

Nepal as the Next Big Hub for Data and IT: AI Expansion, Young Talent, and the Strategic Rise of a New Digital Economy

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Abstract. Nepal is increasingly described as an emerging destination for information-technology (IT) and data services, yet the evidence base for this claim is fragmented and its strategic implications are rarely examined systematically. This paper synthesizes publicly available data on Nepal's IT exports, demographics, energy endowment, and digital infrastructure, and positions the country against established and emerging offshoring hubs. We find that headline export figures differ by nearly an order of magnitude depending on measurement methodology; that Nepal's structural advantages a young, low cost, English capable workforce and abundant renewable hydropower are genuine but offset by a thin senior talent layer, infrastructure gaps, an immature data protection regime, and a weak international brand. We argue that Nepal cannot compete on scale and should instead specialize in higher value, judgment intensive segments of the artificial intelligence (AI) data economy. A SWOT analysis, a directional risk assessment, a three-phase roadmap to 2035, and scenario projections are presented. The central conclusion is that Nepal's potential is real but conditional on disciplined execution across skills, infrastructure, regulation, and branding.

Keywords: Digital economy, IT services offshoring, Artificial intelligence, Data annotation, Demographic dividend, Hydropower, Nepal, Emerging markets

1 Introduction

The global market for IT-enabled and AI-related data services has expanded rapidly, and a new generation of lower cost economies is competing to capture a share of work that was once concentrated in a handful of established hubs. Within South Asia, Nepal is frequently cited often in policy rhetoric and investment commentary as a candidate “next” destination for software, business-process, and data-annotation services. The Government of Nepal has reinforced this narrative, declaring a “Decade of Information Technology” and opening the sector to full foreign direct investment [3].

Despite this attention, rigorous analysis of Nepal's actual position is scarce. Reported export values vary widely between sources, the underlying assets are unevenly documented, and discussion tends to oscillate between uncritical optimism and dismissal. This paper addresses that gap. Specifically, it asks: (i) what is the measurable current state of Nepal's IT and data-services economy; (ii) which structural assets and constraints shape its trajectory; (iii) how does Nepal compare with relevant peer economies; and (iv) what strategic posture is most defensible given these conditions.

The contribution is threefold. First, we consolidate fragmented public data into a single, source-attributed picture and make explicit the measurement discrepancies that distort the headline narrative. Second, we provide a comparative and strategic assessment SWOT, risk, roadmap, and scenarios grounded in that data. Third, we advance a specific thesis: that Nepal's viable path is specialization in higher-value AI-data work rather than scale-based competition. The remainder of the paper is organized as follows. Section 2 reviews relevant background. Section 3 describes data and methods. Sections 4–5 establish the current state and foundational assets. Sections 6–7 address comparative positioning and the AI-economy opportunity. Sections 8–9 present the SWOT, risk, roadmap, and scenario analyses. Sections 10–11 discuss implications and conclude.

2 Background and Related Work

The offshoring of IT and business-process work is a mature phenomenon dominated by India and the Philippines, whose industries are measured in the tens to hundreds of billions of U.S. dollars and employ millions of workers [7,8]. A second wave encompassing Vietnam, Bangladesh, Sri Lanka, and Pakistan has grown around cost arbitrage and improving digital infrastructure, though comparable national export figures for several of these economies are not consistently published.

A distinct and faster-growing segment has emerged around AI: the collection, annotation, and quality assurance of training data, together with model evaluation and human-in-the-loop review. Market analysts estimate the global data-collection-and-labeling market at roughly US\$3.8 billion in 2024, growing at approximately 28% annually toward 2030 [5]. This segment is significant for lower-income economies because its entry-level tasks require limited capital and can be performed remotely but it is also the segment most exposed to automation and wage competition. Nepal already hosts a notable proof point: CloudFactory, an internationally active data-operations

firm founded in Kathmandu, demonstrates that globally competitive delivery from Nepal is feasible. The present work situates Nepal within this dual landscape of mature offshoring and the emerging AI-data economy.

3 Data and Methodology

This study is a synthesis of secondary data drawn from official statistics, multilateral databases, industry associations, and market-research publications. Principal sources include national census and demographic data [4,12,13], central-bank and telecommunications statistics [1,10], energy-sector reporting [2,11], industry and association estimates [6,7,8,9], multilateral trade and balance-of-payments datasets [14,15], and AI-market research [5].

Two methodological cautions apply throughout. First, Nepal's IT export figures are measured inconsistently: balance-of-payments series and industry estimates diverge substantially because a portion of IT earnings is recorded as personal remittances rather than service exports. We therefore present multiple estimates side by side rather than adopting a single figure. Second, for several comparator economies, precise and current national export totals are not reliably available; where this is the case, comparative statements are treated as directional and qualitative, and are explicitly marked. Forward-looking elements the roadmap and scenarios are analytical constructs based on stated assumptions, not forecasts. These limitations are discussed further in Section 10.

4 The Current State of Nepal's Digital Economy

Estimates of the size of Nepal's IT and data-services exports vary by methodology, as shown in Fig. 1. Balance-of-payments figures place ICT service exports at roughly US\$118 million in 2022, rising to around US\$318 million by 2024 [14]. Industry estimates are considerably higher on the order of US\$515 million for 2022 [6] while broader measures of digitally delivered services reach approximately US\$836 million for 2023 [15], and association estimates approach US\$1 billion for 2026 [9]. The divergence is not merely statistical noise: it reflects the misclassification of IT earnings as remittances and differing scope definitions. Any claim about Nepal's export performance must therefore specify which measure it uses.

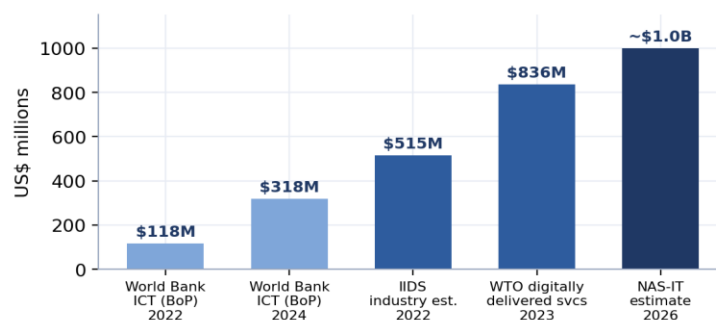


Fig. 1. Estimates of Nepal's IT/data-service exports differ markedly by measurement method. Sources: World Bank [14]; IIDS [6]; WTO [15]; NAS-IT [9].

The strategic relevance of these figures is amplified by the growth of the addressable market. As Fig. 2 illustrates, the global data-collection-and-labeling market is projected to expand from roughly US\$3.8 billion in 2024 to approximately US\$17 billion by 2030, an annual growth rate near 28% [5]. Even a modest share of this expanding market would be material relative to Nepal's current export base, which underscores why the sector attracts policy attention.

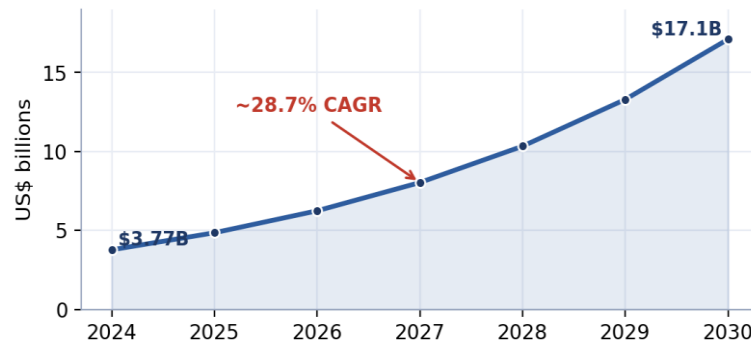


Fig. 2. Projected growth of the global data-collection-and-labeling market, 2024–2030. Source: Grand View Research [5].

5 Foundational Assets and Constraints

5.1 Talent and Demographics

Nepal's principal asset is its population structure. The median age is approximately 25.7 years and close to 47.5% of the population is under 25 [12,13], affording a long demographic runway relative to ageing peer economies (Fig. 3). The labor pool is augmented by a substantial annual output of IT graduates and by broad exposure to English. The constraints are depth and retention rather than quantity: the senior architect and technical-leadership layer is thin, digital literacy is estimated at around 31% against general literacy of roughly 76% [4], and sustained out-migration draws skilled workers abroad.

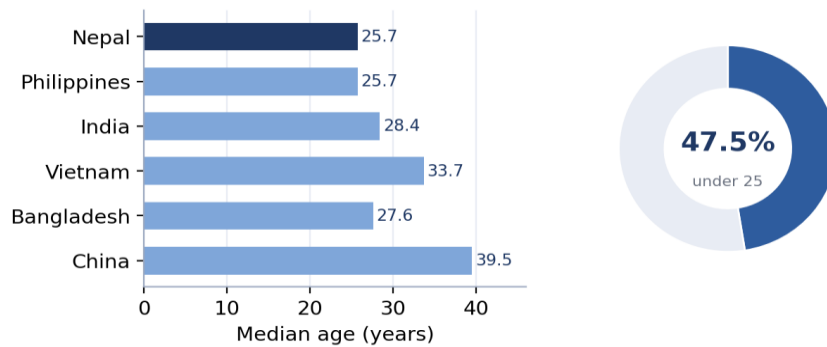


Fig. 3. Nepal's median age relative to comparator economies (left) and the share of population under 25 (right). Sources: UN DESA [12]; UNFPA [13].

5.2 Energy Endowment

Energy is Nepal's structural differentiator. More than 90% of generated electricity is renewable, drawn predominantly from hydropower, and the country has become a net exporter to neighboring markets. As Fig. 4 shows, installed capacity (about 3,878 MW in mid-2025) remains a small fraction of the economically viable potential, and national policy targets 28,500 MW by 2035 [2,11]. This endowment underpins a credible case for green, low-carbon data-center capacity although seasonal variability, grid stability, and the country's landlocked geography make this a medium-term opportunity rather than an immediate guarantee.

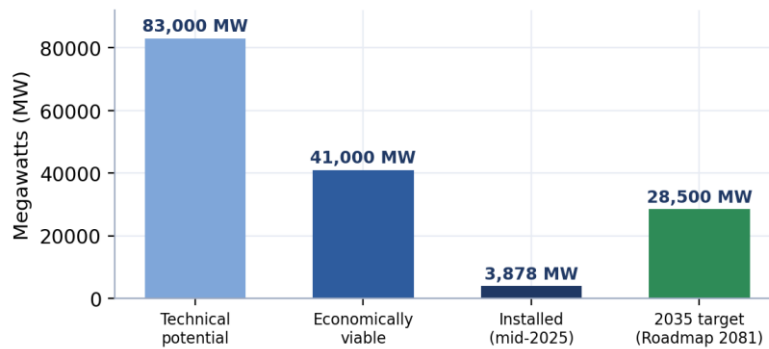


Fig. 4. Hydropower: large technical headroom against an early build-out, with a 28,500 MW target for 2035. Sources: SASEC [11]; Government of Nepal Energy Roadmap [2].

5.3 Connectivity and Digital Infrastructure

Connectivity is solid but uneven. Internet penetration stands at roughly 56%, covering about 16.6 million users [1], with mobile broadband providing the majority of access [10]. However, household connectivity is markedly higher in the hills than in the mountains (Fig. 5), reflecting a persistent geographic digital divide [4], and no commercial fifth-generation (5G) network is yet in operation. Infrastructure is therefore adequate to support remote service delivery from urban centers today, but uneven enough to constrain a fully distributed national model in the near term.

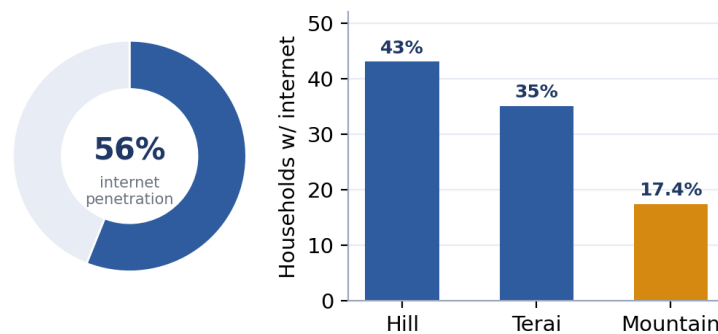


Fig. 5. Internet penetration (left) and the geographic divide in household connectivity (right). Sources: DataReportal [1]; NTA [10]; Census [4].

6 Comparative Positioning

Benchmarked against established hubs, Nepal's scale disadvantage is decisive. As Fig. 6 shows on a logarithmic axis, India's IT/ITES exports (on the order of US\$233 billion) and the Philippines' (around US\$40 billion) exceed Nepal's by roughly two orders of magnitude [7,8]. Competing on volume is therefore not a realistic strategy. Table 1 summarizes the comparative picture; precise export values are reported only where verifiable, and qualitative ratings are used elsewhere.

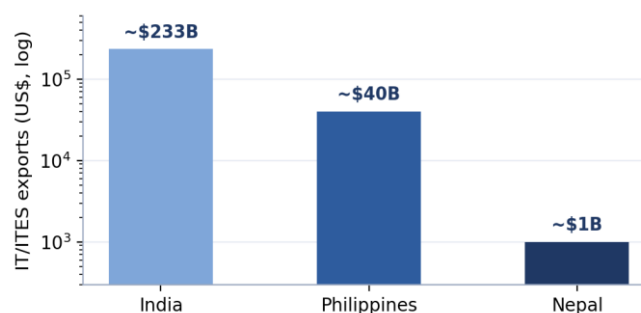


Fig. 6. IT/ITES export scale of selected economies (logarithmic axis). Sources: NASSCOM [8]; IBPAP [7]; NAS-IT [9].

Table 1. Comparative positioning of Nepal against selected economies. “Data n/a” denotes figures not reliably available; ratings are directional.

Market	Exports	Workforce	Nepal’s relative edge
India	~US\$233B	~5.4–5.8M	Scale leader — not contestable
Philippines	~US\$40B	~1.9M	Nepal undercuts on cost
Vietnam / Bangladesh	data n/a	large	Nepal earlier-stage; greener power
Sri Lanka / Pakistan	data n/a	mid	Peer-level niche competitors
Nepal	~US\$1B	~100k	Early-mover, low saturation, green energy

7 Strategic Opportunity in the AI Economy

If scale is unavailable, the strategic question becomes where within the AI-data value chain Nepal can build a defensible position. Fig. 7 maps candidate service segments along two axes: the value of the work and its resilience to automation, with bubble size indicating ease of entry. Entry-level data annotation is the easiest to enter but the most exposed to both automation and low-cost competition. The more durable opportunities lie in the upper-right region human-in-the-loop review, model evaluation and red-teaming, domain-specific data work (for example, computer-aided-design and engineering data, or regulated healthcare, finance, and legal data), and AI governance support where domain expertise and trust resist commoditization [5].

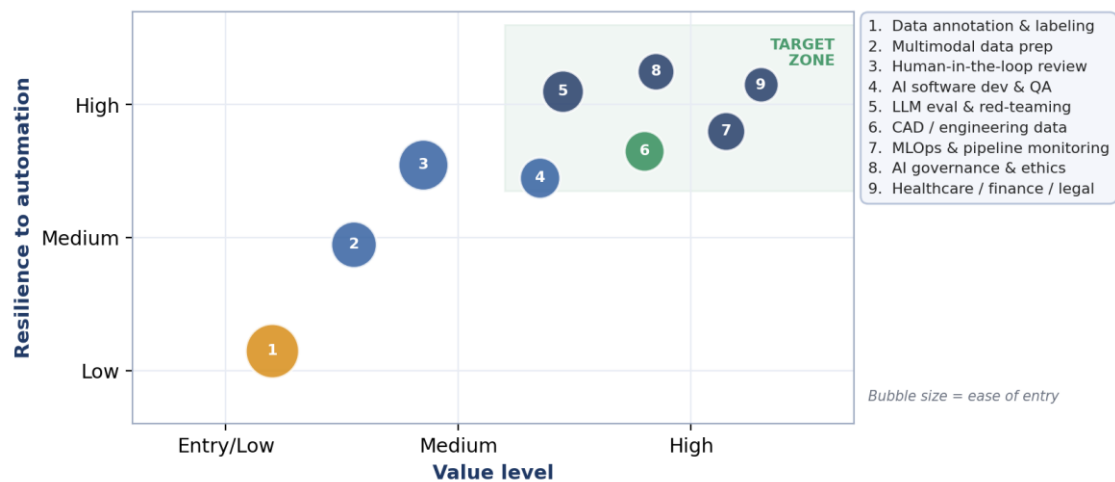


Fig. 7. AI-data service segments mapped by value and resilience to automation; bubble size denotes ease of entry. Authors’ synthesis; market context from [5].

This framing implies a deliberate trajectory: use accessible, lower-value tasks as an on-ramp to build capability and client relationships, while investing early in the skills, certifications, and domain knowledge required to migrate into the higher-value, automation-resilient segments before the entry-level base erodes.

8 SWOT and Risk Assessment

The preceding analysis is consolidated in the SWOT summary of Fig. 8. A recurring pattern is that each strength is matched by a corresponding vulnerability youthful, low-cost labor against a thin senior layer and out-migration; abundant green power against grid and transmission limitations; an early-mover position against a weak brand and immature regulation.

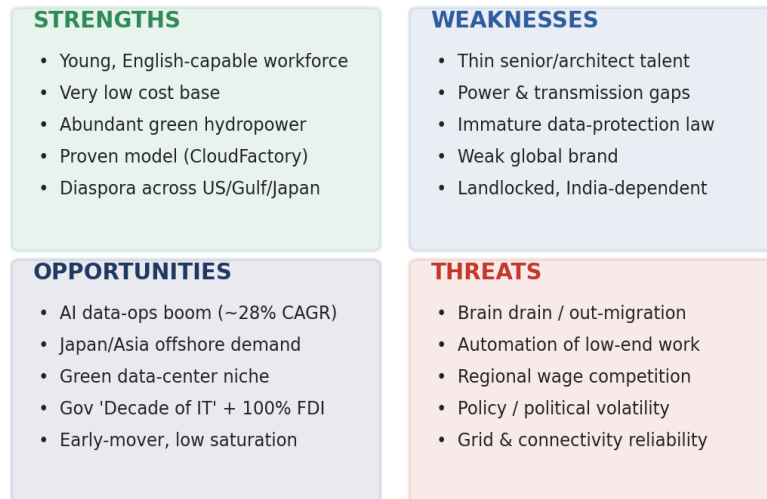


Fig. 8. SWOT summary for Nepal's data and IT sector.

Table 2 translates the principal threats into a directional risk assessment with candidate mitigations. The two highest-priority risks skilled out-migration and the automation of low-end work are mutually reinforcing: both erode the entry-level base that an early-stage industry depends upon, which strengthens the argument for an early move up the value chain.

Table 2. Principal risks (rated directionally) and candidate mitigations.

Key risk	Likelihood	Impact	Mitigation
Brain drain / out-migration	High	High	Retention pay, equity, career paths
Power / grid reliability	Medium	High	Redundancy; phased data-center pilots; storage
Automation of low-end work	High	Medium	Migrate to judgment-based, domain services
Immature data-protection law	Medium	High	Adopt GDPR-aligned rules; certifications
Thin senior talent	High	Medium	Diaspora mentoring; partnerships; upskilling

9 Strategic Roadmap and Scenarios

Fig. 9 sets out a three-phase roadmap to 2035. The foundation phase (2026–2027) prioritizes skills pipelines, anchor clients, a data-protection framework, and a green data-center proof of concept. The scale-up phase (2028–2031) emphasizes moving up the value chain, establishing Asia-facing delivery hubs, building a mid-tier brand, and improving talent retention. The differentiation phase (2032–2035) targets specialized intellectual property, green-compute exports, a recognized niche brand, and diaspora-led growth.



Fig. 9. Proposed strategic roadmap for Nepal's data and IT sector, 2026–2035.

To make the stakes explicit, Fig. 10 presents three illustrative export trajectories to 2035 under differing execution assumptions. These are analytical scenarios rather than forecasts: the bull case assumes disciplined execution across skills, infrastructure, and regulation; the base case assumes steady but unremarkable progress; and the bear

case assumes policy drift and unmitigated brain drain. The width of the resulting fan emphasizes that the outcome depends far more on execution than on Nepal's underlying endowment, which is largely fixed in the medium term.

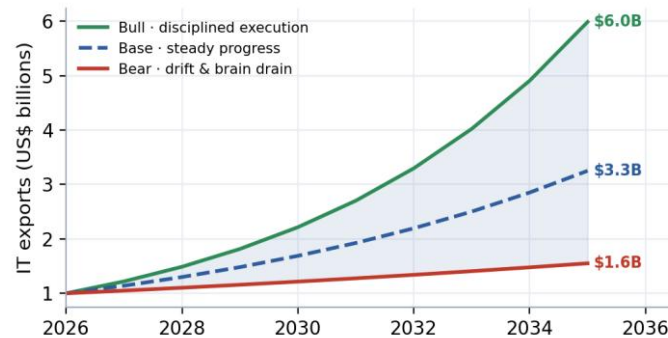


Fig. 10. Illustrative IT-export trajectories to 2035 under three execution scenarios (analytical assumptions, not forecasts).

10 Discussion

The analysis supports a qualified conclusion: Nepal's potential as a data and IT hub is real but conditional. The country possesses a coherent set of advantages demographic, economic, and energy-related that few peer economies combine, and it operates in a market segment whose growth is unusually rapid. Yet none of these advantages is self-executing. The demographic dividend is contingent on retention and skilling; the energy advantage is contingent on grid investment and data-center development; and the early-mover position is contingent on building a brand and a regulatory regime credible enough to win regulated, higher-value work.

Three implications follow. First, policy and investment should be selective rather than broad: concentrating on judgment-intensive, domain-specialized AI-data services offers a more defensible position than competing for commodity volume. Second, the binding constraints are institutional talent depth, data-protection law, and branding more than they are physical, which means they are addressable through deliberate policy and firm-level action. Third, because the entry-level base is simultaneously the easiest on-ramp and the most automatable, timing matters: the migration up the value chain should begin early.

Several threats to validity should be noted. The export estimates rest on inconsistent measurement, and we have deliberately presented a range rather than a point estimate. Comparative claims for second-wave economies are constrained by data availability and are treated as directional. The roadmap and scenarios are analytical instruments whose parameters are assumptions, not empirical projections, and should be read as illustrative of sensitivity to execution rather than as predictions. Future work should prioritize primary data collection on Nepal's IT workforce and firm-level export performance, and a more formal treatment of the automation exposure of specific task categories.

11 Conclusion

This paper has consolidated fragmented public evidence on Nepal's emerging data and IT economy, positioned the country against relevant peers, and proposed a strategic posture grounded in that evidence. The central finding is that Nepal should not pursue scale-based competition, for which it is structurally disadvantaged, but should instead specialise in higher-value, automation-resilient segments of the AI-data economy, leveraging its young workforce, low cost base, and abundant green energy. Whether this potential is realised will depend less on Nepal's endowment—which is favourable—than on disciplined execution across skills development, infrastructure, regulation, and international branding over the coming decade.

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