



Intellectual Capital

## EMBRACING INNOVATION

JSW Cement holds R&D and innovation as a vital element in driving sustainable organisational growth. Digitalisation and analytical capabilities enable the Company to evolve, optimise and enhance operations with a differentiated range of outcomes. Even our workforce is encouraged to embrace innovation and contribute to the process. Thereby, propelling growth for the organisation both in terms of production output and elevated brand reputation.



**STRATEGIES LINKED**

- S1
- S2
- S3
- S4
- S5

**RISKS**

- R1
- R2
- R3
- R4
- R5
- R6

**SDGs**



**MATERIAL TOPICS**

- Product quality
- Raw material conservation

**FOCUS AREA**

- |  |  |
|--|--|
| <p><b>1.</b><br/>Research and development</p>    | <p><b>2.</b><br/>Quality assurance</p> |
| <p><b>3.</b><br/>Digitisation and automation</p> | <p><b>4.</b><br/>Leveraging APPs</p>   |

**KPIs**

R&D centres and spending

Innovative product portfolio

Tech enablement across value chain



**FY 2023-24 HIGHLIGHTS AND DEVELOPMENTS**
**Process**
**Technological Milestones**
**Manufacturing**
**DVAP (DIGITAL VISION ANALYTICS PLATFORM)**

- AI-based cameras to detect and alert on PPE kit violation, fire detection set-up, vehicle collision monitoring, and safety harnesses with instant alert notifications along with efforts to enable the dashboard to achieve better safety and security at the plant

**PACKER AUTOMATION**

- Cement bag count through video analytics at Salboni plant
- Monitoring the wagons and identifying missing prints and bags identification

**DOOR ACCESS CONTROL SYSTEM (DACS)**

- Implemented DACS at Jajpur plant that is integrated with the existing server
- Configured to interact with the Fire Control System and a manual Building Management Unit (BMU) for seamless operation

**MANUFACTURING 4.0**

- IT-OT integration at Nandyal plant with a historian system
- Configured to interact with the Fire Control System and a manual Building Management Unit (BMU) for seamless operation

**Marketing  
and Branding**
**GREEN CRETE LAUNCH**

- Design and concept of CO<sub>2</sub> calculator in website
- Graphical representation of product contributing to less emissions

**WHATSAPP PUSH NOTIFICATIONS**

- Introduced WhatsApp as our new communication channel
- Focusses on dealers, influencers, and JSW employees
- Instant notifications on products, offers, discounts, greetings, and HR alerts

**Finance  
& Accounts**
**DIGITAL DOCUMENT MANAGEMENT SYSTEM (DDMS) - NON-TRADE**

- Introduced DDMS to raise non-trades through ENFA for record management

**Supply Chain**
**DEPOT ATTENDANCE TRACKING SYSTEM**

- App introduced to Depot, Goods Shed, and E2 Supervisors
- Check in/out captured via the App with geo-fencing and facial image
- 260 depot staff are facilitated with the app
- Leveraging apps to stimulate the value chain

**AI-BASED TRANSIT MIXER SCANNER**

- Implemented an AI-based digital scanner system to ensure cleaner and more environmentally friendly road transportation
- Allows us early detection and prevention of rust and corrosion
- 100% visibility of JSW branding on transit mixers
- Timely cleaning and maintenance of transit mixers for optimal performance
- ESG assessment of critical suppliers

**Process****Technological Milestones****Dealer Saathi App****NON-TRADE: ORDER PLACEMENT**

- Order placement feature for non-trades in Saathi App
- Enables one to place order, financial, sales performance, order tracking, product info and has many more features

**FIREBASE ENHANCEMENT**

- Communication broadcasting feature
- All media formats can be broadcasted to dealers and SO

**E-TCS SUBMISSION**

- Enabled digital submission of Tax Collected at Source (TCS) forms directly from the app
- Automated email notifications are sent to dealers and the finance team, ensuring timely compliance

**PREVIOUS DAY DISPATCH REPORTS (PDD)**

- Introduced access to PDD within the app
- Enabled generation of consolidated reports with a PDF download option, empowering dealers with improved data accessibility and management

**CHATBOT**

- Launched 'Mithra', a chatbot assistant for the Saathi app

**SCHEMES & DISCOUNTS AUTOMATION**

- Automated discount computation and settlements for both trade and non-trade customers
- Integrated with customer apps for real-time visibility

**Sub-Dealer Saathi App****SUB-DEALER APP**

- Sub-dealers can place and track orders, view financial statements, sales performance data and product catalogues
- Enabled E-KYC for convenient onboarding
- Featuring regional language videos and webinars to increase user adoption

**ENHANCEMENTS**

- Enabled Sales Officers (SOs) to view and discuss sub-dealer ledger details during visits
- Enabled in-app data points like credit/debit balance, date-wise transactions and closing balance, facilitating better communication with sub-dealers

**Aikyam for All****ENHANCEMENTS**

- Integrated SFDC/SAP for the placement of add-on products alongside existing features, streamlining the ordering process and boosting sales opportunities

## Process

## Technological Milestones

### Digital Ideations

#### DIGITAL GURUKUL

- Provided bite-sized video content on profitability, product knowledge, CSR, and other sales modules for ASMs, SOs, and DGOs delivered conveniently via WhatsApp

#### DIGITAL RAASTHA

- Combines in-person meetings with digital surveys to gather feedback from dealers and sub-dealers. This feedback is utilised to continuously improve the Saathi app experience

#### DIGITAL STUDIO

- Combines in-person meetings with digital surveys to gather feedback from dealers and sub-dealers. This feedback is utilised to continuously improve the Saathi app experience

#### AI NEWSLETTER

- Delivers personalised updates on the latest developments in both global and local cement markets directly to users

#### RFM DASHBOARD

- Equips Sales Heads (SHs) and ASMs with a Tableau-based dashboard offering data-driven insights on sales performance across states and territories
- The RFM model analyses trends in dealer activity, including churn rates, purchase frequency and quantity, empowering the sales team to make informed decisions and drive sales growth

## RESEARCH AND DEVELOPMENT

### Ensuring product diversity

JSW Cement prioritises product innovation and therefore, we endeavour to partner with leading research institutes for developing sustainable building materials. As a progressive move, we filed nine patents (two granted, seven pending) towards a more diverse and eco-friendly product portfolio.

### Important collaborations

#### IIT Guwahati

To develop mix design for 3D printable concrete

#### IIT Delhi

To develop LC3 Cement technology

#### IIT Mumbai

To validate durable low-carbon cement

#### FEhs

Conversion of steel slags to cementitious materials

#### IISc, Bengaluru

For Construction and Demolition Waste Activation

#### IIT-ISM, Dhanbad

On synthesis of novel Polymer for performance enhancement

### Important trials

- Demo trial for super sulphated cement
- Lab trials for LC3 cement
- Testing for 53S or rail cement
- Experiments for graphene composition in cement or concrete
- Development of alternative materials for clinkerisation
- Further development of geopolymer cement
- LD slag activation to cementitious material
- New products development from LD Slag
- Construction chemical range of products

## SAFEGUARDING QUALITY

Our R&D centre in Vijayanagar operates within the roof of our quality commitment. It is equipped with advanced robotics and state-of-the-art facilities, including individual plant quality control labs, and monitors the entire process value chain – from raw material sourcing to finished product.

### Instruments at our plant quality control labs

- X-ray fluorescence and diffraction machines
- Optical microscope
- Compressive strength testing machine
- Isothermal calorimetry
- Online control systems
- Advanced wet classical chemistry instruments

## How we maintain desired quality and consistency of end products

- Meticulously developed specifications for various input raw materials such as limestone, laterite, red mud, steel slag, flue dust, BF slag, fly ash, gypsum, and more
- Regular sampling and chemistry determination techniques to effectively control the quality of raw materials
- Detailed assessments done to determine glass content in slag to ensure compliance with BIS standards
- Microscopic analysis of different phases in the clinker to assess its quality and quantity
- Mineralogical and chemical characterisation, as well as evaluation of final clinker-based

- OPC and slag cement products for their physical properties, including setting time, normal
- Consistency, expansion, Blaine fineness, and compressive strength to ensure finish product adheres to BIS specifications
- SOPS established that govern quality assurance through sampling, traceability assessment,
- Analysis and calibration of instruments
- Periodic checks by third-party; BIS of clinker and finished products

## DIGITALISATION

JSW Cement is onto the path of digital transformation, harnessing the power of technology across all aspects of our business. It covers aspects of optimising plant operations to revolutionising the customer experience as a strategic approach. There are innovative platforms that form a part of our initiative, both for sales and payments, for seamless interactions across value chain. By partnering with sub-dealers and embracing direct-to-dealer initiatives, we are committed to growth across every channel.

### Digitalisation strategy, execution and impact

#### Wave 1

- Laying the foundation in key functional areas
- Understanding the organisation's current state, including its technological capabilities, processes, and culture
- Identifying digital trends, market dynamics, and competitive pressures
- Defining the vision, goals, and objectives of the digital transformation initiative
- Developing a comprehensive digital strategy and roadmap

#### Wave 2

- Digitising existing processes, workflows, and assets
- Focussing on digitising manual or paper-based processes, such as document management, data entry, and communications
- Optimising digital processes and workflows to enhance efficiency, productivity, and cost-effectiveness
- Leveraging advanced technologies such as robotic process automation (RPA), workflow automation, and data analytics to drive improvements
- Integrating digital tools and systems to enable seamless data flow and collaboration across the organisation
- Digitalising core functional areas like sales & marketing, operations, logistics and also customer experience

## Wave 3 and Digital Vision 2025

- Shifting from incremental improvements to more fundamental changes in business models, operations and customer experiences
- Embracing disruptive technologies such as artificial intelligence (AI), machine learning, Internet of Things (IoT) and block chain to drive innovation and create new value propositions
- Exploring new revenue streams, markets, and business opportunities enabled by digital technologies
- Fostering a culture of innovation, agility, and digital literacy across the organisation
- Empowering employees to embrace change, learn new skills and contribute to digital initiatives
- Personalising customer experiences through data-driven insights, predictive analytics and omni-channel engagement
- Expanding digitally with best-in-class customer experience and logistics
- Digitalisation in manufacturing and RMC
- Sustainability, safety and security finance
- Data-driven decision-making

### Guiding principles

#### Strategic Transformation in Key Areas

- Enhance Customer experience
- Excellence in logistics service and cost
- Industry 4.0/APC in manufacturing
- Transform key finance processes

#### Value Lens

- ROI is the key to digital investments
- Prioritise, focus and invest
- Increase focus on safety and sustainability projects

#### Democratise Digitalisation

- Low investment and quick deployments
- ROI projects undertaken at plant level
- Short, well-defined sprints, being agile
- Fail-fast and learn-fast approach
- Promote horizontal and vertical deployment

### Cybersecurity

At Board level, the risk management committee oversees cybersecurity. At an executive level, we have Chief Information Security Officer (CISO) / Chief Security Officer (CSO) responsible at group level, for overseeing cybersecurity.

To strengthen cybersecurity at JSW Cement, we have implemented policies and procedures. An information security/cybersecurity policy is available to all the employees. Further, we are periodically conducting

cybersecurity awareness trainings. We have developed online module which employees are required to undergo. We also have procedures for users to report on any IT Security related incidents to JSW Information Security Manager (ISM) through Email, Phone or in person. The violation of JSW security policies and procedures by employees shall be dealt with through a formal disciplinary process which may include a written warning to the user, strict actions in terms of penalties. We have business

continuity / contingency plans and incident response procedures in place and we carry out its testing at least semi-annually. 100% of IT infrastructure and information security management system certified to ISO 27001 and have been audited by external auditors. Moreover, we conduct third-party vulnerability analysis including simulated hacker attacks to ensure security of the IT infrastructure.



### DIGITALISING OUR OPERATIONS

Digitalisation has fetched us results in the form of higher plant productivity, reduced environmental footprint, increased capacity utilisation, improved quality and reduced consumption of resources. In fact, it builds on our potential to elevate EBITDA per tonne about 8-10% by giving prominence to the three pivotal pillars of operational excellence – namely, cost, performance and growth.

## JSW Cement Nandyal plant is potentially a key for improved bottom-line, focussing on three key levers of operational excellence

### Addressing demand variability:

- **Cost:** Reducing operational and/or product costs
- **Performance:** Driving operational performance (Triple bottom-line of Profit, People, Planet)
- **Growth:** Capacity expansions, and increased market share, among other aspects

## Objectives

### Objective 1

Operations improvement with advanced operations

### Objective 2

Operations intelligence using AI-ML

### Objective 3

Improve sustainability to achieve Net-Zero goals

### Objective 4

Safe and smart workplace





CASE STORY

# NANDYAL PLANT

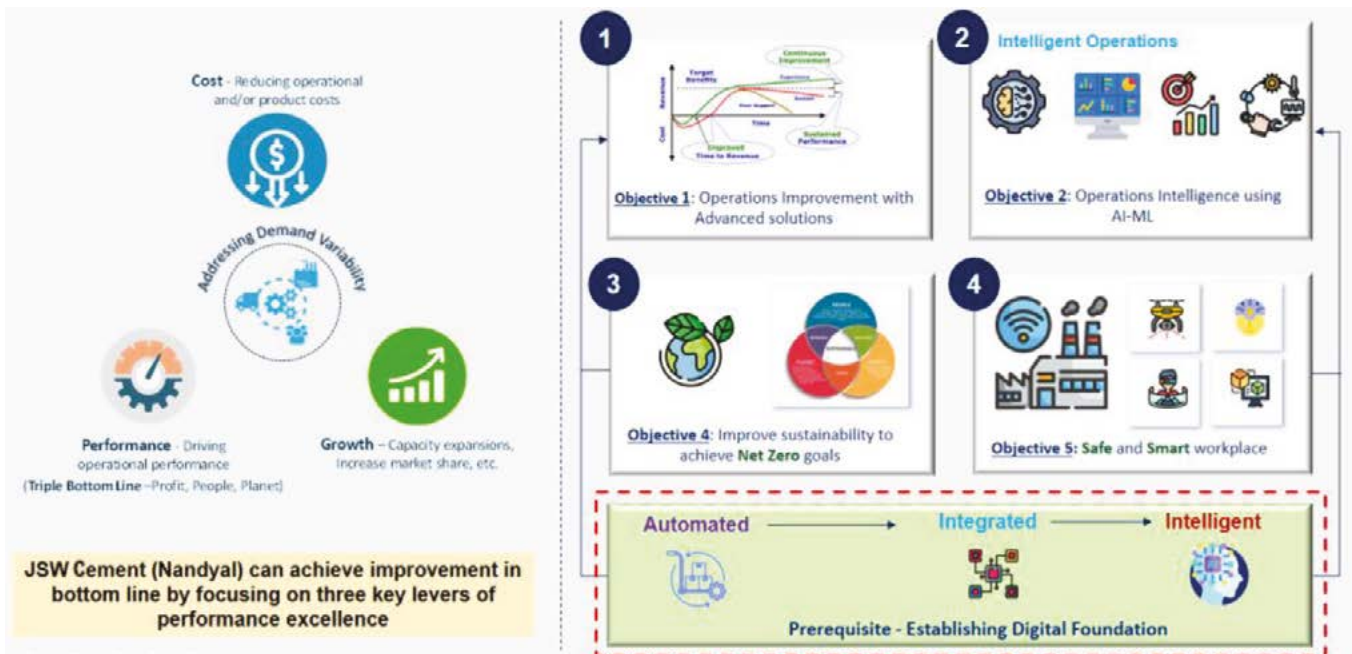
Our Nandyal plant at Bilakalaguduru village (near Kurnool District), Andhra Pradesh, utilises state-of-the-art technology for clinker and cement production. Resources leveraged by this plant are mainly limestone mine and BF Slag from JSW Steel. Going ahead, we plan to turn the Nandyal plant into a model, digital facility, using energy-efficient operations and pioneering the use

of Combi-complex technology. Thus, staying in tandem to our already-established digitalisation goals while driving sustainability in operations.

To keep a check on the productivity levels at all times, we monitor consumption, CO<sub>2</sub> emissions, output quality and other effects of drastic weather changes on

our operations. Employees are able to adjust about 50 to 100 variables manually, at an interval of every 10 minutes. This helps our process experts to rectify any observed losses through actionable recommendations, by tackling inefficiencies such as that of wastes energy, reduced clinker quality or unfavourable kiln feed variations.

## JSW NANDYAL - MODEL DIGITAL PLANT ASPIRATION



### Priorities for FY 2024-25

#### Digital PMO – Nagaur Plant

At the Nagaur Plant, a Digital Project Management Office (PMO) is being established to ensure standardised processes, frameworks, and methodologies across all projects. This standardised approach is coupled with optimised resource management, strategic allocation and personnel-building, for better efficiencies. The PMO encourages clear communication by establishing reporting and dashboards for stakeholders that

shall keep everyone informed of latest/ important updates. It is also instrumental in the implementation of project change management, utilising lessons from incidences, managing risk, scheduling, and cost tracking projects, to allow both seamlessness and safety in operations.

#### Smart Worker App

JSW Cement is revolutionising plant maintenance with the introduction of a new Smart Worker App. This mobile application serves as a one-stop shop for

all maintenance activities, streamlining processes and boosting efficiency. The app empowers employees with features like work order management, real-time notifications for task updates, paperless inspection capabilities for improved data collection, and real-time reporting for enhanced transparency. This comprehensive solution empowers a proactive approach to maintenance, ensuring optimal plant performance and uptime.

## DIGITALISING OUR SUPPLY CHAIN

We have embarked on a continuous journey to transform our supply chain. By harnessing digitalisation, cutting-edge technologies and data analytical capabilities, we are reducing costs, revolutionising efficiency and elevating service excellence. This strategic approach promises a future of enhanced visibility, route optimisation, seamless fleet management & logistics and a superior supply chain.

### CASE STORY

# DIGITAL INTERVENTION IN LOGISTICS

We have driven some noteworthy digital intervention in logistics during FY 2023-24, in an attempt to enhance service quality and cost-effectiveness in our supply chain. This process is factored by a number of elements:

- a) Logistics Control Tower (LCT), equipped with RFID and GPS technologies, taking care of vast data volumes
- b) Yard Management System (YMS) optimising truck sequencing
- c) Plant Logistics Management System (PLMS) ensuring efficient internal movement. An external tracking via GPS enables real-time monitoring within which alerts are sent to the LCT for immediate action. Integrated into our business intelligence platform, these systems continuously optimise routes, fleet sizes, and trip efficiency, revolutionising logistics and enhancing supply chain efficiency.
- d) Wagon-Rake Tracking System: Deployment of a real-time tracking system for GPWIS rakes, which are owned by JSW. This system aims to provide enhanced visibility, accurate tracking data, improved security measures, and comprehensive summarised data for more effective managerial decision-making.

#### Key Pillars

- Cost Optimisation
- Process Monitoring
- Movement Control

#### Priorities for FY 2024-25

##### JSW Cement Transporter App

A JSW Cement Transporter App is envisioned in FY 2024-25, as a strategic move to digitise and streamline our logistics and supply chain operations, tailored to the unique needs of the transportation operations that impact the delivery of cement products. Underlined with the goal of creating an all-encompassing digital solution, the App shall eventually enhance transparency and effectiveness of JSW Cement's transportation logistics.

#### Features and Functionalities

- Transporter Dashboard: A real-time interface for transporters to view and manage orders, schedules and deliveries
- Route Optimisation: Integration of GPS and mapping services to provide optimised routes for fuel efficiency and timely deliveries
- Document Management: Digital storage and easy access to necessary transportation documents like waybills, invoices and delivery receipts
- Freight Management: A tool for managing freight costs, including automated calculations based on distance, weight, and other relevant factors
- Vehicle Tracking: Real-time tracking of vehicles to ensure visibility and security of the cement loads during transit

- Communication Portal: Direct communication channel between drivers, transporters and JSW Cement's logistics team to facilitate updates and instructions
- Performance Analytics: Data analytics capabilities to monitor performance metrics, providing insights into delivery efficiency, vehicle utilisation and driver performance
- Feedback and Support: A feedback system for drivers and transporters to report issues, request assistance and provide service evaluations

#### Potential Benefits of the Transporter APP

- Operational Efficiency: Streamlining logistics operations leading to faster delivery times and reduced operational costs
- Enhanced Visibility: Greater transparency across the transportation lifecycle, from loading to delivery
- Data-Driven Insights: Leveraging collected data to make informed decisions and continuously improve the supply chain process
- Improved Service Levels: Higher satisfaction among transporters and customers due to improved delivery services

**DRIVING GREATER ORGANISATIONAL SYNERGY ACROSS SALES AND MARKETING**

JSW Cement's FY 2023-24 digitalisation drive transformed operational and management approaches. We utilised strategic digital tools and applications for better business processes and improved operational efficiency. Even in terms of strong business equations, it helped us by establishing better connect with our dealers

and sub-dealers. Therefore, serving a dual-purpose of streamlining our operations and supporting accountability through increased network connectivity.

**Strengthening Dealer Networks: The SAATHI App Suite**

JSW Cement prioritises fostering strong relationships with its dealer network, such as through the SAATHI App suite. It is a suite of mobile applications designed

to streamline communication, improve operational efficiency and enhance transparency across our dealer network. Ultimately, it translates to stronger partnerships and a more robust distribution network for JSW Cement.

In the year 2023-24, we have conducted a dealer perception survey where we have covered ~35% of our dealers. We achieved a score of 4.27 on the scale of 5.

**Dealer SAATHI App**

This enhanced app empowers dealers with features like:

- **Real-time access** to Previous Day Dispatch Reports (PDD)
- **Simplified submission** of E-TCS forms

- **Convenient ordering** of non-trade items
- **COD (Confirmation Of Delivery)** to track delivered orders
- **Mithra Chatbot** to assist and resolve queries

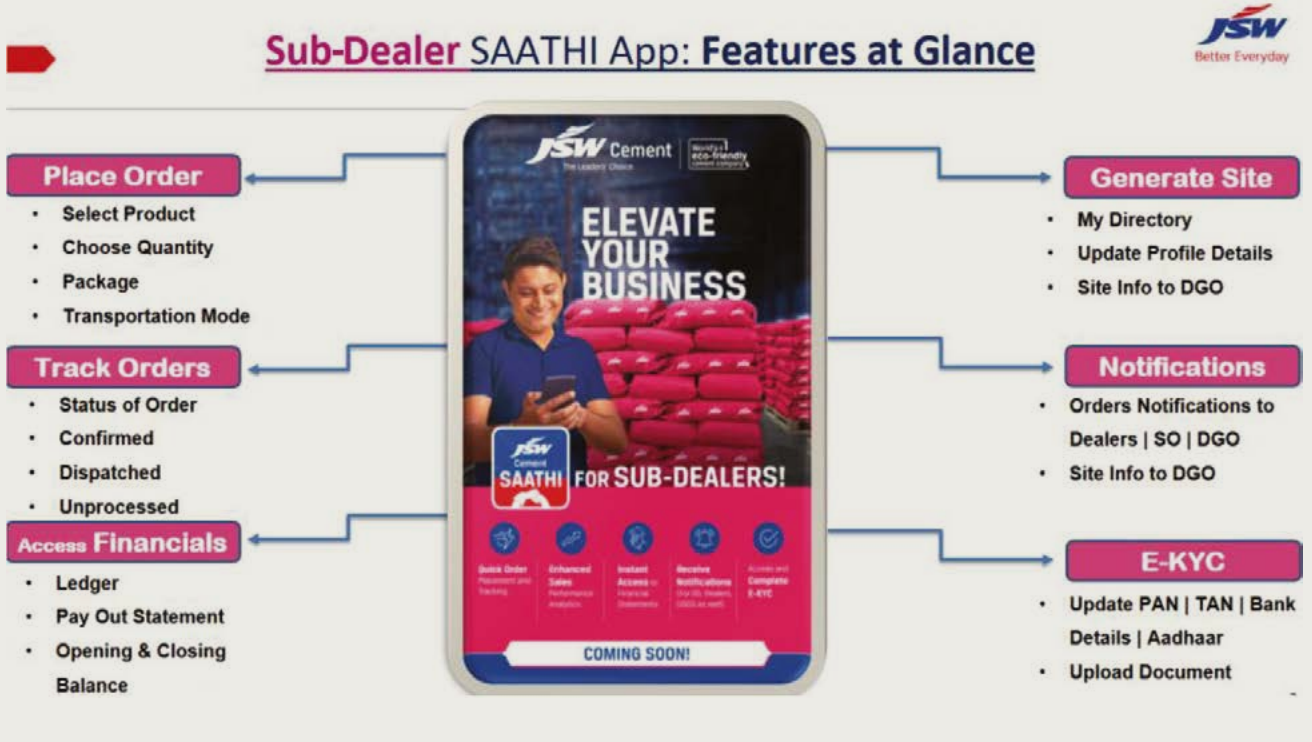
- **Review DMI** Quantity lifted and loyalty points earned
- **Streamlined communication** through firebase-powered notifications

**Sub-Dealer SAATHI App**

This app focusses on strengthening sub-dealer management with functionalities like:

- **Maintaining accurate pay-out ledgers**
- **Enforcing compliance** through geofence-based visit tracking

- **Ensuring transparency** via price evidence capture



### Smart Attendance App

A streamlined workforce driving the Company's operations complements organisational sustainability. To this need, we implemented the Smart Attendance App across all our Indian depots in FY 2023-24. This digital solution brought transformation in our depot employee attendance management by eliminating paper-based registers, minimising time taken otherwise with manual processes and improving data accuracy.

### DVAP Dashboard Tool

The Dealer Value Addition Programme (DVAP) Dashboard Tool provides us a centralised platform for monitoring and managing dealer performance and engagement. It is instrumental in our day-to-day dealer activities and strengthening of dealer relationships through targeted support and programmes.

### RFM Dashboard for ASMs

We leveraged Tableau, a business intelligence platform, to develop an RFM (Recency, Frequency, Monetary) Dashboard for Area Sales Managers (ASMs). It equips ASMs with critical customer behaviour insights, including sales patterns and revenue trends, leading to informed decision-making. Even tailoring regional sales strategies becomes possible as we endeavour to better align our operations with specific market dynamics.

### Priorities for FY 2024-25

#### Schemes & Discounts Automation

- Automated discount computation and settlements for both, trade and non-trade customers
- Integrated with customer apps for real-time visibility

### Tech E-Guru: Online Learning & Development Portal at plants

A E-Learning & Development platform for plant employees which provides self-paced learnings by accessing the technical modules through a Learning Management System (LMS). The platform aims to achieve personalised learning paths, building critical thinking skills, professional development goals and knowledge & skills upgrade.

### JSW Leaders' Podcast Series: Building Thought Leadership in Infrastructure

JSW Cement's commitment to innovation and industry leadership is a key factor behind the launch preparation of 'JSW Leaders' Podcast Series (FY 2024-25). Herein, we are leveraging our deep industry expertise to deliver insightful content on a topic that is very critical in current times, i.e. infrastructure growth.

#### Objectives

- **Brand Elevation:** The podcast serves as a strategic platform to amplify JSW Cement's brand visibility. As speakers share their valuable insights and engage in productive discussions on infrastructure, it builds on our reputation to come across as a thought leader within the industry. This enhanced

brand presence will strengthen our position among existing stakeholders and also attract potential investors and partners, specifically people seeking collaboration with an innovative leader in infrastructure development.

- **Audience Expansion:** The JSW Leaders Podcast transcends the boundaries of the cement and construction industry by targeting a broad audience cohort. This includes industry professionals, students, academics and the general public seeking to understand the evolving dynamics of infrastructure advancement and role of key players, like JSW Cement. Discussion on themes such as challenges, technologies and future trends, allows listeners with different perspectives to come together and find mutual grounds of interest.
- **Innovation & Sustainability:** A core objective is to position JSW Cement at the forefront of discussions on innovation and sustainability of the infrastructure sector. Each episode will therefore, explore sustainable practices to be integrated into large-scale projects, also through innovative technologies as the future of infrastructure.

