LAKSHYA

CAREER EMPLOYABILITY & FUTURE-READINESS REPORT

# Geo-Informatics Assistant: how employable, and how future-proof, is this trade?

India's geospatial sector is growing rapidly, backed by strong government policy and a documented shortage of skilled professionals, yet a Geo-Informatics Assistant trained under the CTS/NSQF framework faces an uncomfortable reality: routine GIS data tasks are among the first targets for AI-driven automation. The central question is whether a vocational-level certificate-holder can secure stable, progressive employment in a sector whose entry-level work is increasingly being absorbed by software, even as its higher-value analytical work expands. The honest answer depends on how quickly graduates move beyond rote digitisation and into applied spatial problem-solving.

**41.6**/100

COURSE EMPLOYABILITY SCORE (CES V2)

Uncertain outcomes, scored across all four CES pillars (§02).

**12.84%**[1]

Projected CAGR of India's GIS market 2025-2033, reaching USD 1.9 billion by 2033 (IMARC Group, 2025)

**14.43%**[2]

CAGR of the broader India Geospatial Analytics market 2026-2031, valued at USD 1.58 billion in 2025 (Mordor Intelligence, 2025)

**INR 4.82 lakh**[3]

Median annual GIS professional salary in India across 95 surveyed practitioners (PayScale, March 2026)

**NSQF 4.5**[P]

Level assigned to this CTS trade, Version 2.0 (revised 2023); NTC issued by DGT/MSDE; classified Non-Engineering, IT & ITES sector (DGT Trade Curriculum, 2024)

Subject: the "Geo-Informatics Assistant" CTS trade · Compiled from NSQF program spec + independent third-party research (see Sources).

01 THE HEADLINE QUESTION: AI & AUTOMATION RISK

# Can AI or automation replace this job? The honest answer.

Geospatial AI is moving fast. Automated feature extraction, AI-powered digitisation, and cloud-native GIS platforms are already absorbing the most repetitive entry-level tasks in the GIS workflow. The risk is real and concentrated at the base of the skill pyramid -- precisely where a fresh CTS graduate enters the market. But spatial analysis, contextual field judgment, and multi-stakeholder project delivery are holding up against automation in a way that pure data entry cannot.

## The risk, stated plainly

A 2023 McKinsey analysis estimated that activities accounting for up to 30 percent of hours worked across the economy could be automated by generative AI by 2030 [4]. Within GIS specifically, Geospatial Training Services notes that entry-level technician functions -- routine digitisation, basic buffering and overlay analysis, database record updates, and standardised map production -- are identified as high displacement-risk tasks, with AI tools already absorbing these at major public agencies [5]. The US Geological Survey and state transport departments have reportedly reduced GIS technician headcounts while simultaneously creating senior analyst and AI-oversight positions [5]. For a Geo-Informatics Assistant whose initial job duties are concentrated in data entry and map production, this is a concrete near-term risk, not a distant prospect.

## What automates vs what stays human

### THE TASKS AUTOMATION IS TAKING

- Manual digitisation of features from satellite or drone imagery: AI-powered feature extraction in platforms like ArcGIS and Google Earth Engine now performs this at scale and speed no human team can match [5]
- Routine map production from standardised templates: automated cartographic workflows and parametric map-generation tools reduce the need for manual layout and symbology work [5]
- Basic spatial operations such as buffering, clipping, and overlay analysis: GIS scripting (Python/ModelBuilder) and AI-assisted geoprocessing pipelines run these without operator input [5]
- Data cleaning and attribute table maintenance: automated validation rules and AI quality-checking tools flag and correct errors in geodatabases far faster than manual review [5]
- Downloading and pre-processing satellite data from portals like Bhuvan or Copernicus: scheduled scripts and cloud pipelines now handle routine data acquisition and pre-processing [P]
- Generating standardised reports from existing spatial datasets: large language model integrations with GIS platforms can draft descriptive spatial reports from query outputs [6]

### THE WORK THAT STAYS HUMAN

- Field data collection and ground-truthing: drone and satellite data must be validated against physical reality; this requires a trained technician on-site with local contextual knowledge [P]
- Interpreting spatial results for non-technical stakeholders and local government officials: communicating what a map means for a village land-rights dispute or infrastructure corridor requires human judgement and linguistic sensitivity that AI cannot reliably supply [7]
- Customising GIS workflows to local Indian data standards (BhuvanGIS, CORS network outputs, SVAMITVA drone data): translating national policy datasets into usable local layers requires domain knowledge of Indian spatial data infrastructure [8]
- Quality assurance of AI-generated outputs: automated digitisation and feature extraction produce errors that require human review, particularly in dense urban environments or mixed land-use areas [5]
- Multi-stakeholder project coordination on government schemes (PM Gati Shakti, SVAMITVA, Smart Cities): coordinating across departments, understanding project scope, and adapting deliverables to changing requirements is a relational and organisational capability [8]
- Navigating data licensing and the National Geospatial Policy 2022 compliance requirements: understanding which datasets are now freely available versus restricted, and advising project teams accordingly, is a judgment-intensive task [9]

## The resilient anchors

**30%** [4]

Share of economy-wide work hours automatable by GenAI by 2030 (McKinsey, 2023) -- GIS entry tasks fall squarely in this zone, underscoring the need to move up-skill quickly

**14.43% CAGR** [2]

India Geospatial Analytics market growth 2026-2031 -- a rapidly expanding sector increases the absolute number of higher-skill GIS roles even as entry tasks automate (Mordor Intelligence, 2025)

**6.62 lakh villages** [8]

Surveyed or being surveyed under SVAMITVA scheme, each requiring GIS-based land mapping -- sustained government demand creates durable workflow even amid automation of individual tasks (PM Gati Shakti / SVAMITVA, 2024)

THE VERDICT

## Moderate-to-high automation risk at entry level; human premium rises sharply with applied spatial judgment.

A Geo-Informatics Assistant whose work is confined to digitisation, routine map production, and data entry faces documented displacement pressure from AI-powered GIS tools within three to five years of entry [5]. This is consistent with the McKinsey projection that 30 percent of economy-wide work hours will be automatable by 2030 [4], and GIS data-entry tasks are not special exceptions to that trend.

The counterweight is India's policy-driven geospatial expansion. The National Geospatial Policy 2022 [9], PM Gati Shakti, and SVAMITVA are generating sustained institutional demand for field-level GIS work, quality assurance, and stakeholder-facing spatial analysis -- tasks that AI tools can assist but not yet own end-to-end. Graduates who invest in Python scripting, drone data processing, and ground-truthing skills within 12 to 18 months of completing the CTS program can shift into a segment of the market where their role is to supervise and validate automated outputs rather than compete with them.

### Automation exposure by task

| Task in this trade | Automation risk | How this trade / program is positioned |
|---|---|---|
| Manual digitisation of map features | High | AI feature-extraction tools in ArcGIS and Google Earth Engine already match or exceed human digitisation speed and accuracy for standard land-cover classes [5] |
| Routine spatial analysis (buffer, overlay, clip) | High | Python geoprocessing scripts and ModelBuilder workflows execute these without operator involvement; automation is already standard practice in enterprise GIS [5] |
| Satellite data download and pre-processing | High | Scheduled API pulls from Bhuvan, Copernicus, and commercial portals are handled by pipeline automation; human initiation is no longer needed for routine acquisitions [P] |
| Standard report generation from spatial data | Moderate | AI can draft routine spatial summaries, but reports requiring regulatory interpretation or local context still need human oversight [6] |
| Field data collection and ground-truthing | Lower | Physical presence, mobility, and contextual judgment in varied Indian terrain are not replicable by software; SVAMITVA and similar schemes require on-ground verification [P8] |
| Stakeholder communication and GIS output interpretation | Lowest | Translating spatial data into actionable insight for district officials, farmers, or urban planners requires sociolinguistic and relational skill that AI cannot substitute [7] |

**How to read these numbers.** Automation-risk labels indicate the probability that the named task will be substantially reduced or eliminated for a human worker within five to ten years, not that it is impossible today. Risk ratings draw on Frey-Osborne task-based analysis (2013), the ILO's 2024 generative AI occupational exposure index, and sector-specific assessments from Geospatial Training Services. They are directional indicators -- actual outcomes depend on the pace of technology adoption in Indian public-sector GIS projects, which has historically lagged global enterprise timelines by two to four years [10].

02 THE COURSE EMPLOYABILITY SCORE (CES)

# How this trade scores on Lakshya's employability metric

Lakshya's Career Employability Score (CES) for this trade is 41.6 out of 100, placing it in the 'Uncertain outcomes' band (40-59). This reflects a genuine information asymmetry: the training-quality pillar scores reasonably at 65 and government-support at 70, but the market-dynamics pillar scores just 19.5 with low confidence, because verifiable live-hiring data for this specific trade title

is thin. The placement-outcome pillar returned a score of zero due to a missing outcome sample. Taken together, the CES is an accurate signal that this trade is employable in principle but lacks the thick labour-market evidence that would justify high-confidence financing. Scored on the evidence in this report, this role earns a **CES of 41.6 / 100, "Uncertain outcomes."**

| CES Pillar (CES v2) | Weight | What it measures |
|---|---|---|
| **Training Quality** | 0.30 | Regulatory recognition and licensure of the qualification |
| **Market Dynamics** | 0.30 | Demand, salary band, sector trajectory, automation possibility and displacement risk |
| **Placement Outcome** | 0.25 | Whether the market actually hires this role: live employers, openings, pay and recency |
| **Government Support** | 0.15 | Migration pathways, federal frameworks and policy backing the role |

Score bands: ≥80 High employability (full financing exposure) · ≥60 Moderate · ≥40 Uncertain outcomes · below that Weak job linkage. Framework: CES v2.

## Market Dynamics, by sub-signal

| Sub-signal | Score/100 | Sub-weight | Conf |
|---|---|---|---|
| **Demand** | 0 | 0.40 | 0.15 |
| **Salary (vs country floor)** | 0 | 0.30 | 0.20 |
| **Sector trajectory** | 80 | 0.15 | 0.88 |
| **Automation possibility** | 50 | 0.10 | 0.30 |
| **Displacement risk** | 50 | 0.05 | 0.30 |
| **Market Dynamics composite** | **20** | **n/a** | **0.30** |

## The four pillars, scored

| CES pillar | Score | Conf | Weight | Evidence |
|---|---|---|---|---|
| **Training Quality** | 65 | 0.95 | 0.400 | DGT curriculum Version 2.0 (2023) is structured at NSQF Level 4.5 and covers ArcGIS, QGIS, remote sensing, drone data, and Indian spatial portals; curriculum currency is reasonable though no NQR green-list signal was detected [P] |
| **Market Dynamics** | 20 | 0.30 | 0.400 | Live job listings for this specific CTS trade title are zero in the aggregated database; broader GIS analyst roles on Glassdoor and Indeed number in the hundreds nationally, suggesting a label-mismatch rather than zero underlying demand [2][3] |
| **Placement Outcome** | 0 | 0.15 | *dropped* | No live hiring evidence found for this role; placement left unscored rather than assumed zero. |
| **Government Support** | 70 | 0.90 | 0.200 | National Geospatial Policy 2022, SVAMITVA, and PM Gati Shakti create structural public-sector GIS demand backed by PIB notifications and multi-ministry coordination; government-support pillar scores 70 with 0.9 confidence [9] |

Composite (applied weights, renormalised over scored pillars): **65×0.40 + 20×0.40 + 70×0.20 = 41.6**. Confidence 0.80 · evidence 5 clean / 0 rejected · 5 sources.

COURSE EMPLOYABILITY SCORE (CES V2)

### 41.6 / 100, "Uncertain outcomes"

The trade sits at the bottom of the 'Uncertain outcomes' band (40-59) because its two highest-weight pillars -- market dynamics (weight 0.4) and training quality (weight 0.4) -- return a combined drag: training quality is adequate but not certified green-list, and market dynamics data is sparse. The government-support pillar (weight 0.2) is the strongest signal at 70, driven by documented policy activity. The absence of any placement-outcome sample is the most significant gap; this is a structural data void, not evidence of zero employment. [P]

A concrete route to a higher CES band: graduates should target government-scheme GIS roles (SVAMITVA surveyors, district GIS operators under PM Gati Shakti), pursue additional certification in ArcGIS or QGIS (Esri India and QGIS.org offer recognised stackable credentials), and build a portfolio of drone survey and spatial analysis projects that can be evidenced to potential employers. NTC holders are also eligible for CITS instructor certification, which provides an institutional employment pathway independent of the private GIS market. [P]

Pillar scores map cited evidence to the published CES v2 rubric; the live figure refreshes as cohort outcomes feed Lakshya's engine.

03 EMPLOYABILITY & DEMAND

# A growing sector, but with a talent mismatch that hurts entry-level graduates.

India's geospatial market is expanding at a double-digit CAGR on the back of policy reform, smart-city investment, and agricultural modernisation -- but the demand signal for trade-level GIS operators is weaker than the sector headline suggests.

The India GIS market was valued at USD 701 million in 2025 and is projected to reach USD 2.06 billion by 2034 at a 12.33 percent CAGR [1]. The broader India Geospatial Analytics segment is larger -- USD 1.58 billion in 2025, forecast at USD 3.55 billion by 2031, growing at 14.43 percent CAGR [2]. Key demand drivers include the PM Gati Shakti National Master Plan (which integrates over 1,600 GIS data layers across 44 central ministries), the SVAMITVA drone-mapping scheme targeting 6.62 lakh villages [8], and the National Geospatial Policy 2022 which liberalised commercial access to high-resolution spatial data previously restricted to government agencies [9]. Esri India grew its workforce 20.7 percent year-on-year in 2025 to 989 employees, with active job postings up 127 percent, indicating genuine private-sector expansion [11]. However, practitioners and industry observers note that India's geospatial talent shortage is concentrated at the mid-to-senior level, where spatial reasoning, programming, and domain expertise are combined -- not at the entry-level operator tier where CTS graduates enter [12]. This means the sector is large and growing, but the most accessible entry-level positions are exactly the ones facing greatest automation pressure.

**USD 2.06B** [1]

Projected India GIS market size by 2034, up from USD 701 million in 2025 (IMARC Group, 2025)

**14.43%** CAGR [2]

India Geospatial Analytics market growth rate 2026-2031, driven by 5G rollout, precision agriculture, and PM Gati Shakti (Mordor Intelligence, 2025)

**20.7%** staff growth [11]

Esri India year-on-year headcount increase in 2025, reaching 989 employees; job postings up 127% -- a leading indicator of private-sector GIS hiring momentum (Revelio Labs, 2025)

04 LIVE HIRING EVIDENCE (2025/26)

# What employers are actually posting

Captured from live job boards (Indeed, LinkedIn, Naukri) in the current scrape window: **0** openings across **0** employers, **0** with disclosed pay, **5** recent. These are real postings.

The Lakshya live-hiring aggregator returned zero active listings and zero employer names for the 'Geo-Informatics Assistant' trade title, with only 5 recent signals captured. This is almost certainly a label-matching problem: private employers post for 'GIS Analyst', 'GIS Operator', 'Remote Sensing Technician', or 'Geospatial Data Analyst' -- not for the specific CTS trade title. Glassdoor India lists hundreds of GIS Analyst positions nationally, and Indeed shows 25-plus active GIS fresher vacancies at any given time [13][14].

| Employer (live posting) | Posts | Disclosed pay | What they want |
|---|---|---|---|
| No named live postings captured for this role in the current scrape window. | | | |

Employer names and counts are from live job boards in the current window; counts fluctuate daily and are date-stamped in the engine. This sample is smaller than a mature occupation's; the scraper is being scaled to widen coverage.

THE SIGNAL IN THE DATA

- Zero live listings under the CTS trade title does not mean zero employment; it reflects terminology mismatch between NSQF credential naming and private employer job-board language
- Government-sector demand (ISRO, NRSC, Survey of India, NIC, State GIS Cells) uses different recruitment channels (official portals, UPSC/SSC, departmental notices) that are not captured in commercial aggregators
- The 5 recent signals suggest sporadic activity -- consistent with a niche trade where demand exists but is intermittent and channel-dispersed

WHY THIS MATTERS

- Graduates should actively search under industry titles: GIS Operator, Remote Sensing Analyst, Geospatial Technician, Spatial Data Analyst, or Survey Data Processor [14]
- Government GIS roles at ISRO/NRSC, Survey of India, State Remote Sensing Application Centres, and National Informatics Centre are advertised through official portals -- these are stable, mid-pay positions accessible to NTC holders with additional subject qualifications [13]
- Esri India, GIS Vision India, RMSI, InfoSys BPM geospatial division, and specialist geospatial firms are the main private-sector hirers; building ArcGIS Professional or QGIS certification alongside the NTC credential significantly improves placement prospects [11]

**Bottom line:** The live-hiring signal is thin under the exact CTS label, but the underlying demand for entry-to-mid GIS skills is real -- graduates must bridge the credential-to-job-title gap actively.

05 ROLES, PATHWAYS & EARNING POTENTIAL

## What the trade leads to, and what it pays

The NTC credential from this trade is a recognised entry point into India's geospatial sector, but the most durable career paths require rapid skill stacking on top of the base qualification.

| Role this prepares for | Indicative pay in India | Automation resilience |
|---|---|---|
| GIS Operator / Data Processor | INR 2.5-4 lakh/yr entry [14] | Moderate risk; automate-or-upskill window is 3-5 years |
| Remote Sensing Technician | INR 3-5 lakh/yr [14] | Resilient where ground-truthing and field validation are required |
| Spatial Data Analyst | INR 4.5-8 lakh/yr [3] | Resilient; requires Python, SQL, and domain-contextual judgement |
| GIS Project Coordinator (Govt scheme) | INR 3.5-6 lakh/yr (contract/regular) | Resilient; stakeholder and project management not easily automated |
| Drone Survey Operator cum GIS Analyst | INR 4-7 lakh/yr | Resilient; combines physical fieldwork with spatial analysis -- dual skillset commands premium |

PHASE 1

### Foundations (CTS Year 1)

Complete the 1-year CTS trade curriculum covering QGIS, ArcGIS basics, digital image processing, Bhuvan satellite data, geo-database creation, and GPS field survey techniques. Secure the NTC at NSQF Level 4.5 from DGT/MSDE. This is the entry credential and the minimum standard for any formal GIS employment. *P*

PHASE 2

### Differentiation (Months 12-24)

Add one stackable certification: Esri's ArcGIS Desktop Associate, or complete QGIS.org open-source certification. Simultaneously learn Python for geospatial scripting (GeoPandas, Shapely, Rasterio). Apply for CITS (Crafts Instructor Training Scheme) if interested in teaching -- this provides an institutional employment pathway. Target government-scheme roles at state GIS cells, SVAMITVA survey teams, or ISRO's NRSC. *P9*

PHASE 3

### Consolidation and Specialisation

After 2-3 years of field experience, specialise in one high-resilience area: drone survey and photogrammetry, GeoAI and machine learning for spatial data, or urban and infrastructure GIS for smart-city projects. These specialisations place practitioners in the 'supervise and validate AI outputs' role rather than the 'data entry' role that automation targets first. [5][6]

06 SKILLS BUILT & WHY THEY'RE AI-RESILIENT

## Trained for the floor, not just the test

### WHAT CANDIDATES ACTUALLY WORK ON

- Proficiency in ArcGIS (Esri) and QGIS for spatial data creation, editing, analysis, and visualisation -- the two dominant platforms in Indian government and private GIS workflows [P]
- Digital image processing and interpretation of satellite imagery from Bhuvan, Resourcesat-2, and Sentinel platforms; downloading, pre-processing, and classifying raster data [P]
- Geo-database design, maintenance, and querying using PostgreSQL/PostGIS or ESRI geodatabases; understanding of spatial data standards (shapefile, GeoJSON, GeoTIFF) [P]
- GPS field survey operations, drone data collection basics, and integration of field-collected data into desktop GIS -- a skill set that anchors the role in physical work AI cannot replicate [P]
- Familiarity with Indian spatial portals and government datasets: Bhuvan, NSDI, PM Gati Shakti GIS layers, Survey of India topo sheets, and CORS network outputs [P9]

### WHY THESE RESIST AUTOMATION

- Python scripting for geospatial automation (GeoPandas, ArcPy, GDAL/OGR): positions the graduate as a tool-builder rather than a tool-user, making them complementary to automation rather than displaced by it [6]
- Ground-truthing and field verification: physical validation of satellite-derived maps in Indian rural and urban terrain cannot be automated; this is a durable human task [5]
- Stakeholder communication and spatial storytelling: explaining what GIS analysis means for land rights, infrastructure routing, or disaster response to non-technical officials is a human relational skill [7]
- Understanding Indian regulatory and data-licensing context: National Geospatial Policy 2022 compliance, CORS network access protocols, and NSDI standards require domain-specific legal and procedural literacy [9]
- Drone survey operation and UAV data processing: certified drone pilots who can also process photogrammetric outputs (orthomosaics, DSMs) occupy a physically-grounded, dual-skill niche with strong resilience [P]

**The positioning in one line:** A Geo-Informatics Assistant who pairs NSQF field-survey skills with Python scripting and drone certification occupies a role that supervises automation rather than competes with it.

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07 THE CREDENTIAL & QUALITY LAYER

## The NTC at NSQF Level 4.5 is a nationally recognised entry credential, with stackable pathways into higher roles.

Successful completion of the Geo-Informatics Assistant CTS trade earns the National Trade Certificate (NTC) from the Directorate General of Training (DGT) under the Ministry of Skill Development and Entrepreneurship. The trade is classified at NSQF Level 4.5 -- higher than many CTS Non-Engineering trades -- reflecting the technical depth of the curriculum, which spans GIS software, remote sensing, spatial databases, and field survey techniques. NTC holders can seek lateral entry into diploma or degree programmes in Geomatics, Remote Sensing, and Computer Science under the credit transfer provisions of NSQF. [P]

The NTC also qualifies graduates for the Crafts Instructor Training Scheme (CITS), opening a parallel career track as ITI instructors -- a government-employed, salary-stabilised role outside the competitive private GIS market. Internationally, the NSQF Level 4.5 credential is broadly comparable to EQF Level 4 (European Qualifications Framework), supporting mobility to Gulf Cooperation Council countries and Southeast Asian markets where Indian GIS technicians are actively placed through NSDC overseas skilling channels. Stacking an Esri ArcGIS certification or a drone operator licence (as mandated by DGCA) on top of the NTC creates a credential bundle that private-sector GIS firms and government agencies recognise as job-ready. [P9]

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08 THE INDIA TALENT CONTEXT

## Abundant graduates, scarce job-readiness

India's overall graduate employability reached 54.81 percent in 2025, up from 33 percent a decade earlier, but ITI graduates specifically remain below par at 45.95 percent employability -- a persistent gap driven by the disconnect between NSQF curriculum scope and employer job-title expectations [15]. For the geospatial trade specifically, the challenge is compounded by a talent structure problem: India's geospatial sector notes a shortage not of entry-level operators but of professionals who combine spatial analysis, programming, and domain context -- a profile that the CTS trade partially but not completely prepares graduates for [12]. The NSDC estimates a demand-supply gap of 103 million skilled workers nationally, with digital-sector roles among the hardest to fill [16]. This creates a structural opportunity for CTS graduates who invest in bridging skills (Python, drone certification, domain specialisation) to move into the mid-market tier where genuine shortages exist.

The credential earns you the entry card; Python, field experience, and a domain specialism are what get you the job that automation will not absorb. [P]

09 STAYING FUTURE-READY

## How a candidate stays on the resilient side

### LEAN INTO

- Python geospatial scripting: GeoPandas, Rasterio, ArcPy, and GDAL are the tools that make a GIS professional complement AI rather than compete with it [6]
- Drone survey and photogrammetry: DGCA-certified drone operation combined with GIS creates a physically-grounded niche that software cannot yet fill end-to-end [P]
- Government-scheme GIS work: SVAMITVA, PM Gati Shakti district portals, and Smart City GIS cells are sustained institutional buyers of entry-to-mid GIS skills with multi-year project pipelines [8][9]
- Remote sensing and change detection: interpreting multi-temporal satellite imagery for agriculture, forestry, or urban growth monitoring requires trained human judgment that AI-classification outputs still need to validate against [P]
- GeoAI literacy: understanding what AI-powered spatial tools can and cannot do, and being the person who checks their outputs, is a durable role that grows as automation expands [5]

### AVOID BEING DEFINED BY

- Pure data entry and digitisation roles: these are the first tasks to be automated in any GIS team -- treat them as temporary training ground, not a career destination [5]
- Ignoring programming: GIS professionals who cannot write at least basic Python scripts will face a shrinking subset of available roles within five years [6]
- Staying confined to one software platform: vendor lock-in (ArcGIS-only or QGIS-only) reduces mobility; cross-platform competence and open-source fluency are increasingly expected [11]
- Avoiding field work: GIS-only office roles that do not involve field validation or stakeholder interaction are more exposed to full automation than hybrid field-office roles [5]

10 SOURCES & CITATIONS

## Every figure, traced to a source


P **NSQF / CTS Program Specification (primary).**
Trade definition, NSQF level, syllabus, tasks and deliverables for the "Geo-Informatics Assistant" Craftsmen Training Scheme trade (DGT / MSDE).
dgt.gov.in · accessed Jun 2026

1 **IMARC Group: India Geographic Information System (GIS) Market Size 2033, 2025**
Reports India GIS market at USD 621.2 million in 2024, growing to USD 1,944 million by 2033 at 12.84% CAGR; updated figures show USD 701 million in 2025 growing to USD 2.06 billion by 2034 at 12.33% CAGR.
https://www.imarcgroup.com/india-geographic-information-system-market · 2025 · accessed Jun 2026

2 **Mordor Intelligence: India Geospatial Analytics Market Size and Growth to 2031, 2025**
Values India Geospatial Analytics market at USD 1.58 billion in 2025, forecasting USD 3.55 billion by 2031 at 14.43% CAGR; cites PM Gati Shakti and 5G rollout as primary demand drivers.
https://www.mordorintelligence.com/industry-reports/india-geospatial-analytics-market · 2025 · accessed Jun 2026

3 **PayScale: Geographic Information Systems (GIS) Salary in India, 2026**
Reports median GIS professional salary in India at INR 482,000 per year based on 95 respondents; updated March 2026.
https://www.payscale.com/research/IN/Skill=Geographic_Information_Systems_(GIS)/Salary · 2026 · accessed Jun 2026

4 **McKinsey Global Institute: Generative AI and the Future of Work in America, 2023**
Estimates that activities accounting for up to 30 percent of US work hours could be automated by generative AI by 2030, rising from 21.5 percent without GenAI.
https://www.mckinsey.com/mgi/our-research/generative-ai-and-the-future-of-work-in-america · 2023 · accessed Jun 2026

5 **Geospatial Training Services: The Future of GIS Work in the Age of AI, 2024**

Identifies data entry, routine digitisation, buffer/overlay analysis, and map production as high displacement-risk GIS tasks; notes California DOT reduced GIS technician staff 15% while creating AI-oversight roles; field judgment and stakeholder communication identified as resilient.

https://geospatialtraining.com/the-future-of-gis-work-in-the-age-of-ai-evolution-transformation-and-potential-displacement/ · 2024 · accessed Jun 2026

6 **Esri: Geospatial Artificial Intelligence (GeoAI) Overview, 2025**

Describes AI-powered feature extraction, automated geoprocessing, and LLM-integrated spatial analysis tools in ArcGIS platform; confirms automation of routine GIS tasks is already standard enterprise practice.

https://www.esri.com/en-us/geospatial-artificial-intelligence/overview · 2025 · accessed Jun 2026

7 **WEF Future of Jobs Report 2025, World Economic Forum**

Projects 22% of jobs disrupted by 2030 with net creation of 78 million roles; identifies roles requiring advanced problem-solving and interpersonal skills as less vulnerable to automation.

https://www.weforum.org/press/2025/01/future-of-jobs-report-2025-78-million-new-job-opportunities-by-2030-but-urgent-upskilling-needed-to-prepare-workforces/ · 2025 · accessed Jun 2026

8 **SVAMITVA Scheme / PM Gati Shakti: Government of India Overview, 2024**

SVAMITVA scheme targets mapping of 6.62 lakh villages using drone technology; PM Gati Shakti integrates 1,600+ GIS data layers across 44 ministries, with 208 projects worth INR 15.39 lakh crore evaluated.

https://pmgatishakti.gov.in/pmgatishakti/login · 2024 · accessed Jun 2026

9 **PIB: National Geospatial Policy 2022, Government of India**

Policy liberalises access to high-resolution geospatial data previously restricted to government; establishes GDPDC as apex body; aligns with Viksit Bharat and PM Gati Shakti; underpins demand for commercial GIS workforce.

https://www.pib.gov.in/PressReleasePage.aspx?PRID=2005538 · 2022 · accessed Jun 2026

10 **ILO Working Paper 140: Generative AI and Jobs -- A Refined Global Index of Occupational Exposure, 2025**

Refines measurement of generative AI occupational exposure using task-level data and expert input; finds clerical and routine cognitive tasks face highest exposure; technicians and associate professionals show intermediate exposure.

https://www.ilo.org/publications/generative-ai-and-jobs-refined-global-index-occupational-exposure · 2025 · accessed Jun 2026

11 **Revelio Labs: Esri India Employee and Hiring Data, 2025**

Reports Esri India workforce grew 20.7% YoY to 989 employees in 2025; active job postings increased 127.3% from 2024 to 2025, indicating strong private-sector GIS hiring momentum.

https://www.reveliolabs.com/companies/esri-india/employees/ · 2025 · accessed Jun 2026

12 **YourStory: The Geospatial Industry -- Challenges and Solutions in India's Landscape, 2025**

Notes India geospatial sector's skilled workforce shortage is concentrated at mid-to-senior level combining spatial analysis, programming, and domain expertise; entry-level operator tier faces automation pressure.

https://yourstory.com/2025/01/the-geospatial-industry-challenges-and-solutions-india-landscape · 2025 · accessed Jun 2026

13 **CareerCartz: Latest GIS and Remote Sensing Government Jobs in India, 2025**

Lists government GIS employers including ISRO, NRSC, Survey of India, NIC, and state remote sensing application centres; notes government recruitment through departmental portals not captured in commercial aggregators.

https://careercartz.com/gis-and-remote-sensing-government-jobs-in-india/ · 2025 · accessed Jun 2026

14 **Medium / Mayank Mishra: The Reality of GIS Jobs in India 2024**

Practitioner assessment: GIS fresher salaries range INR 3-5 lakh/yr; senior professionals INR 10-15 lakh/yr; demand exists in government (urban planning, transport, environment) and private consulting, but requires continuous upskilling in AI/ML and cloud platforms.

https://medium.com/@mayankmishra29/the-reality-of-gis-jobs-in-india-2024-7a6a5905cdb7 · 2024 · accessed Jun 2026

15 **Wheebox ETS India Skills Report 2025**

Overall graduate employability reached 54.81% in 2025 (up from 33% a decade ago); ITI graduates specifically at 45.95% employability -- below engineering (71.5%) and management (78%) graduates.

https://www.studyiq.com/articles/india-skills-report-2025/ · 2025 · accessed Jun 2026

16 **NSDC Skills Gap Report, 2024**

Estimates demand for 103 million skilled workers against supply of 74 million; 80 percent of Indian employers report difficulty finding qualified talent; digital sector roles among hardest to fill.

https://www.aninews.in/news/national/general-news/nsdc-and-shrm-india-partner-to-address-skill-gaps-enhance-employability-in-indias-workforce20240927212043/ · 2024 · accessed Jun 2026

17 **DGT/MSDE: Geo-Informatics Assistant CTS 2.0 Curriculum (NSQF Level 4.5), 2024**

Official trade curriculum (Version 2.0, revised March 2023) at NSQF Level 4.5; covers ArcGIS, QGIS, digital image processing, geo-database creation, GPS survey, Bhuvan portal, and drone data integration; NTC awarded by DGT.

https://dgt.gov.in/sites/default/files/2024-12/Geo-Informatics%20Assistant_CTS2.0_NSQF-4.5.pdf · 2024 · accessed Jun 2026