

Data Entry Operator: how employable, and how future-proof, is this trade?

The Data Entry Operator CTS trade sits at the sharpest edge of the automation debate: few occupations have received higher computerisation risk scores in academic studies, and yet the trade continues to generate real hiring demand across India's expanding BPO, government, and healthcare sectors. This report weighs the genuine automation threat against structural demand drivers, salary trajectories, and the credential value of the NSQF Level 4 / NTC qualification to produce an evidence-based verdict on employability.

72.2_{/100}

COURSE EMPLOYABILITY SCORE (CES V2)

Moderate employability, scored across all four CES pillars (S02).

99%¹

Frey-Osborne computerisation probability for data entry keyers (Oxford, 2013) [1]

72.2^P

CES (Career Employability Score) out of 100, Moderate employability band [P]

1.2 M+²

Jobs projected for BPO Tier-2 and Tier-3 cities by 2027 [2]

56.35%³

Overall youth employability rate in India, India Skills Report 2026 [3]

Subject: the "Data Entry Operator" CTS trade (Non-Engineering, NSQF Level 4, 1 year) · Compiled from the NSQF/CTS program specification + independent third-party research (see Sources).

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

Data entry keyers received a 99% computerisation probability in the landmark Frey-Osborne 2013 Oxford study ¹, and the WEF Future of Jobs Report 2025 lists data entry clerks among the fastest-declining roles globally ⁴. These are real signals that must be taken seriously. At the same time, the ILO notes that in lower-income economies, only 0.4% of employment faces direct substitution from generative AI, versus 5.5% in high-income countries, because the digital infrastructure and capital investment required to deploy automation at scale arrive more slowly ⁵.

The risk, stated plainly

The automation risk for pure, repetitive data entry is high. Robotic Process Automation (RPA) tools and Intelligent Document Processing systems can now achieve 99.95% accuracy on structured form-filling tasks, versus roughly 96-99% for human operators, and can process documents 80% faster ⁶. The WEF 2025 report projects data entry clerks among the roles experiencing the steepest net displacement over the next five years as AI-assisted workflows expand ⁴. McKinsey estimated in 2025 that 57% of US work hours across the economy are technically automatable with existing technology ⁷, and clerical data-processing tasks sit near the top of that list. Candidates entering this trade must understand that roles focused exclusively on copying structured data from one system to another face genuine displacement pressure within a decade.

What automates vs what stays human

THE TASKS AUTOMATION IS TAKING

- Copying structured data between identical systems (e.g., spreadsheet to database), fully automatable via RPA ⁶
- Form-filling from scanned PDFs with predictable layouts, Intelligent Document Processing handles with >99% accuracy ⁶
- Routine invoice entry for standard vendor formats, already automated in large Indian enterprises via GST e-invoicing infrastructure ⁸
- Batch updating of catalogue fields, SKUs, or inventory counts from supplier feeds, fully handled by ETL pipelines ⁷
- Optical character recognition of printed registers for archival purposes, ML-based OCR largely removes the human loop ⁴
- Basic verification of numeric fields against reference tables, automated by rule-based validation scripts ⁶

THE WORK THAT STAYS HUMAN

- Interpreting ambiguous, multi-language, or handwritten source documents where OCR confidence is low, human judgment remains the quality gate ^{5P}
- Data entry requiring contextual understanding and cross-referencing with domain knowledge (medical records, legal documents, multilingual forms), AI errors carry high cost in these domains ⁵
- Client-facing data coordination: confirming data with customers, chasing missing fields, resolving discrepancies, requires communication skills ^P
- Quality-checking AI or OCR output for high-stakes records, a growing role as automation increases the volume of data requiring audit ⁴
- Small and medium enterprises in Tier-2/3 cities lacking capital to deploy RPA, still rely on human operators and represent the bulk of current postings ²
- Government and quasi-government data entry for legacy systems, hybrid paper-digital workflows, and low-digitisation departments, sustained by institutional inertia and budget cycles ⁹

The resilient anchors

0.4%⁵

Share of employment in lower-income economies directly substitutable by generative AI (ILO, 2024), the India-specific risk is structurally lower than Oxford model implies ⁵

30%+²

Share of new BPO hires from Tier-2/3 cities in 2024, where automation deployment lags metros, sustaining human-operator demand ²

40%¹⁰

Planned year-on-year increase in corporate hiring, with BPO/ITES recording +19% growth in mid-2025 (Naukri JobSpeak, June 2025) ¹⁰

High theoretical risk, moderated by India's structural lag, but the safety window is narrowing.

In the global academic literature, data entry as a pure task-set is among the most automatable work that exists. The Frey-Osborne 99% figure ¹ and the WEF's fastest-declining-role classification ⁴ are grounded in real technology capability. Any candidate treating this credential as a destination career in routine key-punching is taking on real medium-term risk.

In India today, the combination of uneven RPA adoption across SME and government sectors, continued BPO expansion in Tier-2 cities, and the breadth of the NTC credential (covering not just key-punching but MS Office, database handling, communication, and quality checking) means that a trained Data Entry Operator who diversifies toward coordination, quality assurance, and domain-specific data work has a credible 5-10 year runway while upskilling toward MIS executive, accounts assistant, or data analyst roles ^P.

Automation exposure by task

Task in this trade	Automation risk	How this trade / program is positioned
Copy structured data between identical digital systems	High	First to be automated by RPA; avoid specialising here ⁶
Process standard vendor invoices and purchase orders	High	GST e-invoicing and ERP automation rapidly displacing this ⁸
Digitise printed/handwritten registers (mixed formats)	Moderate	OCR handles clean print; ambiguous hand-written docs need human review ⁵
Maintain healthcare/legal/government records	Moderate	Domain sensitivity and error-cost keep humans in the loop for now ⁹
Quality-check and audit automated data-entry output	Lower	Emerging role as automation scales, new niche ^{P4}
Client coordination, discrepancy resolution, missing-data follow-up	Lowest	Requires human communication; complements rather than competes with AI ^P

How to read these numbers. Automation probability figures such as the Frey-Osborne 99% apply to the occupation as a bundle of tasks, and assign the highest probability any single constituent task carries to the entire role. Researchers at the Melbourne Institute and elsewhere have noted this inflates risk for roles where some tasks survive automation even if others disappear ¹¹. In India's context, the ILO further cautions that automation adoption in lower-income economies is constrained by infrastructure, capital, and regulatory readiness, meaning that theoretical computerisability overstates near-term displacement ⁵. Read these figures as directional warnings, not precise timelines.

02 THE COURSE EMPLOYABILITY SCORE (CES)

How this trade scores on Lakshya's employability metric

The Lakshya Career Employability Score (CES) for the Data Entry Operator trade is 72.2 out of 100, placing it in the Moderate employability band. This reflects a trade that scores well on live-hiring signals and government policy backing, but is held back by a relatively low salary sub-score (40) and training-quality uncertainties that stem from variable ITI delivery standards across states. Scored on the evidence in this report, this role earns a **CES of 72.2 / 100, "Moderate employability."**

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	100	0.40	0.65
Salary (vs country floor)	40	0.30	0.61
Sector trajectory	80	0.15	0.88
Automation possibility	50	0.10	0.30
Displacement risk	50	0.05	0.30
Market Dynamics composite	72	n/a	0.62

The four pillars, scored

CES pillar	Score	Conf	Weight	Evidence
Training Quality	65	0.95	0.300	Score: 65, the NSQF Level 4 / NTC credential has national recognition but no confirmed green-list signal for this trade, and ITI delivery quality varies ^P
Market Dynamics	72	0.62	0.300	Score: 71.5, demand sub-score is 100 (strong), but salary sub-score is only 40, reflecting the low starting pay typical of entry-level data entry roles ^P
Placement Outcome	83	0.90	0.250	Live market hiring of the role: 29 openings · 27 employers · 7 with pay · 43 recent postings
Government Support	70	0.90	0.150	Score: 70, PMKVY 4.0 explicitly includes Domestic Data Entry Operator as a funded job role, and Digital India, Skill India, and National Apprenticeship Promotion Scheme provide policy scaffolding ⁹

Composite (applied weights, renormalised over scored pillars): **65×0.30 + 72×0.30 + 83×0.25 + 70×0.15 = 72.2**. Confidence 1.00 · evidence 43 clean / 1 rejected · 8 sources.

COURSE EMPLOYABILITY SCORE (CES V2)

72.2 / 100, "Moderate employability"

The 72.2 CES reflects a trade that generates real jobs, 29 active listings from 27 distinct employers in the live-hiring snapshot, with 43 recent postings indicating an active market, but where entry-level compensation (median around Rs 14,000-19,000 per month) is low, and the long-run automation overhang suppresses the market-dynamics pillar. The placement-outcome pillar is strong at 82.9, driven by high employer breadth and hiring recency, though only 7 of 29 listings disclosed salary, pointing to a compressed and opaque wage floor.

To move toward the High employability band, a graduate should use the NTC as the foundation for a structured upskilling path: Microsoft Office Specialist or Tally Prime certification within year one, followed by a short data analytics or SQL course, targeting MIS executive or accounts assistant roles that carry substantially higher salary sub-scores. The NTC credential also qualifies holders for government PSU and railway recruitment pipelines, providing a public-sector hedge against private-sector automation ^{P9}.

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

Where is genuine demand coming from in India?

Despite automation risk, data entry roles continue to generate live postings across BPO, healthcare, logistics, and government sectors, driven by India's ongoing digitisation wave and the expansion of back-office work into Tier-2 and Tier-3 cities.

India's IT-BPM sector employs approximately 5.4 million workers and generated revenues of an estimated USD 297 billion in FY25, according to NASSCOM ¹². The BPO sub-segment, which absorbs the largest share of entry-level data operators, is growing at 7-8% annually and is projected to create over 1.2 million new jobs in Tier-2 and Tier-3 cities alone by 2027 ². Critically, more than 30% of new BPO hires in 2024 came from smaller cities, where operational costs are 25-40% lower and attrition runs at 15-20% versus 35-40% in metros ². The India digital health records market, which creates sustained demand for medical transcription and health data operators, reached USD 1.1 billion in 2024 and is growing at 3.84% CAGR through 2033 ¹³. The National Health Authority's Ayushman Bharat Digital Mission had created 67 crore Ayushman Bharat Health Accounts by September 2024, each requiring data entry and records management support ⁹. GST compliance, e-invoicing expansion (now mandatory for businesses

above Rs 10 crore turnover), and the ongoing digitisation of MSME records also sustain demand for operators with accounting-software competency ⁸.

USD 297 Bn¹²

India IT-BPM sector revenue in FY25 (NASSCOM 2025), the main demand engine for data operators ¹²

1.2 M+ jobs²

Projected new BPO roles in Tier-2/3 cities by 2027 (Employment Mantras / NASSCOM) ²

USD 1.1 Bn¹³

India digital health records market size in 2024, growing at 3.84% CAGR, a demand driver for health data roles ¹³

04 LIVE HIRING EVIDENCE (2025/26)

What employers are actually posting

Captured from live job boards (Indeed, LinkedIn, Naukri) in the current scrape window: **29** openings across **27** employers, **7** with disclosed pay, **43** recent. These are real postings.

The live-hiring snapshot for this trade shows 29 active listings from 27 distinct employers, with 43 recent postings, a relatively thin but genuinely distributed signal. Only 7 of 29 listings disclosed salary, and those that did showed a range of Rs 8,000-20,000 per month, consistent with the salary sub-score of 40 in the CES model.

Employer (live posting)	Posts	Disclosed pay	What they want
VIHU	4	n/a	Data Entry Operator Jobs in Cyitechsearch Interactive - Jalandhar, Punjab, India at VIHU (Jalandhar, Punjab, India), linkedin IN
Arsha infra developers	1	n/a	**Key Responsibilities** * Coordinate with Sales, CRM, HR, Accounts, Admin, and Project teams for smooth workflow * Type Hindi documents, letters, rep
Bluestar Employment Solutions Pvt. Ltd	1	n/a	**Hospital Billing Executive (PMJAY / Ayushman Bharat)** **Location:** Ankleshwar, Gujarat **Job Type:** Full-Time **Industry- Hospital ** **Salary:**
CBSL Group	1	n/a	**Position Overview** CBSL Group is hiring motivated Data Entry Operators for Allahabad location. Join our team to handle accurate data management wit
Carry You	1	n/a	Data Entry Operator at Carry You (Amritsar, Punjab, India), linkedin IN
Chabros Unisport	1	n/a	Part-Time Data Entry & Accounts Assistant (Work From Home) **Company:** Chabros Unisport **Location:** Remote / Work From Home **Job Type:** Part-Time
DS Solutions Private Ltd	1	n/a	Data Entry Operator at DS Solutions Private Ltd (Chandigarh, Chandigarh, India), linkedin IN
Energy Control System	1	n/a	Job Description-Data Entry Operator Job Title: **Data Entry Operator / Data Entry Executive** Job Summary: We are looking for a detail-oriented and or
G-Tec Education	1	n/a	Experienced Akshaya center staffs can apply Freshers with multimedia knowledge also preferable Candidates from Parippally & nearest places more prefer
GOEL MARBLE HOUSE	1	n/a	**Job Summary:** Goel Marble House is looking for a detail-oriented and reliable Data Entry Operator to manage and maintain accurate data records. The
High Dive International	1	n/a	Data Entry Operator at High Dive International (Ludhiana, Punjab, India), linkedin IN
Max Transtech Limited	1	n/a	Data Entry Operator at Max Transtech Limited (Ghaziabad, Uttar Pradesh, India), linkedin IN
Narayana Infra	1	n/a	Data Entry at Narayana Infra (Secunderābād, Telangana, India), linkedin IN
OM AGENCIES	1	n/a	Office Coordinator We are hiring an Office Coordinator + Data Entry Operator to manage daily office operations, manage data in MS Excel, order trackin

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

- 27 distinct employers (near 1:1 listing-to-employer ratio) indicates genuine, spread-out demand rather than a few bulk-hirers distorting the signal
- Postings span government-linked work (Allahabad High Court via CBSL), healthcare (hospital billing via Bluestar), logistics and manufacturing (Energy Control System, Goel Marble House), and BPO (VIHU, G-Tec), confirming cross-sector need
- 43 recent postings (the recency sub-score is 100) means the market is active, not stale

WHY THIS MATTERS

- The salary disclosed in live postings (Rs 9,000-20,000 per month) is at the lower end of the labour market, graduates should negotiate on the basis of certified typing speed and MS Office proficiency from day one ^P
- Employers like Bluestar explicitly exclude pure data entry operators from specialised billing roles, signalling that sector-specific upskilling (e.g., hospital billing, GST accounting) opens higher-paying adjacent positions ⁸
- BPO expansion into Tier-2 cities (Jalandhar, Chandigarh, Ludhiana, Amritsar appear in postings) aligns with NASSCOM's projection that smaller cities will absorb 40% of new BPO hires in 2025 ²

Bottom line: The 29-listing snapshot is thin in absolute terms but reflects a real, diverse employer base where the credential holds its ground, provided graduates move quickly beyond pure key-punching into the domain-specific or quality-checking roles where human judgment still matters.

05 ROLES, PATHWAYS & EARNING POTENTIAL

What the trade leads to, and what it pays

The NTC from this trade is a foundation credential, not a career ceiling. The most effective graduates use the first two years to specialise in a sector (healthcare, logistics, accounts) and build software proficiency that shifts their positioning from interchangeable operator to domain-aware back-office professional.

Role this prepares for	Indicative pay in India	Automation resilience
Data Entry Operator (entry, 0-2 yrs)	Rs 10,000-18,000/month ¹⁴	Moderate, entry point; automation exposure is real
MIS Executive / Back-Office Executive (2-4 yrs)	Rs 18,000-30,000/month ¹⁴	Resilient, reporting, analysis, coordination layer
Accounts Assistant / Tally Operator (2-5 yrs)	Rs 15,000-28,000/month ¹⁵	Resilient, domain-specific, touches GST compliance
Office Administrator / Admin Executive (4-7 yrs)	Rs 25,000-45,000/month ¹⁵	Resilient, coordination, people management, higher cognitive layer
Data Analyst / MIS Manager (5-8 yrs, with SQL/Excel upskill)	Rs 35,000-70,000/month ¹⁴	Strong, analytical skills complement, not compete with, automation

PHASE 1

Foundations

Complete the 1-year CTS programme covering keyboard techniques (30-40 WPM target), MS Word/Excel/PowerPoint, database basics, and the Employability Skills module. Sit the AITT to earn the NTC from NCVT ^P.

PHASE 2

Domain Specialisation

In the first 12-18 months of employment, add one domain-specific certification: Tally Prime for accounts-facing roles, a hospital billing module for healthcare, or a short GST compliance course for MSME back-offices. Register under the National Apprenticeship Promotion Scheme (NAPS) if a PSU or large employer placement is available, this upgrades the credential and provides a wage top-up ⁹.

PHASE 3

Practical Execution

Target MIS Executive or Back-Office Executive roles at the 2-3 year mark, focusing on reporting, discrepancy resolution, and quality-checking of automated output. Add SQL or Power BI basics via free NSDC or NPTEL courses. Graduates who reach this step within 3 years of completing the trade typically exit the automation-risk zone into genuinely resilient back-office analytical roles ^{3P}.

06 SKILLS BUILT & WHY THEY'RE AI-RESILIENT

Trained for the floor, not just the test

WHAT CANDIDATES ACTUALLY WORK ON

- Typing speed and accuracy: target 40+ WPM with less than 1% error rate, the minimum bar most BPO and government recruiters set ^P
- Advanced MS Excel: pivot tables, VLOOKUP/XLOOKUP, conditional formatting, and basic macros, converts an operator into an MIS resource ^P
- Tally Prime or equivalent accounting software: GST data entry, invoice management, and reconciliation are the most durable use-cases ^{8P}
- Data quality practices: understanding error detection, audit trails, and reconciliation processes, increasingly valued as AI output requires human verification ⁴
- Domain vocabulary: building terminology familiarity in one sector (healthcare, logistics, legal) to position as a specialist rather than a generalist operator ^P

WHY THESE RESIST AUTOMATION

- Communication and stakeholder follow-up: chasing vendors, clarifying form errors with clients, coordinating across departments, AI cannot own these relationships ⁵
- Contextual judgment on ambiguous documents: mixed-language, partially torn, or irregularly formatted records still require human interpretation ^{5P}
- Quality auditing of AI and OCR output: as volume of machine-generated data grows, the demand for human auditors rises in parallel ⁴
- Adaptability to new software: operators who learn new tools quickly retain employer value even as specific applications change ³
- Ethics and confidentiality handling: personal health, financial, and legal records require human accountability that cannot be fully delegated to automated systems ^P

The positioning in one line: A Data Entry Operator who pairs NTC-certified keyboard and software skills with domain knowledge and quality-audit capability occupies a resilient back-office niche that automation tools support but cannot fully replace.

07 THE CREDENTIAL & QUALITY LAYER

The NTC matters, especially for government and PSU recruitment.

Successful completion of the 1-year CTS programme and passing the All India Trade Test (AITT) earns the National Trade Certificate (NTC) from the National Council for Vocational Training (NCVT). This credential has formal recognition across all Government of India departments, public sector undertakings, and railways, where NTC qualifications carry direct weight in Group C and Group D recruitment and apprenticeship selection ^{16P}. For candidates targeting government employment as an automation hedge, the NTC is not merely a training record but an eligibility document.

The NTC also stacks with short-form certifications: Microsoft Office Specialist, Tally Prime Certified Professional, and NASSCOM's FutureSkills Prime courses can all be layered on top without repeating foundational training, creating a verifiable credential stack that demonstrates progression to employers. In an environment where 92.8% of young job-seekers actively seek experiential proof of skill ³, a documented certification stack signals seriousness and measurable competence beyond the bare minimum.

08 THE INDIA TALENT CONTEXT

Abundant graduates, scarce job-readiness

India's overall youth employability rate reached 56.35% in 2026, up from 54.81% the prior year, according to the India Skills Report 2026, but ITI graduates specifically sit at 45.95%, a gap that reflects the uneven quality of vocational delivery and the disconnect between curriculum and employer expectations ³. The same report notes that 40% more corporate hiring is planned for the coming year, with BPO and IT services leading fresher intake at 35% of all new hires ³. This means the market is hiring, but candidates without demonstrable, up-to-date software proficiency are increasingly filtered out before interview. The India Skills Report 2025 found that 39% of surveyed corporates cited 'lack of functional digital skills' as the top barrier to placing vocational graduates, making the practical software training in the CTS curriculum directly relevant to closing that gap ³.

An NTC-certified Data Entry Operator who can demonstrate 40 WPM typing, proficiency in Excel and Tally, and domain awareness enters the job market better equipped than the average ITI graduate, but must continue upskilling within two years to avoid the automation trap ^{P3}.

09 STAYING FUTURE-READY

How a candidate stays on the resilient side

LEAN INTO

- Quality assurance and audit roles: as automation scales in BPO and finance, the role of human verifier and error-catcher grows in value ⁴
- Domain-specific data work: healthcare records, legal transcription, and GST compliance data entry all require contextual understanding that generic AI tools mishandle ⁸¹³
- Tier-2 and Tier-3 city employment: 30-40% of new BPO hiring is now in smaller cities with lower attrition and growing employer bases ²
- Government and PSU channels: use the NTC to target railway and central government recruitment pipelines that are insulated from private-sector automation cycles ¹⁶
- Upskilling to MIS / data analytics: SQL, Power BI, and basic Python are achievable add-ons within 12-18 months and shift the role profile entirely out of the displacement zone ³¹⁴

AVOID BEING DEFINED BY

- Remaining in purely repetitive, structured data-copying roles beyond the first 2-3 years, this is the specific task cluster that RPA and AI are rapidly absorbing ⁶⁷
- Relying solely on speed as a differentiator, typing WPM is table stakes, not a career moat; domain knowledge and judgment are the durable advantages ¹⁴
- Ignoring the NTC credential's government utility, failing to register for NAPS apprenticeships or apply to PSU roles forfeits the most automation-resistant pathways ¹⁶
- Treating the CTS certificate as complete training, the 12-month programme is a foundation; candidates who stop learning at certificate-award are most exposed to displacement ^{3P}

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Every figure, traced to a source

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