PREVENTIVE VIGILANCE INITIATIVES

Vigilance Awareness Week

2025

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Vigilance: Our Shared Responsibility

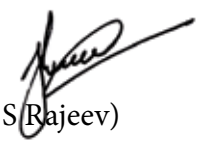
MESSAGE FROM THE COMMISSION

The Commission is observing Vigilance Awareness Week-2025 from 27th October to 2nd November with theme "Vigilance: Our Shared Responsibility". The Commission as part of its mandate, continues to strive for a transparent and accountable system of governance through Punitive, Preventive and Participative Vigilance. However, the Punitive Vigilance has its limitations and it is reactive in nature. Hence, the Commission has been focusing on strengthening of Preventive Vigilance and encourages organizations to adopt those measures that make the system impervious to corruption.

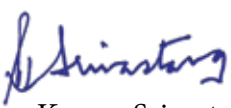
Every year on the occasion of Vigilance Awareness Week, the Commission publishes a booklet on Preventive Vigilance measures undertaken by the organizations. This year also write-ups were invited and received from large numbers of organizations. Some of the best initiatives implemented recently by the organizations have found a place in the booklet.

The booklet contains a host of Preventive Vigilance measures-ranging from process redesign and digitalization to enhance internal audits, risk assessment frameworks, training programmes, grievance redressal systems, and citizen-centric tools. The Commission hopes that this booklet will serve as a handy reference book for organizations to adopt the best practices relevant for implementation by them which will act as bulwark against corrupt practices.

The Commission conveys its deep appreciation for the work done by the contributors, editors and all Committee members associated with bringing out of this booklet.



(A S Rajeev)
Vigilance Commissioner



(Praveen Kumar Srivastava)
Central Vigilance Commissioner

MESSAGE FROM SECRETARY

The Vigilance Awareness Week 2025 is being observed from 27th October to 2nd November 2025 with the theme "Vigilance: Our shared responsibility". The publication of the Preventive Vigilance Booklet on this occasion will provide insights into the various vigilance initiatives that are being taken by different organizations across different sectors.

The editorial team led by Mr. Shiv Kumar, Additional Secretary has done tremendous work in selecting some of the best practices from the large number of entries that had been received. These initiatives reflect the essence of the preventive vigilance strategies that are being adopted by different organizations to bring in more transparency and accountability.

The booklet aims to facilitate all the organizations in their efforts to bring about greater transparency in their day to day activities. I hope it provides the readers with the information they need to bolster their current efforts in bringing about greater accountability in their organizations.

(Trishaljit Sethi)
Secretary

FROM THE EDITOR'S DESK

The journey of compiling this year's Preventive Vigilance Initiatives has been both enlightening and deeply motivating. The diverse best practices and case studies featured in this edition reflect the remarkable creativity and unwavering commitment that organizations bring to the realm of governance.

Notably, this volume showcases how digital platforms are being seamlessly integrated into monitoring, reporting, and grievance redressal systems delivering tangible improvements in transparency and efficiency.

Equally inspiring are the grassroots efforts highlighted here: outreach programmes in rural communities, storytelling initiatives that celebrate honesty, and systemic improvements that strengthen the reliability of everyday processes.

We hope this compilation serves as a wellspring of inspiration, encouraging organizations to adopt, adapt, or scale these initiatives to address their unique challenges. As steadfast partners in the fight against corruption, let us continue to foster an ecosystem rooted in transparency and accountability within public administration.

Together, let us empower ethical action, champion principled leadership, and embed vigilance as a lasting value for every individual, department, and community across our nation.

To all contributors and reviewers, we extend our heartfelt gratitude. This volume is dedicated to everyone striving to build a future where integrity prevails and vigilance is embraced as a shared responsibility.

Shiv Kumar
Additional Secretary

P K Mohanty
Director, CVC

Wormila Jasmine Keishing
Director, CVC

Paras Mehendiratta
Deputy Secretary, CVC

Santosh Kumar
CVO, NHPC Ltd.

Meenaxi Rawat
CVO, BPCL

Raghvendra Kumar
CVO, PNB

FOREWORD

Vigilance is not merely a deterrent; it is a proactive shield that strengthens integrity, transparency, and accountability in public life. The concept of preventive vigilance embodies this ethos-it means anticipating risks of irregularity, malpractice or abuse of power, and putting in place measures so that such risks are prevented, rather than merely being detected after damage is done. By focusing on system design, institutional culture, and early warning mechanisms, preventive vigilance empowers organisations to act before wrongdoing crystallises-thereby conserving public trust, resources, and reputation.

The Central Vigilance Commission (CVC), through its annual Vigilance Awareness Week, continues its steadfast commitment to spreading awareness about preventive vigilance as essential to good governance. Each year, we collate in this volume the initiatives, practices, and innovations adopted by Ministries, PSUs and other organisations to strengthen their preventive vigilance regimes. The aim is twofold: first, to showcase what is being done-so that there is recognition and appreciation; second, to serve as a repository of ideas that other organisations may adapt, replicate or build upon.

In this edition, readers will discover a variety of preventive vigilance measures-ranging from process redesign and digitalisation, to enhanced internal audits, risk assessment frameworks, training programmes, grievance redressal systems, and citizen-centric tools. These initiatives demonstrate that preventive vigilance is not a luxury, but an integral part of efficient, responsive administration.

Every organisation is encouraged no matter how large or small to study these cases carefully and Ask themselves: Which of these practices may suit our organisational context? What are our current vulnerabilities? What new preventive measures can we introduce or strengthen? It is hoped that you may use this publication as a catalyst to review your systems, refresh your vigilance strategies, and embed preventive thinking in every function.

Deep appreciation is extended to all contributors, editors & reviewers whose shared commitment makes this effort possible. May this book inspire stronger preventive vigilance across all public institutions, enhancing not only compliance, but more importantly public confidence in our governance.

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ALL INDIA INSTITUTE OF MEDICAL SCIENCES, NEW DELHI

Code of Merit: Blockchain-Powered Recruitment at AIIMS, New Delhi

AIIMS Exams
ALL INDIA INSTITUTE OF MEDICAL SCIENCES New Delhi

Our Objective

To be a trusted authority delivering examinations and assessments with high reliability and validity

On a mission: Conduct examinations and assessments of the All India Institute of Medical Sciences with precision, upholding the highest standards of education, quality and competence.

Inculcating Values of Integrity: Highest levels by working honestly without fear or favors and maintain strict confidentiality.

Professionalism: To achieve the best, with responsibility, incorporating latest technologies and improving ourselves to deliver the best quality and highest standards of examinations and assessments.

Fairness: To ensure fairness, impartiality and equality to all examinees and stakeholders without bias and prejudice.

Commitment: To deliver high quality examinations and assessments in time and without any errors so as to ensure trust and confidence amongst candidates and stakeholders and make our institution proud.

Teamwork: Recognizing that we can achieve our best only if we work as a team not only within the section but also with all other individuals within and outside the institution.

Respect and Care: Not only rules and regulations but also respect and care for our colleagues, and all individuals and stakeholders with whom we deal since we believe that every individual can make a significant contribution to our working.

PROBLEM STATEMENT

The traditional recruitment process at AIIMS, New Delhi, functional from earlier decades, increasingly struggled to meet the demands of a modern, high-volume institutional environment. As the number of academic seats and staff positions grew exponentially, the legacy system-largely offline and manually administered-revealed critical vulnerabilities. These included procedural inefficiencies, lack of

> The All India Institute of Medical Sciences (AIIMS), New Delhi, has embarked on an innovative journey to revolutionize its recruitment process by implementing blockchain technology. This cutting-edge approach aims to enhance efficiency, transparency, and security of the recruitment process. Blockchain technology ensures that all data related to the recruitment process is securely stored. This includes vacancy status, recruitment rules, constitutional reservation rosters, preliminary application scoring, and merit lists.

transparency, and significant security risks in data handling and result compilation.

The recruitment system operated in a closed-loop format, with limited or no digital interface for candidate engagement. Applicants had no structured channel for communication, grievance redressal, or real-time updates, leading to widespread frustration and disengagement. Scrutiny of applications was conducted manually, often without standardized benchmarks or clearly defined eligibility criteria. This opened the door to subjective interpretations, inconsistencies, and potential bias in shortlisting and selection.

Moreover, the absence of audit trails and digital safeguards contributed to delays in recruitment cycles, undermining institutional timelines and operational planning. These delays, coupled with opaque decision-making and procedural ambiguities, triggered a surge in litigations, with many candidates resorting to legal recourse to challenge the outcomes of the process. The cumulative effect was a growing erosion of trust in the recruitment process, both within the institution and amongst external stakeholders.

In light of these challenges, the need for a robust, transparent, and technology-enabled recruitment system became, not just desirable but imperative. The system needed to uphold fairness, ensure accountability, and restore confidence in institutional hiring practices.

ADDRESSING THE ISSUE

Blockchain Technology in Recruitment

The All India Institute of Medical Sciences (AIIMS), New Delhi, has embarked on an innovative journey to revolutionize its recruitment process by implementing blockchain technology. This cutting-edge approach aims to enhance efficiency, transparency and security of the recruitment process.

Objectives of Implementing Blockchain Technology

The primary objectives of integrating blockchain technology into the recruitment process are to create a tamperproof system, ensure security and privacy, enhance transparency, improve quality, and ensure timely declaration of the results.

Secured Data on Blockchain

Blockchain technology ensures that all data related to the recruitment process is securely stored. This

includes vacancy status, recruitment rules, constitutional reservation rosters, preliminary application scoring, and final results.

Stages of the Recruitment Process

1. **Vacancy & Advertisement:** The first stage of the recruitment process involves the auto-generation of advertisements. This is done based on rules and regulations, constitutionally required reservations and other Miscellaneous specific requirements. Custom reports can be generated in chronological order of the departments.
2. **Online Application:** AIIMS has its own online portal (aiimsexams.ac.in) where candidates can apply. The portal includes a dashboard for candidates, a helpline number, and email support. All communications with candidates are conducted electronically, and preliminary assessment scoring is done online.
3. **Scrutiny of Applications:** The scrutiny of applications is conducted online. This stage includes the ability to send interview call letters, letters of rejection and notices of discrepancies in application forms, such as the lack of requisite documents.
4. **Conduct of Interview:** The interview management system includes a computer-based domain knowledge test. Candidates are shortlisted at a ratio of three times the number of vacancies. Interviews are scheduled, and subject experts are randomly selected electronically. Travel management for the external experts is also handled at this stage.
5. **Declaration of Results:** The final stage involves the auto-compilation of tamper-proof results, ensuring unbiased approvals through online mode. Successful candidates receive electronic appointment letters.

IMPACT

The integration of blockchain technology into the recruitment process at AIIMS, New Delhi marks a paradigm shift in institutional hiring practice. By creating a decentralized, tamperproof ledger of recruitment activities, AIIMS has significantly reduced the scope for procedural errors, manipulation, and opacity. Every action within the recruitment lifecycle is time-stamped, traceable, and verifiable, thereby reinforcing institutional credibility and public trust. Candidates benefit from faster processing, clearer communication, and equitable evaluation, while administrators gain a secure, auditable system that aligns with the highest standards of governance.

Over the past two years, AIIMS, New Delhi has announced over 18,000 positions across the academic programs and recruitment drives. During this period, more than 700,000 candidates have participated in examinations conducted by AIIMS, encompassing not only its own institutional mandates but also those of other national bodies such as ESIC, ICMR, CIP, and fellow Institutes of National Importance.

UNIVERSAL APPLICATION

The implementation of blockchain technology in the recruitment process at AIIMS serves as a model that can be replicated across various sectors and organizations. The principles of transparency, security, and efficiency are universally applicable and can address similar challenges faced by other institutions. By adopting blockchain technology, organizations can enhance their recruitment processes, build trust, and ensure fair outcomes. Whether in academia, public service, or corporate hiring, blockchain offers a scalable solution to mitigate bias, reduce administrative burden, and uphold meritocracy.

WAY FORWARD

Moving forward, AIIMS plans to continuously improve and expand the use of blockchain technology in its recruitment process. This includes exploring new features, integrating advanced technologies, and ensuring that the system remains adaptable to future needs. The success of this initiative at AIIMS can inspire other organizations to adopt similar approaches, leading to a more transparent and efficient recruitment landscape.

The Bell of Justice

In a medieval town, a great bronze bell was hung in the town square. Any villager, rich or poor, could pull its rope to call the magistrates if they felt wronged.

One day, a starving horse wandered into the square. Its owner had abandoned it, leaving it with nothing to eat. Desperate, the horse pulled at the rope of the justice bell with its teeth. The magistrates gathered and, seeing this, declared:

"If even a helpless animal seeks justice, it shall receive it."

The corrupt master who neglected his horse was summoned. He was fined heavily, and the horse was given to a kind farmer who cared for it well.

Moral: *True justice protects even the weakest and holds the corrupt accountable*

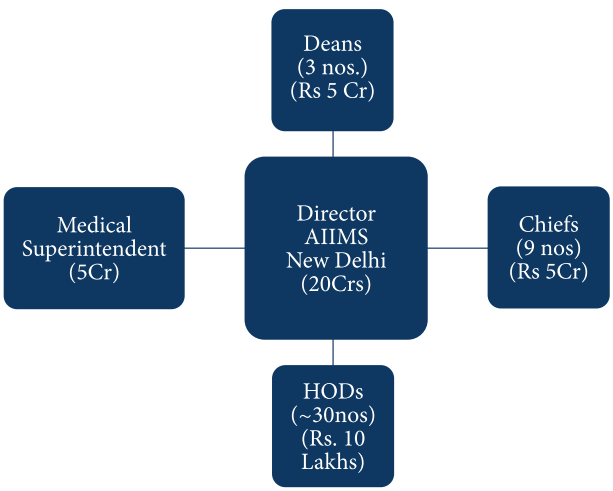
ALL INDIA INSTITUTE OF MEDICAL SCIENCES, NEW DELHI

Implementation of Procurement Digital Library at AIIMS, New Delhi: A Model for Ensuring Congruity & Propriety in Public Procurements

PROBLEM STATEMENT

The All India Institute of Medical Sciences (AIIMS), New Delhi operates as an autonomous institution, managing a substantial annual budget of approximately ₹ 4500 crore. The procurement structure at AIIMS is organized with clearly defined financial powers at each level to ensure efficient and transparent operations. The Director AIIMS holds the highest financial authority with an original expenditure sanctioning power of ₹ 20 Cr, overseeing all major procurement & engineering related activities. The Deans - responsible for Academics, Research and Examinations - exercise full powers up to ₹ 5 Cr within their respective domains to facilitate academic and operational activities. The Medical Superintendent and Chiefs of Centres each have delegated financial powers up to ₹ 5 Cr, enabling them to handle procurement responsibilities for their respective areas. Heads

> The e-Procurement process at AIIMS faces persistent challenges in maintaining transparency and achieving rate reasonability due to its highly decentralized structure. With over 100 independent verticals handling procurement, ensuring uniform pricing and seamless access to procurement data becomes exceedingly challenging. "Procurement Digital Library"at AIIMS New Delhi" is a model for ensuring congruity & propriety in public procurements.



of Departments (except those in Centres) have a delegated financial power of ₹ 10 Lakhs for managing departmental-level procurements.

This structured delegation of financial powers ensures accountability and smooth functioning across all levels of AIIMS in sync with the requirements of seamless patient care. However, this decentralized structure leads to a situation wherein supply orders are generated by over 100 different procuring verticals within AIIMS. Furthermore, the geographic expansion of the AIIMS, New Delhi campus across different neighbouring states adds to the challenge of ensuring consistent pricing, transparency, and rate reasonability across all procuring verticals.

Challenges in Ensuring Transparency and Rate Reasonability

The procurement process at AIIMS faces persistent challenges in maintaining transparency and achieving rate reasonability due to its highly decentralized structure. With over 100 independent verticals handling procurement, ensuring uniform pricing and seamless access to procurement data becomes exceedingly challenging. Departments often operate in silos, relying on separate files and fragmented systems. This disjointed approach restricts inter-departmental visibility in critical details, such as pricing benchmarks, vendor evaluations, and procedural justifications, resulting in inefficiencies and price inconsistencies for items of similar specifications.

The existing e-Office system, while optimizing digital file management, is limited by rights and privilege constraints that hinder comprehensive access to notings and related documentation. Also, there is no extensive functionality to widely search is the contents of various procurement files. These limitations restrict collaborative decisionmaking for future procurements. Despite efforts like standardization and cost-monitoring protocols, the absence of a centralized tracking mechanism undermines financial efficiency and compliance with procurement guidelines.

The General Financial Rules (GFR) lays emphasis on the importance of fundamental principles fundamental principles of transparency, fairness, competition, economy, efficiency and accountability for all public procurements. However, the lack of a unified procurement mechanism at AIIMS sometimes lead to disparities in prices for identical or similar items, arising from varying vendor selection, vendor dependence for price referencing, or access to pricing benchmarks. These inconsistencies highlight the urgent need for a more integrated approach to procurement data management.

While centralizing all procurements might seem like a straightforward solution, it has not been found practical due to variations in specifications across departments and the need for timely procurement to prevent stockouts that could impact patient care. Further, with implementation of GeM, dynamic pricing mechanism has encouraged "just in time" procurement by various verticals instead of long-term rate contracts. In such scenarios, the debate between centralizing procurement activities versus centralizing procurement data presents an intriguing paradigm for enhancing efficiency without compromising operational flexibility.

ADDRESSING THE ISSUE: PROCUREMENT DIGITAL LIBRARY (PDL)

After multiple deliberations, it was decided to centralize procurement data rather than procurement processes to ensure congruity and propriety in procurements across different verticals. This led to the conceptualization of the 'Procurement Digital Library'. This system is a centralized cloud hosted software platform designed to address these challenges and help the procuring verticals in the face manys:

- Price Referencing access to procurement data, enabling departments to compare and benchmark prices for similar items across various transactions, ensuring fair and consistent pricing.
- Rate Reasonability aids in validating prices against market standards and institutional norms, reducing instances of overpricing.
- Price Estimation tools leverage historical and market data to forecast realistic pricing for future procurement, facilitating budget planning and negotiation.
- Internal Auditing provides a robust framework for reviewing procurement activities, ensuring compliance with financial regulations and institutional policies.
- The system bolsters Preventive Vigilance by flagging anomalies, such as unreasonably high prices, persistent procurement from known vendors, unauthorized modes of procurement, etc. thereby also offering valuable insights into vendor reliability and engagement across departments.
- The PDL helps in trend analysis and offers insights into procurement patterns, such as pricing trends, vendor reliability, and demand fluctuations. For effective implementation of the Procurement Digital Library it was ensured that before issuing supply orders and while processing payments, the following key details were entered:
    - Item wise details (including item name, description, quantity, unit price, tax details and item specifications for enabling cross referencing by other users)
    - Vendor details including vendor GST, PAN & Account Number Details
    - Mode of Purchase – GeM / Rate Contract / Global Tender, etc.
    - E-Office tracking number & copy of approvals from competent authorities and copy of supply order generated from GeM or manually.
    - Invoice copy including part invoices, if any.

To facilitate integration with the existing financial management system, supply orders were progressively generated through the PDL. Payment processing, including the creation of Public Financial Management System (PFMS) payment files, was also managed via PDL. To ensure effective monitoring and validation, user privileges were assigned based on procurement verticals, and a Maker-Checker or 4-Eyes authorization system was incorporated into all roles within the PDL. This system resulted in populating a centralized database of diverse hospital and healthcare procurements accessible to authorized users across departments. It also enabled tracking of payments and part payments associated with procurement activities, thereby enhancing transparency and efficiency.

One of the key foundational features of the PDL is its function as a mandatory referencing solution for establishing price estimation and price reasonability for procurements across all verticals at AIIMS, New Delhi. All procurement activities now require referencing the PDL for determining price reasonability and estimating prices for similar items. Tracking and accountability were also bolstered through the introduction of a Unique Procurement Code (UPC) assigned to every procurement. This UPC allows for seamless tracking and searchability, especially in cases of complaints or inquiries. The UPC also ensures that part payments associated with a specific order do not exceed the total order value, maintaining financial discipline and transparency. Additionally, a Unique Vendor Code, linked to vendors' PAN or GSTN, facilitates vendor analytics across all procurement verticals, enabling better vendor performance tracking and management.

In summary, PDL has leveraged data centralization to drive transparency, efficiency, and consistency in procurement practices. This centralized database has empowered decision-makers with real-time information, facilitating informed purchasing decisions, optimizing resource allocation, and enhancing accountability across all levels of the organization. In a decentralized procurement model like that of AIIMS, the PDL has tried to strike a balance between maintaining operational independence & procurement autonomy in sync with the needs of seamless patient care.

IMPACT ANALYSIS

To evaluate the impact of Procurement Digital Library (PDL) on procurement consistency & efficiency, a study was conducted focusing on procurement data from two distinct eight month periods (**'Period-1': January 2022 to August 2022**, representing the initial stages of implementation of the Procurement Data Governance System, and **'Period-2': September 2022 to April 2023**, after the system was stabilized). The data of items chosen by randomization from a select surgical consumables group for the purpose of this study was extracted from the PDL database which has been enumerated in table-1 for further insights as illustrated below:

Group Name	Time	Lowest Price (Rs.)	Highest Price (Rs.)	Total Qty Purchased	Total Cost (Rs.)	Average Unit Cost (Rs.)	Cost Savings as compared to period-1 (Rs.)	Over priced as compared to period-2 (Rs.)	Notional Cost with period-2 as benchmark (Rs.)
3 Layer Mask with Nose Clip	Jan 2022 to Aug 2022	1.20	5.00	2,206,000	3,938,220	1.79	-	1558442.125	2,379,778
Examination Gloves		1.97	5.96	4,882,000	11,993,206	2.46	-	3857867.951	8,135,338
Nitrile Gloves (Sterile)		11.44	21.13	200,750	2,809,930	14.00	-	382653.72	2,427,276
Nitrile Gloves (Non		5.77	16.80	82,700	534,588	6.46	-	8983.555556	525,604
Sterile) Surgical Gloves (Powder free)		12.65	40.00	4,084,100	89,306,525	21.87	-	15899832.47	73,406,693
Disposable Non-woven Isolation Gown		31.75	68.00	127,700	4,889,629	38.29	-	636476.7132	4,253,152
Disposable Non-woven Surgeon Gown		71.00	267.00	500,200	73,495,600	146.93	-	1920255.721	71,575,344
3 Layer Mask with Nose Clip	Sep 2022 to Apr 2023	0.69	2.28	2,450,000.00	2,642,999.00	1.08	1, 730,817.41	-	2,642,999
Examination Gloves		1.52	4.00	9,125,000	15,205,850	1.67	7, 210,783.50	-	15,205,850
Nitrile Gloves (Sterile)		11.98	12.20	100,000	1,209,104	12.09	190, 612.06	-	1,209,104
Nitrile Gloves (Non		6.10	8.40	90,000	572,000	6.36	9, 776.54	-	572,000
Sterile) Surgical Gloves (Powder free)		9.39	23.96	3,619,000	65,047,090	17.97	14, 089,149.07	-	65,047,090
Disposable Non-woven Isolation Gown		32.00	68.00	287,300	9,568,760	33.31	1, 431,948.00	-	9,568,760
Disposable Non-woven Surgeon Gown		80.00	259.99	356,400	50,998,506	143.09	1, 368,210.99	-	50,998,506

Table-1 - PDL Data of Select Items for the Two Periods

As per table-1, the lowest price, highest price, and average unit cost were analyzed for items such as masks, gloves, and other supplies. The price volatility (difference between highest and lowest prices) was calculated for each item, revealing which items experienced significant price fluctuations. The total quantity purchased and total cost were compared over the two periods. A calculation of the cost savings or overruns for the next period provided actionable insights into budget efficiency. Observations on whether items were overpriced compared to the next period were noted.

Metrics such as price volatility, cost, and quantity were compared for better procurement efficiency understanding.Quantitative shifts (% differences) in average costs, total quantities, and volatility were also examined.It was noted that the average unit costs decreased notably across items, resulting in substantial financial savings. Savings were calculated by multiplying the reduction in average unit costs by the total quantities purchased, as summarized in the table-1. To validate the statistical significance of the observed cost reductions, a paired t-test was conducted. The t-statistic of 3.21 and a p-value of 0.018 indicated that the reduction in average unit costs was statistically significant at a common significance level of 0.05. This demonstrates that the improvements were not due to chance, highlighting the impact of the PDL in driving cost efficiency across procurement activities.

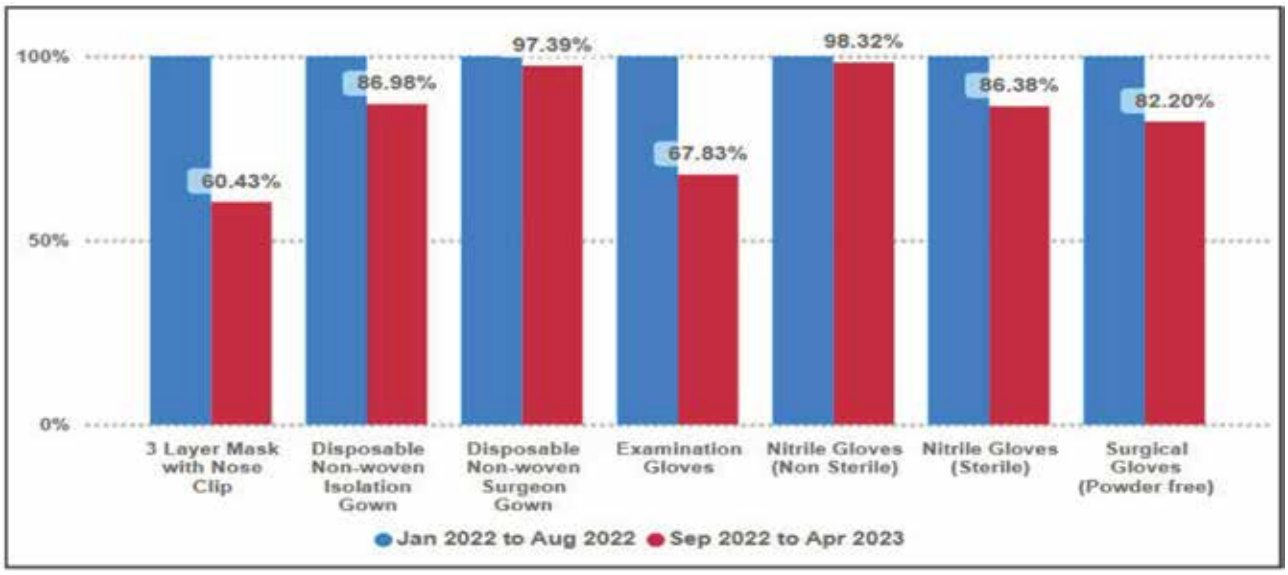


Fig. 1 - Comparison of Average Unit Cost

The percentage reduction in average unit costs varied across product categories. The 3 Layer Mask with Nose Clip exhibited the highest reduction of 39.67%, while Nitrile Gloves (Non-Sterile) showed the smallest reduction of 1.68%. Examination Gloves and Surgical Gloves, which were purchased in large volumes, also demonstrated significant cost savings, indicating the PDL's ability to streamline high-demand procurement processes effectively. Unit costs decreased across several key categories in Period 2, including "Surgical Gloves" and "Examination Gloves," reflecting better rate negotiation. Items that previously experienced price fluctuations, such as "Nitrile Gloves" and "3 Layer Mask with Nose Clip," showed more stable and uniform pricing after the PDL's implementation. This uniformity aligns with the system's objective of achieving rate reasonability.

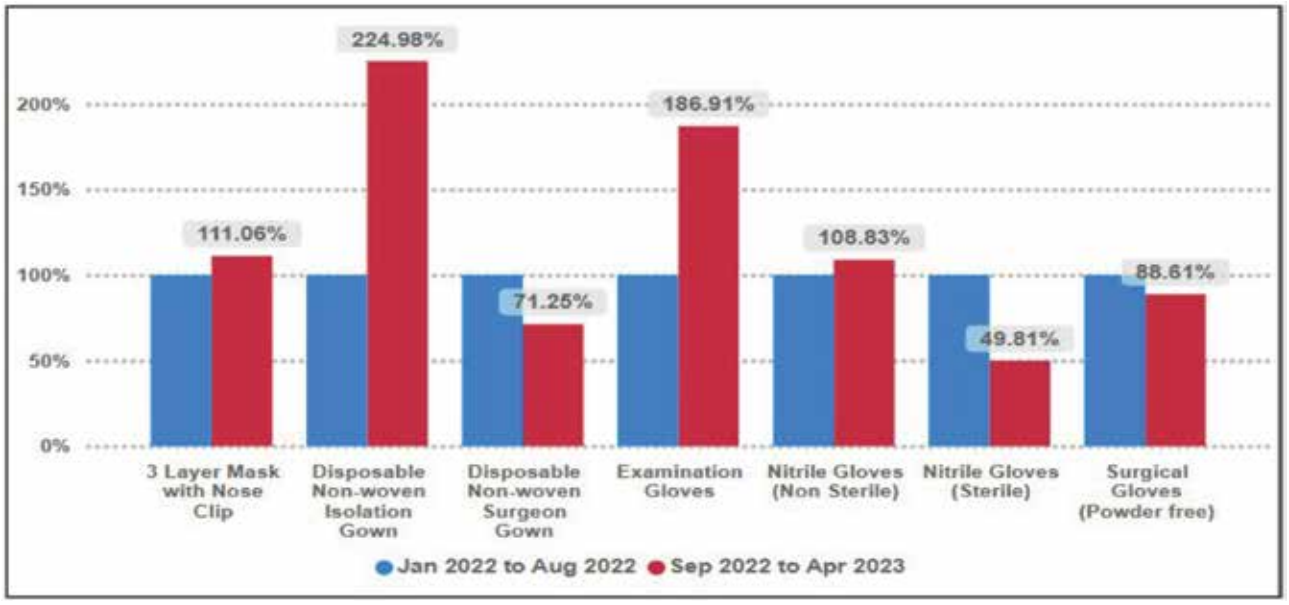


Fig. 2 - Comparison of Procurement Volume

An analysis of the relationship between procurement volume and savings revealed a very weak or negligible correlation, with a correlation coefficient of 0.18. While higher volumes contributed marginally to cost savings, factors such as price negotiations and procurement efficiency were likely more influential in achieving the observed reductions. Additionally, price variability was assessed by examining the range between the lowest and highest prices for each item. The Disposable Non-woven Surgeon Gown, for example, showed significant price volatility across both periods, underscoring the need for greater procurement consistency.

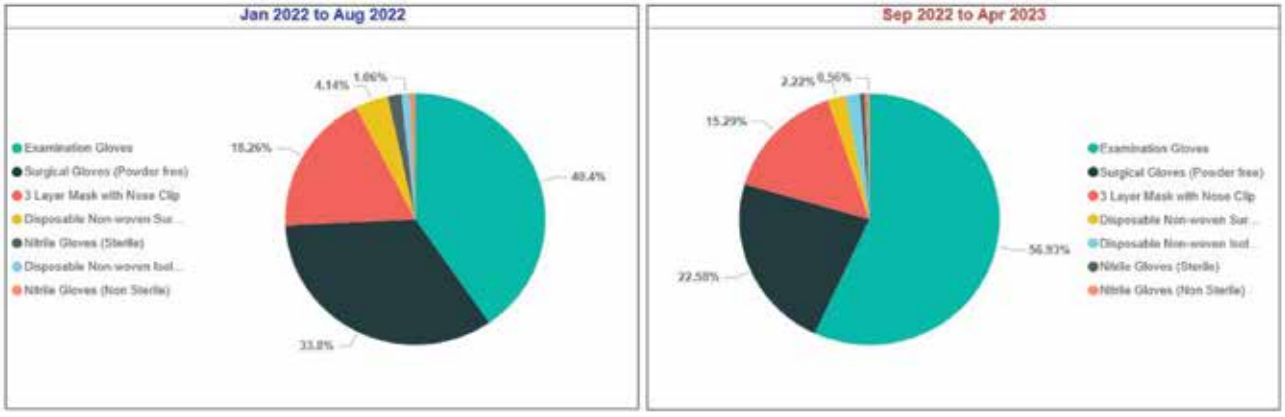


Fig. 3 - Comparison of Share of Each Item by Total Quantity

Fig-3 compares the percentage share of total quantities procured for various items. The examination Gloves demonstrated a significant increase in share, rising from **40.4% to 56.93%**, indicating a strategic prioritization or growing demand. In contrast, Surgical Gloves (Powder-free) saw a notable decline, with their share dropping from **33.8% to 22.58%**, reflecting a reduced demand on this category. The share of Disposable Nonwoven Isolation Gowns also decreased slightly from **18.26% to 15.29%**. Other items, such as 3 Layer Masks with Nose Clip and Nitrile Gloves (Sterile and Non-Sterile), maintained smaller and relatively stable shares. These shifts highlight adjustments in procurement priorities to align with changing requirements and resource optimization strategies.

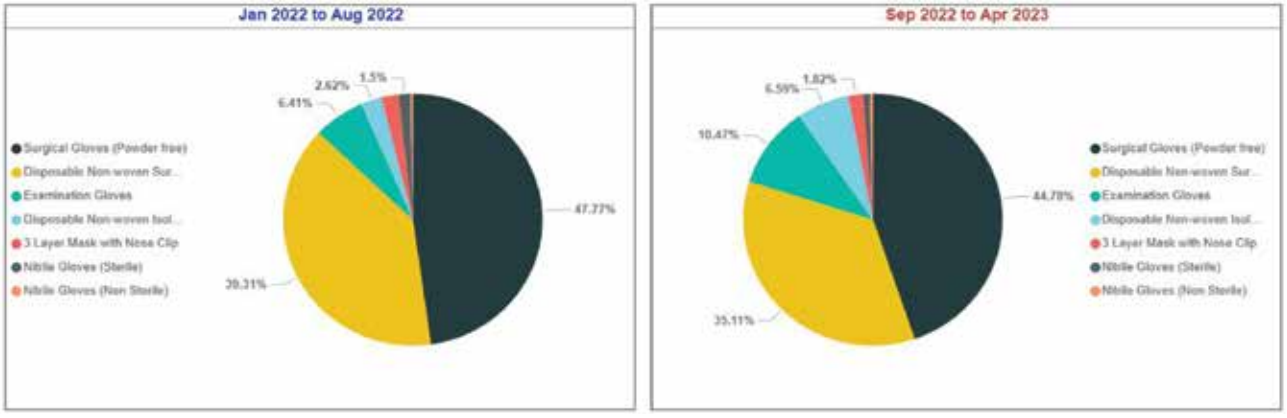


Fig. 4 - Comparison of Share of Each Item by Total Cost

Surgical Gloves (Powder-free) consistently accounted for the largest share of costs, though it decreased slightly from **47.77%** in the initial period to **44.78%** in the subsequent period, indicating a relative cost optimization. Disposable Non-woven Surgeon Gowns also showed a slight decline in cost share, from **39.31% to 35.11%**, reflecting improved cost efficiency or adjusted procurement focus. In contrast, the share of Examination Gloves in total costs increased from **6.41% to 10.47%**, highlighting a shift in resource allocation toward this category. Similarly, the cost share for Disposable Non-woven Isolation Gowns increased modestly from **2.62% to 6.59%**. Other items, such as Nitrile Gloves (Sterile) and 3 Layer Masks with Nose Clip, maintained smaller proportions with minimal changes.

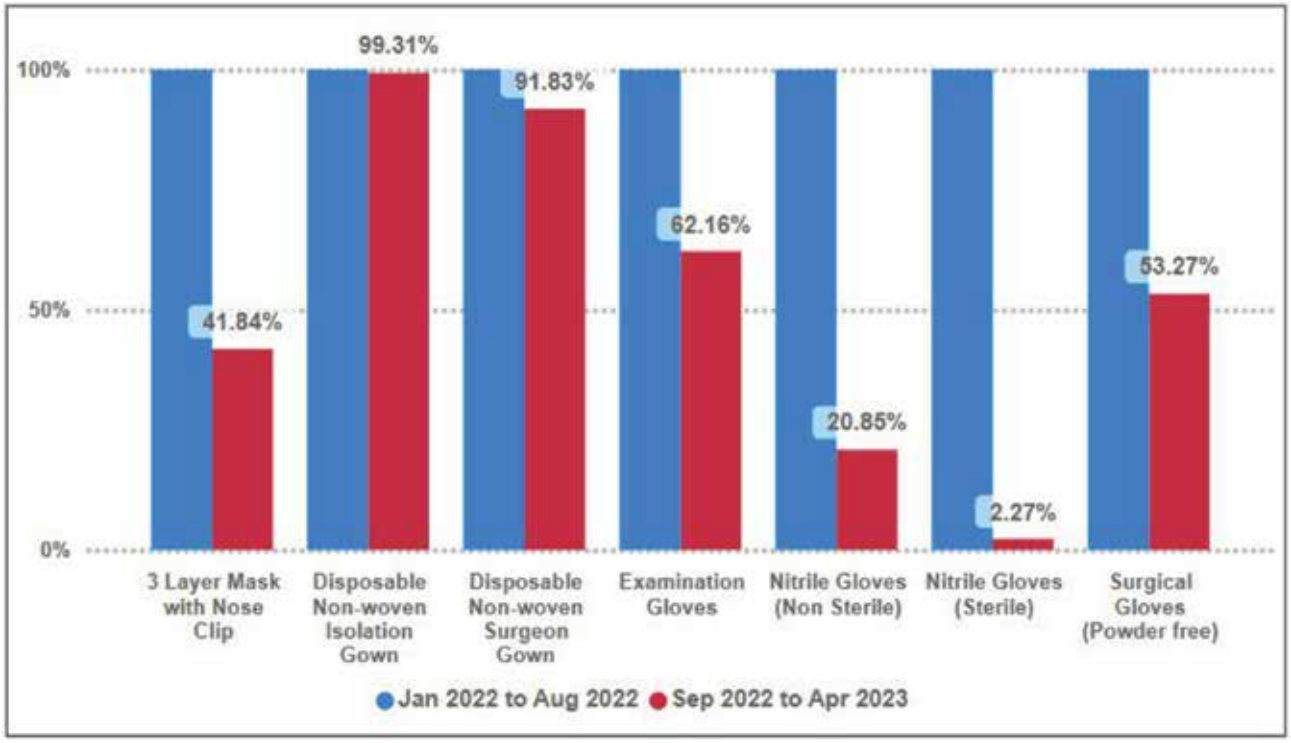


Fig. 5 – Comparison of Volatility

A significant reduction in volatility is observed for most items, reflecting improved price stability. For instance, the volatility for the 3 Layer Mask with Nose Clip decreased notably to 41.84%, while Examination Gloves saw a reduction to 62.16%. Nitrile Gloves (Non-Sterile) experienced one of the most substantial drops, with volatility falling to 20.85%, and Nitrile Gloves (Sterile) achieved near-total price stability, with volatility at just 2.27%. Disposable Non-woven Isolation and Surgeon Gowns maintained relatively high volatility levels of 91.83% and 99.31%, respectively, indicating consistent but less stable pricing. Overall, the data underscores a positive trend toward reduced price fluctuations, ensuring more predictable procurement costs.

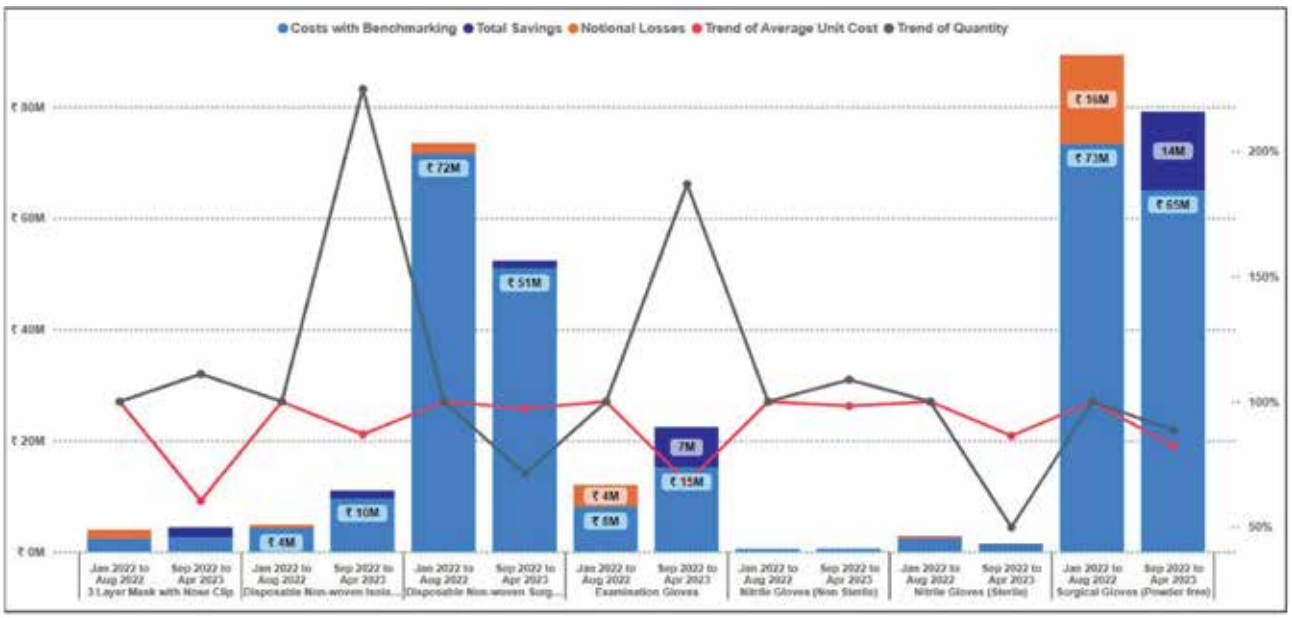


Fig. 6 - Benchmarking of Procurement Costs, Savings, and Trends

Fig. 6 demonstrates the benchmarking of procurement costs and highlights savings achieved through strategic price optimization by data accessibility. For Surgical Gloves (Powder-free), if they had been purchased at the new benchmark price during the initial period (January 2022 to August 2022), the cost would have been ₹ 73M. However, due to the lack of established benchmarks, ₹ 16M was paid in excess. In the subsequent period (September 2022 to April 2023), with clear benchmarking in place, the item was procured at ₹ 65M, resulting in a saving of ₹ 14M compared to previous prices. The trendlines in the chart further illustrate that the average unit cost during the two periods is independent of the quantity purchased. The fluctuations in the quantity trendline (grey line) and the average unit cost trendline (red line) do not follow any consistent pattern, reinforcing that the reductions in total costs were driven by strategic price benchmarking and procurement management rather than changes in purchase volumes or unit prices. This underscores the effectiveness of implementing benchmarking practices to achieve significant cost savings irrespective of these variables.

CONCLUSION

The implementation of the Procurement Digital Library (PDL) at AIIMS has transformed procurement efficiency, cost savings, and pricing consistency in a complex, decentralized public hospital environment and dynamic pricing. By centralizing procurement data, integrating with financial systems like PFMS, and enabling real-time analytics, the PDL has enhanced transparency, reduced redundancies, and optimized resource utilization for enhanced patient care. It has set a benchmark for digital procurement systems, empowering data-driven decision-making and ensuring compliance with regulatory standards. The average unit cost reduction varied across product categories, with the highest decrease observed for the 3 Layer Mask with Nose Clip (39.67%) and the smallest for

Nitrile Gloves (Non-Sterile) (1.68%). High-demand items like Examination Gloves and Surgical Gloves demonstrated substantial cost savings, emphasizing the system's effectiveness in streamlining large-volume and diverse procurement system. Price stability also improved, with volatility for items like Nitrile Gloves (Non-Sterile) dropping to 20.85% and Nitrile Gloves (Sterile) achieving near-total stability at 2.27%. Benchmarking practices enabled substantial savings to the public exchequer, exemplified by Surgical Gloves (Powder-free), where savings of ₹ 14M were achieved in the second period through better rate reasonability and reduced costs. Importantly, it is pertinent to note that cost reductions were independent of purchase volumes or unit prices, underscoring the impact of strategic data-driven procurement management in achieving predictable and reasonable pricing.

WAY FORWARD

Implementation of Procurement Digital Library (PDL) at AIIMS, New Delhi has shown how data centralization could address challenges in ensuring congruity & propriety in procurement in matrix organizations with delegated procurement systems. To replicate the transparency and efficiency benefits observed in this study, public sector institutions in India should consider implementing centralized procurement data governance systems while maintaining the autonomy with users to procure as per their needs. Introducing PAN/GST Linked Unique Vendor Codes (UVC) and Unique Procurement Codes (UPC) within a digital procurement system would enhance tracking and accountability for each transaction. These codes facilitate the monitoring of vendor performance, track payment histories, and provide a clear audit trail. Mandating the use of UVC and UPC across public sector institutions would also prevent over-reliance on specific vendors, encourage competitive bidding, and improve the overall procurement process.

Establishing clear policies for data access within a digital procurement system can empower oversight bodies, reduce the likelihood of corruption, and build trust among stakeholders. Regular audits and public reporting on procurement activities would further reinforce this transparency.

The Lazy Donkey

A man had a donkey to help him to transport goods for his business. The donkey was loyal but lazy. It would often find ways to cut corners at work, causing his master's losses.

One day, the donkey was tasked to carry sacks of salt on his back to towns. One of the routes along the way required it to cross a river. As they were crossing it, the donkey slipped and fell into the water. His master immediately helped him up. To the donkey's pleasant surprise, the load on his back suddenly felt lighter. The salt inside the sacks had been washed away by the water.

For the next few days, the donkey would "slip" and fall into the water. His master noticed that he was doing this intentionally. It frustrated the master because the salt goods he was supposed to sell kept getting damaged. To keep this from happening again, he decided to teach a lesson to the donkey.

On their next trip, he filled the sacks with cotton. Not knowing this change in cargo, the donkey again fell into the water. The cotton absorbed all the water, making the sacks become much heavier. It got so heavy that he couldn't get up at all!

His master then came to help him up, and from there, the donkey learned his lesson.

The Moral: *Be honest with your work. Don't ruin the trust given to you in fulfilling your tasks and responsibilities. The quality of your work may be affected by your dishonesty, which can lead to repercussions.*

BHARAT COKING COAL LTD.

Hindrance Analysis and SAP-Based System Improvement in Contract Execution

In large mining projects, recording of hindrances is vital to manage the impact of cost and time over run. To strengthen, a study of hindrances in BCCL's HEMM contracts was conducted, leading to a proposed system improvement for genuine and timely reporting.

PROBLEM STATEMENT

The contract provisions for considering hindrance and deducting penalties are structured around the monthly work schedule target, which is established at the start of the contract. If the contractor meets this target, no penalty is imposed. However, if the target is not met, the reasons for the shortfall are analysed to determine whether the fault lies with the management, the contractor, or both. Hindrance hours attributed to management failure are accepted, and the monthly target is proportionately reduced. In cases where the contractor exceeds 100% of the reduced target, no penalty is levied. If the execution ranges between 80% and 100% of the target, a 10% penalty on the shortfall is applied on a quarterly basis. For execution levels between 70% and 80%, a 20% penalty on the shortfall is similarly applied quarterly. When execution falls below 70%, a 20% penalty is imposed on the portion of shortfall beyond 30%, which is calculated monthly and is non-refundable.

> In mining projects, hindrances, often beyond the control of both company and contractor can delay work and inflate costs. Accurate and transparent recording of hindrances is vital to manage their impact. BCCL has developed a digital recording of Hindrances through a SAP module for enhancing transparency and control.

Physical registers were being maintained for recording hindrance details in hired HEMM and

transportation contracts which have following drawbacks:

Disadvantage	Impact
Prone to Manual Errors	✓ Human errors in entries (date, time, quantity, reason) may go unnoticed. ✓ Corrections are difficult to track and audit.
Risk of Data Loss or Tampering	✓ Registers can be lost, damaged, or manipulated. ✓ No audit trail or version control for historical data
Lack of Real-Time Visibility	✓ Physical records cannot be accessed instantly across departments or locations.
Cumbersome for Monitoring and Review	✓ Difficult to analyze or compile data across multiple sites or time periods. ✓ Manual summarization needed for reporting, delaying reviews.
Incompatibility with System-Driven Penalty Calculations	✓ Delays in reflecting hindrances in billing and penalty systems like SAP. ✓ No automatic deduction or alert mechanism for contractor non-performance.
Inefficient in Ensuring Transparency and Accountability	✓ No centralized tracking of hindrance patterns or recurring issues.

Table-1

Further, hindrance approval rests with the Engineer-in-Charge, raising concerns of possible collusion with contractors. Such misuse can result in non-genuine hindrances, allowing contractors to fall into lower penalty slabs due to reduced targets and unjustly gain time extensions, undermining project timelines and compromising the integrity of contract execution.

ADDRESSING THE ISSUE

Studying hindrance is of paramount importance for ensuring timely project completion and for bringing transparency to contractor performance. Identifying, recording, and validating genuine hindrance events is a critical and challenging responsibility of the Engineer-in-Charge. A systematic evaluation not only helps understand the actual performance against the awarded quantities but also ensures that contractors do not misuse the provision to escape penalties or justify delays.

In light of the above issues, 3 numbers of CTE type Intensive Examinations (IE) of different hired HEMM patches of BCCL have been conducted with special reference to "study of hindrance" so that further improvement in the identification of actual hindrance as well as reporting of hindrance could be devised. The details of the contracts examined are as follows:

1. High value contract (Rs. 2043.54 Crore): DE Mega patch ENA awarded to M/s R. K. Transport.
2. Medium value contract (Rs. 679.06 Crore): NTST Patch B awarded to M/s Avinash Transport

3. Low value contract (Rs. 390.55 Crore): NC-II Patch KUYA awarded to M/s BGR Mining & Infra Ltd.

Study Report

A. Constituents of Hindrance and its percentage

S.N.	Patch-wise events of hindrance	DE mega patch ENA		NTST Patch B		NC-II Patch KUYA	
		FY 19-20	FY 20-21	FY 19-20	FY 20-21	FY 19-20	FY 20-21
1	Rain/Fog etc.	20.91%	12.35%	41.43%	8.79%	37.84%	7.28%
2	Fire related issues.	24.18%	8.36%	5.90%	52.35%	0.00%	0.00%
3	Blasting, dust/ Operation related issues.	12.91%	11.43%	41.96%	38.87%	4.95%	19.43%
4	Protest, Strikes etc. by locals.	21.37%	11.40%	8.24%	0.00%	25.60%	5.87%
5	Land related issues.	19.49%	41.65%	0.00%	0.00%	24.13%	0.00%
6	COVID related issues.	2.09%	14.86%	0.75%	0.00%	6.30%	67.42%
7	Misc. Issues (Festival, Power maintenance, High tension line).	0.86%	0.00%	1.73%	0.00%	1.18%	0.00%

Table-2

B. Observations

1. Hindrance hours are often approved without proper analysis and on an arbitrary basis.
2. Approving authorities are allowing hindrance claims for issues like dust suppression, blasting, and fire-fighting, which are within the contractor's control.
3. Despite reduced targets during the monsoon, normal rain is still being approved as hindrance, benefiting contractors unfairly.
4. The NIT provisions lack clarity regarding what constitutes a valid hindrance.
5. Engineer-In-Charge has broad discretionary powers to approve hindrance reasons.
6. Contractors are using hindrance approvals to avoid penalties and obtain time extensions.
7. Hindrance registers are not being maintained properly.

C. Suggestions to the Management

1. It is advised for strict compliance of time-to-time issued guidelines related to hindrance such as, maintenance of hindrance register on daily basis duly signed by both the parties, submission of monthly hindrance report to HQ, reconciliation of hindrance by finance department etc.

2. The reasons for loss of production are currently available through a dropdown menu in the Production Module (PP) of SAP; however, there is no provision to record the duration or specific hours of hindrance. To enhance transparency and accountability, SAP must incorporate a feature for mandatory daily entry of hindrance hours along with an automated penalty deduction mechanism for delays attributable to the contractor. This will make hindrance recording more systematic and effective in the following manner:

Feature	SAP-Based	Physical
Visibility	Real-time, centralized	Delayed, location-bound
Penalty Deduction	Auto-calculated	Manual & error-prone
Audit Trail	Secure, traceable	Difficult to track edits
Billing Integration	Directly linked	Requires manual adjustment
Efficiency	Time-saving	Labour-intensive
Data Analysis	Dashboards possible	Hard to consolidate
Storage	Paperless	Bulk files needed

Table-3

Suggested Modalities for provisioning of Hindrance Entry in SAP

Contract No.	
Vendor Name/ Vendor ID	
Plant Code	
Date (DD.MM.YYY)	

A	B	C	D	E	F	G	H	I	J	K	L
Sl. No.	**Start Time (HH:MM)**	**End Time (HH:MM)**	**Hindrance Hours (C-B)**	**Reasons of Hindrance**	**W/S Target**	**Reduced Target (F/24)* (24-D)**	**Ach.**	**% Ach. (H/G* 100)**	**Shortfall (G-H)**	**Rate**	**Penalty**
To be entered by user			System Calculated	To be entered by user		System Calculated	To be entered by user	System Calculated		To be entered by user	System Calculated as per provisions of the contract
Upload Scanned Copy of Hindrance Register											

	Editable Fields
	Not Editable by the user

Table-4

Suggested Modality for Editing of Hindrance Details in SAP

Contract No.					
Vendor Name/ Vendor ID					
Plant Code					
Date (DD.MM.YYY)					
A	B	C	D	E	F
Sl. No.	**Start Time (HH:MM)**	**End Time (HH:MM)**	**Hindrance Hours (C-B)**	**Reasons of Hindrance**	**Reason for change/Alteration in previously filled hindrance**
To be entered by user			System Calculated	To be entered by user	
Upload Scanned Copy of Hindrance Register					

Table-5

Suggested format of Report Generated through SAP

Contract No.													
Vendor Name/Vendor ID													
Plant Code													
SN	**Date**	**Hindrance Hours (HH:MM)**	**Reason of Hindrance**	**Entry Made on**	**Entry Made by**	**Entry Changed on**	**Entry Changed by**	**Reason for change**	**W/S Target**	**Red. Target**	**Ach.**	**% Ach.**	**Penalty**
1													
2													
3													
4													
Total		Σ							Σ	Σ	Σ	Σ	Σ

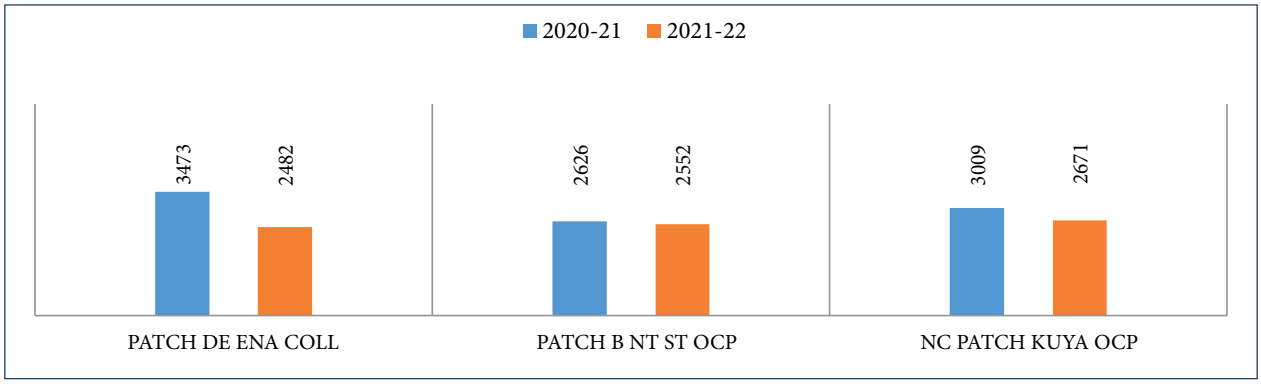
Table-6

IMPACT ANALYSIS

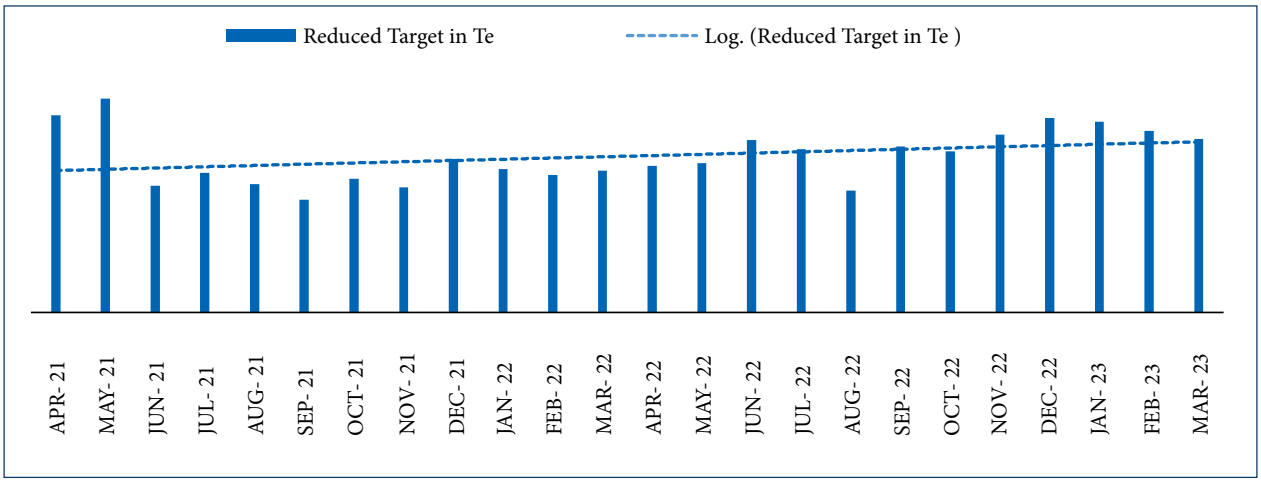
Based on the recommended system improvements, a dedicated SAP module has been developed to track contractor performance contract-wise. It enables daily entry of targets, actual achievements, shortfalls, and reasons for delays.

Since its implementation, the following positive impacts have been observed:

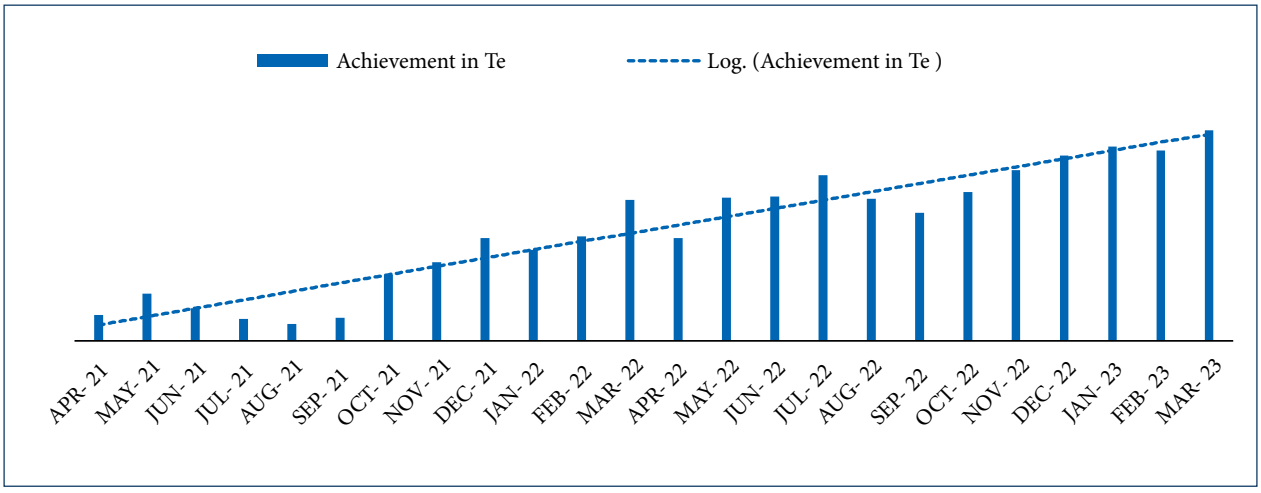
1. Reduction in Hindrance Hours



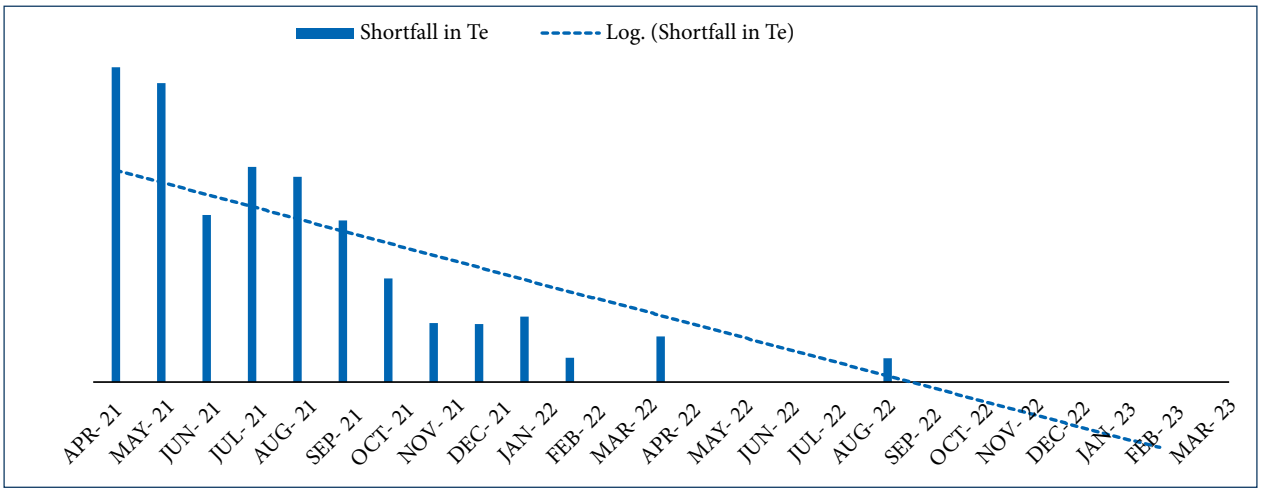
2. Increase in reduced target due to hindrance



3. Increase in Achievement



4. Reduction in shortfall Quantity



UNIVERSAL APPLICATION

Digital recording of hindrances in SAP can be crucial for enhancing transparency and control, especially in organizations engaged in construction and manufacturing projects. These sectors are highly time and cost-sensitive, making real-time tracking of delays essential for timely interventions. Systematic documentation can help justify time extensions and reduces the risk of disputes or manipulation. It can also improve cost control and enable fair assessment of contractor performance. Ultimately, SAP-based hindrance recording reinforces effective project governance and accountability.

WAY FORWARD

As evident, this upgrade aims to bring greater transparency, accuracy, and accountability to the recording and management of hindrance-related data across contracts. A committee formed at CIL to formulate modalities for pan-Coal India implementation has almost finalized the finer nuances including the incorporation of hindrance hour recording and system-driven penalty deductions, in alignment with the specific operational modalities outlined in Tables 4, 5, and 6 referenced earlier. Perceived timeline for expected implementation across all subsidiaries is from this quarter itself.

This initiative by Bharat Coking Coal Limited Vigilance proudly bolsters the company's commitment towards transparent project management.

The Fox and the Goat

One day a fox fell into a deep well and could find no means of escape. A Goat, overcome with thirst, came to the well and on seeing the Fox, inquired if the water was good. Concealing his sad plight under a merry guise, the Fox indulged in a lavish praise of the water, saying it was excellent beyond measure, and encouraged him to descend.

The Goat, mindful only of his thirst, thoughtlessly jumped down, but just as he drank, the Fox informed him of the difficulty they were both in and suggested a scheme for their common escape.

"If," said he, "you will place your forefeet upon the wall and bend your head, I will run up your back and escape, and will help you out afterwards." The Goat readily assented and the Fox leaped upon his back. Steadying himself with the Goat's horns, he safely reached the mouth of the well and made off as fast as he could.

Moral: *Look before you leap*

BHARAT PETROLEUM CORPORATION LTD.

BPCL's Digital Leap in Outsourced Workforce Governance: IOWMS Portal

With 53 locations already live out of the planned 150, IOWMS portal is more than a system - it is not just a tool - it's a strategic enabler aligned with BPCL's vision of being a digitally mature, operationally resilient, and ethically governed enterprise. At its core, the portal represents a proactive stance toward building a secure, compliant, and transparent environment for outsourced workforce operations - a major component of BPCL's everyday functioning across refineries, depots, LPG plants, terminals, and offices.

> The Integrated Outsourced Workforce Management System (IOWMS) portal represents a paradigm shift in the way Bharat Petroleum Corporation Limited (BPCL) manages its vast network of more than 25000 outsourced manpower across India. At a time when digital governance, compliance assurance and security are paramount, BPCL has set a national benchmark by designing and deploying a fully integrated, intelligent and scalable system for managing outsource workforce.

PROBLEM STATEMENT

BPCL faces several operational challenges in managing its outsourced workforce across various sites. One major issue is fragmented oversight, stemming from the lack of a digital, real-time system to track outsourced personnel, with paper-based registers and manual logs still being the

Inefficient Onboarding	Manual data entry delays access and increases errors and duplication.
Compliance Vulnerabilities	Difficulty in ensuring timely PF, ESI, and wage record submissions; risk of audit objections.
Limited Access Control	Manual gate pass processing under pressure by local teams.
Lack of Data Visibility	No consolidated view of manpower statistics, vendor performance, or statutory risks.
Fragmented Oversight	No digital real-time system; reliance on paper-based registers & manual logs.

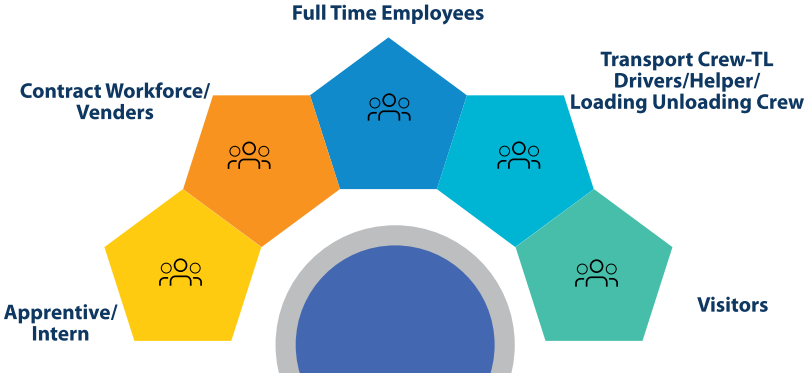
standard practice. Onboarding processes are also inefficient, relying on manual data entry that delays access authorization and increases the risk of errors and duplication.

Compliance vulnerabilities further complicate matters, as ensuring timely submission of PF, ESI, and wage records by contractors is difficult, potentially jeopardizing BPCL's statutory standing and exposing it to audit objections and reputational risks.

Access control is limited, with local teams often under pressure to process manual gate passes. Additionally, decision-makers lack a consolidated view of manpower statistics, vendor performance, and statutory risks, which hinders proactive governance and leads to reactive decision-making.

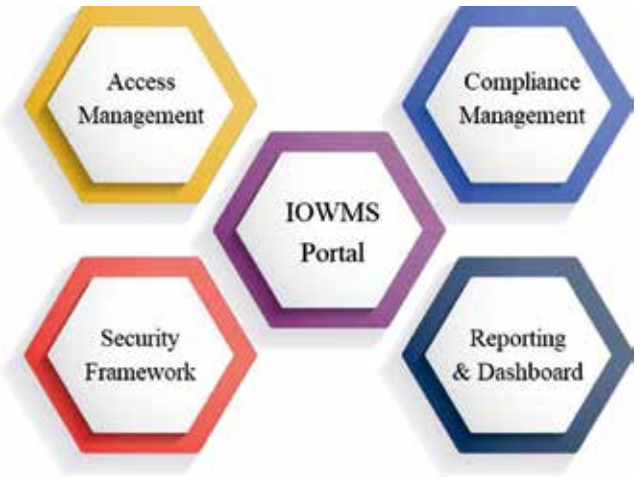
In essence, what BPCL needed was not just another tracking mechanism but a holistic governance platform — something that combined automation, auditability, vendor empowerment, and real-time insights.

Integrated Outsourced Workforce Management System



ADDRESSING THE ISSUE

Integrated Outsourced Workforce Management System (IOWMS) portal consists of interlinked software modules, biometric hardware, encrypted databases, and reporting dashboards, each built kept the end-user and enterprise needs in the mind:



A. The Access Management at BPCL incorporates multiple layers of security and efficiency to ensure robust control over personnel movement. Biometric authentication using both facial and fingerprint recognition is implemented at all entry points, enhancing identity verification. Turnstile and barrier integrations further ensure that only authorized individuals can access critical infrastructure.

A cloud-based system enables real-time monitoring of headcount, with clear segregation between licensed and de-licensed zones. For visitors, a smart card-based identification system is in place, streamlining their entry and tracking. Additionally, a one-time on-site biometric enrollment process ensures authenticity and simplifies identity management across the organization.

B. The Compliance Management system has been designed to streamline and strengthen statutory adherence across its outsourced workforce. It begins with digital onboarding of contract workers through a centralized platform that is also accessible to vendors, ensuring transparency and accountability. Manual entries are eliminated through system-generated statutory reports and registers, enhancing accuracy and efficiency.

To further automate compliance verification, AI-enabled Optical Character Recognition (OCR) is used to validate wage payments, EPF, and ESI contributions. Gate pass generation is seamlessly integrated with headcount tracking and compliance checks, ensuring that only verified personnel get the access. Additionally, the system issues time-bound alerts and triggers for statutory filings and return submissions, to prevent delays and ensuring continuous compliance.

C. BPCL's Security Framework is built on robust data protection and auditability principles. It ensures full compliance with Information Systems (IS) standards by encrypting Aadhaar and other personal data, safeguarding sensitive information from unauthorized access. Advanced device and network security protocols are in place to protect operational data across systems. Additionally, the framework maintains a complete audit trail, with detailed logs readily accessible for both internal reviews and third-party audits, thereby reinforcing transparency and accountability in workforce governance.

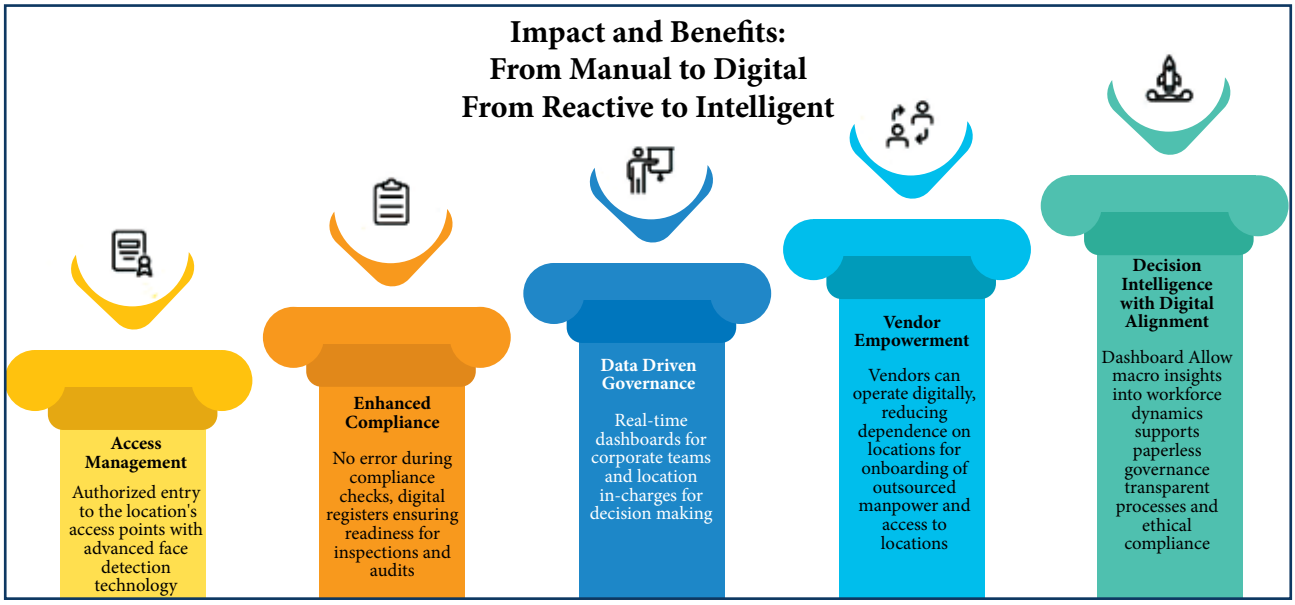
D. **Realtime Reporting and Dashboard system** offers role-based access tailored to various stakeholders, including location in-charges, HR officers, and personnel at Corporate HQ and regional offices. It provides real-time insights into key metrics such as headcount, vendor compliance, and onboarding status, enabling informed decision-making. The platform also supports customized Management Information System (MIS) and statutory reporting, allowing users to generate detailed reports instantly with just a click, thereby enhancing operational transparency and governance efficiency.

How it is implemented:

The project was launched in June 2024 with a clearly defined timeline for nationwide deployment, encompassing not only the implementation of access control systems but also enabling platform access for relevant role holders to facilitate simultaneous onboarding activities.

In **Phase I**, a pilot rollout was conducted at eight selected locations to test the integration of hardware, software, and workflows.

Phase II involved a clustered rollout approach: Cluster 1 has been successfully completed across 45 locations; Cluster 2 is currently underway, covering 37 locations; and Cluster 3 is planned for approximately 60 additional sites. The execution framework included detailed site surveys and readiness assessments tailored to each location. Digital forms, templates, and master data uploads



were used to populate the central platform. Consent forms were collected, and vendors were aligned for biometric data capture. Purchase orders for hardware were placed and installations monitored centrally. Before going live, each site underwent Site Acceptance Testing (SAT) to ensure quality assurance and operational readiness.

IMPACT ANALYSIS

The implementation of IOWMS portal has delivered a wide range of transformative benefits across BPCL's operations.

In terms of **access control and security**, biometric authentication and automated gates have effectively eliminated unauthorized entry, while real-time visibility into on-site headcount has enhanced emergency preparedness and resource allocation.

Compliance has significantly improved through the use of AI and OCR tools, which reduce human error in statutory checks, and the auto-generation of registers ensures readiness for labour inspections and audits.

Operational efficiency has also seen a boost, with the elimination of paper-based registers saving time and minimizing errors.

The system supports **data-driven governance** by providing real-time dashboards to corporate teams and location in-charges, enabling decisions based on clean, structured, and centralized data.

From a **branding perspective**, the adoption of modern visitor and workforce management systems aligns with BPCL's digital transformation goals and strengthens its brand equity.

Vendor empowerment has been another key outcome, as vendors now operate digitally, reducing their dependence on local teams for onboarding and daily operations.

The platform also enhances **decision intelligence**, offering corporate-level dashboards that provide macro-level insights into workforce dynamics, support manpower planning, enable cost control, and monitor vendor compliance performance.

UNIVERSAL APPLICATION

IOWMS portal represents more than a solution tailored for BPCL-it serves as a scalable and replicable governance model aligned with national priorities. Its cross-sector potential makes it applicable to any enterprise managing large, outsourced workforces, while its scalable architecture is designed to accommodate future site expansions, contractor growth, and evolving policy

frameworks. By enabling paperless operations and digital workflows, the system supports a green transition and fosters a cultural transformation rooted in ethical compliance and transparency.

Key learnings for broader adoption include the importance of early stakeholder engagement to facilitate smoother transitions, maintaining standardized master data to ensure system integrity, and customizing deployments to reflect local operational realities. Additionally, visual governance through dashboards enhances accountability and responsiveness, making IOWMS portal a robust framework for digital outsourced workforce management across industries.

WAY FORWARD

The platform is built on a scalable architecture, capable of accommodating future site expansions, contractor growth, and evolving policy requirements. Planned integrations across applications will ensure seamless data flow, while the transition to paperless records, digital workflows, and smart card-based systems aligns with BPCL's commitment to a green and digital future. The roadmap envisions IOWMS portal evolving into a replicable model for managing large, outsourced workforces across sectors. BPCL's long-term vision is to integrate IOWMS portal as a dynamic component of its enterprise governance framework covering the balance 100 locations.

The Bamboo Cutter's Truth

There was once a village where chiefs collected a share of bamboo harvests from the farmers. One season, a greedy chief demanded twice the tribute, threatening punishment.

A humble bamboo cutter brought only the fair share. The chief accused him of disobedience. Before the elders, he split a piece of bamboo in two. Inside was a hollow filled with clear water. He said:

"Like bamboo, a leader must be straight and hollow inside-empty of greed. If he is filled with selfishness, the bamboo will break, and the whole forest will fall."

The people murmured in agreement. Shamed by the metaphor, the chief resigned, and a new honest leader was chosen.

Moral: *A corrupt leader weakens the whole community, while honesty strengthens it.*

दिल्ली मेट्रो रेल कॉरपोरेशन लिमिटेड
Delhi Metro Rail Corporation Limited

DELHI METRO RAIL CORPORATION

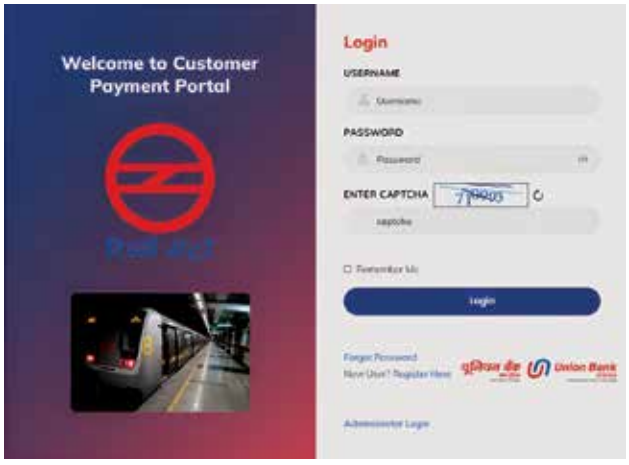
Customer Payment Portal (CPP)
(A Digital Leap in Payment Management)

Description/Overview:

The **Customer Payment Portal** is a robust, secure and user-friendly digital interface to transform the way customers interact with Delhi Metro Rail Corporation (DMRC) for all payment-related process. Designed with customer convenience and operational efficiency in mind, CPP acts as a one-stop solution for all financial transactions, offering seamless access to invoices, contracts, interest calculations, security deposits (SD), bank guarantees (BG), and more – all at the click of a button.

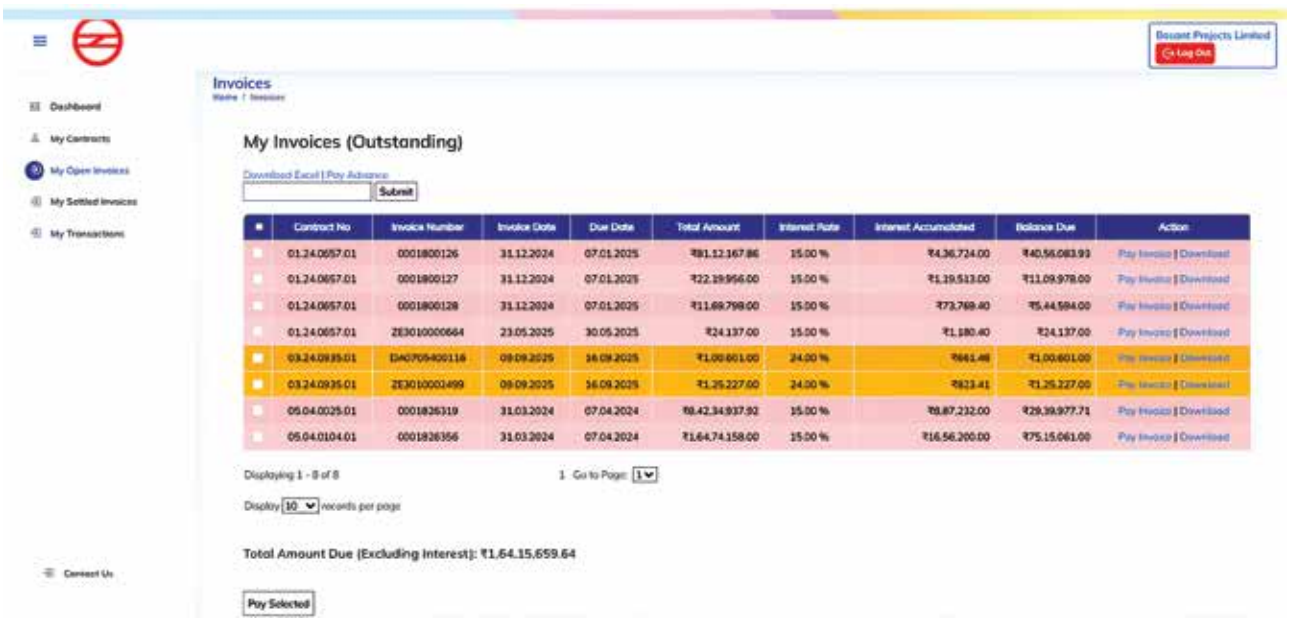
> Customer Payment Portal (CPP) is a Digital Leap in Payment Management launched by Delhi Metro Rail Corporation(DMRC) empowering users, whether individuals or corporate lessees, to make payment anytime, from anywhere, through a variety of digital payment channels. Additionally, the portal allows users to reconcile payments, access records, and track financial transactions in a highly secure digital environment

The modernised online system empowers users, whether individuals or corporate lessees, to make payment at anytime, from anywhere, through a variety of digital payment channels, be it a debit card, credit card, UPI, net banking, RTGS, NEFT, or wallets, enable the customers to have complete flexibility in choosing their preferred mode of transaction. Additionally, the portal allows users to reconcile payments, access records, and track financial transactions in a highly secure digital environment.

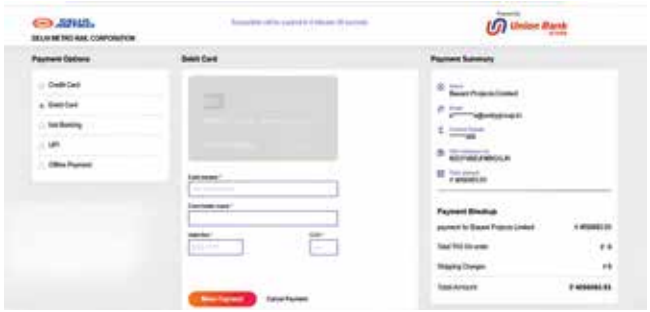


Salient Features of the Customer Payment Portal:

Real-time Data Synchronization: CPP is seamlessly integrated with DMRC's SAP ecosystem using secure APIs (Application programming Interface), ensuring instant and accurate updates across both platforms. Customers can view and download digitally signed invoices generated by DMRC, track outstanding balances, verify interest dues, and assess security deposit details-anytime, anywhere-without needing to contact DMRC offices. The real-time synchronization ensures that all payments made via the portal are immediately reflected in the customer's ledger. In turn, customers receive prompt email and SMS notifications confirming the status of their transactions.



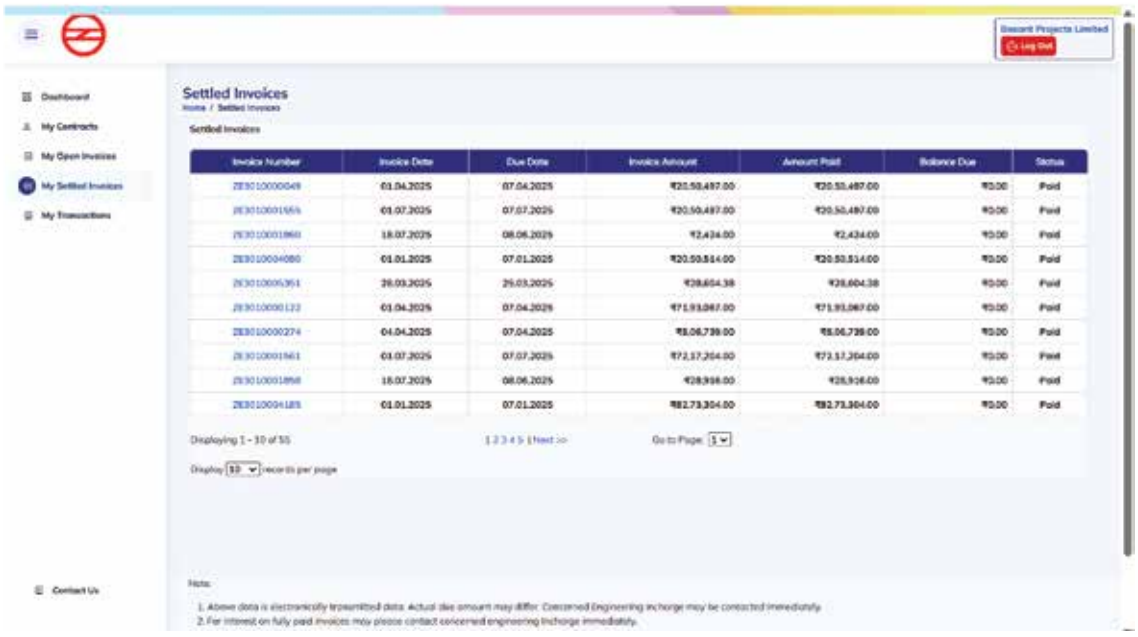
Multiple Payment Options: Understanding the diverse financial preferences of its users, CPP supports an extensive array of digital payment options including:



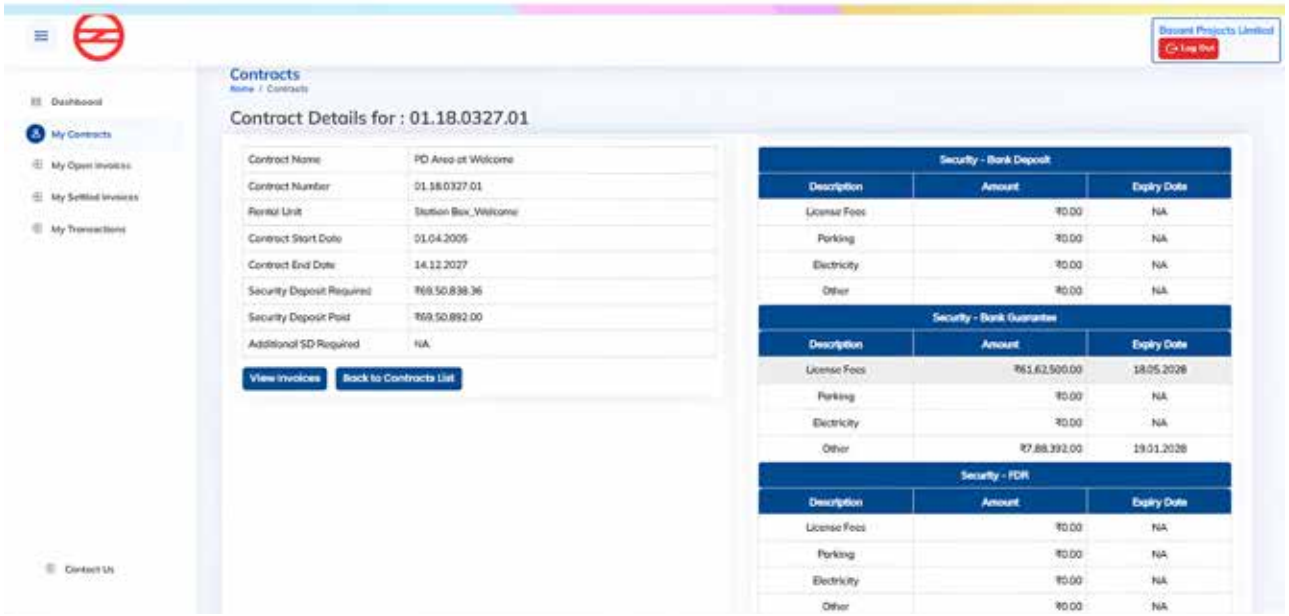
- Credit and Debit Cards
- UPI (Unified Payments Interface)
- Internet Banking
- NEFT and RTGS Transfers
- Mobile Wallets

This comprehensive suite of payment methods ensures maximum convenience and flexibility for users, eliminating the need for offline visits or bank interactions.

- **Improved Customer Experience:** CPP provides an intuitive and responsive user dashboard where customers can:
  - View historical payment data
  - Check outstanding or unsettled invoices
  - Monitor security deposit balances, expiry dates, and interest obligations
  - Access reconciled ledgers with downloadable records
  - The platform offers complete financial transparency and control to its users, significantly enhancing their experience.



- **Operational efficiency of System:** By automating earlier manual processes such as invoice generation, dispatch, payment reminders, and SD/BG communication, CPP has substantially improved the efficiency of DMRC's PD (Property Development) and PB (Property Business) departments. The platform has enabled the organization to manage existing operations without additional human resources-even for new corridors and upcoming projects. This digital transformation has led to considerable savings in both time and operational costs while ensuring high accuracy and reduced workload for DMRC staff.



- **Secure Transactions:** Security is paramount in any digital financial solution, and CPP is built with industry-leading protocols. With SSL encryption and adherence to globally recognized standards like PCI-DSS, the portal guarantees safe handling and processing of customer data and financial information. The further salient features are as under :-

  - o Secure communication channel between the application deployed in banks and SAP system at DMRC through VPN (Virtual Private Network) Tunnel.
  - o External integration with External Payment Gateways through standard APIs based integration.
  - o Smooth integration with Communication channel for communicating the Onetime passwords for the critical events when interacting with the customer.

Workflow / Process of IT System:

(I) New Customer (DMRC) registration

(II) Payment Flow

IMPACT ANALYSIS

Impact of Customer Payment Portal

- Prior to the launch of CPP, the entire payment and reconciliation process was predominantly manual. This approach was not only time-consuming but also prone to delays and communication gaps between DMRC and its customers. Manual invoicing, physical courier dispatch, in-person visits for clarifications, and the absence of real-time updates made it challenging for both parties to maintain timely and accurate financial records. By eliminating the reliance on the Property Development (PD) and Property Business (PB) offices for routine payment and reconciliation queries, the CPP has drastically reduced the burden on administrative staff. This shift has led to the optimal use of man-hours and enhanced departmental productivity.

Benefits of Customer Payment Portal:

- **Convenience & Accessibility:** Customers no longer need to visit DMRC offices or rely on postal services. With 24/7 access to the portal, users can make single or bulk payments in just a few clicks from the comfort of their location.
- **Transparency:** Complete visibility into payment statuses, interest calculations, and financial history ensures that there is no ambiguity or dispute. Real-time ledger updates ensure accuracy in financial records.
- **Time & Cost Efficiency:** The automation of routine tasks has led to faster payment cycles and significantly reduced administrative overhead. DMRC benefits from streamlined internal processes and minimal need for follow-ups or manual verifications.
- **Improved Customer Satisfaction:** A user-friendly interface, combined with immediate support features and instant confirmation, contributes to a smooth and satisfying user journey-encouraging long-term customer loyalty.
- **Paperless & Error free Environment:** By digitizing the payment process, CPP has eliminated paperwork, thereby reducing human errors and fostering an environmentally responsible approach.
- **Cost of Development:** The entire cost of developing the Customer Payment Portal has been

borne by Union Bank of India, allowing DMRC to implement a high-quality solution at no financial burden.

- **Fund Management:** CPP enables the accurate management of DMRC's funds according to designated budget heads-such as Projects or Operations & Maintenance (O&M)-without requiring manual reallocation.
- **Improved MIS (Management Information System):** The portal offers dynamic and customizable MIS tools, enabling DMRC to generate department-wise, customer-wise, contract-wise, and invoice-wise reports. This capability supports better forecasting, auditing, and managerial decision-making.

UNIVERSAL APPLICATIONS

The architecture of the Customer Payment Portal is modular and scalable, allowing its deployment beyond PD/PB departments. With minimal customization, it can be adapted for use by DMRC's External Project and Consultancy clients and third-party project customers. This makes CPP a versatile platform with the potential to become a standardized payment gateway across the organization.

WAY FORWARD

The Customer Payment Portal is a transformative initiative by DMRC aimed at redefining customer interaction and financial management. By digitizing and automating critical processes, the portal ensures enhanced transparency, convenience, and operational efficiency. As it continues to evolve, CPP is well-positioned to serve as a unified platform for all financial transactions across DMRC, while also acting as a model for other public sector organizations embracing digital transformation.

The Lion and the Hare

Once upon a time, in a jungle, there was a lion. The animals of the jungle decided to send one animal each day to be the lion's meal. The lion agreed not to hunt for animals himself.

One day, it was the hare's turn. On the way to meet the lion, the hare saw a deep well and noticed his reflection in it. The clever hare got an idea. When he reached the lion, the lion was upset because the hare was very small.

Quick thinking, the hare told the lion that five hares were sent, but four of them were eaten by another lion. The lion got angry and asked the hare to take him to this other lion. The hare said that the other lion lived in a well.

The lion followed the hare to the well and looked inside. He saw his reflection but thought it was another lion. Without thinking, he jumped into the well to fight the "other lion" and ended up hurting himself.

The hare was very happy because he tricked the lion. From that day on, all the animals in the jungle lived happily without worrying about being the lion's meal. The story teaches us that cleverness can sometimes help us solve problems and live peacefully.

Moral: *Clever thinking can overcome challenges. It shows us that sometimes intelligence and quick wit can lead to solutions that bring happiness and harmony to everyone.*

भारत दूरसंचार
INDIA TELECOM

DEPARTMENT OF TELECOMMUNICATIONS

India's Telecom Shields: Sanchar Saathi and Digital Intelligence Platform

PROBLEM STATEMENT

> In an age where cybercriminals exploit every digital avenue to deceive innocent citizens, India's Department of Telecommunications (DoT) has emerged as a technological guardian, deploying cutting-edge solutions to protect millions of mobile users. From sophisticated fake digital arrests to elaborate phishing scams through spoofed calls, DoT's comprehensive initiatives are safeguarding what matters most to every citizen-their trust in the digital ecosystem.

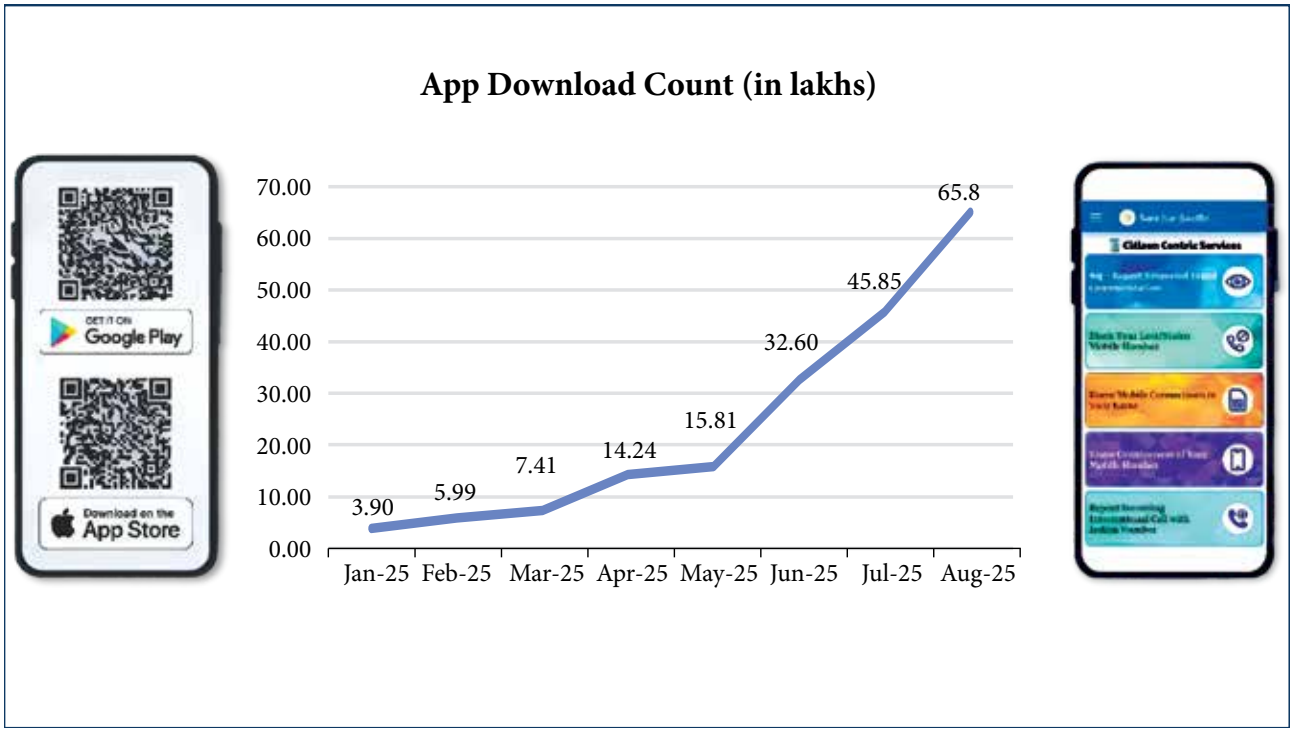
The digital revolution that has transformed India into a connected nation has also opened new frontiers for cybercriminals. Three critical challenges have emerged in the fight against telecom-based cyber fraud: the urgent need to enable citizen reporting of fraudulent communications, the requirement for a unified platform bringing together all stakeholders for seamless data

sharing, and the necessity for advanced AI-based analytics to generate actionable intelligence against increasingly sophisticated threats. These challenges demanded an unprecedented response-one that would combine citizen empowerment, stakeholder collaboration, and AI into a comprehensive defense system.

ADDRESSING THE ISSUE

DoT's Comprehensive Digital Defense Strategy:

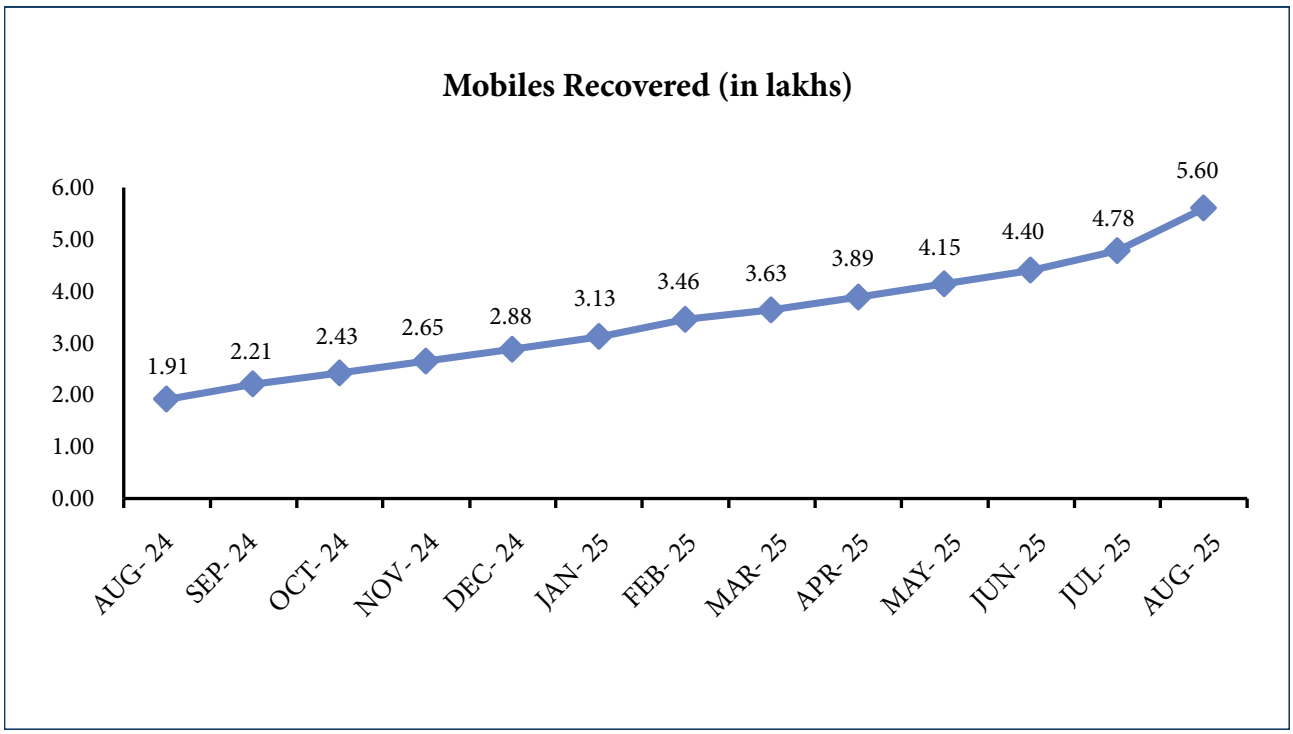
I. Sanchar Saathi: Empowering Citizens through various facilities At the heart of DoT's citizen-centric approach is Sanchar Saathi, a comprehensive platform launched as a web portal (May 16, 2023) and mobile app for Android and IOS (January 17, 2025). This initiative represents a paradigm shift from reactive to proactive cyber defense, placing powerful tools directly in citizens' hands.



A. **Chakshu:** The platform's flagship feature, Chakshu, serves as a digital reporting system, enabling citizens to report suspicious fraud communications or spam across calls, SMS, and WhatsApp. The results have been remarkable as based on citizen reports, DoT amplifies the action taken against the fraudsters. Based on one complaint, action is taken on multiple fronts of the telecom ecosystem like on mobile numbers, mobile handsets, SIM sellers, SMS headers, whatsapp etc.

B. **Block your lost / stolen mobile handset:** The feature has become a lifeline for victims of phone

theft. With over 37 lakh devices blocked, 22.60 lakh traced, and an impressive 5.64 lakh recovered and returned to owners, this service demonstrates the power of coordinated digital response. If a citizen loses his/ her mobile phone, he can report on this facility for blocking the lost handset and making it unusable in the Indian network. The system detects when a reported handset is being used & generates a trace with the mobile phone can be recovered by the State police or Railway Protection Force and handed over to the rightful owner.



C. **Know Mobile Connections in Your Name:** It facilitates citizen to check the number of mobile connections taken in his/her name. It also facilitates in reporting the mobile connection(s) which are either not required and these mobile connections are provided to TSP concern for reverification. This feature has processed over 2.28 crore requests, helping the citizens to identify and report unauthorized connections. This transparency tool has resolved 1.93 crore requests, enabling better control over personal digital identity.

D. **Report Incoming International Call with Indian Number:** It facilitates citizens to report international calls received with Indian mobile as calling number (CLI). These calls are suspected to be originated via illegal telecom setups in India which are used to bypass the licensed telecom routes for anti-national activities and financial frauds etc.

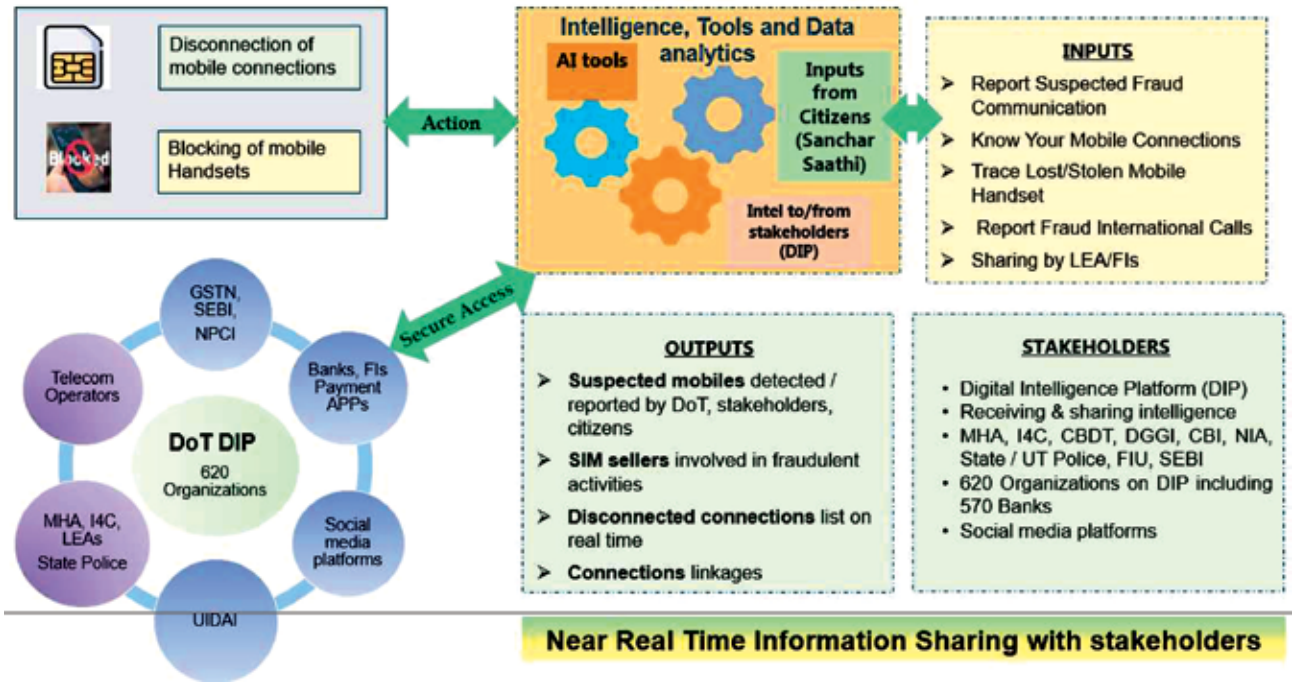
E. **Know Genuineness of Your Mobile Handset:** This facility allows to check the genuineness of mobile handset while buying a new/old device.

II. Digital Intelligence Platform (DIP): Uniting the Defense Ecosystem

DoT's Digital Intelligence Platform (DIP) represents a revolutionary approach for inter-agency

cooperation. By bringing together 620 organizations including central security agencies, state police forces, banks, financial institutions, telecom service providers, and digital platforms like WhatsApp, DIP creates an unprecedented intelligent sharing ecosystem.

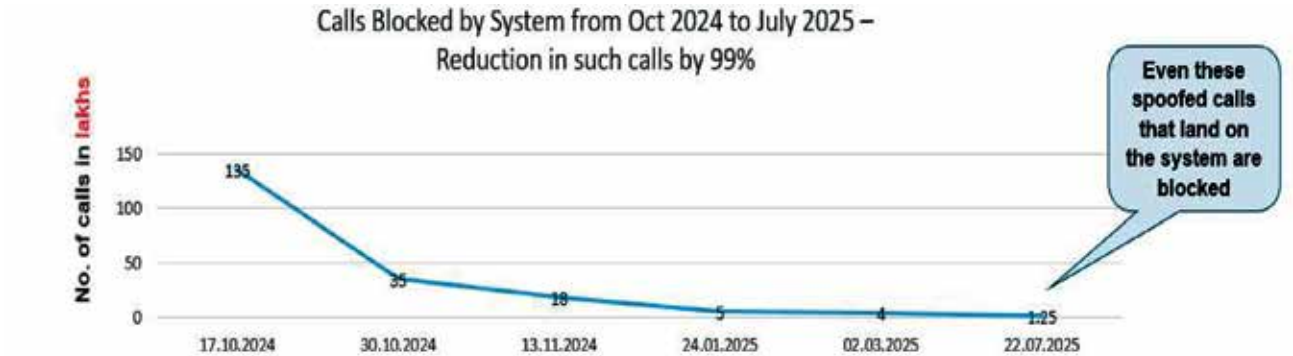
This platform hosts real-time lists of disconnected and suspected mobile connections along with reasons for disconnection, enabling stakeholders to take immediate action, such a disengaging associated services linked to these numbers.



III. AI-Powered Fraud Prevention: The Technology Edge

A. CIOR: Blocking International Spoofed Calls

DoT's International Incoming Spoofed Calls Prevention System (CIOR), launched on October 17, 2024, represents a technological breakthrough in preventing cross-border cyber fraud. This system identifies and blocks spoofed calls i.e. international calls that display Indian mobile numbers, appearing to originate within India but actually made by overseas cybercriminals.



The impact has been dramatic: a 97% reduction in spoofed calls with Indian CLI (Calling Line Identity), with remaining attempts blocked at international gateways. This preventive approach has proven particularly effective against fake digital arrest scams and impersonation of government officials.

B. ASTR: AI-Powered Identity Verification

The ASTR tool showcases India's indigenous AI capabilities in combating fraud. By analyzing subscriber images across different KYC submissions, ASTR identifies cases where individuals have acquired multiple SIM cards using fake or forged documents.

Processing an astounding 134 crore mobile connections, ASTR has led to the disconnection of over 82.2 lakh fraudulent connections after reverification a testament to the system's precision and effectiveness

100 SIMs: 78 names: male & female

C. Financial Fraud Risk Indicator: Real-Time Protection

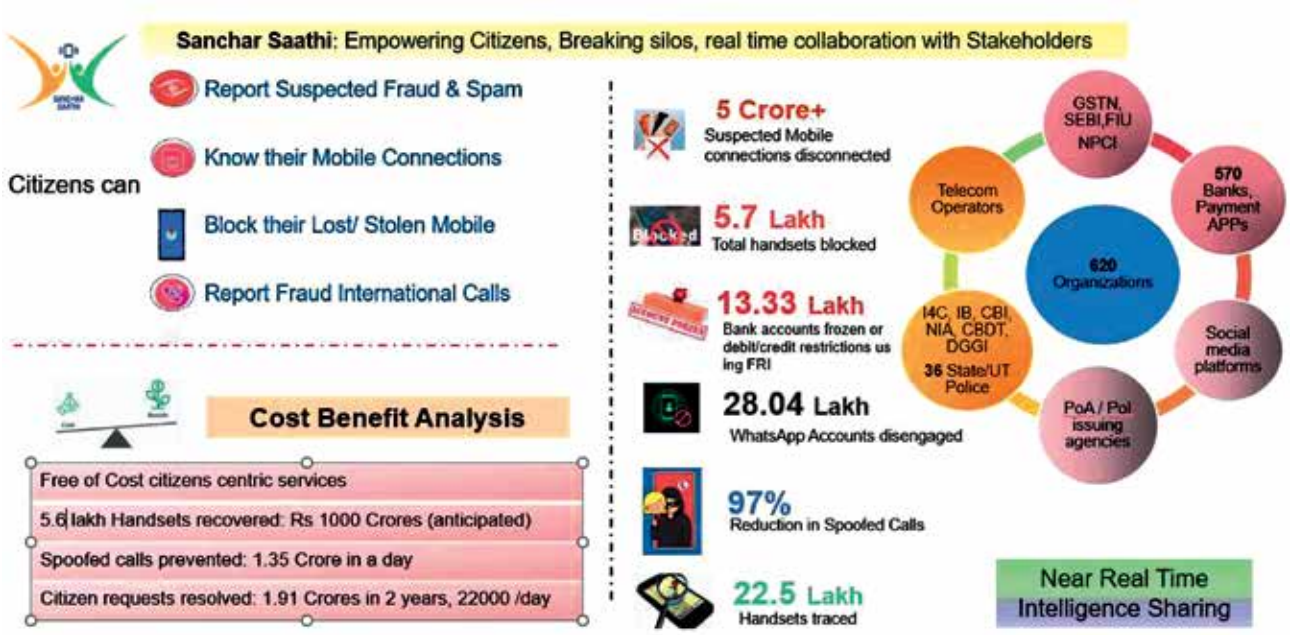
Time is the essence in preventing financial fraud and for protecting citizens from losing their hard earned money. To enable this in true spirit, DoT launched, on May 22, 2025, the Financial Fraud Risk Indicator (FRI) as a fraud prevention tool. Using multi-variate analysis, FRI classifies suspected mobile numbers based on their association with financial fraud risk levels as Medium, High or Very High.

This indicator empowers banks, NBFCs, and UPI service providers to implement realtime protective measures. Third-party payment applications like PhonePe, Paytm etc. have integrated FRI, enabling transaction declines and real-time alerts when users attempt to transfer money to high-risk accounts. Transactions amounting to Rs. 130 crore have been saved using FRI.

IMPACT ANALYSIS

i. Measurable Impact: A Comprehensive Success Story

The quantitative results of DoT's initiatives paint a compelling picture of digital security enhancement.



ii. Qualitative Transformation: Building Digital Trust

Beyond measurable outcomes, DoT's initiatives have catalyzed qualitative improvements:

- **Citizen Empowerment:** Users now possess tools to actively participate in their digital security, fostering a culture of cyber vigilance.
- **Preventive Action:** The shift from reactive to proactive defense has significantly reduced successful fraud attempts.
- **Stakeholder Collaboration:** Unprecedented cooperation between telecom sector and financial sector, government agencies, private sector entities, and citizens has created a robust defense ecosystem.
- **Fraud Risk Prevention:** Real-time risk assessment and response capabilities have enhanced overall telecom cyber security and is contributing significantly in rebuilding the trust of citizens in the digital space.

UNIVERSAL APPLICATIONS

The innovative platforms and tools developed by DoT especially AI-driven systems like **ASTR** demonstrate remarkable versatility, with applications extending far beyond telecommunications. Such as:

- **Direct Benefit Transfer (DBT) Mission:** ASTR can help prevent identity-based frauds in

social welfare schemes by identifying fake or duplicate KYC profiles linked to beneficiaries, ensuring subsidies and benefits reach the intended individuals.

- **Fake Document Identification:** Fake PoI/PoA detection like Driving license through facial duplication.
- **Banking & Financial Services:** Tools like **FRI** and **ASTR** are assisting banks, NBFCs, and UPI service providers in real-time fraud risk classification, enabling secure customer onboarding and transaction monitoring.
- **Law Enforcement & Internal Security: DIP** enables seamless data sharing across security agencies and can be adopted by state and central law enforcement bodies for tracking telecom-linked criminal networks.
- **Second Hand Mobile Marketplace:** Verification tools can help second hand mobile marketplace for checking genuineness of mobile handsets which they are selling or buying.

These tools offer a **replicable framework** that can be adopted across sectors both public and private for enhancing digital trust, improving service delivery, and minimizing fraud risks.

WAY FORWARD

Scaling Protection, Deepening Integration: Going ahead, DoT aims to:

- Expand AI and analytics capabilities to preempt evolving tactics and new modus operandi being used by fraudsters for misusing telecom resources.
- Enhance integration of Fraud Risk Indicator(FRI) with all financial institutions and digital payment platforms.
- Drive awareness among citizens and retailers on responsible telecom practices.
- Foster international cooperation for tackling cross-border telecom threats.

The Weaver's White Thread

A weaver was ordered by a local governor to weave a cloth of gold for his palace. Secretly, the governor intended to sell it abroad and fill his own pockets.

The weaver, loyal to the people, refused, saying:

"My loom can weave only truth. If I weave for greed, the thread will turn black."

When the governor forced him, the weaver sat at his loom. Before the villagers, he wove with plain white thread. At the end, the cloth shone brighter than any gold, dazzling the crowd. The governor tried to claim it, but when he touched it, the fabric crumbled into dust.

The people rose up and removed the governor from office.

Moral: *Craft, law, or power loses its strength when used for corruption; honesty keeps its shine forever.*

HINDUSTAN PETROLEUM CORPORATION LTD

Digital Quote Management System in competitive bidding

PROBLEM STATEMENT

In the Industrial & Consumer (I&C) Strategic Business Unit (SBU), effective margin management is essential for maintaining profitability and competitiveness. Previously, the process lacked standardization, with field officers relying on informal methods such as e-mails to seek approvals. This resulted in inconsistent practices, potential compliance gaps, and limited process control.

> HPCL's Industrial & Consumer (I&C) Strategic Business Unit (SBU) supplies petroleum products directly to major industries and bulk consumers through competitive bidding, requiring strong and transparent quote processing. To replace the earlier fragmented, email-based approach, the SBU has implemented a Digital Quote Management System (DQMS), bringing transparency, traceability and process discipline to margin management while enhancing overall operational efficiency.

The absence of a centralized audit trail made approval histories difficult to access during audits. Operating in silos, different regions followed varying workflows without system-based margin validation, increasing the possibility of errors. Email-based records were often difficult to retrieve, especially after officers' transfers or retirements, while manual delays and routing issues further exposed the process against commercial and compliance risks. These challenges clearly signalled the need for a structured digital platform to standardize workflows, strengthen controls, and enhance transparency.

ADDRESSING THE ISSUE

To address these vulnerabilities, I&C SBU implemented the DQMS, a centralized digital platform that mandates all margin management approvals to pass through a structured workflow. DQMS eliminated

email-based requests and ensured that every transaction followed a consistent, traceable path aligned with the SBU's delegation of powers.

The platform incorporates product-wise margin validation, ensuring that field officers can only submit requests based on system-updated pricing benchmarks. Role-based access ensures that only authorized personnel can initiate or approve requests, thereby reinforcing accountability. Approval workflow is automated and locked as per predefined authority levels, preventing manual bypass. Additionally, every action i.e., creation/ modification and approval of a request, is recorded with a timestamp, creating a comprehensive audit trail. This process framework enables the SBU to monitor, verify and defend every commercial decision, thereby eliminating the gaps in earlier process.

IMPACT ANALYSIS

The introduction of DQMS has led to tangible improvements across operational efficiency, financial governance and compliance. One of the most significant qualitative outcomes has been the complete elimination of informal approval channels. The requests now flow through a standardized digital process, enhancing transparency while ensuring adherence to delegated authority norms. Internal controls have been strengthened and stakeholders across levels have become more conscious of process discipline and audit readiness.

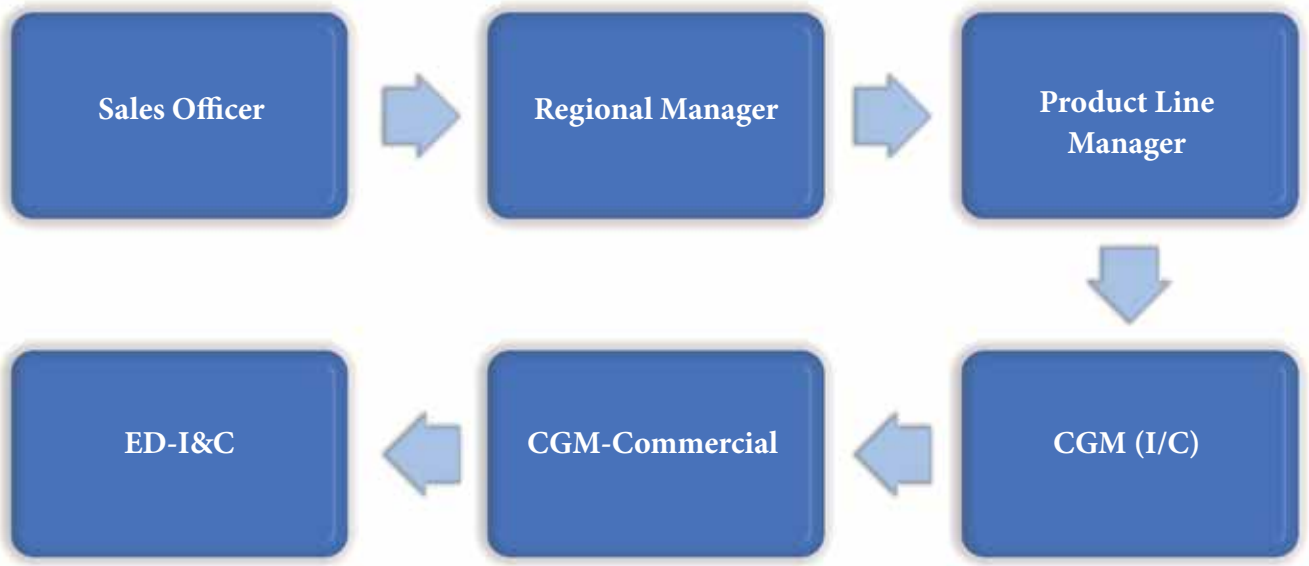
Time Efficiency	Qualitative Impact	Financial Safeguards
• Faster turnaround • Automated routing & alerts • Focus on sales, not follow-ups	• Eliminated informal approvals • Strengthened internal controls • Reduced manual errors	• Prevents unauthorized margins • Ensures audit readiness • Protects profitability

From a quantitative perspective, DQMS has enabled 100% traceability of margin approvals, as every request now linked to a digital audit trail that captures the full decision chain. The system has minimized the occurrence of unapproved or misrouted cases, thereby reducing operational risks. Time efficiency has also improved notably, with field officers now experiencing faster approval turnaround,

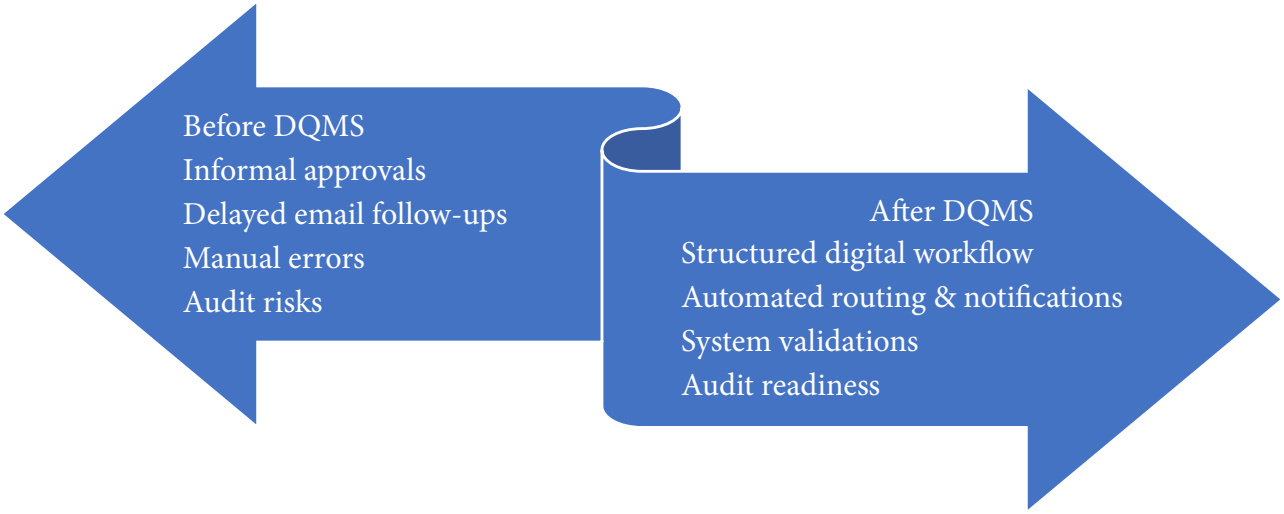
as automated routing and notifications have replaced delayed email follow-ups. This has allowed sales teams to spend more time on customer engagement rather than chasing internal approvals.

Financially, DQMS has acted as a safeguard and has ensured proper margin management. By enforcing structured approvals, the system ensures that only valid and justified margin deviations are allowed, which helps in protecting overall profitability. Moreover, the platform's traceability has enhanced audit compliance and reduced the likelihood of observations or objections.

Approval-Work Flow:



The exact approval flow and levels are determined dynamically by the product involved and the magnitude of margin erosion requested.



UNIVERSAL APPLICATION

Although designed specifically for margin approvals in I&C Sales, the architecture and principles of DQMS are broadly replicable. Any organization that deals with price negotiations, contractual discounts, or commercial exceptions can benefit from a similar platform. Businesses, where customer-specific pricing is common, can adopt DQMS with minimal customization. Moreover, other departments such as procurement or contract management can adopt this model to digitize the approval process, ensure traceability and mitigate risks. DQMS has thus become more than a functional tool and serves as a scalable digital governance framework that can be applied across business functions and sectors.

WAY FORWARD

Building on the success of DQMS, further enhancements are proposed to maximize its utility. Developing an intelligent exception reporting dashboard can help to flag unusual patterns, such as frequent high-value approvals or deviations that may warrant senior management review. This will introduce an additional layer of overview based on data analytics. Continued training and sensitization of field officers and approvers are also essential to maintain awareness and ensure optimal system usage. Integration with other corporate platforms, such as ERP systems or financial dashboards, can further enhance visibility and enable end-to-end tracking of customer engagements from quote to realization.

Birbal's Wisdom

One fine day, Akbar lost his ring. When Birbal arrived in the court, Akbar told him "I have lost my ring. My father had given it to me as a gift. Please help me find it."

Birbal said, 'Do not worry your Majesty! I will find your ring right now.' He said, "Your Majesty, the ring is here in this court itself. It is with one of the courtiers. The courtier who has a straw in his beard has your ring." The courtier who had the emperor's ring was shocked and immediately moved his hand over his beard.

Birbal noticed this act of the courtier. He immediately pointed towards the courtier and said, "Please search this man. He has the emperor's ring."

Akbar could not understand how Birbal had managed to find the ring. Birbal then told Akbar that a guilty person is always scared.

Moral: *A Guilty Person always remains scared.*

INDIAN OIL CORPORATION LIMITED

Automating Vehicle License Management

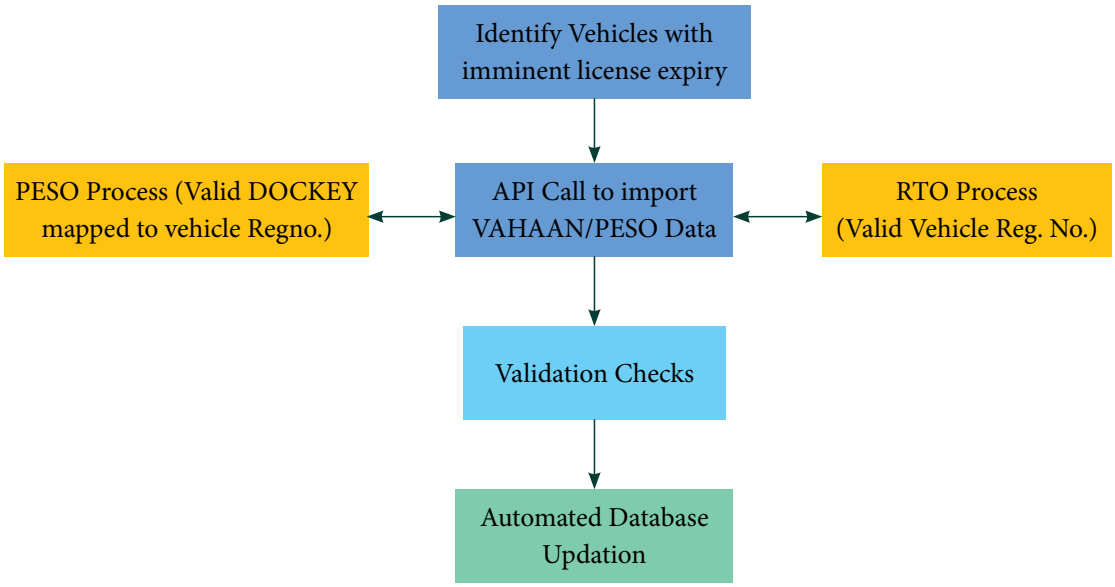
PROBLEMS STATMENT

Previously, maintaining license data for Tank Trucks (TTs) in SAP was a manual, error-prone process. Officers had to verify and update licenses such as Fitness, Insurance, Pollution Under Control, Road Permit, and PESO through a Maker-Checker workflow. This led to delays in vehicle induction and tender finalization, increased coordination with transporters, and heightened compliance risks due to expired or incorrect entries. The fragmented nature of license issuance across multiple platforms further complicated timely updation, resulting in duplication and data inconsistencies.

> IOCL has taken a pioneering step by automating the Vehicle License Management process, integrating directly with regulatory platforms like VAHAN and PESO (Petroleum & Explosive Security Organization) portal. This innovation replaces manual workflows with real-time, system-driven updates, ensuring accuracy, speed, and compliance. The initiative stands out as a transformative leap in operational governance, catching attention for its scale, precision, and potential to redefine industry standards.

ADDRESSING THE ISSUE

To overcome these challenges, IOCL introduced an automated framework that integrates SAP with external regulatory systems via B2B (Business to Business) and API (Application Programming Interface). Daily background jobs fetch and update licenses near to expiry, ensuring proactive compliance. Discrepancies are auto-corrected, and manual edits are blocked for API-mapped sources to maintain data integrity. A dedicated SAP utility allows users to verify license details, while PESO license automation is enabled through accurate DOCKEY (unique identification number) mapping.



This system-driven approach ensures seamless updates without human intervention, significantly reducing the risk of manipulation and error.

UNIVERSAL APPLICATION

The utility function embedded in SAP is designed for pan-India use across business functions. It checks and updates license details from VAHAN and PESO portal throughout the day, ensuring master data remains current and valid. This scalable solution is not limited to a specific region or department, making it universally applicable for organizations seeking to modernize their license management processes. The framework's adaptability allows it to be extended to other areas such as Plant PESO license maintenance and tank truck driver license endorsements.

IMPACT ANALYSIS

The automation has delivered substantial benefits. Officers and LICs (Location In-Charges) are relieved from repetitive data entry, allowing them to focus on strategic tasks. The system sources standardized data directly from regulatory authorities, enhancing accuracy and reducing the risk of fraud. Physical paperwork has been eliminated, streamlining workflows and improving operational speed. Real-time visibility license status empowers users to validate the data independently, and the reduction in manual touchpoints strengthens governance and compliance across the board. The initiative has also improved tender finalization timelines and reduced coordination efforts with transporters.

Old Process	New Process
Transporter informed over SMS about license expiry	Vehicle Identification – System Identifies vehicles with imminent license expiry

Old Process	New Process
Transporter submits original & copy of license at location	Data Import – API call to VAHAN/PESO databases
Location Officer verifies and updates as Maker	Validation & Database Updation – Sanitization, verification & automatic database updates
Location In charge re-verifies and approves as Checker	Not Required
Copy of license is filed at location for future reference	Not Required

By replacing around 4,00,000 events of various license updation for more than 1,00,000 vehicles annually, this initiative has resulted in approximate annual savings of 16,000 man-days across the organization.

WAY FORWARD

Looking ahead, the integration framework holds promise for:

1. Broader applications like expanding automation to include driver licenses, and hazardous goods endorsements as mandated by Motor Vehicles Act and PNGRB. (Petroleum and Natural Gas Regulatory Board)
2. Across Industries, Establishments, Factories, Logistics Companies etc where commercial vehicle movement is involved.
3. Assisting government in improving compliance of norms like PUC, Fitness etc. for commercial vehicles at supply source.

The above will further reduce error-prone touchpoints and foster a digitally secure work culture. Continued adoption of this system will not only enhance operational efficiency but also reinforce a proactive approach to compliance and data governance.

By embracing automation and strengthening compliance of vehicle licenses, this utility stands as a small yet meaningful contribution from IOCL towards enhancing road safety and supporting the larger vision of nation building.

The Sultan's Scales

A Sultan was rumored to be taking extra taxes from merchants and keeping them for himself. One day, an old woman selling spices brought a small bag of cloves and asked the Sultan to weigh them.

He placed them on his grand golden scales, but no matter how much he adjusted, the scales tipped unfairly. The old woman smiled and said:

"These scales know the weight of greed."

The townspeople, hearing this, brought their own goods, and the Sultan's cheating was exposed. Shamed, he replaced his golden scales with a simple wooden one, swearing never again to tamper with justice.

Moral: *Even wealth and power cannot hide corruption; fairness is the true measure of leadership.*

INDIAN RAILWAY CATERING AND TOURISM CORPORATION

Mandating Aadhaar-based Authentication for Tatkal Tickets

- An initiative towards enhanced transparency and fairness in Indian Railways

PROBLEM STATEMENT

Tatkal Scheme of Indian Railways was introduced in 1997 to meet the needs of passengers who are required to travel at short notice. Tatkal Booking opens at 10:00 AM for AC classes and 11:00 AM for Non-AC classes, one day prior to the date of start of train from originating station. A fixed limited seats are reserved under this scheme in almost all classes of trains. To avail this facility, passengers are required to pay additional charges over the base fare. Tickets can be booked online through IRCTC's NGeT (Next Generation E-Ticketing) platform (i.e. IRCTC website or Mobile App), as well as from

> "No more touts, no more tricks - Aadhaar ensures Tatkal tickets reach genuine passengers." Looking ahead, integrating Aadhaar authentication with advanced technologies such as AI-driven fraud detection and real-time monitoring can further strengthen the e-ticketing system.

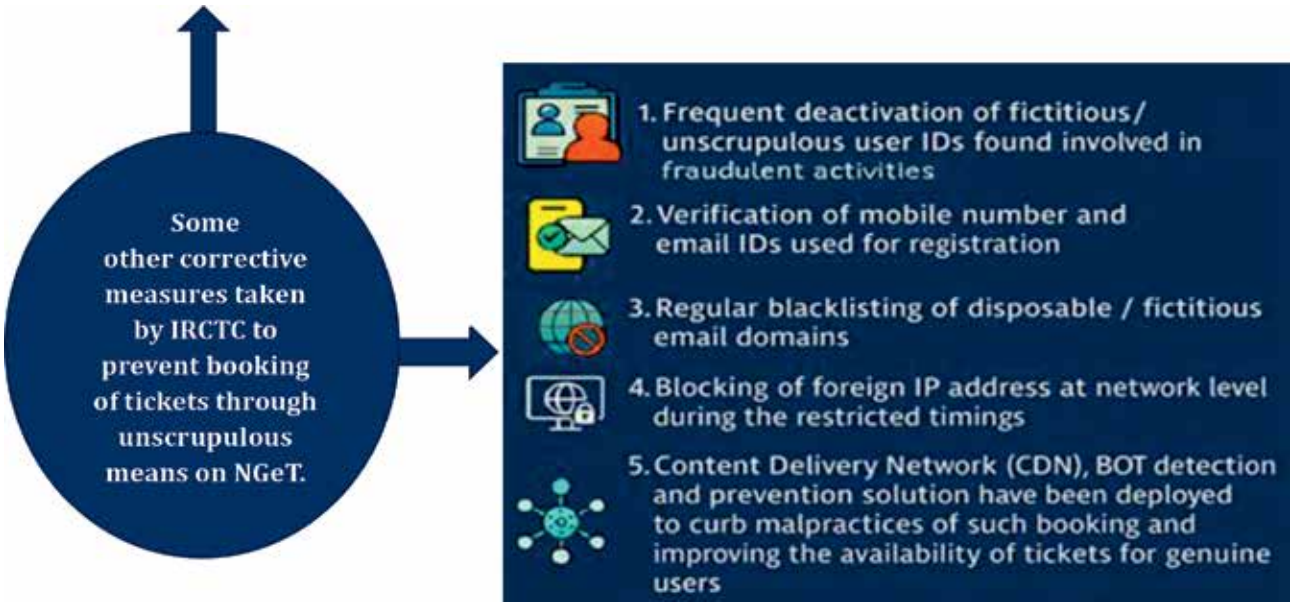
authorized Railway Counters (PRS) and Retail Service Providers (RSPs or Agents). This Tatkal scheme plays a vital role in providing relief to passengers facing urgent travel needs, ensuring that they can secure confirmed tickets at short notice.

Tatkal scheme on NGeT platform has been facing widespread public complaints regarding its misuse by touts and unscrupulous agents, who have been exploiting the system through automated BOTs, software manipulation, and fake user IDs. As a result, genuine passengers may often be deprived of fair access to train tickets, with bookings getting sold out within minutes of the Tatkal window opening. While numerous travellers struggled to secure tickets for their urgent journeys, a parallel black market cropped up which compels them to purchase tickets at inflated prices. This misuse has not only caused significant inconvenience to passengers relying on the Tatkal scheme for emergency travel but has also adversely affected the credibility of IRCTC and Indian Railways.

To curb misuse of Tatkal scheme and strengthen the e-ticketing system, corrective measures have been taken by IRCTC in consultation with Ministry of Railway from time to time. Some of the major steps already taken are as below: -

1. Booking of tickets on IRCTC e-ticketing website and Mobile App is allowed only for direct users during the first 10 minutes of:
   - Opening of Advance Reservation Period (ARP) tickets at 08:00 hours.
   - Opening of Tatkal tickets at for AC and Non-AC classes.
2. Agents or RSPs (Retail Service Providers) are not allowed to book tickets during these initial 10 minutes window of Tatkal ticket booking.
3. Only one booking allowed per login session (ARP) between 0800-1000 hours.
4. Only one Tatkal ticket per day per train is permitted for booking through Retail Service Providers (Agents).

These corrective measures, aimed at ensuring availability of tickets for genuine passengers, have reduced fraudulent bookings to some extent. **However, complaints regarding touting of Tatkal**



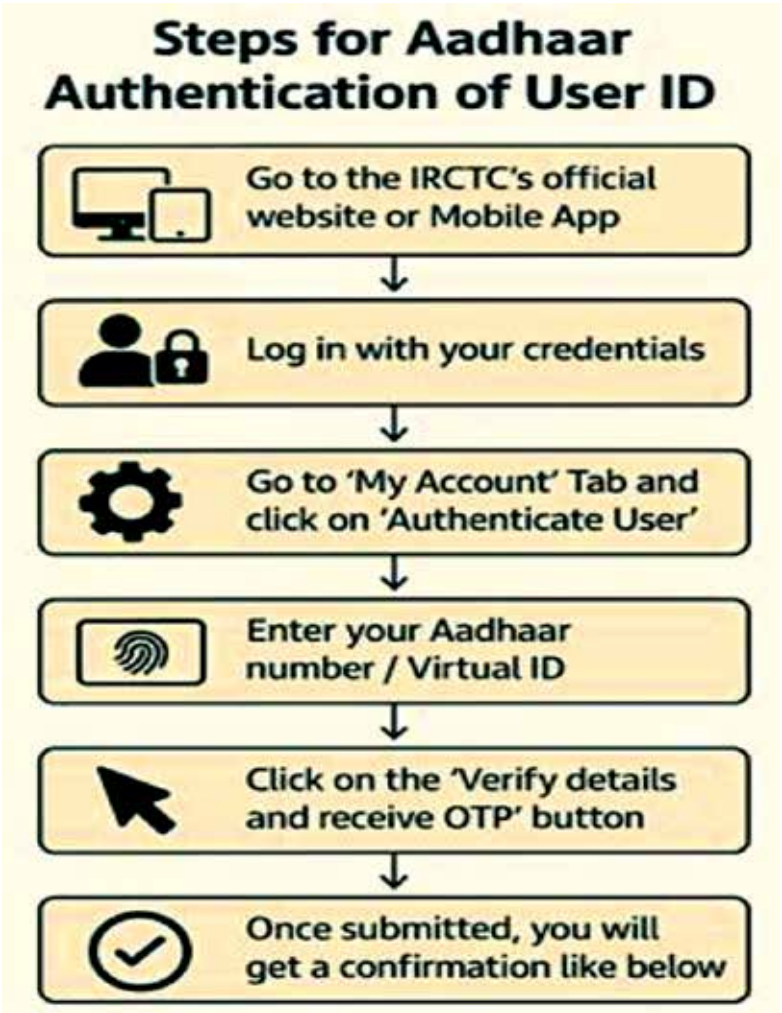
tickets still persisted which indicates need to further strengthen the NGeT system, particularly during Tatkal booking window.

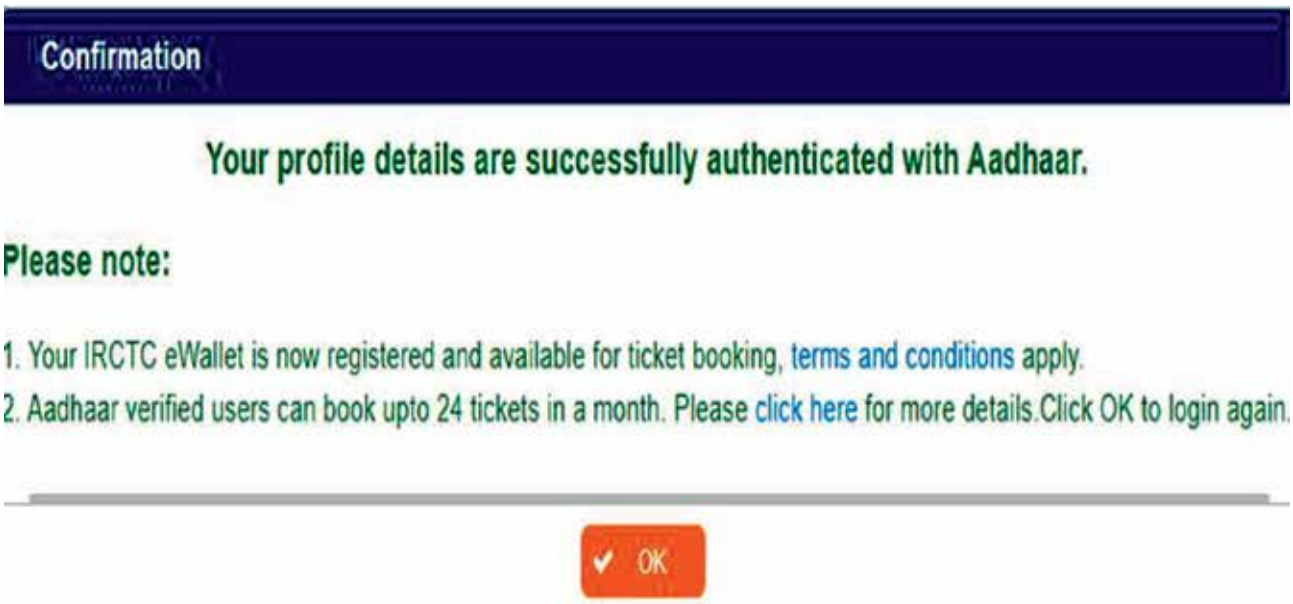
ADDRESSING THE ISSUE

During the periodic Vigilance review meetings, a suggestion came up that in order to combat this menace, Aadhaar-based authentication of User IDs may be made mandatory for booking of tatkal tickets. The suggestion was further pursued with the management and Railway Board vide its letter dated 10.06.2025 (Commercial Circular No. 08 of 2025), introduced following changes in NGeT: -

✓ From 1st July 2025, Tatkal booking on IRCTC website and mobile app is allowed only for Aadhaar-authenticated users.

These corrective steps are aimed to ensure a more transparent and fair process, restoring the scheme's original purpose of serving passengers with urgent travel needs.





✓ The restriction period has been increased and now Authorized agents (RSPs) cannot book Tatkal tickets during first 30 minutes of the booking window (AC or Non-AC).

IMPACT ANALYSIS

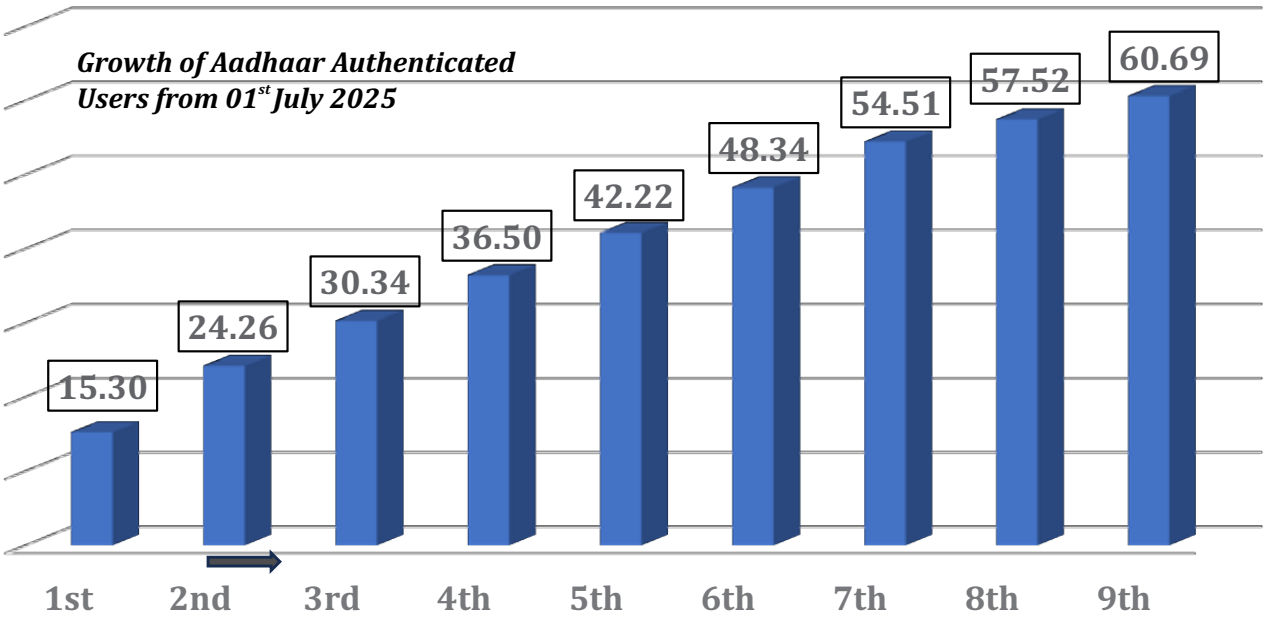
This Aadhaar-based authentication in Tatkal scheme will help to curb unfair practices, restricts touts and eliminate black-market ticket sales. It ensures a secure, transparent system that reduces fraud, disputes and complaints, while restoring the Tatkal scheme's core purpose of serving genuine passengers with fair access of e-ticketing system for urgent travel needs.

Some Major Benefits for passengers are –

Stats on Aadhaar Authenticated Users

- **Active User IDs = 112.60 millions.**
- **Aadhaar authenticated User IDs = 18.97 millions.**

(Figures in Millions)



X-Axis - Weeks

UNIVERSAL APPLICATION

Aadhaar authentication is a proven tool to establish identity of the person and is being used widely by various agencies/departments. Its further use can significantly reduce the fraudulent activities and discourage mischievous acts.

WAY FORWARD

Looking ahead, integrating Aadhaar authentication with advanced technologies such as AI-driven fraud detection and real-time monitoring can further strengthen the e-ticketing system. Regular reviews, system upgrades and user-friendly digital innovations will help maintain robustness and efficiency. This initiative will pave the way for a secure, transparent and passenger-centric ticketing platform, fully aligned with the vision of Digital India.

The Monkey and the Crocodile

Once upon a time, there was a monkey who lived on a tree near a river. He had made friends with a crocodile who lived in the water. The crocodile's wife became jealous of their friendship and hatched a plan to kill the monkey.

She pretended to be ill and told her husband that she would only recover if she ate the heart of a monkey. The innocent crocodile believed his wife and invited the monkey to his home for dinner.

The clever monkey sensed danger and came up with a brilliant plan. He told the crocodile that he had left his heart on the tree and asked him to take him back to get it. As they reached the shore, the monkey quickly climbed up the tree, out of reach of the crocodile.

The disappointed crocodile realized his mistake and apologized to the monkey for betraying their friendship.

Moral: *True friendship is based on trust and loyalty, and we should always be cautious of those who try to deceive us.*

INDIAN RAILWAY CATERING AND TOURISM CORPORATION

E-Pantry Service by IRCTC

- An initiative to protect passengers from unsafe food on trains

> "Say 'NO' to unhygienic meals and overcharging by unauthorised vendors - IRCTC introduces e-pantry service for passengers in Mail and Express Trains"

PROBLEM STATEMENT

The Indian Railways is the backbone of India's transport network, carrying over 2.3 crore passengers daily across thousands of trains. While premium trains such as Rajdhani, Shatabdi and Duronto have long had organized catering systems with digital booking options, a large proportion of passengers travel on **Mail and Express trains**.

Historically, catering on these trains has faced persistent challenges such as:

- **Overcharging:** Lack of awareness/ displayed pricing allowed vendors to charge arbitrarily.
- **Non-issuance of bills:** Passengers were unable to verify or hold vendors accountable.
- **Sale of food by unauthorized hawkers:** These resulted in poor hygiene standards and passenger complaints related to quality/ overcharging.
- **Lack of digital monitoring:** No centralized tracking system existed for catering compliance and sales assessment.
- **Passenger dissatisfaction:** Unsafe, overpriced and unverified meals reduced the trust in on-board catering services.

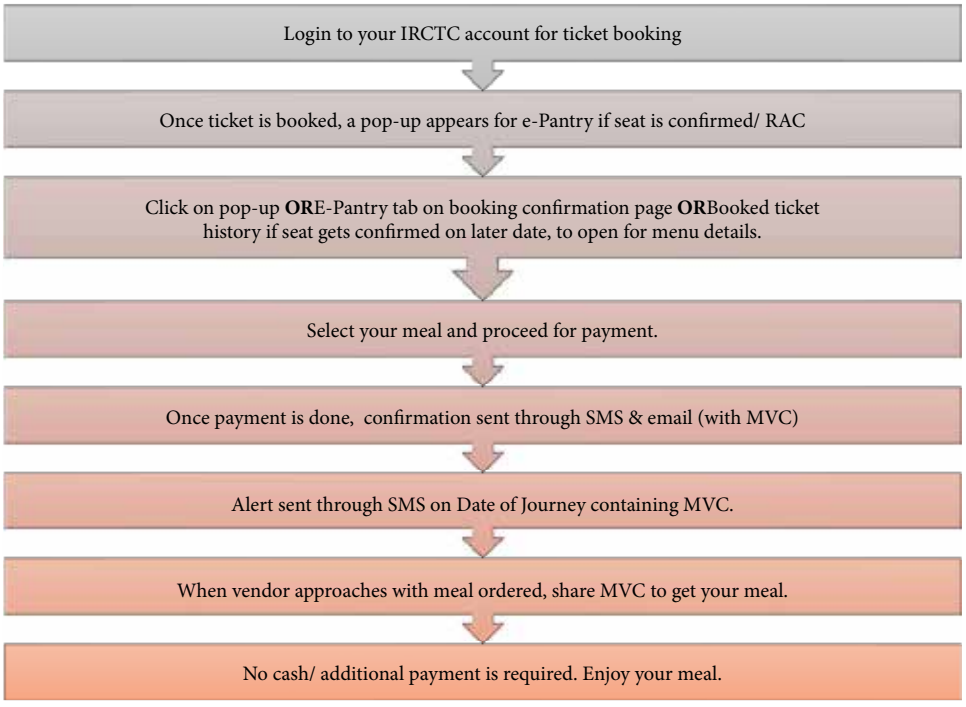
These issues not only hampered passenger experience but also reflected poorly on the image of IRCTC and Indian Railways.

ADDRESSING THE ISSUE: PREVENTIVE VIGILANCE MEASURES

To tackle the above problems, IRCTC launched the E-Pantry Service – a technology-driven initiative designed indigenously through which passengers of Mail and Express trains (with pantry cars) can pre-book their meals at the time of booking or later through their IRCTC account to avail safe, fairly priced and digitally verified quality meals.

Process Flow:

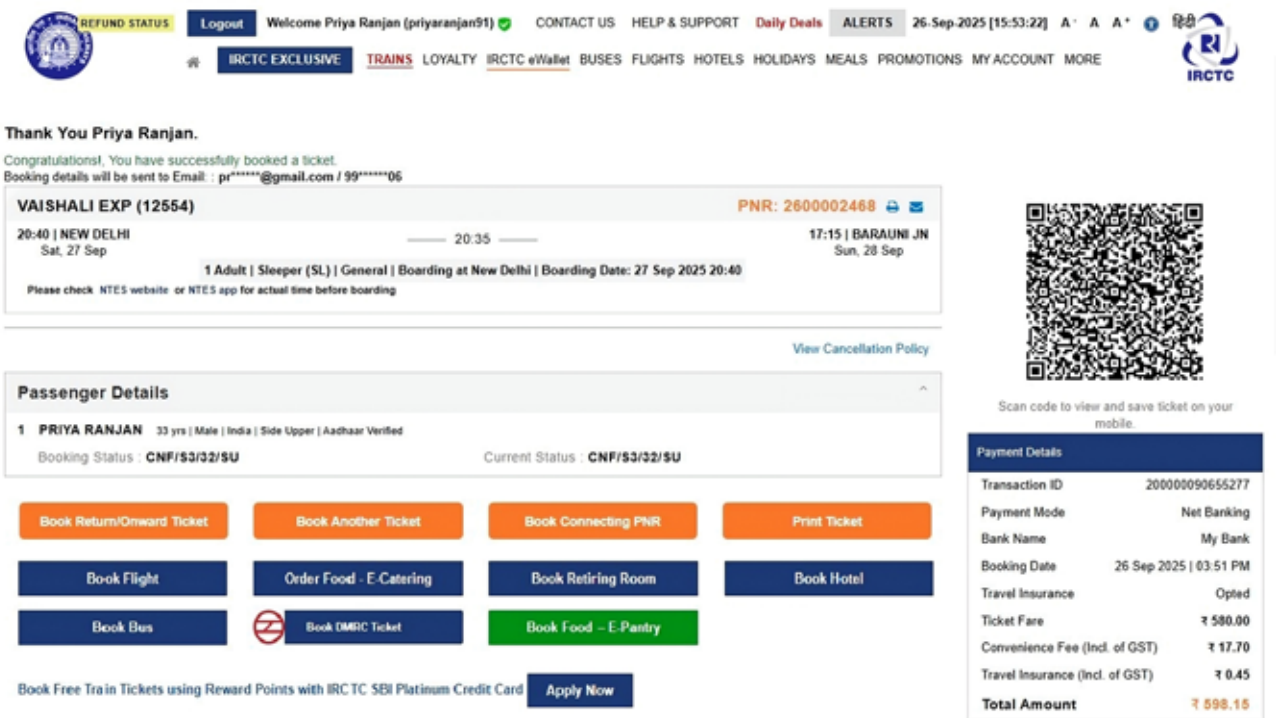
Indicative Flow Chart



MVC-Meal Verification Code

Details of Process flow:

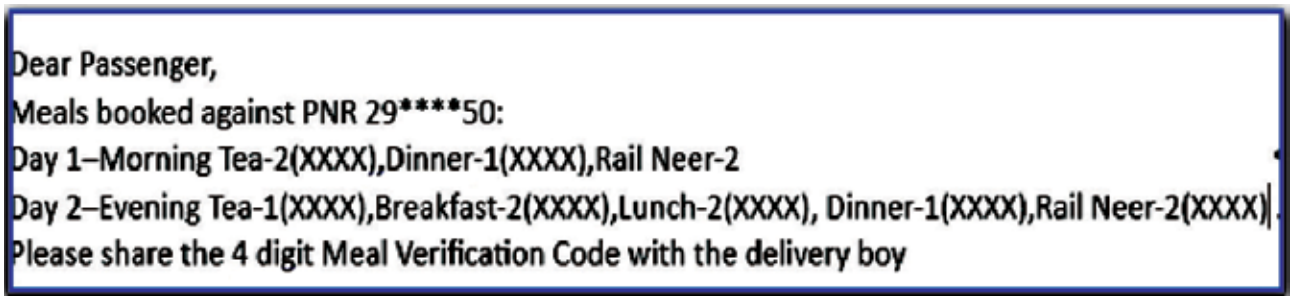
- Visit www.irctc.co.in and proceed for ticket booking after logging in your account.
- Upon completion of ticket booking, a pop up appears on ticket confirmation page if your ticket is confirmed, RAC or partial confirmed tickets.
- In case of waitlisted ticket, if the status changes to confirmed, RAC or partial confirmed ticket, you can book meal after logging and entering "Booked Ticket History."



- Meals of your choice can be selected from the menu displayed on the screen.
- Proceed for payment. Only prepaid mode of booking is allowed under this service. Upon successful transaction, a confirmation SMS along with an email containing MVC (Meal Verification Code) is sent to passenger on selected contact number. A confirmation email containing MVC is also sent on registered mail ID.

PNR: 4735935499, TRN: 12554,DOJ:04-04-25, Fare:280. Your meal has been booked successfully. Meal delivery code will be sent on DOJ.-IRCTC

- SMS containing MVC is sent on passenger's contact number on the date of Journey with booked service detail is sent. Please remember, MVC for every meal service is different.


Dear Passenger,
Meals booked against PNR 29****50:
Day 1–Morning Tea-2(XXXX),Dinner-1(XXXX),Rail Neer-2
Day 2–Evening Tea-1(XXXX),Breakfast-2(XXXX),Lunch-2(XXXX), Dinner-1(XXXX),Rail Neer-2(XXXX)
Please share the 4 digit Meal Verification Code with the delivery boy

- Once the vendor approaches with your ordered meal, kindly share MVC in order to receive your pre-booked meal. No food shall be served in case MVC is not provided to the vendor.
- If the seat has been changed by the passenger, he must inform the Pantry Car Manager or the authorized vendor staff.

IMPACT ANALYSIS

The introduction of E-Pantry has brought measurable benefits in terms of financial accountability, passenger satisfaction and improved work culture.

Key Features of E-Pantry Services

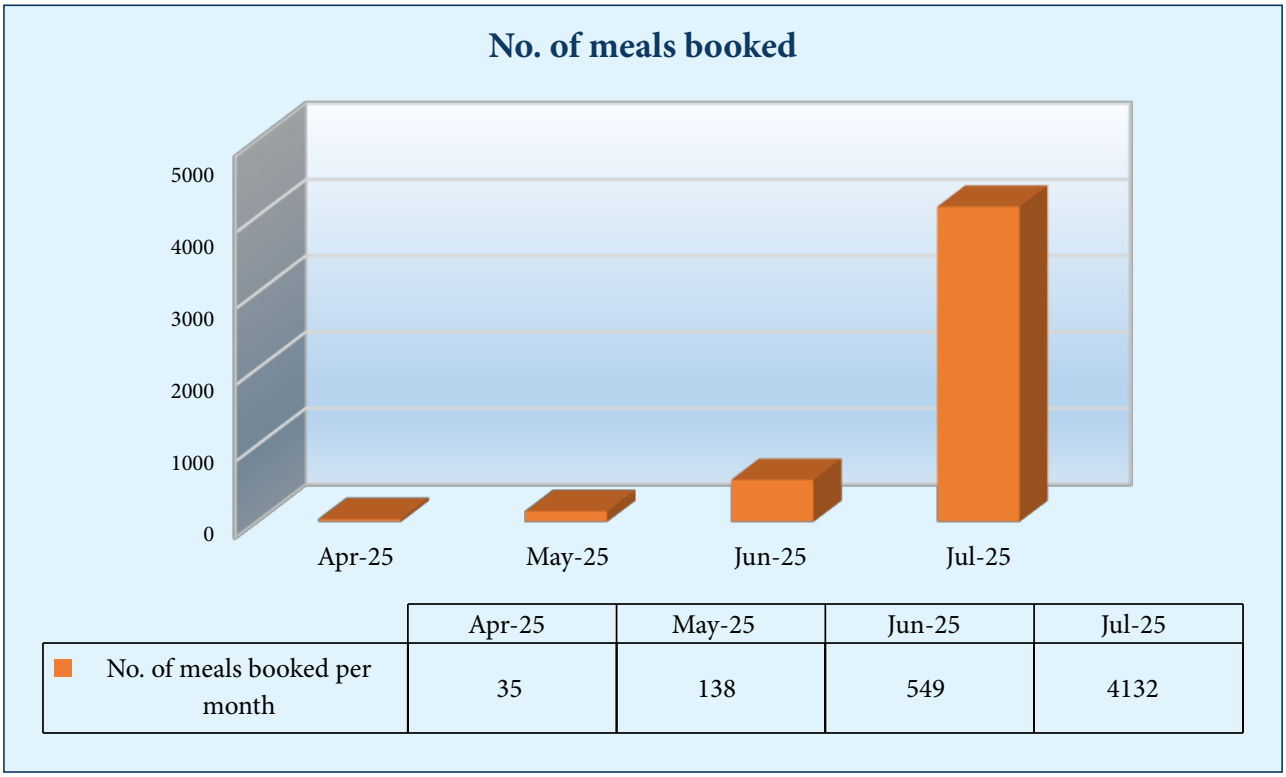
- Passengers can pre-book meals at the time of ticket purchase or later under "Booked Ticket History."
- Online payments only, eliminating scope for overcharging or cash-related malpractices.
- Fixed pricing displayed upfront, same across all passengers.
- Unique digital code sent to passengers via SMS and email.
- Passengers share MVC with pantry staff before receiving the meal which ensures only authorized staff deliver meals, eliminating unauthorized vending.
- All transactions logged in IRCTC servers.
- Compliance, delivery status, and billing digitally trackable.
- If meal not delivered, refund is provided to the passenger. Passenger notified via SMS and email.

Qualitative Impact

- Passengers enjoy hygienic, safe and fairly priced meals.
- Unauthorized hawkers have been discouraged, improving security and cleanliness inside trains.
- IRCTC's credibility and brand value strengthened through digital transparency.
- Positive cultural shift towards cashless, accountable catering.

Quantitative Impact

Since the inception of the E-Pantry service in the month of April 2025, an average meal count of 03 meals per day has increased to approx. 170 meals per day in the month of August 2025. It is set to rise exponentially in inclusion of more trains along with more public awareness through social media handles and other sources.



	Apr-25	May-25	Jun-25	Jul-25
No. of meals booked per month	35	138	549	4132

UNIVERSAL APPLICATION

The **E-Pantry model** has significant potential for **cross-sectoral adoption** which may include **Other Railway Segments** i.e. trains where vendors operate like TSV (Train Side Vending).

By embedding **technology + vigilance**, the model ensures not just better service but also **system-wide accountability**.

WAY FORWARD

While E-Pantry has proven effective, continuous improvement is key. Potential enhancements include:

- **Mobile App Integration**
  - Extend functionality within the IRCTC Rail Connect App.
  - Passengers can book meals more conveniently.
- **AI & Data Analytics**
  - Predict demand patterns based on passenger bookings.
  - Minimize food wastage and ensure stock optimization due to prepaid bookings.
- **Health & Hygiene Ratings**
  - Staff and pantry cars of trains rated on compliance.
  - Visible rating system displayed on app/website.
- **Pan-India Expansion**
  - Target rollout in 75+ trains within next year.
  - Target to rollout E-Pantry services in all Mail/ Express trains with Pantry Cars by 2027-28.
- **Multilingual Communication**
  - SMS confirmations in regional languages.
  - Greater inclusivity for passengers across states.

Conclusion:

The E-Pantry Service represents a landmark initiative by IRCTC to instil preventive vigilance through technology. By directly addressing issues of overcharging, unauthorized vendors and billing related irregularities, it has not only protected passenger interests but also strengthened financial integrity and organizational accountability.

The Honest Stone Carver

Once there was a poor stone carver, who used to shape statues for temples. A wealthy noble offered him silver if he would secretly carve a false cavity inside a temple idol-so the noble could later "discover" treasure and claim divine favor.

The carver refused, saying: "If the gods must be tricked to honor a man, then the man deserves no honor."

Enraged, the noble tried to ruin him. But when the temple was completed, the villagers noticed the idol's eyes shone brightly in the sun, as if alive. They called the carver holy and drove the corrupt noble away.

Moral: *Deceit may bring temporary gain, but honesty builds monuments that last forever.*

सत्यमेव जयते

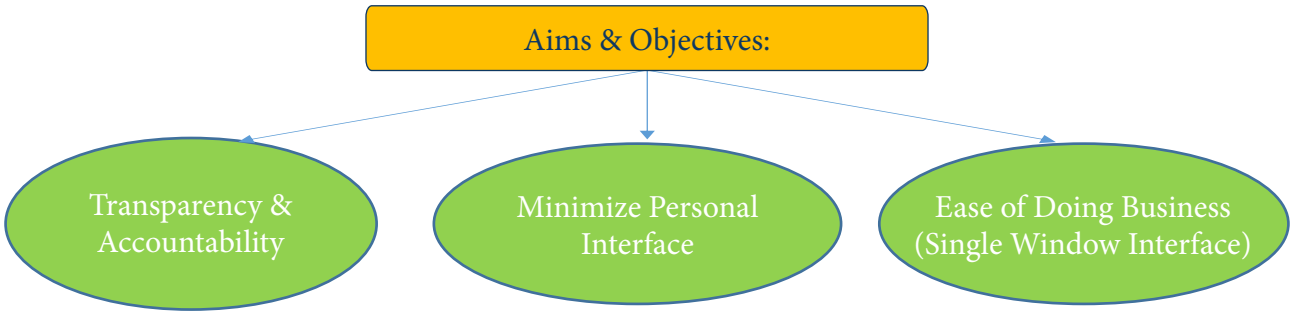
MINISTRY OF LABOUR & EMPLOYMENT

Revamped Shram Suvidha Portal: One Stop-Online Solution For Central Labour Laws Compliances And Faceless Service Delivery

To bring efficiency, transparency and accountability in the system while ensuring compliance with Labour Laws, the Ministry of Labour and Employment, Government of India has been revamping the Shram Suvidha Portal with the primary objective to have ease of doing business, minimize personal interface, transparency in inspections and speedy redressal of grievances.

> Shram Suvidha Portal has been revamped to have ease of doing business, minimize personal interface, transparency in inspections and speedy redressal of grievances.

Currently, the portal caters to four major Organizations under the Ministry of Labour &



Employment, namely Office of Chief Labour Commissioner (Central), Directorate General of Mines Safety, Employees' Provident Fund Organization and Employees' State Insurance Corporation. This is a single unified web portal for online registration of units, providing licenses to the units, reporting of inspections and submissions of Annual Returns. This portal plays a critical role in streamlining labour laws compliance for businesses, contractors, and employers across various industries. It acts as a one-stop solution for handling numerous labour laws and regulations. It creates a centralized system to effectively monitor and evaluate labour laws compliance, thereby simplifying and standardizing processes such as registration, licensing, and returns across all Acts.

PROBLEM STATEMENT

Registration Area :-

- Delay in approval of registration and issuance of registration certificates.
- No method of monitoring by superior authorities for delay caused by junior officers.

License Area :-

- Applicants were unable to monitor their application for License.
- No proper feedback to applicants with respect to their application.
- Superiors couldn't monitor the performance of junior officers responsible for issuing license.
- Officers used to raise irrelevant queries to applicants to delay their application of License.

Inspection Area :-

- Manual Monitoring of Inspection by superiors.
- Random inspection by Inspectors. Some organization used to get inspected more and some used to be ignored.
- Manual compliance of reports by Employers.

Addition of Features in Portal for Better Monitoring and Tracking

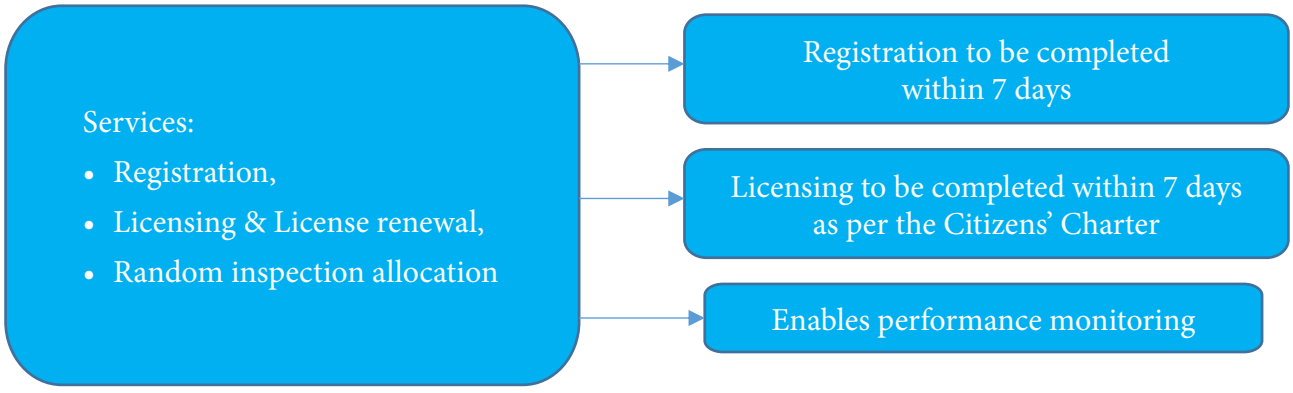
To resolve the issues as mentioned above, a revamped Shram Suvidha Portal has been put in place with several additional features to strengthen tracking and monitoring of applications.

Registration & License Area

- Application Tracking Enabled: Applicants can track the status of their license and registration applications using the acknowledgment number on the portal.
- Time-Bound Disposal: Applications must be processed within 7 working days as per the Citizens' Charter to be either Approved, Rejected, or Returned for Clarification.
- Transparent Monitoring System: Complete visibility of Pendency details, Query logs, Clarification logs at all levels (Regional Head, CLC HQ, and Ministry).
- Identification of Irrelevant Queries: Explanation on Delays, Principal Employer-authenticated clarifications, Principal Employer's registration/amended certificates, Signed contractor records (wage, OT, EPF, ESIC), Piecemeal or last-day queries (6th/7th day).

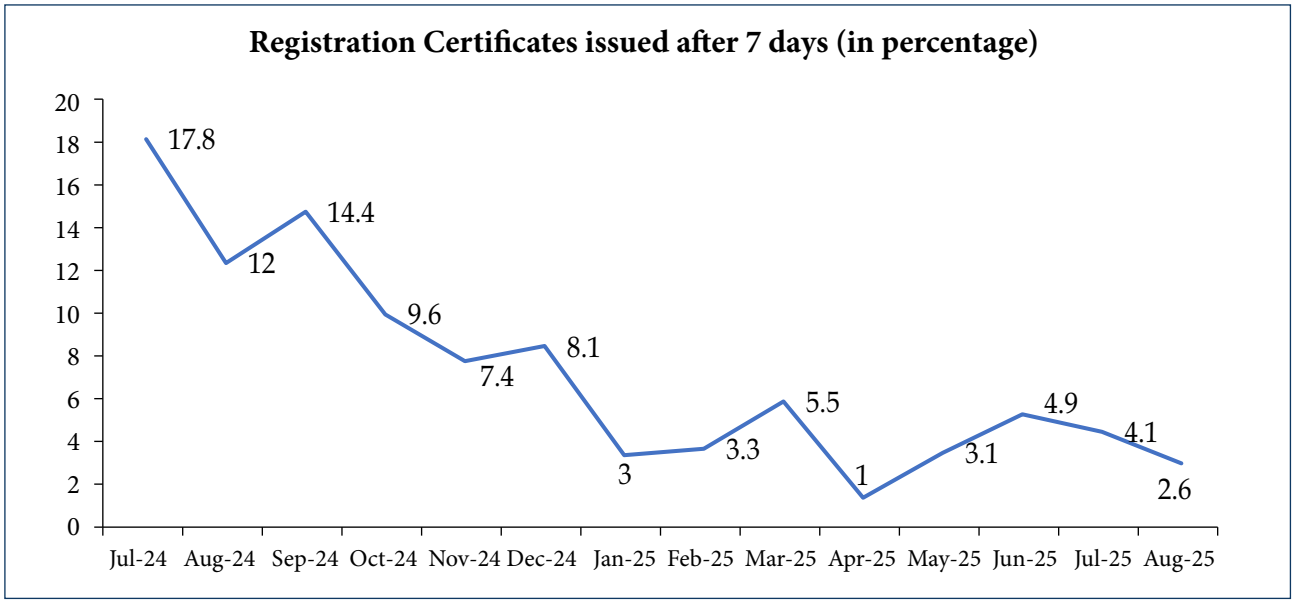
Inspection Area

- Online generation of list of inspections based on predefined risk-based Inspection Scheme
- Online allotment of Inspections to Inspector
- Online upload of inspection reports along with Inspection Note with workers' statement within 48 hours
- Delay in uploading of inspection report beyond 48 hours is highlighted to Regional Head & CLC (C) and the Inspector has to submit reasons for delay.
- Online delivery of Inspection reports to Employers
- Online filing of Compliance Reports by Employers followed by Post Inspection processes



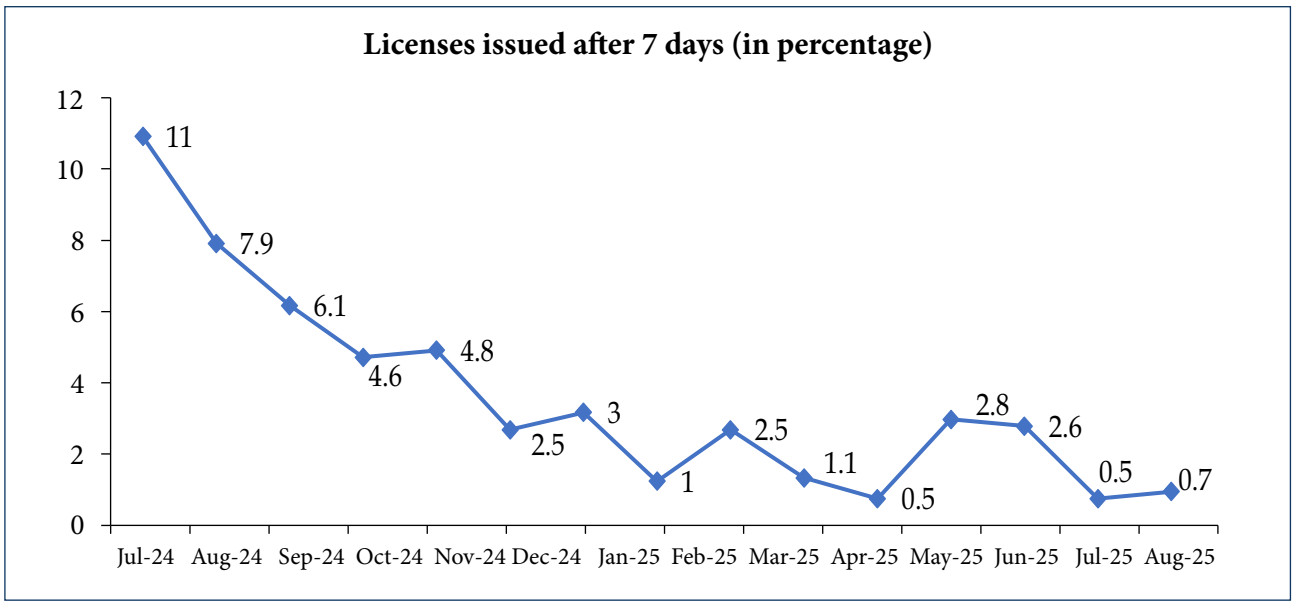
IMPACT ANALYSIS

Illustrative Use case: Online Registration Process on Shram Suvidha Portal



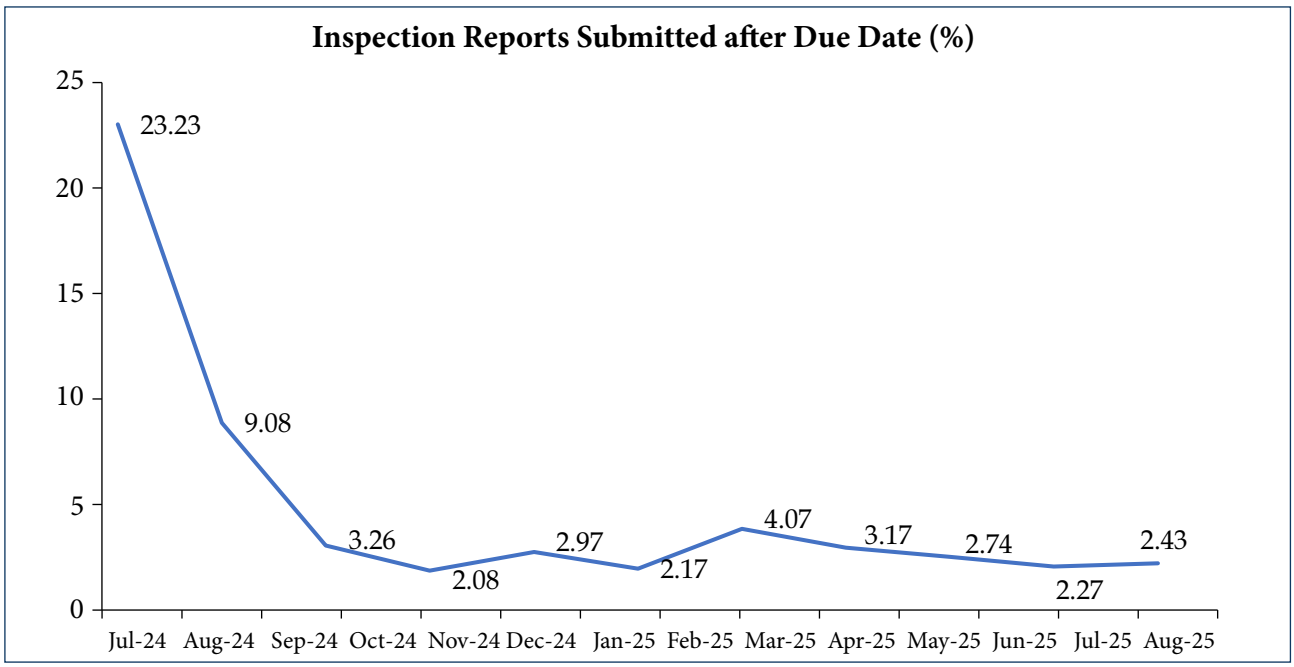
The reduction in the percentage of Registration Certificates generated beyond seven days demonstrates improved efficiency and adherence to timelines. It reflects faster processing of applications, greater accountability among authorities, and enhanced transparency in service delivery. This improvement not only streamlines the compliance process but also contributes to ease of doing business by providing timely clearances to establishments.

Illustrative Use case: Online Licensing Process on Shram Suvidha Portal



The reduction in the percentage of licenses generated beyond seven days highlights improved timeliness and efficiency in the licensing process. It signifies quicker disposal of applications, stronger accountability, and greater transparency in approvals. This improvement ensures that establishments receive licenses within the prescribed timeframe, thereby facilitating ease of doing business and strengthening trust in the regulatory system.

Illustrative Use case: Online Inspection Process on Shram Suvidha Portal



The above graph shows the impact of filing inspection reports online since the advent of Shram Suvidha Portal. A reduction in the percentage of inspection reports submitted after the due date reflects improved efficiency, accountability, and transparency in the compliance process. It shows that inspectors are adhering to timelines, digital monitoring mechanisms are effective, and employers receive quicker outcomes, thereby strengthening governance and enhancing the overall ease of doing business.

WAY FORWARD

The Ministry of Labour & Employment is planning to introduce key reforms through the Shram Suvidha Portal to ensure greater transparency and efficiency. These include deemed approval, renewal, and auto-generation of licenses; user-centric enhancements such as an intuitive interface, simplified navigation, a streamlined dashboard for application tracking, and multilingual support; proactive notifications and real-time alerts; and a comprehensive MIS with AI-driven dashboards and analytics for effective monitoring and inter-agency comparison. In addition, focused outreach initiatives are being undertaken to create awareness among employers about the portal's improvements and faceless online processes.

The Golden Goose

Don't we all want a lucky goose?

Once upon a time, there lived a poor farmer and his wife in a small village. The farmer grew vegetables and sold them for money. Once, he made a little extra money selling the vegetables and decided to buy a goose with the money. Soon he discovered that this was no ordinary goose – it started laying a golden egg every day! The farmer and his wife were elated and they soon became very rich.

But the farmer was greedy and decided that he'd rather have all the golden eggs at once than one a day. One night when everyone was sleeping, the farmer went to the goose and killed her. When he opened up her up, he only found one egg inside. The farmer immediately regretted his actions but it was too late. Not too long after he lost the special goose, the farmer and his wife became poor again.

Moral: *Greed ends in destruction.*

A Navratna Company

NHPC LIMITED

NHPC'S CYBER SECURITY OPERATION CENTER (CSOC)

Cyber security and preventive vigilance are crucial for safeguarding systems and data from cyber threats. They involve proactive measures to identify, assess, and mitigate potential risks before they materialize into security breaches. This approach focuses on strengthening defenses, educating users, and implementing robust security protocols.

PROBLEM STATEMENT

The energy sector, recognized as a critical infrastructure by the Govt. of India, faces escalating cyber threats that may jeopardize operational continuity and national security. As the designated Computer Emergency Response Team (CERT)-Hydro, NHPC is tasked with guiding and monitoring for improved cybersecurity posture across all hydro power utilities in India. The enterprise IT and Operational Technology (OT) environments of the hydro sector are increasingly targeted by cyberattacks employing tactics such as Initial Access, Execution, Persistence, Privilege Escalation, Defense Evasion, Command and Control, and Data Exfiltration. Attacks such as ransomware, phishing, and DDoS, can disrupt Critical Information Infrastructure (CII) and halt power generation & compromise sensitive data.

> NHPC's state-of-the-art Cyber Security Operations Center (CSOC) empowers India's largest hydro power development organization with real-time threat detection, rapid incident response, and compliance with national cybersecurity standards, safeguarding critical infrastructure against sophisticated cyberattacks.

NHPC's CII, spread across its Corporate Office, power stations, and project sites, presents unique challenges due to its geographically dispersed nature. In India, Power sector has faced various threats, with reports of attempted breaches targeting energy utilities. NHPC has struggled with coordinating cybersecurity efforts across its distributed CII, ensuring timely threat detection, and responding to incidents before they escalate.

Although cyber security measures are efficient regarding the prevention of cybercrimes, but it is essential to develop a culture of vigilance in terms of the understanding of the cybercrime phenomenon and the learning best security practices, which are part of the key factors in the prevention of cyberattacks.

ADDRESSING THE ISSUE

To address these cybersecurity challenges, NHPC established a state-of-the-art Cyber Security Operations Center (CSOC) at Corporate Office. The CSOC integrates a wide range of cybersecurity tools and solutions to provide comprehensive protection for NHPC's CII. These include Multi-Factor Authentication (MFA), Network Access Control (NAC), Privileged Access Management (PAM), Web Application Firewall (WAF), Next-Generation Firewall (NGFW), Data Loss Prevention (DLP), Security Incident and Event Management (SIEM), Endpoint Detection and Response (EDR), Intrusion Detection/Prevention Systems (IDS/IPS), threat and anomaly detection solutions, threat intelligence, and Dark Web monitoring. These tools form multiple layers of defense against the sophisticated tactics used by cybercriminals.

Fig. 1 - Dashboard of Security Incident Event Monitoring (SIEM)

The establishment of the CSOC involved meticulous planning, stakeholder consultations, and collaboration with leading cybersecurity vendors. The Information Security Group spearheaded the initiative, conducting a gap analysis to identify vulnerabilities across NHPC's CII. The CSOC was

designed to centralize monitoring, enabling real-time visibility into network traffic, endpoint activities, and user behaviors.

In addition, implementing a strategic plan to prevent cybercrimes may contribute to users' understanding of cybercrimes and increase vigilance when exposed to the internet and social media.

Key features of CSOC include:

a) Real-Time Monitoring: Continuous surveillance of networks to detect anomalies and potential threats promptly.

b) Network Traffic Control: Monitoring and managing communications to prevent unauthorized access.

c) User and Entity Behavior Analytics (UEBA): Leveraging machine learning to identify unusual patterns in user and device behavior, flagging potential insider threats or compromised accounts.

d) Endpoint Detection and Response (EDR): Advanced capabilities to detect, investigate, and respond to suspicious activities on endpoints.

e) Intrusion Detection and Anomaly Detection: Analyzing network packets for signs of attacks and deviations from normal behavior.

f) Threat Intelligence and Dark Web Monitoring: Providing comprehensive data on malware, vulnerabilities, and attack vectors to stay ahead of emerging threats.

g) Incident Response Support: Enabling rapid identification, analysis, and mitigation of security incidents to minimize disruptions.

h) Dashboards: Centralized visibility for effective risk management across the threat landscape.

- The CSOC was implemented in phases, starting with the deployment of core tools like SIEM and EDR, followed by integration with existing systems.
- NHPC collaborated with CERT-In and NCIIPC to align the CSOC with national cybersecurity guidelines, ensuring compliance with CEA mandates.
- Over 200 employees trained in cybersecurity best practices.
- NHPC also established a robust governance framework, with the Information Security Group for coordinationg with CERT Hydro utilities to ensure consistent security practices.
- Advisories from CERT-In and NCIIPC are integrated into the CSOC's threat intelligence feeds, enabling proactive defense against nation-state actors and cybercriminals.

IMPACT ANALYSIS

- The CSOC has significantly strengthened cybersecurity posture, delivering measurable and qualitative benefits.
- Since its operationalization i.e 01.07.2025, the CSOC has effectively detected and mitigated numerous cyber incidents as phishing, malware infections & unauthorized access attempts, leveraging its advanced tools like SIEM, EDR, and IDS/IPS.
- The centralized monitoring system has substantially reduced incident response times,

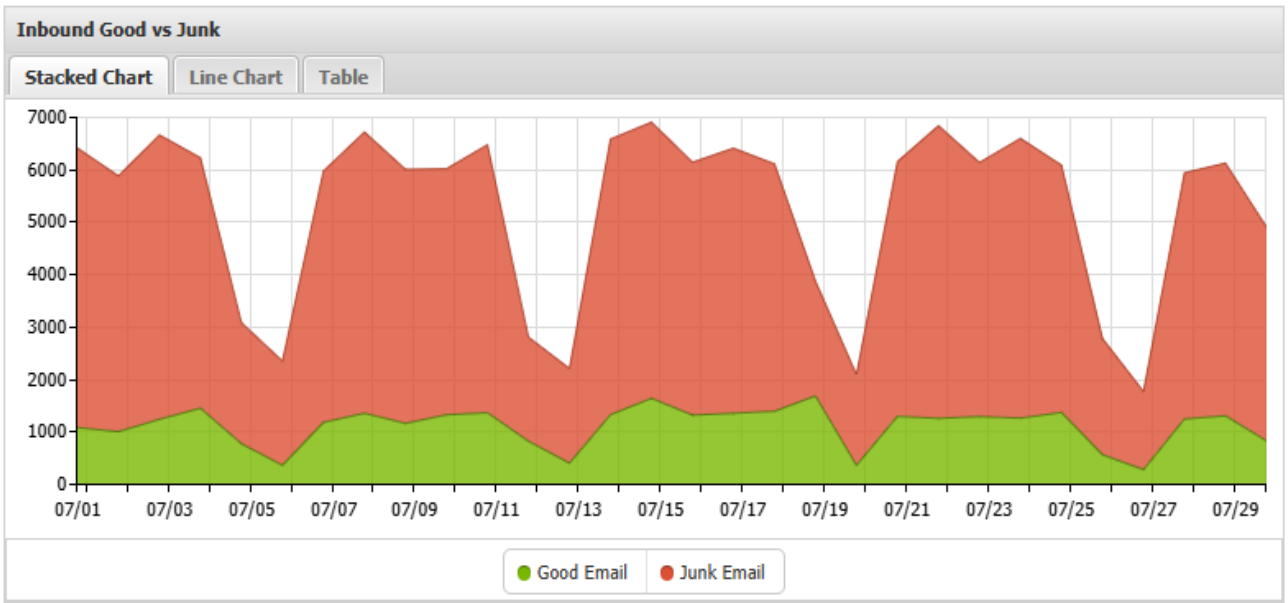


Fig. 2 - In Bound Good Vs Junk Mail of Zimbra

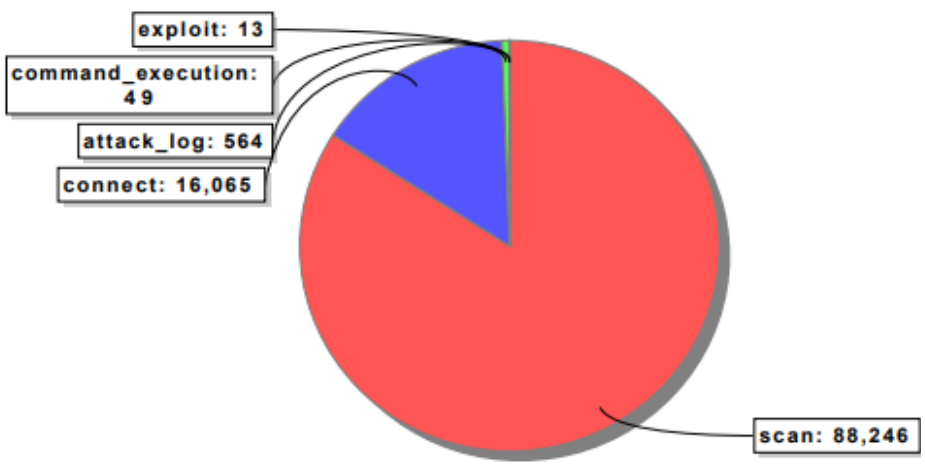


Fig. 3 - Attack Event Statistics (28th July to 31st July 2025)

S.N	Event Label	Event Count	Remarks
1	Scan	88246	Performing the scanning of network
2	Connect	16065	Connection to the network for torjan or malicious codes etc.
3	Attack log	564	Logs data of malicious embedded codes/ programme susceptible for attack
4	Command execution	49	Command Tried to execute
5	Exploit	13	Attempt of Extraction/Exploitation of Data from the system

enabling faster containment of threats and minimizing disruptions to power generation and operations.

- Downtime due to cyber incidents has decreased significantly, ensuring operational continuity across NHPC's critical infrastructure.
- Compliance with CEA and CERT-In guidelines has improved markedly, with NHPC achieving higher ratings in recent cybersecurity audits, reflecting adherence to national standards.
- Qualitatively, the CSOC has fostered a culture of cybersecurity awareness across NHPC.
- Employees report increased confidence in the organization's ability to protect critical assets, reducing stress associated with cyber risks.
- The centralized dashboard has enhanced coordination between the Corporate Office and remote power stations, enabling faster decision-making and streamlined communication.
- Feedback from regulatory bodies, including CERT-In, has been positive, with NHPC recognized as a pioneer in the hydro sector for its proactive approach and has bolstered NHPC's reputation as CERT-Hydro, strengthening trust among constituent utilities.

Establishing CSOC in an organization raises the importance of an awareness culture within organizations that contributes to developing a culture of vigilance on cybersecurity threats they face daily.

UNIVERSAL APPLICATION

NHPC's CSOC model is highly replicable across the hydro sector and other critical infrastructure industries, such as oil and gas, transportation, and telecommunications. Its modular architecture, leveraging scalable tools like SIEM, EDR, and UEBA, can be tailored to organizations of varying sizes and complexities. Smaller hydro utilities with limited resources can adopt a scaled-down version, focusing on core tools like MFA and IDS/IPS, while larger entities can implement the full suite.

WAY FORWARD

NHPC plans to enhance the CSOC with cutting-edge technologies and strategies to address evolving cyber threats. To strengthen the cyber security posture of NHPC's IT Infrastructure, there is a need of Secure Access Security Services (SASS) which is based on Zero Trust Framework.

After impleneting SIEM, the automation for response on threat intelligence is required to reduce manual intervention and response time. Hence, SOAR (Security Orchestration, Automation and Response) solution will help SOC to reduce mean time to detect (MTTD) and mean time to respond (MTTR) which improve cyber resilience of NHPC continuously. By continuously evolving the CSOC, NHPC aims to set a benchmark for critical infrastructure protection at the Power Stations SCADA network located at various remote stations.

The Hare and the Tortoise

There was once a proud hare who'd always brag about how fast he could run. A wise tortoise who was tired of the hare's bragging decided to challenge it to a race. "You will never outrun me." laughed the hare. Everyone in the forest gathered to watch the race.

As soon as the race started, the hare sprinted fast and reached quite a distance while the tortoise took tiny little steps. Amused by how incredibly slow the tortoise was, the hare decided to take a nap instead of finishing the race. The tortoise continued to walk steadily past the sleeping hare and finished the race while the hare snored away. The cheer from the forest animals awakened the hare who realized that he had lost the race due to his arrogance.

Moral: *Slow and steady wins the race. Never under-estimate your opponent.*

OIL AND NATURAL GAS CORPORATION LIMITED

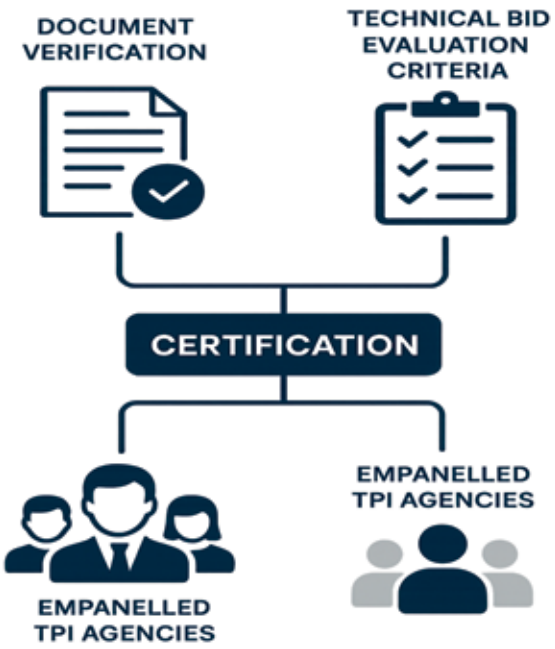
Verification and certification of documents pertaining to Technical Bid Evaluation Criteria by empanelled TPI agencies

PROBLEM STATEMENT

Two cases related to forgery of documents were investigated by Vigilance and details of same are as follows:

A. Irregularities in award of contract in GEPNIC tender number XXXXXX for Repair and maintenance of Bunk Houses of Drill site and DSA:

Workcenter had a requirement of repair of Bunk Houses of Drill site and DSA of Drilling Rig. To meet the requirement, GEPNIC tender Number XXXXXX was invited having tender value of Rs 1.78 Cr. Four bidders participated in the tender and two of them were Techno-commercially acceptable. L1 bidder quoted amount of Rs 1.63 Cr [8.87% below the estimated cost]. To fulfil the BEC criteria regarding experience, L-1 bidder had submitted three Work Completion Certificates for various works. To confirm the authenticity of these experience documents, an email was sent to relevant authority, where



> ONGC started a new era of vigilance initiative by way of prior scrutiny of documents submitted by bidders from empanelled Third Party Inspection (TPI) agencies to deter any future instance of forgery in tenders above 10 Cr.

the experience certificate was issued. The concerned authority in their response stated that none of the said completion certificates were issued by them.

Therefore, it was concluded that the L-1 bidder submitted forged experience documents. Since, verification/ authentication of documents submitted with the tender is required only in case of specific complaint (as per relevant para of ONGC's procurement Manual), there was no lapse on part of various ONGC officers, associated with the tendering process.

In view of the investigation, CVO recommended to take necessary action against the concerned vendor as per the terms and conditions of tender/ contract, for submission of forged experience documents.

B. Scrutiny of alleged forgery by a bidder in GeM Tender No. XXXXX for "Hiring of Production Testing Equipment and Liquid Nitrogen pumping equipment and Services on a call-out basis for 3 years:

In relation to the captioned tender, a complaint from XYZ vendor was received against ABC bidder (L-1 in this case) alleging that the documents submitted by ABC to meet the experience evaluation criteria of the bid were forged.

The documents submitted by ABC pertain to the Master Purchase Agreement between ABC and XXX, for a full well testing package and services.

Acting upon the allegation, XXX was contacted and an email was sent to them to verify the documents submitted by ABC. XXX, through e-mail communication, informed that the documents submitted by ABC were forged. XXX also submitted the Original Documents for comparison with those submitted by ABC.

The documents – On-hire equipment sheet, Experience Criteria, Invoices, and Equipment Time Sheets were forged to replace "Pipeline Heater" with "Indirect Water Bath Heater (IWBH). While comparing with the original documents, it was later learnt that apart from the above forging, many other changes were also made in the signed documents of XXX by ABC, as well as in the invoices submitted to XXX by ABC.

In view of the investigation, CVO recommended to cancel the contract and to start the process for banning the erring firm, as per procedure.

After completion of investigation in these two cases, Vigilance recommended for Verification and certification of documents by empanelled TPI agencies as a preventive measure to deter repetition of such instances of forgery in future.

C. Preventive Measures Undertaken to address the issue:

In view of the observations by Vigilance, ONGC Management issued a circular dated 07.02.2025 regarding "Verification and certification of documents pertaining to Technical Bid Evaluation Criteria by empanelled TPI agencies":

"MCoDP in its meeting (33/2024) held on 04.10.2024, directed to implement verification and certification of documents to be submitted by the bidders along with the bid in support of Technical BEC, by empaneled TPI agencies for tenders for procurement of Goods and LSTK contracts with value of more than Rs.10.00 Crores and for tenders for Hiring of Services with annualized value of more than Rs.10.00 Crores.

MIND has empaneled eighteen TPI Agencies for verification of technical BEC related documents. The qualification documents towards fulfilling the technical BEC experience criteria have to be submitted by the bidders after verification by any of the empaneled TPI agency at their cost.

Accordingly, the relevant provisions of BEC for Goods/Services stand modified as per attached Annexure. These provisions will be incorporated by Work Centre/CPD in applicable tenders for Procurement of Goods, Hiring of Services, Charter Hire of Rigs, LSTK and Works Contract.

All the charges of the Third party for verification and certification shall be borne by the bidder and ONGC shall have no liability (financial or otherwise) towards the same and shall not be liable for any claim/ dispute between the bidder and TPIA"

Consequential to the above mentioned circular, ONGC ensured prior scrutiny of documents submitted by bidders from empanelled TPIs to deter any future instance of forgery in tenders above 10 Cr.

IMPACT ANALYSIS

The implementation of mandatory third-party verification by empanelled TPI agencies significantly reduces the risk of forgery in high-value tenders. By shifting the responsibility for document authentication onto expert TPIs, ONGC creates a strong deterrent against submitting falsified work experience certificates, purchase agreements, invoices or equipment logs. This measure enhances overall procurement integrity, minimizes post-award disputes and safeguards ONGC's financial and reputational interests. Additionally, early detection of irregularities prevents resource wastage in contract execution and avoids costly legal or administrative proceedings arising from forged documentation.

UNIVERSAL APPLICATION

While the circular explicitly targets tenders exceeding ₹ 10 Crores-covering procurement of goods, LSTK contracts, rig charters, hiring of services, and works contracts-the underlying principle of pre-bid document authentication by TPIs can be scaled across all procurement categories. Embedding similar verification requirements in lower-value tenders or specialized packages (e.g. Joint Ventures, Consortium bids and international suppliers) would uniformly strengthen ONGC's safeguard

mechanisms. Moreover, extending this model to allied organizations in the energy sector including upstream and downstream oil and gas companies would establish a benchmark for transparency and due diligence industry-wide. This process of documents certification is especially very helpful in cases of Global/Foreign bidder, as the verification of documents in such cases is very difficult. After the implementation of TPI certification, the process has become smooth and easier in cases of Global vendors.

WAY FORWARD

- Periodically review and rotate the panel of TPI agencies based on performance metrics-such as turnaround time, accuracy rate, and adherence to confidentiality-to maintain high verification standards.
- Organize joint workshops with bidding firms to clarify document requirements and the verification process, thereby reducing inadvertent non-compliances and fostering a culture of transparent bidding.
- Incorporate random post-award audits for select contracts, even those below the 10 Crore threshold, to further reinforce the deterrent effect and adapt the policy based on emerging fraud patterns.
- Monitor industry best practices and technological innovations (e.g., Artificial Intelligence and blockchain-based credentials) to continuously enhance the robustness and efficiency of document authentication in future procurement cycles.

By adopting these preventive vigilance measures, organizations like ONGC can create a robust culture of integrity, transparency, and efficiency, thus significantly reducing the opportunities for unethical behaviour and corruption.

The Blue Jackal

Once upon a time, a hungry jackal went to a nearby town to find some food. He was chased by dogs and got scared. In his hurry to escape, he ran into a washerman's house. There, he accidentally fell into a big drum filled with blue dye. When he climbed out, he became all blue.

He hurried back to the forest, but the other animals were frightened of him because of his strange blue colour. Seeing the fear in the animals, the blue jackal came up with a clever plan. He told them that he was sent by god to be their king. The animals believed him and accepted him as their king.

The blue jackal enjoyed being treated like a king by the other animals. But one day, he heard a group of regular jackals howling. Excited, he couldn't resist and started howling too. The other animals realized that they had been tricked! They quickly chased the blue jackal away from the jungle, learning not to believe everything they heard.

Moral: *Honesty is important. Trying to pretend to be something you're not can lead to problems and, in the end, the truth will be revealed. It's better to be truthful and trustworthy.*

PUNJAB NATIONAL BANK

Leveraging Digital Platforms for NPA Resolution

PROBLEM STATEMENT

Traditionally, the process of recovery in Non-Performing Assets (NPAs) through One Time Settlement (OTS) mechanism had been predominantly manual, paperbased and operationally fragmented.

> Considering the operational challenges faced by NPA Borrowers, bank has adopted digital platform for Processing One Time Settlement for Recovery in NPA via **PNB e-OTS** and **PNB SAMARTH**. The tool provides End to End Digital Journey.

The physical submission of applications involves manual verification and computation of settlement amounts along with non-uniform movement of proposals through various administrative and approval layers within the bank. This legacy approach was having multiple operational challenges leading to slow & time-consuming process, less transparency, less efficient discretionary decision and multiple follow-ups.

An equally pressing concern under the manual system was the limited engagement with customers throughout the OTS process. Often, applicants were left uninformed about the status of their applications, approval timelines or pending payment obligations.

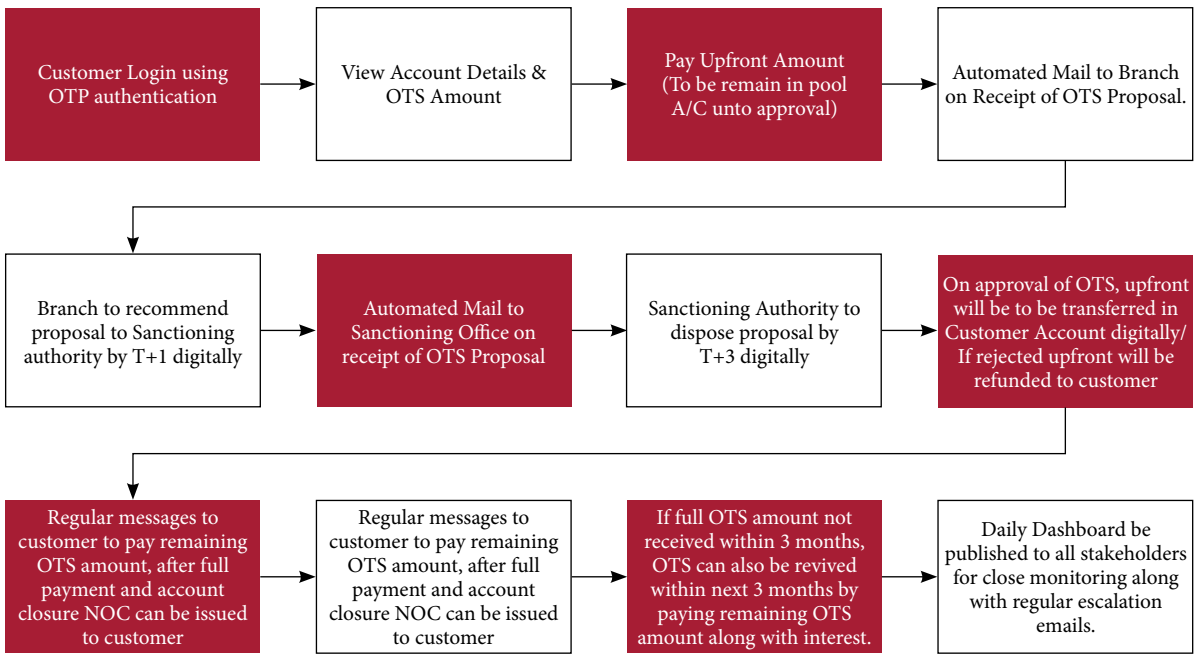
The absence of a centralized digital platform significantly hampered the bank's ability to ensure process transparency, real-time monitoring and standardized tracking of OTS proposals across different branches/Zones.

ADDRESSING THE ISSUE

• PNB e-OTS:

NPA Borrowers of small value loans falling under Segment of "up to Rs 10 Lakh", where the efforts

required for resolution/ OTS by the visiting Branch is difficult, Punjab National Bank (PNB) has created industry first digital tool PNB e-OTS, which provide the processing of OTS without any manual intervention by implementing Non-Discriminatory rule-based calculation. The tool provides End to End Digital Journey starting from applying to OTS, automated calculation of OTS amount and delayed period interest if any, generation of sanction letter (both online and offline payment facilities), directly credit of Revenue loss in loan account once OTS amount is paid by the borrower and Centralized Refund process in case of rejection of OTS application . This digital journey is industry first and offers 24*7 availability with improved Transparency and Turn Around Time.



Impact: The Bank has already approved total 219642 OTS in small value NPA accounts.

• PNB SAMARTH:

PNB SAMARTH-a robust and integrated platform **designed to revolutionize recovery and litigation processes across the bank**.

The bank has successfully digitized every major stage of the settlement process. Customers' applications are now **captured online**, eliminating the need for branch visits. Once submitted, these applications undergo **system-based evaluation**, wherein the settlement amounts and upfront payments are calculated in accordance with the bank's **policy framework and scheme guidelines**, ensuring uniformity and objectivity in proposal assessment.

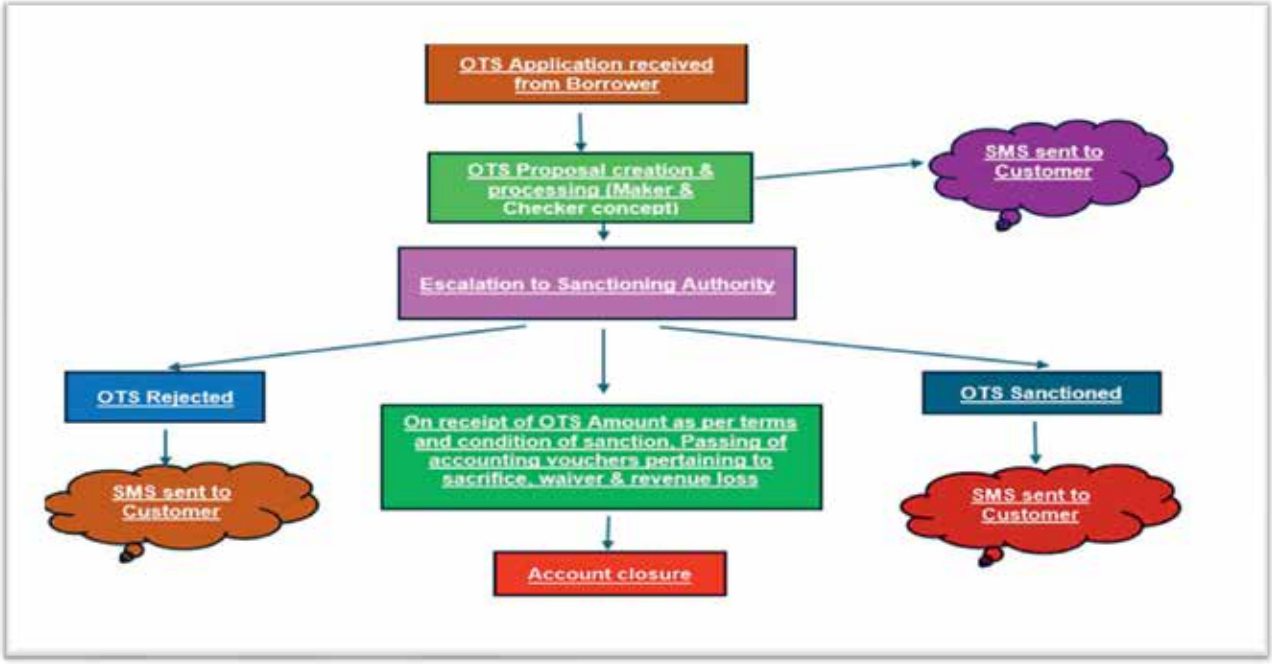
Proposals move through **digitally governed workflows**, automatically routing towards the appropriate decision-taking authorities based on pre-defined hierarchies and sanctioning powers. This not only

ensures compliance with the bank's **extant policy directives**, but also introduces **accountability and auditability** at each stage of processing.

The module is also equipped with advanced capabilities for **monitoring and tracking the sanctioned proposals**. In cases where revenue loss is to be booked, the system facilitates automatic crediting of such loss amounts directly into the concerned NPA accounts, doing away with the need for manual ledger entries.

To keep the borrowers informed about the status of their application, the system sends **automated SMS alerts** to the registered mobile number of customers-right from the **application submission to approval status** and even **payment reminders** during the course of the settlement period. This regular, real-time communication helps in building trust and reducing the uncertainty from customers point of view.

By digitizing the entire OTS process, PNB SAMARTH has not only improved the speed and efficiency of recoveries, but also strengthened internal governance, reduced operational risks, and laid the foundation for data-driven decision-making in future recovery strategies.



IMPACT ANALYSIS: PNB SAMARTH

Punjab National Bank's deployment of PNB SAMARTH has brought about a strategic transformation in the bank's approach toward recovery of NPAs through One Time Settlements (OTS). This digital intervention impacts several dimensions-operational, regulatory, customer-facing, and strategic. The

analysis below offers a theoretical and structured assessment across various parameters:

UNIVERSAL APPLICATION

If all banks across the country start using digital systems like **PNB SAMARTH**, it would bring major improvements in how the NPA (bad loans) are recovered. These platforms make the **One Time Settlement (OTS)** process faster, more accurate, and the same for everyone—no matter which branch or officer is handling it.

From a **vigilance and monitoring point of view**, these digital platforms also help in reducing the chances of favouritism, manipulation, or misuse of power. Since every action is recorded in the system with time and user details, it becomes easy to track who did what and when leaving less room for **corruption and irregularities.**

The system also track recovery agents performance and ensures that **commissions are paid fairly and only for genuine work**. Overall, the universal use of such digital systems would make the entire recovery process **more honest, transparent, and accountable**-which is a big step forward for better governance in the banking sector.

WAY FORWARD

As the banking sector advances toward full digital integration, a critical way forward lies in the **seamless integration of OTS and recovery platforms like PNB SAMARTH with National Credit Information Systems** (e.g. CIBIL, Experian, CRIF).

This integration would allow banks to **automatically update the credit viability status of borrowers** based on their settlement history, payment behaviour, and response to compromise offers. Such real-time updates would ensure a borrower's creditworthiness towards their willingness and efforts to resolve the dues.

For instance, a borrower repeatedly applying for OTS but failing to honour payments could be flagged as high-risk-thereby helping banks to **differentiate between genuine financial distress or strategic default**.

Additionally, these behavioural and transactional insights can be **shared in a secure, regulated manner with credit aggregators and financial institutions to create a shared risk intelligence ecosystem** across the industry.

Such a framework would prevent high-risk defaulters from bypassing the system and taking undue advantage from multiple lenders. Internally, banks can also integrate this rich data base with their **control and compliance functions**, including Risk Management, Internal Audit, and Vigilance departments. By doing so, the bank can proactively **identify emerging patterns of concern**, such as misuse of compromise settlement channels, coordinated agent misconduct or repeated high-risk borrower engagements.

Conclusion: Towards a More Intelligent Recovery System

The digital intervention of PNB e-OTS and PNB SAMARTH (OTS Module) reflects a shift from manual, opaque and error-prone legacy systems to a transparent, automated, and customer-friendly environment. The platforms have addressed deep-rooted institutional gaps related to:

- Process inefficiencies
- Inconsistent policy implementation
- Customer dissatisfaction
- Lack of transparency and monitoring

By embedding policy logic, automating communications, digitizing financial entries, and capturing performance analytics, PNB has taken a **strategic leap toward intelligent NPA resolution.** This shift sets a benchmark for other banks and can potentially serve as a case study in public sector digital transformation.

The Little Boy with a Slingshot

While on summer vacation at his grandparent's farm, Sammy accidentally shoots his grandma's pet duck with his slingshot. In a panic, he hid it behind a pile of wood. Unknown to him, his sister Marie saw the entire thing.

The next day, Grandma called on Marie to wash the dishes. However, instead of coming to help, Marie said, "Sammy said he wanted to help in the kitchen today, Grandma." Sammy was surprised because he said no such thing. Marie walked up to him and whispered, "Remember the duck?"

It was then that he realized Marie saw what had happened. This went on for several days until one day, Sammy couldn't take it anymore! He went to Grandma and told her about everything that had happened. Instead of scolding him, his Grandma hugged him and said, "I knew all along. I was waiting to see how long before you tell me so Marie will stop blackmailing you."

Moral: *Be honest about your mistakes. There will be others who will have no qualms about using this information against you. The more mistakes you make in secret, the heavier the burden on your conscience will be, and the easier it will for other people to take advantage of you.*

RASHTRIYA ISPAT NIGAM LIMITED, VISAKHAPATNAM STEEL PLANT

E-Vigilance Module
A Digital Initiative of RINL Vigilance

A major focus area for the vigilance team of Rashtriya Ispat Nigam Limited, Visakhapatnam Steel Plant is the execution of **Preventive Vigilance tasks**, in addition to Vigilance Clearance and Complaint Handling. In order to carry out more preventive and surveillance studies with optimum human resources and also to leverage the technology for increasing transparency in governance.

> E-Vigilance Module: A Digital Initiative of the vigilance team of Rashtriya Ispat Nigam Limited, Visakhapatnam Steel Plant is aimed at execution of Preventive Vigilance tasks, in addition to Vigilance Clearance and Complaint Handling at faster pace.. This has resulted In carrying out more preventive and surveillance studies with optimum human resources and also to leverage the technology for increasing transparency in governance.

PROBLEM STATEMENT

As a part of regular Preventive Vigilance

activities, 18 different type of tasks are assigned and allotted among various Investigation Officers (IOs).On an average, around **250 preventive vigilance tasks** are carried out annually. These tasks include CTE-pattern contract reviews, bill passing checks, Pre-Qualification Criteria scrutiny, nomination case analysis, Stores check, material quality check, Night surveillance etc. In order to prepare the final report, Vigilance department had to seek physical files from various departments. Some of the tasks required interaction with a single department like stores check, Night surveillance check while majority of tasks required IOs to interact with employees of multiple departments across Directorates. Often it was observed that retrieval of files/folders by departments and fetching and filtering of requisite information by IOs for conclusion of study reports was time-consuming, resulting in inordinate delays in certain tasks leading to cascading effect on achievement of other tasks and targets. Main reasons for delays include:

- Continuous coordination and follow-up for missing/ incomplete documents.
- Retrieval of old files.
- Segregating relevant documents from the bulk and old files.
- Delays in receiving departmental clarifications
- Lack of standardized report formats
- Prolonged follow-up for implementing recommended systemic improvements.

Along with the above problems, due to rotation of officers on regular basis, handing/taking over of records, retrieval of reports of earlier IOs, improvements suggested by Vigilance department was also challenging. With the passage of time, physical records were increasing and there was acute shortage of space to house and maintain these valuable records.

Vigilance Department also monitors the **rotation of more than 1000 officers in sensitive posts**, which was being done manually and time consuming process.

Vigilance team has taken up a new initiative to monitor the Department wise **Production Cost Analysis** by monitoring the parameters like Raw Material Consumption, Utilities Consumption, Man Power Requirements, Overheads and Maintenance Expenditures etc.

In addition to the above, Vigilance Department carries out many special Tasks & Studies to identify the financial leakages, scope for process improvements, system improvements etc.

As part of manpower rationalisation RINL introduced Voluntary retirement scheme, resulting in considerable reduction in manpower strength of the company and Vigilance Department is not exception to the same.

At the same time when RINL is in the revival process and Vigilance plays a crucial role in improving the systems and ensuring transparency and eliminating negligence etc.

ADDRESSING THE ISSUE

To address these challenges, **e-Vigilance Application** was developed with in-house resources.

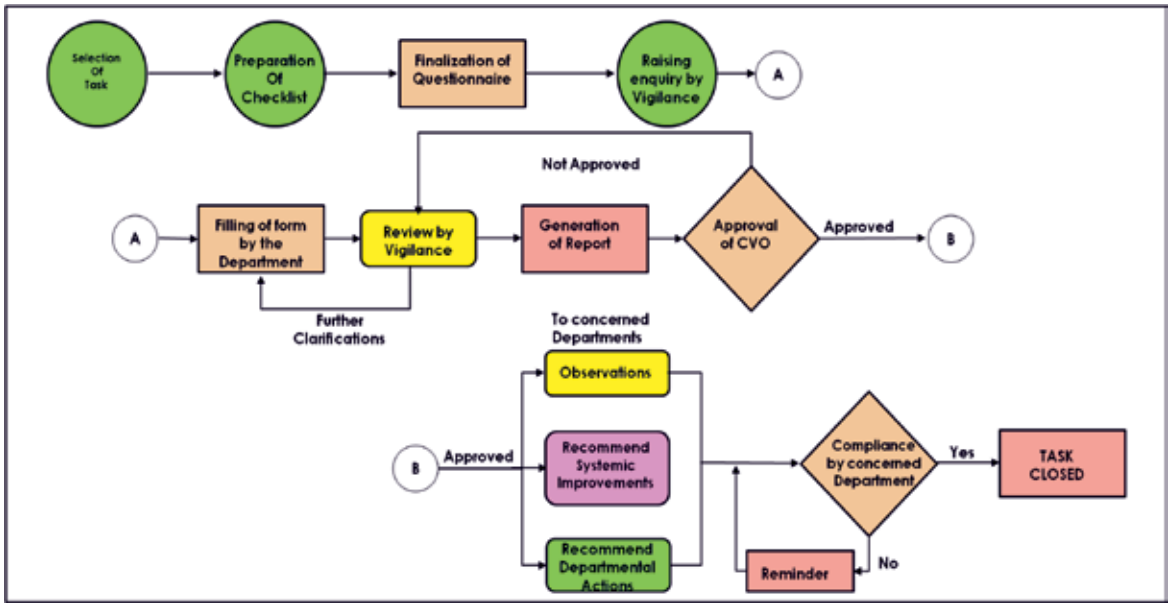
Salient features include:

- **Digital Checklists:** Customized checklists for each unique tasks were created to improve the objectivity of study.
- **Structured Formats:** Each checklist is linked to a digital format containing specific questionnaires and document requirements.
- **Departmental Uploads:** The Dealing Officer or Engineer-in-Charge (EIC) directly submits all required documents and responses through the portal.
- **Traceability:** Every study can be traced with keywords in search tab.
- **Seamless handing over and retrieval of information:** Outgoing IO need not maintain separate records for handing over to new IO.

This has **significantly reduced the time** for document collection, report preparation, and follow-up actions.

Enquiry & Review Workflow in e-Vigilance

When a Preventive Vigilance study is initiated, the **Investigation Officer (Admin)** raises an enquiry through the e-Vigilance system to the concerned **Dealing Officer or Engineer-in-Charge (EIC)** and **Head of the Department (HOD)**. Upon raising the enquiry:



- **Automatic email notifications** are sent to the Dealing Officer/EIC and HOD.
- They are required to **upload relevant documents and information within 7 days**.

- If not submitted within the timeframe, the system **auto-escalates** the matter to higher authorities.

While the Investigation Officer may still collect physical files where necessary, **most of the data is uploaded by the Dealing Officer/EIC** through predefined formats.

The **Investigation Officer (IO)** then reviews the submitted data:

- Inputs **observations, conclusions, and recommendations** for both corrective action and systemic improvements.
- May upload **additional** documents or request further clarifications, if needed.

This structured workflow ensures faster, transparent, and accountable processing of preventive vigilance checks.

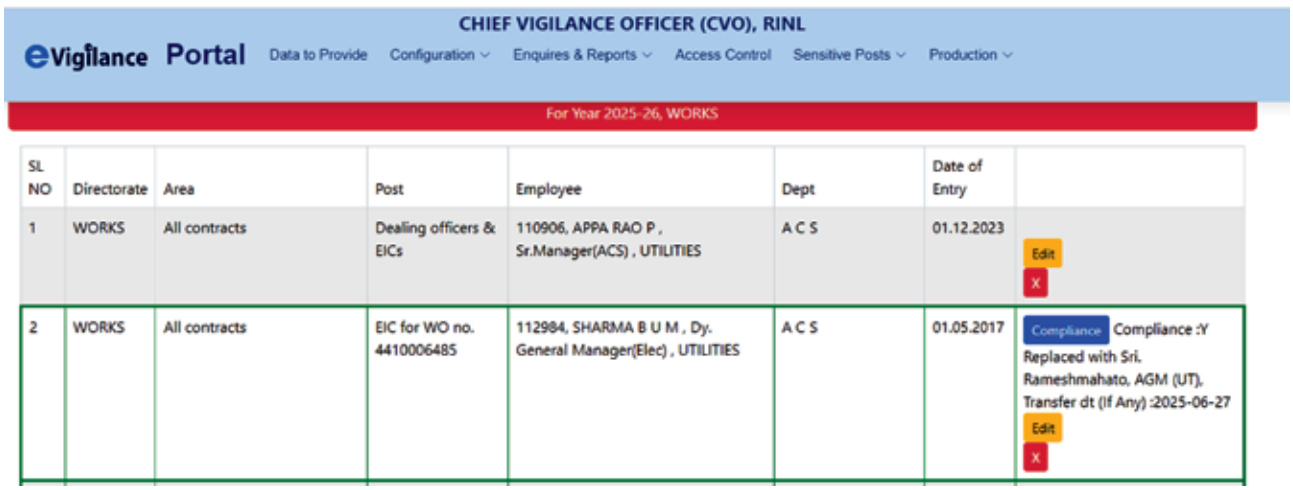
Report Generation, Approval & Follow-up

Once the **Investigation Officer completes the review**, a report is generated automatically using the "**Generate Report**" feature of the application. The report is then:

- **Submitted for approval** to the competent authority.
- Upon approval, the system **auto-emails the observations, recommended actions, and systemic improvements** to the concerned departments.
- If compliance is not ensured within the specified timeline, the system **escalates the issue to higher authorities** at defined intervals until closure.

This automation ensures timely action, better accountability, and seamless tracking of implementation.

Sensitive Posts monitoring: E-Vigilance Application allows uploading the list of sensitive posts, provision to upload compliance by the respective HODs as well as Vigilance Department and Generation of compliance/no compliance report by the Vigilance Department.

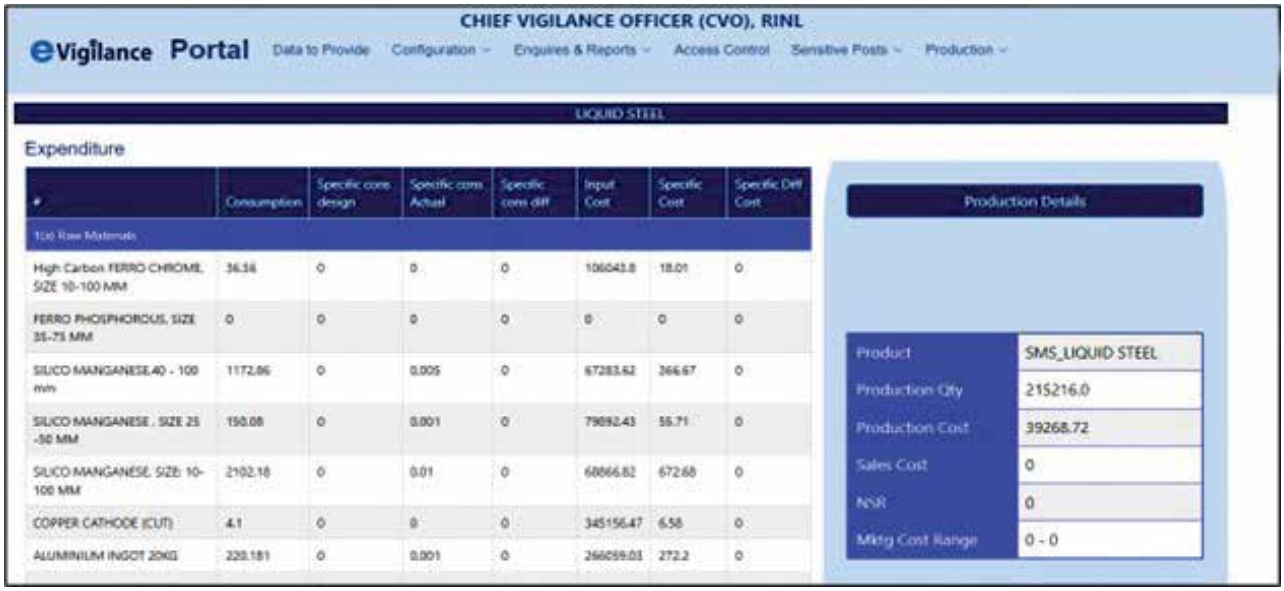


In addition to the above, one month before completion of tenure in the sensitive post, a reminder will be sent to the respective HOD to take necessary action for rotating the employee occupying the sensitive post and update the compliance. In case the action is not taken, the issue will be automatically escalated to the higher authorities.

Production Cost Analysis: 14 key Departments/Production Units have been identified for which the detailed cost of production will be generated along with the Specific Consumption of Raw Materials, Utilities, Manpower, and Overheads etc. The report also contains the Design/Bench Mark Parameters and deviation if any from the same will be reviewed.

The above also have the provision to check the Sales Cost, Net Sales Realization (NSR) and Comparison of sales cost with that of the Market Cost.

It will have the provision for mentioning the reasons for deviations, if any by the respective Heads of the Department.



IMPACT ANALYSIS

While there are many advantages of these digital initiatives taken by RINL, following are some of the impacts and Benefits of introducing e-Vigilance in RINL

1. **Increased Efficiency & Reduced Time:** Significant reduction in time required to carry out preventive vigilance studies and generate reports, thanks to structured workflows.

2. **Higher Productivity with Less Manpower:** Enables the Vigilance Department to conduct a greater number of studies even with reduced staff, aligning with post-VRS operational realities.
3. **Standardized Formats & Checklists:** Introduction of task-specific formats and standardized checklists minimizes subjectivity, speculation, and inconsistent approaches in vigilance studies.
4. **Elimination of Physical File Dependency:** Avoids the need to collect and sift through bulky physical files; digital access to relevant documents ensures faster and cleaner data handling.
5. **Collaborative Vigilance Culture:** Involves respective departments in the process of preventive vigilance, thereby raising awareness, enhancing vigilance culture, and improving departmental accountability.
6. **Simplification & Standardization:** Procedures have been streamlined and reports standardized, ensuring uniformity, ease of understanding, and faster decision-making.
7. **Promotion of Vigilance Awareness:** e-Vigilance module actively promotes vigilance activities across departments, embedding a culture of transparency and integrity.
8. **Effective Oversight of Sensitive Posts**: Simplifies the task of monitoring and rotating sensitive posts, which is crucial for preventive vigilance.
9. **One-Click Compliance Reports:** Sensitive post compliance reports can be generated instantly, improving responsiveness and easing audit readiness.
10. **Faster Post-Study Follow-up:** Earlier, departments delayed implementing vigilance recommendations. e-Vigilance ensures quicker action through auto-emails and escalations to higher authorities when deadlines are missed.
11. **Easy Monitoring of Process Parameters:** Enables tracking of key process indicators, facilitating timely intervention in case of anomalies or inefficiencies.
12. **To find out loss of Production:** Measure shortfall between actual and planned production.
13. **To find out loss in amount**: Calculate the monetary value of production losses.
14. **To streamline and reduce response time**: Simplify processes to ensure faster problem resolution.
15. **To fix responsibility on supervising officers**: Hold supervisors accountable for operational lapses.
16. **To increase Production Efficiency**: Optimize processes to produce more with the same resources.
17. **To increase Profits:** Boost revenue through improved productivity and cost control.
18. **To decrease Losses**: Minimize waste, rework, and downtime.

19. **Efficient use of Raw Materials**: Maximize output while reducing material wastage.
20. **Competitive Pricing of Product in the Market**: Lower production costs to offer market-driven prices.
21. **To improve Work Culture**: Foster a positive, cooperative, and performance-oriented workplace.
22. **To inculcate integrity:** Promote honesty, fairness, and ethical practices across operations.

UNIVERSAL APPLICATION

The above application is flexible and fluid and can be adopted across sectors. The main constituents include finalisation of checklists based on the requirement of reports, freezing standard formats for report generation and development of a single window platform.

WAY FORWARD

It is planned for forward integration of the above application with Enterprise Resource planning (ERP) application being used in RINL. It would improve the selection of departments based on their criticality / value /importance for carrying out the tasks. This would further reduce the time and effort required in filtering information required for completion of study reports. Further, various alert messages would be incorporated in the application, for implementation of systemic improvements and execution of actions suggested by Vigilance department. The same would help in easy monitoring of activities and prompt reddressal of delays,

There is no success without struggle!

Once a man was passing through a forest when he notices a butterfly's cocoon on a tree branch. He decided to sit down and watch the butterfly's transformation. He watched the butterfly for hours as it tried to force itself out of a small hole. After a few hours, the butterfly suddenly stopped moving as it got stuck.

The man felt bad for the butterfly and decided to help it out. He took a knife and cut the cocoon carefully so as not to hurt the butterfly. Though the butterfly emerged, it looked weak. Its body looked swollen and its wings shrivelled.

He sat there waiting for the butterfly to grow wings and start flying. No matter what the butterfly did, the wings wouldn't grow and he was stuck there unable to fly with his swollen body and weak wings.

The man was confused because he thought he was helping the butterfly by getting rid of its struggles but what he didn't know was that his very action made the butterfly weak and disabled. The butterfly needed to struggle through the cocoon because that was the only way the fluid from its body would reach its wings which would help it fly. Since its struggle was cut short, the butterfly could never fully develop and gain strength and now had to lead its life crawling around.

Moral: *You have to endure struggles to succeed.*

STEEL AUTHORITY OF INDIA LTD.

Enhancing Transparency And Accuracy in Ferroalloy Sampling & Testing In Sail Plants/Units

Manual sampling and variable testing practices have often led to quality concerns and lesser transparency in ferroalloy handling. To improve this, preventive vigilance-driven efforts were taken up to bring in changes like automated sampling, ERP-linked testing, and uniform procedures. These steps are aimed at reducing manual handling and bringing more reliability in the process. Though still in the early stages, the move towards a more transparent and traceable system

> Ferroalloys are indispensable in steelmaking, imparting essential mechanical and chemical properties to steel. Consequently, robust and transparent systems for the receipt, sampling, testing, and acceptance of ferroalloys are vital to ensure quality compliance, operational efficiency, and accountability.

for receiving, sampling, and testing ferroalloys is a positive step toward improving accountability in core production processes.

PROBLEM STATEMENT

Ferroalloys plays a crucial role in refining molten steel, removing impurities such as oxygen and Sulphur, and introducing desirable characteristics like strength, ductility, corrosion resistance, and thermal stability. Given their critical contribution to the overall quality and performance of steel, maintaining the integrity of ferroalloys is paramount.

However, systemic discrepancies were observed in several aspects of the process, including improper sampling practices, substandard material quality, inadequate inspections, poor material handling, and absence of standardized operating procedures (SOPs). These lapses raised serious concerns, as they increased the risk of manipulation, adversely impacted production consistency, and undermined vendor accountability.

ADDRESSING THE ISSUE

To address the issues that came to light through vigilance observations and operational feedback, a preventive vigilance-driven effort has been initiated to improve the systems related to ferroalloy sampling and testing. The focus has been on identifying process inconsistencies, reducing manual discretion, and introducing greater transparency through standardization and gradual adoption of digital tools.

As part of this approach, a two-day LEO Workshop was organized by Vigilance in May 2024 at IISCO Steel Plant (ISP), Burnpur, bringing together participants from various SAIL plants and units. The workshop featured expert faculty from Research & Development wing, domain technical specialists, Research and Control labs (Quality Control), Procurement division, and also from Bureau of Indian Standards (BIS). Deliberations were anchored around existing practices within SAIL units, peer industry benchmarks, and institutional inputs, with the objective of evolving a shared understanding and proposing feasible, harmonized steps for strengthening the current system.

Systemic Improvements in Ferroalloy Sampling and Testing: A Transition towards Standardization and Technology-Enabled Governance

Based on detailed deliberations and internal reviews, a structured roadmap of systemic improvements has been developed to enhance transparency, accuracy, and accountability in the sampling and testing of ferroalloys. The following multi-dimensional measures, encompassing both implemented improvements and proposed enhancements, are being adopted in a phased manner across the plant

(i) Automation and Digitization

- **SAP-Based Random Sampling:**

  To eliminate manual discretion and enhance impartiality, SAP-integrated random number generation has been introduced in the sampling process. This ensures that bag selection is entirely unbiased and system-driven.

- **Introduction of Auto-Sampler and Mechanized Sieving:**

  Procurement is underway for advanced automatic sampling systems with integrated mechanized sieving units. These are expected to improve the representativeness of samples and reduce human intervention.

- **Analyzer-to-ERP Integration:**

  Steps are being taken to digitally link XRF and Carbon & Sulphur (C&S) analyzers directly to the ERP system. This linkage will ensure tamper-proof data flow and eliminate the scope for manual data entry errors.

(ii) Infrastructure Strengthening

- **Procurement of Dedicated C&S Analyzers:**

  New Carbon and Sulphur analyzers are being procured, to meet analytical precision requirements as per Purchase Order compliance, and enhance the accuracy of elemental testing.

- **Enhanced Surveillance and Sample Security:**

  CCTV coverage has been extended to key sampling and laboratory zones. Additionally, OTP-enabled padlocks are now used to secure sample boxes, thereby improving traceability and safeguarding sample integrity.

(iii) Process Standardization

- **Two-Stage Sampling Randomization Protocol:**

  A two-tier randomization system has been recommended. It involves SAP-based random bag selection followed by randomized selection of increments (small grab samples) rather than leaving this choice to the sampler, as per the Standard Procedure for Sampling of Ferro-Alloys for Testing Purposes.

- **Material Demarcation and Bag Identification:**

  Every sample bag is now tagged with a unique identifier. Moreover, rejected materials are clearly demarcated using red or yellow paint, thereby improving visual traceability during storage and handling.

- **Implementation of Unified SOPs:**

  Department-wise and shift-wise Standard Operating Procedures (SOPs) have been prepared, consolidated, and circulated. These SOPs cover visual inspection, sample collection, and material acceptance, ensuring uniform application of procedures.

(iv) Quality Assurance

- **Automated Recalibration Alerts:**

  Plans are in motion to implement system-generated alerts for timely recalibration of testing instruments and analyzers. This will help in maintaining the reliability and accuracy of test results.

- **Strengthening In-House Laboratory Capabilities**

  Efforts are being made to augment internal laboratory facilities through infrastructure upgrades and specialized training to reduce reliance on external agencies and enhance turnaround time for analysis.

This comprehensive approach marks a significant shift from manual, discretion-based practices to a more reliable, transparent, and system-driven ferroalloy handling framework. While several key steps have already been initiated, the ongoing and recommended measures indicate a forward-looking strategy that leverages technology and governance principles for sustainable improvement. By institutionalizing these practices, SAIL is not only addressing current challenges but also laying a scalable foundation that can be adapted and replicated across all its integrated steel plants.

IMPACT ANALYSIS

This systemic improvement holds broad applicability across all SAIL units as well as similar process-driven industries. Certain components, such as SAP-based sample selection, standardized sampling SOPs, and integration with analyzers, offer modular flexibility, allow adaptation to varying operational scales and technological readiness levels. Some of these measures are already in functional use in some plants of SAIL and yielded encouraging results. The anticipated impacts include:

- Better coordination is expected between departments like procurement, quality, and vigilance.
- A positive cultural shift may take place, with stronger focus on quality and following procedures.
- The model uses modular components, making it flexible and adaptable to different operational environments.
- Broader implementation is expected to improve sampling efficiency, reduce manual discretion, and strengthen quality checks uniformly across units and saving cost to the Company.

UNIVERSAL APPLICATION

The system has the potential to be applied across all SAIL plants and similar industries. Some measures like SAP-based sample selection, analyzer integration, and standard operating procedures for sampling have been implemented in some of the plants/Units. These practices are now being standardized for wider adoption across all SAIL units. The model uses modular components, making it flexible and adaptable to different operational environments. Broader implementation is expected to improve sampling efficiency, reduce manual discretion, and strengthen quality checks uniformly across units and saving cost to the company.

WAY FORWARD

The transition from manual and varied practices to automated and standardized ferroalloy management systems has the potential to bring significant advancements in governance, operational efficiency, and quality assurance.

By aligning preventive vigilance with digital transformation and structured process design, SAIL is laying the foundation for a scalable and replicable model of systemic improvement that may yield lasting organizational benefits. Such as:

- Codification of Standard Operating Procedures (SOPs) for the complete ferroalloy handling process in all SAIL plants.
- Development of digital dashboards for real-time lot-wise tracking, vendor performance monitoring, and rejection analytics.
- Capacity building programs for laboratory personnel and procurement teams to enable smooth transition to technology-driven systems.
- Integration of BIS Quality Control Orders into vendor qualification processes to strengthen quality assurance at the source.

The Honest Carpenter

In a bustling town a carpenter known for his skill but not his wealth. He made sturdy furniture, yet barely earned enough to feed his family. One day, a wealthy trader came to him with an unusual request: "Build me a house, but take your time. I'll be away for a year. Use the finest wood and materials. When I return, I will pay you generously."

The carpenter agreed. But as months passed, temptation grew. "Why should I waste the best wood on a house that isn't mine?" he thought. Slowly, he began cutting corners-using cheaper timber, weaker nails, and thinner walls. The house looked beautiful outside, but inside, it was hollow and fragile.

After a year, the trader returned. Smiling, he handed the carpenter the keys. "This house is my gift to you. For years you've worked hard for others; now you deserve your own."

The carpenter's heart sank. He realized he had cheated not the trader, but himself and his family. The house he built carelessly would be their shelter—weak and untrustworthy.

Moral: *Every act we do is a reflection of us. Cutting corners today may rob us of tomorrow's security.*

STATE BANK OF INDIA

AI/ML Tool for Identification of High-Risk Branches for Preventive Vigilance and Risk Mitigation

PROBLEM STATEMENT

The banking sector is an important sector and touches the lives of all citizens. Detection of fraudulent activity is critical as the amount is in the tune of millions of Rupees, thus destabilizing customers' and investors' confidence. Recent rise in bank frauds calls for tightening of existing security mechanisms. A strong system of internal control is the most effective way of preventing fraud. The banks should prepare themselves for enhanced monitoring using AI/ML predictive model in their organizations to combat frauds. The primary objective of the present study is to identify high-risk bank branches by assessing Credit and Operational risk in branches and providing a robust mechanism for risk control. It will also define the inherent fraud risk in the branches based on advances/ transactions characteristics of the bank branches. It aims to identify the outliers indicating various other causes responsible for bank fraud. Various risk model outputs assessing the various operational/credit risks in the branches have been considered for defining the risk.

> "The State Bank of India used a Patent granted machine learning model it is a predictive analytics tool that uses an ensemble of pre-existing risk models to identify high-risk bank branches."

ADDRESSING THE ISSUE

Predictive Analytics is used for assessing the fraud risk in bank branches, i.e., to identify a branch which is more vulnerable to frauds. A Machine Learning model was developed to score the branches in terms of the CRM (Credit Risk Management) and ORM (Operational Risk Management) at branches. The present model excludes processing cells and administrative offices.

The model was developed using various internal data sources, like

a) Internal repository of Fraud Data

b) Suspected fraud Data

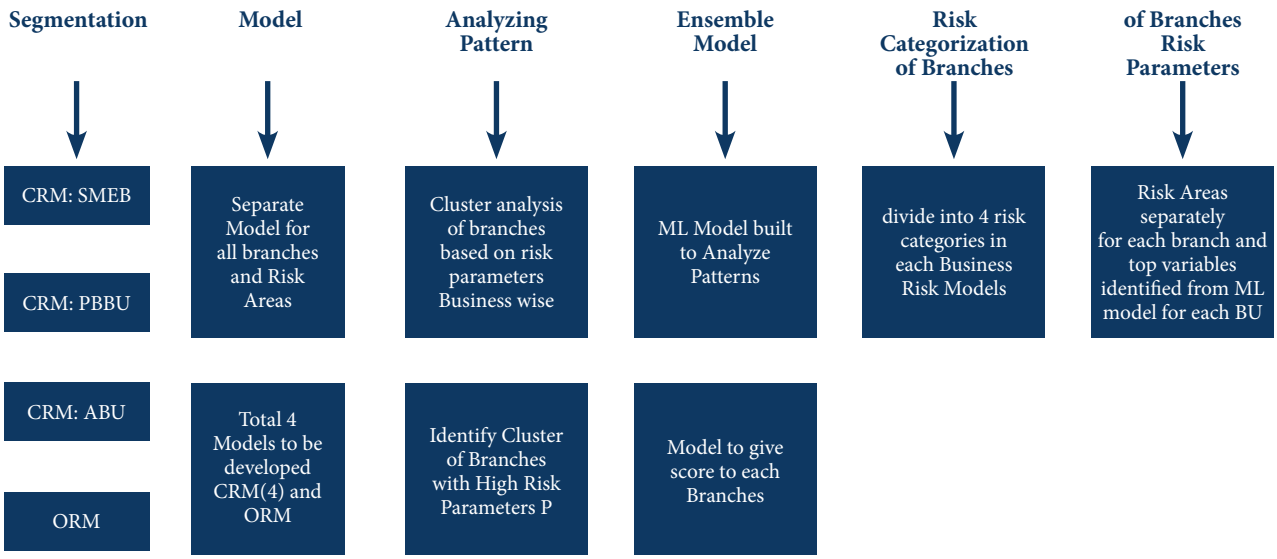
c) RADAR (Remote application for dynamic assessment of risk) & OTMS (Outlier transaction monitoring system) risk-based alerts from Internal Audit department

d) Branch demographic and Business data

e) Ensemble of analytical models like Early Warning Signal -Personal/SME, Branch General Ledger rollover & High-Risk Personal Loan etc.

These data sources capture both Business profile and Risk associated with the branches. The tool considered more than 300 variables based on ORM and CRM Fraud risks separately. This was done to help the reduction of fraud incidents by enabling branches to take proactive action against the identified reasons occurring in the branches.

The risk categorization of branches involves the following Process Flow as under:



The method for determining the fraud risk in bank branches comprises of:

a) Collecting and performing in-depth **Exploratory Data Analysis** (EDA) of plurality of key parameters from bank branches for defining a branch's fraud risk.

b) Segmentation of Branches: Based on Business segments, Branches are categorized in 3 board categories as branches under personal segment, Agriculture and Small & Medium Enterprise (SME) segment. The variables/features are created based on risk associated with each vertical.

All administrative offices and processing centers are excluded.

c) **Risk Type:** Separate risk models are developed to assess the risk associated with Credit Risk Management (CRM) and Operational Risk Management (ORM) in banks. Four separate models, three for CRM of branches under p-segment, Agri and Small & Medium Enterprise (SME) segment and one combined for ORM is developed.

d) **Feature Engineering:** To get insights on changes of pattern in the branch, a list of variables was created using branch characteristics. For each factor considered for branch, the variables are created for three consecutive years to understand the pattern in branches e.g., Growth in advances current FY, quarterly growth product wise. More than 300 features are created. A total of 360 features were derived from all factors.

e) **Cluster Analysis:** K-means cluster Algorithm: An unsupervised technique was used to define the target for building model. This technique segregate the data into homogenous clusters/groups having similar characteristics. Cluster analysis is done for each segment of branches in p-segment, Agri and Small & Medium Enterprise (SME) segment for identifying the cluster of risky branches Use of K- means clustering (unsupervised Learning) on the features created in the previous step to create clusters. Clusters with silhouettes measure more than 0.5 are used for ensuring good cluster quality. Existing Operational Risk models output at Analytics department are ensembled along with other risk parameters and used for Unsupervised Learning (i.e., employing K – means clustering in Machine Learning) to define Risky Branches.

f) **Machine Learning:** After K-means Cluster algorithm was applied on each segment of the branches separately to identify the risky branches based on risk parameters. Then target is set as 1 and 0, where 1 being branches identified in risky clusters and 0 being branches in non-risky cluster. Multiple modeling techniques using python such as 'Extreme Gradient Boosting', Logistic, Artificial Neural Network', and 'Random Forest', Light Gradient Boosting Machine' etc. are used to build robust predictive models wherein three separate models for each segment of branches capturing CRM risk and one common model for capturing ORM risk are considered. The models are evaluated based on F1 Score, Sensitivity and Specificity in Training, Testing and Validation datasets. Different modelling algorithms were fitted to training and testing data.

g) **Scoring of Branches:** Finally, branches are categorized under different risk grades based on the probability estimated by Machine Learning model. Three different models under CRM risk based on business segments (Agri, SME and P-segment) and one single model for ORM is developed and maximum score is considered as final score for the model. Finally, branches are categorized under different risk grades based on the probabilities estimated by Machine Learning as given below table.

Condition	Category
Score >95	Very High Risk
Score >= 75 and Score =< 95	High Risk
Score >= 50 and Score < 75	Medium Risk
Score < 50	Low Risk

The final score along with the Branch specific factors hosted on Analytics dashboard which will facilitate the branches in taking suitable preventive vigilance and risk mitigation steps. These scores are available separately for CRM and ORM risk on the dashboard. Also, separate risk indicators are available for the Credit & operational area of the branch. High risk branches shared quarterly via dashboard.

h) The branch specific factors (top 10 indicators) are provided based on **SHAP machine learning technique**.

IMPACT ANALYSIS

The said model is unique as it captures the pattern of the outlier activities occurring at branch level as well as at customer level for reaching the final risk of the branch. Various analytical model outputs assessing the operational risks in the branches have been considered for defining the risk. It will also define the inherent fraud risk in the branches based on advances/ transactions characteristics of the bank branches. It aims to identify the outliers indicating various other causes responsible for bank fraud. Unsupervised Learning and Supervised Learning to find the branches with relatively higher fraud risk and the most suspicious indicator for the same. Branches are prescribed as the areas to monitor for reducing the fraud risk. The proposed method helps in reducing the fraud incidents by enabling branches to take proactive actions against the identified reasons occurring in the branches, i.e., risk mitigation by continuous follow-up by the bank controllers in identified areas. It also assists controllers of the bank to pre-empt fraud.

Below are the major areas:

Audit: High risk branches data is shared quarterly, which assists the audit department in scheduling the Audit frequency at branches along with sample accounts for verification.

Suo-moto at branches: The vigilance department is using these high-risk branches for conducting suo-moto investigation at the branches based on the top parameters defined for each branch.

Reduction in fraud: It has helped in the reduction of fraud incidents by enabling branches to take proactive actions against the identified reasons occurring in the branches, i.e., Risk

mitigation by continuous follow-up up by the controllers in identified areas.

Controller's Insights: The controller of branches will get insights on improving the branch status by plugging the lacunae / issues/ behavior of branches identified by the machine learning so as to pre-empt frauds.

UNIVERSAL APPLICATION

The given methodology can be adopted by various Banks to identify the branches with higher risk based on outlier activities/ transactions occurring at the branches. The branches can work in the identified areas. Also provide a tool for controllers to recognize the area of concern. Audit schedule and Suo moto investigations can be conducted at branches.

WAY FORWARD

As the nature of risk is dynamic, the model will be recalibrated on regular basis based on new patterns and features. To improve risk assessments, alternative data sources may be integrated into models. This could include non-traditional data such as location, and other behavioral indicators. By broadening the data spectrum, models will gain deeper insights into branch risk profiles. Collaboration between different branches and departments can lead to a more holistic understanding of risk. Sharing insights and best practices across the organization can enhance the overall effectiveness of risk models and foster a unified approach for preventive vigilance & risk management. In conclusion, the way forward for branch risk models involves embracing technological advancements, enhancing compliance and governance, and fostering a culture of continuous improvement. By adopting these strategies, financial institutions can better navigate the complexities of risk management and ensure sustainable growth in an ever-evolving banking environment.

The farmer who bought a well

A poor farmer once bought a well from a rich man so that he could irrigate his land using the water from the well. The farmer paid the price quoted by the rich man.

The next day, when the farmer went to draw water from the well, the rich man stopped him and disallowed him from drawing water. He said that the farmer had bought only the well and not the water from him. So, he cannot draw any water from the well.

Not knowing what to do, the farmer went to the king's court and told him about his predicament.

The king consulted his wise counsel who pondered over the issue and then advised,

"Since you have sold the well and not the water to the farmer, you will have to move all the water or pay rent to the farmer to keep the water in the well."

The rich man realized his ploy was not going to work and let the farmer use the water from the well.

Moral: *Do not try to deceive people as you will end up paying the price.*

SECL
South Eastern Coalfields Limited

SOUTH EASTERN COALFIELDS LTD.

Smart Vigilance, Safer Mines

"Innovation with integrity: Harnessing AI for safety, vigilance, and transparency in mining."

"Integrated Command & Control Centre (ICCC): Vigilant Eye, Powered by AI."

"DigiCOAL: Fuelling Smart Mining."

"Jatayu Dashboard: a Vigilant Garud - Guiding Light for a Brighter Future."

PROBLEM STATEMENT

The Indian coal sector is at a crossroads, needing to meet the nation's energy demands while still relying on outdated and inefficient practices. The primary problem is the sector's struggle to modernize and integrate new technologies. The core issues can be divided into three main areas:

1. **Outdated Processes and Technology:**

The industry is still heavily reliant on manual record-keeping. This leads to a lack of real-time data, making it difficult to monitor operations, ensure accountability, and quickly identify and resolve issues. Furthermore, the use of conventional machinery without the requisite updated sensors or digital interfaces is a significant barrier for efficiency and safety improvements. These machines may not have the necessary sensors or digital interfaces to collect data, which is a prerequisite for operational oversight. The existing Enterprise Resource Planning (ERP) system is in its initial phase, meaning

> DigiCOAL: Fuelling Smart Mining. Establishment of Integrated Command & Control Centre (ICCC) Powered by AI has kept a Vigilant Eye on all safety measures enabling early warnings for unauthorised access, reduce idle times, highlight anomalies, and predict hazards.

it is not fully integrated or optimized to provide a holistic view of the operations, leading to fragmented data and siloed decision-making.

2. **Contractual Challenges**

The coal sector is tasked with increasing production to secure the nation's energy supply, but it must do so in the context of a global shift toward renewable and green energy. This puts immense pressure on the sector to become more efficient, accountable, and transparent. The current system makes it difficult to prove that operations are being conducted in compliance with contractual and statutory obligations. To meet these demands, the sector needs a fundamental transformation in how it operates, from the mine floor to the executive office.

3. **Human Resources Challenges:**

A large portion of the workforce is aging, which can create a resistance to adopting new technologies and learning complex digital systems. This also poses a challenge for training and knowledge transfer. Manual HR processes, such as leave calculation and payroll deduction, are prone to inconsistencies and may erode trust. Without automated systems, the sector cannot effectively track the workforce, especially field staff, leading to a lack of data-driven oversight and transparency.

ADDRESSING THE ISSUE

1. **AI in Operations – Achievements across Subsidiaries**

The adoption of AI for operational vigilance has produced measurable results. The Integrated Command & Control Centre (ICCC) has emerged as a pivotal enabler—fully implemented at Western Coalfields Limited (WCL) and South Eastern Coalfields Limited (SECL), with expansion underway at other subsidiaries. ICCC acts as the operational nerve centre, seamlessly integrating real-time CCTV feeds, fire and smoke detection, vehicle load monitoring and checks for personal protective equipment (PPE). AI-powered analytics enable early warnings for unauthorised access, reduce idle times, highlight anomalies, and predict hazards. This fosters a culture of preventive safety and rapid response throughout the mining process.

The modernisation of coal transport is evident at Northern Coalfields Limited (NCL), where the Operator Independent Truck Dispatch System (OITDS) is fully functional. Through a combination of real-time GPS tracking, RFID-based authentication, digital trip sheets, and tight integration with SAP and MIS dashboards, OITDS automates and monitors the entire dispatch process. AI models are used for optimising routes, detecting deviations or misuse, and preventing congestion or pilferage, ensuring accountability at every step.

DigiCOAL, an Industry 4.0 initiative from Coal India, has also transformed operations by harnessing drones, IoT sensors, and AI analytics at mega mines of SECL and large mines of NCL. Drone surveyed volumetric analyses, real-time equipment utilisation, and AI-predicted haul

road and fuel conditions all feed into robust mine planning, scheduling, and land management. These advances make mining operations significantly more scientific and transparent.

Fuel dispensing has been revolutionised through DDU Automation. RFID tagging and tamperproof digital audit trails ensure that only authorised vehicles and machines can receive fuel. AI driven analytics track fuel usage, swiftly flagging any anomalies and optimising allocation. This has greatly strengthened controls and efficiency in fuel management.

Fig. 1 - Integrated Command & Control Centre (ICCC) of SECL

2. AI in Contract Management

While operations lead the way, the coal sector is strategically exploring AI for contract management and human resources. In contract management, the future lies in the automation of the entire lifecycle: from the unbiased evaluation of tenders and automated document handling to predictive alerts for delays and compliance risks. Automatic tracking of contract parameters, renewals, and closure will set new benchmarks in transparency and efficiency. Some subsidiaries, such as MCL, have already initiated pilot efforts in this direction.

3. AI in HR Management

In human resource management, the roadmap envisions the integration of biometric and face recognition attendance systems with payroll for all employees, including field staff. Automated leave calculation, deduction processes, and payroll analytics will enhance trust, detect inconsistencies, and create a stronger culture of data-driven oversight.

4. Capacity Building with AI

Building organizational integrity goes beyond process oversight. The coal sector has begun adopting AI-enabled AR/VR-based simulations for training, immersing employees in ethical

dilemmas and complex scenarios requiring sound judgment. Machine learning systems are shaping personalized learning paths for every role. AI-powered chatbots offer readily available information and guidance, supporting a resilient, vigilant workforce.

Jatayu Dashboard: An SECL Vigilance Initiative

A crowning achievement in smart vigilance is the Jatayu Dashboard, developed by the Vigilance & Systems Department at SECL. Drawing inspiration from the vigilant and courageous Jatayu in the Ramayana, this digital platform is a "one-stop solution" that empowers SECL executives with reliable access to all rules, guidelines, circulars, and SOPs relevant to their duties. The dashboard's intelligent search and systematic organisation by agency, vertical, subject, year, and date enables rapid resolution of queries and supports faster, informed decision-making.

SECL is further advancing the Jatayu Dashboard with the integration of an AI-powered chatbot. Unlike conventional AI search, this chatbot will respond exclusively with content from vetted, dashboard-validated documents-ensuring regulatory relevance and minimising misinformation. The "Contribute" feature allows executives to upload missing resources for administrative vetting, ensuring the platform remains current and comprehensive.

As the chatbot is enriched with frequently-asked operational questions and new material, Jatayu is poised to become one of the most advanced AI-driven vigilance instruments in India's public sector, embodying a deep commitment to vigilance, ethical protection, and continuous improvement.

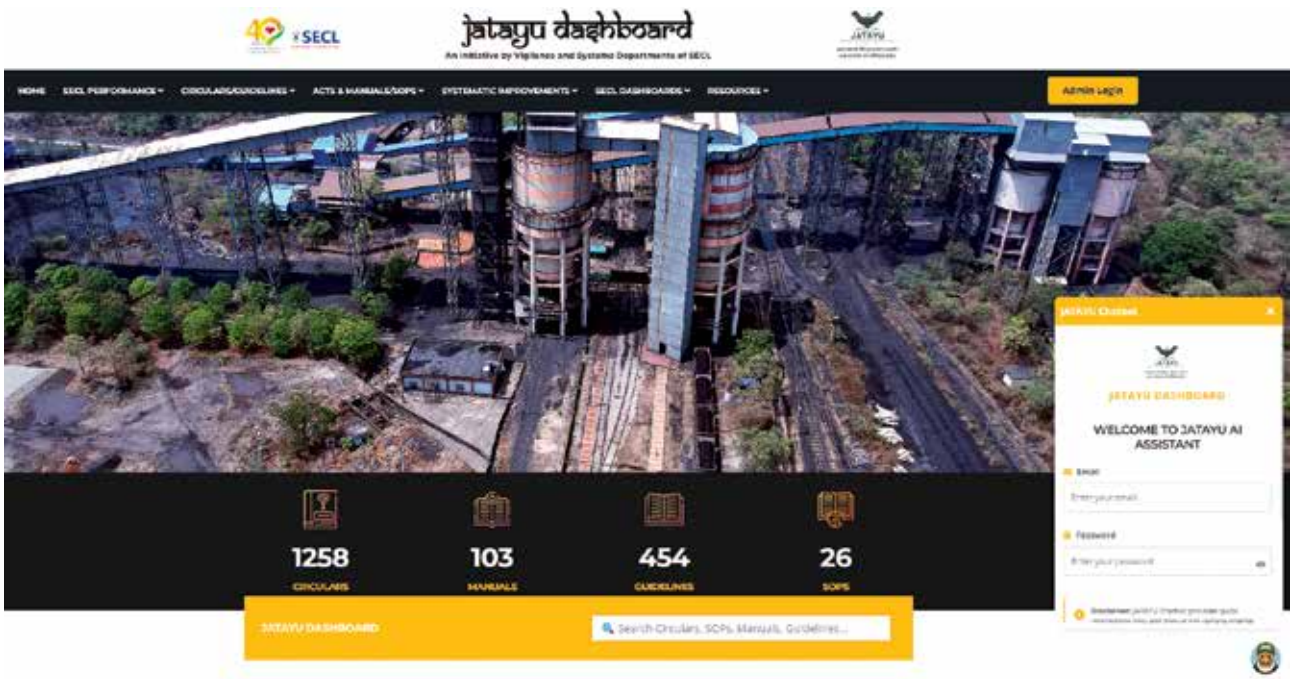


Fig. 2 - Jatayu Dashboard: An SECL Vigilance Initiative

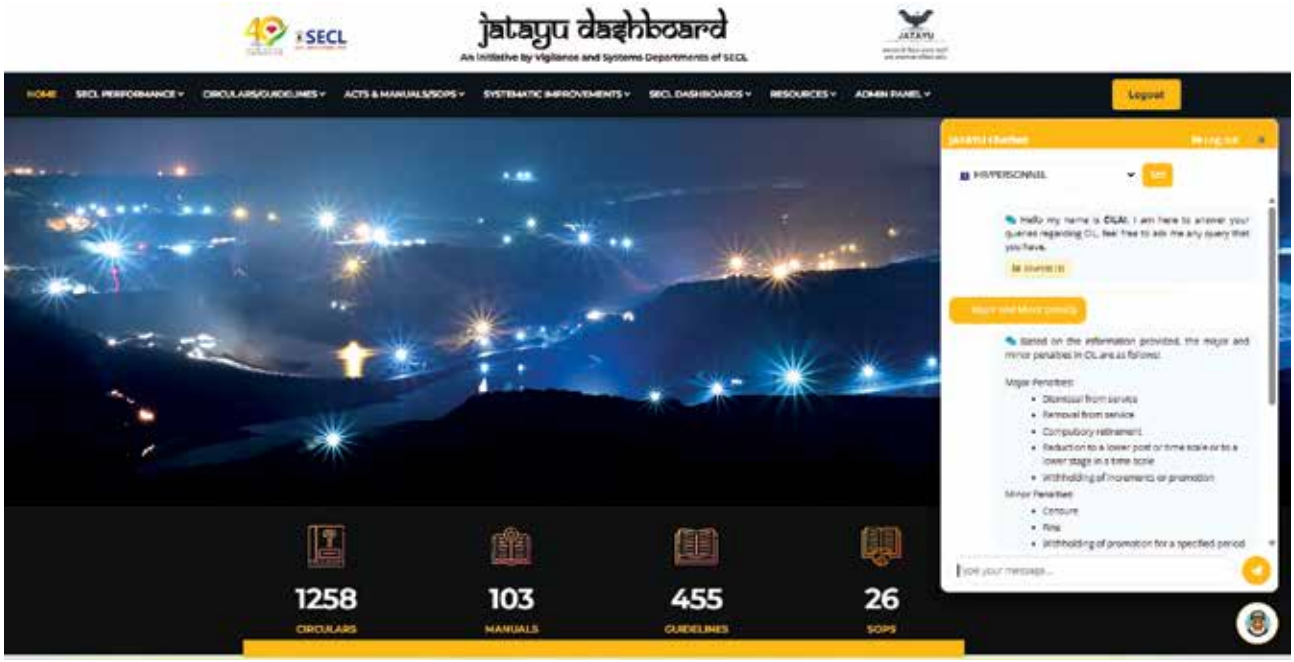


Fig. 3 - CILAI: Chatbot

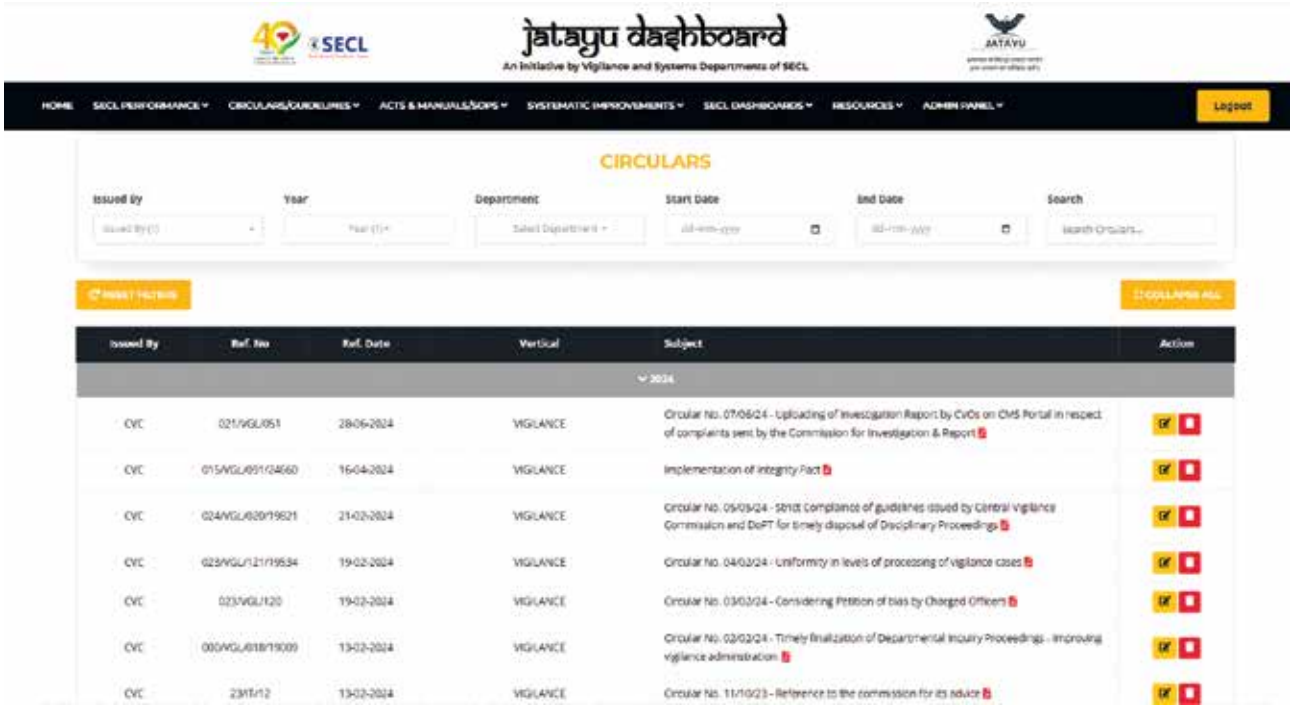


Fig. 4 - Jatayu Dashboard: Interface

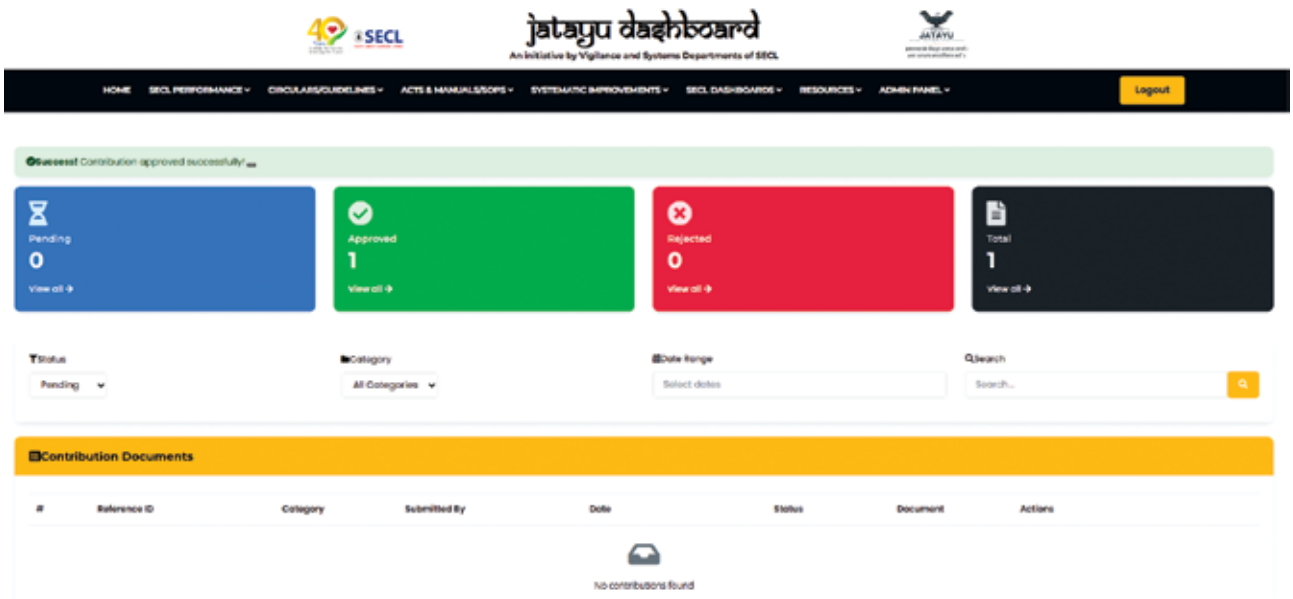


Fig. 5 - Jatayu Dashboard: Contribution dashboard

Conclusion

Guided by the Ministry of Coal and CVC, the Indian coal sector's embrace of AI in vigilance is already producing more secure, accountable, and efficient mines at SECL, WCL, and NCL, with more sites soon to follow. The journey toward integrating AI in contract management and HR is set to further raise standards in governance. Pioneering, user-centric platforms like SECL's Jatayu Dashboard reinforce a sector-wide culture of seamless and proactive vigilance. With "smart vigilance" at its foundation, the coal sector is driving not only resource extraction but also the deep mining of integrity, safety, and national excellence.

"Coal Mines like a hard life have seen the best diamonds of innovation more than any jewel factory."

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NHPC's Green Energy Leadership

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- **Strong Financial Performance:** Consistently robust results since inception.
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  - Subansiri Lower Project: 2,000 MW across Arunachal Pradesh and Assam.
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The Central Vigilance Commission of India is an independent statutory body that has a mandate to combat corruption and ensure integrity in administration and public services.

Every year the Central Vigilance Commission observes Vigilance Awareness Week to bring about participation of all stakeholders in reaffirming their commitment towards upholding the ideals of integrity in public administration. The publishing of Preventive Vigilance booklet is one of the initiatives of the Commission to bring about awareness of the different initiatives and activities being undertaken by different public authorities in streamlining processes and bringing about greater transparency.

It is hoped that the initiatives highlighted in this booklet may spark inspiration in the readers to bring about transformative changes in their organization.

CENTRAL VIGILANCE COMMISSION

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