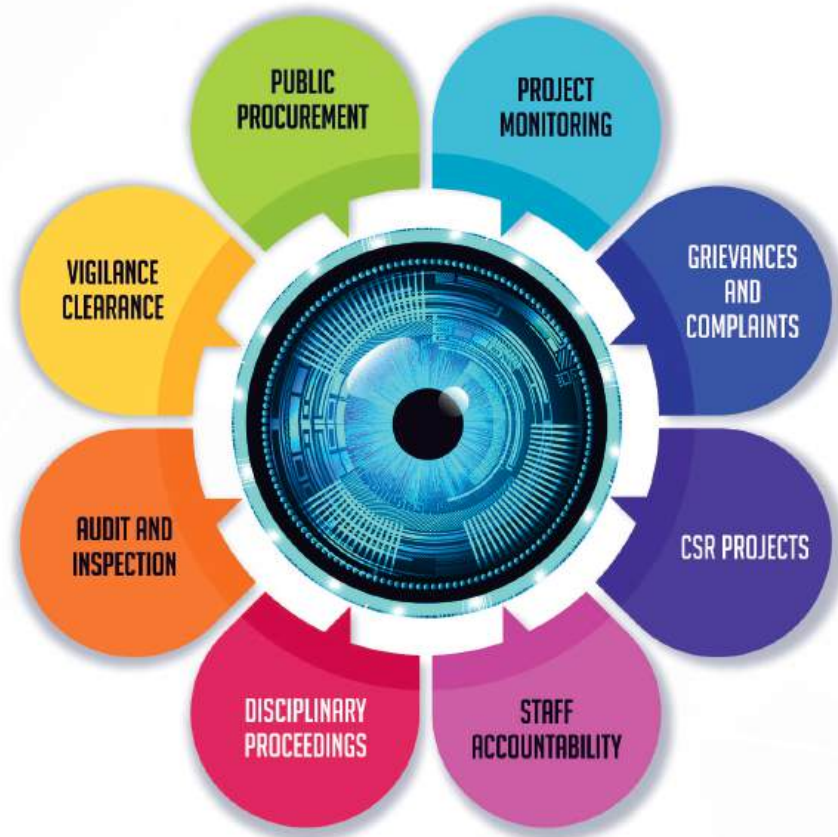




VIGEYE VANI

**Special Issue
on
Increasing Transparency Through Use of Technology**



VOLUME - LI

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PUBLIC INTEREST DISCLOSURE & PROTECTION OF INFORMER RESOLUTION, 2004 (PIDPI)

WHAT IS PIDPI?

- PIDPI is a resolution of Government of India
- Identity of the complainant is kept confidential for all complaints lodged under it

HOW IS PIDPI COMPLAINT FILED?

- The Complaint should be addressed to Secretary, CVC and the envelope should be superscribed as "PIDPI"
- Name and Address of the complainant should NOT be mentioned on the envelope but in the letter inside in a closed cover

GUIDELINES TO ENSURE IDENTITY OF COMPLAINANT REMAINS CONFIDENTIAL

- Complaints that are personally related to the complainant or addressed to other authorities may lead to disclosure of identity
- Complaints should not be sent in open condition or on public portal
- Documents that reveal identity should not be enclosed or mentioned in the complaint. Eg: documents received under RTI
- Name and Address should be mentioned on the letter inside the envelope for confirmation purposes
- Complaints where confirmation is not received are closed
- Anonymous/pseudonymous letters are not entertained

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Increasing Transparency Through Use of Technology

MONITORING OF PUBLIC PROJECTS-INCREASING TRANSPARENCY THROUGH USE OF TECHNOLOGY

1.1 ABSTRACT

Public Procurement is essentially based on pillars of transparency, data accessibility, effective competitive environment, accountability and tools for monitoring of project efficiently. Any large infrastructure project involves design and structural complexities covering various streams like civil, track, roads, bridges, electrical, signalling, rolling stock etc. having multiple stakeholders along with inherent interdependencies of activities. Standardisation of process and on-boarding of various stakeholders on an online platform is essential for efficient execution and real time monitoring of the project. Uploading of large number of drawings, documents, Requests for Inspection (RFI), real time reporting, enforcing a paperless system to the extent feasible, seamless transparent system, approvals and communication between the parties, status of various business processes, physical and financial progress and dashboard for summarised information are key criterion for choosing and establishing a suitable IT system to monitor the project. Various organisations, involved in large construction projects use various customised combination of IT tools for monitoring of their project.

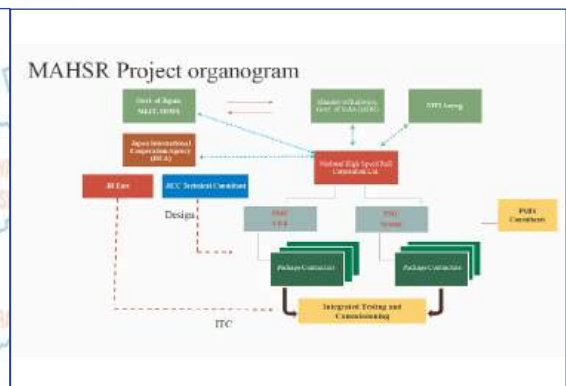
The current article focusses upon the implementation of state-of-the-art web-based Project Management Information System (PMIS) by National High Speed Rail Corporation Ltd (NHSRCL), which is flexible, scalable, and integrated with scheduling software P6, Analytics & dashboard system and internal EBS (ERP) modules for monitoring Mumbai-Ahmedabad High Speed Rail (MAHSR) Project.

1.2 OBJECTIVE

The objective of implementation of Project Monitoring System is to help in achieving high level of transparency, efficiency, accountability, data accuracy, data security, single source of information. System should have inbuilt features controlling the processes, dashboard reporting for reducing the delays, simplifying the approval process and reduce manual interaction to a large extent. The system should maintain a single source of real time information for all stakeholders facilitating the execution of work in a transparent manner with reduced manual interaction to a large extent leading to reduction in chances of direct/indirect corruption.

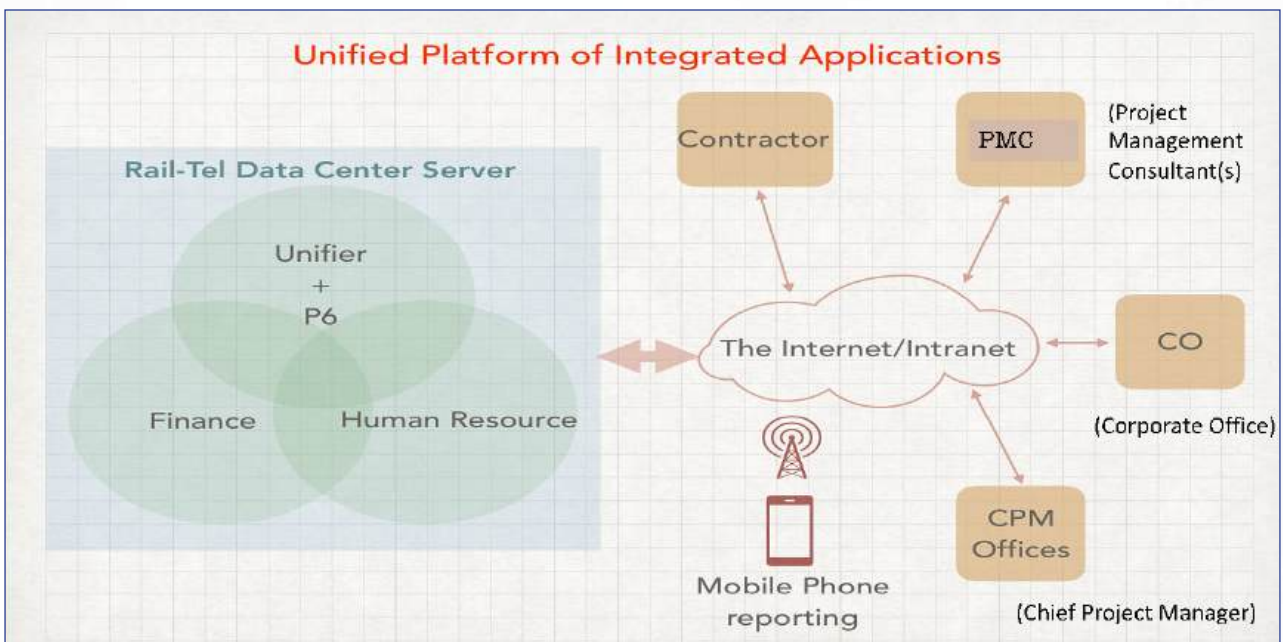
1.3 SALIENT FEATURES OF IT SYSTEM USED BY NHSRCL

NHSRCL is executing MAHSR project, which is Japan International Cooperation Agency (JICA) funded and has been conceived with Japanese Shinkansen technology. The total length of project is 508 KM length stretching from Sabarmati in Gujarat



to BKC in Mumbai.

PMIS used by NHSRCL is on the platform of 'Unifier', Primavera-P6, Analytics for Dashboards and EBS (ERP) modules for internal processes (Financials, HR, employee expense, Procurement of goods/works). The Unifier software has been fully customised from scratch to the present exhaustive Modules/Business Processes which includes various contract and execution related processes. To provide access to the PMIS during mobility, mobile apps has also been integrated with the system. BIM-4D simulation is under integration for the recently awarded Mumbai BKC station package.



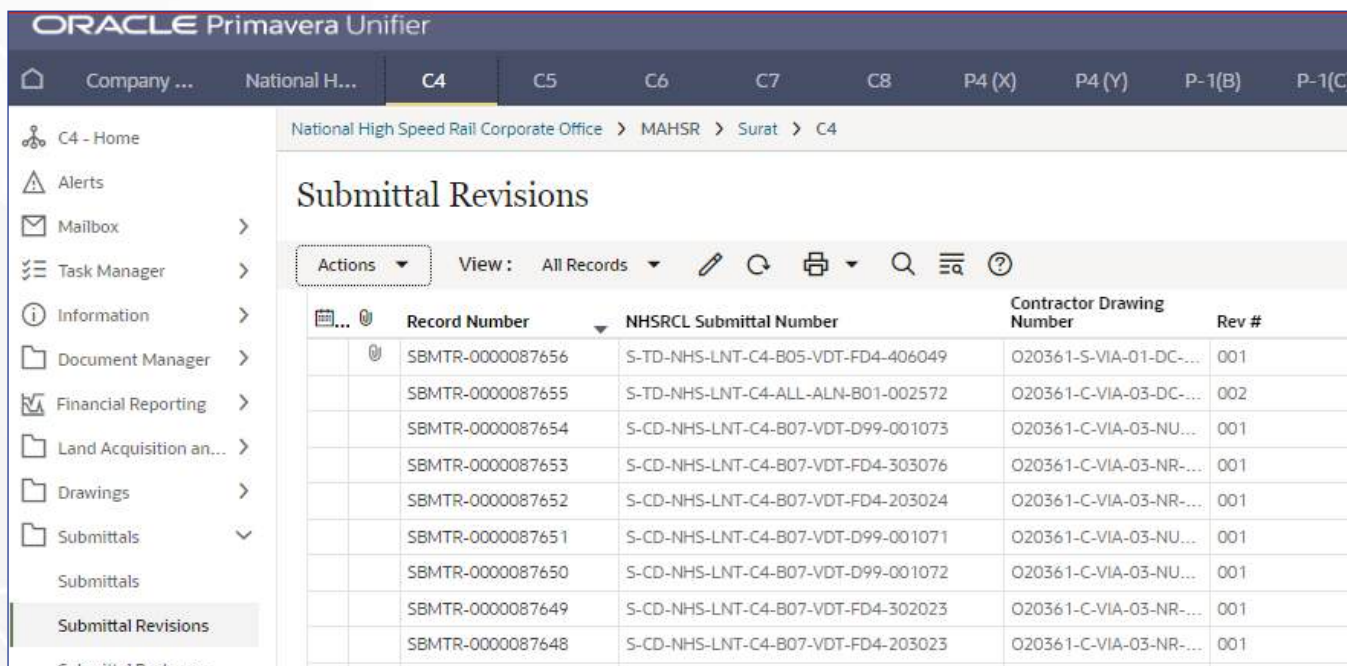
- Complete MAHSR Project has been divided into several packages, which is created and stored in a single, secure repository enabling visibility for all stakeholders. The solutions bind all packages together with a package level role-based access control with an ability to quickly record, access, filter and retrieve the information securely. The information gets rolled up to overall project level according to the requirement.
- The deployed solution includes an auditable business process management which allows Employer to track Contractor/Engineer's submissions and holding periodic progress review based on PMIS data.
- The solution includes a robust document & drawing management module covering high-level basis of design documents, detailed specifications, as-built drawings etc. all documentation utilizes controlled permission levels to manage access across the packages. No email or paper approval processes are required other than the system approval.
- The solution provides facility for submissions by contractors and their revisions with automated workflows at the back end. The solution also tracks important documents such as bank guarantees and tracks its expiry.
- The key complex business processes built and implemented are Request for Inspection (RFI), Interim Payment Certificate (IPC), Material/Vendor/Lab approvals, Meeting minutes connected

with user delegated action items, Contract and related process i.e. Variation/Extension of Time (EOT)/Claims and NCR/CAR (Non-conformity report/Corrective action report) linked with IPC. Quality reports and safety incident reporting and mitigation are also part of the unified solution.

- The most complex piece of the entire system is P6/Unifier Integrated Progress Measurement System, wherein actual cyclic weekly progress is fed by contractor and approved by Engineer in PMIS. According to the need of stakeholders, new processes are being developed and added. To solve the possible issues and gaps in connecting and developing various processes, it was launched based on Built-Test-Use-Modify i.e. Agile methodology. To cover the entire gamut of areas and activities, various known strategic software utilities are identified. Such diverse utilities include planning & scheduling, modular business processes designing, E-Business Suite (EBS) and modules of Contract/SCM (Supply Chain Management). In order to achieve the single unified PMIS, all these areas are integrated as per requirement.
- The Unifier platform is flexible and any type of business requirement can be quickly designed in a controlled manner with access control and integrations with other processes. For NHSRCL, e-office was also designed during Covid period on the same platform without any hardware/software cost. Similarly, future HSR corridors execution or future HSR operations and real estate management requirements can also be managed using the same platform without requirement of additional software.

The screen shots of some of the outcome of the PMIS system is shown below:

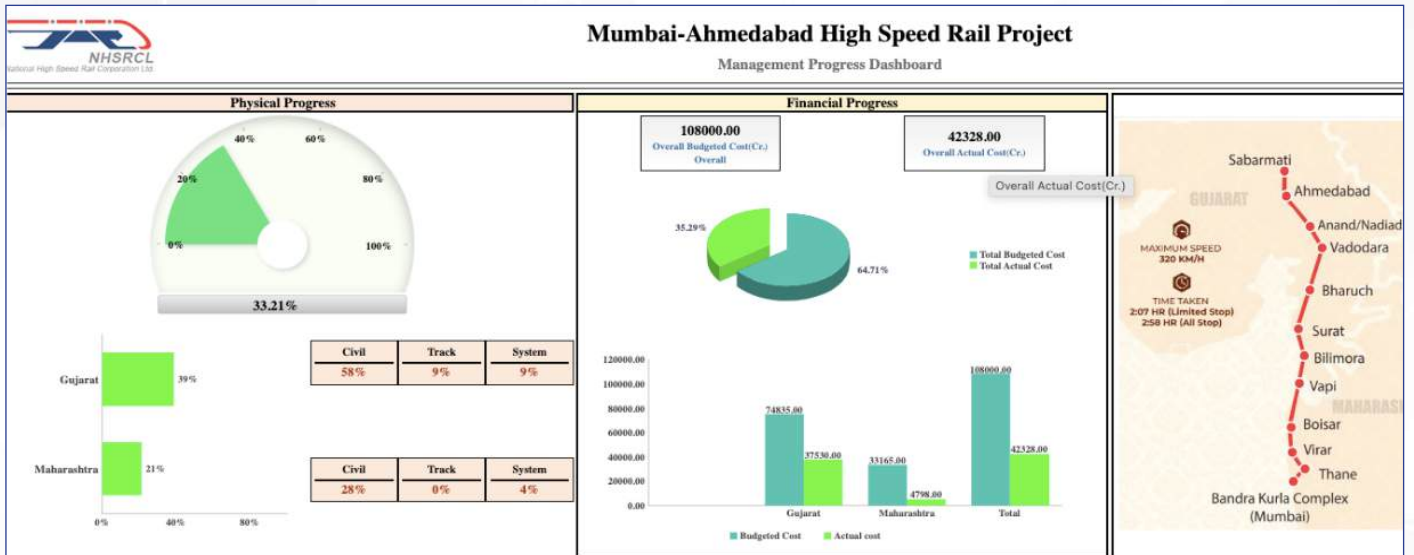
Screenshot: Drawing and Document Submittal BP



The screenshot displays the Oracle Primavera Unifier interface. The top navigation bar includes 'Company ...', 'National H...', and project codes 'C4', 'C5', 'C6', 'C7', 'C8', 'P4 (X)', 'P4 (Y)', 'P-1(B)', and 'P-1(C)'. The left sidebar shows a navigation menu with 'Submittal Revisions' selected. The main content area shows a table of submittal revisions for the project 'National High Speed Rail Corporate Office > MAHSR > Surat > C4'.

Record Number	NHSRCL Submittal Number	Contractor Drawing Number	Rev #
SBMTR-0000087656	S-TD-NHS-LNT-C4-B05-VDT-FD4-406049	O20361-S-VIA-01-DC-...	001
SBMTR-0000087655	S-TD-NHS-LNT-C4-ALL-ALN-B01-002572	O20361-C-VIA-03-DC-...	002
SBMTR-0000087654	S-CD-NHS-LNT-C4-B07-VDT-D99-001073	O20361-C-VIA-03-NU...	001
SBMTR-0000087653	S-CD-NHS-LNT-C4-B07-VDT-FD4-303076	O20361-C-VIA-03-NR-...	001
SBMTR-0000087652	S-CD-NHS-LNT-C4-B07-VDT-FD4-203024	O20361-C-VIA-03-NR-...	001
SBMTR-0000087651	S-CD-NHS-LNT-C4-B07-VDT-D99-001071	O20361-C-VIA-03-NU...	001
SBMTR-0000087650	S-CD-NHS-LNT-C4-B07-VDT-D99-001072	O20361-C-VIA-03-NU...	001
SBMTR-0000087649	S-CD-NHS-LNT-C4-B07-VDT-FD4-302023	O20361-C-VIA-03-NR-...	001
SBMTR-0000087648	S-CD-NHS-LNT-C4-B07-VDT-FD4-203023	O20361-C-VIA-03-NR-...	001

Screenshot: Project progress Dashboard



Screenshot: E-Business Suite Contracting module

Oracle Applications - PROD

File Edit View Folder Tools Inquire Actions Window Help

Purchase Order Summary to Purchase Orders - 20211400539

Operating Unit	CORP DELHI OU	Created	22-MAR-2023 11:18:32
PO, Rev	20211400539 0	Type	Standard Purchase Order
Supplier	AARVEE ASSOCIATES ARCHIT	Site	Ahmedabad
Ship-To	New Delhi	Bill-To	New Delhi
Buyer	Mr. ASHUTOSH SURESH PATE	Status	Approved
Description	JPY AARVEE PMC CIVIL		

Contact: _____
Currency: INR
Total: 68140000.00

Lines | Price Reference | Reference Documents | More | Agreement | Temporary Labor

Num	Type	Item	Rev	Job	Category	Description	UOM	Quantity	Price
1	Sevices(G)				PACKAGE.EXPE	Per Diem	Daily	200	16000
2	Sevices(G)				PACKAGE.EXPE	International Air Travel	NUM	40	441000
3	Sevices(G)				PACKAGE.EXPE	Mumbai- Tokyo-Mumb	NUM	40	147000
4	Sevices(G)				PACKAGE.EXPE	Tokyo-Mumbai-Tokyo	NUM	50	147000
5	Sevices(G)				PACKAGE.EXPE	Provisional Sums	LAMP	1	34070000

1.4 IMPACT AND BENEFITS

The web based centralized Project Monitoring System maintains a single source of real time information shared with all stakeholders, covering drawings/document/ progress/quality/ safety/contract management i.e. cost /schedule monitoring & control. Contractor's submissions and tracking of approval status have been simplified through the designed process and retrieval facility in PMIS. All important documents related to quality and quantity, like Request for Inspection (RFI), checklists, measurement sheets etc. are uploaded along with submission of IPC. No physical documents are required to be submitted. System effectively tracks the delay and fixes the accountability. Workflows have been designed according to the need of stakeholders and contract conditions.

1.5 REPLICABILITY OF SYSTEM IN OTHER ORGANIZATIONS

The IT system for Project Monitoring can be replicated in different organisations dealing with project execution with customized changes according to the project requirement.

Different combinations/integration of software used by some of the organizations for monitoring of large infra projects are mentioned below:

Delhi Metro Rail Corporation

DMRC is using STAMP as project monitoring system wherein Primavera-P6 is integrated with BIM-4D Modelling, ERP(SAP) and Mobile app application. A dashboard has been developed which provides status of progress in form of data and 4D simulations.

NCRTC

NCRTC is using a mix of in-house developed application called 'SPEED' which is integrated with 'Wrench' as document management system and BIM based drawing collaboration as CDE (Common Data Environment), Primavera P6, BIM for Station area development monitoring. SPEED covers Project related modules as well as ERP modules of HR and Finance.

NHAI

NHAI has introduced IT tools and applications such as drones, GPS-GIS mapping and Electronic Toll Collection system. Data Lake system has been integrated with NHAI's Accounting Financial Management System (AFMS) and other mobile applications like Attendance Management System (AMS), NHAI One-Maintenance Module (for inspection in O&M projects), Harit Path (Plantation/ Green Cover monitoring across NHs) etc.

NHPC

NHPC is using combination of IT software for their day to day business process requirements like ERPs and CSR. They are also using Primavera to a limited extent for project monitoring.

1.6 HOW IT HELPS IN REDUCING CORRUPTION

Conventional approach of monitoring of public projects often leads to time over-run, cost over-run, duplicity of information, delayed information, scheduling conflicts, delaying payments to suppliers, late reporting from site etc. These may lead to corrupt practices. The complete approval system of drawings, documents, payment certifications for billing purposes etc is made online in a transparent manner which has features of audit logging and tracking in real time as per the fixed workflows. System has been standardized and easily accessible. System has inbuilt features of accountability, data transparency, controlled processes, dashboard reporting and regular monitoring which can reduce the delays, simplify the approval process and reduce manual interaction to a large extent leading to reduction in chances of corruption.

1.7 CONTACT PERSONS FOR FURTHER INFORMATION

Organisation	Designation	Contact Details
NHSRCL	CVO	011-28070001 cvo@nhsrcl.in
	GM Procurement	011-28070002 gmprocurement@nhsrcl.in
	PED Planning	011-28070002 pedplg@nhsrcl.in



For more information, please visit: <https://www.cvcnicurves.com/vigeyevani>