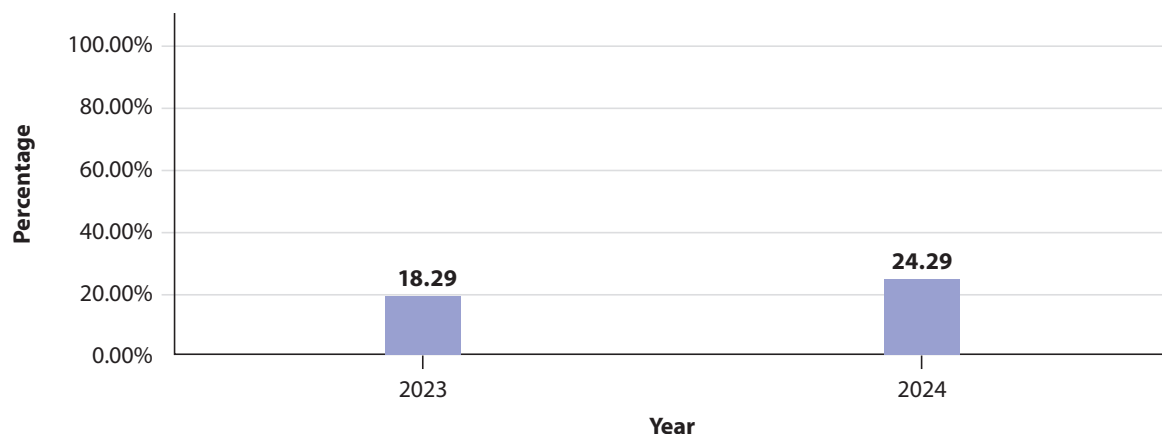
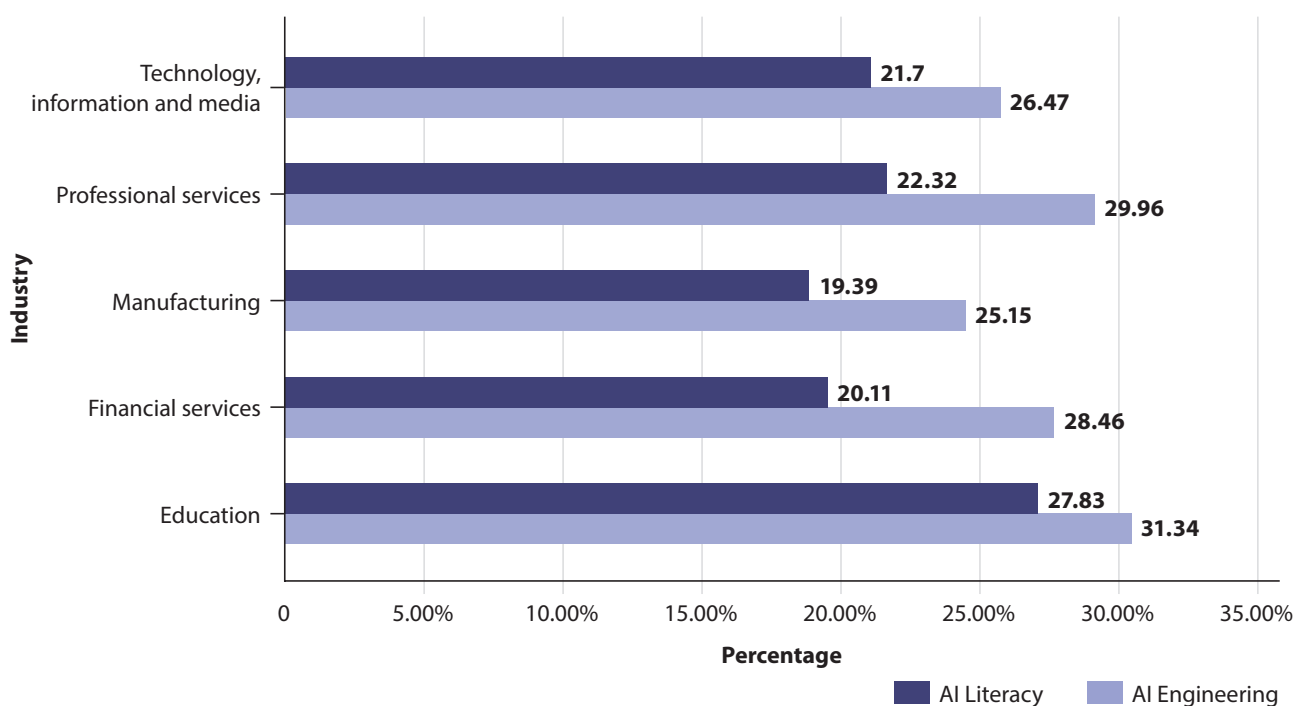
Female LinkedIn users in India with GenAI literacy skills, 2023–2024 (percentage)⁵⁹

FIGURE 4.4

Women's representation in AI talent across industries in India (percentage)⁶⁰

Analysis of LinkedIn data for 2024 across industries – education, financial services, manufacturing, professional services, and technology, information and media – shows that women account for approximately 25–31 per cent of AI engineering talent in India and about 19–28 per cent of GenAI-literate talent.

From 2016 to 2024, women's representation in AI engineering has changed only marginally, despite a period of rapid digital expansion. At the global level, women's share in this field increased by just over 1 percentage point, from 29.34 per cent in 2016 to 30.54 per cent in 2024. In India, the increase was somewhat greater but still modest: under 5 percentage points, from 25.15 per cent to 30 per cent over the same period.

⁵⁹ Ibid. LinkedIn data on Generative AI literacy skills are only available from 2023.

⁶⁰ Ibid.

FIGURE 4.5

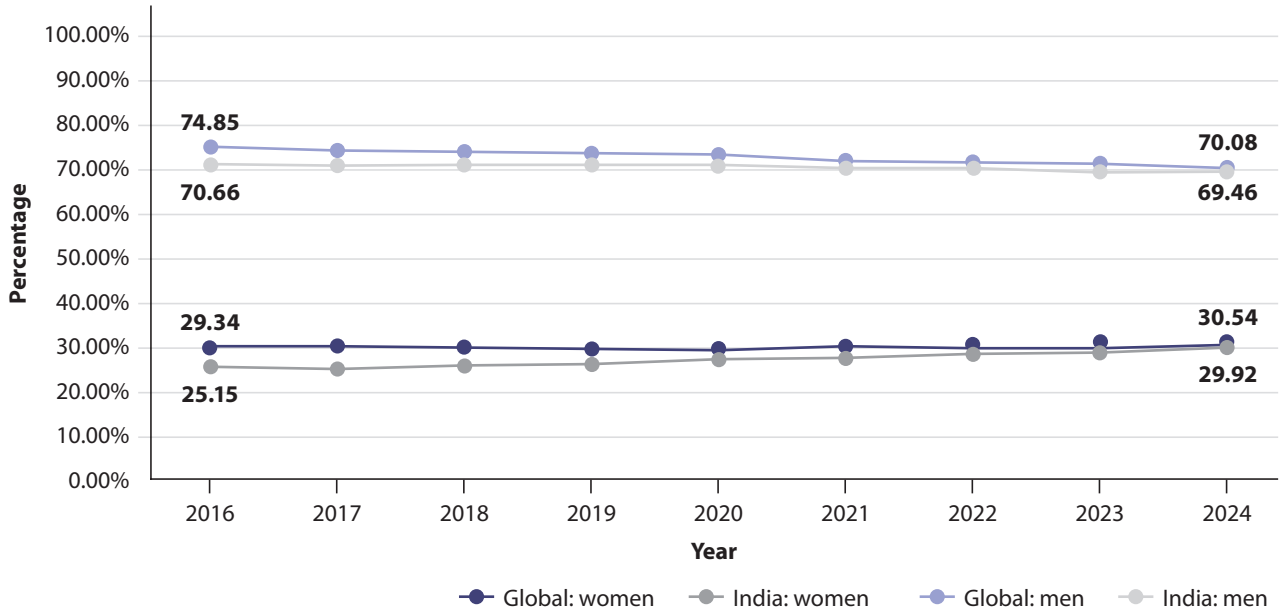
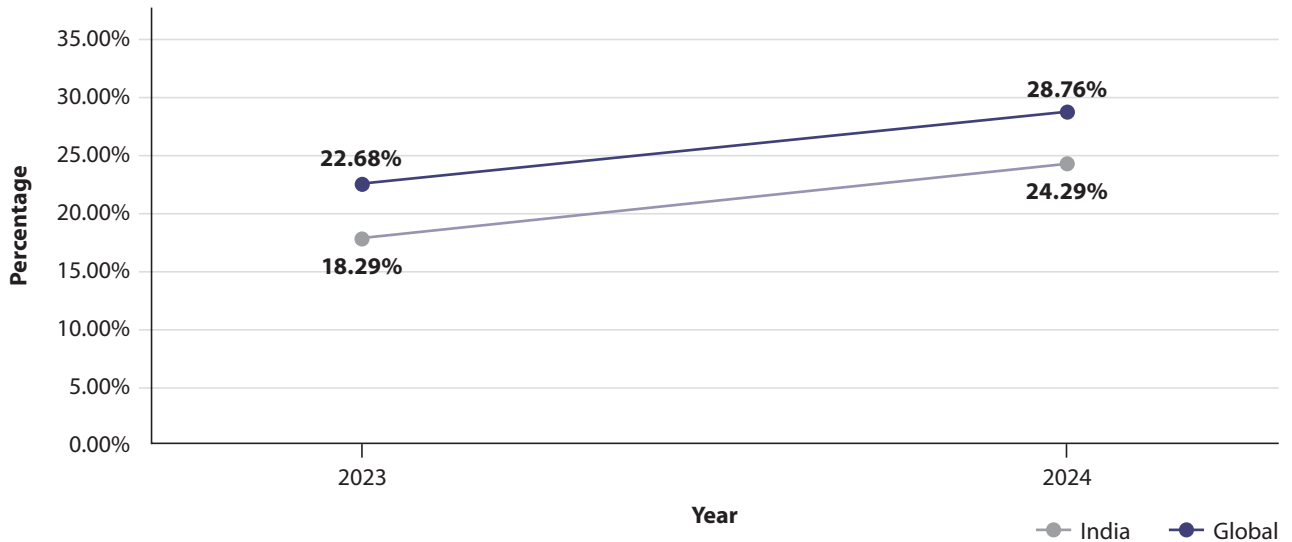
LinkedIn users with AI engineering skills, by gender, 2016–2024 (percentage)⁶¹

FIGURE 4.6

Female LinkedIn users with GenAI literacy skills, Indian and global, 2023–2024 (percentage)⁶²

61 Ibid.

62 Ibid.

According to LinkedIn

8.7/1,000

members reported having AI-engineering-related skills in **India**

7/1,000

people reported having AI-engineering-related skills **globally**

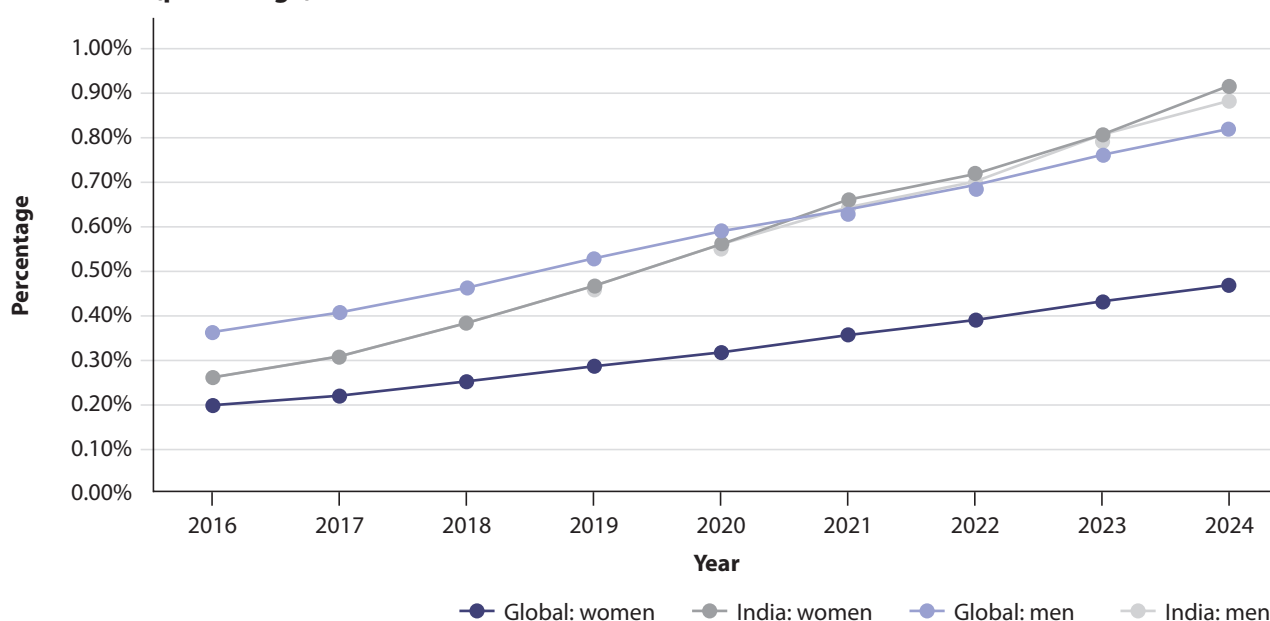
According to LinkedIn, approximately 8.7 out of every 1,000 members in India reported having AI-engineering-related skills in 2024 (above the global average of approximately 7 per 1,000 members). India's figures have risen dramatically from about 2.5 per 1,000 in 2016 – an over three-fold increase, which is the highest increase in the global technology, information and media industry.^{63, 64}

When we explore the gender dynamics of AI talent concentration, a more nuanced picture emerges. The share of LinkedIn members reporting AI engineering skills globally increased for both women and men between 2016 and 2024, rising

from 0.2 per cent to 0.47 per cent for women and from 0.37 per cent to 0.82 per cent for men, indicating an expansion of AI skills. Over this period, trends for women and men show a similar trajectory in India, with talent concentration among women marginally exceeding that of men by 2024 (0.92 per cent for women versus 0.89 per cent for men, from 0.26 per cent in 2016 for both men and women) (see Figure 4.7). This suggests that the presence of women with AI engineering skills on LinkedIn in India is rising at a pace comparable to that of men in this segment of the talent pool and outperforming the global pace notably.⁶⁵

FIGURE 4.7

AI engineering talent concentration in India and globally, on LinkedIn, by gender, 2016–2024 (percentage)⁶⁶



63 Hood, 2025.

64 To calculate country-level AI talent concentration, LinkedIn divides the counts of AI talent in a country by the counts of LinkedIn members in that country. This metric may be influenced by LinkedIn coverage in a particular country. It measures LinkedIn users with AI-related skills (either engineering or literacy) as a share of total LinkedIn members from a country / industry. The metric reflects the relative density of AI talent rather than absolute levels or equality of participation and may be influenced by the overall coverage of LinkedIn within each context.

65 While this does not imply parity in absolute representation, it reflects relative concentration within gender groups. It is important to note that this observation is based solely on LinkedIn data, which reflect those industries and workforce segments more actively represented on the platform. As such, the data alone do not establish whether women in India are doing better in AI than women in other countries.

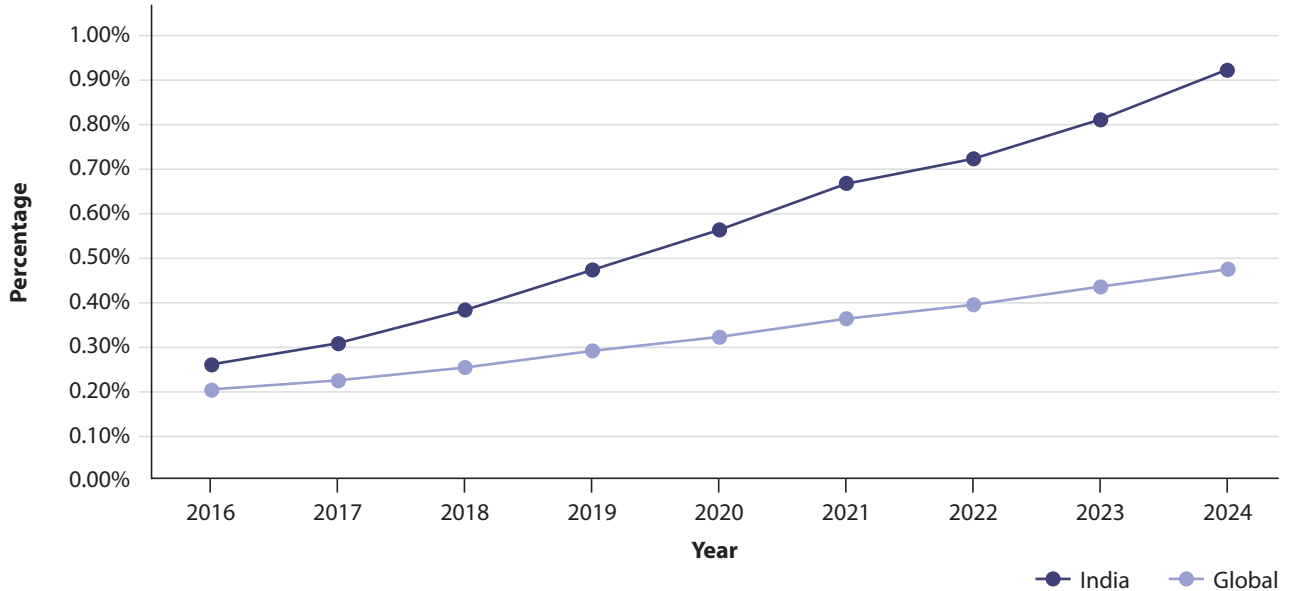
66 LinkedIn data.

Globally, women's share of AI engineering talent rose steadily from 0.2 per cent in 2016 to 0.47 per cent in 2024 (see Figure 4.8). In India, however,

the increase has been more pronounced, reaching approximately 0.9 per cent by 2024 – almost double the global percentage for women.

FIGURE 4.8

AI engineering talent concentration among women in India and globally, on LinkedIn, 2016–2024 (percentage)⁶⁷



In India, women account for only 29.92 per cent of AI engineering talent and 24.29 per cent of GenAI-literate talent, indicating persistent gender gaps in both technical development and the adoption of emerging tools. However, the talent concentration (or density) of AI engineering skills among Indian women is 0.92 per cent, which marginally exceeds such talent concentration among Indian men (0.89

per cent). This suggests that India is producing a high intensity but narrow pipeline of female AI professionals who are more specialized than their global counterparts.

These findings suggest that only a small, highly persistent cohort of women is successfully navigating the field.

⁶⁷ Ibid.

BOX 2

AI transitions and hiring in India



LinkedIn data show that India recorded the highest year-on-year relative AI hiring rate globally in 2024, at 33.39 per cent, indicating that AI-specific

recruitment is expanding substantially faster than hiring in the wider labour market. While this appears to be a positive trend for India, the transitions data illustrate that AI is not an open entry market in India.

An analysis of 5,700+ occupational transitions into AI roles indicates that AI pathways largely reflect a deepening of existing technical expertise instead of an open labour market “destination”.⁶⁸ Formal AI hiring is concentrated in a narrow band of data and engineering roles, like data engineer, data analyst or data scientist, drawing overwhelmingly from software engineering roles. The software engineer to data engineer, analyst or scientist pathway is the most common individual occupational transition into AI roles in the dataset, accounting for 9.38 per cent of all job moves in India. Indeed, software engineer is a major source occupation for over 70 distinct AI destinations.

Moreover, several specialized AI occupations draw over 55 per cent of inflows from closely aligned source occupations like software engineer, SAS developer or process system / analysis engineer. AI pathways thus largely reflect a deepening of already existing

technical expertise rather than an open labour market destination.

The data further reveal a pronounced seniority gradient in pipeline openness. Entry-level and emergent roles like data analyst and prompt engineer remain relatively accessible, drawing notable inflows from non-tech, non-AI-designated source occupations like business analyst, teacher, quality analyst, salesperson, content writers, graphic designers and journalists.⁶⁹ But they also represent nascent exceptions. At the most senior level, the position of “vice president of machine learning” draws all its recorded inflows from AI-designated roles, indicating a pipeline that is entirely closed to non-AI entrants. Similarly, a big pool of leadership roles in AI and data science emerge from specialized technology roles. This dynamic is not confined to the formal sector. Field research by LEAD at Krea University confirmed that the pipeline leaks across both formal and informal AI work contexts. Thus, only 25 per cent of leadership positions in AI-focused BPOs are held by women, despite women comprising 40–50 per cent of their entry-level AI workforce. Clearly, the pronounced gender deficit in AI-relevant education and research pathways, documented in preceding chapters, leads to gendered education-to-workforce transitions. To put it another way, AI adoption is consolidating existing centres of technical power, to the disadvantage of women.⁷⁰

Women’s gains in AI engineering skills are not translating into comparable representation in leadership and decision-making roles. Industry estimates indicate that although women constitute 36 per cent of India’s IT workforce, their

representation reduces sharply to 4–8 per cent at executive levels – well below the global average of 14 per cent.⁷¹ The gender gap is particularly visible in AI and GenAI roles, where male representation in India is approximately 46 per cent higher than that of women.⁷²

68 Ibid.

69 LinkedIn transition data can cover more formal, white-collar job moves and may not capture the broader, informal AI economy (in which women are disproportionately concentrated) or transitions that are not recorded on the platform.

70 GxD Hub and The/Nudge Institute, 2025.

71 Boston Consulting Group and NASSCOM, 2024.

72 Ibid.

In sum, India presents a mixed picture. While women's acquisition of AI-related skills compares favourably with the global average, their representation in AI-related positions is lower than that of men domestically. This suggests that although more women are entering AI-relevant skill pathways, there are persistent disparities in their progress within national labour markets. These patterns highlight the importance of strengthening transitions between digital literacy, applied computing and engineering pathways to support the sustained participation of women in AI-related technical domains.

Maldives

Maldives presents a distinct environment relative to the rest of South Asia: a small population (515,132 persons, of which 382,639 are Maldivian) geographically dispersed across islands and atolls, and a labour market concentrated in tourism and services.⁷³

In Maldives, constraints on women's participation in AI appear at the transition from general education into STEM pathways, rather than within the labour market alone. As discussed in Chapter 2, girls in Maldives demonstrate strong participation in science subjects at the secondary level, comprising 64.7 per cent of biology students, 55.2 per cent of chemistry students and 54.2 per cent of physics students in upper secondary education (Grades 11–12). However, their participation is lower in computer science (47.2 per cent). The divergence becomes more pronounced at the tertiary level, where women account for 78 per cent of total enrolments but only 1.7 per cent of enrolments in science and technology programmes (236 out of 13,740).⁷⁴ Thus, the limited presence of women in upstream occupations is driven by narrowing participation during the transition into STEM and technical fields, alongside

limited availability of data-intensive roles in the labour market.

Women's engagement in midstream AI-related roles remains very limited, too. The country's overall AI-relevant talent base is small, reflecting low participation in tertiary STEM education and a service-oriented employment structure.

The Maldives Economic Census 2022 demonstrates that employment is heavily concentrated in services, tourism, accommodation, food and allied activities.⁷⁵ The *In-Depth Analysis of Informality and Informal Employment in the Maldives*, an analysis of the 2022 census, shows that women's employment is predominantly located in informal or semi-informal segments, with significant concentrations in personal services, household work and small-scale enterprise.⁷⁶ Few women are located in the subsectors that typically yield AI labour pathways (such as R&D, ICT engineering, product development or data infrastructure).

The UNESCO AI Readiness Assessment findings reinforce this diagnosis. The report identifies that advanced AI, machine learning and data science skills are limited within the national talent base, and that public institutions and private sector actors alike face talent bottlenecks with respect to AI-specialized human capital.⁷⁷ While the report does not disaggregate these talent constraints by gender, the low representation of women in technical STEM pipelines (as noted by *Women in Tech Maldives*)⁷⁸ suggests that these capability gaps affect women disproportionately, since the upstream STEM participation pool is already small. Given women's relatively low participation in the country's STEM base, their limited participation in AI is closely linked to their (lack of) access to and continuation within technical education streams.⁷⁹

73 Maldives Bureau of Statistics, 2023b.

74 Women in Tech Maldives, 2024.

75 Maldives Bureau of Statistics, 2024.

76 Maldives Bureau of Statistics, 2023a.

77 UNESCO, 2025b.

78 Women in Tech Maldives, 2024.

79 Ibid.



Nepal's AI and digital workforce remain nascent, shaped by long-standing structural asymmetries in labour force participation and skills acquisition. According to the Nepal Labour Force and Economic Activities report 2021, only 22.5 per cent of Nepal's employed population was female, with most women employed in agriculture (65 per cent), elementary occupations and the informal sector – far removed from the formal, technology-intensive labour segments aligned with careers in AI.⁸⁰

A study by Nepal's Women in Information Technology (WIIT) found that women constitute only 7.88 per cent of Nepal's workforce in ICT companies and are more frequently represented in non-technical roles, such as administration, operations and customer-facing functions.⁸¹ Women remain under-represented in core technical roles such as software development and data engineering, with even lower representation in leadership positions within technology companies. Women account for just 0.51 per cent of the workforce in ICT-enabled companies, compared to 7.88 percent in core ICT firms.⁸² Additionally, 89 per cent of women in the ICT sector are aged 18–35 years, with participation declining sharply after the age of 35, which is often attributed to caregiving responsibilities. This signals a structural retention failure that limits the development of a pipeline of senior, AI-ready women. Of women employed in the sector, most are concentrated in mid-level positions (40.28 per cent) and only 19.55 per cent occupy senior or managerial roles.⁸³



The 2024 Science and Technology Status Report of Sri Lanka notes that women constitute 55 per cent of the scientific workforce in the country's public sector – far exceeding the global public sector average of 33 per cent. However, data on specific scientific disciplines reveal significant variation across fields. Women are better represented in agriculture and veterinary science (71 per cent) and natural sciences (55 per cent), less so in engineering and technology, where they account for only 38.7 per cent of employment.⁸⁴

Sri Lanka's emerging IT-BPO sector, valued at approximately USD 1.2 billion, and employing over 80,000 professionals, is a key component of the country's digital economy, with growing demand for skills in AI, cloud engineering and data analytics. The sector focuses on higher-value services.^{85, 86} Gender representation in the sector has shifted modestly, with women accounting for 36 per cent of the workforce in 2024 (up from 34 per cent in 2023). Women represent 29.73 per cent of new graduate recruits; and there is increased reporting of non-binary or non-disclosed gender identities, suggesting gradual changes in workforce composition at entry levels.⁸⁷

While Sri Lanka records relatively high levels of female participation in STEM education, this is not reflected in proportional representation in engineering-oriented domains, which correspond to AI-related technical work. These patterns suggest a gap between educational participation and entry into engineering-linked AI pathways at scale.

⁸⁰ National Statistics Office, 2021 (Nepal).

⁸¹ Women in Information Technology, 2025.

⁸² ICT-enabled firms are organizations across various sectors (such as finance, retail, healthcare, or education) that use information and communication technology as a tool to support and improve their primary business operations, rather than as their main product or service. Core ICT firms, by contrast, are companies whose principal business is the development, production, or provision of ICT products and services — such as software development, hardware manufacturing, telecommunications, and IT consulting.

⁸³ Women in Information Technology, 2025.

⁸⁴ National Science and Technology Commission, 2024, Table 6 (Sri Lanka).

⁸⁵ JLL, 2021.

⁸⁶ Deloitte and SLASSCOM, 2024.

⁸⁷ Ibid.

At the same time, labour force participation among women remains relatively low at 31.8 per cent, indicating a gap between educational attainment and workforce engagement.⁸⁸ While women's participation in STEM education is comparatively high, this is not consistently reflected in AI-related employment. Broader structural factors – including labour market conditions, sectoral demand and institutional capacity – may influence this transition. Sri Lanka ranks 93rd in the Global Innovation Index (2025), with relatively stronger performance in knowledge outputs than in business sophistication and human capital,⁸⁹ which also points to constraints in translating educational gains into wider participation in technology-driven sectors.

Conclusion

Across South Asia, the midstream layer attracts relatively lower participation of women within the AI value chain. While upstream data work and downstream adoption may offer entry points into AI-related activities, midstream roles are more closely associated with technical development, intellectual



If women are not involved in generating the data, it will be male-centric data that becomes available and biases will be worse.



Radheeka Ranmali Abeyweera

Principal Data Scientist, John Keells Group, Sri Lanka

contribution and value creation. Available evidence suggests that women's participation in these roles is limited, reflecting broader patterns in access to engineering, research and technical pathways.

These patterns indicate that gains in upstream participation are not yet consistently translating into representation within AI-core production processes, highlighting the importance of strengthening women's entry into and progression within technical and leadership roles.

Country analysis: AI entrepreneurship

As outlined by the AI value chain framework used in this report, downstream roles encompass entrepreneurship and startup formation, where participation depends on enabling ecosystem conditions such as access to capital, regulatory support, and institutional capacity to scale innovation. Structural constraints, particularly related to capital access and technical pipelines, continue to shape who can translate AI capabilities into economic value.

Information on AI-linked entrepreneurship and venture capital (VC) remains uneven across South Asia. India accounts for the largest share of AI-related VC investment in the region, receiving approximately USD 35,691 million in 2024.⁹⁰ By comparison, Sri Lanka received around USD 12 million and Bangladesh approximately USD 2 million, while comparable data are not available for Bhutan, Nepal and Maldives.⁹¹ These patterns reflect differences in both AI ecosystem development and the availability of investment capital across countries.

⁸⁸ Adikaram and Razik, 2025.

⁸⁹ World Intellectual Property Organization, 2025.

⁹⁰ Emerging Technology Observatory, 2025; LinkedIn Economic Graph, 2025.

⁹¹ Ibid.

Bangladesh

Only 7.2 per cent of total entrepreneurs in Bangladesh are women.⁹² Gender lens investing initiatives show some progress – around 10 per cent of startups supported by the Innovation Design and Entrepreneurship Academy (iDEA) programme are women-founded, while networks such as the Bangladesh Angels Network (BAN) and Bangladesh Women Investors Network (BWIN) report approximately 30 per cent women-led companies in their pipelines. However, AI-related VC inflows into Bangladesh remain limited, estimated at approximately USD 2 million in 2024.⁹³

Given that AI-driven entrepreneurship typically draws on a science and engineering technical base, limited participation in these pathways (women are 11 per cent of graduates in the fields) may affect the scale of potential founders. In this context, women's lower representation in AI startups appears to be associated with constraints they face in access to STEM and technical pipelines, rather than lack of entrepreneurial engagement.



A woman being a CEO or team leader is still not easily accepted by male peers in Bangladesh. Even when women have skills, they are often seen as there for the optics. People assume you're picked just to show representation, not because of real capability. The venture capital space in Bangladesh, too, is honestly kind of non-existent... there are no women VCs.



Jahnnobi Rahman
CEO, Relaxy, Bangladesh

Bhutan

Bhutan's downstream AI ecosystem is at an early stage, with limited private-sector AI product development. Entrepreneurial activity is concentrated around government use cases rather than scalable AI ventures. National statistics do not contain gender-specific data on women founders in technical sectors. The domestic ecosystem for VC funding and formal access to capital is also nascent. Key informant interviews reveal that there is little access to bank loans for seed funding, which is raised primarily from funders abroad.

In this context, women's participation in AI-adjacent entrepreneurship is structurally constrained since the pre-AI capability base is small for men and even smaller for women. With limited domestic availability of high-end compute infrastructure, nascent national R&D investment, and the absence of scalable AI startup clusters, the pipeline of potential AI venture founders, whether male or female, is narrow.⁹⁴



Being a woman and a woman founder, woman manager – it's a lonely journey. Initially, I started a company with me and my CTO. I took some loan and put a few thousands in the company, then I was looking for funding. But no banks would give me funding – they didn't even have a procedure to give loan to a tech firm. So I couldn't secure any funding – not because they didn't want to, but they simply didn't have any procedure to do it.



Leki Choden
CEO, Dragon Coders, Bhutan

92 International Finance Corporation, 2016.

93 Ahmed, 2023.

94 GovTech Agency (Bhutan) and UNDP, 2024.

 India

India's AI venture ecosystem has expanded rapidly, with over 100 GenAI startups active in 2023, and deep tech accounting for around 14 per cent of cumulative tech funding in recent years.⁹⁵ However, women's participation in AI entrepreneurship remains limited: only about 10 per cent of AI startups (around 210 firms) have at least one woman founder, and these ventures have collectively raised approximately USD 542 million.⁹⁶

This pattern is consistent with broader trends in the startup ecosystem. In India, only approximately 16 per cent of all startups have at least one female founder,⁹⁷ and women-led or co-founded ventures receive a smaller share of total capital, with lower average investment sizes compared to male-led counterparts.⁹⁸ Across Asia, female-led startups account for around 15.4 per cent of such ventures,⁹⁹ indicating that these dynamics are not unique to India.

A Bain & Company report¹⁰⁰ estimates that, in India, GenAI funding alone grew 1.5 times to USD 390 million between 2023 and 2024, both for GenAI native startups and earmarked for GenAI capability development. At the same time, tech-first sectors [consumer technology, software and software as a service (SaaS)] and fintech – sectors often cited for their importance to women's empowerment – attracted over 60 per cent of total VC investments.

While gender-lens investing initiatives are emerging, they are limited in scale. After interacting with over 140 founders, investor and operators (92 women and 55 men) a report by CXXO draws up a powerful thesis: of every INR 100 raised by founders from India's most powerful startup alumni networks – ecosystems that have collectively produced over 20 unicorns – only INR 4 go to women founders.¹⁰¹

95 Zinnov and NASSCOM, 2023.

96 Kalaari Capital, 2025.

97 OECD, 2025.

98 Kalaari Capital, 2024.

99 OECD, 2025.

100 Bain & Company, 2025.

101 Kalaari Capital, 2024.

102 Kalaari Capital, 2026.

103 Ibid.

104 Ibid.



I am seeing more women founders now, and that is heartening. But, especially in the investor world, I'm not seeing the same upward trend. Women are falling off there. If you count women VCs who actually lead their own funds, we are barely five. That needs to change. I need to see more women running venture funds, not just participating in them.



Anisha Singh

Founder and Managing Partner, She Capital, India

According to this report, the barriers women founders face are structurally different. For example, funding access was cited as the primary challenge by 35 per cent of women founders, compared with 26 per cent of their male counterparts. Again, 63 per cent of women founders pursued their undergraduate education in or near their hometown, compared with 43 per cent of men – a pattern driven by safety considerations and family pressure rather than preference, which limits early exposure to the institutional networks from which India's startup ecosystem disproportionately draws its founders.¹⁰²

Gender representation is also limited when it comes to capital allocation: of an estimated 10,000 angel investors in India, fewer than 1 per cent are women. A comparable ceiling is evident in institutional venture capital: while women constitute approximately 38 per cent of analysts across Indian VC firms, their share falls to only 16 per cent at the partner level, precisely where capital allocation decisions are made.¹⁰³ When women do act as lead investors, 25 per cent of startups funded by them include women founders, underscoring the catalytic role of women decision makers in shifting capital flows.¹⁰⁴

Within startups, women are concentrated in human resources and administration (59 per cent), finance (34 per cent), customer service (32 per cent) and marketing (31 per cent); their numbers drop sharply in R&D (21 per cent) and core product / tech development (20 per cent).¹⁰⁵ In effect, women are largely absent from the teams building proprietary AI products, models and intellectual property. Longitudinal data also reveal a seniority ceiling within startups: after roughly a decade in the ecosystem, around eight out of ten men hold Director–VP level roles or higher, compared with only about five out of ten women.¹⁰⁶

Taken together, these patterns suggest that, alongside the rapid expansion of India's AI entrepreneurial ecosystem, women's participation remains uneven across ownership, capital access, technical roles and senior leadership. This points



As a deep tech company, we have faced push-back during fundraising – questions like “Why don’t you have someone with more ‘male energy’ in your team?” No one explicitly says they won’t support you because you’re a woman, but these kinds of coded comments reflect unspoken bias. In practice, investors often take less risk on women-led ventures, which makes fundraising harder than it would be for an equivalent male-led team.



Rimjhim Agrawal
CTO and Co-founder, BrainSightAI, India

to a divergence between overall ecosystem growth and the distribution of opportunities within it, particularly in areas associated with advanced technical work and decision-making.



Maldives

Maldives does not yet have a large deep tech or AI venture segment, and the country's Economic Census 2022 confirms that the overwhelming majority of its businesses are micro or small enterprises across non-technical service activities.¹⁰⁷ In this context, the ecosystems that normally nurture AI-adjacent entrepreneurship – capital markets, specialized accelerators, infrastructure, and research-linked venture formation – are only at a nascent stage.

Findings from Chapter 2 reinforce this: even when Maldivian women do earn technology-aligned degrees, many do not remain in the field due to social norms, occupational stereotyping, and family expectations – creating an unstemmed leakage effect between education and the workforce.¹⁰⁸ This leaky pipeline is global but is magnified in small economies where programme offerings in STEM are limited and labour markets are heavily service-oriented.

The constraint for women in AI entrepreneurship is not, therefore, that women are “not active” – it is that the number of women with the technical foundations from which AI founders typically emerge is extremely small.

This also implies that gender representation in Maldivian AI entrepreneurship cannot yet be meaningfully measured through deal counts or deep tech venture flows – because the enabling pre-conditions (STEM participation, AI-specialized labour pool, capital assets and R&D-linked firm formation) are still developing. For women, these constraints layer on top of their overall scarcity in the technical workforce.

As Maldives moves towards implementation of its national AI masterplan, the substantive question will not only be how to support women founders, but how to expand the AI-ready technical base from which women founders could realistically emerge.

¹⁰⁵ Kalaari Capital, 2025.

¹⁰⁶ ACT For Women et. al., 2023.

¹⁰⁷ Maldives Bureau of Statistics, 2024.

¹⁰⁸ Women in Tech Maldives, 2024.



Women's participation in AI-linked entrepreneurship remains extremely limited. Most female-led startups in Nepal operate in service-oriented or informal sectors, with only a small subset working in technology-adjacent domains. According to qualitative mapping conducted in *Barriers to Breakthroughs: Women in Nepal's Information and Communication Technology Landscape*, less than 15 per cent of women-led enterprises in Nepal's ICT space are engaged in core tech or AI functions; and women account for just 7.88 per cent of the workforce in the country's ICT companies.¹⁰⁹

Systemic bottlenecks include limited access to venture funding, low technical qualifications among potential founders, and cultural perceptions of tech entrepreneurship as a male-dominated space. The Nepal Science & Technology Report reinforces this, noting that women entrepreneurs in digital sectors often operate in "safer" verticals such as e-commerce, training services or outsourcing, rather than emerging technology or R&D-intensive domains.¹¹⁰

Institutional support for female tech entrepreneurs is growing, through ICT hubs and digital inclusion initiatives, but remains fragmented and small in scale. More critically, the upstream pipeline from STEM education to enterprise creation remains thin. The Nepal Science & Technology Report also highlights low national investment in scientific research and limited university-industry linkages, both of which constrain opportunities for women to transition from academia into high-growth technical sectors.¹¹¹ These system-level issues worsen the "leaky pipeline" for women in AI: even when women access scientific or technological education, few are able to convert it into technical employment or enterprise creation.

¹⁰⁹ Women in Information Technology, 2025.

¹¹⁰ Bhujju et al., 2021.

¹¹¹ Ibid.

¹¹² International Finance Corporation and SLASSCOM, 2021.

¹¹³ Ibid.

¹¹⁴ Adikaram and Razik, 2025.



Sri Lanka's startup ecosystem remains small (approximately 400 startups in 2019), and founder composition overwhelmingly male. *Women Technopreneurs: The Landscape for Women Technology Entrepreneurs in Sri Lanka*, published in 2021, showed that 87 per cent of founders were men. The report states that more than 80 per cent of technopreneurs were under 40 years old, but this group includes half as many women as men. Most women founders enter later, after postgraduate or corporate experience, rather than as undergraduates.¹¹²

Capital access remains the strongest constraint. Women rely predominantly on personal / family savings (64 per cent) and report greater hesitation than men in approaching formal capital or investors.¹¹³ This limits their scale, risk appetite and the probability of creating deep tech or AI ventures.

Qualitative evidence on women STEM entrepreneurs in Sri Lanka shows their motivational pathways are predominantly pull-driven – inspiration, inner calling, desire to contribute, need for flexibility – rather than "necessity entrepreneurship".¹¹⁴ The presence of role models and supportive social environments also appear to influence entry into higher-risk STEM entrepreneurial pathways.

These patterns point to a gap between educational attainment and progression into entrepreneurship. While Sri Lanka produces a relatively strong cohort of women with STEM qualifications, this is not consistently reflected in sustained participation in the labour market or in venture formation, where factors such as experience accumulation, access to capital, and risk orientation may play a role.



Women may dominate the base of the AI value chain, but power, decision-making and value remain concentrated elsewhere.



Disha Verma

Researcher, Tech Global Institute, India

CHAPTER 5

Policy implications and way forward

The findings of this outlook study point to persistent gender disparities across AI education, research, workforce participation and leadership in South Asia. They also highlight significant gaps in data, governance capacity and institutional accountability that limit progress towards more inclusive and equitable AI ecosystems. Addressing these challenges requires not only targeted interventions to improve women's participation in AI, but also broader efforts to ensure that gender equality considerations are integrated into AI governance, policy development and implementation.

The UNESCO Recommendation on the Ethics of Artificial Intelligence,¹ adopted unanimously by all UNESCO Member States in 2021, establishes a common framework for ensuring that AI development and deployment respect human rights, promote inclusion and diversity, advance gender equality, and contribute to sustainable development. To support its implementation, UNESCO developed the Readiness Assessment Methodology (RAM),² which helps governments assess their readiness to govern AI across legal, social, cultural, economic, scientific and technological dimensions.

As of mid-2026, the RAM has been undertaken in over 80 countries globally and has become an important mechanism for translating the principles of the Recommendation into national policy action. In South Asia, RAM processes have been

completed in Bangladesh, India and Maldives, while implementation is forthcoming in Sri Lanka. A defining feature of the RAM process is its extensive multistakeholder consultation methodology, which brings together government institutions, academia, the private sector, civil society organizations, technical experts and affected communities to identify national priorities, opportunities and governance challenges related to AI.

While the RAM assessments were not designed specifically as gender assessments, several recommendations emerging from these national processes align closely with the findings of this outlook study and highlight the growing recognition that AI governance, innovation and digital transformation must be inclusive and equitable.



Bangladesh

The Bangladesh RAM contains some of the most explicit linkages to the issues examined in this outlook study. **Recommendation 13** calls for the development of AI-focused curricula with particular emphasis on increasing participation among girls and women, directly addressing gender disparities in AI education and skills development as evident in this study's findings in Chapter 2. **Recommendation 11** promotes community-level institutions for AI learning and inclusion, reflecting

1 UNESCO, 2022.

2 UNESCO, 2023.

the need to expand opportunities for participation beyond traditional educational and professional pathways. The assessment also highlights the importance of inclusive governance through **Recommendation 5** on strengthening diversity and responsibility in data collection, reinforcing the findings of Chapter 4 that women remain significantly under-represented in many of the technical and professional sectors that underpin AI development. These patterns highlight the importance of ensuring that data systems, datasets and AI governance processes are informed by diverse perspectives and experiences.³

India

The India RAM identified diversity, inclusion, skills development and responsible governance as important priorities for the country's AI ecosystem. **Recommendation 8** calls for targeted interventions to promote diversity within the AI workforce and research and development ecosystem, directly reflecting the findings of this study in Chapter 4 regarding the under-representation of women in AI-related education, research, entrepreneurship and leadership positions. **Recommendation 6** focuses on preparing India's workforce for an AI-enabled future, highlighting the importance of skills development and workforce transitions in response to technological change. The RAM also emphasizes the importance of improved access to representative datasets through **Recommendation 4**, which calls for leveraging India's AIKosh platform to increase access to high-quality datasets for AI development. This aligns with the findings of this study regarding gender-responsive data governance. The Karya case study presented in Chapter 4 highlights the often-overlooked contribution of women to AI data annotation, while the methodology developed for this study (Annexure 1) revealed limitations

in existing tools for accurately identifying South Asian names. Together, these findings underscore the importance of more representative and gender-responsive data systems for inclusive AI development.⁴

Maldives

The Maldives RAM similarly highlights inclusion as a central consideration in national AI development. **Recommendation 13** calls for increasing the number of science, technology, engineering and mathematics (STEM) and AI graduates, particularly women, directly supporting efforts to strengthen women's participation across the AI talent pipeline. This aligns with the findings of Chapter 4, which indicate that despite strong female participation in higher education overall, women remain significantly under-represented in STEM and technology-related fields. **Recommendation 2** calls for the development of anti-discrimination policies for AI, reflecting concerns regarding bias, fairness and equal treatment that are also identified in this study. Chapter 4 further highlights women's limited representation in many emerging technology and AI-relevant occupations, underscoring the importance of ensuring that AI systems and governance frameworks promote inclusion and equitable participation.⁵

Taken together, the RAM recommendations emerging from India, Bangladesh and Maldives demonstrate growing recognition across South Asia that AI governance cannot be separated from broader questions of diversity, inclusion and social equity. They also illustrate how national implementation of the UNESCO Recommendation on the Ethics of Artificial Intelligence can provide practical entry points for addressing gender inequalities within AI ecosystems.

³ UNESCO, 2025a.

⁴ UNESCO, 2026.

⁵ UNESCO, 2025b.

Conclusion

The findings of this outlook study demonstrate that the future of AI in South Asia will be shaped not only by technological innovation, but also by the governance choices, institutional arrangements and social priorities that accompany it. Across the region, AI is increasingly influencing labour markets, education systems, public services and information ecosystems, often within contexts marked by deep and persistent inequalities. Whether AI contributes to greater inclusion and opportunity – or, instead, reproduces exclusion and concentration of power – will depend on the extent to which ethical, gender-responsive and human-rights-based approaches are embedded across the AI life cycle.

Advancing gender equality in AI therefore requires moving beyond narrow participation metrics towards broader transformations in governance, accountability, labour systems, education pathways and public infrastructure. It requires recognizing women not only as beneficiaries of digital inclusion efforts, but also as workers, innovators, researchers, policymakers, rights holders and leaders shaping AI futures across South Asia. It further requires acknowledging the differentiated realities across the region and supporting locally grounded pathways

that align technological development with social justice, sustainability and democratic governance.

The UNESCO Recommendation on the Ethics of Artificial Intelligence provides an important normative foundation for advancing gender-responsive and human-rights-based approaches to AI. Realizing these principles in practice require sustained collaboration among governments, academia, civil society, the private sector and international organizations. The Women for Ethical AI (W4EAI) South Asia Chapter – which brought together universities, researchers, civil society organizations, industry representatives and policymakers from across the region in the development of this study – illustrates the value of such multistakeholder engagement in advancing evidence, dialogue and action on gender and AI.

Sustaining and deepening these partnerships will be essential to shaping AI ecosystems that reflect the diversity, aspirations and lived realities of South Asian societies. Building equitable and trustworthy AI systems is therefore not solely a technological imperative, but also a societal one – central to ensuring that digital transformation in South Asia advances human dignity, expands opportunity and leaves no one behind.

Annexure 1

Bibliometric study on women's participation in AI research in South Asia: methodological note

Background

Bibliometric analysis is a quantitative research method used to examine patterns in scholarly publications using publication metadata, including research output, authorship, collaboration and thematic trends. In this study, bibliometric methods were employed to assess gendered participation in AI research across selected South Asian countries, drawing on large-scale publication data indexed in the Scopus database.

Scopus is Elsevier's large, multidisciplinary bibliographic database of peer-reviewed academic literature and was used as the primary data source for this study.

Data source and search strategy

This study is based on a large-scale bibliometric analysis of artificial-intelligence-related research publications indexed in the Scopus database. Scopus was selected for its extensive coverage of peer-reviewed journals, conference proceedings, and international research outputs in science, technology and engineering disciplines.

Bibliographic records were retrieved using a carefully defined keyword-based search strategy. The terms "Artificial Intelligence", "Machine Learning" and "Deep Learning" were applied simultaneously to the title, abstract and keywords fields to ensure comprehensive capture of AI-related research. The search was geographically restricted to six South

Asian countries in line with the scope of this report – Bangladesh, Bhutan, India, Nepal, Maldives and Sri Lanka.¹ Only publications in the English language were included to ensure consistency in text processing and analysis.

The dataset was temporally constrained to the period 2015–2025, capturing contemporary developments in AI research while maintaining a consistent analytical time frame across countries.

Gender identification: rationale and limitations of existing tools

A central methodological requirement of the study was the identification of author gender to enable gender-disaggregated bibliometric analysis. Initial exploratory tests were conducted using publicly available, automated gender-identification application programming interfaces (APIs). However, these tools were found to produce unreliable results in South Asian contexts.

The limitations of existing APIs stem primarily from the region's linguistic diversity, cultural naming conventions and transliteration practices, which are insufficiently represented in global gender inference datasets. Reliance on such API tools risked introducing significant bias and misclassification errors, potentially distorting gender-based participation estimates. Given these constraints, the study adopted a custom, regionally appropriate approach to gender identification.

¹ Scopus has a "limit to country / territory" feature that allows users to filter search results based on the geographic location associated with their research. This can be based on the affiliation of at least one of the authors' / the publisher's location or, in some cases, the region that the research focus pertains to. This tool is primarily used to refine search results to see articles produced by authors in a specific country or to find, for example, "all papers in [subject] published by institutions in India". This will show all papers featuring at least one Indian author, including those co-authored with researchers from other countries.

Construction of a ground-truth annotation dataset

To establish a reliable foundation for gender inference, a high-quality, manually annotated ground-truth dataset was created. A team of six domain experts – comprising doctoral scholars and postgraduate researchers affiliated with the Institute of Informatics and Communication (IIC), University of Delhi – manually annotated the gender of 25,000 unique authors drawn from the cleaned bibliographic dataset.

Gender labels were assigned following careful verification using authoritative and publicly accessible sources, including institutional web pages, Google Scholar profiles and professional networking platforms, wherever available. Particular attention was paid to ensuring representation across regional, linguistic and cultural name variations common within South Asia. Efforts were also made to maintain balance across gender categories to minimize sampling bias and improve the generalizability of the model.

AI-based gender inference using IndicBERT

To enable scalable gender prediction across the full bibliometric corpus, an AI-based natural language processing (NLP) framework was developed. The IndicBERT, a transformer-based language model (available via Hugging Face), was selected for this purpose due to its pre-training in 12 major Indic languages and its demonstrated effectiveness in handling South Asian linguistic patterns.

The manually annotated ground-truth dataset was used to fine-tune IndicBERT for the specific task of gender identification. Following fine-tuning, the model was deployed to infer the gender of all authors in the final dataset of 248,265 publications.

Validation and quality assurance

To assess the reliability and accuracy of the automated gender predictions, a random subset of inferred labels was independently reviewed by the same expert annotation team. This validation step enabled cross-verification between manual judgments and model outputs, ensuring robustness and reducing the risk of systematic misclassification.

The combined use of manual annotation, AI-assisted inference and post-hoc validation substantially enhanced confidence in the robustness of the gender identification pipeline. The resulting gender-labelled dataset provides a reliable empirical basis for analysing gender-based authorship patterns, collaboration dynamics and participation disparities in AI research across South Asia.

Topic modelling

The textual fields *Title*, *Abstract*, *Author Keywords* and *Index Keywords* were combined to form a unified corpus from the Scopus dataset. The text was pre-processed using the Natural Language Toolkit (NLTK) library, including standard cleaning steps such as tokenization, lowercasing, stop-word removal and lemmatization. The cleaned text was then transformed into numerical features using Term Frequency-Inverse Document Frequency (TF-IDF) vectorization. Finally, Latent Dirichlet Allocation (LDA) was applied to identify latent thematic structures and perform topic modelling.

- Male-authored topics refer to topics extracted via LDA from the corpus of publications where corresponding authorship, as defined in this study, was identified as male.
- Female-authored topics refer to topics extracted via LDA from the corpus of publications where corresponding authorship, as defined in this study, was identified as female.

References

ACT For Women, The Udaiti Foundation, McKinsey & Co., and LEAD at Krea University. (2023). Women in India's Startup Ecosystem Report (WISER). <https://heyzine.com/flip-book/529866c5b2.html#page/1>

Adikaram, A. W. and Razik, R. (2025). Against all odds: women's motivation to become STEM entrepreneurs in Sri Lanka. *Journal of Business and Socio-economic Development*, 5(1), 37–54. <https://doi.org/10.1108/JBSED-09-2022-0101>

Ahmed, S. (2023). Investment opportunities in startups in Bangladesh. UNIDO ITPO Tokyo Seminar (26 September 2023). <https://itpo-tokyo.unido.org/files/03.-Startup-Bangladesh-Mr.-Sami-AHMED.pdf>

Alam, Md. Mahmud and Hoque, Mohammad Najimul. (2023). Causes of female high school student dropout in Bangladesh: an exploration of the Pabna district in familial, economic and institutional contexts. *Asian Journal of Education and Social Studies* 39(2), 43–60. <https://journalajess.com/index.php/AJESS/article/view/843>

Bain & Company. (2025). India Venture Capital Report 2025. <https://www.bain.com/insights/india-venture-capital-report-2025/>

Bangladesh Bureau of Educational Information and Statistics. (2024). Bangladesh Education Statistics 2023. Ministry of Education, Government of the People's Republic of Bangladesh. <https://objectstorage.ap-dcc-gazipur-1.oraclecloud15.com/n/axvjbnqprylg/b/V2Ministry/o/office-shed/2024/12/b8890dc60f074acbb0cdef0dd00984a1.pdf>

Bangladesh Bureau of Statistics. (2025). Bangladesh Labour Force Survey 2024. Ministry of Planning, Government of the People's Republic of Bangladesh. <https://bbs.gov.bd/pages/static-pages/6922ddd1933eb65569e166e7>

Bhuju D. R, Adhikari R., Subba-Chhetri, N. (eds). (2021). Nepal Science & Technology Report. https://www.researchgate.net/profile/Dinesh-Bhuju/publication/357380270_Nepal_ST_Report_2021_F/links/61cb53ccb8305f7c4b09a595/Nepal-S-T-Report-2021-F.pdf

Boston Consulting Group and NASSCOM. (2024). Gen AI: The Diversity Game Changer We Can't Ignore. <https://web-assets.bcg.com/80/97/7d1e5a8c40468ba47d654eb592a2/bcg-x-nasscom-0608-v8.pdf>

Centre for Bhutan & GNH Studies. (2022). GNH 2022. https://ophi.org.uk/sites/default/files/2024-03/Bhutan_GNH_2022_%282023%29_compressed.pdf

Chinchilla-Rodríguez, Z., Costas, R., Robinson-García, N., and Larivière, V. (2024). Examining the quality of the corresponding authorship field in Web of Science and Scopus. *Quantitative Science Studies*, 5(1), 76–97. <https://direct.mit.edu/qss/article/5/1/76/119555/Examining-the-quality-of-the-corresponding>

Deloitte and SLASSCOM. (2024). Employability Skills Survey 2024: IT / Software Industry of Sri Lanka. <https://www2.deloitte.com/content/dam/Deloitte/in/Documents/technology-media-telecommunications/in-tmt-employability-skills-report-2024.pdf>

Emerging Technology Observatory. (2025). Country Activity Tracker: Artificial Intelligence – Investment Dataset. Center for Security and Emerging Technology, Georgetown University. <https://cat.eto.tech/>

Gawel, Antonia. (2016). 4 lessons from Bhutan on the pursuit of happiness above GDP. World Economic Forum. <https://www.weforum.org/stories/2016/05/4-lessons-from-bhutan-on-the-pursuit-of-happiness-above-gdp/>

Ghosh, Dipanwita. (2022). Why is there a lack of women in freelancing? *Dhaka Tribune*, 5 April 2022. <https://www.dhakatribune.com/opinion/longform/288322/why-is-there-a-lack-of-women-in-freelancing>

Government of India. (2025). Rajya Sabha Unstarred Question 2094. Ministry of Education, Government of India. https://sansad.in/getFile/annex/267/AU2094_p27eFf.pdf?source=pqars

GovTech Agency and UNDP. (2023). Kingdom of Bhutan Digital Economy Development and Transformation Strategy. https://www.undp.org/sites/g/files/zskgke326/files/2024-05/UNDP_Bhutan%20Digital%20Development%20and%20Transformation%20Strategy.pdf

GovTech Agency and UNDP. (2024). Artificial Intelligence Readiness Assessment (AIRA) 2024. https://www.undp.org/sites/g/files/zskgke326/files/2025-01/ai_readiness_assessment_bhutan.pdf

GovTech Agency. (2025). Bhutan National AI Strategy. <https://tech.gov.bt/wp-content/uploads/2025/10/National-AI-Strategy-2025.pdf>

Global Partnership on AI. (2024). Towards Substantive Equality in Artificial Intelligence: Transformative AI Policy for Gender Equality and Diversity. <https://wp.oecd.ai/app/uploads/2025/05/towards-substantive-equality-in-artificial-intelligence-Transformative-AI-policy-for-gender-equality-and-diversity.pdf>

GSMA. (2025). The Mobile Gender Gap Report 2025. <https://www.gsma.com/wp-content/uploads/2025/12/The-Mobile-Gender-Gap-Report-2025.pdf>

GxD Hub and The/Nudge Institute. (2025). Decoded: Women and the Future of Digital Work in India: Insights on the Landscape, Concepts, and Levers for Deepening Women's Participation. <https://gxdhub.org/wp-content/uploads/2025/11/decoded-insights-women-future-digital-work-india.pdf>

Heeks, Richard and Spiesberger, Paul. (2024). Constructing an AI value chain and ecosystem model. GDI Digital Development Working Papers. Manchester: Centre for Digital Development. <https://research.manchester.ac.uk/en/publications/constructing-an-ai-value-chain-and-ecosystem-model/>

Hood, Rosie. (2025). The AI workforce: what LinkedIn data reveals about "AI talent" trends in OECD.AI's live data. OECD AI Policy Observatory. <https://oecd.ai/en/work/ai-workforce-what-linkedin-data-reveals-about-ai-talent-trends-in-oecd-ai-live-data>

Hung, Kai-Hsin. (2024). A Case of Assessing the Working and Living Conditions of Data Workers in India's Global Artificial Intelligence Value Chains: Technical Report 2020. Ottawa: International Development Research Centre. <https://ssrn.com/abstract=4983127>

Hussain, R. (2021). Child marriage and school dropout in Bangladesh during Covid-19: challenges for youth education sustainability. China and Higher Education 2021 Conference, Hong Kong Session. https://www.researchgate.net/publication/356790713_Child_marriage_and_school_dropout_in_Bangladesh_during_Covid-19_Challenges_for_Youth_Education_Sustainability#:~:text=The%20adverse%20impact%20of%20the,of%20related%20sustainable%20development%20goals.&t

International Finance Corporation and SLASSCOM. (2021). Women Technopreneurs: The Landscape for Women Technology Entrepreneurs in Sri Lanka. <https://www.ifc.org/content/dam/ifc/doc/mgrt/women-technopreneur-report-22.pdf>

International Finance Corporation. (2016). Study on Mapping the Market Potential and Accelerating Finance for Women Entrepreneurs in Bangladesh. https://www.smefinanceforum.org/sites/default/files/post/files/IFC_Final_Report_women_SME_Finance.pdf

International Labour Organization. (2024). Expansion of the Gig and Platform Economy in India: Opportunities for Employer and Business Member Organizations. https://www.ilo.org/sites/default/files/2024-04/ILO%20Platform%20workers%20and%20EBMOs%20India%20Report_3%20April%20%28LIGHT%20PDF%29.pdf

IWWAGE, LEAD at Krea University and The Quantum Hub. (2024). Women in STEM: Challenges and Opportunities in India. <https://iwwage.org/wp-content/uploads/2026/01/Women-in-STEM-Challenges-and-Opportunities-in-India-Report.pdf>

- JLL. (2021). Sri Lanka: Asia's Emerging IT/ITeS Destination. <https://old.slasscom.lk/wp-content/uploads/2021/11/sri-lanka-asias-next-itites-destination.pdf>
- Jobin, A., Ienca, M., and Vayena, E. (2019). The global landscape of AI ethics guidelines. *Nature Machine Intelligence*, 1, 389–399. <https://doi.org/10.1038/s42256-019-0088-2>
- Kalaari Capital. (2024). CXXO State of Female Entrepreneurship in India. https://cxxo.kalaari.com/wp-content/uploads/2024/12/CXXO-Report_Final_Web.pdf
- Kalaari Capital. (2025). Wired for Impact: Women in Ind(AI) report. Kalaari Capital/CXXO. <https://kalaari.com/wired-for-impact-women-in-indai-report/>
- Kalaari Capital. (2026). The ₹4 Problem: Women Founders and the Market Gap Hiding in Plain Sight. <https://cxxo.kalaari.com/the-%E2%82%B94-problem-a-cxxo-report/>
- Lehdonvirta, V. (2017). Where are online workers located? The international division of digital gig work. The iLabour Project, Oxford Internet Institute. <https://ilabour.oii.ox.ac.uk/where-are-online-workers-located-the-international-division-of-digital-gig-work>
- Lhamo, P., Choden, P., Zangpo, J., and Lhendup, T. (2014). Women in higher engineering education in Bhutan. International Conference on Engineering, Science, Technology, Education and History 2014 in Bhutan. https://www.researchgate.net/publication/280730825_Women_in_Higher_Engineering_Education_in_Bhutan
- LinkedIn Economic Graph. (2025). The State of Women in Leadership: Global Employment Trends. <https://economicgraph.linkedin.com/content/dam/me/economicgraph/en-us/PDF/the-state-of-women-in-leadership.pdf>
- Maldives Bureau of Statistics. (2023a). In-Depth Analysis of Informality and Informal Employment in the Maldives: An Analysis from Census 2022. Ministry of Housing, Land & Urban Development, Government of Maldives. https://census.gov.mv/2022/wp-content/uploads/2024/03/Informal_Employment_Census-2022_updated_210324.pdf
- Maldives Bureau of Statistics. (2023b). Maldives Population and Housing Census 2022: Provisional Results Summary. Ministry of National Planning, Housing & Infrastructure, Government of Maldives. <https://census.gov.mv/2022/wp-content/uploads/2023/03/Provisional-Result-Publication.pdf>
- Maldives Bureau of Statistics. (2024). Economic Census 2022: An Analysis from Economic Census 2022. Ministry of Housing, Land & Urban Development, Government of Maldives. <https://census.gov.mv/2022/wp-content/uploads/2024/04/Econ-Census-2022-Report.pdf>
- Ministry of Education and Skills Development. (2024). Annual Education Statistics 2024. Royal Government of Bhutan. <https://education.gov.bt/download/the-annual-education-statistics-2024>
- Ministry of Education. (2022). All India Survey on Higher Education 2021–22. Government of India. <https://cdnbbsr.s3waas.gov.in/s392049debb566ca5782a3045cf300a3c/uploads/2025/06/2025060466438560.pdf>
- Ministry of Education. (2024). Annual Report 2023–24. Government of India.
- Ministry of Women, Children and Senior Citizens. (2024). Gender Equality in Nepal: Facts and Figures. Government of Nepal. https://giwmscdnone.gov.np/media/pdf_upload/Gender-Equality-Report-1715242038_dfzkhhs.pdf
- Muralidhar, S. and Ananthanarayanan, V. (2024). Women's representation in Indian academia and conferences. *Communications Biology* 7(1), 389. <https://pmc.ncbi.nlm.nih.gov/articles/PMC10981733/>
- Naher, H., Tanim, T., and Sultana, N. (2019). Women in science and technology: a study in Bangladesh. *Sociology and Anthropology*, 7(7), 306–312. https://www.hrpub.org/journals/article_info.php?aid=8230
- NASSCOM. (2021). Data Annotation – Billion-dollar Potential Driving the AI Revolution <https://nasscom.in/knowledge-center/publications/data-annotation-billion-dollar-potential-driving-ai-revolution>

National Population and Housing Census. (2021). Government of Nepal. <https://censusnepal.cbs.gov.np/results/files/result-folder/National%20Report%20English.pdf>

National Science and Technology Commission. (2024). Science and Technology Status Report of Sri Lanka 2022. Ministry of Education, Government of Sri Lanka. https://www.nastec.gov.lk/files/s_t_status_reports/S%26T_Status_Report_2022.pdf

National Statistics Bureau. (2022). Bhutan Living Standards Survey Report 2022. Royal Government of Bhutan. <https://www.acash.org.pk/storage/topics/documents/2022-BHUTAN-LIVING-STANDARDS-SURVEY.pdf>

National Statistics Bureau. (2024). Labour Force Survey Report 2024. Royal Government of Bhutan.

National Statistics Office. (2021). Labour Force and Economic Activities in Nepal: National Population and Housing Census 2021. Office of the Prime Minister and Council of Ministers, Government of Nepal. <https://censusnepal.cbs.gov.np/results/files/result-folder/Labour%20Force%20and%20Economic%20Activities%20in%20Nepal.pdf>

OECD. (2025). Start-up Asia: Chasing the Innovation Frontier. Paris: Development Centre Studies, OECD Publishing. https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/05/start-up-asia_b5817d26/a9b71040-en.pdf

Omdena. (2024). Launch of AI Lab program in Bhutan. <https://www.omdena.com/blog/launch-of-ai-lab-program-in-bhutan>

Padhy, A. and Panbude, S. (2025). The digital wall: how caste shapes access to technology in India. *India Development Review*, 13 June 2025. <https://idronline.org/article/inequality/the-digital-wall-how-caste-shapes-access-to-technology-in-india/>

Penjore, Dorji. (2025). The Future Abroad: Trends and Impacts of International Migration of Bhutan's Working Population. New Delhi: Friedrich Naumann Foundation for Freedom. <https://www.freiheit.org/sites/default/files/2025-08/bhu-the-future-abroad-trends-and-impacts-of-international-migration-of-bhutans-working-population.pdf>

Pham, T. and Suresh, T. (2025). From AI insights to impact, our work with UN Women to support a gender equal world of work. LinkedIn Economic Graph. <https://economicgraph.linkedin.com/blog/from-ai-insights-to-impact-our-work-with-un-women-to-support-a-gender-equal-world-of-work>

Population Council. (2020). Keeping Girls in Schools to Reduce Child Marriage in Rural Bangladesh: Research Brief and Baseline Highlights. Dhaka: Population Council. https://prevention-collaborative.org/wp-content/uploads/2021/08/BALIKA_keeping_girls_in_school.pdf#:~:text=An%20intervention%20research%20study%2C%20the%20project%20tests,of%20school%E2%80%94with%20the%20goal%20of%20delaying%20marriage

Press Information Bureau. (2022). Female enrolment in IITs has increased from 8% in 2016 to 20% in 2021–22. Ministry of Education, Government of India. <https://www.pib.gov.in/PressReleasePage.aspx?PRID=1883470>

Press Information Bureau. (2024). Women are leading prestigious science projects like Aditya L1 mission, Chandrayaan 3 etc., says Union S&T Minister Dr Jitendra Singh. Ministry of Science and Technology, Government of India. <https://www.pib.gov.in/PressReleaseFramePage.aspx?PRID=2003613>

Priyadarshini, S. and Paritosh, S. (2025). Quantitative analysis of gender inclusivity in Indian Institutes of Technology post supernumerary seats policy. *International Journal of Advanced Research*, 13(10), 371–384. https://www.journalijar.com/uploads/2025/10/68ff089d3d683_IJAR-54021.pdf

Ramesh B. (2024). Caste-based digital exclusion in India: an analytical study. *Educational Administration: Theory and Practice*, 30(5), 15537–15542. <https://kuey.net/index.php/kuey/article/download/9796/7466/18484>

Roche, C., Wall, P. J., and Lewis, D. (2023). Ethics and diversity in artificial intelligence policies, strategies and initiatives. *AI and Ethics*, 3, 1095–1115. <https://doi.org/10.1007/s43681-022-00218-9>

Royal University of Bhutan. (2025). Annual Statistics 2024–2025. <https://www.rub.edu.bt/wp-content/uploads/2025/02/RUB-Annual-Statistics-2024-2025.pdf>

- Senavirathna, N. and Senavirathna, R. M. N. S. (2023). School dropout among young girls in the estate sector in Matale district of Sri Lanka. *International Journal of Governance and Public Policy Analysis*, 1(1), 117. https://www.researchgate.net/publication/374197573_School_Dropout_among_Young_Girls_in_the_Estate_Sector_in_Matale_District_of_Sri_Lanka
- Sengupta, N., Munshi, R., and Kaur, R. (2025). A foot in the door: evaluating the supernumerary seats scheme for girls in the IITs. *Higher Education*. <https://link.springer.com/article/10.1007/s10734-025-01551-8>
- Shifna, A. (2021). Societal barriers that hinder Maldivian women from succeeding in information technology sector jobs. *International Journal of Social Research and Innovation*, 5(1), 27–46. https://www.researchgate.net/publication/363499789_Societal_Barriers_that_Hinder_Maldivian_Women_from_Succeeding_in_Information_Technology_Sector_Jobs
- Subba, G. and Luitel, B. C. (2025). Understanding female motivation in choosing computer science and information technology: a narrative study from Nepal. *NPRC Journal of Multidisciplinary Research*, 2(6), 193–209. <https://nepjol.info/index.php/nprcjmr/article/view/80895>
- UN Women and LinkedIn. (2025). Women and Future Jobs. <https://asiapacific.unwomen.org/sites/default/files/2026-03/ap-20260466850-future-jobs-linkedin-s.pdf>
- UNDP and Aapti Institute. (2024). Understanding Generative Artificial Intelligence's Implications on Gender Using a Value Chain Approach and a UNGP lens. https://www.undp.org/sites/g/files/zskgke326/files/2024-08/report_understanding_the_implications_of_genai_on_gender_undp_aapti_.pdf
- UNDP Bhutan. (2025). Bhutan trains women civil servants to lead gender-inclusive digital transformation. <https://www.undp.org/bhutan/stories/bhutan-trains-women-civil-servants-lead-gender-inclusive-digital-transformation>
- UNDP. (2024). Women in Science, Technology, Engineering and Mathematics (STEM) in the Asia Pacific. <https://www.undp.org/asia-pacific/publications/women-science-technology-engineering-and-mathematics-asia-pacific>
- UNESCO and EQUALS Skills Coalition. (2019). I'd Blush if I Could: Closing Gender Divides in Digital Skills Through Education. Paris: UNESCO. <https://unesdoc.unesco.org/ark:/48223/pf0000367416>
- UNESCO Institute for Statistics. (2025). Other Policy Relevant Indicators – R&D Metadata: Percentage of Female Researchers (in HC and FTE). <https://www.uis.unesco.org/sites/default/files/medias/fichiers/2025/08/Percentage%20of%20female%20researchers%20%28in%20HC%20and%20FTE%29%202025.pdf?hub=175>
- UNESCO Institute for Statistics. (2026). Other Policy Relevant Indicators – Education. <https://databrowser.uis.unesco.org/browser/EDUCATION/UIS-EducationOPRI/graduates>
- UNESCO. (2022). Recommendation on the Ethics of Artificial Intelligence. <https://unesdoc.unesco.org/ark:/48223/pf0000381137>
- UNESCO. (2023). Readiness Assessment Methodology: A tool of the Recommendation on the Ethics of Artificial Intelligence. <https://unesdoc.unesco.org/ark:/48223/pf0000385198>
- UNESCO. (2024). Global Education Monitoring Report 2024, Gender Report: Technology on Her Terms. <https://unesdoc.unesco.org/ark:/48223/pf0000389406>
- UNESCO. (2025a). Bangladesh: Artificial Intelligence Readiness Assessment Report. <https://unesdoc.unesco.org/ark:/48223/pf0000396493>
- UNESCO. (2025b). Maldives: Artificial Intelligence Readiness Assessment Report. <https://unesdoc.unesco.org/ark:/48223/pf00003949>
- UNESCO. (2026). India: Artificial Intelligence Readiness Assessment Report. <https://unesdoc.unesco.org/ark:/48223/pf0000397347>

UNICEF. (2024). Digital Solutions for Empowering Adolescent Girls in South Asia. https://www.unicef.org/rosa/media/29826/file/Digital%20solutions%20for%20empowering%20adolescent%20girls%20in%20south%20asia_.pdf

University Grants Commission – Sri Lanka. (2023). Sri Lanka University Statistics 2023. https://www.ugc.ac.lk/index.php?option=com_content&view=article&id=2640%3Asri-lanka-university-statistics-2023&catid=55%3Areports&Itemid=42&lang=en

Verma, P. (2018). IITs to create extra seats to improve gender ratio. *The Economic Times*, 24 January 2018. <https://economictimes.indiatimes.com/industry/services/education/iits-to-create-extra-seats-to-improve-gender-ratio/articleshow/62638617.cms>

World Intellectual Property Organization. (2025). Global Innovation Index: Sri Lanka. <https://www.wipo.int/gii-ranking/en/sri-lanka/section/area-rankings>

Women in Information Technology. (2025). Barriers to Breakthroughs: Women in Nepal's Information and Communication Technology Landscape. <https://wiit.org.np/wp/wp-content/uploads/2025/04/Barriers-to-Breakthroughs-Women-in-Nepals-Information-and-Communication-Technology-Landscape.pdf>

Women in Tech Maldives. (2024). Future of Maldivian Women in Science and Technology. <https://www.womenintechmv.org>

World Bank. (2023). Engendering Access to STEM Education and Careers in South Asia. South Asia Development Forum, Washington, DC: World Bank. <https://www.worldbank.org/en/region/sar/publication/engendering-access-to-stem-education-and-careers-in-south-asia>

World Bank. (2025). Migration Dynamics in Bhutan: Recent Trends, Drivers, and Implications. Washington, DC: The World Bank. <https://documents1.worldbank.org/curated/en/099071025222089550/pdf/P509392-07140ea4-b0fa-489b-a384-7e7494758a5e.pdf>

World Economic Forum and LinkedIn. (2025). Gender Parity in the Intelligent Age 2025. White Paper. <https://www.weforum.org/publications/gender-parity-in-the-intelligent-age-2025/>

World Economic Forum. (2025). Global gender gap report 2025. <https://www.weforum.org/publications/global-gender-gap-report-2025/>

Zinnov and NASSCOM. (2023). Zinnov-NASSCOM India tech start-up landscape report 2023. <https://zinnov.com/innovation/zinnov-nasscom-india-tech-start-up-landscape-report-2023>

Outlook Study on Artificial Intelligence and Gender in South Asia

UNESCO Women for Ethical AI

Who is building AI in South Asia – and who is being left out? This report provides a regional baseline mapping women's participation in artificial intelligence across six countries: Bangladesh, Bhutan, India, Maldives, Nepal and Sri Lanka. Covering the AI life cycle – from education and research to workforce and entrepreneurship – it reveals persistent representation gaps shaped by long-standing inequalities in literacy, labour markets and digital access. It also draws attention to critical blind spots in data collection that render women's contributions to AI ecosystems statistically invisible, making the case for more inclusive, evidence-informed and gender-responsive AI governance across the region.



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