ISSN 2320-0758

PRICE ₹ 50/-

MATERIALS MANAGEMENT REVIEW

Volume 22 - Issue 6 | Date of Publication: 1-4-2026 | No. of Pages 1-60 | April 2026

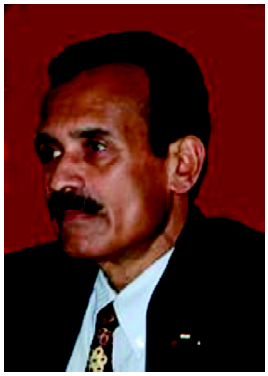
SHRESHTHAM - THE NATIONAL SUPPLY CHAIN EXCELLENCE AWARDS 2025-2026

ANNUAL SIGNATURE EVENT OF IIMM UDAIPUR BRANCH

LIGHTING OF THE LAMP BY DIGNITARIES ON
7TH FEBRUARY 2026 AT HOTEL GRAND CONTINENT

SHRESHTHAM - 2026
ORGANIZED BY IIMM UDAIPUR BRANCH

From the Desk of National President & Editor in Chief



Greetings from your National President!!!

Dear All Members of IIMM,

India's supply chain in 2026 is no longer just trying to catch up with other countries. Instead, it is becoming stronger and more adaptable in a world where global disruptions are common. With improvements in transport systems, digital technology, and international relations, India is at an important turning point. What used to be a scattered and expensive system is now turning into a strong foundation for the country's economic growth.

One of the most important changes is how India has handled global challenges. Conflicts in regions like the Middle East have affected fuel supplies, shipping routes, and the availability of raw materials. Since a large portion of India's oil passes through the Strait of Hormuz, this creates a risk. Many industries have faced higher costs and shortages because of these disruptions. However, India has shown flexibility by continuing food exports to Gulf countries even during crises, building reserves of energy and essential goods, and improving its own infrastructure to reduce dependence on others. This ability to manage shocks while keeping supplies moving shows real progress.

Now, India is moving towards becoming more self-reliant in key sectors. The government is promoting semiconductor manufacturing, focusing on important minerals and electronics, and helping small businesses (MSMEs) become part of global supply chains. This shows a shift from just improving efficiency to ensuring control and independence in important areas, so the country is not too dependent on other nations.

Despite these achievements, some challenges still remain. Logistics costs in India are still higher compared to global standards. Some infrastructure projects face delays, and rules can vary across states, making processes complicated. India also still depends on imports for energy and raw materials. Because of this, industry leaders are asking for stable policies, faster approvals, and lower costs to keep progress going.

Overall, India's supply chain revolution is about much more than just transport and logistics. It is now a key part of the country's economic strategy and its position in the world. Supply chains are no longer just support systems—they are central to growth, stability, and global influence. If India continues on this path, combining infrastructure, technology, and self-reliance, it can become not just a manufacturing hub but a global leader in supply chains. The journey is still ongoing, but one thing is clear: India is not just improving its supply chains—it is transforming them and strengthening its role in the global economy.

Thanking you and wishing all the best.

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Volume 22 - Issue 6 **(April 2026)**

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Printed at : Power Printers,
4249/82, 2 Ansari Road, Daryaganj,
New Delhi - 110002

IFPSM

IIMM is a charter member of International Federation of Purchasing & Supply Management

Edited, Printed & Published by :
INDIAN INSTITUTE OF MATERIALS MANAGEMENT
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SUPPLY CHAIN 5.0 – NEED FOR TRANSFORMATION OF INDIA'S LOGISTICS LANDSCAPE

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Introduction : If India to become $5 trillion economy, a few important steps need to be taken which may include to exploit the opportunities for global trade and become a preferred sourcing hub for the world. The country needs to make it simpler to manufacture and trade within India and globally. Investments in trade, infrastructure and adoption of digital supply chain alongwith robust logistics infrastructure are necessary to enable Indian businesses to stay competitive at a global stage.

The concept of Supply Chain 5.0 has emerged as a beacon of innovation, promising to revolutionize the way businesses manage their operations and logistics. Building upon the foundations laid by previous industrial revolutions, Supply Chain 5.0 represents a transformative era characterized by the seamless integration of advanced digital technologies and strategic reconfigurations of supply chain processes. As industries transition towards this new paradigm, marked by heightened digitalization, connectivity and automation, it becomes imperative to understand the multifaceted dimensions of Supply Chain 5.0. This entails exploring not only its potential benefits and applications but also the challenges and implications associated with its adoption. At its core, Supply Chain 5.0 embodies a vision of interconnectedness, agility and intelligence, enabled by a fusion of cutting-edge technologies such as artificial intelligence (AI), the Internet of Things (IoT), blockchain and big data analytics. These technologies empower organizations to achieve unprecedented levels of efficiency, flexibility, and responsiveness in their supply chain operations, thereby gaining a competitive edge in today's dynamic marketplace.

Long before industry 4.0 captured the collective imagination, supply chains 5.0 have been critical cogs across industrial organizations. In recent times, though supply chains have grown to take increasingly worldly and complex shape on adoption of digital and physical technologies that expand the possibilities of what it can deliver. The advent of these technologies have enhanced the interconnected nature of supply chains and allowed it to evolve into more responsive than ever. With this, the supply chain has become more strategically critical component of the organization delivering greatest insights and enabling leaders to take better informed decisions.

Overall, the transition from Supply Chain 4.0 to Supply Chain 5.0 represents a significant evolution in supply chain management, driven by a holistic approach that combines technology, sustainability, and human-centric principles. By embracing these principles, organizations can create more resilient, sustainable, and socially responsible supply chains that deliver value to both businesses and society

India's supply chain landscape stand on the cusp of a revolution with digital transformative capabilities pushing it to altogether new heights. Considering the backbone of the economy, India's supply chain ecosystem has potential to soar to new heights. The Indian logistics sector is experiencing rapid growth, with projections suggesting it will reach between **$380 billion and $800 billion by 2030**, and potentially over **$1.2 trillion by 2035**. Given its immense potential, there is a need to understand the challenges faced by the sector and remove bottlenecks to progress. With India moving boldly towards claiming it's place in the global polity, we are witnessing a fast changing India. As our supply chain infrastructure improves, better regulatory climate, strong global connect and inexpensive and accessible technology, present massive opportunities for Supply Chain Management practitioners to optimize their supply chains. It is only then that supply chain impact will be truly far-reaching and profound.

2. Importance of Supply chain : Over the last thirty years, logistics has undergone a tremendous change, from a purely operational function that reported to sales or manufacturing and focused on ensuring the supply of production lines and the delivery to customers, to an independent supply chain management function that in some companies is already being led by a CSO - the Chief Supply Officer. The focus of the supply chain management function has shifted to advanced planning processes, such as analytical demand planning or integrated Supply & Operations Planning, which have become established business processes in many companies, while operational logistics has often been outsourced to third-party Logistics Services Providers. The supply chain function ensures integrated operations from suppliers to customers.

In the Indian context though, the digitally connected supply chain and its potential to drive innovation has yet to fully catch-on, India's nationwide infrastructure issues have often hamstrung our supply chain network, with challenges coming with the territory, be it transporting goods by road, rail or sea. Delay in movement is often the norm, and multiple tax regimes

have been an age-old challenge to get over.

But introduction of GST has eased things considerably so can digital supply chains kick off the net major growth wave. Logistics costs currently account for as much as 14 percent of India's Gross Domestic Product (GDP), and smart supply chain solutions can play a major role in keeping their costs in check.

3. Industries as diverse as automotive, retail and manufacturing are adopting digital technologies to help reinvent their supply chains and increase business efficiencies. To note just two examples, Radio Frequenct Identification (RFID) and Internet of Things (IoT) tools are already making their impact by way of operational efficiencies and cargo safety as well as reducing transport costs by increasing the speed of freight movement.

4. Key Principles of Supply Chain 5.0

4.1 Human-Centric Approach: Supply Chain 5.0 recognizes the importance of human expertise alongside technological advancements. It emphasizes collaboration between skilled workers and automation technologies to drive innovation and efficiency.

4.2 Sustainability: Sustainability is a central pillar of Supply Chain 5.0. Organizations are encouraged to adopt environmentally friendly practices, reduce waste, and minimize their carbon footprint throughout the supply chain. .

4.3 Resilience: Supply Chain 5.0 places a strong emphasis on resilience, with organizations implementing strategies to mitigate risks and disruptions proactively. This includes diversifying supply sources, building robust contingency plans, and investing in technologies that enhance supply chain visibility and agility.

4.4 Mass Customization: Supply Chain 5.0 promotes mass customization over mass production, allowing organizations to tailor products and services to individual customer needs. This not only enhances customer satisfaction but also drives operational efficiency by reducing waste and inventory holding costs.

Overall, the transition from Supply Chain 4.0 to Supply Chain 5.0 represents a significant evolution in supply chain management, driven by a holistic approach that combines technology, sustainability, and human-centric principles. By embracing these principles, organizations can create more resilient, sustainable, and socially responsible supply chains that deliver value to both businesses and society.

4. Facets of digital supply chains

The emergence of new digital and analytical capabilities, combined with significant policy changes and rising customer expectations, companies in India need to upgrade their supply chain processes. Advance economies with sophisticated logistics ecosystem have demonstrated the benefits of digital transformation across the logistics value chain, including warehousing operations, freight transportation, and last mile delivery. Their advances can help improve the performance and efficiency of India's logistics sector. Five important facets of digital supply chain namely internet of things (IoT), automation, blockchain, cloud computing and big data analytics are discussed as under.

i) **Internet of things (IoT)**: it represents a unique technology transition that can enable predictive diagnosis and monitoring performance across the ecosystem. Advanced sensors can be deployed to monitor and detect risks pertaining to breakdowns, helping avoid process delays and fatal accidents. Additionally, global positioning system (GPS) and Radio-frequency identification (RFID) systems, are being used to provide real time visibility. This allows service providers not only accurately predict delivery times and improve asset utilization, but also increases engagement as customers track consignments in real time, reducing friction that used to exist on the customer side.

ii) **Automation:** From the use of robots to self-driven vehicles and drones, automation is going to be a big part of the supply chain of the future. This will reduce manual intervention for better management of costs. Artificial intelligence (AI) can play a big role in this automation drive and improve the quality and speed of services. It also holds the potential to quicken any inspections, curbing the possibility of handling damage and cutting down on inventory holding time.

iii) **Block chain**: It may be particularly suited to India, given the fragmented nature of India's logistics sector and the lack of common digital platforms to share information. The sheer quantum of manual data entry increases the risk of human error, and this would help in creating an end to end logistics system that is truly integrated.

iv) **Cloud Computing**: As logistics become increasingly leaner, optimizing asset utilization will be pivotal to enhancing operational efficiency. Cloud computing can enhance collaboration and increase efficiency by allowing service providers to share fleets and networks effectively. It will allow vast amount of data created across the entire value chain to be easily accessed for round the clock monitoring from anywhere.

v) **Big Data Analytics**: Practioners can drive future strategy by identifying improvements, all with the use of big data analytics. The possibilities are boundless, including estimating the remaining useful life of assets, identifying any operational inefficiencies, and slashing redundancies and costs. Data analysis can pay rich dividends, bringing together disparate stakeholders to deliver richer value than ever.

6. Digital supply chain enablers : The transformation into a digital supply chain requires two key enablers

- capabilities and environment. Capabilities regarding digitization need to be built in the organization but typically also require targeted recruitment of specialist profiles. The second key prerequisite is to establish IT landscape, an innovation environment with a start-up culture need to be created. This "incubator" needs to provide a high degree of organizational freedom and flexibility as well as state-of-the-art IT systems to enable rapid cycles of development, testing, and implementation of solutions. Fast realization of impact is essential to get immediate business feedback on suitability and impact of the solutions, to create excitement and trust in innovations, and to steer next development cycles.

7. **Way forward :** India is prioritizing transformation of the logistics sector which will have direct positive impact on the economic growth. It reduces the cost of goods and services, improves global completeness among manufacturers and MSMEs, facilitated trade growth and creates new jobs.

One of the realities of modern-day society is that supply chain generates huge amount of data, and this is equally true of modern supply chains. IoT is one definitive technology that will transform India's supply chain through the use of data analytics. It is possible to get real-time data at all points across the supply value chain: inventory levels, point-of-sale information, consumer buying habits, fluctuation in freight costs or raw materials can be adjusted for as needed.

New generation robotics, automated vehicles (AVs) in warehouses, blockchain, IoT sensors are going to permeate India's logistics sector. In the time to come, digital tools will spread across the entire value chain rapidly as organizations started to realize the value of their supply chains with these digital tools.

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HOW INDIA IS POWERING THE GLOBAL ENERGY TRANSITION

AANCHAL SINGH

There is no question that India is taking a lead in the global energy transition, with rapid economic expansion and decarbonisation driving growth. As the world's fastest-growing major economy and a country where electricity demand continues to rise sharply across the residential, commercial and industrial sectors, India's approach to energy reform carries global significance.

Unlike many advanced economies, where the transition is primarily about replacement, India is expanding reliable energy access to support industrialisation, urbanisation and rising living standards, while also reducing emissions intensity and strengthening energy security. This scale makes India central to the trajectory of global energy markets over the coming decades.

Over the past decade, India has moved from incremental renewable deployment to systemic transformation. Installed renewable energy capacity has nearly tripled, rising from 76.37 GW in March 2014 to 263.2 GW in Jan 2026.[1] In 2025, India achieved 50% of its cumulative installed electric power capacity from non-fossil fuel sources, five years ahead of its 2030 Nationally Determined Contribution (NDC) target.[2] This milestone marks not only an early fulfilment of a climate commitment but also a structural shift in the country's power mix.

India's clean energy transformation is no longer defined solely by capacity addition. It now encompasses industrial strategy, supply chain development, green finance, technology innovation, and global partnerships.

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Policies driving scale : India's energy transition is anchored in long-term policy clarity. The country has committed to achieving 500 GW of non-fossil fuel capacity by 2030 and reaching net-zero emissions by 2070.[3] By November 2025, total non-fossil installed capacity had already reached 262.74 GW, accounting for 51.55% of the country's total installed electricity capacity of 509.64 GW.[4]

A blend of central schemes, market reforms and institutional de-risking mechanisms is driving this transition. The 'PM Surya Ghar: Muft Bijli Yojana', with an outlay of 75,021 crore, aims to enable rooftop solar installations in one crore households by FY 2026–27.[5] Between January and December 2025 alone, 14.43 lakh rooftop solar systems were installed under the scheme.[6]

The rapid uptake signals the increasing role of decentralised generation in India's energy architecture.

Similarly, PM-KUSUM is accelerating the solarisation of agriculture. Cumulatively, over 10,203 MW of solar

capacity has been installed under the scheme, with 64% of that capacity added in 2025 alone.[7] By enabling farmers to adopt solar pumps and distributed generation, the programme integrates energy security with higher rural incomes.

An enabling investment regime further supports India's clean energy deployment. The country permits 100% foreign direct investment in renewable energy under the automatic route.[8] FDI in the non-conventional energy sector reached $23,879 million from April 2000 to September 2025.[9] In 2024, 83% of India's total power sector investment flowed into clean energy, underscoring the structural shift in capital allocation.[10]

India has also emerged as the world's largest recipient of development finance institution funding for clean energy generation in 2024, receiving approximately $2.4 billion.[11]

Aligning policy ambition with financial mobilisation has strengthened investor confidence and reduced execution risk across the renewable energy ecosystem.

Record-breaking deployment and manufacturing depth

India's clean energy expansion in 2025 marked a historic inflexion point. Between January and November 2025, the country added 44.51 GW of renewable capacity, nearly double the additions recorded during the same period in 2024. Total renewable installed capacity reached 253.96 GW by November 2025.[12]

Solar energy remains the principal growth engine. Installed solar capacity rose to 132.85 GW by November 2025, with 34.98 GW added in the same year.[13]

India has now emerged as the world's third-largest generator of solar power.[14] Meanwhile, wind capacity has also expanded to 53.99 GW, reinforcing portfolio diversification.[15]

Notably, in July 2025, renewables met 51.5% of India's total electricity demand, the highest-ever daily renewable share recorded.[16] This demonstrates growing grid integration capability alongside capacity expansion.

The transition is equally evident in domestic manufacturing. Solar module manufacturing capacity under the Approved List of Models and Manufacturers (ALMM) reached approximately 144 GW per annum in 2025.[17] Solar PV module manufacturing nearly doubled from 38 GW in March 2024 to 74 GW in March 2025.[18]

Beneficiaries under the Production Linked Incentive (PLI) scheme – launched in 2020 – installed around 11 GW of module manufacturing capacity and 5 GW of cell manufacturing capacity during 2025.[19] This manufacturing scale reduces import dependence, enhances supply-chain resilience and positions India as a competitive export hub for clean energy components.

Green Hydrogen and emerging low-carbon pathways

India's transition strategy extends beyond renewable electricity to hard-to-abate sectors. The National Green Hydrogen Mission, with an initial outlay of 19,744 crore, aims to produce at least 5 million metric tonnes of green hydrogen annually by 2030.[20]

As of 2025, incentives have been awarded 450,000 tonnes per annum of green hydrogen production, while competitive bidding has discovered a supply capacity of 724,000 tonnes per annum of green ammonia.[21] The weighted average discovered price of 53.27 per kilogram ranks among the most competitive globally, indicating cost leadership potential.[22]

The hydrogen ecosystem now includes refinery integration, steel sector pilots, hydrogen valleys, certification frameworks, and R&D investments. This diversified approach strengthens India's ambition to become a global hub for green fuel production and exports.

Strengthening the next phase of transition

As India deepens its energy transition, parallel reforms to grid infrastructure and distribution remain critical. While the country's cost of capital for grid-scale renewables is competitive among emerging economies, it remains higher than in advanced economies.

Distribution companies owed more than $9 billion in unpaid dues as of March 2025, and transmission bottlenecks have affected up to 60 GW of renewable projects.[23] Addressing these structural issues through grid modernisation, financial restructuring, storage deployment and digital integration will define the next phase of India's transition.

At the World Economic Forum 2026, India highlighted its model for delivering affordability, sustainability and rapid execution simultaneously. Solar tariffs have declined by nearly 80% over the past decade, and renewable energy integrated with storage is increasingly cost-competitive.[24] This combination of scale and price discovery is shaping India's role in global clean energy markets.

Conclusion: A scalable model for the world

With 262.74 GW of non-fossil capacity already installed and a clear trajectory toward 500 GW by 2030, India's clean energy transition is redefining both domestic energy security and global supply chains.[25]

For investors, India offers scale, policy continuity, deep manufacturing capabilities, and emerging leadership in green hydrogen and storage. For developing economies, it offers a replicable pathway that balances growth and sustainability. For global markets, it is one of the most consequential drivers of future energy demand and low-carbon capacity.

Source: www.investindia.gov.in

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AI TRANSFORMATION IN PROJECT MANAGEMENT

"From Planning to Predicting AI is Redefining the Future of Projects"

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Introduction : From Gantt Charts to Genius: How AI is Rewriting the Rules of Delivery. Project Management has evolved significantly over the last few decades. From manual planning charts to sophisticated digital platforms, every phase of project execution has witnessed technological disruption.

Project management has always been the discipline of turning ambition into achievement on time, within budget, and to specification. For decades, practitioners relied on structured methodologies such as PMI's PMBOK, PRINCE2, and Agile frameworks, supported by scheduling software and spreadsheet-based risk registers. Yet, despite best efforts, the statistics remained stubering: the Standish Group's CHAOS Report (2023) documented that only 35% of IT projects are delivered successfully.

The newest and most transformative force in this evolution is **Artificial Intelligence (AI)**. Artificial Intelligence is not merely another digital tool. It represents a paradigm shift in the way projects are planned, executed, monitored, and delivered. AI powered by tools such as machine learning, natural language processing, computer vision, and generative AI, enables organizations to analyze massive volumes of data, identify patterns, predictive scheduling, intelligent risk mitigation, resource optimization, stakeholder communication, automate repetitive activities, and support decision-making with unprecedented speed and accuracy.

Global studies indicate that organizations adopting AI-driven project management practices achieve higher efficiency, better cost control, and improved delivery timelines. PMI's 2024 "First Movers' Advantage" report (survey of 500 global project professionals) found that **"Trailblazers"** high adopters using GenAI in over 50% of their projects report dramatically higher productivity (**93% vs. 58%** of low adopters/"Explorers") and improved problem-solving (**89% vs. 46%**). They also report gains in effectiveness (88% vs. 50%), creativity (84% vs. 44%), and collaboration (83% vs. 32%).

AI is redefining the project manager s role. It enhances their capabilities by allowing them to focus more on strategic thinking, leadership, and innovation while machines handle complex analytics and repetitive tasks.

This research article explores the **AI transformation in project management**, examining its conceptual foundations, technological capabilities, real-world applications, benefits, challenges, and future implications.

It is organised into eight thematic sections, each supported by real-world case studies, current statistics, and validated examples drawn from global industry practice. It concludes with critical reflections on adoption challenges and a forward-looking vision of the AI-augmented project manager.

1. The Historical Context: From Clipboard to Cloud

"What gets measured gets managed - In the AI era, nothing is invisible everything becomes measurable, manageable, and improvable."

Evolution of Project Management Tools

Project management tools have evolved through distinct technological eras.

The First Era (1950s1980s): The first era of project management was dominated by manual scheduling and documentation. Projects were planned and monitored using paper-based charts, early spreadsheets, and manual records, with management decisions largely guided by professional experience rather than data analytics.

Key characteristics of this period included:

- **Manual planning and scheduling processes**
- **Experience-driven decision making** by project managers
- **Limited data availability and minimal analytical tools**

Important methodologies emerged during this time. The bar chart technique developed by Henry Gantt provided a simple visual representation of project timelines and task progress. Advanced scheduling approaches such as the Program Evaluation and Review Technique (PERT) and the Critical Path Method (CPM) enabled managers to identify task dependencies and determine the minimum project completion time.

In large and complex projects, early computing support also began to appear. Mainframe systems developed by IBM were used to support scheduling and planning for major defence and aerospace initiatives, including the historic Apollo Program led by NASA.

Although these tools significantly improved visual planning and timeline control, project monitoring still relied heavily on manual updates and retrospective

evaluation, limiting the ability to predict risks or dynamically adjust project strategies.

The Second Era (1980s2000s): Software platforms began introducing automation and collaboration capabilities through tools such as scheduling software, digital dashboards, and project collaboration systems. Early enterprise solutions like Microsoft Project (launched in 1984) and Oracle Primavera enabled structured planning and project tracking. Over time, web-based platforms such as Basecamp and Asana further enhanced team collaboration and task coordination across distributed teams.

Key characteristics of this period included:

- **Digitization of project planning and scheduling** through enterprise software platforms
- **Automation of routine project management tasks** such as scheduling, tracking, and reporting
- **Centralized project data and digital dashboards** improving transparency and monitoring
- **Enhanced team collaboration** through web-based communication and task management tools
- **Improved documentation and workflow standardization** across projects and teams
- **Retrospective performance analysis**, enabling managers to review historical progress and outcomes
- **Limited predictive capability**, with systems primarily focused on recording and reporting past activities rather than forecasting future risks or delays

While these platforms significantly improved visibility, documentation, and coordination, the insights they generated were largely **retrospective**. Project managers could effectively analyze **what had already occurred**, but had limited capability to **anticipate upcoming risks, delays, or performance deviations in advance**.

The Third Era (2010spresent):

"From Gantt Charts to Intelligent Algorithms."

Modern project management systems now integrate **Artificial Intelligence (AI)** to enable intelligent, data-driven decision-making. These platforms combine **cloud computing, big data analytics, and AI algorithms** to enhance planning, forecasting, and operational efficiency.

Key capabilities include:

- **Predictive scheduling** to forecast potential delays and optimize timelines
- **Intelligent resource allocation** based on workload patterns and skills
- **Automated reporting and real-time dashboards** for faster insights
- **Cloud-based collaboration** enabling distributed teams to work seamlessly
- **Advanced analytics** that convert large datasets into actionable intelligence

Leading platforms such as monday.com, Smartsheet, and Wrike now embed **predictive analytics engines** that analyze historical and real-time project data to generate recommendations.

This evolution marks a significant transformation: **from passive record-keeping systems to intelligent decision-support platforms**. Modern tools not only document project activities but also **advise managers, issue early warnings about potential risks, and increasingly support automated decision-making** to improve project outcomes.

EXAMPLE NASA's Artemis Moon Programme (20222025) used AI-powered digital twin technology to simulate 40,000+ mission variables simultaneously, reducing schedule risk identification time from weeks to hours. Traditional CPM could not have achieved this at scale.

2 What is Artificial Intelligence (AI)?

"Artificial Intelligence: Turning Data into Decisions, Complexity into Clarity, and Possibilities into Reality."

AI is the ability of a machine to think, learn, and make decisions much like a human brain, but powered by data and algorithms. It refers to computer systems designed to simulate human intelligencethey can learn from data, recognize patterns, make predictions, and support decision-making. Unlike traditional software that follows fixed rules & instructions, AI systems continuously improve by analyzing large volumes of data and adapting over time.

In simple terms: AI is a machine that mimics human intelligence reasoning, recognizing, predicting, and improving to solve real-world problems faster, more accurately, and at a scale no human team ever could.

This enables organizations to predict outcomes, automate complex processes, forecast outcomes, and optimize decisions with greater speed and accuracy.

AI in Action - Real-World Examples

Predictive Navigation: Google Maps analyzes real-time traffic data from millions of users to predict congestion and automatically suggest faster routes before delays occur.

Autonomous Driving Assistance: Tesla uses AI in its Autopilot system to interpret camera and sensor data, helping vehicles detect lanes, obstacles, and nearby cars for safer driving.

Fraud Detection in Banking: Global payment networks like Visa use AI algorithms to analyze transaction patterns instantly and flag suspicious activities before fraudulent payments are completed.

Music Personalization: Spotify uses AI to analyze listening habits, mood patterns, and user preferences to automatically generate personalized playlists like Discover Weekly.

Smart Warehousing: Amazon applies AI-driven robotics and predictive analytics in its warehouses to forecast demand, optimize warehouse operations, decide where products should be stored and how orders should be picked to reduce delivery time.

AI-Driven Personalized Content Recommendation: Streaming platforms like Netflix use AI to analyze users viewing behaviour, search patterns, and watch history

to recommend personalized movies and shows. This intelligent recommendation system helps viewers quickly discover content aligned with their interests, significantly improving user engagement and platform retention.

AI-Enabled Project Risk Management in Indian Infrastructure Projects: Larsen & Toubro, one of Indias largest engineering and construction companies, has integrated AI-based project analytics and digital monitoring systems into its infrastructure projects. By analyzing project data, resource utilization, and site progress in real time, AI systems help identify potential schedule delays, equipment bottlenecks, and safety risks early in the project lifecycle. This proactive insight enables managers to take corrective actions sooner, improving project efficiency and helping reduce schedule overruns and cost risks across large infrastructure projects.

In business and project management, AI helps predict risks, allocate resources efficiently, and provide real-time insights, enabling managers to make faster and more informed decisions. As a result, organizations achieve higher efficiency, better planning accuracy, and smarter operational control.

3. Why Artificial Intelligence (AI)?

"Intelligence Beyond Automation The Brain Behind Modern Projects."

Artificial Intelligence refers to the capability of machines to simulate human intelligence through learning, reasoning, and decision-making. Traditional project management relied heavily on human judgment, experience, and manual analysis.

In todays data-driven world, organizations generate enormous volumes of information every second. Artificial Intelligence helps transform this data into meaningful insights, predictions, and smarter decisions. By analyzing patterns, automating complex tasks, and forecasting future outcomes, AI enables businesses to improve efficiency, reduce risks, and make faster, more informed decisions.

The Project Management Technology Quotient (PMTQ), introduced by PMI, defines a project professional's ability to adopt emerging technologies particularly AI and integrate them into project delivery. Beyond technical awareness, a strong PMTQ blends continuous learning, innovative thinking, and digital leadership to harness AI, automation, and analytics for smarter decision-making and greater project efficiency.

PMI's 2026 **M.O.R.E.** framework reinforces this direction, placing AI, sustainability, and data-driven practices at the core of modern project management making PMTQ an essential capability for professionals navigating today's intelligent, technology-driven project environments.

AI introduces **data-driven project intelligence**, allowing project teams to make better-informed decisions. The AI system suggests corrective actions before problems occur.

4. Artificial Intelligence (AI) in Project Management?

Modern projects generate vast amounts of data related to schedules, resources, risks, and performance. Artificial Intelligence helps project managers analyze this data intelligently to improve planning, forecasting, and decision-making. Instead of relying only on historical reports, AI enables predictive insights and proactive project control.

Key Reasons for Adoption & Core Applications of AI in Project Management:

- **Predicts Project Risks Early:** AI analyzes large volumes of historical and real-time project data to detect patterns that signal potential risks. It can forecast schedule delays, cost overruns, resource shortages, or quality issues before they actually occur. This early warning system allows project managers to take preventive actions, adjust plans, and reduce project uncertainty.
- **Optimizes Resource Allocation:** AI evaluates data related to workload, skill sets, equipment availability, and material supply to recommend the most efficient allocation of resources. It ensures that the right people, machines, and materials are assigned to the right tasks at the right time. This improves productivity, reduces idle time, and prevents resource conflicts across multiple projects.
- **Improves Scheduling Accuracy:** AI-powered scheduling tools analyze task dependencies, resource constraints, and project progress to dynamically adjust project timelines. If delays occur in one activity, the system automatically recalculates the schedule and suggests optimized alternatives. This helps maintain better control over the critical path and overall project timeline.
- **Accurate Cost Estimation & Budgeting:** AI examines historical project cost data, market trends, and resource price variations to generate more reliable cost estimates. By learning from past project performance, AI can identify areas where budgets may exceed planned limits. This helps organizations create more realistic budgets and reduce financial risks.
- **Enhances Decision-Making:** AI converts large volumes of project data into clear insights, forecasts, and recommendations for managers. Instead of relying only on intuition or past experience, project leaders can make decisions based on data-driven evidence and predictive analytics. This leads to faster, smarter, and more reliable project decisions.
- **Strengthens Project Monitoring & Improves Performance**: AI enables real-time monitoring of project progress, tracks costs, resource utilization, and milestone completion, allowing managers to quickly detect deviations from the plan and take corrective actions before problems escalate. Better planning and risk prediction lead to higher productivity, reduced costs, and timely project delivery.
- **Quality & Compliance Monitoring:** AI systems analyze inspection reports, project documentation, testing data, and operational parameters to continuously monitor quality performance. They can automatically detect deviations from quality

standards, technical specifications, or regulatory requirements. This enables early corrective actions, reduces the risk of non-compliance, and ensures that project deliverables consistently meet industry standards and contractual obligations.

Ø **Improves Project Execution & Commissioning:** In industrial projects, AI helps plan machine installation sequences, equipment positioning, testing schedules, and commissioning activities, ensuring proper coordination of engineers, technicians, materials, and machinery to avoid downtime and installation delays.

Ø **Automates Routine Tasks:** Many repetitive project management activities such as status reporting, progress tracking, documentation, and data updates can be automated using AI. This reduces manual effort and administrative workload for project managers. As a result, managers can focus more on strategic planning, problem-solving, and stakeholder engagement.

Ø **Supports Sustainable Project Planning:** AI can analyze material usage, energy consumption, and environmental impact to promote sustainable and resource-efficient project execution.

In essence, AI transforms project management from reactive monitoring to predictive and intelligent project control.

5. Key Components of AI in Project Management

1. **Machine Learning (ML)**
   - v Learns from historical project data to identify patterns.
   - v Improves predictions of timelines, costs, and resource needs over time.
2. **Natural Language Processing (NLP)**
   - v Analyzes documents, reports, emails, meeting transcripts, and chat logs.
   - v Enables sentiment analysis to gauge team morale and flag risks.
   - v Powers chatbots and virtual assistants for routine PM queries.
3. **Predictive Analytics**
   - v Forecasts delays, cost overruns, resource shortages, and performance trends.
   - v Supports proactive risk mitigation rather than reactive management.
4. **Robotic Process Automation (RPA)**
   - v Automates repetitive administrative tasks (scheduling, reporting, approvals).
   - v Frees project managers to focus on strategic, high-value work.
5. **Simulation & Digital Twins (Replica Modeling)**
   - v Creates virtual replicas of projects, processes, or systems to test scenarios before execution.
   - v Runs "what-if" simulations to evaluate schedule changes, resource shifts, or risk events.
   - v Reduces real-world trial-and-error by stress-testing decisions in a safe digital environment.
6. **Generative AI**
   - v Drafts status reports, meeting summaries, and stakeholder updates automatically.
   - v Accelerates document generation and cross-tool information synthesis.
7. **Computer Vision / Deep Learning**
   - v Monitors physical project sites via image/video analysis.
   - v Supports safety compliance checks and progress tracking.

The global project management software market was valued at USD 6.59 billion in 2023 and is projected to reach USD 15.08 billion by 2030 (Grand View Research, 2024). This growth is almost entirely driven by AI-embedded capabilities. The imperative is clear: organisations that fail to adopt AI-driven project management risk competitive obsolescence.

Metric	Traditional AI PM	-Augmented PM	Improvement
On-time Delivery Rate	35%	68%	+94%
Budget Overrun Rate	55%	29%	-47%
Risk Detection Lead Time	57 days	Real-time	Continuous
Resource Utilisation	62%	84%	+35%

Source: PMI Pulse of the Profession 2024; McKinsey Digital, 2025

6. Real-World AI Applications in Project Management "Innovation in Action Where AI Meets Real Projects." "Efficiency, Accuracy, and Intelligence The AI Advantage."

v **AI-Powered Planning & Scheduling @ Larsen & Toubro**

Larsen & Toubro has integrated AI, machine learning, IoT sensors, and advanced analytics into its digital construction ecosystem to improve project planning and execution. AI models analyze historical project data, resource availability, and site conditions to predict delays, optimize schedules, and improve decision-making across large infrastructure projects. In several internal workflows, AI-driven planning tools have reduced planning cycles from **weeks to minutes**, significantly improving efficiency and project productivity.

AI-driven systems optimize steel usage, track fuel consumption, monitor safety compliance through computer vision, and use drone data for accurate construction progress tracking. Over **200 projects by** Larsen & Toubro use this integrated AI ecosystem with BIM and site analytics to improve visibility, reduce waste, and enhance project efficiency.

v **Siemens AG Smart Infrastructure Projects:**

Siemens AG applies **Artificial Intelligence, digital twins, and advanced analytics** in smart infrastructure and grid modernization projects. Platforms such as Siemens MindSphere collect real-time operational data from sensors and infrastructure systems, enabling **predictive**

maintenance, asset monitoring, and data-driven planning.

A notable example is the **digital substation project for** Glitre Energi Nett in Norway, where Siemens deployed IoT-enabled grid infrastructure connected to the MindSphere platform. The system continuously analyzes equipment performance data to detect anomalies, predict failures, and support efficient grid operations. This approach helps project teams **improve infrastructure reliability, optimize maintenance planning, and enhance efficiency in large energy and smart grid deployments**.

v **AI-Driven Smart Monitoring and Predictive Maintenance in Indian Railways**

Indian Railways is increasingly deploying **AI and Machine Learning technologies** to enhance safety, predictive maintenance, and operational efficiency across its network. AI-based systems such as **Machine Vision Inspection System (MVIS)**, **Wheel Impact Load Detector (WILD)**, and **Online Monitoring of Rolling Stock (OMRS)** monitor trains and detect faults in wheels, bearings, and components in real time. Advanced tools like **Integrated Track Monitoring Systems (ITMS)** and **drone-based inspections** help identify track defects and infrastructure issues for preventive maintenance. Additionally, innovations such as **TRI-Netra**, developed by Research Designs and Standards Organisation in collaboration with Indian Institute of Technology Madras, use AI-enabled vision systems to assist locomotive pilots in fog and poor visibility conditions.

v **NHAI (National Highways Authority of India) AI-Driven Highway Project Monitoring**

Taking a significant step towards transforming Operations & Management of National Highways, NHAI will deploy advanced AI Powered Dashcam Analytics Services (DAS)on around 40,000 km of the National Highway network. This initiative leverages Artificial Intelligence (AI) and Machine Learning (ML) to enhance use of high-tech, data-driven Operations & Maintenance (O&M) for the National Highways and Expressways across the country.

AI/ML models using high-resolution dashcam data from patrol vehicles detect 30+ defects (potholes, cracks, markings, lighting, encroachments) with automated accuracy and weekly surveys.

An integrated digital platform with dashboards and a central Data Lake enables real-time monitoring, trend comparison, and faster decision-making.

Night audits and multi-zone monitoring strengthen safety, asset visibility, and compliance tracking.

This initiative reduces manual inspection, improves maintenance efficiency, enhances road safety, and drives smarter infrastructure management at national scale.

v **AI-Driven Software Delivery and Enterprise Transformation with Infosys Topaz**

Infosys Topaz is an **AI-first suite of services, solutions, and platforms** developed by Infosys using generative AI technologies to help enterprises unlock innovation, efficiency, and connected digital ecosystems. It leverages **12,000+ AI assets, 150+ pre-trained models, and multiple AI platforms**, guided by specialists and built on a responsible AI framework focused on ethics, privacy, and security.

Infosys also applies AI-driven analytics through platforms like Infosys Nia and Topaz to monitor software delivery projects. These systems analyze engineering metrics such as code commits, defects, and change requests to detect early project risks, improve quality control, and help organizations **accelerate growth, build connected ecosystems, and achieve operational efficiency at scale.**

v **Mahindra & Mahindra AI-Driven Manufacturing Project Management**

Mahindra & Mahindra has transformed manufacturing at its Chakan Plant in Pune using AI, ML, and Industry 4.0, creating a highly automated EV facility (~88,000 m²) with 500+ robots and real-time digital control.

AI-driven systems enable >95% accurate paint inspection and detect ~25% more defects, while predictive analytics reduce downtime and improve OEE. A centralized IoT-based "Nerve Center" ensures live monitoring, traceability, and optimized production flow across operations. Smart logistics using AMRs/AGVs enhances material movement efficiency and safety.

These initiatives have delivered ~45% production growth (FY24), positioning plants as "live labs" for continuous innovation in AI-led manufacturing.

v **Apollo Hospitals AI-Powered Healthcare Project Management**

Apollo Hospitals is a leader in AI-driven healthcare, integrating ML across clinical care, operations, and hospital project management with large-scale digital investments (~3.5% of budget).

Its AI platforms enable predictive risk scoring (500+ parameters), improving early detection, reducing complications, and optimizing patient flow, ICU readiness, and resource allocation.

Key solutions include AI-powered assistants, real-time remote monitoring, EMR analytics, and cardiovascular risk tools, enhancing clinician productivity by saving 23 hours/day.

Advanced infrastructurecloud migration with Microsoft Azure and 5G-enabled ambulancesenables real-time, connected care and faster decision-making.

These AI initiatives significantly improve clinical outcomes, operational efficiency, and scalable healthcare delivery across 10,000+ beds in India.

7. Challenges in AI Adoption in Project Management

"Every Transformation Brings New Challenges."

Despite compelling advantages, AI adoption in project management faces significant technical, human, and organizational barriers that must be systematically addressed.

1. Data Quality and Data Readiness

AI reliability depends entirely on data integrity. In project environments, historical data is frequently incomplete, inconsistent, or siloed across disconnected systems. A **McKinsey Global Institute** report estimates poor data quality costs organizations an average of **$15 million annually**. Without clean, structured, and accessible project data, AI models cannot generate reliable predictions or meaningful insights.

2 Skill Gaps and Workforce Readiness

AI demands project professionals with capabilities beyond traditional competencies. **PMI's Talent Gap Report** projects a need for **25 million new project professionals by 2030**, with digital and AI literacy as critical requirements. Essential competencies include data literacy, AI tool fluency, analytical thinking, and change leadership. Without deliberate upskilling, skill gaps remain a primary barrier to effective AI adoption.

3 Organizational Resistance and Change Management

Human resistance remains among the most persistent adoption challenges. A **Gartner survey** found **54% of employees** fear AI-driven job displacement. Evidence consistently confirms, however, that AI augments human roles rather than replacing them automating repetitive tasks while enabling project professionals to focus on strategy, stakeholder engagement, and decision-making. Transparent communication and inclusive change management are essential to overcoming resistance.

4 High Initial Investment and ROI Uncertainty

AI implementation requires substantial investment in infrastructure, platforms, data integration, and training. **Deloitte's State of AI Report** identifies that **36% of organizations** cite cost and unclear ROI as primary adoption barriers. Organizations that align AI investments with specific project outcomes and adopt phased implementation strategies consistently achieve stronger long-term returns in efficiency and delivery performance.

5 Ethical, Privacy, and Governance Concerns

As AI increasingly influences project decisions, algorithmic bias, data privacy, and accountability become critical concerns. Project professionals must ensure compliance with frameworks such as **GDPR** and India's **Digital Personal Data Protection Act 2023**. According to **IBM's Global AI Adoption Index 2023**, **40% of organizations** identify AI ethics and trust as significant adoption challenges. Establishing robust AI governance frameworks is an organizational imperative for responsible project outcomes.

6 Integration Complexity with Legacy Systems

Many organizations operate legacy project management systems and ERPs incompatible with modern AI platforms. **PwC's Technology Survey** reports that **45% of organizations** identify legacy system integration as a top AI deployment challenge. Successful adoption requires phased implementation strategies, strong IT collaboration, and careful systems architecture planning to avoid disrupting ongoing project operations.

7 Lack of Explainability and Decision Transparency

AI models particularly deep learning systems often function as "black boxes," making it difficult for project managers to understand, justify, or audit AI-driven recommendations. **MIT Sloan Management Review** highlights that **70% of managers** are reluctant to act on AI insights they cannot interpret or explain. Explainable AI (XAI) frameworks and human-in-the-loop decision models are increasingly essential to build trust and accountability in AI-assisted project environments.

8 Cybersecurity and Data Security Risks

AI systems in project environments process sensitive project data, financial information, and stakeholder details creating significant cybersecurity vulnerabilities. **Accenture's Cybersecurity Report** estimates that cyberattacks cost organizations an average of **$13 million annually**, with AI-integrated systems presenting expanded attack surfaces. Robust cybersecurity protocols, access controls, and continuous monitoring are non-negotiable requirements for secure AI deployment in project ecosystems.

These challenges collectively reinforce that AI adoption is as much a human, ethical, and organizational journey as it is a technological one. Addressing them through data governance, capability building, responsible frameworks, and phased strategies is essential for sustainable AI-driven project transformation.

8. The Future of AI in Project Management

"The Future Project Manager A Leader Powered by Intelligence."

AI is fundamentally redefining project management shifting it from reactive execution to predictive intelligence and progressively toward autonomous delivery. The future belongs to project leaders who strategically combine human judgment with machine-powered insights.

1. Shift in Project Management Paradigm

AI is fundamentally and irreversibly transforming project management moving it through a progressive maturity continuum:

Reactive ! Predictive ! Prescriptive ! Autonomous

- **Reactive** Traditional project management dependent on manual tracking, retrospective reporting, and delayed corrective action
- **Predictive** AI-powered analytics forecasting risks, delays, and cost overruns before they materialize
- **Prescriptive** AI recommending optimal decisions, scenario models, and corrective strategies in real time
- **Autonomous** Self-managing project systems with minimal human intervention, continuously optimizing delivery

According to **McKinsey & Company**, organizations that transition from reactive to predictive project management report **up to 45% reduction in project delays** and significantly improved stakeholder confidence. This paradigm shift is not incremental it represents a fundamental reimagining of how projects are planned, executed, and governed.

2. Core AI Capabilities Transforming Project Management

Automation Eliminating Routine Complexity. AI automates up to **80% of routine project management tasks** scheduling, progress tracking, status reporting, meeting documentation, and administrative workflows according to **McKinsey Global Institute**. This liberates project managers from operational burden, enabling focus on strategic leadership and stakeholder value creation.

Prediction From Hindsight to Foresight. AI-driven predictive models analyze historical project data, real-time performance signals, and environmental variables to forecast risks, cost overruns, and schedule deviations with significantly greater accuracy. **McKinsey** reports AI improves project forecast accuracy by approximately **50%**, directly reducing overruns and improving delivery confidence.

Optimization Smarter Resource and Workflow Management. AI continuously optimizes resource allocation, workload balancing, and workflow sequencing based on live project data. **PwC** estimates AI-driven optimization improves resource utilization by up to **35%** in project-intensive organizations, while simultaneously accelerating delivery cycles and reducing waste.

Decision Intelligence Real-Time Insight Generation. Beyond automation and prediction, AI functions as a decision intelligence layer synthesizing complex, multi-source project data into clear, actionable insights that enable faster, better-informed decisions at every project stage.

3. Emerging Technology Integration Intelligent Project Ecosystems

The future of project management lies in the convergence of AI with complementary technologies, creating fully connected, intelligent project ecosystems. This convergence creates **fully connected, data-driven project ecosystems** with real-time visibility, predictive insights, and automated decision-making, resulting in **smarter, faster, and more resilient project execution with end-to-end intelligence.**

The complementary technologies are:

- **Internet of Things (IoT):** IoT sensors embedded across project sites, equipment, and supply chains generate continuous real-time data streams. AI analyzes this data to monitor progress, detect anomalies, predict equipment failures, and optimize site operations transforming physical project environments into data-driven intelligent systems.
- **Blockchain:** Blockchain technology enables transparent, immutable, and automated contract management, procurement tracking, and compliance verification within projects. When combined with AI, it creates trustworthy, tamper-proof project governance frameworks particularly valuable in multi-stakeholder infrastructure and supply chain projects.
- **Big Data Analytics:** AI paired with Big Data platforms processes vast volumes of structured and unstructured project data from financial records and stakeholder communications to market signals and regulatory changes enabling richer, more contextually aware project decision-making.
- **Digital Twins:** AI-powered digital twin technology creates real-time virtual replicas of physical project assets and environments, enabling simulation, scenario planning, and predictive modelling before committing resources. **Gartner** predicts the digital twin market will reach **$125 billion by 2030**, with project management emerging as a primary application domain.
- **Cloud & Edge Computing:** Enables scalable, real-time processing of project data across distributed environments.
- **5G Connectivity:** Enhances speed and reliability for real-time collaboration, remote monitoring, and smart site operations.
- **Integrated Platforms:** Unified AI dashboards combine all technologies into a single source of truth for end-to-end project visibility.

AI Project Tools / Platforms : AI-powered platforms like Microsoft Copilot, Asana AI, Monday.com AI, Notion AI, along with ClickUp AI, Smartsheet, and Jira AI features, are transforming daily project operations.

They automate **scheduling, meeting summaries, documentation, progress tracking, and risk alerts**, while enabling real-time collaboration and intelligent workflow management.

Validated industry insights (e.g., McKinsey & Company, Gartner) indicate **~3040% productivity improvement** and significant reduction in administrative workload.

IDC predicts **65% of global enterprises will adopt AI-integrated operations by 2026**, accelerating the creation of intelligent, connected project ecosystems across industries.

9. Strategic Role of Future Project Managers

"Human Leadership + Machine Intelligence = Project Excellence."

The role of the project manager is undergoing a fundamental transformation. Future project leaders must evolve beyond execution management toward:

- **Strategic Leadership** shifting focus from task oversight to organizational strategy, innovation facilitation, and stakeholder influence
- **AI Governance and Ethics** leading responsible AI adoption, managing algorithmic accountability, and ensuring ethical decision-making frameworks within projects
- **Insight Translation** converting complex AI-generated analytics into clear business value, faster decisions, and actionable project strategies
- **Human-AI Collaboration Architecture** designing and leading hybrid team models that combine human creativity, empathy, and judgment with AI-powered analytical precision

- **Continuous Digital Fluency** maintaining evolving competency in AI tools, data platforms, and emerging technologies as a core professional responsibility aligned with **PMI's PMTQ framework**

10. Critical Irreplaceable Human Capabilities

In an AI-driven project ecosystem, technology enhances execution, but **human capabilities remain the true differentiator**. As AI takes over data-heavy and routine tasks, project leaders must elevate their role toward **strategy, leadership, and governance**. The future success of projects will depend on how effectively humans and AI collaborate.

- **Strategic Judgment:** Contextual decision-making under uncertainty; balancing data insights with business realities
- **Stakeholder Leadership:** Building trust, influencing decisions, and managing complex human dynamics
- **Creative Problem-Solving:** Driving innovation and navigating ambiguity beyond algorithmic logic
- **Ethical Governance:** Ensuring responsible AI use, transparency, and accountability in decisions
- **Change Leadership:** Leading digital transformation, overcoming resistance, and aligning teams to new ways of working
- **Emotional Intelligence (EQ):** Understanding team morale, conflict resolution, and motivation
- **Cross-Functional Integration:** Aligning business, technology, and operations for holistic outcomes
- **Decision Ownership:** Final accountability where AI provides inputs but humans take responsibility

Bottom Line: AI augments intelligence, but **leadership, ethics, and human judgment define project success**.

Conclusion : The future belongs to those who prepare for it today.

Artificial Intelligence is no longer a futuristic concept. It is a present-day competitive reality - already reshaping project management across industries - transforming how projects are planned, executed, and delivered across every industry and geography.

McKinsey & Company confirms AI reduces administrative project effort by **3040%**, while **PMI's Pulse of the Profession** validates measurable improvements in project success rates, forecast accuracy, and risk management through intelligent adoption. The global AI in Project Management market, projected to reach **$8.5 billion by 2030** (**MarketsandMarkets**), reflects the irreversible momentum of this transformation.

AI is fundamentally shifting project management from **reactive ! predictive ! prescriptive ! autonomous** enabling early risk detection, smarter resource optimization, real-time decision intelligence, and continuous delivery improvement. **Gartner** predicts that by **2026, over 80%** of project management tasks will be augmented by generative AI, redefining the boundaries of what project teams can achieve.

Yet technology alone does not deliver excellence. The most enduring competitive advantage belongs to organizations that master the convergence of **human leadership, strategic judgment, ethical governance, and AI-powered intelligence** creating project cultures where people and machines amplify each other's strengths.

Organizations that boldly embed AI into their project ecosystems today will not merely improve performance they will **define the standards of global project excellence for the decade ahead.**

"Where Human Wisdom Meets Machine Intelligence Project Excellence is Born."

"Don't Just Manage Projects. Intelligently Transform Them."

"Lead with Intelligence. Deliver with Excellence. Define the Future."

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ARTIFICIAL INTELLIGENCE IN SUPPLY CHAIN MANAGEMENT: OPPORTUNITIES, APPLICATIONS, AND READINESS IN THE INDIAN CONTEXT

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Automation aims to improve operations which would in turn improve the life of the employees. For example, a warehouse which is as big as three football fields, with over 100,000 products at approximately 250,000 locations, employs about 80 people to send over 3000 parcels a day. These employees on an average walk over 8 kilometers within the facility to complete their tasks. The company then built an AI enabled slotting tool with the help of data analysis. This helped them to understand the combinations of items ordered most frequently by the customers and chart the shortest path to each of the product locations. This also helped them to group products so the walking could be reduced. This one improvement helped reduce employee fatigue and improved operational efficiency. This freed up time for them to meet higher customer demands.

A plethora of tools using machine learning and predictive analytics help companies to improve demand forecasting, reduce inventory costs and enhance logistical efficiency. This helps them manage end to end operations of supply chain from procurement to delivery. With the help of AI companies can cut errors by 20% to 50%. Key areas in which AI used in supply chain are 1) demand forecasting by analyzing the historical sales data, market trends and external factors like weather, social media, the religious festivals etc. This help companies to predict demands, reduce overstocking and stockouts. 2) Logistics and rout optimization is possible by analyzing traffic and weather to reduce fuel consumption and costs. 3) Using the predictive analytics, companies can manage their inventory levels. 4) With the help of AI one can monitor for disruptions and delays. This way the company can manage the risks and become more resilient and 5) Warehouse automation using AI helps increase the speed and accuracy in sorting to inventory checks.

The recent AI summit held at Bharat Mandapam at Delhi from 16th to 20th of February 20206 highlighted a number of AI innovations in the supply chain domain. One of the AI bots that garnered a lot of attention was the Ottobots. This is a level 4 bot capable of managing indoor and outdoor tasks in places like hospitals, campuses and last mile urban deliveries. The summit highlights the integration of Artificial Intelligence (AI) to transform supply chains and logistics, focusing on real-world, scalable, and autonomous solutions. Companies exhibited autonomous delivery systems, that integrate multi-modal logistics (involving robots on the ground and drones in the air), role of AI driven analytics for predictive and resilient supply chain. They also help in automating documentations to validate data, reduce errors, and speeding up compliances. AI is also used as smart port/terminal automation. The AI driven rout automation reduce fuel consumption and contributes to sustainable development.

Over the years the AI has gone through many rapid changes. Currently the level of automation has reached four levels. The 5th level is expected to be where human intervention will not be required. The level 4 autonomy allows full task autonomy within limits, use advanced sensor systems, use self-navigation and obstacle avoidance and use failsafe machines. The autonomous taxis from Waymo, warehouse robots of Amazon are a few examples. From no automation it moved to assisted automation, partial automation, conditional automation to high automation. It is soon expected to become a complete automation where human intervention will not be required.

The level of automation in the Indian warehouses is at a lower level. Not many facilities use a level 4 automation bot in their operation. They still use manual pickers, sortation workers, data entry clerks, forklift operators and floor supervisors. Some of the factors that will resist full automation could be the availability of cheap labour, concentration of automation in large e-commerce firms, automotive logistics and major FMCG distributors. unwillingness of MSMES to invest in high-cost automation tools, and the seasonal demand where there is no need for a

continuous demand.

If one asks whether India is ready for a full automation in its operations and supply chain activities one might say, No. We are not ready yet. A number of factors could be the reason. 1) most MSMEs are cost conscious and would rather employ a person than use a robot to perform a task. 2) automation requires to build suitable infrastructure to support it. 3) Most MSMEs are not focused on institution building where they have to plan for the future. With second generation not willing to take over the business, investing on future is irrelevant. 4) MSMEs in India are not a place for innovation and intrapreneurship. Large companies help in developing this mind set but in limited scope. 5) Most warehouses are small in size making it difficult to automate the process. With AI bulldozing its way into every aspect of our life automation probably is going to be the way forward.

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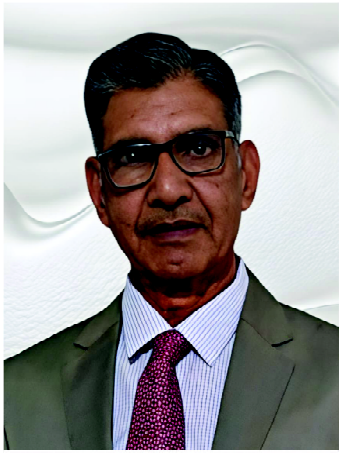

IIMM, Vadodara Branch Family is shocked, disturbed and saddened and about the sad demise of our EC Member, Shri D.R. Yadav, on March 24, 2026.

Shri Yadav was closely associated with the Vadodara Branch for over four decades and headed the Vadodara Branch during 1996-98. He served at the national level as NST during 1999-01, VP (West) during 2001-2003, and was also a member of the NEC. During his tenure as VP (West), the Central Region was created. He was also a member of the Memorandum of Association (MoA) Amendment team. He was conferred with Distinguished Member in 2006. He was a highly respected and dedicated member of the Institute. Even on March 21, 2026 he enthusiastically participated in the Evening Lecture, reflecting his unwavering commitment to the Institute.

A gentleman in the truest sense, he was known for his professionalism, warm relationships, and humane approach. His immense contributions towards the growth and development of IIMM, particularly towards Vadodara Branch will always be remembered with deep respect and gratitude. His absence will create as void in IIMM family but he will be forever in our heart.

Late D.R. Yadav will remain in IIMM's thoughts and prayers. May His soul rest in eternal peace. May the Almighty give enough strength and courage to bear the irreparable loss to the bereaved family!

THE SELF-DRIVING SUPPLY CHAIN: FROM REACTIVE OPERATIONS TO AUTONOMOUS INTELLIGENCE

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In the early days of industrialisation, factory owners would respond to every disruption personally ; a machine breakdown, a late delivery, or a supplier delay meant urgent calls, frantic adjustments, and firefighting teams. Today, many supply chains still operate much the same way: reactive, human-dependent, and slow to adapt when the unexpected hits.

But a new era is upon us ; one where supply chains are not merely digital, but **autonomous**, where intelligence continuously anticipates problems and adjusts operations in real time. This shift from reactive systems to **self-driving supply chains** powered by artificial intelligence (AI) is not futuristic theory ; it's happening now, with significant implications for manufacturing, multimodal logistics, and ESG performance.

Why Autonomous Intelligence Matters Now : Global supply chains have grown more complex and fragile. The pandemic exposed the vulnerabilities of manual workflows and disjointed decision-making. Rising customer expectations demand faster, more transparent delivery. And sustainability goals now drive investor and customer decisions as much as cost and quality do.

According to a comprehensive literature review across industries, AI techniques have been applied in key supply chain functions ; from demand forecasting to risk management ; improving decision-making and proactively addressing uncertainty rather than merely reporting it. (Springer Nature)

Yet most organisations today still operate with **digital visibility** ; dashboards that show what has happened ; rather than **autonomous intelligence** that predicts and acts on what will happen.

For MSMEs and SMEs, this gap keeps costs high and responsiveness low. For large corporations, complexity grows exponentially without governance. The transition to autonomous systems is not optional; it's strategic.

Policy Momentum: Indias Supply Chain Modernisation

In India, the government's flagship infrastructure initiative ; **PM Gati Shakti National Master Plan, provides** a foundational backdrop in which autonomous supply chains can flourish. Launched in 2021, the plan integrates infrastructure development across roads, railways, ports, airports, and logistics parks to reduce logistics costs and improve multimodal connectivity. (journalofsupplychain.com)

Beyond physical infrastructure, Gati Shakti is evolving to incorporate **AI-driven planning and digital logistics platforms**. Officials from the Department for Promotion of Industry and Internal Trade (DPIIT) have explicitly identified AI as the next frontier for Gati Shakti's implementation, indicating that predictive analytics and machine learning will guide infrastructure optimisation and logistics efficiency. (Business Standard)
Additionally:

- **Unified Logistics Interface Platform (ULIP)** is enabling real-time data integration across government systems (like GSTN, Vaahan, customs) to track shipments from origin to destination, a critical enabler for autonomy. (The Economic Times)
- Logistics Ease Across Different States (LEADS) focuses on data-driven logistics performance measurement that can feed autonomous systems. (ETGovernment.com)

These policies are not just infrastructure programs ; they are **digital supply chain building blocks** that will allow autonomous intelligence to take root in the Indian industrial ecosystem.

From Reactive to Predictive to Autonomous: The Journey Map - To understand the shift, it's useful to frame supply chain evolution across three stages:

1. Reactive Operations ; Traditional and Manual

Most supply chains today still fall here:
- Inventory buffers are the default risk response.
- Production schedules are manually adjusted.
- Logistics planners respond to disruptions as they occur.

This is analogous to early industrial processes ; **ad hoc, human-centric, and costly**.

2. Digital and Predictive ; Data Visibility with Human Intervention

Digital systems such as ERP and TMS have brought visibility. They show order status, inventory levels, and shipment ETAs.

Predictive analytics can suggest future demand or potential bottlenecks.

Research shows that when AI-driven tools like machine

learning are integrated into planning, the outcomes include:

% **Improved forecasting accuracy**
% **Optimised inventory levels**
% **Faster response to disruptions**

(Preprints)

However, the key limitation remains: **decision points still depend on humans to act**.

3. Autonomous Intelligence ; Systems That Act

The self-driving supply chain transcends prediction ; it **recommends and executes decisions** with minimal human intervention.

% If demand shifts suddenly, an autonomous system reallocates inventory.
% If a truck is delayed, the system reschedules shipments or reroutes dynamically.
% Facilities adjust production schedules before a critical breakdown.
% Logistics modes switch to lower-carbon alternatives without manual approval.

In autonomous supply chains, **AI becomes a decision agent**, not just an analytical assistant.

Concrete Industrial Applications of Autonomous Intelligence : To make autonomy less abstract, let's look at real-world implementations and research insights.

Autonomous Warehouse Orchestration : A recent academic study presented a reinforcement learning framework to autonomously manage warehouse execution ; allocating tasks, routing inventory, and optimising order picking ; outperforming traditional methods. (arXiv) For manufacturers and logistics providers, such systems reduce manual oversight and increase throughput while adapting in real time to operational fluctuations.

AI-Driven Demand and Inventory Decisions : Large Language Models (LLMs) ; the same AI technology behind advanced language understanding ; are now being explored to enhance supply chain decision-making.

Research highlights their potential to analyse complex patterns in historical data, linking forecasting, supplier performance, and inventory optimisation. (arXiv) LLMs can help businesses shift from static forecasts to dynamic, context-aware inventory strategies.

Autonomous Material Handling and Robotics

Industrial robotics and autonomous vehicles are increasingly integrated into warehouse and freight operations. Companies like **Vecna Robotics** deploy autonomous material handling equipment that optimises workflow without constant human monitoring. (Wikipedia)

In the freight domain, autonomous trucking technology, exemplified by companies like **Kodiak AI** ; is transitioning from pilots to commercial operations, indicating that autonomous freight movement could soon be a reality for long-haul logistics as well. (Reuters)

Multimodal Logistics: Where Autonomy Earns Its Stripes

One of the biggest drivers of inefficiency in global trade is fragmentation across transport modes ; from road to rail to sea. India's Gati Shakti initiative directly tackles this by planning integrated multimodal infrastructure to reduce transit times and cost. (journalofsupplychain.com)

An example of this integration at work is the recent opening of a **Gati Shakti cargo terminal in Jajpur**, which will streamline freight handling across rail lines and improve industrial supply chain throughput. (The Times of India)

Autonomous logistics systems add another layer of optimisation:

% They can evaluate multimodal routes in real time based on cost, time, and carbon footprint.
% They can prioritise transport modes dynamically as conditions change.

This is more than efficiency ; it's resilience. When one link in the chain falters, autonomous systems can automatically reroute or rebalance without human intervention.

Practical ESG Impact: Sustainability as an Operational Outcome

In conventional supply chains, sustainability is typically an afterthought ; data is collected for reporting, not action. Autonomous supply chains can integrate ESG metrics into **operational decisions**:

% Route optimisation can prioritise lower-carbon transportation methods.
% Real-time carbon calculation can influence production schedules.
% Supplier selection can reflect environmental performance data.

For instance, research on AI in supply chains confirms that technology not only improves operational efficiency but also enhances control over carbon emissions by optimising resource allocation and transport decisions. (jscires.org)

Autonomous systems make sustainability **real-time and actionable**, not just retrospective compliance.

What This Means for Different Organisations

Here's how autonomous supply chains benefit enterprises across sizes:

1. MSMEs

% **Low-cost entry:** Start with predictive tools (AI-based forecasting, inventory automation).
% **Reduce working capital:** Autonomous replenishment cuts unnecessary stock holding.
% **Respond faster:** Automated alerts and recommendations reduce reaction time.

2. SMEs

% **Scale smart:** As operations grow, autonomous decision logic prevents manual bottlenecks.
% **Integration with digital platforms:** Tools like ULIP and real-time tracking platforms boost visibility and interoperability.

3. Large Enterprises

% **Orchestrate complexity:** Autonomous intelligence manages global supply networks with millions of data points.
% **Strategic agility:** Real-time decision support becomes continuous optimisation.
% **ESG alignment:** Operational decisions incorporate sustainability without manual intervention.

The Human Element: Not Replaced but Elevated : Autonomy doesn't eliminate human roles. Instead, it liberates people from repetitive tasks and allows them to focus on strategic decision-making, exception management, and innovation **; the areas where human judgment truly matters.**

In fact, research underscores that AI implementations require new skillsets ; such as data literacy and cross-functional collaboration ; for organisations to fully benefit from technology. (Springer Nature)

Organisations that manage this human-tech synergy will outperform those that see automation as replacing jobs rather than augmenting capability.

A Practical Roadmap for Adoption

Here's a phased approach that companies can adopt:

Phase 1: Data Readiness
% Consolidate data across functions.
% Integrate IoT sensors in manufacturing and logistics.

Phase 2: Predictive Analytics
% Deploy machine-learning models for forecasting and risk alerts.
% Use real-time dashboards for visibility.

Phase 3: Autonomous Decision Logic
% Implement AI agents to make execution decisions within predefined policies.
% Enable dynamic inventory and logistics adjustments.

Phase 4: Continuous Optimisation
% Combine human intelligence with autonomous feedback loops.
% Use AI to simulate scenarios before execution.

This roadmap is practical, affordable in incremental steps, and acquirable for organisations of all sizes.

Conclusion: From Efficiency to Anticipation

The evolution of the supply chain parallels the evolution of decision-making itself ; from reactive to predictive and now to autonomous.

With supportive public policy like PM Gati Shakti and its digital components, increasing investment in logistics tech, and validated research showing tangible benefits, the transition to self-driving supply chains is no longer a futuristic ideal ; it's becoming an operational imperative.

Autonomy in supply chains means less scrambling, fewer crises, smarter ESG outcomes, and more time for humans to innovate rather than react. For MSMEs, it's a chance to compete on agility. For SMEs, it's a catalyst for scalable growth. For large enterprises, it's the key to orchestrating complexity at scale.

The question is no longer if operations will become autonomous ; it's when and who will be ready to reap the rewards.

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D' REDUCING RISK IN THE PHARMACEUTICAL COLD CHAIN: TECHNOLOGY TRENDS & DSCSA COMPLIANCE

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Introduction : When delays and disruptions threaten not only product integrity but patient well-being, thorough risk assessment and mitigation are essential. Precision in the supply chain has never been more critical than when it involves transporting temperature-sensitive pharmaceutical products. Even small changes in temperature, short delays, or minor disruptions can compromise a product's integrity, damage a company's reputation, or endanger patient safety.

Today, **new technologies and DSCSA (Drug Supply Chain Security Act (USA) regulations** are reshaping how risks are identified, mitigated, and communicated across the pharmaceutical cold chain.

= The Pharmaceutical Risk Landscape
Risks to products include:
· **Product damage** from vibrations and shock.
· **Shipment delays** due to natural disasters or political unrest.
· **Temperature excursions**, costing the industry billions annually.
· **Theft and security breaches**, both physical and digital.

= Latest Technology Trends in Risk Mitigation

1. Real-Time Visibility

- IoT sensors and cloud dashboards provide **continuous monitoring** of temperature, humidity, shock, and location.
- Blockchain ensures **tamper-proof traceability**, directly supporting DSCSA's requirement for interoperable electronic records.

2. AI & Predictive Analytics

- Machine learning models forecast risks such as weather disruptions or carrier reliability issues.
- Digital twins simulate supply chain scenarios, enabling proactive rerouting and contingency planning.

3. Smart Packaging

- Phase-change materials (PCMs) and vacuum-insulated panels (VIPs) extend safe transit times.
- Sensor-enabled packaging provides **live feedback** on product conditions.
- Supports DSCSA serialization by embedding **track-and-trace identifiers**.

4. Ultra-Cold Infrastructure

- Cryogenic storage (-150°C to -273°C) for cell and gene therapies.
- Dry ice alternatives and modular cold storage units closer to patient populations.

5. Security & Compliance

- AI-driven anomaly detection enhances theft prevention.
- Cybersecurity safeguards protect increasingly networked supply chains.
- **DSCSA mandates verification of trading partners, serialization, and electronic traceability**, ensuring secure transactions and compliance.

= Risk Mitigation Framework

Risk Category	Traditional Approach	Latest Trend (2026)	DSCSA Alignment
Temperature excursions	Refrigeration units, manual checks	IoT sensors + AI predictive alerts	Package-level serialization & traceability
Shipment delays	Backup carriers, contingency routes	Digital twins + predictive rerouting	Exception management required
Product damage	Insulated packaging	Smart packaging with shock sensors	Serialization ensures product integrity
Theft/security breaches	Seals, cameras	Blockchain traceability + AI anomaly detection	Verified trading partners mandated

< Risk Communication and Review

Stakeholders must collaborate across manufacturers, distributors, logistics providers, and last-mile partners. **DSCSA requires interoperable data exchange**, making weekly or monthly risk review boards more effective

= Implementation and Monitoring

Companies are leveraging **data-driven monitoring systems** to assess performance against DSCSA compliance and cold chain risk mitigation in real time.

Conclusion

By combining **IoT, AI, smart packaging, blockchain, and DSCSA compliance**, pharmaceutical companies can transform risk management into a proactive strategy. This ensures resilient cold chains that safeguard product integrity, protect patient well-being, and build trust across the healthcare ecosystem.

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AI FOR SUPPLY CHAIN MANAGEMENT AND BUSINESS EXCELLENCE

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Artificial Intelligence or AI is the capability of computational systems to perform tasks typically associated with human intelligence. Some of the advantages offered by AI are speed, productivity, efficiency and ability to process datasets faster than humans. Other benefits include 24/7 availability, reduced errors, automation of repetitive tasks and improved decision making through predictive analysis.

Supply chain management is the management of the entire flow of goods, services, data, information and finances from raw material stage to the final product delivery to end customers. Modern SCM leverages AI and cloud computing for achieving excellence in the areas of agility, resilience, risk management and responsiveness etc.

Supply chain management includes the following – planning and design, sourcing & procurement, making or building equipment/products/accessories/ facilities etc.., distribution and logistics or moving things from factory to customers or in reverse direction for customer returns, business / supply chain intelligence / analytics and control towers etc.

Artificial Intelligence can fundamentally transform supply chain operations by addressing traditional challenges through innovative and smart technological solutions. Organizations can build more resilient and adaptive supply chains capable of responding effectively and efficiently to future market demands and disruptions. The integration of machine learning, natural language processing, robotics, AR/VR and computer vision creates comprehensive AI powered digital supply chain ecosystems. Artificial Intelligence and Machine Learning technologies can help companies and organizations to reach Industry 4.0 levels of strategies and operations. Generative AI and Agentic AI systems are used more and more in supply chain management to get better results and performances.

AI in Supply Chain Planning and Design: AI based demand forecasting uses machine learning to analyse vast complex data sets – including historical sales data, market trends, weather and social media to predict future demand with 20 percent or more higher accuracy. By replacing static models, AI enables real-time adjustments, reducing stockouts, optimizing inventory, minimizing waste and optimizing supply chain operations. These systems are very good in areas like pattern recognition and iterative learning.

AI in design revolutionizes creative workflows by automating repetitive tasks, generating rapid prototypes and enhancing creativity through tools like Adobe Firefly etc. This software accelerates tasks such as resizing, image editing and colour adjustments allowing designers to focus on higher level work. Design variations or options can be studied more easily before zeroing in on the most suitable design. Design to cost and value or design to meet sustainable circular economy goals becomes easier by use of such advanced technologies and tools.

SAP-IBP i.e. Integrated Business Planning streamlines supply chain processes using generative AI / Joule co-pilot and Machine learning to automate, predict and optimize performance and outcomes. Key features include AI-assisted formula generation in Excel, demand sensing and intelligent inventory balancing which helps to reduce manual effort and improves planning accuracy.

AI in Sourcing and Procurement: AI tools and technologies can be used for finding, screening and engaging capable and efficient suppliers by analysing vast amounts of data across the web, outperforming manual search methods. These tools can evaluate and rank suppliers and can suggest best matches for products etc. significantly speeding up the source selection process. Some of the tools used in this area are Grata, Sourcing AI 2.0 etc. Sourcing software and ERP systems like SAP, Oracle and others are using AI now. SAP Joule and Document AI are some of the features in SAP for automated processing and AI driven insights.

AI in sourcing and procurement uses machine learning, generative AI, automation and AI agents to streamline strategic global sourcing, contract lifecycle management and supplier risk analysis. This can potentially cut administrative time by up to 80 percent. By analysing vast datasets, AI enhances decision making, predicts demand, automates business processes and reduces delivery lead times and lifecycle costs.

The various methods of AI deployment in sourcing and procurement include

- Automation of more than 50 percent of tasks
- Invoice matching and validation for timely supplier payments
- Risk monitoring and proactive insights into potential disruptions
- Can be used for spend analysis – especially maverick uncontrolled spending
- Commercial analysis and comparisons of bids and proposals for supplier selection
- AI Tools can automatically extract key terms from contracts and ensure contract compliance

- Supplier identification and scoring / evaluation for onboarding new suppliers
- Better and real – time monitoring of demand and market trends for better inventory management and preventing stock-out situations

AI can be used effectively in quicker drafting of procurement documents and technical specifications thus improving staff productivity and cutting down material or equipment acquisition lead times. AI chatbots can be used for automated negotiations to speed up contract or purchase order finalization.

Some amount of human oversight is still required to make value judgments and avoid mistakes when carrying out these tasks. But AI and machine learning provide the advantage of speed as they have more speed and computing power than humans. This enables staff to focus on higher level activities and not routine activities.

AI deployment requires a cost – benefit analysis to be carried out in a rigorous way to ensure better returns on investments. Multi – AI agent systems have been developed now and these systems offer the advantages of

- Superior problem-solving capabilities
- Better scalability and flexibility
- Higher resilience and fault tolerance
- Improved efficiency through parallel processing
- Increased flexibility
- Modular design breaking down complex tasks into manageable subtasks
- Agents can act autonomously to adapt to changing circumstances like in logistics

AI frameworks excel in creating predictive models that forecast demand patterns and identify potential supply chain disruptions before they occur. The optimization algorithms built using these frameworks help to improve logistics efficiency by analysing vast datasets to determine optimal routes and resource / inventory allocations. When selecting an AI framework consider your team's technical expertise, the specific supply chain challenges addressed and how well the framework integrates with your existing technology stack. The choice of framework and platform decides the solution's scalability, flexibility, adaptability and performance. Choice of the right platform enhances AI-driven decision making that can result in better forecasting accuracy, operational efficiency, reduced supply chain risks, better supply chain resilience and responsiveness.

Large language models can revolutionize supply chain communication and documentation processes through different applications.

- Customer interaction automation on a 24/7 basis
- Contract analysis and lifecycle management for better compliance
- Prediction of disruptions
- Better report generation
- Better and proactive supplier communication

AI can integrate diverse data sources into unified decision making or decision support systems. Enhanced monitoring capabilities help us to analyse multiple data streams simultaneously providing deeper insights into equipment performance, product quality, preventive repairs / maintenance and better operational efficiency.

Digital twin software systems help create virtual replicas of physical supply chain assets and facilities. These models can continuously synchronize with real world operations through IOT i.e. Internet of Things sensors and data feeds, providing real time monitoring capabilities that track asset performance and identify issues quickly for rectification and remedy. This technology provides a safe environment for testing new processes and configurations.

AI systems are getting integrated with ERP i.e. Enterprise Resource Planning systems for better operational efficiency. Modular AI components help to achieve this by providing flexibility and scalability. The total cost or investment required is also optimized by modularity which can result in investment control and optimization for better returns on the same.

These AI deployment projects and programs require the following things to be really successful:

- Effective change management systems
- Pilot testing in controlled environments before full-scale deployment
- Cross-functional collaboration for pooling of diverse expertise
- Continuous performance monitoring for tracking KPIs i.e. Key performance indicators

AI in Smart Factories and Smart Manufacturing: Smart factories are digitized, highly automated manufacturing facilities that can use interconnected devices, AI and IIOT i.e. Industrial Internet of things sensors to collect, data stream, canalize and share data in real-time. They boost efficiency by optimizing production, reducing downtimes through predictive maintenance of equipment and machines and by enhancing quality control. This is the core concept of Industry 4.0.

Smart manufacturing leverages big data analytics to optimize complex production processes and enhance supply chain management at upstream and downstream ends. The data obtained from cameras, sensors and other such devices is stored and processed in edge computing and cloud computing layers at high speed. This enables end-to-end autonomy in operations and makes supply chains more responsive and resilient to disruptions and challenges.

Advanced industrial robots operate autonomously and can work independently or with humans for better productivity and safety. Some of these machines have the flexibility to be repurposed and reconfigured for different applications. Cobots are collaborative robots that have cognitive ability and are used in many applications now. Cloud computing allows large amounts of data storage or compute power to be applied to manufacturing.

Additive Manufacturing or 3D printing is mainly used in

rapid prototyping, design iterations and small-scale production. The market for this manufacturing technology is expected to go up with a good CAGR rate i.e. compound annual growth rate. The seven main types of additive manufacturing are

- Binder Jetting
- Material Extrusion
- Powder Bed Fusion
- Material Jetting
- Directed Energy Deposition
- Sheet Lamination
- Vat Photopolymerization

These technologies create three dimensional objects by building materials layer-by-layer using various materials including polymers, metals, ceramics and composites.

Artificial Intelligence technologies can be used in many energy and electrical power consumption optimization programs in areas like smart digital oilfields, steel plant furnaces, smart power grids, factories, buildings and solar or other renewable energy projects and so on. These strategies help to control costs and improve margins thus improving the financial performances of companies and their stock prices.

AI is rapidly transforming the oil and gas industry, evolving from a support tool to a strategic requirement for enhancing operational efficiency and sustainability. The global AI market in Oil & Gas sector is expected to grow from 5 billion USD to more than 25 billion USD in the next 10 years. AI market in Utilities sector is also expected to grow at a good rate in the coming years in areas like smart grid management and demand forecasting.

AI in Smart Warehouse and Logistics Management: Smart logistics refers to the integration of advanced technologies like AI / ML, IIOT, RFID and Cloud computing to modernize logistics and warehouse management. It enhances efficiency by enabling real-time, end-to-end visibility, automated route optimization, predictive maintenance of warehouse and transportation equipment and optimized last-mile deliveries. This approach reduces costs, delays, wastages and human errors and optimizes on-time last-mile delivery. This in turn enhances customer satisfaction or delight, repeat customer orders etc. contributing towards better revenues and margins.

AI & IIOT: IIOT i.e. Industrial Internet of Things Sensors monitor vehicles, cargo and inventory in real-time for better and quick decision-making.

AI & ML: Artificial Intelligence and Machine Learning technologies are used for demand forecasting, dynamic route planning and predictive analytics to avoid disruptions.

Automation & Robotics: AMRs i.e. Automated Mobile Robots, Robotic Stackers and AGVs i.e. Automated Guided Vehicles etc. help to achieve better throughput and faster warehouse operations.

Big Data & Cloud Computing: Integrated platforms facilitate analysis of massive datasets for better decision-making.

Blockchains: These decentralized, immutable digital ledgers that securely record transactions across a distributed network of computers enhance and ensure data integrity and security without intermediaries. Common synonyms of this technology are DLT i.e. Distributed Ledger Technology or Shared Digital Ledger. Key application areas are cryptocurrency trading like in Bitcoin or Ethereum, smart contracts, medical records and supply chain tracking.

The benefits of smart warehouse and logistics management are

- Improved Throughput and Efficiency
- Reduced Costs
- Lesser Breakdowns and Delays
- Real-time Visibility of Operations
- Minimized Fuel consumption and Carbon emissions
- Better Resilience and Sustainability
- Enhanced Customer Satisfaction

Agentic AI systems with single or multiple agents generally are designed to follow the perception – cognition – action cycle and need to be designed and implemented keeping the following in mind:

- Modularity of the system
- Scalability
- Interoperability
- Adaptability
- Security & Robustness
- Etc

AI systems can be applied in many areas of logistics like flexible warehouse layouts, transport route optimization, rerouting shipments, optimized picking and packing of warehouse products & materials, continuous process data analysis, end-to-end optimization of material flows, disruption & delay mitigation, workforce reskilling & upskilling, warehouse robots and cobots etc.

AI-powered warehouse management systems and tools can help logistics managers identify incoming orders with predicted fulfilment times that exceed the target. Picking for at-risk orders can be prioritized. Generative AI capabilities can also track order revision histories and provide e-mail acknowledgements of new or changed orders.

Manufacturing companies can use AI-based predictive analytics to optimize stock levels, drawing from historical data and real time demand data to help prevent stockouts and at the same time reduce or optimize the volume and value of surplus overstock inventory. AI can assist in optimizing and improving order fulfilment efficiency in warehouses by determining the best locations for specific products and also by recommending optimized layouts and worker routes to speed up order picking and fulfilment. AI can automate the creation of shipping labels and can support multilingual and international shipping requirements.

Augmented reality and Virtual reality i.e. AR/VR systems are used in warehouses to improve the product picking and packing processes and activities shortening the order

fulfilment times and improving accuracies by reducing errors. Such systems can help to improve workforce productivity and reduce operational costs of warehouses and logistics operations for better returns on investments.

Digital product passport systems are beginning to get employed in many application areas. The information contained in these passports includes raw material origin, material composition, chemicals involved, production information and repair and maintenance instructions. Such systems help to promote sustainability and facilitate circular economy by providing customers and material recyclers with detailed product histories.

AI systems can help in achieving substantial fuel savings in logistics and transport. Nearly 40 percent of global carbon dioxide emissions are expected to come from global aviation and shipping sectors by the year 2050. AI can help to optimize shiploads/truckloads and delivery routes. AI and automation technologies can be used extensively for better customer service and support in sectors like Retail or Healthcare improving customer satisfaction and business revenues. MTTR reduction i.e. reduction in mean time to resolution of customer issues and complaints is possible by using AI tools and techniques.

AI for Supply Chain Research and Analytics: Artificial Intelligence in supply chain analytics leverages machine learning, predictive modeling and real-time data to enhance efficiency and reduce costs. This helps to build resilient and sustainable global supply chains. Key application areas include demand forecasting, automated logistics/inventory management and waste reduction. Proactive supply chain risk management can be carried out by analysing external events to predict disruptions and delays.

Supply chain control towers are centralized, cloud-based digital command centres that leverage AI and advanced analytics to provide end-to-end and real-time visibility across global supply chains. It integrates data from suppliers and logistics to enable proactive risk management and rapid delay mitigation moving from reactive reporting to predictive and orchestrated actions. Dashboards can be designed to capture the analytics and KPIs i.e. key performance indicators using data visualization technologies.

The main types of analytics are

- Descriptive Analytics
- Diagnostic Analytics
- Predictive Analytics
- Prescriptive Analytics

Descriptive analytics summarizes historical data and provides insights into past performance such as inventory levels. Dashboards and reports can be used to convey this information and track key performance indicators. Diagnostic analytics helps to analyse and find out the root causes of events and delays. Predictive analytics uses historical data, machine learning and modeling to forecast future outcomes using techniques like regression analysis and forecasting models. Prescriptive analytics suggests specific and actionable recommendations to manage risks and optimize decisions.

IIOT i.e. Industrial Internet of things technologies including sensors and cameras are extensively used nowadays to capture and monitor field data from manufacturing or logistics facilities and this data is streamed to centralized command centres for better and prompt monitoring and control of errors and delays. Decisions can be made in real-time and implemented quickly cutting down the effects of disruptions and achieving the different supply chain goals like cost targets or transit time targets etc.

Some of the tools and techniques used in Predictive Analytics & Prescriptive Analytics are

- Mathematical Optimization
- Heuristic Search Methods
- Reinforcement Learning
- Simulation based Optimization

Cyber security aspects of AI systems need to be given adequate attention and importance when designing and implementing AI systems. AI in cybersecurity revolutionizes threat detection and response by analysing vast data sets in real-time, outpacing traditional, rule-based systems to identify anomalies and automate defences. It enhances security operations, reduces human error and secures data through advanced behavioural analytics and predictive insights.

Edge computing is a distributed IT architecture that processes data near the source, such as IOT devices, local servers or sensors or cameras etc. rather than relying solely on a centralized, distant cloud datacentre. This approach minimizes latency, reduces bandwidth costs and improves data security by keeping the data processing at the local level. It enables real-time actionable insights for applications like autonomous vehicles and industrial automation etc.

Industry 5.0 is the next phase of industrialization and it is an evolution from Industry 4.0 with addition of human-centric aspects and features. This focuses on collaboration between humans and smart autonomous machines to enhance rather than replace human labour. The focus will be on human-centricity and sustainability of industrial sectors and supply chains. This will improve and enhance the required resilience and risk mitigation capabilities of digital supply chains and organizations.

Technology will be harnessed to increase the capabilities, performances and outputs achieved by cyber-physical systems and smart entities. These strategies can result in a better circular economy that is focused more on material and resource efficiency, energy efficiency, waste reduction, net-zero goals, lesser emissions, conservation of rare materials etc. to create long term environmental responsibility and sustainability.

Reference: Daniel Rockbridge, AI in Supply Chain Management, 2025

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NEGOTIATION AND CONFLICT MANAGEMENT IN SUPPLY CHAIN MANAGEMENT

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Abstract/Review: Conflict management does involve understand the root causes, objectives such as communication breakdown, problem solving, negotiation, which is liable to become the main process of concluding the negotiation of reaching mutual agreement, which is to be supported by preparation, goal setting in supply chain.

Optimising on the flow of goods, information, finance, raw-material to final product to customer, negotiation, conflict management success in complex supply chain, involves due to different stakeholders their goals, their research review, on various negotiation impacts such as cost, resilience, aiming to provide the insights to improved co-ordination among the performance in supply chain.

Identifying objectives, conflicts, clearly defining the disagreement between suppliers, consistently delivering, strategic resolution, choosing the right approach, based on the conflicts, complexity, collaboration, solving to find a solution for negotiations in supply chain.

Negotiation is the process of reaching an agreement, conflict management deals with consideration, resolving, disputes, when the agreements, like prices, delivery, terms quality focus on achieving specific tangible outcome, while conflict improves, interchanges, interactions, prevents resolves disputes, that is likely to arise out of operational efficiency in supply chain.

Using negotiation as a method of conflict, becomes a resolution that is popular as supply chain seeks to achieve solutions that respect perception with the ability to minimize the negative impact on an agreement, which involves comprise, concessions with suppliers in supply chain.

Effective negotiations, conflict with resolution strategy are intimately combined with strategies, with negotiations serving as a important tool in achieving conclusions on a wide range of disputed combines like distribution, deliveries in supply chain.

On the broader concept negotiation involves discussions, interactions with an aim on reaching agreements, discussion, among suppliers, vendors, sub-contractors, on different interests, while conflicts defines disagreement with suppliers, vendors, on consistent delivery, that is likely to development with proper lead-time, just-in-time delivery, just-in-case delivery as adopted systems in supply chain.

Having limited resources in supply chain, conflict arises, constraints, within the organisations, as it is liable to create competition among departments procurement, sourcing, scheduling, planning, production, manufacturing, with the sufficient negotiations, understanding it is liable to bring down the escalation on the series of conflicts among various departments in supply chain.

In the normal course conflicts, negotiations in supply chain are normally a process of resolving disputes, by focusing on a open solutions, on oriented discussion, that is likely to address the needs, interests on all the aspects in supply chain.

Strategy includes collaboration to find a solution, on effective negotiation, require aptitude, skills, active listening, and empathy on solving problems, on conflicts, ability to management emotions to build a stronger relationship in order to promote better productivity in supply chain.

Involving strategic preparation in Negotiation involves understanding power, employing different strategy for the purpose of securing favourable terms, relationship between buyers, suppliers, while conflict is an expressed struggle between independent concerns, on natural disasters, trade disputes, leading to supplier shortages, disruption, fluctuations in consumer demand in supply chain.

Improvement of operational efficiency, cost effectiveness, long-term strategic success on understanding how to build stronger relationship, resolve disputes, negotiation, conflict management can improve operational efficiency, minimize disruption, delays, resolve conflicts, that can lead to increase cost, termination of supplier in supply chain.

Skill development in Conflict management, Negotiation management is for resolving disagreement, conclusion of mutual agreement being beneficial on the outcome, on a foundational ability, clear communication, active

listening, strategic thinking, managing conflict by addressing; examining the root cause, thus facilitating negotiation, which on the process may reach by an agreement in supply chain.

Researched: Negotiation, Conflict is viewed to be interconnected, with critical operations, strategic success, as Conflict can be considered to be incorrect, during communication breakdown, on the scarcity of research activities, disruptions, interactions, that is likely to affect technological conditions, while negotiations can be a key tool for managing conflict, taking critical decisions like selection of supplier, distribution, last-mile delivery, terms of contract, pricing, so as to bring beneficial outcome to align the objectives in supply chain.

Performance in Conflict can be disruptive, making it difficult, on the performance, increase in cost, and drive to motivation, and bring in value creation, while negotiation does emphasis on the preparation of mutual value creation, on building strong strategic particularly through specific structural behaviour, on long-term interest involving proactive, reactive strategy to ensure business continuity, improve efficiency, performance in supply chain.

Achieving mutually the beneficial agreement resolving the objectives, negotiating is considered as a key tool, as conflicts arise with the objective of inefficiency, wasted resources, failure to meet the strategies, goals, such as entering a contract with new suppliers, having objectives, with better communication, resources, constraints, as negotiation involves using these strategies towards active listening, on the issues of supply chain, with effective negotiations that can prevent minor conflict from being escalated, thus leading to improved supplier relationship in supply chain.

Results: Financial strategies can be well defined through better negotiations, while conflict can bring in disagreement, bring in delay in production, delays in distribution, delivery, with negotiation bringing in collaboration on a long term partnership, which becomes a crucial in a highly complex global activities, having conflicts resulting in high operational cost, termination of suppliers, high incurred cost on time consuming process, having better operational efficiency, while negotiation can have better impact on the aspects of quality, lead-time flexibility, thus leading to better operation managed in supply chain.

Effective negotiations can diversify suppliers, enhance relationship, bring in better technology, develop contingency plans, by clearly defining the terms, warranties, disputes, while ignoring, managing conflicts that can lead to termination of valuable suppliers relationships, defining the costly time consuming efforts, as negotiation is considered to be a crucial schedule in transacting conflicts leading to smoother, more efficient operations in supply chain.

Focussing on clear communication, improvement on negotiation, conflict is to define a process of collaborative approach, on strategic skills, active listening, data analysis, flexibility in building strong trust, based on good relationship, with through strong trust, based on the interest through research, goals, ideas before negotiating, with conflicts establishing a clear contracts, cultivating open communication, implementation of training, considering mediation in supply chain.

On reaching mutual agreement on any outcome, negotiation is considered as an essential part in supply chain, while conflict is to manage the address of disputes, which have arisen due to negotiation, as this is considered as critical for establishing agreement on procurement, pricing terms, planning, scheduling, quality control, distribution, delivery, logistic operations, while conflict management is used to resolve issues like supply shortages, lead-time communication breakdown that is likely to arise due maligned objectives in supply chain.

Conflict can be disruptive, while negotiation in research analysis can be critical driver in facilities, inventory, transportation, information sourcing, planning, of the performance, resilience, collaborations, while with the kind of findings, emphasis on the importance of strategic long-term, interpersonal skills is to manage the dynamics in supply chain.

Negotiation as core strategy is considered as a tool, not just for bargaining, but a central part of the mechanism, for setting up the relationship between buyer-seller relationship, also for managing strategic planning, while on Conflict strategy is that it offers significant benefits, but also can be of considerable risk, mismanagement, which is likely to lead to disruption, inefficiency, damaged relationship in supply chain.

Negotiation is considered to be crucial for managing conflicts, on making strategic decisions, supplier selection, considering the contracts, pricing strategy, as conflicts can also be disruptive, thus increasing cost, lead-time for supply of materials, components, spare parts, as this is liable to lead to value creation, relationship, refinement, if not managed considerably ostensibly well in supply chain.

Preparations done for clear communication, collaborations, negotiations, conflict management, has become a problem solving, thus solving supplier, customer solutions, distribution, last-mile delivery, also

capable of understanding other vendor's, supplier's, sub-contractors, interest, generating multiple options, on using the objective criteria on fairness, long-term trust based relationship through transparency in procurement, sourcing, aligning a mutual objective, which is considered to be critical, for both negotiation, conflict management in supply chain.

Communicating between two or more individuals, negotiations also seeks the advance interest through joint action, with supplier's, vendors, sub-contract's, on trade, supply agreements, to reach a joint decisions, while on the conflict management defines as a proactive practice (continuously monitoring activities, anticipating potential problems, implementing preventive measures, to build resilience, to gain competitive advantage) to identify the capabilities, disagreement dealing effectively in supply chain.

Effective negotiations, conflict management are a crucial to anticipate, withstand, adapt to quickly recover from disruption, enabling organisation to build a strong long-term supplier relationship, through collaboration, comprising, rather than just resolving disputes in supply chain.

Limitations: Problems primarily resolving to exercise the influence between suppliers, manufacturers, customers,, have normally communication breakdowns, cultural differences, on the short focus on transactions, with rather a long-term collaboration among suppliers, on dictating terms, leveraging parties, with a long-term conditions to negotiate fair agreements in supply chain.

Resolving conflicts,(identifying the source of disagreement) negotiation becomes applicable, agreements, issues, contracts, quality conflicts, arising from misaligned conflicts, objectives, unknown communication, breakdown resources, constraints, analysis, builds more collaborative relationship, improves performances, thus analysing negotiations requires understanding the stigma in evolving disputes through strategic communication, which is to become mutually beneficial in supply chain.

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HOW TECHNOLOGY CAN RELIEVE SUPPLY CHAIN BACKLOGS

SONALI VIJAYAVARGIYA
FOUNDER OF AUGMENT VENTURES AND SCB CONTRIBUTOR

Supply chain backlogs are often blamed on extraordinary disruption like pandemics, geopolitical instability, labor shortages or weather. In practice, they reveal structural execution gaps that existed well before recent shocks. The core issue isnt insufficient spending or effort. Its that many supply chains still struggle to translate signals into coordinated action quickly enough.

Technology is beginning to close that gap, by improving how decisions are made and executed across the network.

Backlogs rarely start with a single failure. They build when small delays propagate unchecked. A late vessel pushes drayage appointments. Missed appointments create yard congestion. Yard congestion slows warehouse intake. Warehouses then fall behind on outbound commitments.

At each step, teams often operate with partial information and limited authority beyond their local function. Data arrives late, systems are fragmented and decisions require manual escalation. By the time corrective action is taken, congestion has already spread.

In most cases, capacity exists somewhere in the system. Whats missing is the ability to see constraints clearly, decide quickly and execute changes across multiple partners at once. Backlogs are therefore a coordination problem more than a capacity problem.

Easing Todays Bottlenecks

Technology has the greatest impact where it directly reduces decision latency and execution friction.

The first area is real-time operational visibility. Modern tracking, sensing and cloud platforms provide continuous insight into shipment location, dwell time, inventory position and asset utilization. This replaces static reports with live operating conditions. When teams can see delays forming instead of discovering them after the fact, they can

intervene earlier and with fewer downstream consequences. Recent research shows that end-to-end visibility is now one of the primary drivers of supply chain technology investment, with real-time inventory tracking ranked among the most critical capabilities.

The second area is dynamic coordination across partners. Orchestration systems allow schedules, labor plans and transportation routes to adjust as conditions change. When arrival times shift, downstream plans update automatically instead of being renegotiated manually. This removes hours or days of delay caused by emails, calls and disconnected systems.

The third area is predictive execution support. New artificial intelligence models flag congestion risk, forecast demand variability and identify likely points of failure. These tools dont eliminate disruption, but they provide earlier warnings and clearer response options. Rerouting freight, repositioning labor or rebalancing inventory is far easier before congestion forms than after yards or warehouses are already saturated. Organizations using predictive logistics tools report materially faster recovery times from disruption and measurable reductions in dwell and demurrage costs.

Across all three areas, the benefit is speed. Faster detection, faster decisions and faster execution materially shorten how long disruptions persist.

Where Investment Is Accelerating

Investment is increasingly focused on technologies that remove specific execution constraints and strengthen decision-making at scale.

In 2025, more than 80% of supply chain organizations increased IT spending to support digital transformation, signaling that technology investment is now central to operational strategy. Data integration platforms are gaining adoption because they consolidate information from planning, transportation and warehouse systems into a single operational view. This reduces conflicting assumptions across teams and shortens decision cycles.

Warehouse automation continues to scale where throughput and labor availability are limiting factors. Automated picking, sorting and palletizing systems increase consistency and throughput, particularly during volume spikes. Today, approximately 60% of warehouses use AI-enabled technologies as part of their operations. In facilities operating near capacity, these gains directly reduce backlog risk.

Advanced planning and forecasting tools are also seeing broader deployment. More accurate demand signals and better production and transportation planning free up hidden capacity across the network. Even modest improvements in forecast accuracy can materially reduce congestion, especially in complex, high-variability environments.

Digital freight platforms contribute by improving capacity matching and utilization. Reducing empty miles and improving access to transportation during peak periods helps absorb variability without adding fixed assets.

These investments are pragmatic. They focus on where delays accumulate and where better execution produces immediate operational benefit.

From Crisis Management to System Design

Over time, these technologies are reshaping how supply chains operate. Decision-making is shifting from periodic planning to continuous execution, with systems adjusting schedules, inventory and routing in near real time. Improved interoperability reduces reliance on manual coordination, while optimized routing and asset utilization increasingly align cost efficiency with sustainability goals.

Most importantly, supply chains are becoming learning systems using execution feedback to anticipate risk and improve performance through better design. Backlogs will never disappear entirely, but with the right foundations, congestion can become a manageable exception rather than a recurring crisis.

Ultimately, the question facing supply chain leaders isnt whether to adopt more technology, but how intentionally to invest in the systems that will govern decision-making for the next decade. Short-term fixes may relieve pressure temporarily, but durable progress comes from building infrastructure that compounds in value over time systems that improve with data, scale with complexity, and remain useful across cycles. In supply chains, as in capital, resilience is rarely the result of speed alone. Its the outcome of sustained, thoughtful investment in foundations that endure.

Source: www.supplychainbrain.com

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DOING MORE WITH LESS: PRACTICAL AI MOVES FOR PROCUREMENT TEAMS IN 2026

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As procurement organizations head into 2026 under pressure to cut costs, manage risk, and move faster with limited resources, incremental AI deployments are emerging as the most effective path to near-term value and sustainable adoption.

KEY TAKEAWAYS

- **AI adoption is outpacing execution in procurement.** While over 90% of CPOs are planning or assessing GenAI, fewer than four in ten have moved beyond pilots, underscoring a gap between intent and operational impact.
- **GenAI delivers fastest ROI as a drafting and communication co-pilot.** RFPs, RFIs, SOWs, supplier communications, and internal summaries are ideal early use cases, reducing cycle times and freeing procurement professionals for higher-value work.
- **Modular AI tools outperform large platform replacements.** Lightweight AI layers for spend classification and supplier risk monitoring integrate with existing ERP and P2P systems, delivering faster insights without costly transformations.
- **A staged roadmap turns pilots into lasting capability.** Starting with low-complexity, high-impact use cases and scaling with human-in-the-loop governance helps procurement teams build trust, improve data quality, and sustain AI adoption.

Procurement teams enter 2026 with increasing expectations to reduce costs, manage risk, and move faster despite tight budgets and limited headcount. Artificial intelligence (AI) is widely viewed as part of the solution, but progress is uneven. Deloitte's 2024 Global CPO GenAI survey found that 92% of chief procurement officers (CPOs) are planning or assessing GenAI capabilities in 2024, yet only 37% were piloting or deploying GenAI in procurement at the time of the survey (Flynn, 2024). Many leaders recognize the opportunity but remain constrained by system complexity, inconsistent data, and unclear starting points.

Most procurement teams already operate enterprise resource planning (ERP) systems, procure-to-pay (P2P) platforms, and sourcing tools, but still rely on manual drafting, spreadsheet-based analysis, and irregular risk reviews. AI can help close these gaps without replacing core systems. Incremental, modular use cases can sit on top of existing workflows and show impact within months. Three practical moves stand out: using GenAI for drafting, applying modular tools for spend and risk, and adopting a simple roadmap that connects pilots to sustained adoption. Together, they help teams achieve faster cycle times, clearer visibility, and measurable savings.

GenAI as a drafting co-pilot

Drafting remains one of procurement's most time-consuming responsibilities. Request for proposals (RFPs), requests for information (RFIs), statements of work (SOWs), supplier notices, renewal notices, and internal summaries all require specialized attention. The structure of these documents is often repeatable, even though their content requires human judgment, making them an ideal fit for GenAI.

Organizations can build a secure GenAI workspace that contains templates, clause libraries, and past examples. From a short brief such as "renewal RFP for cloud software across three regions with data residency requirements," the AI can produce first drafts of sections such as scope, evaluation criteria, timelines, and communication plans (Ramamoorthy & Manivannan, 2025). The category manager then reviews the content for accuracy, tone, and risk. This removes the blank-page problem and frees expert capacity during busy sourcing cycles.

GenAI also assists with supplier communication. Invitation letters, clarification questions, debrief notes, and summary briefs can be produced quickly, giving procurement more time to focus on supplier strategy. AI-generated summaries of long proposals help internal stakeholders digest complex information more easily. Many teams already use GenAI for vendor emails and template-based document creation, treating the technology as a co-pilot while retaining full human control (Ramamoorthy & Manivannan, 2025).

Momentum behind GenAI adoption is accelerating. EY's (2025) Global CPO Survey: 2025 Outlook finds that 80% of CPOs plan to upgrade procurement capabilities by improving processes, developing talent, and adopting new technologies such as GenAI and advanced analytics. The shift is driven by visible benefits such as faster document turnaround, improved cross-regional consistency, and reduced administrative burden. For many organizations, this is the most accessible onramp to AI.

Modular AI for spend and risk

Modular AI tools, lightweight components that integrate through application programming interfaces (APIs), file exchanges, or simple dashboards, provide another path to value. They are easier to deploy than full-suite

upgrades and allow teams to focus on specific pain points. Two areas benefit most from this approach: spend classification and supplier risk monitoring.

AI for spend classification

Messy data is a long-standing obstacle. Supplier names may appear differently in different systems, descriptions can be vague, and a large share of spend often sits in "miscellaneous" or "uncategorized" buckets. These issues obscure opportunities and weaken category strategies. AI-based tools now automatically clean and classify spending, normalize supplier names, categorize transactions from free-text descriptions and invoice data, and improve accuracy as teams review and correct lowconfidence records (Gerber, 2025; GEP, 2025).

The business value can be significant. A global software-as-a-service (SaaS) company used AI-based supplier analysis to consolidate vendors, cutting software expenses by 23% and halving sourcing cycle times (Ramamoorthy & Manivannan, 2025). The AI operated as an analytic layer on top of the existing ERP, not a replacement (Ramamoorthy & Manivannan, 2025).

A practical way to begin is to start with one category or region, validate a sample of AI classifications each month, and refine the model over time. As accuracy improves, procurement gains clearer spend visibility, stronger compliance insights, and a cleaner data foundation for future automation.

AI for supplier risk monitoring

Supplier risk is becoming more complex as global markets shift. Traditional methods such as annual questionnaires or static scorecards do not provide real-time visibility. AI-enabled risk scanning offers continuous monitoring by analyzing thousands of signals, including financial health indicators, delivery performance, environmental, social, and governance (ESG) ratings, sanctions list, legal filings, and global news (McMillan, 2025). These signals are linked to internal supplier data to produce timely alerts.

Source: www.scmr.com

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HOW TARIFFS ARE SHIFTING GLOBAL SUPPLY CHAINS

DAVID SILVERBERGBUSINESS REPORTER, TORONTO

A 90-day pause on Donald Trump's sweeping tariffs plan is about to expire on Wednesday, which could upend US trading relationships with the rest of the world. But the uncertainty of the last few months has already forced several companies to rethink their supply lines in radical ways.

When an Illinois toymaker heard that Trump was introducing tariffs on Chinese imports, he was so incensed that he decided to sue the US government.

"I'm inclined to stand up when my company is in genuine peril," says Rick Woldenberg, who is the CEO of educational toy firm Learning Resources.

The majority of his company's products are made in China, so the tariffs, which US importers have to pay, not Chinese exporters, are now costing him a fortune.

He says his annual bill for import taxes was projected to leap from around $2.5m (£1.5m) a year in 2024 to more than $100m in 2025, when in April Trump temporarily increased tariffs on Chinese imports to 145%. That would have "devastated" the company, he says.

"This kind of impact on my business is just a little bit hard to wrap my mind around," he says.

With US tariffs on Chinese imports now at 30%, that's still unaffordable for many American companies such as Learning Resources.

So in addition to its continuing legal fight, it is changing its global supply chain, moving production from China to Vietnam and India.

These two countries, like most others around the world, have seen the US hit them with general 10% tariffs, two-thirds lower than those on China. Although these 10% tariffs are due to run out on Wednesday, 9 July, uncertainly remains over what they may be replaced by.

Meanwhile, many Canadian companies, who often trade in both their home country and in the US, are now facing a double hit to their supply chains.

These hits are the 25% tariffs put in place by Trump on many Canadian imports, and the reciprocal ones of the same level that Canada has placed on a host of American exports.

And other businesses around the world are looking at exporting less to the US, because their American import partners are having to put up prices to cover the tariffs they now have to pay, which makes their products more

expensive on US shelves.

At Learning Resources, Mr Woldenberg has now moved about 16% of manufacturing to Vietnam and India. "We have gone through the process of vetting the new factories, training them on what we needed, making sure that things could flow easily, and developing relationships."

Yet he admits that there are uncertainties: "We don't know if they can handle the capacity of our business. Much less the whole world moving in there at the same time."

He also points out that switching production to another country is expensive to organise.

In the meantime, his legal case against the US tariffs, called "Learning Resources et al v Donald Trump et al" is continuing its way through the US court system.

In May a judge at the US District Court in Washington DC ruled that the tariffs against it were unlawful. But the US government immediately appealed, and Learning Resources still has to pay the tariffs for the time being.

So the firm is continuing to move production away from China.

Global supply chain expert Les Brand says that it is both expensive and difficult for companies to switch manufacturing to different countries.

"Trying to find new sources for critical components of whatever you are doing - that's a lot of research," says Mr Brand, who is CEO of advisory firm Supply Chain Logistics.

"There's a lot of quality testing to do it right. You have to spend the time, and that really takes away from the business focus."

He adds: "The knowledge transfer to train a whole new bunch of people on how to make your product takes a lot of time and money. And that effects already razor-thin margins businesses have right now."

For Canadian fried chicken chain Cluck Clucks, its supply chain has been significantly impacted by Canada's revenge tariffs on US imports. This is because while its chicken is Canadian, it imports both specialist catering fridges and pressure fryers from the US.

While it can't live without the fridges, it has decided to stop buying any more of the fryers. Yet with no Canadian company making alternative ones, it is having to limit its menus at its new stores.

This is because it needs these pressure fryers to cook its bone-in chicken pieces. The new stores will instead only be able to sell boneless chicken, as that is cooked differently.

"This was a substantial decision for us, but we believe it's the right strategic move," says Raza Hashim, Cluck Clucks CEO.

"It's important to note that we do plan to retain the necessary kitchen space in new locations to reintroduce these fryers should the tariff uncertainty be completely resolved in the future."

He also warns that with the US fridges now more expensive for the company to buy, the price it charges for its food may have to go up. "There is a certain amount of costs we cannot absorb as brands, and we may have to pass those on to consumers. And that is not something we want to do."

Mr Hashim adds that the business is continuing with its US expansion plans, and it has set up local supply chains to source American chicken. It currently has one US outlet, in Houston, Texas.

In Spain, olive oil producer Oro del Desierto currently exports 8% of its production to the US. It says that the US tariffs on European imports, presently 10%, are having to be passed on to American shoppers. "These tariffs will directly impact the end consumer [in the US]," says Rafael Alonso Barrau, the firm's export manager.

The company also says it is looking at potentially reducing the volume it sends to the US, if the tariffs make trading there less profitable, and exporting more to other countries instead.

"We do have other markets where we can sell the product," says Mr Barrau. "We sell in another 33 markets, and with all of them, and our local market, we could cushion US losses."

Mr Brand says that firms around the world would have been less impacted if Trump had moved more slowly with his tariffs. "The speed and velocity of these decisions are really making everything worse. President Trump should have gone slower and been more meaningful about these tariffs."

Back in Illinois, Mr Woldenberg is also concerned about where Trump will go next in his trade battles.

"We just have to make the best decision we can, based on the information we have, and then see what happens," he says.

"I don't want to say 'hope for the best', because I don't believe that hope is a strategy."

Source: www.bbc.com

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FROM DISCLOSURE TO DELIVERY: WHY SUSTAINABLE PROCUREMENT IS THE NEW REGULATORY FRONTIER FOR 2026

For the better part of a decade, sustainability in the public sector has been defined by the art of reporting. Under various frameworks, organisations have meticulously documented their carbon footprints, energy usage, and waste outputs. However, as we approach the 2026 regulatory horizon, the focus is shifting decisively. We are moving away from a world of passive disclosure and into an era of active sustainable procurement.

Public sector organisations that successfully transition their procurement strategies, specifically by reducing ICT waste, extending asset life, and evidencing Scope 3 reductions through refurbished or remanufactured IT, will find themselves uniquely positioned. They will meet the requirements of 2026 and beyond without the cost escalation that usually accompanies radical change.

The evolving regulatory landscape

The shift is driven by a convergence of new rules that transform procurement from a transactional function into a core governance mechanism.

1. UK sustainability reporting guidance 2025/26

The forthcoming UK Sustainability Reporting Guidance for 2025 to 2026 is expected to tighten the requirements for how public bodies disclose their environmental impact. Crucially, a much heavier emphasis on Scope 3 emissions is placed beyond Scope 1 and 2 (direct emissions), which are generated in the value chain, particularly through purchased goods and services. Because it is estimated that 45% of global emissions come from the way we make and use products, the primary lever for hitting Net Zero targets is now procurement.

2. The Greening Government Commitments (GGCs)

The GGCs set out specific targets for central government departments and their agencies. These include a mandate to reduce the amount of waste sent to landfill and, increasingly, a focus on the circular economy. Organisations are now expected to report on how they are extending the life of assets and ensuring that IT equipment is reused or remanufactured rather than simply recycled.

3. CMA enforcement and the DMCC act

The Digital Markets, Competition and Consumers (DMCC) Act grants the Competition and Markets Authority (CMA) significant new powers to tackle greenwashing. Public sector organisations are not immune to the risks of making unsubstantiated "green" claims in their tenders or annual reports. The CMA can now enforce strict penalties for misleading environmental claims, meaning that any procurement of "sustainable" IT must be backed by rigorous, third-party evidenced data.

4. EU regulations and global supply chains

While the UK has its own path, the EU Ecodesign for Sustainable Products Regulation (ESPR) and the Corporate Sustainability Due Diligence Directive (CSDDD) are setting the global standard. These rules require manufacturers to prioritise durability, reparability, and recycled content. For UK procurement teams, this means that the availability of "linear" (take-make-dispose) products will decrease, while the cost of virgin materials will likely rise due to new packaging and waste regulations.

The crisis of uncertainty and budget constraints

Public sector leaders are currently facing a "perfect storm" of pressures. There is a tangible fear of non-compliance or accusations of greenwashing if they cannot provide evidence of their carbon savings. At the same time, there is a lack of practical, actionable steps beyond high-level reporting.

This challenge is further exacerbated by a crisis in the laptop market. The cost of new laptops is rising sharply, with longer lead times becoming the norm. Reports suggest prices could increase by another 10%, meaning businesses may face a 20% to 25% year-on-year rise in hardware costs by the end of this quarter. For any organisation, this represents significant and often unplanned expenditure. The surge in prices is driven by increasing costs for RAM and SSD memory, coupled with supply shortages influenced by rapid advancements in AI. Consequently, laptop manufacturers are passing these higher costs on to customers.

Adding to the strain, the rising maintenance expenses of keeping older equipment in service which often costs twice as much as acquiring new devices are pushing budgets to breaking point.

The role of remanufactured laptops: A practical solution

To meet 2026 requirements without cost escalation, organisations are turning to the circular economy. This is where the distinction between "refurbished" and "remanufactured" becomes vital.

Circular Computing is the global leader in the remanufacturing and refurbishing of HP, Dell and Lenovo notebooks. A company on a mission to create a more ethical, sustainable and socially responsible way to buy enterprise-grade IT./

Operating from its state-of-the-art remanufacturing and refurbishment facility, Circular Computing was the worlds first company to hold the BSI Kitemark™ for both remanufactured and refurbished notebooks, with the former attesting that the laptops products are "equal to or better than new".

Circular Computings advanced Circular Remanufacturing Process involve 360 distinct steps across a meticulous 5+ hour journey per laptop, delivering consistent quality that can rival or exceed new equipment standards.

This comprehensive approach begins with complete disassembly, allowing every component to be individually inspected, tested, and remediated. Unlike refurbishment processes that focus primarily on cosmetic improvements, true remanufacturing addresses both visible and internal components with equal rigour.

The cosmetic renewal process involves dismantling laptops into major components that are covers, palm rests, bezels, and keyboards, which are then fully repaired and repainted using state-of-the-art robotics. This precision engineering ensures exact colour and finish matching to original specifications, delivering what industry professionals describe as "like new" cosmetic quality.

Evidence-based scope 3 reductions

For a procurement officer needing to evidence Scope 3 reductions, the data is compelling. Remanufactured laptops significantly reduce CO2 emissions and save water compared to new units, supporting carbon footprint reduction for GGC and Net Zero reporting.

Furthermore, manufacturing a single laptop requires substantial quantities of water, precious metals, and minerals, resources that are increasingly scarce and environmentally costly to extract. 7585 % of a new laptops lifetime CO footprint occurs during mining, manufacturing and assembly even before it is switched on. A peer-reviewed scientific study by Cranfield University finds that a Circular Computing Remanufactured Laptop produces over 15 times less CO2 compared with an average new laptop.

Case studies: Circularity in action

How does this look in practice? Leading local authorities are already using this model to bridge the gap between sustainability goals and budget realities.

Kent County Council

Kent County Council (KCC) faced the dual challenge of a large-scale hardware refresh and a commitment to reaching Net Zero. By integrating remanufactured laptops from Circular Computing into their procurement strategy, KCC was able to achieve significant cost savings compared to new models. This allowed them to reinvest overstretched budgets into frontline services while simultaneously hitting their carbon reduction KPIs. The transition was seamless because the remanufactured units were Windows 11 ready, ensuring the councils technology was future-proofed against upcoming software requirements.

London Borough of Barking and Dagenham

For Barking and Dagenham, the focus was on social value and digital inclusion as much as carbon savings. By choosing remanufactured IT, they extended their budget to provide quality devices to more staff and projects than with new equipment. This aligns with Community Wealth Building, retaining local wealth and reducing global electronics supply chains environmental impact.

Navigating the future: A culture shift

Transitioning to a circular procurement model requires more than just a change in supplier; it requires a culture shift within the organisation. Oxfordshire County Council, for instance, has embedded circular economy principles into its mandatory climate action training for all staff. They are also trialling "leasing versus capital" options for major contracts to further extend asset life and reduce waste.

By 2026, the organisations that thrive will be those that have stopped viewing sustainability as a reporting burden and started viewing it as a procurement strategy. The benefits are clear:

- **Reduced scope 3 emissions:** Direct, evidenced carbon and water savings.
- **Cost control:** Avoiding the price volatility of the new PC market.
- **Regulatory resilience:** Meeting the requirements of the UK Reporting Guidance and GGCs ahead of time.
- **Reliability:** Remanufactured laptops from Circular Computing boast an RMA rate of less than 3%, proving that sustainability does not require a sacrifice in performance.

The message for the public sector is clear: the time for incremental change has passed. As regulation moves from reporting into procurement, the "take-make-dispose" linear model is becoming a liability, both environmentally and financially.

By opting for remanufactured laptops, organizations can embrace a sustainable and cost-effective future. Circularity is no longer an aspiration; it is a practical necessity for the 2026 regulatory frontier.

Source: circularcomputing.com

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EVENT REPORT

18TH EDITION OF SPECTRUM 2026

Theme: "Reimagining Supply Chains with AI"

Organized by: Indian Institute of Materials Management – Chennai Branch
Date: 27 February 2026, **Venue:** Chennai

The 18th Edition of SPECTRUM 2026, the flagship annual conference of the Indian Institute of Materials Management (IIMM), Chennai Branch, was successfully conducted in Chennai under the central theme "Reimagining Supply Chains with AI." The conference was envisioned as a forward-looking platform to examine the transformative role of Artificial Intelligence in building resilient, agile, and future-ready supply chains aligned with India's economic and industrial growth vision.

The event witnessed enthusiastic participation from industry professionals, academicians, policymakers, students, sponsors, and IIMM members. The sessions were thoughtfully curated to ensure meaningful knowledge exchange between academia, industry, and governance, thereby reinforcing IIMM's commitment to professional excellence in Supply Chain Management.

Inaugural Session

The conference commenced with an invocation song by Ms. Ananthi Radhakrishnan, setting a solemn and positive tone for the proceedings. A ceremonial memento presentation was made by Mr. N. S. Sivaraman, Distinguished Member, IIMM, as a gesture of respect and appreciation.

The Welcome Address was delivered by Mr. T. Sornakumar, Chairman – IIMM Chennai, who highlighted IIMM's six decades of dedicated service to the SCM fraternity and emphasized the urgent need for AI-driven transformation in supply chains to remain globally competitive.

Dr. B. Sampath, Event Chairman, provided a comprehensive overview of SPECTRUM 2026, outlining its objectives and the structured approach adopted in curating sessions that bridge academia, industry, and policy.

Mr. Balakrishnan Ramasamy, Honorary Secretary and Chairman – Content Committee, elaborated on the conference theme, explaining how supply chains are evolving from reactive systems to predictive, prescriptive, and autonomous ecosystems powered by AI technologies.

The Presidential Address was delivered by Mr. P. M. Biddappa, National President, IIMM, who reaffirmed the institute's mission to develop competent SCM professionals nationwide and encouraged members to embrace digital transformation as a strategic imperative.

At the conclusion of the inaugural ceremony, Mr. K. Nagappan was felicitated with the Excellent Achievers Award Medal instituted by IIMM in recognition of his outstanding contributions. Dr. B. Sampath was honored with the Vision Leader Award, presented with a medal and citation for his dedicated leadership in organizing SPECTRUM 2026.

Chief Guest Address - Topic: Atmanirbhar Bharat to Viksit Bharat: The Supply Chain Transformation

Speaker: Arshinder Kaur, Professor, Department of Management Studies, Indian Institute of Technology Madras

Prof. Arshinder Kaur delivered an inspiring and thought-provoking address linking India's journey from Atmanirbhar Bharat to Viksit Bharat with the strategic role of supply chains. She emphasized that resilient, sustainable, and digitally integrated supply chains are fundamental to India's transformation into a developed nation.

She highlighted the need for policy integration with supply chain strategies, sustainability as a competitive differentiator, and resilience built through digital enablement. Her address effectively set the intellectual and strategic tone for the conference.

Keynote Address - Topic: Re-imagining Supply Chains with AI – From Data to Decisions to Autonomous Execution

Speaker: V. Ramanathan, President – Automotive Business, Lucas TVS

Mr. V. Ramanathan presented a compelling keynote on AI-led transformation in manufacturing ecosystems. He elaborated on the evolution of supply chains from data collection to data-driven decision-making and further to autonomous execution systems powered by advanced AI algorithms.

Drawing from practical examples within automotive manufacturing, he demonstrated how AI enhances productivity, predictive maintenance, operational excellence, and digital integration across supply networks. His address provided actionable insights into implementing AI-driven transformation at scale.

Technical Session 1 - Topic: AI-Driven Manufacturing & Digital Multimodal Logistics in India

Session Chairman: Mr. N. Swayambhu, Past Vice President – South, IIMM - **Speaker:** Ms. Durga, Vice President – DoodleBlue

This session focused on the integration of AI technologies within manufacturing and logistics ecosystems. Ms. Durga highlighted how AI-based predictive analytics, intelligent routing systems, and digital platforms are enhancing multimodal logistics efficiency in India. She shared implementation case studies demonstrating productivity gains, reduced downtime through predictive maintenance, and improved visibility across supply chains.

Technical Session 2 - Topic: Discovery of Medicines Using Generative AI

Session Chairman: Mr. R. K. Rastogi, Sr. Vice President, IIMM - **Speaker:** Dr. Sangeetha Raja, Professor, SRM Medical College

Dr. Sangeetha Raja provided an insightful perspective on the application of Generative AI in accelerating drug discovery and medical research. She explained how AI models analyze complex biological data to shorten research cycles and improve precision. The session underscored the cross-industry impact of AI and demonstrated how supply chain principles apply even in pharmaceutical innovation ecosystems.

Panel Discussion Topic: GST 2.0: Compliance, Control & the Future of Business

Moderator: Mr. Venugopalan Nair, Deputy Commissioner – Indian Customs

Panelists:

- Ms. Divya Rangamani – Founder, Accountzontrack
- Mr. Gopa Kumar – Director (Global Indirect Taxes), CTS
- CA Gokulakrishnan G – FinTech Architect & SaaS Founder

The panel discussion was one of the major highlights of the conference. The session examined evolving GST regulations, compliance challenges, and the integration of digital technologies in taxation systems. The panelists discussed GST automation, AI-enabled compliance frameworks, digital governance mechanisms, and financial technology innovations that enhance transparency and operational control.

The session was highly interactive, with active audience participation, and was widely appreciated for its practical relevance to businesses and supply chain professionals.

Technical Session 3 - Topic: AI Adoption in MSMEs & Tier-2/3 Supply Chains

Session Chairman: Dr. Senkotaiaan, Vice President – South, IIMM - **Speaker:** Ms. Gowri Sukumar, Co-Founder – LeverageAxiom

This session emphasized inclusive digital transformation. Ms. Gowri Sukumar explained how scalable AI solutions can empower MSMEs and strengthen Tier-2 and Tier-3 supply chains. She highlighted affordable AI deployment strategies, data-driven decision systems, and digital enablement models that can bridge technological gaps and drive inclusive economic growth.

Technical Session 4 - Topic: Shipbuilding in India: Advancements, Supply Chains & Global Competitiveness

Session Chairman: Mr. P. Y. Venkateswaran, Former Chairman – IIMM Chennai - **Speaker:** Mr. Rajaganapathy, Joint General Manager – L&T Shipbuilding

Mr. Rajaganapathy provided deep insights into large-scale shipbuilding projects and the complexities of marine supply chains. He explained the coordination required across vendors, logistics partners, and engineering teams to execute large defence and commercial shipbuilding projects. His presentation highlighted India's growing competitiveness in the global shipbuilding sector and the importance of robust supply chain strategies in project execution.

Special Highlight – "Nari Shakti"

A notable highlight of SPECTRUM 2026 was the strong participation of accomplished women leaders across academia, healthcare, technology, taxation, and entrepreneurship. Their expertise and leadership brought diverse perspectives to the conference, reinforcing the importance of inclusive leadership in shaping future-ready supply chains.

In the Closing Remarks, Mr. Balakrishnan Ramasamy reflected on the enriching journey of the conference and expressed satisfaction over the overwhelmingly positive feedback received from participants. He summarized key takeaways, emphasizing supply chains as drivers of India's transformation, AI as the backbone of intelligent systems, cross-industry AI integration, GST 2.0 evolution, MSME empowerment, and India's strengthening shipbuilding ecosystem. He reiterated that SPECTRUM is not merely a conference but a preparation ground for the future of the profession.

The Vote of Thanks was delivered by Mr. M. Praveen Kumar, Honorary Treasurer, who expressed sincere gratitude to the Chief Guest, Keynote Speaker, all speakers, panelists, sponsors, organizing committee members, and delegates. The overall Master of Ceremonies (MOC) responsibilities were efficiently handled by Mr. V. Ramachandran, ensuring the seamless flow of the program.

The 18th Edition of SPECTRUM 2026 concluded with a strong sense of accomplishment and renewed commitment toward AI-driven transformation in supply chains. The conference successfully fulfilled its objective of fostering dialogue, professional development, and strategic insights into the future of supply chain management.

The Chennai Branch of IIMM extends heartfelt gratitude to all stakeholders for contributing to the grand success of SPECTRUM 2026 and looks forward to the continued support and participation in SPECTRUM 2027.

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STEEL & PIPE PROCUREMENT IN SCM FOR EPC INDUSTRY

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To procure steel & pipe in EPC industry for different projects involved in construction is a challenging task failing which may cause the disruption in maintaining construction activity resulting the abnormal delay in execution of the project. To be a successful buyer for these bulk items, we should first understand the following:

A. General idea about steel and basic metallurgy of it.

B. Type of Steel

C. Manufacturing process of Steel(TMT Bar/Long Product & Flat Product)

D. Certain important procedure during manufacturing stage(Quenching / Self Tempering/Atmospheric cooling/ Primary steel making/ Secondary steel making/ Primary forging/continual casting/ Secondary forging)

General idea:

A. Steel is a strong alloy consisting of iron, carbon and other alloying elements creating increased strength and resistance. By adjusting the amount of carbon and other alloying elements the quality of steel is controlled. Stainless steel is excellent corrosion and oxidation resistant due to added chromium content. Steel is available in various forms like Flat Products like Plates, Long Products like angle, Channel, Beam, hot & cold rolled strips, sheets.

Type of Steel:

B. M S Steel/ Carbon Steel
Alloy Steel
Stainless Steel
Tool Steel

CARBON STEEL ———LOW CARBON STEEL, MEDIUM CARBON STEEL, HIGH CARBON STEEL.

ALLOY STEEL——ST 52.3 GRADE, S355J2G3 , SAILMA 350 HI, MANGANESE STEEL ETC WITH BETTER HARDNESS, CORROSION RESISTANT COMPARED TO CARBON STEEL.

STAINLESS STEEL ———STEEL ALLOY WITH A MINIMUM OF 11.5% CHROMIUM DO NOT ALLOW RUST AND CORROSION LIKE OTHER STEEL.

TOOL STEEL——ALLOYS OF VANADIUM,COBALT, TUNGSTEN AND MOLYBDENUM WHICH IS HIGHLY HEAT RESISTANT AND ENHANCED HARDNESS USED FOR METAL TOOLS LIKE CUTTING, PRESSING, EXTRUDING AND MOULD MAKING TOOLS.

PHYSICAL PROPERTIES OF STEEL———-TENSILE STRENGTH, YIELD STRENGTH, THERMAL CONDUCTIVITY, HARDNESS, DUCTILITY, ELONGATION, WELDABILITY, MALLEABILITY, SHEAR STRESS.

DENSITY OF STEEL CS 7850KG/CUBIC METER

DENSITY OF STAINLESS STEEL 8000KG/CUBIC METER

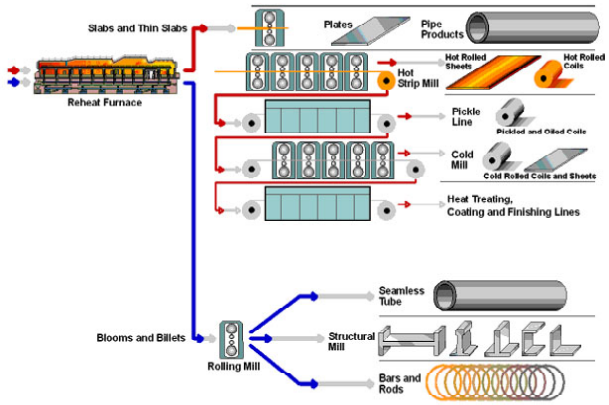
MODULUS OF ELASTICITY UNIT MPA (MEGA PASCAL) OR GIGA PASCAL(GPA)

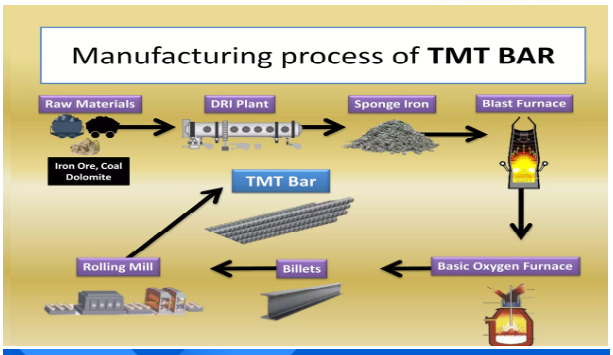
RELATIONSHIP OF CARBON PERCENTAGE WITH MECHANICAL PROPERTIES OF STEEL:

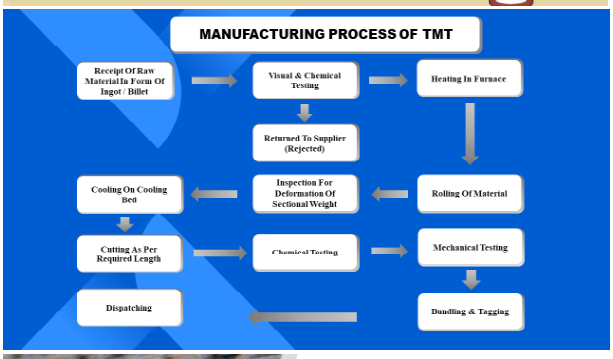
Steel possesses several physical properties, including tensile strength, yield strength, thermal conductivity, hardness, ductility, elongation, weldability, malleability, and shear stress. The density of carbon steel is approximately 7850 kg/cubic meter or 7.85 gm/cubic cm, while stainless steel has a density of around 8000 kg/cubic meter. The modulus of elasticity is typically measured in MEGA PASCALS (MPA) OR GIGA PASCALS (GPA).

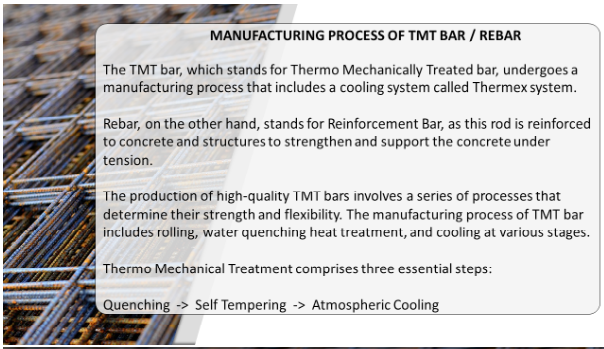
	CS	ALLOY STEEL	STAINLESS STEEL	TOOL STEEL
DENSITY (TON/CUM)	7.85	7.85	7.75 TO 8.1	7.72 TO 8.0
MELTING POINT	1371 TO 1540 DEG CENTRIGRADE			
MODULUS OF ELASTICITY	190 TO 210 MPA			

C& D. Manufacturing process of Steel









MANUFACTURING PROCESS OF TMT BAR / REBAR

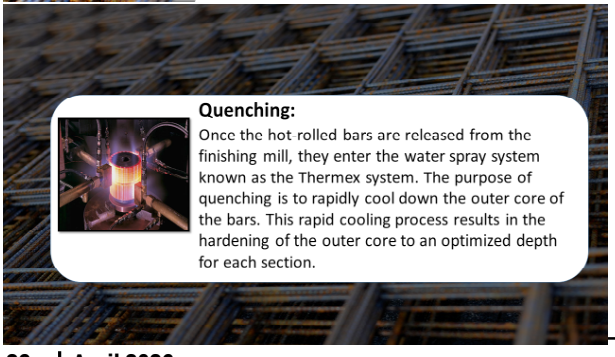
The TMT bar, which stands for Thermo Mechanically Treated bar, undergoes a manufacturing process that includes a cooling system called Thermex system.

Rebar, on the other hand, stands for Reinforcement Bar, as this rod is reinforced to concrete and structures to strengthen and support the concrete under tension.

The production of high-quality TMT bars involves a series of processes that determine their strength and flexibility. The manufacturing process of TMT bar includes rolling, water quenching heat treatment, and cooling at various stages.

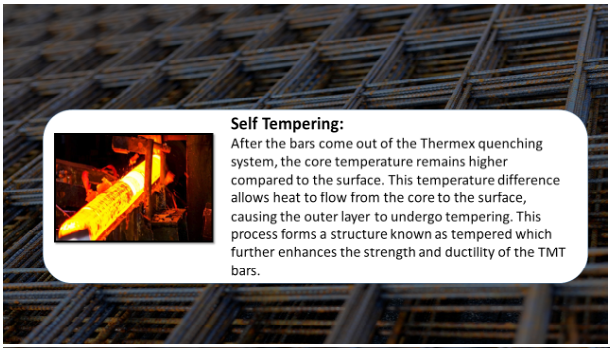
Thermo Mechanical Treatment comprises three essential steps:

Quenching -> Self Tempering -> Atmospheric Cooling



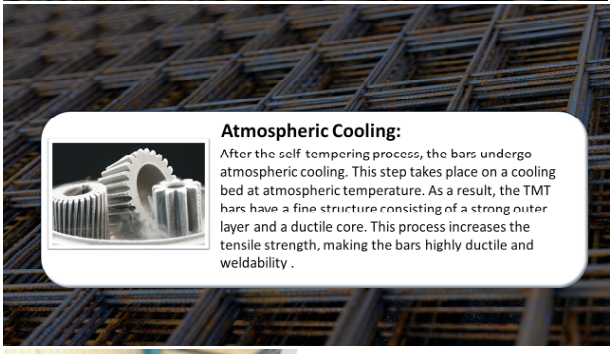
Quenching:

Once the hot rolled bars are released from the finishing mill, they enter the water spray system known as the Thermex system. The purpose of quenching is to rapidly cool down the outer core of the bars. This rapid cooling process results in the hardening of the outer core to an optimized depth for each section.



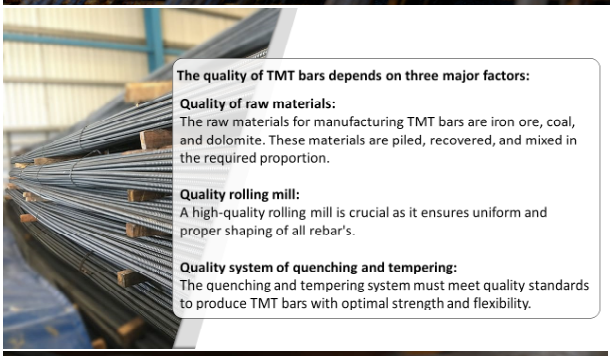
Self Tempering:

After the bars come out of the Thermex quenching system, the core temperature remains higher compared to the surface. This temperature difference allows heat to flow from the core to the surface, causing the outer layer to undergo tempering. This process forms a structure known as tempered which further enhances the strength and ductility of the TMT bars.



Atmospheric Cooling:

After the self tempering process, the bars undergo atmospheric cooling. This step takes place on a cooling bed at atmospheric temperature. As a result, the TMT bars have a fine structure consisting of a strong outer layer and a ductile core. This process increases the tensile strength, making the bars highly ductile and weldability .



The quality of TMT bars depends on three major factors:

Quality of raw materials:
The raw materials for manufacturing TMT bars are iron ore, coal, and dolomite. These materials are piled, recovered, and mixed in the required proportion.

Quality rolling mill:
A high-quality rolling mill is crucial as it ensures uniform and proper shaping of all rebar's.

Quality system of quenching and tempering:
The quenching and tempering system must meet quality standards to produce TMT bars with optimal strength and flexibility.

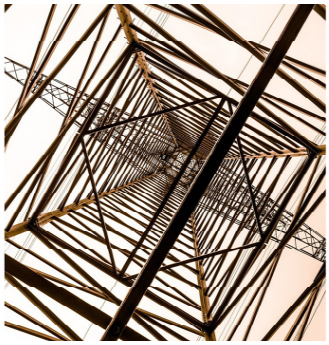
The manufacturing process of TMT bars starts with the conversion of iron ore into steel:

Iron Ore to Steel:
The raw materials for manufacturing TMT bars are iron ore, coal, and dolomite. These materials are piled, recovered, and mixed in the required proportion. Iron ore undergoes a beneficiation procedure to increase the iron content. Metal fines are gathered to form a mass, improving efficiency. Coal is converted into coke for future use. Limestone is also added to the furnace. Hot air is supplied through a nozzle to melt the raw materials, forming a pool at the bottom of the furnace. During this process, impurities in the melted limestone result in a liquid called slag, which is lighter and floats on the surface of the molten materials.

Primary Steel Making:

In the initial stage of primary steel making, oxygen is combined with carbon in the iron in an oxygen furnace, eliminating carbon dioxide. This process is called pre-treatment. The steel then passes through the Electric Arc Furnace (EAF) for further refining of its composition. The molten steel from the EAF is transferred to a ladle and then to a Continuous Casting Machine (CCM). The liquid steel flows from the ladle into a water-cooled mold, where solidification begins. The continuous billet that comes out from the CCM is sized according to the required length.

The combination of these processes ensures the production of high-quality TMT bars with optimal strength, flexibility, and reinforcement properties.



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Iron Production:

To produce pure steel, the raw materials consisting of lime, coke, and iron ore are introduced into a blast furnace. These components are melted down to create molten iron or hot metal. However, the iron obtained at this stage still contains numerous impurities that must be eliminated to ensure the metal's strength and durability.

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Primary Steelmaking:

In order to remove impurities, the molten iron is infused with scrap steel. Additionally, oxygen is forced through the furnace to eliminate carbon dioxide and other impurities. Electric furnaces achieve the same results by passing electricity through the molten metal. Once this process is completed, raw steel is obtained.

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Secondary Steelmaking:

Steel grades vary based on the elements present in the metal, such as carbon. While a considerable amount of carbon is removed, aluminium is added to produce drawing-quality steel. In the case of structural steel, a higher carbon content remains, enhancing the steel's tensile strength. Various techniques can be employed to control the level of impurities, including stirring, adjusting the temperature, removing gases, and ladle injection.

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Continual Casting:

The molten steel is cast into cooling moulds, allowing it to solidify. The steel is then extracted while still hot using guided rollers. Subsequently, it is cut into desired lengths. These steel pieces, whether beams, billets, slabs, or other components, are further processed elsewhere after they have fully cooled.

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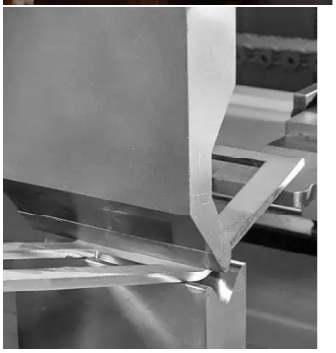
Primary Forging:

In this step, the roughcast items are shaped through a process known as hot rolling. This procedure eliminates any defects in the shape and ensures the desired quality of steel. Primary forging can be employed to manufacture seamless tubing, long and flat products, and a variety of other items.



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Secondary Forming:

To achieve the final shape of the steel, several secondary techniques can be utilized, including coating, thermal treating, joining, pressing, drilling, machinery operations, and riveting.

COMPARISON CHART FOR STEEL BUYING

VENDOR'S NAME	PRIME MANUFACTURER					SECONDARY MANUFACTURER				TRADERS		
	SAIL	JINDAL	RINL	ARCELIOR MITTAL	ESSAR	SRMB	CONCAST	SHYAM STEEL	OTHERS	TRADER 1	TRADER 2	TRADERS
BASIC VALUE												
FREIGHT VALUE												
INTEREST VALUE FOR CREDIT PERIOD												
BG AND BANK CHARGES VALUE												
DELIVERY PERIOD BY MANUFACTURER												
DELIVERY SCHEDULE BY PROJECT												
DEVIATION IN NO OF DAYS												
LOSS OF PRODUCTION IN VALUE												
EFFECTIVE TOTAL VALUE												
BIDDER STATUS												

STANDARD WIRE GUAGE

SWG No.	Dia (inch)	Dia (M.M.)	SWG No.	Dia (inch)	Dia (M.M.)	SWG No.	Dia (inch)	Dia (M.M.)
7/0	.500	12.7000	13	.092	2.2368	32	.0108	0.2743
6/0	.464	11.7856	14	.080	2.030	33	.0100	0.2540
5/0	.432	10.9728	15	.072	1.8288	34	.0092	0.2347
4/0	.400	10.1600	16	.064	1.6256	35	.0084	0.2134
3/0	.372	9.488	17	.056	1.4224	36	.0076	0.1930
2/0	.348	8.8392	18	.048	1.2191	37	.0068	0.1727
1/0	.324	8.2296	19	.040	1.0160	38	.0060	0.1524
1	.300	7.6200	20	.036	0.9144	39	.0052	0.1321
2	.276	7.0104	21	.032	0.8128	40	.0048	0.1219
3	.252	6.4008	22	.028	0.7112	41	.0044	0.1118
4	.232	5.8928	23	.024	0.6096	42	.0040	0.1016
5	.212	5.3848	24	.022	0.5588	43	.0036	0.0914
6	.192	4.8768	25	.020	0.5080	44	.0032	0.0813
7	.176	4.4704	26	.018	0.4572	45	.0028	0.0711
8	.160	4.0640	27	.0164	0.4166	46	.0024	0.0610
9	.144	3.6576	28	.0148	0.3759	47	.0020	0.0508
10	.128	3.2515	29	.0136	0.3454	48	.0016	0.0406
11	.116	2.9454	30	.0214	0.3150	49	.0012	0.0305
12	.104	2.6416	31	.0116	0.2946	50	.0010	0.0254

WEIGHT CHART OF ROUND SQUARE & HEX

WEIGHT OF ROUND STEEL		WEIGHT OF SQUARE		HEX STEEL BARS	
Round	Weight per feet	Square	Weight per feet	Hex	Weight per feet
3 mm	0.017	3 mm	0.022	5 mm	0.052
4 mm	0.030	4 mm	0.038	6 mm	0.074
5 mm	0.047	5 mm	0.060	8 mm	0.132
6 mm	0.067	6 mm	0.086	10 mm	0.207
8 mm	0.120	8 mm	0.153	12 mm	0.296
10 mm	0.190	10 mm	0.239	16 mm	0.530
12 mm	0.270	12 mm	0.344	18 mm	0.670
14 mm	0.368	18 mm	0.612	20 mm	0.828
16 mm	0.480	20 mm	0.955	22 mm	1.001
18 mm	0.608	22 mm	1.157	25 mm	1.293
20 mm	0.750	25 mm	1.494	28 mm	1.622
22 mm	0.908	28 mm	1.874	30 mm	1.862
25 mm	1.172	32 mm	2.447	32 mm	2.118
28 mm	1.470	40 mm	3.824	36 mm	2.860
32 mm	1.920	45 mm	4.840	40 mm	3.310
36 mm	2.430	50 mm	5.978	45 mm	4.190
40 mm	3.000	56 mm	7.478	46 mm	4.378
45 mm	3.798	65 mm	10.091	50 mm	5.172
50 mm	4.689	75 mm	13.444	56 mm	6.487
56 mm	5.880	80 mm	15.293	60 mm	7.449
60 mm	6.751	100 mm	23.900	65 mm	8.742
65 mm	7.924	125 mm	37.344	70 mm	10.139
70 mm	9.190	150 mm	53.777	75 mm	11.593
75 mm	10.550	175 mm	73.196	80 mm	20.692
80 mm	12.000	200 mm	95.604	90 mm	16.760
90 mm	15.192	250 mm	149.364	100 mm	20.692
100 mm	18.755	275 mm	180.736	125 mm	32.330

PIPE AND TUBE

WEIGHT & THICKNESS OF S.S. PIPE & TUBES FOR BOILER, HEAT EXCHANGERS per Feet

Size	O.D.	10SWG (3.25)	12SWG (2.64)	14SWG (2.03)	16SWG (1.62)	18SWG (1.22)	20SWG (0.91)	22SWG (0.71)
1/4"	6.35	0.075	0.070	0.066	0.058	0.046	0.037	0.030
5/16"	7.93	0.114	0.105	0.089	0.079	0.060	0.048	0.038
3/8"	9.52	0.152	0.135	0.113	0.097	0.080	0.058	0.046
1/2"	12.7	0.226	0.200	0.157	0.134	0.105	0.079	0.063
3/4"	19.05	0.386	0.326	0.256	0.215	0.161	0.124	0.097
1"	25.4	0.541	0.450	0.351	0.294	0.218	0.167	0.131
1 1/4"	31.82	0.696	0.580	0.448	0.375	0.275	0.200	*
1 1/2"	38.1	0.851	0.700	0.542	0.452	0.332	*	*
1 3/4"	44.45	1.020	0.832	0.646	0.530	0.390	*	*
2"	50.8	1.161	0.960	0.733	0.607	0.447	*	*
2 1/4"	57.15	1.315	1.085	0.828	0.687	0.504	*	*
2 1/2"	63.5	1.472	1.210	0.924	0.792	0.562	*	*
2 3/4"	69.85	1.630	1.338	1.022	0.847	0.619	*	*
3"	76.2	1.782	1.460	1.115	0.924	0.676	*	*
3 1/2"	88.9	2.092	1.718	1.306	1.082	0.791	*	*
4"	101.6	2.403	1.971	1.497	1.239	0.905	*	*
4 1/2"	114.3	2.713	2.224	1.608	1.397	1.020	*	*
5"	127.0	3.023	2.477	1.879	1.554	1.134	*	*
5 1/2"	139.7	3.336	2.730	2.070	1.713	1.250	*	*
6"	152.4	3.654	2.983	2.261	1.875	1.364	*	*
6 1/2"	165.1	3.975	3.256	2.452	2.028	1.478	*	*

WEIGHT PER SHEET

U.S.A./GROSS BRITAIN in kg / per sheet

Thickness in mm	Size in mm 2000 X 1000	2500 X 1250	3000 X 1500	Thickness in mm	Weight Kg./m2
0.50	8.00	12.50	-	0.50	4.00
0.56	8.96	14.00	-	0.56	4.43
0.63	10.08	15.75	-	0.63	5.04
0.75	12.00	18.75	-	0.75	6.00
0.88	14.08	22.00	-	0.88	7.04
1.00	16.00	25.00	-	1.00	8.00
1.13	18.00	28.20	-	1.13	9.04
1.25	20.00	31.25	-	1.25	10.00
1.38	22.08	37.50	-	1.38	11.04
1.50	24.00	37.50	54.00	1.50	12.00
1.75	28.00	43.75	63.00	1.75	14.00
2.00	32.00	50.00	72.00	2.00	16.00
2.25	36.00	56.25	81.00	2.25	18.00
2.50	40.00	62.50	90.00	2.50	20.00
2.75	44.00	68.75	99.00	2.75	22.00
3.00	48.00	75.00	108.00	3.00	24.00
3.25	52.00	81.25	117.00	3.25	26.00
3.50	56.00	87.50	126.00	3.50	28.00
3.75	60.00	93.75	135.00	3.75	30.00
4.00	64.00	100.00	144.00	4.00	32.00
4.25	68.00	106.25	153.00	4.25	34.00
4.50	72.00	112.50	162.00	4.50	36.00
5.00	80.00	125.00	180.00	5.00	40.00
5.50	88.00	137.50	198.00	5.50	44.00
6.00	96.00	150.00	216.00	6.00	48.00
6.50	104.00	162.50	234.00	6.50	52.00
7.00	112.00	175.00	252.00	7.00	56.00
7.50	120.00	187.50	270.00	7.50	60.00
8.00	128.00	200.00	288.00	8.00	64.00

Table weight for S.S. Sheet (Kgs.) Thickness (in MM) X width (in ft) X Length (in ft) X3/4 = Weight kg. Per sheet

STAINLESS STEEL & HEAT RESISTING STEEL

CHEMICAL COMPOSITION

Desig.	C	Mn	Si	S	P	Cr	Ni	Mo	Ti	EN	IS
301	.15 max	2.0 max	1.0 max	0.030 max	0.45 max	17.00/ 19.00	8.0/ 10.00			En-58A	07Cr18Ni9
304	.08 max	2.0 max	1.0 max	0.030 max	0.45 max	18.00/ 20.00	8.00 10.00			En-58E	04Cr18Ni10
304L	.03 max	2.0 max	1.0 max	0.030 max	0.45 max	18.00/ 20.00	8.00/ 10.00				03Cr18Ni11
316	0.03 max	2.0 max	1.0 max	0.030 max	0.45 max	16.00/ 18.00	10.00 14.00	2.0 3.0	2.25 3.00	En-58H	04Cr17Ni12Mo2
316L	0.03 max	2.0 max	1.0 max	0.030 max	0.45 max	16.00/ 18.00	10.00 14.00	2.0 3.0			03Cr17Ni12Mo2
317	0.8 max	2.0 max	1.0 max	0.030 max	0.45 max	17.00/ 19.00	9.00/ 12.00	Excmin 70 max		En-58C	04Cr18Ni10 T10
321	.25 max	2.0 max	1.0 max	0.030 max	0.45 max	24.00/ 26.00	19.00/ 22.00				10Cr25Ni12
309	0.20 max	2.0 max	1.0 max	0.030 max	0.45 max	22.00/ 24.00	12.00/ 15.00				20Cr24Ni12
347	.08 max	2.0 max	1.0 max	0.030 max	0.45 max	17.00/ 19.00	9.00/ 12.00	nb-10xc		En-58G	04Cr18Ni10Nb10 min
410	.15 max	1.00 max	1.00 max	0.030 max	0.40 to 0.60	11.50 to 13.50				En-58A	12Cr13
420	.15 .40	1.00 .60	1.00 .45	0.30 max	0.40/ max	12.00 14.00	0.60/			En-56C	2Cr13
431	.12 max	0.60 1.00	0.75 max	0.30 max	0.40 max	14.00/ 18.00	0.60 0.60			En-60	07Cr17

SPECIAL FORMULA

Formula for MS Pipe Weight in Kg / Mtr

(OD(MM) – THK (MM)) x THK (MM) x .02466 x Length (Mtr)

Formula For MS Plate Weight in Kg

L(MM) x W(MM) x T(MM) x 7850 Kg / M3

(1) Weight of S.S. Pipe : OD (MM) - W.T. (MM) X W.T. (MM) X 0.00754 = Kg (per ft.) OD (MM) - W.T. (MM) X W.T. (MM) X 0.0248 = Kg (per mtr.)

(2) Weight of S.S. Round : Dia (MM) X Dia (MM) X 0.0019 = Kg (per ft.)

(3) Weight of S.S. Hexagonal Rod : Dia (MM) X Dia (MM) X 0.00215 = Kg (per ft.)

(4) Weight of S.S. Square Rod : Diameter X Diameter X 0.0024 = Weight (per ft.)

(5) Weight of Stainless Steel Sheets : (A) Length X Width X Thickness X 8 = Kg (per sheet) (mm) (mm) (mm) (mm)

(6) Weight of S.S. Circle in MM per PIECE : Diameter X Diameter X Thickness / 180000 = Weight (per pc.)

(7) Weight of S.S. Flat in MM per ft. : Width X 304 X Thickness X 8 = Weight (per ft.)

(8) Weight of Copper Pipe : OD (MM) - W.T. (MM) X 0.0087 = Kg (per ft.)

(9) Weight of S.S. Sheets, Plate, Pipe, Round, Hex, Circle, Square, Flat / 3 = Aluminium Weight Approx.

(10) Making of pipe from Sheet or Plate : OD - Thick X 3014 = Width of Cuttine Sheet of Plate

(11) Pressure Conversion : Kg/mm2 X 1422.3 = Psi = Kg/cm2 X 14.223

(12) 1 Feet = 0.3048 mtr. 1 Mtr. = 3.2808 ft. 1 Inch = 25.4 mm. 1 Pound = 0.454 (45359243) kgs.

(13) Formula of Good Business : Quick Service & Honesty.

RENEWED OIL SURGE PUMMELS INDIAN ASSETS, PUSHES RUPEE TO RECORD LOW

JASPREET KALRA

Indian assets declined on Thursday and the rupee fell to a record low, as a fresh surge in crude prices reignited worries over the economic impact of energy supply disruptions, even as central bank intervention helped cushion the currency's fall. Indian assets declined on Thursday and the rupee fell to a record low, as a fresh surge in crude prices reignited worries over the economic impact of energy supply , even as central bank intervention helped cushion the currency's fall.

Brent crude oil prices climbed to $100 per barrel as Iran stepped up attacks on oil and transport facilities across the Middle East, warning the world to brace for oil at $200 a barrel. The rupee fell 0.3% to 92.3575, eclipsing its previous lifetime low of 92.3475 'hit earlier this week. India's benchmark equity index Nifty 50 (.NSEI), opens new tab fell about 1%, the yield on the benchmark 10-year bond rose 4 bps, and the rupee averted steeper losses largely on the back of central bank intervention, traders said. Asian currencies weakened across the board, while MSCI's gauge of regional stocks fell more than 1.5%.

"We expect the RBI to intervene in 92.30-92.35. However if Brent continues to remain elevated for a couple of sessions, the RBI may have to let the rupee go," said Abhishek Goenka, chief executive at FX advisory `IFA Global.

Indian assets under pressure as oil price surge stokes economic risks

The pressure on the rupee was also evident in hedging markets. The 1-year implied hedging cost climbed above 3% for the first time since December 2025, the 1-month implied volatility - a gauge of future expectations - hovered near its highest level since May last year.

Asian currencies were 'down between 0.1% and 0.7%, while regional stocks fell more than 1.5%.

"A number of major Asian currencies stand to be amongst the most negatively impacted by the current shock both due to `large existing energy trade balance deficits (and) their key dependencies on energy flows from the Strait of Hormuz specifically," analysts at Goldman Sachs said in a note. Morgan Stanley said India is 'also the most exposed Asian economies to end-demand for exports, adding growth risks on top of the inflation threat from higher energy prices. Reporting by Jaspreet Kalra; Editing by Sumana Nandy and Sherry Jacob-Phillips

Source: www.reuters.com

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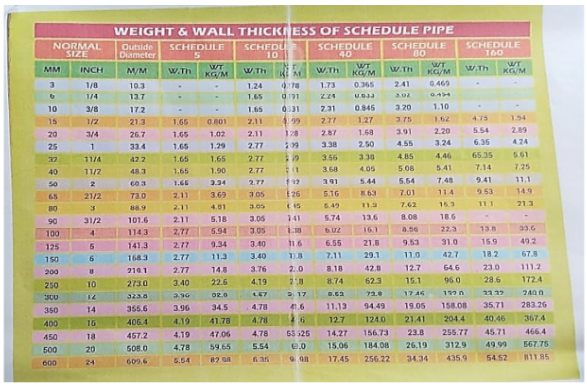


WEIGHT & WALL THICKNESS OF SCHEDULE PIPE

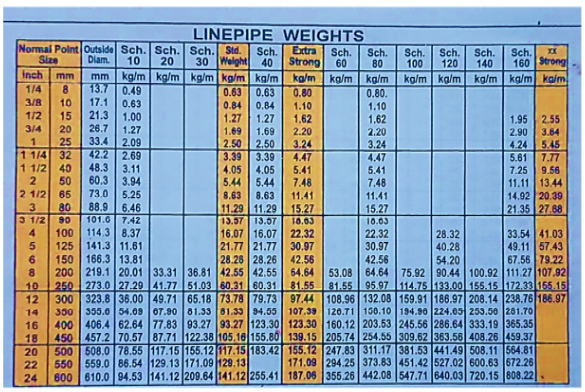
NORMAL SIZE		Outside Diameter	SCHEDULE 5		SCHEDULE 10		SCHEDULE 40		SCHEDULE 80		SCHEDULE 160	
MM	INCH	M/M	W.Th	WT KG/M	W.Th	WT KG/M	W.Th	WT KG/M	W.Th	WT KG/M	W.Th	WT KG/M
3	1/8	10.3	-	-	1.24	0.78	1.73	0.365	2.41	0.469	-	-
6	1/4	13.7	-	-	1.65	0.31	2.24	0.633	3.02	0.795	-	-
10	3/8	17.2	-	-	1.65	0.31	2.31	0.845	3.20	1.10	-	-
15	1/2	21.3	1.65	0.801	2.11	0.99	2.77	1.27	3.75	1.62	4.75	1.94
20	3/4	26.7	1.65	1.02	2.11	1.28	2.87	1.68	3.91	2.20	5.54	2.89
25	1	33.4	1.65	1.29	2.77	2.09	3.38	2.50	4.55	3.24	6.35	4.24
32	11/4	42.2	1.65	1.65	2.77	2.69	3.56	3.38	4.85	4.46	65.35	5.61
40	11/2	48.3	1.65	1.90	2.77	3.11	3.68	4.05	5.08	5.41	7.14	7.25
50	2	60.3	1.65	2.34	2.77	3.93	3.91	5.44	5.54	7.48	9.41	11.1
65	21/2	73.0	2.11	3.69	3.05	5.26	5.16	8.63	7.01	11.4	9.53	14.9
80	3	88.9	2.11	4.51	3.05	6.45	5.49	11.3	7.62	15.3	11.1	21.3
90	31/2	101.6	2.11	5.18	3.05	7.41	5.74	13.6	8.08	18.6	-	-
100	4	114.3	2.77	5.94	3.05	8.38	6.02	16.1	8.56	22.3	13.8	33.6
125	5	141.3	2.77	9.34	3.40	11.6	6.55	21.8	9.53	31.0	15.9	49.2
150	6	168.3	2.77	11.3	3.40	13.8	7.11	29.1	11.0	42.7	18.2	67.8
200	8	219.1	2.77	14.8	3.76	20.0	8.18	42.8	12.7	64.6	23.0	111.2
250	10	273.0	3.40	22.6	4.19	28.0	8.74	62.3	15.1	96.0	28.6	172.4
300	12	323.8	3.96	32.9	4.47	37.7	9.52	73.8	17.45	139.0	33.32	240.0
350	14	355.6	3.96	34.5	4.78	40.6	11.13	94.49	19.05	158.08	35.71	283.26
400	16	406.4	4.19	41.78	4.78	46.6	12.7	124.0	21.41	204.4	40.46	367.4
450	18	457.2	4.19	47.06	4.78	53.25	14.27	156.73	23.8	255.77	45.71	466.4
500	20	508.0	4.78	59.65	5.54	69.0	15.06	184.08	26.19	312.9	49.99	567.75
600	24	609.6	5.54	82.98	6.36	9.08	17.45	256.22	34.34	435.9	54.52	811.85

TECHNICAL DATA OF BLACK GALVD. STEEL PIPES
AS PER IS: 3589 GR- ST 330 & ST 410

Nominal Size (MM)	Thickness MM	Kgs. / Mtr.	Meters / mt.	Nominal Size (MM)	Thickness MM	Kgs. / Mtr.	Meters / mt.	Nominal Size (MM)	Thickness MM	Kgs. / Mtr.	Meters / mt.
150	4.30	17.39	58	250	4.30	28.50	35		6.35	49.73	20
	4.65	18.77	53		4.65	30.78	33		7.00	54.71	18
	4.85	19.55	51		4.85	32.08	31		8.00	62.32	16
	5.20	20.92	48		5.20	34.36	29		9.50	73.68	14
	6.00	24.02	42		6.00	39.52	25	350	4.30	37.25	27
	6.35	25.36	39		6.35	41.77	24		4.65	40.25	25
	7.00	27.85	36		7.00	45.94	22		4.85	41.95	24
200	4.30	22.78	44		8.00	52.30	19		5.20	44.94	22
	4.65	24.59	41		9.50	61.76	16		6.00	51.73	19
	4.85	25.63	39	300	4.30	33.89	30		6.35	54.69	18
	5.20	27.43	37		4.65	36.61	27		7.00	60.18	17
	6.00	31.53	32		4.85	38.16	26		8.00	68.58	15
	6.35	33.32	30		5.20	40.87	24		9.50	81.09	12
	7.00	36.61	27		6.00	47.04	21				
	8.00	41.65	24								
	9.50	49.00	20								

TECHNICAL DATA OF BLACK GALVD. STEEL PIPES
AS PER IS: 1239 (PART 1)DIMENSIONS & WEIGHT

N.B. and Series	Wall Thickness	Normal Weight Black Plain-End	Weight GALVD S/S	N.B. and Series	Wall Thickness	Normal Weight Black Plain-End	Weight GALVD S/S
MM	MM	Mtrs. Tonne	Mtrs./ Tonne	MM	MM	Mtrs. Tonne	Mtrs./ Tone
15 L	2.00	1056	1046	50 L	2.90	245	241
M	2.60	826	819	M	3.60	199	196
H	3.20	694	689	H	4.50	161	159
20 L	2.30	724	719	65 L	3.20	175	171
M	2.60	641	637	M	3.60	155	153
H	3.20	534	532	H	4.50	126	124
25 L	2.60	505	500	80 L	3.20	149	145
M	3.20	415	411	M	4.00	119	117
H	4.00	341	339	H	4.80	101	96
32 L	2.60	393	389	100 L	3.60	102	100
M	3.20	322	319	M	4.50	82	80
H	4.00	264	261	H	5.40	69	67
40 L	2.90	309	306	125 M	4.80	63	61
M	3.20	821	277	H	5.40	56	54
H	4.00	229	226	150 M	4.80	53	51
				H	5.40	47	45



LINEPIPE WEIGHTS

Normal Pipe Size		Outside Diam.	Sch. 10	Sch. 20	Sch. 30	Std. Weight	Sch. 40	Extra Strong	Sch. 60	Sch. 80	Sch. 100	Sch. 120	Sch. 140	Sch. 160	XX Strong
Inch	mm	mm	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m	kg/m
1/4	8	13.7	0.49			0.63	0.63	0.80		0.80.					
3/8	10	17.1	0.63			0.84	0.84	1.10		1.10					
1/2	15	21.3	1.00			1.27	1.27	1.62		1.62				1.95	2.55
3/4	20	26.7	1.27			1.69	1.69	2.20		2.20				2.90	3.64
1	25	33.4	2.09			2.50	2.50	3.24		3.24				4.24	5.45
1 1/4	32	42.2	2.69			3.39	3.39	4.47		4.47				5.61	7.77
1 1/2	40	48.3	3.11			4.05	4.05	5.41		5.41				7.25	9.56
2	50	60.3	3.94			5.44	5.44	7.48		7.48				11.11	13.44
2 1/2	65	73.0	5.25			6.63	6.63	11.41		11.41				14.92	20.39
3	80	88.9	6.46			11.29	11.29	15.27		15.27				21.35	27.68
3 1/2	90	101.6	7.42			13.57	13.57	18.63		18.63					
4	100	114.3	8.37			16.07	16.07	22.32		22.32		28.32		33.54	41.03
5	125	141.3	11.61			21.77	21.77	30.97		30.97		40.28		49.11	57.43
6	150	166.3	13.81			28.26	28.26	42.56		42.56		54.20		67.56	79.22
8	200	219.1	20.01	33.31	36.81	42.55	42.55	64.64	53.08	64.64	75.92	90.44	100.92	111.27	107.92
10	250	273.0	27.29	41.77	51.03	60.31	60.31	81.55	81.55	95.97	114.75	133.00	155.15	172.33	155.15
12	300	323.8	36.00	49.71	65.18	73.78	79.73	97.44	108.96	132.08	159.91	186.97	208.14	238.76	186.97
14	350	355.6	54.69	67.90	81.33	81.33	94.55	107.39	126.71	150.10	184.96	224.69	253.06	281.70	
16	400	406.4	62.64	77.83	93.27	93.27	123.30	123.30	160.12	203.53	245.56	286.64	333.19	365.35	
18	450	457.2	70.57	87.71	122.38	105.16	155.80	139.15	205.74	254.55	309.62	363.56	408.26	459.37	
20	500	508.0	78.55	117.15	155.12	117.15	183.42	155.12	247.83	311.17	381.53	441.49	508.11	564.81	
22	550	559.0	86.54	129.13	171.09	129.13		171.09	294.25	373.83	451.42	527.02	600.63	672.26	
24	600	610.0	94.53	141.12	209.64	141.12	255.41	187.06	355.26	442.08	547.71	640.03	720.15	808.22	

INDIA SETS ACHIEVABLE GREEN ELECTRICITY AND EMISSIONS INTENSITY TARGETS

While most analysts hailed the 2035 goals, some said they are too easy to meet given the progress India is already making.

India has unveiled long-awaited climate goals that aim to cut the carbon intensity of its economy, plant trees and expand clean electricity capacity.

The targets, approved by India's government on Wednesday, will form the basis of the country's nationally determined contribution (NDC), which it failed to submit by last year's deadline. The headline target to reduce greenhouse gas emissions per unit of GDP by 47% by 2035 from 2005 levels represents only a slight improvement on India's previous goal to reduce its carbon intensity 45% by 2030. The government also set a goal for non-fossil fuel sources to account for 60% of electricity generation capacity by 2035, and approved targets for carbon sinks.

Reactions from analysts were mixed. Avantika Goswami, climate lead at the Centre for Science and Environment, a Delhi-based think-tank, said the new targets show "India is pulling more than its weight given its minimal historical contribution to emissions", despite "backtracking" from developed countries. But Lauri Myllyvirta, lead analyst at the Centre for Research on Energy and Clean Air (CRECA), said the targets are too easy to meet as they "underestimate the country's potential for transformative clean energy growth". CRECA analysis published on Thursday found India's emissions grew just 0.7% in 2025, much lower than in previous years, while clean energy capacity grew by a record amount. Climate Action Tracker analyst Nandi Das said India had "missed an opportunity to come up with a national, economy-wide 2035 target to cut greenhouse gas emissions".

Emissions intensity target : Most countries set goals to reduce their absolute emissions levels by a certain percentage by a particular year. But several major developing countries – like China and India – have aimed instead to reduce their emissions per unit of economic activity, allowing the economy to grow without making the target harder to meet. In its statement, the government said that India had reduced its emissions intensity by 36%, from 2005 levels, by 2020. It aims to build on this by setting a target to reduce intensity by 47% by 2035.

Myllyvirta warned that the target allows for India's emissions growth to accelerate compared with past rates if the country achieves its GDP growth projections. But he added that "India's booming clean energy industry is highly likely to deliver much faster progress than policymakers were prepared to commit to today".

Clean electricity target : The government set a target for non-fossil fuels to provide 60% of the country's electricity generation capacity by 2035. Railways minister Ashwini Vaishnaw acknowledged that the 60% non-fossil capacity target was "very easily" achievable, noting that India had already reached 52%. Myllyvirta agreed, predicting the threshold would be crossed by 2030, five years early.

Ulka Kelkar, executive programme director at World Resources Institute India, said it was "heartening" that India's domestic electricity plan has a more ambitious target – 70% by 2035 – than it is committing to internationally.

Wind and, particularly, solar power have boomed in India over the last decade, while hydropower and, to a lesser extent nuclear energy, continue to provide a steady level of electricity.

The fossil fuel half of India's electricity capacity is overwhelmingly provided by coal-fired power stations, tapping into the country's abundant domestic coal reserves. Gas provides a much smaller share of electricity.

Carbon sink target

The third target approved on Wednesday is to increase India's carbon sink, through trees and forests, by 3.5-4 billion tonnes of carbon dioxide equivalent by 2035 from 2005 levels.

The government said the sink had already grown by 2.29 billion tonnes by 2021. This means the target could be met even if the pace of increase slows.

Aarti Khosla, director of Indian research and consultancy group Climate Trends, said this target "reinforces the country's commitment to nature-based solutions".

Souparna Lahiri, from the Climate Land Ambition and Rights Alliance, told Climate Home News that the target was "not unexpected" as India has always had "massive" forest-growing programmes as well as social forestry.

He highlighted the CAMPA mechanism, which requires developers who clear forests in one area to plant replacement trees elsewhere, as a key driver of new planting, but cautioned that plantations must be monitored to ensure the trees actually survive.

Other NDCs still outstanding

The approval of the targets comes at the same time as the Paris Agreement's Implementation and Compliance Committee meets in Bonn to discuss how to encourage governments to submit their overdue NDCs. India was the biggest emitter yet to do so.

Harjeet Singh, director of the Satat Sampada Climate Foundation, said that "while the global community has waited with bated breath for this announcement, the result is a clear signal of integrity and commitment".

"As a global economic powerhouse, India can further accelerate its domestic efforts if the developed world meets its obligation to provide adequate climate finance, ensuring that India's success becomes the world's success," he added.

Source: www.climatechangenews.com

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WTO UPDATE
AI INVESTMENT AND MIDDLE EAST CONFLICT SHAPE OUTLOOK FOR GLOBAL TRADE

ROBERT STAIGER

The outlook for world trade in 2026 will be shaped by two powerful and opposite forces. On the one hand, the extraordinary momentum of investment in artificial intelligence (AI) continues to energize global demand for high-tech goods and digitally delivered services. On the other hand, the conflict in the Middle East - and the resulting spike in energy and transport costs - could weigh heavily on world trade and output.

The WTO Secretariat's latest Global Trade Outlook and Statistics 2026 captures this evolving picture, presenting the latest data for 2025 as well as new projections for 2026 and 2027. While trade proved more resilient than expected in 2025, some of the factors behind that resilience - such as frontloading of imports ahead of tariff hikes, and investment in AI-related infrastructure - are expected to be absent or reduced this year. This is expected to cause growth in global trade volume to slow in 2026 before it picks up in 2027.

A surprisingly strong trade performance in 2025 powered by AI and frontloading

World merchandise trade volumes expanded by 4.6 per cent in 2025, nearly double the growth expected a year earlier. Much of this strong growth came from the "AI surge": booming investment in data centres, processors, semiconductor equipment and other AI-enabling products. These goods accounted for almost half of global trade growth in 2025, despite representing only one-sixth of total merchandise trade.

Asia was, once again, the engine of global trade. The region contributed 71 per cent of total merchandise trade growth, with especially strong results from China, Singapore, Chinese Taipei and Thailand. North America also saw robust imports early in the year, partly due to frontloading of imports.

Services trade also continued its post-pandemic normalization. Travel growth moderated as pent-up demand eased, but digitally delivered services and other commercial services continued to show strong, steady growth.

A cooler, but still positive, outlook for 2026

The baseline scenario for trade growth in our Global Trade Outlook and Statistics points to slower merchandise trade growth of 1.9 per cent in 2026, before a modest pickup to 2.6 per cent in 2027. Services trade is expected to expand somewhat faster, by 4.8 per cent in 2026, rising to 5.1 per cent in 2027.

Two open questions increase uncertainty about our 2026 forecasts: the persistence of high oil prices and the durability of the AI boom.

On the one hand, a persistent impact of the Middle East conflict on energy and transport costs could have important negative implications for global output and trade. If oil price increases persist throughout 2026, we estimate that world merchandise trade growth could fall by 0.5 percentage points, dropping from 1.9 per cent to around 1.4 per cent.

Services trade, especially transport and travel, would be even more exposed to the impact of the Middle East conflict. Services growth could dip to 4.1 per cent from the baseline projection of 4.8 per cent, with services trade in the Middle East expected to contract because of cancelled flights, disrupted shipping routes and higher insurance costs.

On the other hand, AI-related spending continued to exceed expectations in early 2026. If this momentum persists, and demand for AI-enabling goods remains at 2025 levels throughout the year, global merchandise trade growth could add 0.5 percentage points, potentially offsetting much of the energy-related drag.

Persistent shifts in global trade patterns

Beyond short-term shocks, several structural shifts continue to reshape global trade.

AI-enabling goods are becoming a defining force in global commerce

The share of AI-enabling goods in world trade rose from around 13 per cent in 2023 to nearly 17 per

cent by the end of 2025. Trade in these products grew by 21.9 per cent year-on-year in 2025.

North America is now the fastest-growing market for AI-related goods, but Asia remains the global hub, accounting for 62 per cent of total AI-enabling trade.

Fragmentation pressures have intensified

While we saw some stabilization in trade between geopolitically aligned trading blocs during 2023 and 2024, last year brought a renewed widening in the gap between intra-bloc and inter-bloc trade. Much of this was driven by further decoupling between the United States and China.

US imports from China fell 29 per cent in 2025, the sharpest decline in years. Meanwhile, China redirected export flows toward Asia, Africa and Latin America, leading to strong import growth in many emerging markets.

Share of world trade conducted at most-favoured-nation (MFN) rates dropped in 2025, but remains the dominant way economies trade

An analytical chapter in our Global Trade Outlook and Statistics shows that the share of world trade conducted under the WTO's non-discrimination principle of MFN treatment fell from 80 per cent in 2024 to around 72 per cent by early 2026, reflecting both the proliferation of tariff actions and the increasing use of preferential agreements. Nevertheless, nearly three-quarters of world merchandise trade still crosses borders under MFN tariffs.

To conclude, the key questions for global trade in 2026 are:

- Will the AI boom continue to propel trade at the same pace?
- How persistent will the energy shock from the Middle East conflict be?
- Will trade fragmentation pressures deepen - or stabilize?

As these developments unfold, the WTO will continue to monitor their implications for trade flows, supply chains and the broader global economy.

Source: WTO Website

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INDIA STRENGTHENS SELF-RELIANCE AND EXPANDS GLOBAL FOOTPRINT WITH SOLID EXPORT GROWTH AND STRATEGIC MANUFACTURING

KAUTILYA

The performance underlines India's growing export resilience and diversity, supported by robust policies to strengthen domestic supply chains and global integration. As noted in the Economic Survey 2025-26, India's growth trajectory remains among the fastest in the world, underpinned by stable macroeconomic fundamentals, abundant foreign reserves and a healthy banking system.

Indias industrial and export performance continues to showcase resilience and strategic transformation, positioning the country as a rising global manufacturing and trading power. According to the latest government assessment, **cumulative exports (merchandise + services)** from April 2025 to January 2026 reached **USD 720.76 billion**, registering an estimated **6.15 % year-on-year increase** despite challenging global economic conditions. During the same period, **services exports** alone crossed **USD 354.13 billion**, growing by **10.57 %** over the previous year.

The performance underlines Indias growing export resilience and diversity, supported by robust policies to strengthen domestic supply chains and global integration. As noted in the Economic Survey 2025-26, Indias growth trajectory remains among the fastest in the world, underpinned by stable macroeconomic fundamentals, abundant foreign reserves and a healthy banking system.

Manufacturing and Strategic Sectors: The Engine of Growth

Indias push for **import substitution and self-reliance (Aatmanirbharta)** has translated into major gains across sectors such as electronics, automotive,

pharmaceuticals and defence manufacturing. Over the past decade, targeted initiatives under the Make in India programme and Production-Linked Incentive (PLI) schemes have propelled a **manufacturing renaissance** in high-value industries.

The **electronics manufacturing sector** has witnessed notable expansion. Production surged from 1.9 lakh crore in 2014-15 to 11.3 lakh crore in 2024-25 nearly a six-fold increase while electronics exports, especially in smartphones, strengthened Indias position in global supply chains. India now ranks as the **second-largest manufacturer of mobile phones in the world**, with production climbing from 18,000 crore in 2014-15 to 5.45 lakh crore in 2024-25, backed by more than 300 operational facilities.

To further boost the sector, **Budget 2026-27** announced the launch of the India Semiconductor Mission 2.0 and expanded the Electronics Components Manufacturing Scheme with an increased outlay of 40,000 crore. These measures aim to fortify domestic semiconductor design, production of equipment, and supply chains a strategic priority highlighted amid recent global chip shortages.

Strategic Manufacturing and Self-Reliance in Defence

Indias defence manufacturing sector has also undergone a transformative shift towards self-reliance. Where import dependence previously dominated, **at least 65 % of defence equipment** is now manufactured domestically. Indigenous defence production climbed from 46,429 crore in FY 2014-15 to a record **1.54 lakh crore in FY 2024-25**.

Enhanced procurement reforms such as the Defence Acquisition Procedure (DAP) 2020 and the Defence Procurement Manual 2025 have improved transparency, speed and innovation in sourcing strategies. The government has set an ambitious target of **3 lakh crore in defence manufacturing** and **50,000 crore in defence exports by 2029**, with Indian defence products now reaching more than 100 countries.

Export Diversification: Broadening Indias Global Reach

Export growth was broad-based across multiple product categories in January 2026. Highest year-on-year expansion was recorded in **other cereals (+88.5 %)**, **coffee (+36.0 %)**, **iron ore (+31.5 %)**, **meat, dairy & poultry (+17.9 %)**, **marine products (+13.3 %)**, and **engineering goods (+10.4 %)**. Growth also continued in **petroleum products (+8.6 %)**, **textiles and apparel**, and **automobile exports** reflecting a diversified and resilient export basket.

Indias **textile and apparel exports** increased to **USD 37.75 billion in FY 2024-25**, while the automotive sector saw exports rise from approximately 4.13 million units in FY 2020-21 to about 5.36 million units in FY 2024-25, supported by strong overseas demand across multiple vehicle segments.

The country remains a major player in pharmaceuticals and chemicals, ranking **eleventh in global pharmaceutical exports by value**, and driving medical devices exports from USD 2.5 billion in FY 2020-21 to USD 4.1 billion in FY 2024-25.

Institutional Support and Long-Term Vision

To fortify Indias export ecosystem, the government has rolled out the **Export Promotion Mission (EPM)** with an outlay of 25,060 crore for FY 2025-26 to FY 2030-31. The EPM aims to boost trade finance, logistics support and market readiness especially for MSMEs and first-time exporters through initiatives such as affordable export factoring and digital claim processing.

The Union Budgets focus on infrastructure, special economic zones, ease of doing business and sector-specific reforms further underpins Indias strategic goal of deepening global economic integration while building strong domestic capabilities.

Looking Ahead: Self-Reliance Meets Global Integration

India s experience shows that enhancing domestic production and export strength can go hand-in-hand when supported by forward-looking policy frameworks. Through structural reforms, investment incentives and diversification strategies, the nation is not only reducing import dependence but also enhancing its position in global markets. As India progresses toward its vision of Viksit Bharat 2047, the countrys expanding manufacturing base and resilient export performance are set to drive growth, create jobs and strengthen its global footprint.

Source: dharmakshethra.com

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BRANCH NEWS

MUMBAI BRANCH

IIMM Mumbai Branch conducted a One Day In House Training Program on 27-02 -2026 for its New Customer, Mangalore Refinery & Petro chemicals Ltd, a Schedule "A " Government of India Undertaking, and a Subsidiary of ONGC . The Training Program was for MRPLs Materials Department, Warehouse Workforce, consisting of 60 Nos personnelin Two Half DayBatches

The Scope of Work was as under :

A) First Half Day Session :
- Types of Storage & Material Handling Equipment
- Standard Operating Procedures
- Hazard & Risk Identification
- PPE & General Safety Practices

B) Second Half Day Session :
- Preservation of Stores
- Inventory Management
- Warehouse Management — Key Challenges
- Case Studies

The Program was highly Interactive. For Better understanding some Videos were also presented giving practical tips on Safe Operation of Material Handling Equipment

Case Studies from OISD were shared and photos showing Best Practices in Storage Methods were displayed

The faculty for this one Day Training Program was Mr Alok Ranjan Sarkar Advisor - IIMM Mumbai Branch & Ex G.M - Materials & G.M (Engineering & Projects) BPCL and Mr. Prabhakar Sawant Ex BPCL Mumbai Refinery Warehouse

Responding to Secretary (Expenditure), Ministry of Finance, Dr T.V Somanathan comments in Foreword Section of Department of Expenditure (DOE) Manual on Procurement of Goods - 2nd Edition, stating that Department of Expenditure, Ministry of Finance , would remain open to Feedback from various Stakeholders, IIMM Mumbai Branch s Recommendations was sent to Secretary (Expenditure) Ministry of Finance, Govt of India, vide our Letter dated 21st February 2026 to Include a Chapter on "Sharing of Best Practices on Public Procurement. "

IIMM Mumbai conducted 3 days Inhouse Training workshop on Modern warehouse management for Indian Navy's Materials Organization (MM Depot) between 27th Jan to 29th Jan26 at their training center at Ghatkopar, Mumbai.

This assignment, in form of request for warehouse training proposal was received earlier from material organization at the behest & insistence of Dr. Shete, Advisor to Mumbai Branch.

The entire workshop outline, contents, day wise flows was developed by Mr. Ashok Mhatre after detailed discussions with MM stores personnel

The workshop was inaugurated by Mr. Sharan Appa, INMMS, Senior Naval Stores officer Rahul Singh Rautella, INMMS, Sr Naval Stores officers and Mr. S.K. Chippa, Asst. Naval Stores officer along with M/s Surendra Deodhar and Ashok Mhatre of IIMM. It was attended by 31 participants from various sections like planning, stores, shipping, procurement etc. of Material Organization

Training sessions were conducted by M/s Ashok Mhatre, Former Dy. Gen Manager, SCPC of M&M Ltd., Surendra Deodhar, VP (Supply management), Reliance life sciences, Umesh Malik, Sr GM (Training) of Reliance and Amit Agarwal. Dy.GM (warehousing) of MGL. The overall coordination with Materials organization and faculties for entire event was done by Mr. Ashok Mhatre with support from Mr. Menon and Arun of IIMM Mumbai Branch

Starting with fundamental warehousing principals, warehousing processes, training covered various topics like Inventory control techniques, Warehouse Infrastructure & Equipment , Ware house safety systems

like BBS ,Visual controls ,Green Ware housing etc. with focus on Operational Readiness of Naval stores through emphasis on right layouts, housekeeping (5S) Discipline ,appropriate Equipment like right racking, right MHEs in perfect running condition and right environment/air conditioning systems . The program also covered latest Automation techniques like WMS, voice/light picking, use of sensors, robotics, AI. Session on sustainability surfaced solar power generation potential of their storage sheds.

Training sessions supplemented through topic specific quizzes, and exercises were highly interactive. Overall rating for training was very good

Towards the end of 3rd day, training participation certificates were issued at the hands of Senior management personnel of material organization, and Chairman of Mumbai branch Swapnil Dubey. Finally valedictory Photograph was taken.

BREAKING BARRIERS: WOMEN IN SUPPLY CHAIN: JOURNEY, INFLUENCE AND FUTURE SKILLS

IIMM Mumbai organized an electric and insightful Panel discussion on the theme of the event. The Panel had eminent personalities from the Industry – Neha Shivani, Reliance Industries- Moderator, Priyanka Shivan, Clariant Chemicals - Panelist, Ujjwala More, Fine Organics – Panelist, Shweta Bhise, L&T – Panelist, Manisha Patil, Dow Chemicals – Panelist. The event was supported and coordinated by the team comprising of Ms. Hemal Mahesh, Ms. Amruta Tamanekar, Ms. Anju Menon and Ms. Sharvari Kakdey.

The session opened with the Lighting of Lamp by IIMM Mumbai dignitaries followed by context setting by IIMM Mumbai Chairman - **Dr. Swapnil Dubey**, Mr. **Balakrishnan Iyer** and Ms. Yojana Motiwale. The event was seamlessly hosted and expertly anchored by our esteemed Past NST, IIMM, Mr. **Surendra Deodhar**.

The panel discussion brought together accomplished professionals who shared powerful insights into their career journeys, leadership experiences, and the evolving opportunities for women in the supply chain ecosystem. The discussion was both candid and inspiring, highlighting the realities of working in a traditionally male-dominated field while demonstrating how competence, resilience, and continuous learning can shape successful leadership careers.

What emerged clearly from the discussion was that supply chain is no longer just an operational function. It has become a strategic pillar of modern organizations—connecting procurement, planning, logistics, and business strategy while ensuring resilience in an increasingly uncertain global environment.

Discovering a Career in Supply Chain

Interestingly, several panelists admitted that supply chain was not a carefully planned career choice. Like many professionals in procurement and operations, they "landed" in the field through opportunities that arose early in their careers. However, once they experienced the breadth and dynamism of the function, they discovered the immense potential the profession offers.

One panelist reflected that supply chain appealed to her because it provides a **holistic view of the organization**. Unlike many functional roles, supply chain professionals interact with multiple stakeholders across departments, including business leaders, vendors, and operational teams. This cross-functional exposure enables professionals to understand how decisions impact overall business performance.

Another leader shared how she began her career assisting buyers and expeditors, gradually gaining exposure to the complexities of procurement and supply chain operations. Over time, she progressed through roles such as assistant manager, category buyer, and portfolio manager, eventually taking responsibility for major procurement portfolios across engineering and instrumentation categories. Such journeys highlight how supply chain careers often evolve through hands-on experience and continuous learning.

Breaking Barriers and Navigating Challenges

While the profession has evolved significantly over the years, supply chain roles were historically male-dominated. The panelists openly discussed some of the challenges they encountered along the way and how they overcame them.

One panelist spoke about the difficult decision of returning to work after maternity leave. Two decades ago, maternity policies were far less flexible than they are today, and women often faced difficult choices between family responsibilities and career aspirations.

She described how she returned to work soon after maternity leave and was entrusted with a larger role due to a sudden vacancy in the team. With the support of her family, she embraced the opportunity and took on challenging responsibilities, including spending extended periods at vendor locations to ensure critical project deliveries.

Her story resonated strongly with the audience, illustrating how support systems at home and at work play a crucial role in enabling women to pursue leadership roles.

Another panelist shared a memorable experience from early in her career when she attended an industry conference with nearly 400 participants—where she was the only woman present. Initially taken aback by the situation, she quickly realized that expertise and confidence could overcome any hesitation. By actively engaging in discussions and demonstrating deep knowledge of the subject, she soon became an integral part of the conversations. The experience became a defining moment that reinforced her belief in the power of competence and confidence.

An important insight from the discussion was that sometimes the biggest barriers are the ones we create ourselves. One panelist emphasized that women should not hesitate to ask for support—whether from family members, colleagues, or organizations. Raising one's hand and seeking help should not be viewed as a weakness but rather as a practical approach to managing professional and personal responsibilities effectively.

Leadership as a Journey of Growth

The panelists also discussed how leadership evolves over time. Many professionals begin their careers as individual contributors responsible for delivering results independently. However, transitioning into leadership roles requires a different mindset—one that focuses on enabling teams and creating an environment where others can succeed.

One panelist candidly reflected that early in her career she often evaluated situations solely from her own perspective. Over time, she realized that effective leadership requires understanding the diverse working styles, motivations, and strengths of team members. Adapting to these differences and empowering people became a key part of her leadership journey.

Another panelist credited a demanding manager for shaping her professional development. The manager consistently challenged her ideas and pushed her to refine her thinking, sometimes revisiting presentations multiple times before they were approved. Although the experience felt demanding at the time, it ultimately helped her discover her full potential and significantly strengthened her leadership capabilities.

Continuous learning also emerged as a recurring theme during the discussion. One panelist highlighted how she pursued professional certifications and actively invested in expanding her knowledge, which helped her advance into a regional leadership role overseeing supply chain operations across multiple geographies.

The Evolving Landscape of Supply Chain

The panel also explored how supply chains are transforming in response to technological advancements, global disruptions, and changing business expectations. Digital technologies, analytics, and artificial intelligence are increasingly becoming integral to supply chain decision-making.

Panelists emphasized that supply chain is not a single discipline but a **multi-dimensional function with several interconnected verticals**, including procurement, demand planning, logistics, customer service, and data management. Professionals can enter the field through any of these domains and gradually develop expertise that enables them to move into broader leadership roles.

The growing integration of digital tools and data-driven decision-making is also creating new opportunities for professionals who combine operational understanding with analytical capabilities.

Skills for the Future

Looking ahead, the panelists identified several key capabilities that will define successful supply chain professionals in the coming years. These include:

- Ability to anticipate risks and disruptions
- Creative problem-solving and forward thinking
- Strong analytical and negotiation skills
- Collaboration across functions and stakeholders
- Adaptability in dynamic and uncertain environments

One panelist described supply chain leadership as the ability to remain constantly alert to emerging risks and opportunities. Whether responding to geopolitical events or market disruptions, professionals must develop the ability to anticipate change and prepare contingency plans.

Inspiring the Next Generation

The panel concluded with advice for young professionals—particularly women—who aspire to build careers in supply chain. The speakers encouraged them to remain curious, continue learning, and actively seek mentors who can guide them through different stages of their professional journey.

Most importantly, the panelists emphasized the importance of confidence and self-belief. Supply chain is a field that rewards initiative, collaboration, and problem-solving, and women professionals have immense potential to lead and shape the future of this domain.

As organizations increasingly recognize the strategic importance of supply chains, the role of women leaders in this space will continue to grow. The panel discussion served as a powerful reminder that with the right mindset, support systems, and opportunities, women can not only participate in supply chain leadership but also redefine its future.

The Panel discussion was attended by more than 50

Women from the Corporate world including Ultratech, L&T, Toyo Engg, IOCL, BPCL, Shipping Corporation, ONGC, TCS and many other. The participants enjoyed networking and fun games post the mesmerizing and inspiring Panel discussion.

KOLKATA BRANCH

INTERNATIONAL WOMEN'S DAY CELEBRATION 2026 : Indian Institute of Materials Management (IIMM), Kolkata Branch celebrated International Women's Day on Sunday, 8th March, 2026 at the Institute's Hall at 5:00 p.m. in a most befitting manner. About 20 lady members with their relatives and other institutes members joined the program. This was probably the first celebrated International Women's Day in the history of IIMM Kolkata Branch.

Smt. Sima Chakravarti wife of Shri D.N. Chakravarti, former Chairman of IIMM Kolkata, took the chair of Chief Guest and Smt. Kanika Dutta, our senior member took the chair as Guest of Honour.

Mr. Animesh Chattopadhyay, Chairman IIMM Kolkata Branch welcomed the Dignitaries and the Present Audience. During felicitation, Chief Guest and Guest of Honour were honoured by offering flower bouquet and mementos by Shri Chattopadhyay and Shri Prasun Ganguly, Hony. Secretary, IIMM Kolkata Branch. Mementos were also presented to all lady members.

The Chief Guest and the Guest of Honour with their beautiful deliberation mentioned the Contribution, Achievement and Leadership of Women in the 21st Century. It was also mentioned the role of women before our independence. Many songs were sung; recitation of poems and awareness of healthcare were also among the program fixed. Videos related to this day were also shown.

We had cake cutting ceremony by the lady members. Everybody enjoyed the program. The program ended with vote of thanks by Shri Joydip Basak, Treasurer, IIMM Kolkata Branch. Tea and snacks were served. It was a remarkable day to all of us.

AHMEDABAD BRANCH

The IIMM Ahmedabad Branch successfully organized a webinar on "ESG & Sustainable Materials Management – The Future of Procurement" on Saturday, 14th March 2026 from 7:00 PM to 8:15 PM.

The session witnessed enthusiastic participation with more than 50 members attending from various branches across the country, reflecting strong national engagement and interest in the subject.

The program was graced by the esteemed presence of National President Mr. P. M. Bidappa, National Secretary & Treasurer Mr. Pankaj Panchbhai, Immediate Past President Mr. L. R. Meena, and Former National President Mr. Lalbhai Patel, whose presence greatly encouraged and motivated the organizers and participants.

The webinar commenced with a welcome address by Mr. Pankaj Panchbhai, National Secretary & Treasurer, who highlighted the importance of ESG practices in modern materials management and procurement functions. His speech as follows

Speech – National Secretary and Treasurer, IIMM

Good Evening to all the distinguished participants, respected members of the Indian Institute of Materials Management, industry professionals, students, and our esteemed speaker Ms. Vaishali Parekh.

On behalf of the Indian Institute of Materials Management (IIMM) and the IIMM Ahmedabad Branch, I extend a very warm welcome to each one of you to today's webinar on the important and forward-looking topic "ESG & Sustainable Materials Management – The Future of Procurement."

Today's session is particularly special for us because it marks the first program in a series of five knowledge initiatives that the Ahmedabad Branch has planned over the coming months. These programs are being organized as part of our build-up towards celebrating Materials Management Day on 23rd April, a day of great significance for all professionals associated with supply chain, procurement, logistics, and materials management.

At IIMM, our mission has always been to promote professional excellence, knowledge sharing, and best practices in materials management. In today's rapidly evolving business environment, concepts like ESG (Environmental, Social and Governance), sustainability, responsible sourcing, and ethical procurement are no longer optional—they are becoming central pillars of modern supply chain strategy.

Through this series of five programs, we aim to create a platform for dialogue, learning, and professional development for our members and industry stakeholders.

It gives me immense pleasure that IIMM Ahmedabad has chosen to start this important series with a renowned woman leader, Ms. Vaishali Parekh, especially as a mark of respect and recognition around the occasion of International Women's Day. Across industries today, women leaders are playing a transformative role in shaping organizations, policies, and sustainable business practices. Inviting Ms. Parekh to inaugurate this series

reflects our appreciation for the invaluable contribution of women professionals in management and leadership.

Ms. Vaishali Parekh is widely recognized as an HR strategist and 5S excellence expert, and we are confident that her insights on ESG and sustainable materials management will provide us with practical perspectives on how procurement functions can evolve to support sustainability goals and responsible growth.

Before I conclude, I would also like to acknowledge the efforts of the IIMM Ahmedabad Branch leadership, especially Mr. Awadhesh Yadav, Branch Chairman, Mr. D. K. Goswamy, Convener of the Program Committee, and all team members who have worked diligently to organize this program and the upcoming series.

I encourage all participants to actively engage in the session, ask questions, and make the most of this opportunity to learn from our esteemed speaker.

Once again, I welcome you all and thank you for joining us this evening.

Now, with great pleasure, I invite Ms. Vaishali Parekh to share her valuable insights with us.

Thank you very much.

The distinguished speaker, Ms. Vaishali Parekh, was formally introduced by Shri D. K. Goswamy, a respected and distinguished member of the Ahmedabad Branch. Ms. Parekh delivered an excellent and insightful session, elaborating on ESG principles and their integration into sustainable materials management with remarkable clarity and practical relevance.

The session was highly interactive, with active participation from members through questions and discussions. The speaker addressed queries in detail and provided valuable insights into real-world applications, making the session both informative and engaging.

The program concluded with a vote of thanks by Branch Chairman Mr. Awadhesh Yadav, who expressed gratitude to the speaker, dignitaries, participants, and organizing team for making the webinar a grand success.

Overall, the webinar was widely appreciated for its content, delivery, and relevance, and marked a significant beginning of the Ahmedabad Branch's initiatives towards Materials Management Day 2026 celebrations.

BANGALORE BRANCH

27.02.2026 :-Workshop Report: SCM Analytics and Dashboard : The Bangalore Branch of IIMM successfully organized a One-Day Workshop on "SCM Analytics and Dashboard" on Friday, 27 February 2026. The program witnessed participation from around 16 professionals, who attended the session in a hybrid mode, reflecting a blend of both in-person and virtual engagement.

The workshop was conducted by Mr. G. Balasubramanian, Senior Faculty, who led the sessions from 9:30 AM to 4:00 PM. With his extensive expertise and practical approach, he provided valuable insights into Supply Chain Management (SCM) analytics and the development of effective dashboards.

The sessions were highly interactive, encouraging active participation and discussions among attendees. A key highlight of the workshop was the hands-on practical training on dashboard creation, which was particularly well-received. Participants appreciated the real-time demonstrations and the opportunity to apply concepts during the session.

27.02.2026:- Monthly Lecture Program – Free Webinar: The IIMM Bangalore Branch successfully organized its Monthly Lecture Program as a free webinar on the topic "Digital Enablement for Cost Reduction in Project Procurement & Manufacturing" on Friday, 27th February 2026, from 6:30 PM to 7:30 PM.

The session featured distinguished industry experts, Mr. Viswanath Mosale and Mr. Mahidhar Sastry J, Co-Founders & Partners at IdamTat Technologies, who shared valuable insights on leveraging digital tools and technologies to drive cost efficiencies in procurement and manufacturing processes.

The speakers elaborated on practical strategies, real-world applications, and the growing importance of digital transformation in optimizing project procurement cycles and enhancing operational productivity. The session was well-received by participants, including professionals, academicians, and students, who actively engaged in the interactive discussion that followed the presentation.

The webinar reflected IIMM Bangalore's continued commitment to knowledge sharing and professional development by bringing contemporary industry practices to its members and the wider community.

28.02.2026 :- Inhouse Training Program on "Strategic Procurement" for the executives of Arjas Steel Limited:

The IIMM Bangalore Branch successfully conducted a one-day in-house training program on Strategic Procurement on 28th February 2026 for the executives of Arjas Steel Limited. The program was hosted at the company's corporate office located at the World Trade Centre, Bengaluru.

The session was facilitated by Senior Faculty Mr. G. Balasubramanian, who brought his extensive expertise and practical insights into the subject. The program was designed to provide participants with a comprehensive understanding of strategic procurement practices and their application in today's dynamic business environment.

The training session was highly interactive, encouraging active participation and meaningful discussions among the attendees. The program was very well received, and participants expressed their appreciation for the valuable knowledge shared. The feedback received was overwhelmingly positive, reflecting the effectiveness and relevance of the session.

The IIMM Bangalore Branch continues its commitment

to enhancing professional competencies through such industry-focused training initiatives.

11.03.2026 – Induction Session Conducted for 36th Batch of ASCM Course: The IIMM Bangalore Branch conducted an induction session on 11th March 2026 for the 36th batch of the Advanced Certification Course in Supply Chain Management (ACSCM) for executives of Tejas Networks Ltd., a Tata Group company. The session was held at the company's premises in Electronic City, Bengaluru.

The IIMM delegation comprised Mr. Karunakar, Branch Chairman; Mr. Yogindra, Course Coordinator; Mr. G. Balasubramanian, Senior Faculty; and Mr. E. Ganesh Kumar and Mr. Nagaraj S. M., Senior Consultants of IIMM Bangalore. The team provided an overview of the course structure, objectives, and key learning outcomes, setting the stage for a comprehensive and enriching learning experience.

A total of 30 executives have been nominated by the organization to participate in this batch. The regular classes are scheduled to commence from Friday, 18th March 2026.

The induction session was graced by Mr. Vivek Shenoy, Senior Vice President of the organization, who addressed the participants and emphasized the importance of continuous learning and capability development in the field of supply chain management.

The session was well received, and participants expressed keen interest and enthusiasm to embark on the program.

13.03.2026 : Workshop on "Negotiation Skills" : The IIMM Bangalore Branch organized a workshop on "Negotiation Skills" on 13th March 2026 at the IIMM Office Conference Room, Bengaluru.

The session was conducted by Senior Faculty Mr. Rajendran and Mr. K.V. Sudheendra, Senior Faculty, who shared valuable insights and practical approaches to effective negotiation. The workshop focused on enhancing participants' negotiation capabilities through interactive discussions and real-world examples.

A total of 14 participants attended the program, with 6 participants joining in person and 8 participants attending online, reflecting a good blend of physical and virtual engagement.

The session was well received, with participants appreciating the practical learning and interactive delivery. The workshop successfully contributed to strengthening the professional skills of the attendees.

20.03.2026: Monthly Lecture Program / Free webinar: The IIMM Bangalore Branch successfully organized its monthly lecture in the form of a free webinar on "Invisible Assets: How Lack of Visibility is Costing Supply Chains Millions" on 20th March 2026 at 6:30 PM via MS Teams.

The session was delivered by Mr. Ketan Kolge, Chief Technology Evangelist – New IoT Division, Panache Digi Life Limited. Drawing on his rich industry experience, he provided deep insights into the critical role of visibility in modern supply chains and highlighted how the absence of real-time tracking and data transparency can lead to significant financial and operational inefficiencies.

The webinar covered emerging trends in IoT-enabled supply chain solutions, practical challenges faced by organizations, and strategies to enhance asset visibility for improved decision-making and cost optimization. The session was highly informative and resonated well with the participants.

Around 70 participants attended the webinar, demonstrating strong interest in the topic. The session was interactive, with engaging discussions and queries from the audience, making it a valuable learning experience for all attendees.

The IIMM Bangalore Branch continues to provide such knowledge-sharing platforms to enhance professional competencies and keep members abreast of the latest industry developments.

18.03.2026 : Air Cargo Complex Visit: A delegation from the IIMM Bangalore Branch, comprising Mr. Karunakar C.S.-Branch Chairman; Mr. M. R. Achyuth Rao, EC Member; and Mr. Nagaraj SM from IIMM Bangalore, visited the KIAL Air Cargo Complex to engage with key officials and explore collaborative opportunities.

During the visit, the team met Mrs. Suchetha Sreejesh, Commissioner of Customs. The delegation extended a formal invitation to her to grace the upcoming MM Day Celebration as the Chief Guest. The interaction was cordial and productive, and the Commissioner responded positively to the invitation.

In addition, the IIMM team submitted a formal request seeking permission to organize an educational visit to the Air Cargo Complex for IIMM students and members. This proposed visit is planned as one of the key activities of the MM Day Fortnight Programme, aimed at providing practical exposure and industry insights to participants.

The visit was fruitful and reflects IIMM Bangalore Branch's continued efforts to strengthen industry connect and create meaningful learning opportunities for its members.

24,26.03.2026 – In House Training Program: The IIMM Bangalore Branch commenced a three-day in-house training program on "Sustainable Supply Chain Management" on 24th March 2026 at the HAL Management Academy (HMA). The program is scheduled to continue until 26th March 2026.

The training program has brought together around 22 senior officers from various defence organizations, providing them with a valuable platform to enhance their understanding of sustainable practices within the supply chain domain. The initiative reflects the growing importance of integrating sustainability into procurement and supply chain strategies, particularly in critical sectors.

The sessions are being conducted by distinguished Senior Faculty members of IIMM, Dr. P. G. Yogindra and Mr. K. P. Rajendran. With their rich academic and industry experience, the faculty are delivering insightful sessions covering key aspects of sustainability, including responsible sourcing, environmental considerations, and long-term value creation in supply chains.

The program is designed to be highly interactive, encouraging active participation, knowledge sharing, and practical learning among the officers. The inaugural sessions witnessed enthusiastic engagement from the participants, setting a positive tone for the remaining days of the program.

This initiative underscores IIMM Bangalore Branch's commitment to fostering professional excellence and promoting sustainable practices in supply chain management through focused training interventions for industry and government organizations.

UDAIPUR BRANCH

SHRESHTHAM – THE NATIONAL SUPPLY CHAIN EXCELLENCE AWARDS 2025- 2026

Dream, while others sleep.
Dare, while others wish.
Do, while others talk.
Deliver, while others ponder.

What began as an experiment had transformed into a reality, delivered!

"Shreshtham" - The "National Supply Chain Excellence Awards 2025-2026" were held in Udaipur on 7th Feb, 2026 at Hotel Grand Continent – Luxury Collection. The first of its kind in India, the fourth edition of IIMM, Udaipur Branch's annual event, that got baptised after grinding through the footprints of Procurement Awards restricted to the landscape of Rajasthan and only vertical of Supply Chain; for the first three editions. Shreshtham is about the recognition and appreciation of SCM professionals in their individual capacity and for the industries who persevere far more to advance excellence, innovation and nation-building; exceeding the pain that must precede the victory. The spectrum of Shreshtham Awards was subject to assessment across all verticals of Supply Chain Management; 16 categories that included 4 for industry/ organisation categories and 12 for individuals; recognising and rewarding them for excellence, not for just showing up!

It wasn't about the scale; it was all about significance that attracted the best national talent and domain leaders, driving their strategic transformation in the industries. Being an insider to the Branch and Organisers, and having seen what we went through the last month and a half, the quality of candidature and their knowledge content was simply amazing. The difference between ordinary and extraordinary was that little "extra"; separating the meritorious from the mediocre.

In life, the feeling of being privileged doesn't come every day; but when they do, gratitude must take centre stage. The luminously intense cocktail of intellectual and entrepreneurial thoughts-leaders was the highlight of the event. On this occasion more than 250 guests from various states and cities of India participated. All the National Executive Committee members of IIMM and about 30 chairmen, national councillors and members of various IIMM Branches graced the occasion with their presence.

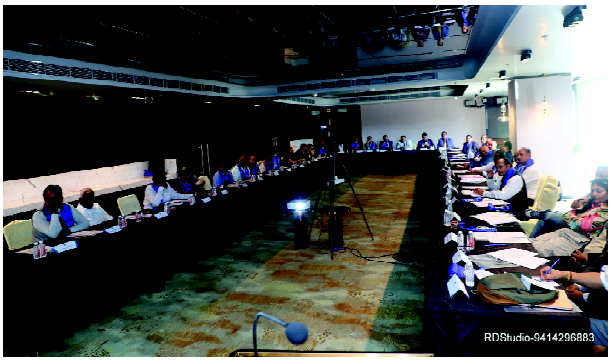
The theme of this year's event is "Inspiring Excellence in Supply Chain". This theme resonates deeply with the current trajectory of India's growth story. As the world turns its gaze toward the Indian subcontinent, the resonance of India's growth story echoes far beyond its borders.

On the eve of the ceremony, Chairperson Udaipur Branch, Mrs. Priya Mogra said that these awards are prestigious and around 300 applications have been received from PAN India from the who's who of the industry – ONGC, HPCL, BPCL, COAL India, Yamuna Power, Adani Group, SAIL, Arcellor Mittal, HZL, JK Laxmi Cement, Ultra Tech, Birla Group, JK Tyre, Sophn

Bukhardt, etc. She welcomed everyone from valued member organizations and trade bodies like CAIT, CII, JSG, Oswal Sabha, TIE, FORTI, Engineers Association, and various chambers of commerce, like the Udaipur chamber of commerce, Gudli chamber, Mewar chamber, Kaladwas chamber, hotel associations, marble associations.

The Chief Guest of the event was Founder & Chairman of the Ramky Group (renowned for its contributions to urban development and industrial projects), Mr. Alla Ayodhya Rami Reddy – the man who is actively engaged shaping the strategy and direction of sustainable infrastructure development in India and developing nations, besides being a Member of the Rajya Sabha. He termed the awards as a milestone for sustainability and

SCM and hoped that more big corporates would participate in future and expressed his confidence that the initiative of Udaipur branch would set new dimension in India through these awards.



Guest of Honor for the event was Mr. Arun Misra, Whole time director and MD of Hindustan Zinc Ltd spoke about SCM and praised the initiative. He stated that HZL is always ready to work hand in hand with IIMM. While speaking about the era of digital and AI he emphasized that it is becoming part of our daily lives and we should make best out of it.

IIMM National President PM Biddappa stated in his address that IIMM today operates with a focus on SCM with branches in 52 cities across India. The SCM courses are highly effective, government approved and recognised by numerous organisations.

Convener Shri Anil Mishra and Award Committee Chairman Shri D C Jhanwar expressed their views. He mentioned that more than 300 applications were received and were long listed for these 16 categories. Three awards were given each category. On the special request of the Jury Panel in few categories, special recognition was given for participants from MSME sector who presented equivalent to large scale in terms of processes followed and the implementation. He thanked the whole Jury Panel – Mr. Arif Sheikh, Mr. Syed Javed Ahmed, Mr. G R Nyati, Mr. Swapnil Dubey and Mr. R K Daga.

Secretary Mr. P P Bhattacharya proposed the vote of thanks towards the end and mentioned that event would not have been possible without the sponsors and the effort of the whole Udaipur team who left no stones unturned to make this a grand success. The special contribution of Mr. Rajesh Jain, Mr. Nikhil Sharda, Mr. Mubarik Khan, Mrs. Manisha Agarwal, Mr. Avinash Bhatnagar, Mr. Anupam Luhadia, Mrs. Haseena Chakkiwala, Ms. Pooja Devija, Mr. Anil Parikh, Mr. Amit Porwal, Mr. Ravi Kavdia, Mr. Rajesh Jain, Ms. Reena Khandelwal, Ms. Bhavika Sharma, Ms. Leena Jain

Humility doesn't need to be humbled; it is what it is, a grace without an adjective. Those that are worthy of attention do not scream out loud and proclaim to the world how amazing they are! This Shreshtham journey was like the celebration of a festival of newer insights and better outcomes. The thrill of being a part of it and doing well to accomplish the mission is always immensely alluring; often that works like a celluloid aphrodisiac bringing out the adrenaline for what more could be.

Truth be told... at the end of it, it was like a Reality Show left untouched marinating in its own magnificence for glory.

CHANDIGARH BRANCH

Initiatives." In order to improve visibility of IIMM and it's services, Mr S. K.Sharma Former National President and Mr Kiran Rampal Chairman Chandigarh branch has requested Mr Knish Khanna M. D. K" India Ltd. Baddi to Visit IIMM office which he has very kindly accepted our request and visited Chandigarh IIMM office at MDC, Panchkula on 6.3.26. Mr Rajesh Gupta NC Chandigarh branch was also present, besides Mr S. Sharma and Mr Kiran Rampal. Our team had apprised him about PGD courses and training programs on various modules." It is not out of the way to mention that K India is our institutional member. Both have discussed various aspects and areas to find out common areas of collaboration.

Branch initiative to develop next line of leadership and for the benefit of members, Chandigarh branch organised a lecture on Entrepreneurship by Mr Dalip Manchanda Vice Chairman Chandigarh branch. He touched various aspects of entrepreneurship. The talk was motivating for younger members. Monthly lecture series will continue in coming months. Interested members who want to deliver lectures , they can intimate branch office bearers."Main points of lecture delivered by Sh Dalip k.Manchanda

1. He started his lecture with the definition of Entrepreneur is derived from French word entrepender which means to undertake.

2 Entrepreneur is An individual who has a idea and ready to take risk with continuous efforts, hard work, discipline approach , respect towards any work, understanding nitty gritty of all activities to be self confident,good organisation and leadership skills.

3 From idea to testing of idea to product / service build up to marketing to optimum cost control activities and scale up of activities are the journey being followed by entrepreneur.

4 Qualification / age is not a criteria to be a successful

entrepreneur."He gave example of Sh Dhirubhai Ambani who was a petrol Attendant at Petrol pump in Yemen before building a business empire Reliance. Another example of Ritesh Agarwal 19 year dropout build OYO. "KFC started by Mr Sanders at the age 65 years.

5 Being failure in your attempts is a part of entrepreneurship and need to re strategise,redesign venture to be successful eg.Mr Raveendran of Byju, Mr Vijay Sharma of Paytm, and Mr Devinder Goyal of Zomato and Swiggy team.

6 India is having thousands of start ups and new unicorns are being created in our country and this era is of India "In nutshell, his lecture was full of conviction and given booster energy dose to all the listeners to think of becoming Entrepreneur without thinking about investment, age and qualification to be a successful.

WESTERN REGION MEETING HELD ON 28 TH FEB 2026 AT NHQ

Objectives and Outcomes : The primary objective of the meeting was to bring together stakeholders from the Western Region branches to discuss and align strategies that support IIMM's national vision. The agenda was designed to encourage collaboration, innovation, and knowledge sharing, with an emphasis on regional coordination and external impact through education and industry engagement. It aimed to promote innovation and set the direction for the future of the Western Region within IIMM.

Meeting Schedule and Sessions Overview : The meeting schedule was structured into multiple sessions, each with specific themes, facilitators, and time slots. The sessions included icebreakers, strategic context setting, presentations, workshops, and brainstorming rounds designed to engage participants actively .

The sessions began with an icebreaker and strategic context setting by the VP West Dr. Narendra Joshi, Western Region update, and explanation of IIMM's three-tier structure (National–Regional–Branch) . Welcome address was made by IIMM Mumbai Chairman Mr. Swapnil Dubey with a gift from IIMM Mumbai for all participants.

Subsequent sessions focused on the national vision and mission and views of National President (Presented by VP West) , " Technological advancements" by Dr. Bharti Trivedi- Chairperson Vadodara " Regional collaboration, and expanding IIMM's footprint in academia and industry " by Mr. Swapnil Dubey .

The icebreaker activity involved small groups discussing the question “What should IIMM look like in 3 years?” and generating top suggestions with associated risks .

Interactive workshops emphasized regional collaboration, where participants identified joint programs and capability-building initiatives to enhance integration and execution at the West Region level .

The brainstorming round encouraged members to propose new ideas and ongoing external initiatives to increase IIMM’s visibility beyond its membership. Participants wrote ideas on sticky notes, which were then shared with the group.

The afternoon sessions included national updates on financials, memberships, and educational courses presented by NST Mr. Pankaj Panchbhai , followed by branch presentations highlighting best practices in membership growth, education, student engagement, financial sustainability, industry engagement, and challenges faced .

Views / expectation of NHQ Admin Ms. Sumita , NHQ Accounts – Mr. Visalakshi were also gathered.

The meeting concluded with a compendium of best practices and suggestions for the regional action plan aligned with national priorities by Mr. Bala Iyer , a recap of action points, and discussions on next steps by Mr. Surendra Deodhar. Vote of thanks by Mr. Veer Sidhwani, IIMM Mumbai.

Participants engaged in activities that fostered a better understanding of the organization’s structure and strategic goals, generated actionable ideas for regional cooperation, and shared successful practices from different branches to strengthen overall effectiveness .

15 People from 6 Branches were present in the meeting. Mr. Sanjay Kaley and Mr. Suresh Kamdar from Ahmedabad , Mr. Lalit Lohade, Mr. Ramesh Jaulkar from Chh. Sambhaji Nagar , Mr. Nilay Giri from Jamnagar , Mr. Ashok Mhatre from Mumbai , Mr. Nilesh Kikani from Rajkot , Mr. Bharat Soda from Vadodara were the other branch representatives other than above notable persons.

Summary : The IIMM Western Region Meeting was a comprehensive event structured to promote strategic alignment, collaboration, and growth within the region. It featured a mix of presentations, interactive workshops, and brainstorming sessions focused on future readiness, technological advancement, regional integration, and external engagement with academia and industry. The meeting facilitated the sharing of best practices and the development of actionable plans to support IIMM’s national priorities and regional development .

We thank National President Mr. Biddappa for encouragement and motivation for this meeting . We thank Mr. R.K. Rastogi – Sr VP for sending his presentation for Membership and Regional Potentials. Mr. Pankaj Panchbhai for his passionate support , NHQ staff for all impressive arrangements and the branches present .

HYDERABAD BRANCH

For the first time in its history, IIMM Hyderabad Branch celebrated International Womens Day with the Institutes girl students on 8th March 2026.

Held at the Branch premises, the event followed the national theme: “Nari Tu Narayani – Empowerment of Women for Nations Growth.” The guest speaker, Mrs. Padmaja Ambaty (Dy. Director of BrainBridge International School), delivered an informative and encouraging speech on womens participation in self-development and national growth. The Chairperson, Mrs. S. Suvarna, also provided a motivational address in Sanskrit, accompanied by English explanations. The students were highly energized by the speeches and enjoyed the various activities conducted. Many took the opportunity to individually express their views on the importance of Womens Day. The memorable event concluded with gift distributions and lunch. This

milestone was made possible through the full support and encouragement of the EC Team.

The IIMM Hyderabad Branch conducted a workshop for the SCM staff of M/s Shanmukha Agri Tec on 11th March 2026 at their premises. Our NC & IPC, Mr. A. Preetam Kumar, served as the faculty for the day, successfully conducting a training program on various SCM topics as required by the organization. The participants expressed full satisfaction with the session and showed their gratitude by felicitating Mr. Preetam Kumar for his valuable insights.

**"Other Branch activities are progressing well under the able guidance of the EC Team's senior members. The Branch is now fully geared to celebrate 'MM Day' with full zeal and zest." Dhanyavadah!

PUNE BRANCH

Pune Branch organized an insightful Interactive Knowledge Dissemination Session on the topic "NDT for Non-NDT" on 28th February 2026. The session was delivered by Ms. Sangita Kapote, Founder of Proficient NDT, an organization engaged in Non-Destructive Testing (NDT), Welding & ASME / EN ISO / API Code Awareness Training, Consultancy, and Inspection Services.

The primary objective of this session was to create conceptual awareness of Non-Destructive Testing among Supply Chain Management (SCM) professionals. Understanding NDT principles is increasingly critical for SCM practitioners, as it enhances their ability to coordinate effectively with quality assurance, production, and inspection teams. Such technical awareness strengthens procurement decisions, vendor evaluation processes, compliance verification, and overall operational risk management.

Ms. Kapote delivered the session with remarkable enthusiasm and clarity. She simplified complex NDT concepts by relating them to practical, day-to-day examples, ensuring that even non-technical participants could grasp the fundamentals with ease. Her structured explanation of testing methods, quality assurance implications, and industry standards made the subject highly accessible and relevant to SCM professionals.

Beyond the technical discourse, Ms. Kapote also emphasized the importance of ethics, integrity, and honesty in professional practice. She highlighted that sustainable growth, both personal and organizational, depends on maintaining transparency, competence, and accountability in one.

EXECUTIVE HEALTH

HEALTHY LIFESTYLE

Q. Do I need to follow a healthy lifestyle if I'm not sick?

A. A healthy lifestyle is not mere absence of disease or infirmity. It is about reaching your potential for looking and feeling great. Being healthy is a lot more than being "not sick". It's about waking up feeling good and being full of energy all day long. It is getting the best from your body and mind. It is about getting your tissues and cells to function at their best and thereby you get wonderful results that you can feel. You will feel it in your physique as well as your mind and emotions. When your body is healthy, everything goes better.

Q. Is it something I can put off till later? How early is soon enough? How late is too late?

A. It is never too late to start but the sooner the better. We face an unprecedented epidemic of diseases of civilization – Asthma, Arthritis, Alzheimer's, Attention Deficit Disorder, Arteriosclerosis, Diabetes, Hypertension, Cancers... it is estimated that cancer now will be diagnosed in one in three people in their lifetime. Many of these diseases were almost unheard of a few generations ago. By moving to healthier options we can create a healthier body. Then, instead of being focused on treating the symptoms of diseases, we can create real health.

Q. Does it take a lot to time?

A. The time taken is about the same as an unhealthy lifestyle. You will spend some more time growing your sprouted seeds, and making dressings and juices. But you will get it all back in extra energy and vitality that same day. Most countries in the world record 2-4 hours per day of TV watching per adult. Thus most people can easily make some time to create a healthy lifestyle.

Q. I don't have time for this. Can I just continue with my ordinary lifestyle?

A. That can cost you a lot to time lost to lack of energy or down time with sickness or reduced number of years in your lifetime. Take the time to create healthy lifestyles and eat healthy food. It is a investment.

Q. What is the simplest way to get started?

A. : Make half your plate green uncooked food, like leaves of all descriptions. Add rainbow coloured uncooked foods like peppers, shredded carrots, tomato etc. Make a fresh dressing. Get a juicer and make green juices from Cucumber and celery with added cabbage leaves and ginger or other herbs for taste. Eat fresh ripe fruit.

Q. My folks don't want to do this and say that I am crazy to eat this kind of food. What can I do?

A. While social pressure can be a real factor; we all have to decide what is best for ourselves. Even if sometimes that makes others uncomfortable. 99% of the time others will come to respect your decision and your determination. Usually you will end up helping them to improve their health. The result you get will speak volumes to them. Let them move at their own pace towards a healthier way of life.

Q. What is the best way to ensure that I keep to a healthier lifestyle?

A. Spend lots of time in the fresh fruit and vegetable section of your supermarket. Avoid processed and heavily salted foods and snacks. If youlife with others who do not wish to follow a healthier lifestyle, then create your own storage space for your healthier food. Get exercising; being active makes it easier to do all the other healthy habits. Thirty minutes of brisk walk three times a week is enough to set you on the road to a healthier you and keep diseases at a bay.

Q. What can exercise do for me?

A. Making exercise a regular part of your daily routine will have a positive impact on your health and your quality of life as you get older. Staying physically active and exercising regularly can improve mood and relieve depression, and prevent or delay some types of cancer, heart disease, and diabetes. Long-term regular exercise can even improve health for some older people who already have diseases and disabilities. Being physically active can also help you stay strong and fit enough to keep doing the things you like to do and stay independent as you get older. For example, improving endurance can make it easier to work in the garden. Increasing muscle strength can make it easier to lift a grandchild or climb stairs. Improving balance helps prevent falls, and being more flexible can help you reach for items on kitchen shelves.

Q. What is the difference between exercise and physical activity?

A. Exercise is a form of physical activity that is planned, structured, and repetitive like weight training, tai chi or an aerobics class. Physical activities are activities that get your body moving such as gardening, walking the dog and taking the stairs instead of the elevator. Including both in your life will provide you with health benefits that can help you feel better and enjoy life more as your age. Combining both can get you more for your buck – maximize return from the time put in.

Q. How much should the average adult exercise every day?

A. As a general goal, aim for at least 30 minutes of physical activity every day. If you want to lose weight or meet specific fitness goals, you may need to exercise more. Want to aim even higher? You can achieve more health benefits if you ramp up your exercise to 300 minutes a week. For aerobic activity or 75 minutes a week or vigorous aerobic activity. You also can do a combination of moderate and vigorous activity.

(Contribution by Medicine Deptt.)
Source: dcbh.delhi.gov.in

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IIMM **Research Centre**

CENTRE FOR RESEARCH IN MATERIALS MANAGEMENT (CRIMM)

CRIMM is a Joint Venture between IIMM and Techno India University, Kolkata, West Bengal (WB). Techno India University is one of the renowned and largest Private University in West Bengal. A MOU was singed with TIU on 17th of November 2017 for a period of 4 years which was further renewed for 4 years period in April 2022. The current MOU is valid till April 2026.

Following are the objectives and activities of CRIMM:

- To promote research in Material Management (MM) discipline.
- To collaborate with industry for furthering the academic advancement of materials management and its application to Industry
- To render assistance to industries in problem solving projects, develop. Activities, etc.
- To take up project consultancy work in MM. Centre will act as a nodal point to coordination & integration of research information in the field of MM for ongoing & completed research work in other countries.

Eligibility for Research Fellowship:

- Candidates should have master's degree in any subject / discipline or equivalent professional management qualification i.e. PGDBM, DGDMM etc. with at least 50% marks in aggregate at the graduate and post-graduate level.
- The candidate should have experience in working in MM discipline or allied areas in Industries. In case of highly experienced candidate in the field of MM, and /or Engineering Graduates, Mater Degree may be dispensed with.
- Preference will be given to Industries sponsored candidates.
- Successful Research Fellow from CRIMM shall have the unique opportunity to pursue PhD in Techno India University, West Bengal with condensed course work.

Governing Committee:

A steering committee has been constituted to oversee the work of the centre consisting of nineteen members, eight each from Techno India University, West Bengal, IIMM and three from Industry. The current Board of Governor (BOG) consists of following members:

Nominated by IIMM

1)	Mr, Malay Chandan Mazumdar,Jt,	Chairman
2)	Dr. Nripendra Kumar,	Member
3)	Dr. Y Venkata Ramana,	Member
4)	Dr. Dibakar Swain	Member
5)	Gajanan Palankar, Fellow – CRIMM	Member
6)	P Sengottaiyan, Fellow - CRIMM	Member
7)	Dr. Samar Roy Chowdhury	Member
8)	Mr. Animesh Chattopadhyay	Member

Nominated by Techno India

1) Prof. (Dr) Goutam Sengupta, Rector TIU, WB – **Jt. Chairman**
2) Prof. (Dr) Debashis Chaudhuri, Dean (Engg, Proj., Student affairs.
3) Prof. (Dr) S N Roy, Adjunct faculty
4) Prof. (Dr) Tripti Chakrabarti, Dean Basic Sciences
5) Prof. Asoke Kumar Paul, Associate Professor
6) Prof. (Dr.) Debabrata Bhattacharya, Professor
7) Mr. Soumitra Bhowmick, Vice President and CFO
8) Dr. Paramita Sen, Assistant Professor, Rector's Office

Advisors:1) Mr. Asok Dasgupta 2) Dr. PK Dey, Professor, Aston Business School, UK 3) Prof. (Dr) Gautam Majumder, Pro Vice Chancellor, TIU

Fees details related to CRIMM Fellowship:

1. Rs 5,000 along with application form for registration.
2. Rs 5,000 for Research Methodology course
3. Rs 15,000 within six months of date of registration or approval of preliminary synopsis is, whichever is earlier.
4. Rs 15,000, within one year of date of registration or approval of preliminary synopsis, whichever is earlier?
5. Rs 20,000 on approval of the final report by Governing committee of CRIMM.
6. Thus the total fees payable for the program is Rs.60,000.
7. Failure to pay the fees as per above schedule will make the registration liable for cancellation. In such cases, if the candidate wishes to bear-registered he has to pay all the fees afresh.

How IIMM Can Benefit out of CRIMM: Since CRIMM is a stand along entity with its own financials, IIMM does not directly benefit out of CRIMM finances. However IIMM can draw the following benefits from CRIMM:

1.) CRIMM fellowship students can be prospective candidates for Life Membership of IIMM in case they are nonmembers.

2.) In prospects for IIMM PG courses, we can have a special mention regarding CRIMM. This can be an enabling factor for prospective PG students to take up our courses.

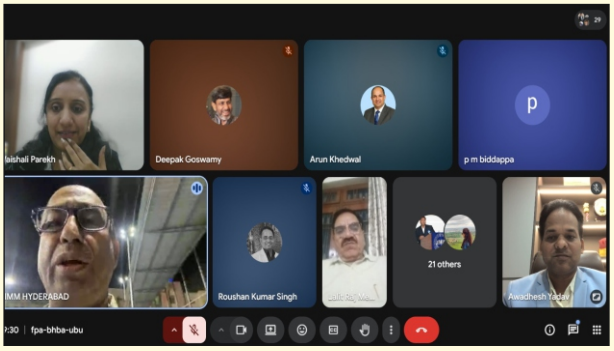
BOG meeting of CRIMM is scheduled in Kolkatta Techno University Campus on 27th March 26 where broad contour for various CRIMM activities for next 2 years will be discussed.

For more information please contact

MALAY C MAZUMDAR, Jt. Chairman – CRIMM

M: 9909910964 / 9726425331 Email: malay_mazumdar@yahoo.co.in, crimm.malayiimm@gmail.com

BRANCH ACTIVITIES



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Printed & Published by P.M.Biddappa on behalf of Indian Institute of Materials Management, 4598/12-B, First Floor, Ansari Road, Darya Ganj, New Delhi - 110002 and Printed at Power Printers, New Delhi-110002.