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MATERIALS MANAGEMENT REVIEW

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TOP 5 SUPPLY CHAIN TRENDS FOR 2024

- More visibility into supply chains
- The critical role of data
- Generative AI in operations
- ESG and Scope 3 emissions
- Electric vehicles, transport and logistics

Shri L. R. Meena - National President on his being welcomed at NHQ Delhi Office by Former Presidents L to R: Shri S.K.Sharma, Shri V.K. Jain and Dr. Suresh Kumar Sharma paid Rich Tribute to the Late Dr. M. K. Bhardwaj - Former National President who contributed immensely in various activities specially including Publication, Education and Tie-up with various Universities.

Mr S K Sharma Former National President, Mr Rajesh Gupta Chairman Chandigarh Branch, Mr Arun Barra NC Chandigarh along with Mr Aakash Sehgal Head Strategic Sourcing Godrej Mohali ànd Other MSMEs on the occasion of compitition of Kaizen and case studies at Godrej Mohali

From the Desk of Chief Editor & National President

Dear Readers,

I wish to emphasize the critical role of education in shaping the future of supply chain management in India. Education is the cornerstone of progress, and in the realm of supply chain, it becomes a catalyst for innovation, efficiency and sustainability.

A well-rounded education system that incorporates the latest advancements in logistics, technology and business management is essential for individuals aspiring to contribute to the supply chain sector. India's supply chain landscape is evolving rapidly and our education system must keep pace with these changes.

Investing in education not only empowers individuals with the necessary skills but also strengthens the entire supply chain ecosystem. From procurement and production to distribution and logistics, a knowledgeable workforce enhances productivity and ensures seamless operations.

Furthermore, the scope of the supply chain in India is vast and expanding. As we integrate into the global market, our ability to optimize supply chain processes becomes paramount. Education acts as a gateway to understanding international standards, fostering collaboration and leveraging emerging technologies like artificial intelligence and blockchain for enhanced supply chain visibility.

In conclusion, let us recognize the profound impact of education on the supply chain and its potential to drive economic growth. By prioritizing education in this field, we lay the foundation for a resilient, agile and globally competitive supply chain sector that will propel India towards new heights of success.

In essence, let The Indian Institute of Materials Management play a crucial role in elevating the standard of supply chain education in India by equipping individuals with relevant skills, fostering industry connections and contributing to the advancement of knowledge in this dynamic field.

Thank you.

LALIT RAJ MEENA
NATIONAL PRESIDENT
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UNLOCKING SUSTAINABILITY WITH 3P + 4R THINKING

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Abstract: In the contemporary business landscape, the integration of sustainability practices has become paramount. This article delves into the transformative approach of 3P + 4R thinking, amalgamating Profit, People, Planet, along with Reduce, Reuse, Recycle, and Regenerating/ Reproduce. By exploring each element and providing real-world examples, we aim to unravel the profound impact of this comprehensive framework on corporate sustainability.

Keywords: Sustainability, 3P + 4R Thinking, Profit, People, Planet, Reduce, Reuse, Recycle, Regenerate, Corporate Responsibility.

Introduction: As global challenges like climate change and resource depletion intensify, businesses are increasingly recognizing the need for holistic sustainability. The 3P + 4R framework emerges as a powerful tool, intertwining economic, social, and environmental considerations. Let's dissect each component and illustrate their application through current examples.

SN Panigrahi

The 3P Framework: Balancing Profit, People, and Planet : The 3P framework posits that true success lies in achieving a harmonious balance between profit, people, and planet. This means:

Profit - Sustaining Financial Viability: Businesses must operate efficiently and generate financial returns to ensure their own viability and contribute to economic growth. In the realm of sustainability, Profit extends beyond mere financial gains. It encapsulates long-term economic viability intertwined with ethical business practices. However, profit should not come at the expense of the environment or social well-being.

Examples:

- **Reliance Industries Limited (RIL) :** Reliance Industries, led by Mukesh Ambani, showcases a commitment to sustainable profit through its diversified business ventures. The company has made substantial investments in clean energy, including the development of the world's largest oil-to-chemicals complex with a focus on reducing environmental impact. RIL's integration of technology, innovation, and sustainable practices reflects a holistic approach to profitability aligned with environmental responsibility.

- **Godrej Green Building (Mumbai):** This LEED (Leadership in Energy and Environmental Design) Platinum-certified office building maximizes energy efficiency through solar panels, rainwater harvesting, and innovative ventilation systems, demonstrating environmental responsibility and cost savings. LEED (Leadership in Energy and Environmental Design) is the world's most widely used green building rating system. LEED certification provides a framework for healthy, highly efficient, and cost-saving green buildings, which offer environmental, social and governance benefits.

- **Hira Sweets**: Hira Sweets is a market leader in the sweets and snacks business in Delhi, established in 1912. This traditional sweets company sources ingredients locally and ethically, minimizes packaging waste through reusable containers, and invests in employee training, proving that sustainable practices can boost profitability.

- **Fabindia (Pan-India):** This handicraft retailer collaborates with artisans across rural India, preserving traditional skills and providing fair wages while achieving commercial success through high-quality, ethically sourced products.

  People - Fostering Social Equity : People-focused sustainability endeavors involve nurturing human capital, promoting diversity, and ensuring fair practices. Prioritizing the well-being of employees, communities, and consumers is essential for sustainable development. This includes fair labor practices, responsible sourcing, and investing in social programs that improve lives.

Examples

- **Tata Group :** The Tata Group, under the leadership of various Tata companies, prioritizes people-centric sustainability. Through initiatives like Tata Consultancy Services' (TCS) community development programs and Tata Steel's efforts to enhance the well-being of local communities, the group emphasizes social responsibility. Their commitment to employee welfare, skill development, and community engagement exemplifies a holistic approach to fostering social equity.
- **Aravind Eye Care System (Madurai):** The group has vision of Provide compassionate and quality eye care affordable to all This network of hospitals provides affordable, high-quality eye care services to underserved communities, including free surgeries for the underprivileged, improving health outcomes and empowering lives.By prioritizing social responsibility, they reinforce the integral role of 'People' in the sustainability equation.
- **SELCO (Solar Electric Light Company)Foundation** (Bangalore, established in 1995): This organization provides solar lighting solutions to off-grid rural communities, improving access to education and livelihood opportunities while promoting clean energy adoption.
- **Self-Help Groups (SHGs):Community-Driven Development:**These microfinance groups empower women in rural areas through collective action, providing access to financial resources and income generation opportunities.
- **Telemedicine Initiatives:** Programs like **eSanjeevani** bring healthcare services closer to remote communities, bridging the accessibility gap.
- **Mid-Day Meal Scheme:** This program provides nutritious meals to children in government schools, improving nutrition and promoting education access for underprivileged families.
- **Barefoot College:Inclusive Skill Development:**A community-based grassroots organization working to make marginalized communities sustainable and self-sufficient since 1972. This organization empowers rural women by training them to become solar engineers, providing them with skills, income, and access to clean energy.

  Planet - Preserving Environmental Harmony : Planet-centric strategies address ecological impact, emphasizing conservation and responsible resource utilization. Environmental stewardship is paramount. Businesses must minimize their environmental impact through resource conservation, pollution reduction, and responsible waste management.

Examples:

- **ITC Limited :** ITC Limited, a diversified conglomerate in India, has embraced sustainable practices to minimize its environmental footprint. Through the 'Responsible Luxury' initiative in its hotels, ITC integrates green building designs, water and energy conservation, and waste management. By aligning business operations with environmental preservation, ITC demonstrates how companies can contribute to the health of the planet while remaining economically viable.
- **Saahas Zero Waste (Bangalore):** This waste management company diverts over 90% of waste from landfills through composting, recycling, and upcycling initiatives, promoting resource recovery and circular economy principles.
- **Solar Power in Indian Railways**: India's ambitious plan to install solar panels across railway stations and trains aims to generate 100 GW of renewable energy by 2030, reducing carbon footprint and promoting clean energy transition. Indian Railways, in its ambitious move towards sustainability, has significantly ramped up its renewable energy capacity, by commissioning about 211 MW of solar plants and around 103 MW of wind power plants as of October 2023. The Guwahati railway station in the capital city of Assam is the first railway station in the country to be fully solar-powered.

4R - The Pillars of Circular Thinking

The 4Rs: **Reduce, Reuse, Recycle, and Recover / Regenerate / Repurpose**. They're the pillars of circular thinking, a revolutionary approach that challenges our linear "take-make-waste" model. **Reduce** our consumption, **reuse** what we have, **recycle** materials into new treasures, and **regenerate** natural resources for future generations. It's a closed-loop waltz, where every step is a twirl towards a greener, more vibrant future.

Reduce: Minimize the use of resources at the source. This involves designing products for durability, opting for reusable alternatives, and promoting mindful consumption habits.

Examples:

- **Coal Sector's Stride into Energy Efficiency; Steps towards Carbon Neutrality.**

  Coal India Limited has entered into an **MOU with Energy Efficiency Services Limited** to implement comprehensive Energy Efficiency Programs at CIL and its subsidiaries. This initiative encompasses **Building Energy Efficiency Projects (BEEP),** the replacement of outdated fans, air conditioners, and conventional light fittings, motors, the adoption of electric vehicles, and the installation of distributed and rooftop solar projects.

  From FY 2021-22 to December 2023, Coal/Lignite PSUs have made commendable efforts towards energy efficiency, including the replacement of 4.24 lakh conventional lights with LED lights, 5357 energy-efficient air conditioners, 83236 super fans, deployment of 201 electric vehicles, 1583 efficient water heaters, 444 energy-efficient motors for pumps, 2712 auto-timers in street lights and the installation of capacitor banks.

  The adoption of energy efficiency measures led to notable accomplishments, **yielding a total energy savings of 14.34 crore kWh** and **financial savings amounting to Rs 107.6 crore**. Further, these endeavours played a vital role in promoting environmental sustainability, culminating in a collective **reduction of 1.17 lakh tonnes of CO2 equivalent in carbon emissions.**

- **Electric Vehicles (EVs)**: The widespread adoption of **Electric Vehicles (EVs)** is anticipated to contribute significantly to the reduction of carbon emissions. By replacing traditional internal combustion engines with electric powertrains, EVs eliminate tailpipe emissions, reducing the overall carbon footprint of transportation. Studies suggest switching from a petrol car to an EV in India can lead to a **60-70% reduction** in annual carbon emissions, depending on factors like driving patterns and electricity sources.

- **Alternative Energy Generation: Reduction in Emissions**

  Solar Power: Solar photovoltaic (PV) systems can significantly reduce carbon emissions, with estimates suggesting a **reduction of approximately 90% compared to conventional fossil fuel-based electricity generation**. The process involves converting sunlight directly into electricity, emitting minimal greenhouse gases during operation. Compared to coal-fired power plants, **solar can avoid up to 0.8-1.2 tons of CO2 per megawatt-hour (MWh) of electricity generated.**

  Wind Power: Wind energy is a clean and renewable source that produces electricity through the rotation of wind turbines. Wind power can achieve a **carbon emissions reduction of about 80% compared to traditional fossil fuel-based power generation**, as it involves no direct emissions during electricity production. **Compared to coal, wind power can prevent 0.6-0.8 tons of CO2 per MWh.**

  Hydropower: Hydropower, generated by harnessing the energy of flowing water, is a low-carbon energy source. Large-scale hydropower projects can achieve **a reduction in carbon emissions of approximately 35-70% compared to fossil fuel-based electricity generation**, depending on factors like reservoir size and construction. Compared to coal, hydropower helps **avoid 0.9-1.1 tons of CO2 per MWh**.

  Biomass Energy: Biomass energy, derived from organic materials, can vary in its carbon emissions reduction. While burning biomass releases carbon dioxide, it is considered carbon-neutral when the carbon released is balanced by the carbon absorbed during the growth of the biomass. Advanced technologies, such as gasification, can further reduce emissions. **Compared to coal, well-managed biomass can avoid 0.4-0.7 tons of CO2 per MWh.**

Reuse: Give materials a second life by finding new uses for them before discarding them. This can involve product repair, creative upcycling, and implementing sharing platforms. Reuse is a sustainable practice centered on extending the lifespan of products or materials by utilizing them for the same or similar purposes without significant alterations. Unlike recycling, which involves processing and transforming materials into new products, reuse focuses on preventing unnecessary waste and conserving resources. Embracing reuse not only reduces the demand for new raw materials but also minimizes energy consumption and environmental impacts associated with manufacturing. From repurposing containers for storage to refurbishing electronics, the essence of reuse lies in promoting a circular economy and fostering a culture of responsible consumption, where items are valued for their longevity and versatility.

Examples:

- "**Saahas Zero Waste**" in Bangalore: Used oil drums find new life as water storage tanks in schools and community centers, tackling water scarcity and waste simultaneously.

- **Fabscrap:** This Delhi-based startup collects textile waste from garment factories and transforms it into stylish clothing and accessories, giving discarded fabrics a second life on the runway.

- **Oxfam India's 'Second Life' Project:** This initiative collects surplus food from weddings and events, repackages it hygienically, and distributes it to underprivileged communities, tackling food waste and food insecurity. Between 15-25 percent of the food in social gatherings is wasted, according to a survey (Report on Assessment of Wastage of Food and Ostentatious Behaviour During Social Gatherings (Marriages/Parties/Meetings, etc) in National Capital Region Delhi, by Department of Consumer Affairs).

- **Kabadiwalas 2.0:** These tech-enabled startups connect informal waste collectors ("kabadiwalas") with consumers, facilitating efficient collection and reuse of recyclable materials. They emphasize reusable packaging, reducing single-use waste and fostering a culture of sustainability.

Recycle: Recycling is the process of collecting, sorting, processing, and transforming used materials into new products, reducing the need for virgin raw materials and minimizing waste. It's the backbone of a **circular economy**, where resources are recycled after use, minimizing waste and environmental impact.In India, several initiatives exemplify the impact of recycling on environmental sustainability:

Examples:

- **"Bhool Na Jana, Plastic Bottle Lautana" -Coca-Cola & Reliance Retail – Joint Program:** Coca-Cola India and India's largest retailer, Reliance Retail, have launched a sustainability initiative for PET container recycling through reverse vending machines and collection bins titled "**Bhool Na Jana, Plastic Bottle Lautana**,"

  The project aligns with the government's Swachh Bharat Mission and has launched in 36 Reliance Retail stores including Smart Bazaar and SahakariBhandar stores in Mumbai and Delhi, and will expand to 200 stores across the country by 2025 with a target of collecting 500,000 PET bottles annually in the pilot phase.

  As part of the initiative, **Reverse Vending Machines (RVMs)** and collection bins will be installed in the participating stores, providing consumers with a convenient method to deposit used PET bottles.

  In return, **consumers will receive attractive discounts on Coca-Cola India products**. The collected PET bottles will be responsibly managed and recycled by Reliance Industries (RIL), a leader in polyester and plastics recycling.

- **Ecoware:** This company produces biodegradable and compostable tableware made from plant-based materials like sugarcane bagasse. They offer an alternative to single-use plastic plates and cups, reducing plastic waste significantly.

Recover / Regenerate: The concepts of Recover, Regenerate, and Reproduce in the context of recycling focus on reclaiming materials, restoring ecosystems, and sustainably reproducing products. Recovering involves the retrieval of valuable materials from discarded items; restoring or replenishing natural resources and ecosystems.By actively contributing to ecosystem restoration, businesses can play a pivotal role in replenishing the planet's resources.

Examples:

- **Ayodhya Ram Mandir - Floral Waste to Natural Incense Sticks:** Following the divine **Ram Pran Pratishtha Program**, with an anticipated daily influx of 22 lakh devotees to Ayodhya Dham, there was a concerted effort to ensure that the flowers that were offered did not end up as waste within the temples and shrines.

  The birthplace of Lord Shri Ram attracted numerous pilgrims annually who offered flowers in temples, generating tons of **floral waste**. To address this issue, the authorities implemented a system where the **collected flowers were sorted and transformed into certified natural incense sticks daily.**

  This processing initiative would **provide employment to women in self-help groups** and also **ensure cleanliness through proper recycling of floral waste**.

  According to estimates, after the Pran Pratishtha, **9 metric tonnes of floral waste is expected to be recycled** in all the temples of Ayodhya Dham, a significant increase from the current 2.3 metric tonnes.

  The responsibility for this environmentally-friendly initiative has been entrusted to an organization called '**Phool**,' which has signed a **Memorandum of Understanding (MoU) with the Ayodhya Municipal Corporation** for the collection and recycling of floral waste.

Ø **OIL, GMC sign MoU to Convert Municipal Solid Waste into CBG:** In a move towards environmental sustainability and cleaner energy solutions, Oil India Limited (OIL) and Guwahati Municipal Corporation (GMC) have inked a memorandum of understanding (MoU) on Saturday to collaborate on the transformation of municipal solid waste (MSW) into compressed bio gas (CBG).

This initiative aims to contribute significantly to the reduction of carbon footprint and promote a more sustainable and eco-friendly future.

One More R - Rethink!: Embracing the circular economy extends beyond closed material cycles and renewable energy—it necessitates a holistic approach rooted in systems thinking. Every participant in the economic landscape, be it companies, individuals, NGOs, or nations, is intricately interconnected, forming a network where the actions of one entity reverberate through others. Consequently, choices must consider both short and long-term consequences, recognizing the impact on the entire value chain. Rethinking involves a profound consideration of how our actions or inactions resonate with the environment.

Human activities significantly impact the physical environment through overpopulation, pollution, reckless use of natural resources, burning fossil fuels, and deforestation. These actions have precipitated climate change, soil erosion, compromised air quality, undrinkable water, and health hazards. It is imperative to rethink our roles and contributions to halt further deterioration and redirect our efforts toward positive change.

Change considerations include:

v **Educating employees on corporate sustainability.**

v **Informing consumers about responsible consumption practices.**

v **Fostering awareness among all stakeholders.**

v **Mobilizing a collective movement towards sustainability.**

By embracing these principles, we can actively contribute to a greater mission of halting environmental degradation and steering our collective efforts in the right direction.

LiFE- Lifestyle for Environment : The concept of '**Lifestyle for the Environment (LiFE)** was introduced by **Prime Minister Narendra Modi at COP26 in Glasgow on 1st November 2021**, calling upon the global community of individuals and institutions to drive LiFE as an international mass movement towards "**mindful and deliberate utilization, instead of mindless and destructive consumption**" to protect and preserve the environment.

LiFE puts individual and collective duty on everyone to live a life that is in tune with Earth and does not harm it. Those who practice such a lifestyle are recognized as Pro Planet People under LiFE.

Conclusion: In conclusion, the 3P + 4R thinking framework provides a comprehensive guide for businesses to navigate the complex landscape of sustainability. Through profit, people, and planet considerations, coupled with the 4R principles, organizations can not only secure their financial future but also foster social equity and preserve the environment. Embracing this paradigm shift is not just a choice but a strategic imperative for businesses aiming to thrive in a conscientious and interconnected world.

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REVOLUTIONIZING MANUFACTURING THROUGH AI-POWERED AUTOMATED INSPECTION AND QUALITY CONTROL

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Introduction: This article explores the transformative impact of Artificial Intelligence (AI) on manufacturing, specifically focusing on automated inspection and quality control processes. It delves into the limitations of traditional manual inspection, highlighting the increasing complexity of manufacturing and how AI addresses these challenges. The core components of AI-driven inspection systems, such as computer vision, machine learning algorithms, and sensor integration, are examined in detail. The article provides real-world case studies across industries, showcasing successful implementations in automotive, electronics, and pharmaceutical manufacturing. Challenges and concerns related to the integration of AI into manufacturing processes are discussed, including issues like data security, privacy, and workforce transition. The article also anticipates future trends and advancements in AI technology, emphasizing its role in the broader context of Industry 4.0.

Core Components of AI-Driven Inspection Systems: Computer vision: Concept: Computer vision involves teaching machines to interpret and understand visual information similarly to how humans do. Application: In manufacturing, computer vision enables machines to "see" and analyze images or video streams. It's applied to identify defects, anomalies, or quality issues in real-time. Use Case: Imagine a production line where cameras equipped with computer vision algorithms inspect each product for surface defects. This ensures consistent quality by quickly detecting imperfections that might be missed by human eyes.

Machine learning algorithms: Concept: Machine learning algorithms empower AI systems to learn from data patterns, adapt, and make decisions without explicit programming. Application: In manufacturing, these algorithms are trained on vast datasets to recognize patterns associated with defects or quality deviations.

Use cases: Consider a scenario where machine learning algorithms are applied to identify subtle variations in product dimensions. The system learns from historical data, becoming adept at flagging products that deviate from the expected specifications.

Sensor Integration: Concept: Sensor integration involves incorporating various sensors to gather data beyond what is visible to the human eye.

Application: In manufacturing, sensors capture data related to temperature, pressure, vibration, and more. This additional information enhances the accuracy of inspections.

Use cases: In electronics manufacturing, sensors can detect overheating components that may lead to malfunctions. AI systems, using data from these sensors, can predict potential failures and prevent defective products from entering the market.

Neural networks: Concept: Neural networks are a subset of machine learning, inspired by the structure and function of the human brain, consisting of interconnected nodes (neurons).

Application: In manufacturing, neural networks are used for complex pattern recognition tasks, enabling the system to understand intricate relationships within the data.

Use case: In automotive manufacturing, neural networks can be employed to analyse the acoustic signatures of engine components. This allows for the early detection of anomalies, such as unusual sounds, indicating potential defects.

Edge Computing: Concept: Edge computing involves processing data locally on the device or at the "edge" of the network, reducing latency and enhancing real-time processing capabilities.

Application: In manufacturing, edge computing is crucial for on-site processing of data from sensors and cameras, enabling quick decision-making without relying solely on centralized servers.

Use case: Imagine a smart factory where edge computing allows AI-driven inspection systems to make instant decisions on whether a product meets quality standards without the need for constant communication with a central server.

Case Study: Enhancing quality control in Automotive Manufacturing with AI

Background: A leading automotive manufacturer faced challenges in maintaining consistent product quality across a high-volume production line. Traditional inspection methods were time-consuming and prone to human error, leading to occasional defects reaching the market. To address this, the company decided to integrate an AI-driven inspection system.

Objective: The primary goal was to implement a system that could perform real-time inspections, identify defects with high accuracy, and reduce the need for manual intervention in quality control processes.

Implementation: Computer vision integration:

- Multiple high-resolution cameras were strategically placed along the production line to capture detailed images of each automotive component.
- Computer vision algorithms were deployed to analyse these images, identifying visual defects such as scratches, dents, and inconsistencies in paint quality.

Machine learning for anomaly detection:

- A machine learning model was trained on a vast dataset of images containing both defect-free and defective components.
- The model learned to distinguish between normal and anomalous patterns, allowing it to detect defects that might not be visible to the human eye.

Sensor Fusion:

- In addition to visual inspections, the system integrated sensors to capture data on dimensions, temperature, and structural integrity.
- The fusion of sensor data and visual analysis provided a holistic understanding of each automotive component's quality.

Use case: During the production process, the AI-driven inspection system continuously monitored components, including body panels, engine parts, and interior elements.

Surface Defect Detection: Computer vision algorithms identified surface defects such as paint imperfections, ensuring a flawless exterior finish.

Dimensional accuracy: Machine learning algorithms analysed dimensions and tolerances, flagging components that deviated from the specified standards.

Early detection of potential failures: Sensors detected anomalies in temperature or structural integrity, enabling the system to predict potential failures before they manifested.

Results:

- Increased inspection speed: The Ai driven system operated in real time, significantly reducing inspection time compared to traditional methods.
- Enhanced accuracy: The system demonstrated a higher accuracy rate in defect detection, minimizing the risk of defective products reaching the market.
- Cost savings: By automating the inspection process, the manufacturer reduced reliance on manual labour for quality control, leading to cost savings.
- Improved product quality: Consistent and precise inspections contributed to a notable improvement in the overall quality of automotive components.

Challenges and addressing concerns are crucial for the successful integration of AI in the automotive industry.

Integration challenges: Integrating AI into existing manufacturing processes can be complex and may disrupt established workflows.

Solution:

- **Gradual implementation:** Adopt a phased approach to integration, allowing for gradual adjustment and minimizing disruptions.
- **Collaborative implementation:** Involve key stakeholders, including engineers, technicians, and AI specialists, in the integration process to ensure a holistic understanding and smooth transition.

Data security and privacy concerns:

Challenge: Collecting and processing sensitive data in the manufacturing environment raises concerns about data security and privacy.

- Solution: Secure data transmission: Implement secure communication protocols to ensure the safe transfer of data between AI systems and manufacturing equipment.
- Privacy by design: Build ai systems with privacy considerations from the outset, implementing measures such as data anonymization and access controls.

Workforce Transition:

Challenge: The integration of Ai may lead to concerns among the workforce about job displacement and the need for new skills.

- Solution: Upskilling programs: Invest in training programs to upskill the existing workforce, equipping them with the skills needed to collaborate with AI systems.
- Clear communications: Transparently communicate the role of AI as a complement to human skills, emphasizing collaboration rather than replacement.

Reliability and safety:

Challenge: Ensuring the reliability and safety of AI systems is critical, especially in applications that impact vehicle performance and safety.

Solution:

Robust testing protocols: implement rigorous testing procedures to validate the reliability of Ai algorithms under various conditions.

Redundancy systems: integrate redundancy systems and fall safes to mitigate the impact of Ai system failures and ensure the overall safety of automotive operations.

Regulatory compliance:

Challenge: Adhering to evolving regulatory standards in the automotive industry poses a challenge, especially as AI applications become more integral.

Solution:

· Continuous monitoring: Stay abreast of regulatory changes and ensure that AI systems comply with industry standards through continuous monitoring and updates.

· Collaboration with regulatory bodies: Collaborate with regulatory bodies to establish guidelines for the responsible deployment of ai in automotive applications.

Cost concerns:

Challenge: Implementing AI systems may involve significant upfront costs, raising concerns about the return on investment.

· Solution: Long term perspective: Consider the long-term benefits of Ai implementation, such as increased efficiency, reduced defects, and improved overall product quality.

· Pilot projects: Initiate smaller pilot projects to demonstrate the tangible benefits of AI before committing to large-scale implementations.

By addressing these challenges through strategic planning, collaboration, and a commitment to responsible AI deployment, the automotive industry can successfully harness the transformative potential of AI while mitigating potential risks and concerns.

Conclusion: : The implementation of an AI-driven inspection system revolutionized quality control in the automotive manufacturing process. By leveraging computer vision, machine learning, and sensor integration, the company achieved a more efficient, accurate, and cost-effective approach to ensuring the highest standards of product quality. This case study serves as a testament to the transformative power of AI in enhancing manufacturing processes in the automotive industry.

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THE ADVENT OF Q-COMMERCE IN SUPPLY CHAIN:

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Quick Commerce in supply chain is the speed to deliver goods to customer, consumer, within the time, this is normally focussed on high demand goods, services, done with increased efficiency, using the best strategy of micro-warehouses in order to deliver the known customers, consumers' experiencing the best selling of goods in supply chain.

Quick Commerce is a unique business model, in the context of delivery of goods, services, that is normally done on a priority basis, on the concept of order based in supply chain. Quick Commerce originated from a standard form in exchange of business documents, orders, invoices, between suppliers, business, customers, consumers in supply chain.

Supply chain has been affected by the Quick Commerce, in the concept of logistic movements, delivery, on the shortest period of time, affecting thoroughly on the local delivery, at shortest, so-much-so at the much little time, giving importance to the last-mile delivery, being very optimistic about efficient, efficiency, continued delivery process, which may sometimes be delayed due to complex handling of the Stock Keeping Units, as it is considered that Quick Commerce, will be able to receive impact on all precautionary measures taken in supply chain.

In supply chain Quick Commerce has come out to the next evolution with quicker, faster delivery, on the basis of daily requirement, to meet the definite time delivery, on an estimated delivery period of time in supply chain. Rapid delivery in supply chain is termed to that the organisation provides quick delivery, during the post-pandemic periods in order to meet the daily needs, during a fraction of time, with the brands, likings, requirements of the customers, which normally takes time to deliver the products, items in supply chain.

Service is an essential part of Quick Commerce, in order to connect the customers or consumers, with the concept of best technology adopted, on the fulfilment of the daily needs, with a rapid expansion to reach the presence of customers, consumers, in supply chain. Tracking in Quick Commerce become a real-time value analysis that benefits superior trade system, last-mile delivery which changes the profile of the consumer, accelerated by the efficient growth, caused behind the developing sector in supply chain.

Disruption, risk, in supply chain with the increase on demand, for door delivery, of essential products, items, the Quick Commerce has come a long way to suggest to have an unprecedented growth, as the on-demand delivery of daily requirements, with rapid on-line procurement, purchasing power increasing, as the new model of delivery has cut down the delivery stages in mastering of time, as many organisation have begun to crowd source labour to build the network in warehouse, stores that strategically located to complete the delivery to customer or consumer in supply chain.

Switching on to supply chain to Quick delivery, will need of efficient, warehouse, stores operation management, in order to meet the out-growing demands, that convert the stores or warehouse as fulfilment centre, allowing customer or the consumer, giving the freedom of better choice in supply chain.

Consolidation, rationalising of supply chain among the delivery of essential items, in Quick Commerce, products, will try to bring in the key improvement, which will be able try and generate better, also higher profit among the supply chain.

New horizons open up in supply chain business units, with adhering to the new concepts of bridging the competitive advantage, as it adds up the value chain proposition to the business model, in order fulfil, and help the convenience of Quick Commerce in speed as a part of the activity in logistic, supply chain.

Customer satisfaction is very much necessary in supply chain, as it becomes important to keep business in any organisation on a steady flow, also to keep track of customers, expectations, experience, in order to keep the work on a vertical balance, giving importance in order to satisfy the Quick Commerce delivery to the customers or consumer's., in order to attain their loyalty, with their expectation of satisfying the consumer's or customers in supply chain.

Urbanisation of supply chain with aging population, smaller households has led to the performance for convenience, efficiency in Quick Commerce delivery, also a massive shift in customer or consumer, demand with prompt buying decisions, the modern consumer has habituated, the system to take away, on-line shipping for a quick same day minute delivery, evolving digital evolution, as customer favour fast delivery at convenience in supply chain.

Business in supply chain is progressing with Quick Commerce that is being fast paced on a day-to-day basis, with new opportunity to self-achieve growth, with right strategy, knowledge, so as the supply chain business thrives in competitive-edge industry in supply chain. Growth in supply chain due to consumer preference in Quick Commerce in existence, has a preference for faster delivery, instant receipt of products, goods, because of the growth, also inefficiencies' that create the last-mile sometimes complicated, as this will be identified with increased digitalization, in order to allow technological changes, innovation at a faster growth in supply chain.

Backbone of Quick Commerce built on the warehouse or stores in progress, which is considered small, to support lesser stock keeping units, with the use of Artificial Intelligence, on which forecasting tools are based, does allow to plan the required inventory, location, loss to bring in optimization to help the customer meet the demand effectively with minimum inventory in supply chain.

Consumer's choosing convenience as a result, for better value chain, had thus increasingly caused a busy lifestyle, which was normally caused by unplanned purchase or procurement, as this has increased the normal buying in supply chain, as a result planned purchased was lagging backward due to the advent of Quick Commerce, which had become a boom to customers or consumers' with speed reliability in supply chain. Warehouse Management System is necessarily to adopt Quick Commerce, successfully for the need to develop high technology data driven, for efficient operation process in order to maximize efficiency, with voice directed, picking, keep-away, of inventory, with a need for a real-time management, in order to maximize better delivery, against incoming orders, also strengthen the integrated fulfilment of distribution in supply chain.

Demand driven supply chain need good also an agile execution, in order to avoid frequent stock-outs in Quick Commerce, depending upon the supply chain to increase the assortment (miscellaneous collection of items) so as to offer a wider range to consumer or customer's, as higher miscellaneous collection of items, leads to higher demand with a good compromise in Quick Commerce to deliver with a proper mind to consumer's or customer's, as per their requirement as they are to be fulfilled with the required delivery, with the stock available in warehouse or stores, as per the available requirement in a sustainable manner in supply chain.

Analysis have been clear in Quick Commerce that supply need not appear with demand, in proportion to any factor, due to Quick Commerce see new competitors enter the market, as it becomes very clear, that the need for is the speed delivery, efficient, efficiency, mechanism, as many of the wholesalers, retailers, manufacturers, will never keep to be idle, in conjunction with new entrants, with such competition, also having a significant share in supply chain.

The next stage of speed in Quick Commerce is the delivery, with proportionate service to contest with the consumer, as this goes a step further to delivery small required orders, almost instantly, whenever, wherever consumer are in need of the requirement, as this encourages shopping on demand, rather than shopping at large list, at a stretch, a trend that is catching up faster in supply chain. Momentum gained amidst the peak hours, has gained larger manufacturers, wholesalers, retailers, dealers, with a new start-up encouraged in supply chain, that have been fulfilled with the process to enable the same day delivery, with much better speed, efficient, efficiency, with utmost growth expected in Quick Commerce in supply chain.

Existence of Quick Commerce has been sometimes considered to be used extensively for the faster take-away delivery, during the period of lockdown, pandemic, epidemic, as it has been very useful for these segments, that were merely relying upon on-line, shopping, amidst various problems, as many large organisations, took the opportunity to keep up the delivery service to provide better prompt, efficiency, efficient delivery in many of the areas of supply chain. Representing Quick Commerce in supply chain, as the next step that has been accompanied by the consumer's or customer's as a shift towards on-line, during lock-down, pandemic, epidemic, as a midst of such changes, adopting instant delivery, services, were always considered to be amongst the best services, that is positioned to be captured, during the first influx of the on-line, services, that retailers, wholesalers, shoppers could adopt, or look for a speedy delivery in supply chain.

Data analysis on speedy instant delivery to consumer's, or customer's, by Quick Commerce, for a specific need, does also require to provide the need for a feed-back, on consumer browsing or looking for a particular purchase, preference can be given to customer's, for the recommendation to engage current prospective customer's, which can also be empowered with predictive analysis, to the type of quantity, the customer can purchase, that can be optimized with the inventory available, in order to plan efficient delivery schedule, with proper work-force, scaling proper decisions, this can also recall customer behaviour preference, that can prove useful, with proper data required, for proper brands, for future requirement of delivery in supply chain.

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CATALOGUING PLAYS AN IMPORTANT ROLE IN INVENTORY MANAGEMENT

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I. **Objectives of cataloguing:** Cataloguing is also known as codification. There are several reasons why categorisation and cataloguing is the first and foremost important activity in SCM for organising proper inventory management, procurement and storing. Cataloguing serves the following purposes of inventory management needs in any industrial organisation:

- Aids in effective purchase, storage, accounting and costing of items.
- Cataloguing is the process of assigning a unique identifying number to an item based on its characteristics and functional usage.
- It avoids the duplication of the items.
- Cataloguing aids in the decrease of variety of distinct categories as well as the variability within the category itself.
- Each and every item relating to production is allocated and identified with a catalogue number so that all the activities relating to the item such as finalising specifications, usage, issuance, procurement, storage, transportation, and preservation becomes simple and clear.
- Items can be catalogued on basis of variety, criteria and bases, such as source of supply. As a result, purchase orders may be placed on specific suppliers based on known catalogues.
- A catalogue aids in the quick identification an item in a warehouse. The efforts necessary to identify the items and their location in warehouse are minimised. In the ERP / SAP and Computerised Material Management System, the location is also recorded along with the catalogue number.
- Cataloguing is the initial step in standardising and rationalising objects by merging similar items or items with minor difference in the specifications but serving the same purpose in use.
- It is relatively simple to locate a list of all non-moving items in stores based on the list generated based catalogues.
- Cataloguing aids in introduction of the concepts of value engineering and value analysis for reduction of various categories of items and achieving cost reduction in inventory.

II. **Benefits of a good material cataloguing system:**

- Cataloguing aids in monitoring and controlling inventory.
- Catalogues aid in achieving the accuracy of purchase orders, repeat generation of the purchase orders, and maintenance of records of receipts, issues and inventory.
- Aids in improving long term planning of inventory and its control.
- All information and data of stock, location, use, transit, cost, consumption, supplier, cost of the item, last purchase, vendor rating, past performance, consumption pattern, information about the users etc. relating to items is instantaneously available on computer screen through use of ERP and SAP systems.
- It enhances the purchasing efficiency and tracking of purchases.
- Assists with company's budgeting, procurement, issuing and indenting and payments.
- Assist in tracking the location of materials in the stores.
- Easy to find out the duplicate catalogues for same and identical items.
- Aids in standardisation and specification of items so that total number of items used in inventory are reduced.
- Using the catalogues, the overall value of inventory, each item category wise inventory

and completed product inventory can be accessed instantaneously which helps all user and finance department.

III. Salient features of a good cataloguing system:

- All the required materials, items, consumables, raw materials for operation and maintenance of plant are included in central master catalogue register.
- All the goods and item used in the organisation are correctly identified and classified with no exception.
- Handling cataloguing request assignment which will be handled swiftly by the catalogue allotment committee using efficient and effective systems.
- Responsibilities for appropriate executives to be assigned for allotment of new catalogues, as per cataloguing system of company policy.
- Accuracy in allotment of catalogue number to be ensured by authorised persons.

IV. Why classification of the materials:

The following are the reasons why classification and categorisation of the commodities is an essential requirement for any large industrial organisation to operate smoothly:

- **Easy handling of the items:** The specific category of items can be handled with a comprehensive knowledge of this category and can be held at one place making it convenient for storing, identifying, as well as issuing and determining the stock at any point of time.
- **Proper location:** Appropriate items categorisation ensures that duplicate items are identified and necessary action is taken to avoid them through catalogues, the location can be earmarked for particular class of items. Even location of item can be traced based on catalogue.
- **Easy accounting:** If the items of the inventory of company are categorised and catalogued, it is simple to determine the cost of these items and accordingly can be accounted properly. All the information can be easily available in the ERP.

V. System of cataloguing

- Different organisations use different systems of cataloguing suiting to its needs, capacity of operation and number of items to be catalogued in the organisation. It is probable that this approach will not be able to cover every system.

VI. Numerical system of cataloguing:

This system is widely used and followed in many major industrial organisations due to the following advantages:

- This cataloguing method is simple to understand, follow and implement.
- Each catalogue is one-of-a-kind.
- This catalogue system is adaptable to future demands like plant expansion and addition of numerous new items in existing system of catalogues.
- This system facilitates the standardisation and rationalisation of items in an easy manner.
- Just by looking the catalogue, one may obtain a good notion of the items with reference to its category, location of the use, the department uses it, and to which group of items it belongs to.
- In this system, it is easy to add digits in such a manner that new items can be accommodated in cataloguing system without disturbing the current catalogues for various items.

v **Example of numerical system of cataloguing:**

The numerical system of cataloguing often employs 6 to 11 digits. Of course, there are no restrictions to use different structure of digits by any company. The company should guarantee that not only all the items used presently but also any future expansion items are covered in the cataloguing system without any restrictions, limitations and confusions.

Considering above in view, one typical example of numerical cataloguing system could be as per following 11 digits:

1 2 3 4 5 6 7 8 9 10 11

1: Plant expansion stage
2, 3: Departmental code where item is used
4: Group of the equipment
5, 6: Sub-group of the equipment
7, 8: Category of the item
9, 10, 11: Actual item details

VII. How to handle cataloguing:

- The organisation should have single centralised technical committee with representatives of production, maintenance, SCM and finance department to handle all cataloguing concerns.

- If the organisation is not too large, the cataloguing can be handle by the Make-or-Buy committee which will assess and scrutinise catalogue requests.

- The cataloguing committee should take the following precautions:

• Classification of all the items utilised in the company.

• Allotment of unique catalogue number for an item and brief technical specification of that item.

• Conducting periodic review of the current catalogues with reference to suggestions for improvement, difficulties faced and mistakes in the cataloguing system.

• Standardisation and rationalisation of specification, as well as avoidance of over-and-under specification of items.

• Ensuring that all catalogue numbers are available in the database of ERP as a master catalogue register.

VIII. Cataloguing of existing items:

Items should be catalogued as per cataloguing system accepted, approved and issued by the organisation. This is known as a Master Catalogue Register.

IX. Addition of an item to catalogue master:

- There shall be strict control on addition of an item to catalogue master. The addition of a new item to the catalogue master must occur only after the recommendation of appropriate authority for entry into the computer system.

- The catalogue committee must guarantee that no items receive more than one catalogue number.

- To ensure that different catalogue numbers are not allotted to identical / same items. For example: whether the item is imported or created locally, the catalogue should be one. Similarly, identical items being used in different locations should have one catalogue. As a result, catalogue committee should ensure that no duplicate catalogues are allotted to similar items.

- Allotment of all catalogue numbers shall be made through computerised system as per the approved procedure for allotting cataloguing numbers.

- Concerned persons allotting the catalogue number should be technocrats with experience and knowledge of the employed production processes, categories of items used in production, technical specifications of the various categories of items used for various organisational activities, and so on.

X. Cataloguing for substituted item:

- Request for addition of an item to the catalogue master due to revision / change in specification to catalogue committee, shall be accompanied with certain recommendations. The former catalogues, like the catalogue of a substitute items, must be deleted.

- When it is required to keep both the old and new catalogues, this must be done with the agreement of relevant authority in accordance with cataloguing policy. In such cases both catalogues for old and new items will be linked to know the stock and other details of these items in the computerised system.

- The old catalogue number will be monitored to stop any procurement in future. As soon as the old catalogue's supply is depleted, the old catalogue number should be removed from the catalogue master.

- Wherever double catalogues prevail for an unavoidable period of time, the computer system of the company must indicate with different color or warning system so that at an appropriate time old catalogue is closed and new catalogue system continues for other further procurement and inventory for use as per following:

• Use the current stock for old items.

• Determine if the current stock of the old items is surplus or obsolete or non-moving.

• Cancel the pending purchase orders of old items.

- The catalogues for the project and capital items also should be completed as quickly as possible when all the relevant details of the items including the correct specifications, quantity in use and other details are available from concerned department, such as the project department or supply-chain management.

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TIME TO DISCOVER YOUR INNER GPS (GUIDANCE POSITIONING SYSTEM)

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Background : The graph of life comes with peaks (ups) and valleys (downs), generously creating human experiences. As humans, we belong to a family, an organization, and society at large, manning diverse hats. In the 21st century, there is a fundamental change in the ways of working and living. The human race has witnessed the evolutionary process positively, along with chaos and turmoil in the world outside as well as within oneself—the war of Kurukshetra internally. Precisely, the amplification of internal war has led to social, emotional, physical, environmental, and spiritual imbalances. The common experiences that we are facing today are difficult conversations, work and personal conflict, wellness challenges, personal events, transitions personally and professionally, self-care, and managing up, to name a few.

Evaluation : In the journey of playing varied roles, we encounter growth mindsets and toxic mindsets in people and situations. The apprehension arises when events and humans around are of an anti-growth mindset. We react to such situations by questioning ourselves about the hard work, sincerity, and contribution made in different roles and timelines.

Specifically, in the workplace these disturbing situations lead to a self – talk with thoughts of past contribution, shared goals and vision, efforts made to achieve those goals, extended working hours and the compromises made in the personal front.In addition, there will be disgruntle from the family members, late lunch or missing lunch, working when unwell to meet deadlines, withstanding the rumour-mill crushing from peers, colleagues and management and chain of thoughts disturbing the peace of mind. This continuous turbulence within oneself over a period leads to argument within oneself, leading to suppressed anger, frustration, motivation blues and regret about the choices and decisions made about the 'place' and 'people.'

Proposed Solutions : The beauty of life is that amidst all this internal muddle lies hope, faith, and guidance from deep within. This inner strength is profound and unmatchable, as this is the real essence of our 'being.' That is the Inner Guidance Positioning System (IGPS) that leads us to renavigate and reposition ourselves. We are born to be a better version of ourselves every moment, with the purpose of being humane. The question is, how to hear this inner voice? The answer is:

- **Acceptance**: The first step is to calm down and accept the situation and people as they are without any emotion attached to them.
- **Gratitude**: The expedition called life has given us countless blessing to be grateful. Be thankful for whatever you are now, at this point in your life.
- **Codify Your Self—Talk:** The important person to speak with is yourself, with calmness and kindness. Change the 'direction of your inner conversation,' from others to yourself. Stop blaming others and yourself; refocus on the goal you want to achieve.
- **Forgiveness**: The law of nature is built on the principle of forgiveness, which is indeed a part of our very nature. Make a choice of forgiving self, others and obviously situations and events. There is an iota of goodness in everyone and everything, appreciate it.
- **Turnaround your lens of life**: Live for the day, for the moment and appreciate your progress every second. Be on a 'Mission Day- to- day management.' Success comes in different sizes and shapes, customise it, there are no limitations.
- **Face forward**: Move out of the endless playing tape of past errors and anguish. Relentlessly

move forward with your head held high. Convert regrets into improvements.

- **Unburden your baggage:** Measure what matters; life comes with an unlimited bandwidth. Unburden yourself from judgments, biases, predispositions, and the heavy baggage of ego. Time is the solution for everything; it does not mean you are helpless; it means you know yourself and have connected with your inner compass.

In this tumultuous journey, there is a strong need to drive ourselves towards light, being mindful of our actions and their consequences, the path of understanding ourselves, and realizing the need to lead a life of purpose. This would lead to balancing the soul, body, and mind and eventually connecting with the self, which means connecting with the universe.

The path of self-awareness takes us to a different state of mind, understanding, behaviour, and action, realizing the truths of life, which are:

- Prayer over Power
- Realization over Religion
- Purpose over Passion
- Inward journey over Outward journey
- Detachment over Attachment
- Compassion over Competition
- Empathy over Enmity

Conclusion

Pause and look for the upside is the mantra. This shift in thinking turns all experiences into growth and wisdom. The path of unplugging and recharging helps in reframing our perspectives. The way forward would be to overcome the thirst for significance and explore 'a day away' with no spotting of problems or probing for solutions.

Life is all about stories and carrying them is unbearable. This calls for managing oneself and using it as fuel to focus on getting better.

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WHAT IS GENUINELY NEW IN SUPPLY CHAIN MANAGEMENT?

STEVE BANKER, OMNI-CHANNEL LOGISTICS

Trends last for years. But how often do significant new things happen? In most years, there is nothing new in supply chain management. In the past year, we have seen two genuinely new developments.

ESG Enforcement Gets Teeth : The US Customs and Border Protection Agency's stringent enforcement of the Uyghur Forced Labor Protection Act has importers concerned. The UFLPA prohibits goods mined, produced, or manufactured wholly or in part in Xinjiang from entering the U.S. This act is in response to the People's Republic of China arbitrarily detaining more than one million Uyghurs and other Muslim minorities in China's Xinjiang Uyghur Autonomous Region. The US Department of Labor reports that 100,000 Uyghurs and other ethnic minority ex-detainees in China may be working in conditions of forced labor following detention in re-education camps.

CBP statistics show that more than half a billion dollars of goods presumed to have been made by Uyghur slave labor have been detained and prohibited from entering the country since active enforcement of the UFLPA law began on June 21st of last year.

5,562 shipments were detained at the US border since enforcement began. Of these, 2,583 were denied entry into the US. The value of the shipments detained was over half a billion dollars.

The detentions have occurred across a variety of industries. But electronics; industrial and manufactured; and apparel, footwear, and textiles make up the bulk of products detained. But forced labor is even being used in the Chinese sea fleet and seafood detentions are occurring as well.

Surprisingly, most of the goods seized did not originate in China but rather in Malaysia and Vietnam. In the case of goods detained from Malaysia, manufacturers in those countries were producing goods often made with ores that were mined and refined in Xinjiang. In the case of Vietnam, it was more likely that Vietnamese companies were making apparel with cotton grown or processed into fabric in Xinjiang.

Outside of the U.S., several countries have enacted legislation to ban products made with forced labor. However, these regulations don't have the same bite as the US law. What gives the US act teeth, is that "the 'rebuttable presumption' part of UFLPA is truly unique. Anything coming out of Xinjiang is presumed to have used forced labor unless you can prove the negative. There is also a lack of a de minimis exception; this means that even an insignificant input of product produced in whole or in part with forced labor could result in enforcement action.

It is commonly believed that Europe leads the US in environmental, social, and governance legislation and enforcement. However, no nation's enforcement of any ESG issue comes close to the US Customs and Border Protection Agency's enforcement of the Uyghur Forced Labor Protection Act.

Omnichannel Retailers Leverage Optimization

Historically, omnichannel software solutions were not capable of optimization. This meant that retailers were not maximizing their profitability.

Omnichannel refers to the ability of a consumer to get products fulfilled to them in various ways. A customer can of course buy goods in a store. They can also order online and have goods shipped to their home. Or they can order online and pick up the product at the store. There are several other fulfillment and product return options as well. An omnichannel order management system helps companies meet growing customer expectations.

An omnichannel order management system allows an organization to execute order fulfillment across all channels and fulfillment flow paths. Historically, an OOM has access to all the company's inventory. The system allocated which orders would get inventory from a given location to fulfill an order.

Rules were used to make these decisions. For an online order that needs to be delivered within 24 hours, for example, the rule might state that the goods should be shipped to the consumer from the closest location. These rules can be put into a hierarchy. For example, look to fulfill from the closest store location to the consumer first, but if not all the ordered items can be fulfilled from this location, then fulfill from this the e-commerce warehouse. The rules hierarchies in these systems can get quite complex.

The problem with the rules that retailers use for omnichannel fulfillment is that they leave money on the table. The hierarchy of rules is too simple to fully optimize profitability.

Now, however, a couple of software companies, Manhattan Associates and Blue Yonder, have introduced optimization capabilities into their omnichannel solutions. These more advanced solutions leverage network inventory visibility and demand forecasting models and constraint logic to drive genuine optimization.

Retailers don't want to over-promise and under-deliver. So, the parameters they use in making their promises are conservative. The pickup time by carrier, transit times, and estimates about how many items a warehouse can pick per shift, are conservative to ensure that promises can be kept. But there is a cost to this. It can lead a retailer to promise something will be delivered in four days when it really could have reliably been delivered in two. This can lead customers to abandon their carts and go elsewhere. Among a sample of Manhattan Associates' omni retail customers, 85% of the time the orders could have been accurately promised 1.5 to 2 days earlier.

Manhattan Associates is using machine learning to accurately parametrize the order promise. By looking at the historical data on an ongoing basis on what is achieved – by carrier, by lane, by mode, by pick rate at a fulfillment location, by day of the week or season of the year, and so forth – the system can be autoconfigured to make accurate promises for earlier deliveries.

Source: logisticsviewpoints.com

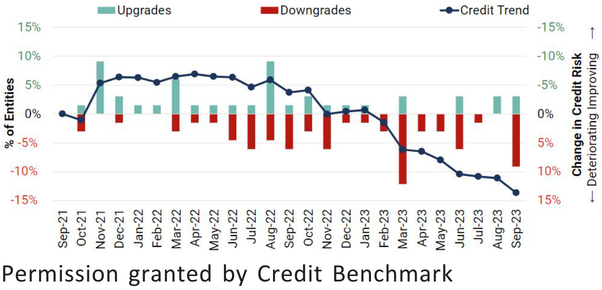
'IT'S A TOUGH INDUSTRY OUT THERE': A LOOK AT THE FURNITURE SUPPLY CHAIN'S CHALLENGING YEAR

BEN UNGLESBEE, SENIOR REPORTER

Operational headaches have contributed to financial failures among some suppliers. That has created problems for retailers — and opportunities. When the furniture maker Noble House filed for bankruptcy last September, its story of financial collapse reflected the wild, wearying ride for much of the industry since the onset of the pandemic.

Sales for the sector ballooned early on during the COVID-19 pandemic. Giving the industry a boost were consumers outfitting home offices for remote work and redecorating the homes they were so often bound to as they tried to avoid contagion. To take Noble House as an example, its sales rose 48% in 2020 and 11% 2021. But by the end of 2021, sales for the manufacturer had begun to decline from their pandemic heights at the same time as freight costs skyrocketed amid port snarls, container shortages and congestion in ocean shipping. Inflation, long lead times and rising costs for inventory all made for a financial crisis.

Noble House wasn't alone in filing for bankruptcy amid those challenges. Furniture maker and retailer Mitchell Gold Co. shut down in August and soon filed for bankruptcy, leaving a nightmare for customers and logistics servicers in its wake. Another furniture maker, Klaussner Home Furnishings, shut down at around the same time. The furniture retailer Z Gallerie also filed bankruptcy and liquidated its footprint last fall. By September 2023, a credit risk index for the household goods industry deteriorated by 15% since the start of the year, according to Credit Benchmark data provided to Supply Chain Dive.



Permission granted by Credit Benchmark

Data from analysis firm RapidRatings shows that average Core Health Scores, which measure medium-term operating strength and efficiency, fell in 2023 by 8.5% year over year across public and private companies in the furniture sector, hitting the lowest point in the past five years. Some of the largest declines came from firms in the forest product and chemical sectors within the furniture sector. Meanwhile, RapidRatings' Financial Health Scores, which tracks short-term default risk, fell by 3.8% YoY for private and public firms in the furniture sector in 2023 — also hitting their lowest mark in the past five years.

Evolving supply chain challenges : Furniture as an industry was hit especially hard by pandemic-era supply chain disruptions. Bulkier, heavier items are always harder to ship. And when cargo ships filled up and ports backed up, air shipping wasn't really an option. Mitchell Gold and Noble House both cited lead times in their supply chains as operational complications that contributed to financial crisis. Today, many of the remaining challenges are related to managing excess inventory, following widespread sales declines.

Rick Jordon, a senior managing director in FTI Consulting's business transformation practice, pointed to warehousing as an ongoing challenge and cost for the sector. "We're still in that great destocking of the post-COVID era, so warehouses in North America seems to be full," Jordon said. Supply costs are also haunting some in the industry. "We've been helping clients out that pre-bought from suppliers, because they didn't know when and how long it would take to recover" from inflation, Jordon said. Others signed long-term contracts to try to hedge against further large price increases. "They locked in their lumber or leather goods at a higher price," Jordon said.

And then markets shifted in 2022. Commodity prices receded from their peaks, and consumers pulled back on purchases. The combination of lingering high costs and weak demand have added pressure to what was already a tough space to compete in. "There's low margin in furniture at the end of the day," Jordon said. "It's a cut-throat business."

When suppliers fail, disruption and opportunity arise : In that environment, there have been winners and losers. "It's a tough industry out there, and in our highly fragmented market, there's been a decent number of both manufacturers and retailers that are leaving the business," La-Z-Boy CEO and President Melinda Whittington told analysts in November. When furniture suppliers fail, the ramifications can be felt upstream. Big Lots faced shortages last year after the manufacturer United Furniture Industries — previously Big Lots' largest vendor — shut down abruptly in late 2022.

While problematic for retail supply chains, those bankruptcies and liquidations can be a boon to healthier suppliers in the space. Cowen analysts in August noted that Mitchell Gold's liquidation could benefit other sellers such as Arhaus, Crate & Barrel and Pottery Barn, among others. La-Z-Boy's chief acknowledged opportunities for the furniture brand created by liquidated manufacturers. "Across some of our other smaller brands, we're making sure that we're mobilizing to help retailers that have lost some of their supply sources as manufacturers have gone out," Whittington said. "If other channels close up, they're looking at us."

Source: www.supplychaindive.com

AI'S TRANSFORMATIVE ROLE IN EMPOWERING COMPANIES TO OPTIMIZE PROCUREMENT

SHAZ KHAN, CEO AND CO-FOUNDER OF PROCUREMENT PLATFORM VROOZI

Here's a look at how the technology is making waves in supplier management, predictive analytics and more, from Vroozi's Shaz Khan. Artificial intelligence is a transformative force, reshaping the procurement landscape and offering companies an unprecedented opportunity to revolutionize their supply chain operations. This powerful tool accelerates problem-solving, data analysis, customer service and product innovation, making it a game-changer in the world of procurement.

Procurement processes are replete with repetitive tasks, transactional documents and vast historical data — the perfect breeding ground for the introduction of AI solutions. These technologies bring compliance, control and speed to the supply chain, enabling organizations to measure supplier risk, streamline onboarding and offboarding processes, automate purchase order deliveries and monitor tax compliance across different countries.

Procurement, in the age of AI, is on the cusp of becoming the digital showroom that defines organizational efficiency. The integration of AI promises to automate and digitize many laborious processes in sourcing and procure-to-pay cycles, resulting in remarkable gains in productivity, significant cost savings and enhanced operational efficiency.

How AI is currently reshaping the procurement landscape

AI is a tool that is accelerating the way companies attack solutions to complex problems, analyze and crunch large amounts of data, deliver exceptional customer service and innovate new products for the market. Procurement and sourcing have clearly defined and repetitive processes, transactional documents, large amounts of historical data and a list of clearly defined business outcomes from cost savings to document processing costs.

Because of these characteristics, procurement has the opportunity to become the leading AI digital showroom for organizations. Many repetitive and time-intensive processes in the sourcing and procure-to-pay cycle can be automated and digitized with AI, leading to immense productivity gains, incredible margins and substantial operational cost savings.

While the introduction of AI solutions is still in the early stages for procurement and sourcing organizations, we are seeing incredible use cases in the market.

For example, with intake, a new employee can interact with a chatbot integrated into their existing messaging platform to request a PC laptop and AI can orchestrate the entire approval and ordering process for the user without the user having to log into any formal user interface or application. Similarly, in accounts payable, AI can extract and analyze any type of incoming supplier invoice data, process the invoice, and send approved invoices for payment and other invoices to a quarantine queue where they can be reviewed by a manager to resolve issues.

I would categorize the areas AI is making an immediate impact on procurement into four broad buckets:

- **Document orchestration** - Initiating and processing purchase orders and invoices with pre-approved supplier pricing, identifying reliable and cost-effective suppliers and automating business workflows.
- **Supplier management** - Automating the identification and management of new suppliers; tracking supplier compliance, updating supplier data and detecting any early warnings or risks with suppliers.
- **Contract and tax compliance** - Process invoices with the jurisdictional tax and in-country compliance requirements; ensure incoming invoices align with contract pricing and terms; ensure employees are purchasing from electronic marketplaces aligned with corporate goals around CSR, sustainability and small business and diversity goals.
- **Predictive analytics** - AI can analyze spending patterns and historical data to provide insights into organizational spend data such as spend by category, location and provide alternate sources of supply. In addition, AI can be used to provide insights into potential fraud or supplier risk.

These capabilities share a theme of increasing supply chain velocity, enhancing buyer-supplier collaboration, reducing order costs and boosting company profitability and customer satisfaction.

All opinions are the author's own.

Source: Supply Chain Dive

SUPPLY CHAIN RESILIENCE IN A HIGH-COST ENVIRONMENT

CHRIS ROGERS

The disruptions of the past decade have taught us the value of supply chain resiliency, but can companies afford to make the necessary investments in a challenging economy?

Global supply chains have faced a decade of disruptions. The most significant have included the U.S.–China trade war, the COVID-19 pandemic-era consumer goods boom, and the Russia-Ukraine war. While supply chain activity has been more normalized during 2023, there are significant risks heading into 2024, including new industrial and environmental policies and possible labor actions.

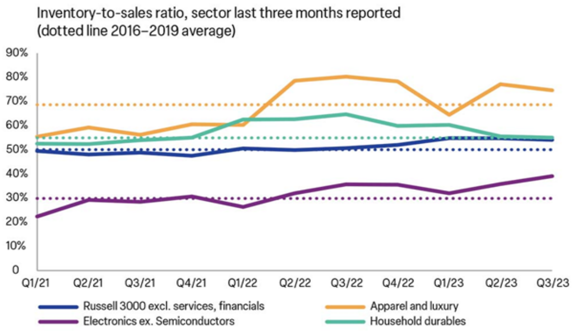
WILLING TO MAKE THE INVESTMENT?

Supply chains need to be more resilient, but questions remain over whether corporations and their investors are willing to make the investments necessary to fortify them. S&P Global Market Intelligence data indicates that gross operating profit margins for manufacturers globally are expected to fall to 10.4% of sales in 2024 from 10.7% in 2022. The decline is expected to be particularly stark for the computing and electronics sector and domestic appliance manufacturing. At the same time, capital expenditures are forecast to exceed gross operating profits by 5% in 2024 after being equal to them in 2022. Reinvesting in capital stock may take priority over spending on supply chains.

One tactic that companies used to hedge against disruption during the pandemic era was to keep more product on hand via elevated inventories. The appeal of this approach is its organizational and operational simplicity. The drawback is that every dollar in the warehouse is a dollar not paying off debt, increasing the dividend, or being invested in growth opportunities. That's particularly pertinent in a high interest rate environment, and companies may be pulling back from a "just in case" inventory strategy.

Data from the S&P Global Purchasing Managers' Index (PMI) indicate that inventory stocks for finished manufacturing goods were in retreat for eight of the first nine months of 2023. The evidence of "destocking" from corporate financial data, however, is mixed. The inventory-to-sales ratio for the Russell 3000 Index, which measures the performance of the largest 3,000 U.S. companies, seems to elevated, coming in at 54.1% on a trailing three-month basis as of September 30 compared to 50.1% on average for the 2016 to 2019 period (see Figure 1). However, that elevated level is not necessarily evidence of a change in inventory formation practices (such as a move to "just in case" instead of "just in time"), as it is below the 54.8% peak reached in March.

FIGURE 1: INVENTORIES STILL ELEVATED IN SEVERAL SECTORS



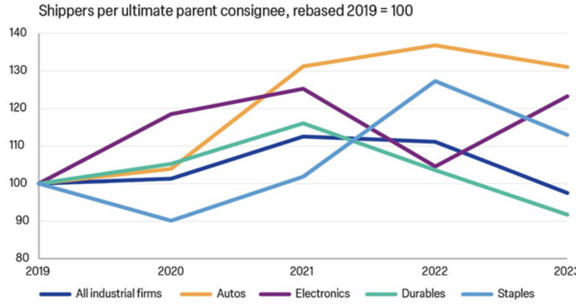
SOURCE: ©2023 S&P GLOBAL MARKET INTELLIGENCE, S&P CAPITALIQ PRO.

Furthermore, when the index is broken down into its subsections, you see that the increase is caused by just a handful of sectors. While the apparel and electronic sectors are up, household durable goods are closer to balance.

BACKSLIDING ON EFFORTS

Another example of some companies' reluctance to spend on supply chain resilience is the apparent backsliding in supplier diversification efforts. While supplier diversification can reduce the inherent risk of a supply chain, it can come in and out of fashion depending on the need for cost reductions. Figure 2 shows that the number of suppliers per ultimate consignee for the top 500 U.S. seaborne industrial importers increased by 13% in 2021 compared to 2019. This increase indicates that industrial companies were using more suppliers as a way to deal with the increase in supply chain disruptions during that period.

FIGURE 2: PANDEMIC-ERA SUPPLY CHAIN DIVERSIFICATION REVERSES IN MOST SECTORS



SOURCE: ©2023 S&P GLOBAL MARKET INTELLIGENCE, S&P CAPITALIQ PRO.

That trend, however, broadly started to reverse itself in 2022 as the number of suppliers fell below pre-pandemic levels in the 12 months through September 30, 2023. There are a few sectors, such as auto and electronics, that have bucked this trend. But in general, we expect to see less supplier diversification in 2024 as companies push more orders to fewer suppliers in order to get better prices.

SOME RESILIENCE AT (SLIGHTLY) LOWER COST

In the absence of significant funds to spend on inventory increases or supplier diversification, firms may look to technological and organizational fixes to provide a degree of resilience at a lower up-front investment cost.

For example, artificial intelligence (AI), if deployed in the correct manner, could provide predictive probabilities of future disruptions. It also may be able to shorten recovery times by indicating where there should be inventory redundancies based on historical data. Other uses include assisting with scenario planning operations and providing optimal distribution routes and alternates based on past and real-time asset data.

More traditional routes to improving organization agility can also help increase supply chain resilience as well as reduce costs. Such short-term, flexibility-based solutions could include: writing contracts that include burden-sharing for unexpected events with suppliers and customers; ensuring production resources can be rapidly retasked from one product to another if demand planning fails; and using alternate components when there is a part or supply shortage.

Additionally, companies that maintain close, ongoing relations with workers may be inherently more resilience than some of their competitors. The ongoing round of labor unrest shows the cost of not staying close to employees.

In summary, while supply chains have returned to normal from an operational perspective in most industries, the roster of risks in 2024 and beyond mean investments in resilience are more important than ever. Evidence from financial and supply chain data suggests firms may not have the ability or willingness to make big-ticket investments in inventory or having multiple sources of supply. Instead, a focus on lower cost investments in technology, staff and customer relations, and flexible operations may be a cheaper route to providing a modicum of resilience.

Source: www.supplychainquarterly.com

FIVE STOPS ON A ROAD MAP TO THE 'PERFECT ORDER'

Post-COVID-19 supply/demand chaos is easing, but the omnichannel fulfillment challenges it leaves behind are ongoing. Companies planning longer-term fulfillment strategies for growth and resilience will need direction in reaching "order and delivery excellence," allowing them to move beyond siloed operations, integrate new technology, perfect information-sharing and collaboration internally and with outside partners, and drive continuous improvement. Here are the five milestones, and the hurdles involved, to achieving fulfillment and final mile maturity:

1 Think Holistically. Break Down Organizational Silos: In most businesses, digital maturity is fragmented. Manufacturers or retailers are dealing with siloed divisions and multiple supply chains built over time and segmented by region, business unit, product line, shipment priority or other characteristics. In addition, as third-party logistics providers (3PLs) are on a shoestring budget, they are manually entering order data or importing online marketplace files into carrier-provided shipping software.

"It's what we call the 'just get stuff done and out the door stage,'" says Mike Graves, vice president product management with Pierbridge, provider of Transtream multi-carrier management software, part of the WiseTech Global Group. "Little or nothing is integrated or optimized. You finally realize that you can't live in that state and continue to grow and scale and be profitable for very long and recognize the need to break down internal silos and remove manual data entry to enable greater efficiency."

2 Integrate Technology to Boost Efficiencies : Organizations begin standardizing data and moving from manual entry at each step, to one-time entry and data integration, into a single, real-time view of order, inventory and shipment data.

Integration breaks down divisional information silos to eliminate duplication, leverage aggregate volume, and reconfigure routes, loads and asset utilization. The technology and process changes are supported by clear communication about the cultural changes required to break down existing silos so that the whole organization can benefit.

Shippers can now comparison shop for, negotiate with and manage multiple carriers. They begin to sequence and automate warehouse pick and pack, and introduce triggered replenishment, batch-print labels and use handheld devices. “You start to know your overall inventory costs, replenishment rates and have pick accuracy,” Graves explains. “You can start reshuffling the warehouse at high volume, making those resources more efficient, so you can handle more demand without adding new people and square footage.”

3 Perfect within the Organization First : Here the business fine-tunes operations and processes in preparation for expanding. Automation and optimization software is deployed and integrated with order, warehouse and transportation management systems. Internal functional and divisional silos have been removed, and a steady real-time data stream is accessible and shareable across the enterprise. Visibility and focus on the entire order cycle fill in previous reporting gaps. Sharing of data and a single source of truth generates granular operational detail for a clear picture of cycle times and cost-to-serve. Automated pick and pack dynamically prioritizes orders, manages exceptions and determines optimal cartonization and parcel charges. Inventory can be tracked throughout the system and retrieved from multiple facilities, reducing stockouts and closing the shipping distance to the customer doorstep. Customer support for orders and returns is integrated and automated.

Real-time rating tools more efficiently determine shipping quotes. Control tower views of carrier performance against defined KPIs and comparative breakdowns of charges enable carrier selection with configurable instructions. “Perfect orders” — the right product, packed properly, arriving undamaged, on time or early, at the right cost, with a frictionless return experience — gradually become standard.

4 Collaborate and Expand Beyond the Organizational Walls : Once internal operations, processes and the right technology are in place and functioning optimally, resulting efficiencies set the table for deepening relationships with suppliers, carriers, logistics vendors, partners and sales channels. Collaboration opportunities, from process improvements and demand forecasting to product redesign to joint investment, replace adversarial negotiations and finger pointing. A company can diversify supplier and carrier selection to manage risk and utilize flexible inventory minimums and maximums to increase sell-through rates and cut inventory carrying costs. With added visibility, it can ship from a transparent “endless aisle” of stores, distribution centers, suppliers and 3PLs, to nearly eliminate stockouts. Finally, the company can build “shipper of choice” relationships with carriers, offering desirable freight and managing to carrier agreements for pickup times, daily volume commitments and maximizing shipment density, in exchange for rate discounts.

5 Orchestrate and Optimize Continuous Improvement: This is where the fun begins, instead of striving for best practices, you are setting them. Orders are perfect, or close to it. The supply chain, in most cases, is global, supported by state-of-the-art automated warehousing and intermodal carrier networks. Leadership has budgeted time, resources and assets for continuous improvement in resiliency and agility. The business delivers a winning customer experience and is adapting to change. It is no longer just about cutting costs, but also about opening new markets, developing new channels and adding value through new products and services.

ROI is reinvested in continuous improvement, integrating artificial intelligence and machine learning for dynamic planning and modeling, optimization instructions to further automate processes, and robotics to augment human performance. Most companies, especially smaller, less diversified ones, reach their desired maturity at the third or fourth milestones. What’s important, Graves cautions, is to be clear on the set of problems to be solved and not overreach. “You don’t just swing for the fences,” he says. “You take things in bite-sized chunks, taking ROI as you go. That way you’ll have the platforms and systems (and funding) you need in place when you’re ready.”

Pierbridge/Transtream Charts a Path to Digital Maturity

Pierbridge is a leading multi-carrier parcel shipping software provider. Its Transtream cloud-based SaaS platform provides an enterprise-class, multi-carrier, parcel-shipping solution that integrates carrier selection, booking, label printing, tracking, invoice reconciliation and business intelligence reporting. In 2018, the company became part of WiseTech Global, developer of the CargoWise supply chain platform. Transtream is part of the CargoWise Parcel solution area. Pierbridge, working with sister company, Microlistics WMS, developed the Fulfillment and Final-Mile Maturity Model to provide guidance to companies in, or adapting to, the complex, technology-dependent omnichannel, direct-to-consumer fulfillment environment, which now accounts for 20% of retail shipments, with 9% annual growth worldwide and 11% growth in the U.S. forecast through 2027.

The model complements others in the marketplace, guiding businesses of all sizes and types as they benchmark their current state against the maturity needed to achieve strategic objectives. This involves implementing scalable, flexible processes and systems to optimize performance, enhance customer experience, and respond to operational threats and market opportunities. All done while pacing maturity growth and spend to preserve margins and working capital.

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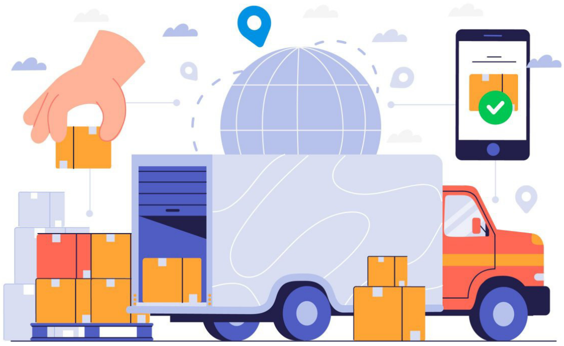
Resource Link: www.pierbridge.com

www.supplychainbrain.com

BUILDING A ROBUST SMART FLEET MANAGEMENT STRATEGY WITH DATA ANALYTICS: A STARTER GUIDE

ITP EDITOR

Building a robust smart fleet management strategy with data analytics is a key priority for logistics companies looking to optimise their operations and gain a competitive advantage in the marketplace.



In today's highly competitive business landscape, logistics companies are under immense pressure to streamline their operations and reduce costs while delivering high-quality services to their customers. One area where logistics companies can leverage technology to achieve these goals is smart fleet management. By incorporating data analytics into their fleet management practices, logistics companies can gain real-time insights into vehicle utilisation, fuel consumption, driver behaviour, and other key performance indicators. This information can help companies optimise their operations, reduce costs, and improve customer satisfaction.

In this article, We will cover the key steps involved in implementing a data-driven approach to fleet management, including establishing a logistics management platform, collecting and analysing data, establishing performance metrics, providing driver training, and continuously evaluating and improving the strategy.

Establish a logistics management platform: Logistics companies must embrace technology and digitalisation to optimise their fleet management strategies. One crucial step in building a smart fleet management strategy is to establish a logistics management platform. This platform serves as a central hub that enables logistics companies to manage their operations in real-time, from tracking vehicles and drivers to optimising routes and deliveries.

A logistics management platform provides real-time data and insights that help logistics companies make informed decisions about their fleet operations. For instance, real-time tracking and monitoring enable logistics managers to track the location and status of their vehicles, ensuring that goods are delivered on time and in good condition. Route optimisation helps to optimise routes and reduce fuel consumption, ultimately reducing costs and improving efficiency.

Automated dispatching is another key feature of logistics management platforms that enables logistics companies to automate the dispatching process, reducing the time it takes to assign drivers and vehicles to specific routes. This automation helps to improve efficiency and reduce the risk of errors that can lead to delays and other issues.

Collect and analyse data: Once a logistics management platform is in place, the next step is to collect and analyse data. This includes collecting data on vehicle utilization, fuel consumption, driver behavior, and other key performance indicators. This data can be collected through various sources, including telematics devices, GPS tracking systems, and on-board sensors.

To effectively analyse this data, logistics companies should leverage fleet management data analytics software. Fleet management data analytics software can help companies visualise and analyse their data, identify patterns and trends, and generate actionable insights. This can help logistics companies optimise their operations, reduce costs, and improve safety.

Establish performance metrics: Performance metrics are quantifiable measures that companies use to assess the success of their strategies. One crucial performance metric for smart fleet management is vehicle utilisation.

This metric measures the amount of time that fleet vehicles are used for transportation purposes. By tracking vehicle utilization, companies can identify underutilised vehicles and optimise their use. This can help reduce fleet size and lower operational costs. Another essential performance metric is fuel efficiency. This metric measures the amount of fuel used per mile traveled by fleet vehicles. Improving fuel efficiency can result in significant cost savings and reduce the environmental impact of fleet operations.

Driver safety is another critical performance metric for smart fleet management. Ensuring driver safety can help companies avoid costly legal battles and maintain their reputation. Finally, on-time delivery is a performance metric that measures the percentage of deliveries made on time. By tracking on-time delivery, companies can identify areas where they need to improve their processes and make changes to improve overall performance.

Communicate results: By soliciting feedback and incorporating it into the strategy, logistics companies can ensure that their efforts are aligned with the needs of the business and its customers. This can help to build a culture of continuous improvement and innovation. Effective communication also involves setting clear goals and expectations for performance. By establishing key performance indicators (KPIs) and monitoring progress towards these goals, companies can ensure that they are on track to achieve their objectives. This can help to build accountability and drive performance across the organisation.

In addition, companies should consider using data visualisation tools to communicate insights in a clear and compelling way. By presenting data in a visual format, managers and other stakeholders can quickly and easily understand key trends and performance metrics. This can help to facilitate better decision-making and improve overall performance.

Provide training: Providing training on the use of the fleet management platform and data analytics is crucial to the success of a smart fleet management strategy. This training should cover a range of topics, from basic navigation of the platform to more advanced data analysis techniques. Companies should consider providing both online and in-person training options to accommodate different learning styles and schedules.

In addition, companies should provide ongoing support to ensure that managers and drivers are able to fully leverage the capabilities of the platform. This support can take many forms, including regular check-ins with managers and drivers, troubleshooting assistance, and access to a help desk or support forum. By providing this support, companies can ensure that their team members feel confident in their ability to use the system effectively.

Training should also include information on how to interpret and act on the data generated by the fleet management platform. For example, managers should be able to identify areas of inefficiency in their operations and take steps to address them. Drivers should be able to use the platform to optimise their routes and minimise their time on the road.

Continuously evaluate and improve: Smart fleet management is an ongoing process that requires continuous evaluation and improvement to achieve optimal results. Companies should regularly review performance metrics to identify areas where improvements can be made. This can include analysing data on vehicle and driver performance, fuel consumption, and delivery times. By regularly monitoring these metrics, companies can quickly identify areas where inefficiencies exist and take steps to address them.

Once areas for improvement have been identified, companies should make changes to their strategy to optimise performance. This can include changes to routing or dispatching policies, adjustments to vehicle maintenance schedules, or investments in new technology. By making data-driven decisions, companies can ensure that their efforts are aligned with their goals and that they are maximising the value of their resources.

In addition to making changes to their strategy, companies should also regularly evaluate the effectiveness of their fleet management platform. This can involve soliciting feedback from managers and drivers, conducting user surveys, and analysing platform usage data. By regularly evaluating the platform, companies can identify areas where improvements can be made and ensure that the platform is meeting the needs of the business.

By embracing digital logistics and adopting a data-driven approach to fleet management, companies can position themselves for success in the years to come. The Bosch Logistics Software Suite with Bosch L.OS is one such tool that integrate multiple services and stakeholders onto a digital logistics ecosystem. Thereby streamlining logistics and enabling all logistics players to scale up their business.

Implementing a smart fleet management strategy is not a one-time project, but rather an ongoing process that requires continuous evaluation and improvement. As technologies evolve and new opportunities arise, logistics companies must stay up-to-date and adapt their strategies accordingly. By staying agile and embracing innovation, logistics companies can stay ahead of the curve and continue to deliver high-quality services to their customers. In conclusion, building a robust smart fleet management strategy with data analytics is a key priority for logistics companies looking to optimise their operations and gain a competitive advantage in the marketplace.

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REVOLUTIONISING RETAIL: THE UNTOLD STORY OF BLOCKCHAIN IN SUPPLY CHAIN MANAGEMENT

Being a decentralised database, blockchain technology allows the data to be transferred directly

YASH JAIN
FOUNDER AND CEO, NIMBUSPOST

For businesses, spreading their footprints across the globe has become the norm, and as a result, the supply chains are becoming more complex. If we look at the retail sector, lead times, speed, and accuracy are the topics of concern. To successfully manage the supply chain, companies must integrate sourcing, procurement, and logistics cohesively. However, the supply chain we have been witnessing is facing challenges as it is expensive, inflexible, and not as efficient as anticipated. This is because businesses and economies may have transformed over the years, but the technology that has been used may have remained the same. However, the emergence of blockchain technology is helping the retail industry address issues and improve the supply chain for smooth operations. In the context of the retail industry, blockchain technology can significantly reduce operational costs and incidences of fraudulence with intensifying transparency throughout inventory management.

Blockchain technology aims to facilitate the recording and distribution of digital information that remains immutable. This is the reason why this cutting-edge technology has been leveraged by several sectors, and retail is not an exception. The rapidly increasing pace of retail, coupled with the rapidly transforming business landscape and changing consumer preferences, positions blockchain as a desirable solution for improving its accuracy, speed, and efficiency.

The decentralised and transparent nature of blockchain ensures the secure and tamper-resistant recording of transactions across the entire supply chain. Each transaction, from manufacturing to distribution and retail, is securely stored in a distributed ledger, providing a single source of truth for all stakeholders involved. This transparency enhances traceability, allowing retailers to track the origin and journey of products in real time, mitigating the risk of fraud, counterfeiting, and errors.

Leveraging blockchain technology in retail allows for recording the movements of a product across the supply chain. Moreover, all parties involved can access ledgers stored on a network, making system management more streamlined and efficient overall. In addition, there are several lingering problems in the sector, ranging from problems with data management to security and counterfeit concerns to a significant drop in operating expenses, which are addressed by blockchain technology. Now, apart from providing significant solutions to the challenges, this technology also has some seamless benefits for the retail sector, which is transforming it efficiently.

Transforming the retail sector : Being a decentralised database, blockchain technology allows the data to be transferred directly from one server to another. Information that is encrypted and accessible to all network users is contained in each block. There is a timestamp on every transaction. Generally speaking, direct data transmission using blockchain technology is quicker and more secure than through conventional means. This has allowed for efficient security, automation of processes, and optimisation of the supply chain. As a result, Blockchain has changed the face of retail in terms of enhancing transparency, preventing fraud in counterfeiting goods, and increasing speed and efficiency.

Enhancing transparency : Without blockchain, each enterprise has to maintain a separate database, and keeping track of all the elements can become daunting for them. The distributed ledger here can change the way organisations view information. Transactions and data are kept consistently in numerous locations due to the distributed ledger technology used by the blockchain. In addition, complete transparency is ensured by the fact that all network users with authorised access view the same information simultaneously. Every transaction is time- and date-stamped and permanently recorded. Therefore, it essentially removes the potential for fraud and lets all the members view the entire transaction history. In the supply chain, the transparency enabled by blockchain empowers stakeholders to trace the journey of products from the manufacturer to the end consumer. Retailers can verify the authenticity of products, ensuring that they are not dealing with counterfeit goods.

Preventing counterfeiting : Products that are pirated or counterfeit continue to expand at a startling rate, causing massive losses for the affected businesses. An analysis released jointly by Crisil and the Authentication Solution Providers Association (ASPA) revealed that between 25 and 30 per cent of all products marketed in India are fake, with the apparel and FMCG industries being the most affected by counterfeiting. In this context, blockchain technology offers immense value to retail via its immutable and transparent nature. This technology can provide "proof of origin," and the item's lifecycle can also be traced along the entire supply chain. From the procurement of raw materials to their extraction and transportation, the enhanced transparency of blockchain technology shields retailers and customers from counterfeit goods.

Blockchain's consensus mechanisms and cryptographic techniques make it highly secure, reducing the risk of fraud and errors in the supply chain. Smart contracts, self-executing contracts with the terms of the agreement directly written into code, can automate and enforce agreements, minimising the chances of disputes.

Increased efficiency and speed : The traditional processes in the supply chain were paper-heavy, making them prone to human errors. Moreover, often, businesses require the intervention of a third party, which increases costs. Blockchain technology can be used to expedite these processes, resulting in faster and more effective transactions. Moreover, paper exchanges can be avoided by storing documents and transaction details on the blockchain. In addition, clearing and settlement can happen considerably more quickly because there is no need to reconcile several accounts. With "smart contracts," transactions can also be automated, accelerating the process and improving supply chain efficiency. To make sure that the conditions of the contract have been fulfilled, smart contracts minimise the need for human intervention and depend less on outside parties.

Real-time visibility into the supply chain enables retailers to better manage their inventory. Blockchain helps in tracking the movement of goods, optimizing stock levels, and reducing instances of overstock or stockouts by enhancing real-time visibility.

All things considered : The retail industry is dynamic and multifaceted. Successful retail occurs when several variables come together. Retail success depends on several factors, including locations, foot traffic, pricing strategy, marketing, branding, supply chain, inventory management, customer experience, and trust, all of which must converge at the right moment and in the appropriate proportion. Additionally, consumers today demand sustainability, which puts pressure on merchants to act responsibly, consider the environment, and disclose their carbon footprints to customers openly and honestly.

Among all, supply chains are the backbone of the retail industry and the integration of blockchain technology within supply chain management provides transparency, security, efficiency, and collaboration. It addresses challenges related to fraud, errors, and lack of visibility, ultimately leading to a more resilient and customer-focused supply chain. It fosters trust and cooperation by involving all the prime stakeholders, providing retailers with a robust foundation for building resilient and responsive supply chain management. Herein lies the critical role of blockchain technology. It improves the supply chain's accuracy, security, and efficiency while also boosting transparency, thwarting counterfeiting, and quickening the entire process. As the technology matures, retailers will find that all of these benefits are very potent resources to explore and apply in the coming years.

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SUPPLY CHAINS OF THE FUTURE: TECHNOLOGY, LOCALIZATION, AND RESILIENCE TO BUILD IN 2024

RAHUL GARG

Strong technological solutions serve as a backbone for the supply chains of the future. These innovations have been building resilience in the supply chains of today and are bound to be the drivers of the high-performing supply chains of tomorrow. You're reading Entrepreneur India, an international franchise of Entrepreneur Media.

Our modern supply chains are intricately woven tapestries, spanning great geographical distances and encompassing a myriad of stakeholders. A recent Deloitte survey, highlighted that 79% of organizations with superior supply chains achieve significantly above-average revenue growth. This statistic underscores the immense potential that lies within the dynamic networks of modern supply chains, where strategic excellence translates into substantial business success.

Embarking on the journey toward 2024, the landscape of supply chains is set to undergo a transformative evolution, with key pillars shaping the future: Technology, Localization, and Resilience. As we stand at the threshold of a new era, the intricate dance between these elements promises to redefine how businesses operate and adapt to the challenges of a dynamic world.

Resilience as a Key Attribute in Future Supply Chains: In recent years, owing to far-reaching disruptions such as the COVID-19 pandemic, Russia's invasion of Ukraine, and most recently the Israel-Palestine conflict, modern supply chains have been facing enormous uncertainties. Now, even as the world heads into 2024, such unforeseen disruptions show no signs of slowing down. Accordingly, resilience has emerged as a key attribute for the future of supply chains, presenting itself as an essential quality for lasting progress.

Supply chain resilience is paramount for organizations to adapt and operate seamlessly amid uncertainties.

Failing to achieve this resilience leads to an inability to meet demands and maintain quality, resulting in substantial revenue loss. According to Gartner, only 21% of supply chain businesses believe they have highly resilient networks. Despite changes over the years, ongoing disruptions emphasize the urgency of prioritizing supply chain resilience. Strategies for resilience have become essential for modern businesses, often distinguishing leaders from followers in the competitive landscape.

Technology Trends Shaping Future Supply Chains

Strong technological solutions serve as a backbone for the supply chains of the future. These innovations have been building resilience in the supply chains of today and are bound to be the drivers of the high-performing supply chains of tomorrow.

- **Internet of Things:** According to a 2022 research by Zippia, only 6% of surveyed businesses had full visibility on their supply chains. IoT solutions can serve as the ideal answer by providing real-time visibility and tracking across the entire supply chain with the use of cameras and sensors. With IoT technologies, companies can receive a comprehensive view of the status, location, and condition of their goods at every stage.

- **Artificial Intelligence:** According to McKinsey, AI-powered forecasting in supply chain management can reduce errors by 20 to 50 percent. AI solutions can be leveraged to identify trends and patterns, increase the accuracy of demand forecasting, and enable predictive maintenance.

- **Blockchain:** Blockchain solutions can be used to achieve end-to-end transparency across the supply chain with real-time visibility into all transactions and events. This allows organizations to promptly respond to any disruptions by effectively identifying the affected components.

- **Data Analytics:** By leveraging the power of data, organizations can gain invaluable insights into operations across their supply chains, identify performance gaps, perform root cause analysis, and ultimately create flexible supply chain designs.

- **Robotics and Automation:** Automation technologies such as robotics and autonomous systems can be utilized to streamline repetitive tasks and processes, optimize transportation, reduce human dependency, and bolster overall efficiency.

The Rise of Localization and Collaboration in Supply Chain Resilience

In recent years, sourcing raw materials and supplies from distant locations has been an effective solution to lowering costs. But longer supply chains with complex transportation routes also mean greater possibilities for unforeseen disruptions. For example, when the megaship Ever Given caused the 2021 Suez Canal obstruction, the resulting six-day holdup affected approximately 12% of all global trade, amounting to a staggering loss of nearly $10 billion every day.

To fortify the resilience of future supply chains against disruptions, localization has become a prominent trend. Offering benefits such as increased speed-to-market, diminished reliance on global supply chains, and swifter responses to market volatility, localization fosters stronger relationships with local suppliers, leading to higher-quality services and more profitable deals. While a fully localized approach may not always be feasible due to the global nature of businesses and the availability of raw materials in specific locations, a balanced multisourcing strategy supported by robust technological innovations remains an ideal solution.

The Role of Sustainable Practices in Achieving Resilience

In an age of conscious consumerism, customers largely prefer products that are sustainably sourced and ethically made. Besides attracting larger audiences, embracing sustainability across the supply chain can help build resilience by reducing dependencies on external vendors, minimizing waste, and increasing the use of renewable resources. Furthermore, as governments push for environmental regulations and sustainable approaches, companies that have already embraced greener measures across their supply chains can stay a step ahead of the competition and efficiently achieve long-term milestones.

Conclusion

The future of supply chains demands a strategic fusion of resilience, technology, localization, collaboration, and sustainability. As businesses enter 2024 with supply chain disruptions showing no signs of decelerating, resilience stands as an essential attribute for meeting volatile demands. Similarly, technological innovations such as IoT, AI, blockchain, data analytics, and automation serve as the linchpin, providing real-time visibility, enhancing forecasting accuracy, and ensuring transparency.

Localization of supply chains offers speed-to-market, reduced global dependencies, and stronger collaboration with local suppliers, allowing businesses to mitigate risks and uncertainties. Furthermore, sustainability not only aligns with conscious consumer preferences but also minimizes waste and positions businesses ahead of regulatory curves. The future of resilient supply chains lies in the synergy of these elements, where businesses that adopt the correct technologies, find a multisourcing approach that champions localization, and practice sustainability are bound to flourish.

Opinions expressed by Entrepreneur contributors are their own.

Source: www.entrepreneur.com

SUPPLY CHAIN RESILIENCE: STRATEGIES AND TECHNOLOGIES

The COVID-19 pandemic acutely highlighted the fragility of global supply chains. Congested ports, workforce shortages, and production shutdowns were among the many reasons why suppliers struggled to satisfy surging demand. The Russian invasion of Ukraine in 2022 aggravated the problem even more. The unprecedented strain on the global supply system caused governments and international organizations to take measures in an attempt to solve the issue. For example, the latest initiative is the creation of the Council on Supply Chain Resilience (CSCR) in late November 2023, which aims to support the US supply networks.

But apart from governmental efforts, every business must strengthen its own supply chains to withstand the never-ending turmoil. In this post, we explore the strategies and technologies that can help your company remain stable amid global turbulence.

What is supply chain resilience?

Supply chain resilience refers to an organization's ability to effectively adapt to change and recover from disruptions or unexpected events within its supply chain network. These disruptions include natural disasters, economic crises, geopolitical conflicts, or any other unforeseen circumstances that can interrupt the flow of goods, services, or information. The key characteristic of a resilient supply chain is agility because timely reaction to disruptions minimizes negative impact on operations. However, the greatest resilience is achieved when a company is able to anticipate future risks and proactively address them.

To get a broader picture of global supply chains and related issues, we suggest a brief overview of the current state of affairs. If you already have an understanding of what's happening in the industry, feel free to get straight to the next section, where we talk about how to build the sought-after resilience.

Why supply chain resilience is so important : Since supply chains are usually far from being linear, they aren't really chains. Instead, they are complex, intertwined networks of suppliers, carriers, and other partners involved in the production, storage, and delivery of parts and goods.

For example, Tesla relies on more than 300 suppliers for 2,000 parts to produce its Model S. Apple has disclosed its list of 200 suppliers that make up 98 percent of its materials spend. Retail networks are even larger: For example, Walmart works with tens of thousands of providers globally. Not to mention carriers and intermediaries involved in the sourcing process.

However, when a big retailer like Walmart doesn't get, say, a load of corn flakes because of the carrier delay, it's not that big of a deal as there is lots of other merchandise to fill the shelves with. But if an automaker has a container of tires stuck in a port, it won't be able to produce cars at all. One can say cars or smartphones aren't essential goods, but how about the pharmaceutical industry that relies on ingredients made in China? And those are just a few examples. During the pandemic, all industries felt a negative impact because of the domino effect of multiple disruptions worldwide.

The COVID-19 crisis started with factory closures in China. Economic troubles followed closely as lockdowns stopped business activities and affected global supply chains. A sharp economic rebound in Q3 of 2020 created another crisis as companies didn't anticipate a rise in demand accurately. With long delivery times, shortages of materials, and surging container prices, producers couldn't respond to consumer needs. That's when supply chain resilience emerged as a critical strategic focus for companies. Businesses realized that to successfully navigate uncertain times, they must rebuild their supply chains to make them flexible, adaptable, and insensitive to diverse disruptions. But before developing the risk mitigation strategy, you have to first understand which threats you might be facing.

Main supply chain challenges and risks: Various factors can disrupt operations, increase costs, and affect the overall efficiency and effectiveness of the supply chain. Here are the main ones.

Supply chain challenges

Supply chain disruptions. Besides major disruptions like natural disasters or geopolitical conflicts, there's always a risk of minor, mundane troubles like flat tires, bad weather, or freight damage. No matter the size of an issue, all disruptions lead to delivery delays, inventory shortages, and increased costs.

Supplier unreliability. Overreliance on a single or a limited number of providers can make the supply chain vulnerable to disruptions caused by supplier bankruptcies, quality issues, or capacity constraints.

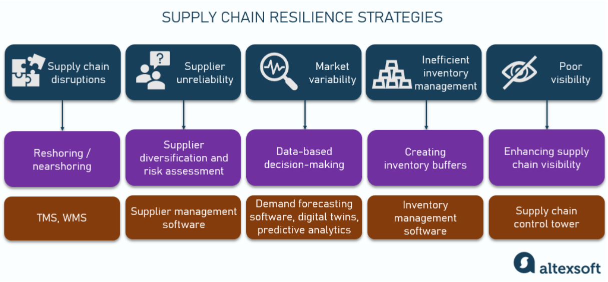
Market variability. Fluctuations in customer demand, seasonal changes, and unexpected spikes in orders can challenge inventory management, production planning, and logistics.

Inefficient inventory management. Striking the right balance between having adequate inventory to meet demand and not keeping too much stock (to minimize holding costs and avoid obsolescence risk) is a constant challenge.

Poor visibility. Blind spots in the supply chain and lack of a complete operational picture are the causes of late, often ineffective reactions in case issues arise. Other challenges often faced by supply chain managers are

- regulatory compliance issues,
- labor-related problems,
- transportation inefficiencies and constraints,
- environmental concerns and requirements,
- cybersecurity threats, and so on.

To manage your supply chain effectively, you must identify and mitigate these risks and challenges, as well as look for opportunities to improve and innovate. So let's now talk about the strategies that can help you increase your supply chain resilience. Supply chain resilience strategies and technologies to support them. If old best practices don't work, you must implement new ones. Here, we suggest several actionable strategies to adjust your operations – and technologies that can make them work better.



Strategies and technologies for building a resilient supply chain : Most strategies are about taking precautionary measures to minimize potential risks, getting a better understanding of your operations, and developing contingency plans. Note though that all businesses are different and have different operational models and related difficulties, so we can't give you a universal scenario to act on. You'll have to choose the strategies that will be most beneficial for your company and tailor them to your specific needs.

Reshoring or nearshoring: Think local

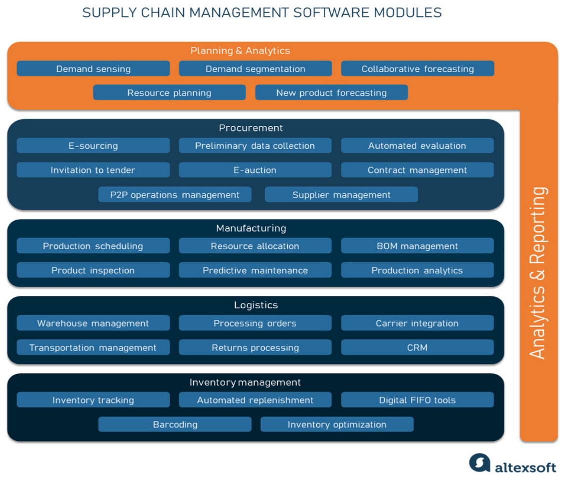
Challenge addressed: supply chain disruptions

Reshoring (or backshoring), as opposed to offshoring, means bringing production or other operational processes back to the company's home country. It can also be about switching to local suppliers instead of buying materials/goods overseas (then it's often called regional or local sourcing). Nearshoring means relocating production or sourcing materials from providers in neighboring countries. These strategies will help you shorten your supply chain, which, in turn, can safeguard you from disruptions in international freight movement such as clogged ports or Houthi attacks in the Red Sea.

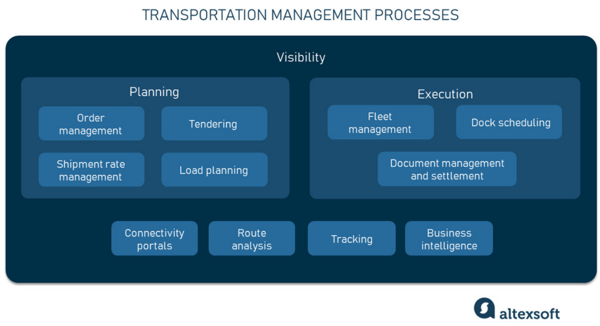
When you do international business, you typically work with freight forwarders who help you arrange cross-border shipping. If you operate within one country, you can also outsource logistics to third-party providers (3PLs) – or organize everything yourself: from production to storage to distribution to last mile delivery. It's quite an endeavor for sure, but this way you'll have maximum control over your operations.

Technology to support the strategy: supply chain management software, transportation management system, warehouse management system

Reshoring/nearshoring is mostly an operational strategy when you have to change the way you work. Technology can only support it and optimize your activities, but the choice of tools will depend on the structure of your supply chain. You might already have a supply chain management (SCM) system in use, but you might want to enhance some of its features or add more focused modules.



Supply chain management software capabilities : For example, you most likely will need a transportation management system (TMS) to oversee the movement of goods. Among its other features, a TMS will allow you to track the status of your shipments and have a convenient communication channel with carriers and providers. In case something goes wrong, you'll get an immediate alert, so that you can promptly address the issue.



TMS functionality: Also, a TMS can serve as a database of partners (suppliers, carriers, etc.), so in case someone lets you down, you can quickly find an alternative.

If you decide to operate a storage facility and/or distribution center as you reshore your supply chain, warehouse management software (WMS) will help you streamline your workflows. A good WMS will support you on your way to resilience with its asset tracking and inventory management features.

Just like other types of software, it also contributes to providing you with a complete, real-time picture of what's happening in your business. You must be totally informed to timely identify problems and respond to them. Moreover, an AI-enhanced WMS with an advanced analytical module will help you forecast potential troubles so that you can guard yourself against them. Supplier diversification and risk assessment: Put your eggs in different baskets

Challenge addressed: supplier unreliability

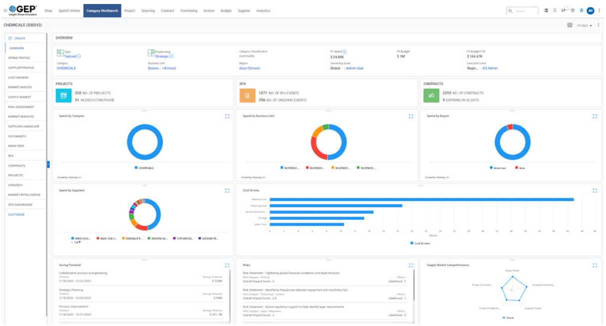
The goal of any diversification is to reduce risk. In this case, diversification means sourcing from multiple suppliers or manufacturing in different regions or countries. That will reduce your reliance on a single source for critical components or materials. Identify alternative suppliers and build relationships with them in advance to create redundancy and safeguard your procurement. And regularly evaluate your partners' reliability.

Technology to support the strategy: supplier (vendor) management software. Modern AI-based supplier management solutions can help you audit your supplier network, assess their performance, and identify risks before issues arise. Regular tracking of partners' performance helps in identifying consistent issues or declines in efficiency, which can indicate potential risks.

Such software rates your partners so that you can see the level of risk each supplier presents. It assigns scores based on various parameters like past performance, delivery timelines, quality of goods, and reliability. Once the platform identifies and assesses risks, it can help you develop mitigation strategies, e.g., creating contingency plans or setting up stricter quality controls.

This software also ensures that your partners comply with industry standards and regulations. That reduces the risk of legal penalties or reputational damage due to noncompliance. The system will send you alerts in case of any deviations from agreed terms (such as delayed shipments or quality issues) so that you keep abreast of the supplier's activities and timely react if needed.

Also, there's often a supplier-facing portal to facilitate your interactions. Transparent communication leads to easier problem-solving while maintaining healthy business relationships. Besides, these platforms automate many time-consuming workflows such as qualification and onboarding, contract management, communication and document exchange, product inspection, and so on. Supplier management systems often come as modules of comprehensive ERP, e-procurement, or SCM solutions. In this case, they seamlessly integrate with other business management modules which enables an efficient data exchange. Some examples of such platforms are SAP Ariba, GEP SMART, Coupa, and Oracle SCM.



Dashboard interface of GEP SMART: If you need a more focused solution to cover this specific business aspect, you can check out specialized systems such as Precoro, AdaptOne, or Sirion. Data-based decision-making: Anticipate market behavior

Challenge addressed: market variability : It's obvious that you can't predict all supply chain disruptions (e.g., natural cataclysms, terrorist activity, or a huge containership stuck in the Suez Canal for six days). But you can still make some forecasts to base your decisions on.

Let's take, for example, demand as the most crucial aspect you base your planning on. There are two main types of demand forecasting. One is a traditional approach based on statistical methods. It works well in stable market conditions, but unfortunately, it's of little use in times of uncertainty. The other approach uses ML techniques to make accurate predictions in volatile markets.

How demand forecasting works : Implementing advanced analytical software will allow you to base your decisions and strategies on accurate data rather than guesswork. You'll be able to anticipate market fluctuations and adjust your procurement, capacity planning, and marketing activities.

Technology to support the strategy: demand forecasting software, digital twins, predictive analytic. Demand forecasting software generates short- and long-term predictions for different groups of products or separate items. It supports planning for multiple regions and sales channels. You'll be able to simulate and compare different what-if scenarios, e.g., when you launch new products, plan a promotion, change prices or assortment, etc.. As for specific products, almost any supply chain management or inventory management platform today has demand forecasting functionality. There are also more focused planning tools like o9, Retalon, or Fountain9 you can check out. Or you might want to build a custom demand forecasting module to fit your unique business requirements.

Digital twins is a technology that creates a virtual replica of the supply chain, enabling real-time monitoring and tracking of assets, products, and processes. Digital twins analyze data and simulate different operational strategies. Such simulations allow you to predict potential issues before they occur, e.g., market changes, supply interruptions, or logistical challenges. If you identify vulnerabilities in advance, you can take proactive measures and create contingency plans.

Predictive analytics is using machine learning techniques to make accurate forecasts based on big data. It requires building a data infrastructure to collect, store, and process information from different sources. Please check the related articles below to learn more about it. Creating inventory buffers: From just in time to just in case

Challenge addressed: inefficient inventory management

Many companies used to implement a just in time approach to inventory management, which allowed them to minimize holding costs. However, it made their supply chains more vulnerable to disruptions. During the pandemic, a lot of businesses switched to a just in case approach and increased their inventory levels of critical components and materials. Holding larger safety stocks allowed them to buffer against supply chain glitches. However, it's still essential to strike a balance between excess stock and carrying costs. Data-driven optimization of inventory is the key to this problem.

Technology to support the strategy: inventory management software. Advanced demand forecasting and predictive analytics are definitely the core of modern inventory management software (IMS). Based on accurate forecasts, you'll be able to adjust your inventory levels proactively, reducing the risk of shortages or surpluses.

Its other major benefit is inventory tracking and visibility into stock-related activities. The IMS will allow you to track the movement of all SKUs (stock keeping units) and have a granular picture of inventory levels across various locations. Transparency and traceability throughout the supply are crucial for quickly addressing issues and for compliance with regulatory requirements. A good IMS will not only help you balance supply and demand but also prioritize items to source. Its other features usually include

- automated reordering,
- space optimization,
- sales management,
- order processing,
- reporting, etc.

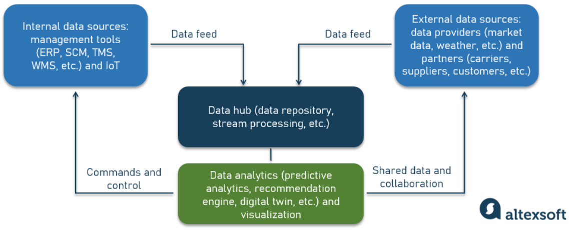
Again, there's no single recommendation. You'll have to research different solutions, compare their functionality and compatibility, and find what's right for your needs. Enhancing supply chain visibility: See the full picture

Challenge addressed: poor visibility : It's barely possible to adapt to market conditions without having a complete understanding of internal and external situations. If you don't know what is happening in your organization or along your supply chain, you can't control it or timely respond to disruptions. Decision-making becomes based more on guesswork than on solid information.

Technology to support the strategy: supply chain control tower. Supply chain control towers (SCCT) provide real-time, end-to-end visibility into your operational workflows. You'll be able to track and trace all the goods throughout every stage and across all the tiers of the supply chain. You'll have complete information about your partners and your interactions with them, while being able to control your spending and monitor your performance.

Having such a holistic picture will support your decision-making which, in turn, will increase business efficiency and, ultimately, affect the bottom line. You'll be able to identify potential disruptions early and respond proactively. The complex part here is that the SCCT isn't a ready-made solution you can just buy, install, and start using the next day. It's a multi-component structure that includes all your internal IT tools, as well as third-party systems (e.g., that of your partners) and external data sources.

SUPPLY CHAIN CONTROL TOWER ARCHITECTURE



Control tower architecture: It also usually involves developing an IoT infrastructure to gather real-time data from storage, equipment, and shipments. If you decide to build your own SCCT, you'll have to develop the data infrastructure we mentioned above. There are vendors that offer an SCCT platform (e.g., One Network, Kinaxis, or Blue Yonder), but keep in mind you'll still need to tailor them to your needs.

Building and maintaining a resilient supply chain is an ongoing process that requires commitment, investment, and adaptability. By proactively addressing risks and implementing these strategies, organizations can better prepare themselves to navigate disruptions and uncertainties while maintaining a robust and efficient supply chain. And yes, changes always require investment – but compare the cost of implementing new software and practices with the cost of losing your business because of supply chain disruptions. Speaking about costs and numbers, let's talk about how you can understand how resilient your supply chain is.

How to measure supply chain resilience?

Measuring supply chain resilience involves a range of metrics that help evaluate how well a supply chain can anticipate, respond to, recover, and adapt to unexpected disruptions. Here's what you can track.

Time to recover. The main resilience metric is time to recover (TTR) – the time your company needs to restore normal functioning after disruptions. A short recovery period indicates a resilient and agile supply chain.

Forecast error. We've talked a lot about the importance of accurate predictions. Forecast error helps understand how precisely you can anticipate future events. The point is to compare the forecasted values (what you expected to happen) against the actual values (what actually happened) and calculate the difference. The smaller this discrepancy is, the better. You can use various statistical methods, such as Mean Absolute Error (MAE), Mean Squared Error (MSE), or Mean Absolute Percentage Error (MAPE).

Inventory management efficiency. Stock-related metrics such as inventory turnover ratio or days of inventory on hand can indicate how well a supply chain manages stock to handle fluctuations in demand or supply.

Customer satisfaction and retention. Metrics related to customer service — such as order fulfillment rates, on-time delivery rates, and customer complaints — can indicate how disruptions are affecting end customers. If customer satisfaction is stable despite any issues in your company, it's a good sign.

Supplier diversification. To assess the extent to which a supply chain relies on a broad base of suppliers rather than a few, monitor the percentage of total spending or critical components sourced from a single supplier.

Supply chain performance metrics. Monitoring the fluctuations of supply chain KPIs like order lead time, supply chain cycle time, and throughput efficiency also helps understand how well you perform – and how stable your business is. These measurements, used collectively, provide a comprehensive picture of the resilience of a supply chain. They help to identify vulnerabilities, evaluate the effectiveness of current strategies, and guide improvements for better handling of future disruptions. Now, for inspiration, we suggest you look at some examples of how other companies adapted their operations to overcome supply chain issues.

Agile supply chain examples

As we said, after a cold shower-type "wake-up call" in 2020, many global companies have recognized the importance of building agile supply chains and have successfully implemented strategies to enhance their stability. While specific approaches may vary, here are a few examples of companies that have demonstrated resilience in their supply networks.

Apple : One of the biggest global companies, Apple was heavily reliant on its Chinese partners for materials and production. In recent years, the company launched manufacturing facilities in India, Vietnam, and other countries. Also, it diversified its supplier base, reducing its reliance on any single supplier for critical components like iPhone and iPad screens, and started building a logistics hub in Saudi Arabia. In addition, Apple is working with its most critical component providers (like TSMC) on the strategy of moving production to Europe and the US.

To manage its supply chain most effectively, Apple has developed advanced ML-based software to make accurate predictions, get insights into its operations, and support decision-making. Besides, the company invests heavily in supply chain visibility and traceability, using blockchain technology to track and verify the origins of materials used in its products.

Apple has also been investing in educating employees along its supply chain since 2008. In 2022, it partnered with the International Labour Organization, the International Organization for Migration, and global education experts to launch a $50 million Supplier Employee Development Fund. Through these educational initiatives, Apple increases the quality of its supply chain and promotes manufacturing best practices.

Amazon

Amazon has a highly flexible and agile supply chain network that can quickly adapt to changes in customer demand and market conditions. It has invested in innovative technology, including advanced robotics and automation, to optimize its fulfillment centers and improve efficiency.

During the COVID-19 pandemic, Amazon reacted quickly by implementing safety measures and operational adjustments to continue delivering essential goods to customers, which demonstrated its adaptability.

Toyota

Toyota is known for its just-in-time (JIT) production system, which relies on close collaboration with suppliers to ensure a steady flow of parts and components. However, when the shortage of semiconductors and chips impacted the company's performance, it reconsidered its approach and increased the supply of critical components. Plus, to safeguard itself from provider-related risks, Toyota has created a diversified global supplier network.

Also, Toyota has an agile culture of continuous improvement (Kaizen), which is about immediately making necessary adjustments in response to changing conditions.

Procter & Gamble (P&G)

P&G has a robust risk management strategy that involves scenario planning and simulations to prepare for various disruptions. It maintains a high level of inventory for certain critical products to ensure supply continuity during emergencies.

P&G partnered with data science expert KNIME to develop a robust demand forecasting solution. The company's focus on visibility and data analytics helps it monitor supply chain performance and make proactive decisions.

Source: www.altexsoft.com

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UNION FINANCE MINISTER SMT NIRMALA SITHARAMAN ADDRESSES G20 WEBINAR ON 'STRONG, SUSTAINABLE, BALANCED AND INCLUSIVE GROWTH'

Panel discussions organised on the themes 'Unlocking Trade for Growth', 'Preparing for the Future of Work' and 'Financial Inclusion and Productivity Gains through Digital Public Infrastructure for Strong and Sustainable Growth: The Way Forward'

G20 New Delhi Leaders' Declaration (NDLD) addresses some of the pressing challenges confronting the global economy and also provides policy guidance for a future built on people-focused principles and trust-based partnerships: Finance Minister

India will have a key role in building on the foundational work done during the Presidency year on Global Partnership for Financial Inclusion: Smt. Sitharaman

Union Minister for Finance and Corporate Affairs Smt. Nirmala Sitharaman delivered the inaugural address at the G20 webinar on 'Strong, Sustainable, Balanced and Inclusive Growth', in New Delhi, today. The seminar was organised by the Ministry of Finance in association with the Ministry of Commerce and Industry, and the Ministry of Labour and Employment.

The G20 Leaders adopted the G20 New Delhi Leaders' Declaration (NDLD) during the G20 Summit that was held in Delhi on September 9-10, 2023. One of the key themes of the NDLD was actions towards achieving Strong, Sustainable, Balanced and Inclusive Growth (SSBIG).

In her inaugural address, Smt. Sitharaman said, "The unanimously agreed G20 New Delhi Leaders' Declaration (NDLD) addresses some of the pressing challenges confronting the global economy and also provides policy guidance for a future built on people-focused principles and trust-based partnerships."

On the issue of skill gaps, the Union Finance Minister said that NDLD recognises that well-integrated and adequately skilled workers benefit origin and destination countries alike and also emphasises the importance of addressing skill gaps globally and provides comprehensive policy guidance in this respect.

Smt. Sitharaman underlined the G20 policy priorities for addressing skill gaps globally, facilitating cross-country comparability and mutual recognition of skills and qualifications and comprehensive tool kits for upskilling and reskilling, the areas that the NDLD has addressed.

Concluding her address, the Union Finance Minister said, "Drawing inspiration from India's successful implementation of the India Stack, the G20 Policy Recommendations for Advancing Financial Inclusion through Digital Public Infrastructure (DPI) was endorsed in the New Delhi Leaders' Declaration. These recommendations provide guidance on developing well-structured DPIs, establishing risk-managed regulatory frameworks, promoting strong governance, and ensuring that DPIs serve everyone. DPI is also embedded within the G20 New Financial Inclusion Action Plan for 2024-26."

With India now the co-chair of the Global Partnership for Financial Inclusion, which is tasked with the implementation of the Action Plan, we will have a key role in building on the foundational work done during the Presidency year, Smt. Sitharaman added.

The seminar discussed and deliberated on the outcomes of the New Delhi Leaders Declaration 2023 with a focus on three issues: 'Unlocking Trade for Growth', 'Preparing for the Future of Work' and 'Financial Inclusion and Productivity Gains through Digital Public Infrastructure for Strong and Sustainable Growth: The Way Forward'. These themes are key building blocks in the path towards achieving global economic recovery and inclusive growth.

The Panel Discussion on Unlocking Trade for Growth focused on the 'Jaipur Call for Action for enhancing MSMEs access to information', one of the outcomes from the Indian Trade and Investment Working Group (TIWG) Presidency. This outcome, endorsed by G20 Ministers and welcomed by Leaders in New Delhi Leaders' Declaration, aims to solve the access to information problem faced by MSMEs and help them better integrate in the global trade. The panel deliberated on the profound impact that successful implementation of Jaipur Call for Action will have on increasing the level of participation of Indian MSMEs in exports and on potential challenges that could come in its way going ahead.

This discussion was moderated by Shri. Sunil Barthwal, Secretary, Department of Commerce and the panel comprised of Mr. MondherMimouni, Director, International Trade Centre, Geneva; Shri Prashant Kumar Singh, Director and CEO, Government e-Marketplace; Shri T. Koshy, MD & CEO, ONDC and Dr. Deepak Mishra, Director & Chief Executive, ICRIER, New Delhi.

The focus of the discussion was on how the 'Jaipur Call for Action' outcome is pathbreaking and going to change the future course of trade for MSMEs. International Trade Centre, the implementing agency for this outcome, shared its views on how valuable the implementation be, not only in Indian context but also for rest of the world. The discussion emphasised that the implementation would help streamline the export process, reduce trade costs and complement the ongoing initiatives of the Government of India to empower Indian MSMEs.

Addressing global skill gaps to prepare for a brighter 'Future of Work', Ministry of Labour and Employment (MoLE) organised a panel discussion as a follow-up to the 2023 G20 Leaders' Summit and the New Delhi Leaders' Declaration, to set a course for the future. The G20 Employment Working Group (EWG) and G20 Labour and Employment Ministers adopted policy priorities that included commitments to address Global skill gaps, as endorsed in the 2023 New Delhi Leaders' Declaration.

The distinguished panel was moderated by Shri Atul Kumar Tiwari, Secretary, Ministry of Skill Development & Entrepreneurship. The expert panel comprised of Mr. Srinivas B Reddy, Chief of Skills, and Employability Branch at ILO Geneva; Ms. S. Singh from the Confederation of Indian Industry; Mr. Mark Keese, Head of Skills and Employability Division at the Organisation for Economic Co-operation and Development; and Shri Hiranmay Pandya, President of BharatiyaMazdoorSangh.

The central theme of the conversation revolved around the pressing issue of worldwide skill deficits, emphasising the need for strategic planning and collaborative efforts efficiently bridge these gaps. The suggested approaches encompassed activities such as global skill gap assessment, strengthening national statistical data, extending the coverage of the ILO and OECD Skills for Jobs Databases to G20 nations, and striving to establish a global reference system that classifies occupations based on skill and qualification requirements, aligning the workforce with the ever changing global economy. The panellists underscored the significance of cooperation and alliance among all involved parties and stakeholders.

During the panel discussion on 'Financial Inclusion and Productivity Gains through Digital Public Infrastructure for Strong and Sustainable Growth: The Way Forward', discussions were held against the backdrop of the G20 Leaders' endorsement of the G20 Policy Recommendations for Advancing Financial Inclusion and Productivity Gains through Digital Public Infrastructure (DPI).

G20 leaders recognised the significant role of digital public infrastructure in helping to advance financial inclusion in support of inclusive growth and sustainable development. The Leaders also endorsed the G20 2023 Financial Inclusion Action Plan (FIAP), that will be implemented from 2024-2026.

Dr. V. AnanthaNageswaran, Chief Economic Adviser, Government of India, moderated the discussion and the expert panellists included Shri S. Ramann, Chairman and Managing Director, SIDBI; Shri Rajesh Bansal, Chief Executive Officer of RBI Innovation Hub; and Professor SachinChaturvedi, Director General, Research, and Information System for Developing Countries (RIS).

The discussion gathered ideas and fostered discussions on the way forward in leveraging innovative approaches, including DPI, to advance financial inclusion and growth on a global scale. Eminent thinkers, policymakers, and experts conveyed valuable insights and strategies with the potential to shape the future of financial inclusion at the event.

Dr. Nageswaran underscored the significance of the DPI approach to fast pace the global financial inclusion efforts and, therefore, achieve inclusive and sustained growth.

The discussion examined possibilities for governments, regulators, and private entities to work together in creating, innovating, and enhancing a secure digital financial services environment. Additionally, it delved into the significant potential of Digital Public Infrastructure (DPI) within the framework of the recently embraced G20 policy recommendations concerning DPI's role in advancing financial inclusion and productivity gains.

The conversation also explored the prospects for leveraging DPI's potential, both in the public and private sectors, to achieve robust, sustainable, and equitable growth within G20 nations and beyond.

Source: commerce.gov.in

WTO UPDATE : HIGH DEMAND FOR ENERGY-RELATED CRITICAL MINERALS CREATES SUPPLY CHAIN PRESSURES

MONIASNOUSSI-MIMOUNI, SANDRA AVÉROUS

Critical minerals, such as cobalt, copper, lithium, nickel and rare earths, play a crucial role in the production of clean energy technologies, from wind turbines to electric cars. Over the past 20 years, annual trade in energy-related critical minerals has increased from US$ 53 billion to US$ 378 billion. However, the high demand for clean technology goods is putting pressure on the supply chains for these minerals.

Critical minerals are particularly in demand for the production of batteries for electric cars, with each battery requiring as much as 200kg of critical minerals. The battery sector is responsible for 70 per cent of the global demand for cobalt. It also requires aluminium, copper, lithium, nickel and rare earths. Electrolysers — crucial for green hydrogen production — rely on a variety of critical minerals, including platinum and iridium, two of the world's rarest and most expensive metals. Rare earth elements are needed in particular for magnets, a vital component in many electrical machines, especially the most energy-efficient ones.

For the transition to a low-carbon economy, energy-related critical minerals are considered by many economies to be an essential component. This blog post focuses on the upstream part of their supply chain, where they are unprocessed minerals. Processed minerals, manufactured components and articles made with these minerals are not included in the analysis.

Imports

Trade in critical minerals has grown over the past two decades, with an average annual growth rate of 10 per cent. In 2021, growth surged to 37 per cent as trade bounced back following the slump induced by COVID-19. The value of imports has almost doubled during the last five years, rising from US$ 212 billion in 2017 to US$ 378 billion in 2022, with a significant increase in trade in platinum group metals (PGM), such as rhodium, iridium, ruthenium and osmium. These metals have recorded annual growth rates of up to 72 per cent since 2017. . Helium and lithium have also recorded impressive annual growth rates of up to 53 per cent since 2017.

Over the past five years, trade in PGM, rare earths and other minerals has almost doubled, reaching a total value of US$ 219 billion in 2022.

Imports of copper have seen an average annual increase of 15 per cent since 2002, with a 12 per cent increase in the last five years (see Figure 1). This growth is largely due to an increase in commodity prices and increased imports of two major importers, China and Japan. China's imports have grown by 24 per cent since 2002, while Japan's imports have seen an average annual increase of 10 per cent (see Figure 2). Together, these two economies constitute about 72 per cent of world copper imports, with China alone representing nearly 60 per cent. However, in 2022, this upward trend was not maintained, with a slight decrease in growth for major importers of copper.

Imports of "earths, stone and ores" minerals have continued an upward trajectory, increasing by 24 per cent in 2021 and 18 per cent in 2022. The average growth rate over the last five years has been 9 per cent, more than doubling in value since 2016.

In 2022, China stood as the largest importer of critical minerals, accounting for 33 per cent of the global total, followed by the European Union at 16 per cent, and Japan and the United States both at 11 per cent.

China's leading position is particularly noteworthy for copper imports, in which it far exceeds the imports of other economies. China is also the leading importer for 13 out of 17 "earths, stone and ores minerals", while the European Union is the world's largest importer of PGM, rare earths and other minerals, followed by the United States, China and Japan

The most traded mineral is copper, representing 26 per cent of the total mineral imports followed by unwrought aluminium at 20 per cent. Those two metals have long been used in traditional industry. Excluding these two metals, rhodium and palladium emerge as the most traded minerals in 2021 and 2022, accounting for 30 per cent of the world total in 2021 and 22 per cent in 2022. The value of rhodium imports increased sixfold between 2019 and 2021. Similarly, imports of helium and lithium recorded a sixfold rise in value in 2022 compared to 2019.

Exports

Chile is the world's leading exporter of critical minerals, accounting for 11 per cent of global exports in 2022 (see Figure 5), followed by South Africa (10 per cent), Australia, Peru, and the Russian Federation (all at 6 per cent).

South Africa is the main exporter of PGM, rare earths and other minerals, with a global share of 13 per cent in 2022 (see Figure 6). Indeed, PGM are mined mainly in South Africa, the Russian Federation, and the United States of America, while rare earths are mostly found in China and the United States. The European Union is a major global producer of magnesite and barytes.

For earths, stone and ores, South Africa is the leading exporter (with a 14.3 per cent global share), just ahead of Australia by 1.25 percentage points, followed by Guinea, which holds a 9 per cent share of exports, mainly due to aluminium. Peru is the fourth-largest exporter, mostly extracting zinc, tin and molybdenum.

Finally, Chile is the leading exporter of copper, accounting for more than one-quarter of global exports, followed by Peru at 19 per cent and Indonesia at 9 per cent.

Data on unprocessed minerals need to be considered in conjunction with information on extraction and processing. For example, according to the International Energy Agency (IEA), approximately 70 per cent of worldwide graphite extraction and close to 100 per cent of processed graphite production take place in China. Consequently, only the remaining 30 per cent of worldwide graphite is internationally traded, and graphite import and export data cover only 30 per cent of the world's unprocessed graphite.

Import tariffs

The most-favoured-nation (MFN) tariff applied to imports of critical minerals was approximately 4 per cent in 2022. This is almost 2 percentage points lower than the tariff applied in 2002. The applied tariff for PGM, rare earths and other products was 4 per cent, while for earths, stones and ores products it was 3 per cent (see Figure 7).

On the other hand, bound — or maximum — tariffs are on average reaching about 26 per cent, indicating significant room for manoeuvre for WTO members to increase their applied tariffs should they need to do so. Some major importers, such as Brazil, India and Thailand, have a margin of more than 20 per cent between bound and applied rates. Bound tariff rates for PGM, rare earths and other minerals and for earths, stone and ores are closely aligned.

Export restrictions and export tariffs

Apart from import tariffs, critical minerals can also be subject to export restrictions or export tariffs. These measures could potentially impact the global supply of critical minerals, resulting in upward pressures on world prices and concerns about how secure the supply of raw materials to manufacturers is, as indicated in the Organisation for Economic Co-operation and Development (OECD) Methodological note to the Inventory of Export Restrictions on Industrial Raw Materials. Already, the OECD database has revealed an upward trend of export restrictions on energy-related raw minerals, with the number of export restrictions, including export tariffs, increasing from 396 measures in 2009, to 472 measures in 2012, to 489 measures in 2017, to 502 in 2021

Conclusion

The last five years have seen an acceleration in the value of trade in unprocessed critical minerals. The recent commitments at the 2023 COP28 Climate Change Conference in Dubai to triple renewable energy production and the trend towards electric vehicles, which will play a role in helping to reduce greenhouse gas emissions and maintaining the objective of the Paris Agreement to remain within a global temperature rise limit of 1.5 degrees Celsius, are leading to an increased demand for energy-related critical minerals. Special efforts will be needed to diversify the availability of critical minerals in the future to respond to this growing demand. Open trade can be an important element in the collective effort to support a sustainable transition to a low-carbon economy.

Source: WTO Website

RATE CONTRACT AND OTHER PROCUREMENTS WITH SPECIAL FEATURES

This is the Eighth article in the series of articles for Public Procurement. This is in continuation of seventh article in the December 2023 issue from pages 21 to 32 titled "Evaluation of Bids and Award of Contract"

Rate Contracts

Definition: A Rate Contract (commonly known as RC) is an agreement between the purchaser and the supplier for supply of specified goods (and allied services, if any) at specified price and terms & conditions (as incorporated in the agreement) during the period covered by the Rate Contract. No quantity is mentioned nor is any minimum drawal guaranteed in the Rate Contract. The Rate Contract is in the nature of a standing offer from the supplier firm. The firm and/or the purchaser are entitled to withdraw/cancel the Rate Contract by serving an appropriate notice on each other giving 15 (fifteen) days time. However, once a supply order is placed on the supplier for supply of a definite quantity in terms of the rate contract during the validity period of the rate contract, that supply order becomes a valid and binding contract.

Merits of Rate Contract-The Rate Contract system provides various benefits to both the Purchaser (i.e. user) and the Supplier and the same are indicated below:

i) Benefit to Users

a) Competitive and economical price due to aggregation of demands.
b) Saves time, efforts, man-hours and related costs involved in time consuming as well as repetitive tendering process. It thus reduces lead time for procurement.
c) Availability of quality goods with full quality assurance back-up.
d) Enables procurement as and when required and thus reduces inventory carrying cost.
e) Advantageous even to small users and those located in remote areas.
f) Provides one single point of contact to procure such items.

ii) Benefit to Suppliers:

a) Reduces marketing cost and efforts.
b) Eliminates repetitive tendering and follow-up actions with multiple authorities.
c) Provides single point contact for Govt. supplies.
d) Aggregation of Govt. demand leads to economic production.
e) Lends credibility.
f) Promotes quality discipline.

Period of Rate Contract: The period of a Rate Contract should normally be one year for stable technology products. However, in special cases, shorter or longer period not more than two years may be considered. As far as possible, validity period of rate contracts should be fixed in such a way as to ensure that budgetary levies would not affect the price and thereby frustrate the contracts. Attempts should also be made to suitably stagger the period of rate contracts throughout the year.

Special Conditions applicable for Rate Contract- Some conditions of rate contract differ from the usual conditions applicable for ad hoc contracts. Some such important special conditions of rate contract are given below:

i) ii) In the Schedule of Requirement, no quantity is mentioned; only the anticipated drawl is mentioned without any commitment.

iii) The purchaser reserves the right to conclude one or more than one rate contract for the same item.

iv) The purchaser as well as the supplier may withdraw the rate contract by serving suitable notice to each other. The prescribed notice period is generally fifteen days.

v) The purchaser has the option to renegotiate the price with the rate contract holders.

vi) In case of emergency, the purchaser may purchase the same item through ad hoc contract with a new supplier.

vii) The purchaser and the authorized users of the rate contract are entitled to place online supply orders up to the last day of the validity of the rate contract and, though supplies against such supply orders will be effected beyond the validity period of the rate contract, all such supplies will be guided by the terms & conditions of the rate contract.

viii) The rate contract will be guided by "Fall Clause" (as described later in this chapter).

Parallel Rate Contracts: Since, the rate contracts concluded are to take care of the demands of various Departments and Organizations, PSUs, Autonomous Organizations etc. spread all over the country, generally a single supplier does not have enough capacity to cater to the entire demand of an item. Therefore, the rate contracts are concluded with different suppliers for the same item. Such rate contracts are known as Parallel Rate Contracts.

Conclusion of Rate Contracts including Parallel Rate Contracts- Techniques for conclusion of rate contract is basically identical to that of ad hoc contract (as discussed in Chapter 7 of the Manual). Identical tender documents may be utilized for conclusion of rate contracts subject to inclusion therein the special terms & conditions as applicable for rate contracts. In the first instance, the rate contract is to be awarded to the lowest responsive tenderer (L1). However, depending on the anticipated demand of the item, location of the users, capacity of the responsive bidders, reasonableness of the prices quoted by the responsive bidders, etc. it may become necessary to award parallel rate contracts also. Efforts should be made to conclude parallel rate contracts with suppliers located in different parts of the country. For the sake of transparency and to avoid any criticism, all such parallel rate contracts are to be issued simultaneously.

Cartel Formation / Pool Rates/Bid rigging/Collusive bidding etc.: Quoting of pool rates/Cartel formation, bid rigging/collusive bidding is against the basic principle of competitive bidding and defeats the very purpose of open and competitive tendering system. Such practices should be severely discouraged with strong measures. Suitable administrative actions like rejecting the offers, reporting the matter to Competition Commission of India, , on case to case basis, as decided by the competent authority. Ministries/Departments may also bring such unhealthy practice to the notice of the

concerned trade associations like FICCI, ASSOCHAM, NSIC, etc. requesting them, inter alia, to take suitable strong actions against such firms. The Ministries/ Departments may also encourage new firms to get themselves registered to break the monopolistic attitude of the firms giving pool rate/ forming cartel. Purchaser may also debar the tenderers indulging in cartel formation/collusive bidding/bid rigging for a period of two years from participation in the tenders of the Purchaser.

Fall Clause: Fall clause is a price safety mechanism in rate contracts. The fall clause provides that if the rate contract holder reduces its price or sells or even offers to sell the rate contracted goods or services following conditions of sale similar to those of the rate contract, at a price lower than the rate contract price, to any person or organization during the currency of the rate contract, the rate contract price will be automatically reduced with effect from that date for all the subsequent supplies under the rate contract and the rate contract amended accordingly. Other parallel rate contract holders, if any, are also to be given opportunity to reduce their price as well, by notifying the reduced price to them and giving them 07 (seven) days time to intimate their revised prices, if they so desire, in sealed cover to be opened in public on the specified date and time and further action taken as per standard practice. On many occasions, the parallel rate contract holders attempt to grab more orders by unethical means by announcing reduction of their price (after getting the rate contract) under the guise of Fall Clause. This situation is also to be dealt with in similar manner as mentioned in the preceding paragraph. It is however, very much necessary that the purchase organizations keep special watch on the performance of such rate contract holders who reduce their prices on one pretext or other. If their performances are not up to the mark, appropriately severe action should be taken against them including deregistering them, suspending business deals with them, debarring them for two years from participating against the tender enquiry floated by concerned purchase organization etc.

The provisions of fall clause will however not apply to the following:

iii) Export/Deemed Export by the supplier;

iv) Sale of goods or services as original equipment prices lower than the price charged for normal replacement;

v) Sale of goods such as drugs, which have expiry date;

vi) Sale of goods or services at lower price on or after the date of completion of sale/placement of order of goods or services by the authority concerned, under the existing or previous Rate Contracts as also under any previous contracts entered into with the Central or State Government Departments including new undertakings (excluding joint sector companies and or private parties) and bodies.

Performance Security: Depending on the anticipated overall drawal against a rate contract and, also, anticipated number of parallel rate contracts to be issued for an item, Department shall consider obtaining Performance Security @ 5% (five percent) of the value of supply order in the supply orders issued against rate contracts on the rate contract holder.

Renewal of Rate Contracts: It should be ensured that new rate contracts are made operative right after the expiry of the existing rate contracts without any gap for all rate contracted items. In case, however, it is not possible to conclude new rate contracts due to some special reasons, timely steps are to be taken to extend the existing rate contracts with same terms, conditions etc. for a suitable period, with the consent of the rate contract holders. Rate contracts of the firms, who do not agree to such extension, are to be left out.

Also, while extending the existing rate contracts, it shall be ensured that the price trend is not lower.

Handling urgencies/ Procurement in Emergencies and Disaster Management

There are sufficient fast track procurement modalities to tackle procurements in urgent/ emergent and Disaster Management situations. Enhanced delegations of procurement powers in SoPP may be considered to handle such situations. Use of following modes of procurements may be utilised in order of speed(under Disaster Management situations, threshold limits of modes of procurement may be increased for higher level of officers, with the sanction of Secretary of the Department):

i) Direct Procurement Without Quotation

ii) Direct Procurement by Purchase Committee

iii) SLTE/ Limited/ Single Tender Enquiry, with reduced time for submission of Bids

To speed up procurement, advance cash may be drawn for direct procurement modes and made available to the Committees/ officer, with accounts and vouchers to be submitted after purchase.

Buy Back Offer : When it is decided to replace an existing old item(s) with a new/better version, the Department may trade the existing old item while purchasing the new one by issuing suitable bidding documents for this purpose. The condition of the old item, its location and the mode of its handing over to the successful bidder are also to be incorporated in the bidding document. Further, the bidder should be asked to quote the prices for the item (to be offered by them) with rebate for the old item and also, without any rebate (in case they do not want to lift the old item). This will enable the Department either to trade or not to trade the old item while purchasing the new one.(Rule 176 of GFR 2017)

Capital Goods/ Equipment (Machinery and Plant M&P)

Capital goods are Machinery and Plant (M&P) which create new Fixed Assets/ utility/ functionality or benefit to the organisation and has a long useful life. Special features of procurement of Capital Goods are:

i) Since the cost is generally high, there are detailed procedures for approval of technical, administrative and budgetary provisions – before an indent is generated. Unlike consumable items (which are procured if a non-specific budgetary provision is there), Capital Goods are procured after an item specific Budgetary provision is included in the budget. Thus the acquisition of Capital Goods is also an Investment decision and may require some form of Investment Justification. Some of the higher value Capital Goods may be accounted in the Capital Block of the Organization. However these features may not apply to Capital goods procurement of smaller threshold values;

ii) There are also alternative to outright purchasing/ owning such equipment like hiring/ hire-purchase/ leasing or acquiring the functionality as a service;

iii) The procurement involves elements of Works and Services like Installation, Commissioning, Training, prolonged trials, Warranty, After Sales Services like post-warranty Maintenance and assured availability of spares. All such elements have costs may be quoted explicitly or implicitly. A suitable warranty clause should indicate the period of warranty and service levels as well as penalties for delays in restoration of defects. Clauses for including essential initial spares for two years' maintenance to be supplied along with equipment may be provided. If necessary appropriate number of years' (say three to five or more years depending on the lifespan of the equipment) AMC may be included in the procurement detailing its conditions;

iv) The cost of operations, maintenance and disposal of the equipment over its life cycle may far outweigh the initial procurement cost over the life cycle of the capital equipment. Hence value for money becomes an important consideration – which can be addressed in Public Procurement by way of appropriate Description, specification, Contract conditions like inclusion of cost of supply of initial essential spares and total present value (as per DCF technique) of Annual Maintenance Contracts (AMC) for specified number of years within the estimated cost and also the evaluation criteria of procurement contract;

v) In case the Plant and Equipment consists of a number of machines which work in tandem or if it includes services/ works to be done by third party, an all encompassing Turnkey contract may be better alternative;

vi) Because of complexity of specification evaluation of Technical suitability of offers in procurement of Capital Goods involves complex issues about acceptance of alternatives, deviations and compliance with various particulars of specification. Acceptance or otherwise of alternatives should be made explicit. A statement of deviation including detailed justification for the deviations from each clause of specification should be asked for from the bidder in the Bid documents. A schedule of Guaranteed Particulars of specification indicating the values of each parameter may be included in the Specification, where the bidder can quote the offered value of the Parameters. In complex cases Pre-bid conference may help in reducing disputes and complexity at the time of evaluation;

vii) Past experience, Capacity and Financial strength of a supplier is an important determinant of quality, after sales support of the Capital Goods; such procurements are a fit case for Pre-Qualification bidding.

Turnkey Contract

In the context of procurement of goods, a turnkey contract may include the manufacture, supply, assembly, installation/ commissioning of equipment (or a group of plant and machines working in tandem – even though some of the machines may not be manufactured by the supplier himself) and some incidental works or services. Generally, in the tender enquiry documents for a turn key contract, the purchase organization specifies the performance and output required from the plant proposed to be set up and broadly outlines the various parameters it visualizes for the desired plant. The inputs and other facilities, which the purchase organization will provide to the contractor, are also indicated in the tender enquiry document. The contractor is to design the plant and quote accordingly. The responsibility of the contractor will include supplying the required goods, machinery, equipment etc. needed for the plant; assembling, installing and erecting the same at site as needed; commissioning the plant to meet the required output etc., as specified in the tender enquiry documents.

Annual Maintenance Contract (AMC)

i) Some goods, especially sophisticated equipment and machinery need proper maintenance for trouble-free service. For this purpose, the purchase organisation may enter into a maintenance contract. It must, however, be kept in mind that maintenance contract is to start after the expiry of the warranty period, during which period the goods are to be maintained free of cost by the supplier.

ii) The maintenance contract may be entered into either with the manufacturer/supplier of the goods or with a competent and eligible firm, not necessarily the manufacturer/supplier of the goods in question. The purchase organisation should decide this aspect on case to case basis on merit.

iii) If the maintenance contract is to be entered into with the supplier of the goods, then suitable clauses for this purpose are to be incorporated in the tender enquiry document itself and while evaluating the offers, the cost component towards maintenance of the goods for specified number of years is also to be added in the evaluated tender value on overall basis to decide the inter se ranking of the responsive tenderers. Equipment with a lower quoted price may carry a higher maintenance liability. Therefore, the total cost on purchase and maintenance of the equipment over the period of the maintenance contract should be assessed to consider its suitability for purchase. While evaluating the tenderers for maintenance of goods covering a longer period (say, three to five or more years depending on the life-span of the equipment), the quoted prices pertaining to maintenance in future years are to be discounted (as per DCF technique) to the net present value as appropriate for comparing the tenders on an equitable basis and deciding the lowest evaluated responsive tender.

iv) However, if the maintenance contract is to be entered into with a competent and eligible supplier separately, then a separate tender enquiry is to be floated for this purpose and tenders evaluated and ranked accordingly for placement of the maintenance contract. Here, the supplier of the goods may also quote and his quotation, if received, is to be considered along with other quotations received.

v) The details of the services required for maintenance of the goods, the required period of maintenance and other relevant terms and conditions, including payment terms, are to be incorporated in the tender enquiry document. The terms of payment for the maintenance service will depend on the nature of the goods to be maintained as well as the nature of the services desired. Generally, payment for maintenance is made on a half-yearly or quarterly basis.

vi) A Service Level Agreement (SLA) may be incorporated in complex and large maintenance contracts. SLA should indicate guaranteed levels of service parameters like - %age uptime to be ensured; Performance output levels to be ensured from the equipment; channel of registering service request; response time for resolving the request, Channel for escalation of service request in case of delay or unsatisfactory resolution of request, monitoring of Service Levels etc. This would include provision of help lines, complaint registration and escalation procedures, response time, percentage of uptime and availability of equipment, non-degradation in performance levels after maintenance, maintenance of an inventory of common spares, use of genuine spares, and so on. The maintenance contract may also include penalties (liquidated Damages) for unacceptable delays in responses and degradation in performance output of machines, including provisions for terminations.

vii) It should be indicated in the bid documents, whether the maintenance charges would be inclusive of visiting charges, price of spares (many times, consumables such as rubber gasket, bulbs, and so on, are not included, even though major parts may be included), price of consumables (fuel, lubricants, cartridges, and so on). If costs of spares are to be borne by the procuring entity, then a guaranteed price list should be asked for along with the bids. It should also be clarified, whether room/space, electricity, water connection, and so on, would be provided free of cost to the contractor. The bidding document should also lay down a service level agreement to ensure proper service during the maintenance period.

viii) A suitable provision should be incorporated in the tender enquiry document and in the resultant maintenance contract indicating that the prices charged by the maintenance contractor should not exceed the prevailing rates charged by him from others for similar services. While claiming payment, the contractor is also to give a certificate to this effect in his bill.

ix) If the goods to be maintained are sophisticated and costly, the tender enquiry document should also have a provision for obtaining performance security. The amount of performance security will depend on the nature of the goods, period of maintenance, and so on. It generally varies from two and a half to five per cent of the value of the equipment to be maintained.

x) Sometimes, the maintenance contractor may have to take the goods or some components of the goods to his factory for repair, and so on. On such occasions, before handing over the goods or components, valuing more than Rupees One Lakh, a suitable bank guarantee is to be obtained from the firm to safeguard the purchaser's interest.

xi) Sometimes, during the tenure of a maintenance contract, especially with a longer tenure, it may become necessary for the purchase organisation to withdraw the maintenance contract due to some unforeseen reasons. To take care of this, there should be a suitable provision in the tender document and in the resultant contract. Depending on the cost and nature of the goods to be maintained, a suitable notice period (say one to three months) for such cancellation to come into effect is to be provided in the documents. A model clause to this effect is provided below:

"The purchaser reserves its right to terminate the maintenance contract at any time after giving due notice without assigning any reason. The contractor will not be entitled to claim any compensation against such termination. However, while terminating the contract, if any payment is due to the contractor for maintenance services already performed in terms of the contract, these would be paid to it/him as per the contract terms".

Source : GFR 2017

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AI WILL TRANSFORM THE GLOBAL ECONOMY. LET'S MAKE SURE IT BENEFITS HUMANITY

KRISTALINA GEORGIEVA

AI will affect almost 40 percent of jobs around the world, replacing some and complementing others. We need a careful balance of policies to tap its potential

We are on the brink of a technological revolution that could jumpstart productivity, boost global growth and raise incomes around the world. Yet it could also replace jobs and deepen inequality.

The rapid advance of artificial intelligence has captivated the world, causing both excitement and alarm, and raising important questions about its potential impact on the global economy. The net effect is difficult to foresee, as AI will ripple through economies in complex ways. What we can say with some confidence is that we will need to come up with a set of policies to safely leverage the vast potential of AI for the benefit of humanity.

Reshaping the Nature of Work : In a new analysis, IMF staff examine the potential impact of AI on the global labor market. Many studies have predicted the likelihood that jobs will be replaced by AI. Yet we know that in many cases AI is likely to complement human work. The IMF analysis captures both these forces.

The findings are striking: almost 40 percent of global employment is exposed to AI. Historically, automation and information technology have tended to affect routine tasks, but one of the things that sets AI apart is its ability to impact high-skilled jobs. As a result, advanced economies face greater risks from AI—but also more opportunities to leverage its benefits—compared with emerging market and developing economies.

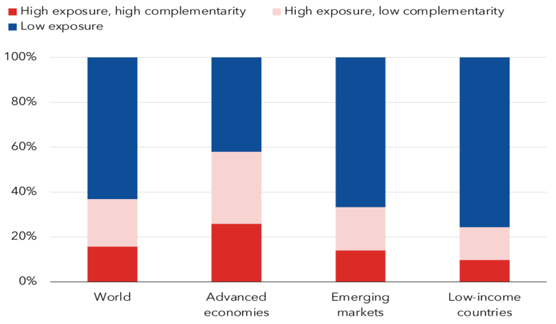
In advanced economies, about 60 percent of jobs may be impacted by AI. Roughly half the exposed jobs may benefit from AI integration, enhancing productivity. For the other half, AI applications may execute key tasks currently performed by humans, which could lower labor demand, leading to lower wages and reduced hiring. In the most extreme cases, some of these jobs may disappear.

In emerging markets and low-income countries, by contrast, AI exposure is expected to be 40 percent and 26 percent, respectively. These findings suggest emerging market and developing economies face fewer immediate disruptions from AI. At the same time, many of these countries don't have the infrastructure or skilled workforces to harness the benefits of AI, raising the risk that over time the technology could worsen inequality among nations.

AI's impact on jobs

Most jobs are exposed to AI in advanced economies, with smaller shares in emerging markets and low-income countries.

Employment shares by AI exposure and complementarity



Source: International Labour Organization (ILO) and IMF staff calculations
Note: Share of employment within each country group is calculated as the working-age-population-weighted average.

IMF

AI could also affect income and wealth inequality within countries. We may see polarization within income brackets, with workers who can harness AI seeing an increase in their productivity and wages—and those who cannot falling behind. Research shows that AI can help less experienced workers enhance their productivity more quickly. Younger workers may find it easier to exploit opportunities, while older workers could struggle to adapt.

The effect on labor income will largely depend on the extent to which AI will complement high-income workers. If AI significantly complements higher-income workers, it may lead to a disproportionate increase in their labor income. Moreover, gains in productivity from firms that adopt AI will likely boost capital returns, which may also favor high earners. Both of these phenomena could exacerbate inequality.

In most scenarios, AI will likely worsen overall inequality, a troubling trend that policymakers must proactively address to prevent the technology from further stoking social tensions. It is crucial for countries to establish comprehensive social safety nets and offer retraining programs for vulnerable workers. In doing so, we can make the AI transition more inclusive, protecting livelihoods and curbing inequality.

An Inclusive AI-Driven World

AI is being integrated into businesses around the world at remarkable speed, underscoring the need for policymakers to act.

To help countries craft the right policies, the IMF has developed an AI Preparedness Index that measures readiness in areas such as digital infrastructure, human-capital and labor-market policies, innovation and economic integration, and regulation and ethics.

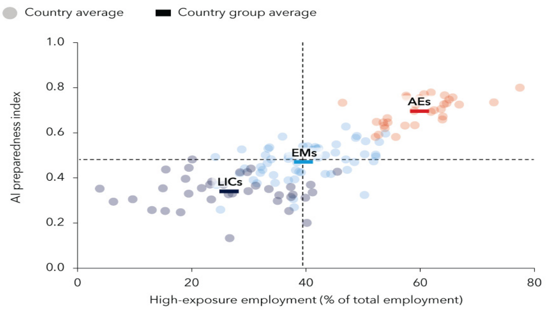
The human-capital and labor-market policies component, for example, evaluates elements such as years of schooling and job-market mobility, as well as the proportion of the population covered by social safety nets. The regulation and ethics component assesses the adaptability to digital business models of a country's legal framework and the presence of strong governance for effective enforcement.

Using the index, IMF staff assessed the readiness of 125 countries. The findings reveal that wealthier economies, including advanced and some emerging market economies, tend to be better equipped for AI adoption than low-income countries, though there is considerable variation across countries. Singapore, the United States and Denmark posted the highest scores on the index, based on their strong results in all four categories tracked.

Advanced-economy advantage

Wealthier countries often are better equipped for AI adoption.

AI Preparedness Index and employment share in high-exposure occupations



Source: Fraser Institute, ILO, International Telecommunication Union, United Nations, Universal Postal Union, World Bank, World Economic Forum, and IMF staff calculations.
Note: Plot reflects 32 advanced economies, 56 emerging market economies, and 37 low-income countries. Dotted reference lines are derived from AI Preparedness Index median values and high-exposure employment.

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Guided by the insights from the AI Preparedness Index, advanced economies should prioritize AI innovation and integration while developing robust regulatory frameworks. This approach will cultivate a safe and responsible AI environment, helping maintain public trust. For emerging market and developing economies, the priority should be laying a strong foundation through investments in digital infrastructure and a digitally competent workforce.

The AI era is upon us, and it is still within our power to ensure it brings prosperity for all.

Source: IMF

DPIIT RELEASES REPORT ON "LOGISTICS COSTS IN INDIA: ASSESSMENT AND LONG-TERM FRAMEWORK" REPORT TO CONTRIBUTE TOWARDS ACHIEVING TARGET OF REDUCING LOGISTICS COSTS IN INDIA

India's National Logistics Policy, which was launched on 17th September 2022, aims to reduce logistics costs in India. To achieve this objective, the Logistics Division, Department for Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry (MoCI) launched a report titled "Logistics Cost in India: Assessment and Long-Term Framework'' today in New Delhi. The Report has been prepared by the National Council of Applied Economic Research (NCAER), in a consultative manner, with guidance of the Asian Development Bank (ADB) experts and task force members.

Secretary, DPIIT, Sh. Rajesh Kumar Singh along with Special Secretary, Logistics Division, DPIIT, Ms. SumitaDawra and other dignitaries including Deputy Country Director, ADB, Mr Hoe Yun Jeong officially unveiled this report today.

This report presents (a) a baseline aggregated logistics cost estimate and (b) a framework for long-term logistics cost calculation. It uses available secondary data from the Supply Use Tables and National Account Statistics of Ministry of Statistics and Programme Implementation (MoSPI) and the NCAER's 2019 study, "Analysis of India's Logistics Costs". It was also reviewed by external experts from the World Bank Group.

This report recommends a hybrid approach using primary (covering all trade flows, product types, industry trends, OD pairs, etc.) and secondary survey data, as well as real-time Big Data to provide an estimate of logistics cost.

To ensure evidence-based decision making for improving logistics efficiency, logistics costs should be estimated on a regular basis (preferably annually). This requires institutionalising the process of data collection in a systematic and periodic manner, for which an MoU with NCAER is planned.

Secretary, DPIIT emphasized that this report offers reliable estimates to instil confidence in investors regarding the efficient movement of goods and services and is poised to play a pivotal role in optimizing logistics efficiency and enhancing India's global competitiveness.

Special Secretary, DPIIT highlighted that logistics cost has serious implications on the country's manufacturing sector, export competitiveness, global positioning, etc. She pointed out that due to lack of data in the public domain for the critical components of logistics cost, the non-official / floating estimates of India's logistics cost lack credibility. Hence, a need was felt to develop a scientific logistics cost calculation framework, that is inclusive and stands the test of statistical and data-based methods.

With this objective, the Government formed a Task Force in March 2023, subsequent to a workshop held in partnership with ADB. This Task Force composed of sectoral experts, line Ministries and representatives from NITI Aayog and ADB held a series of meetings, and drew credible conclusions. Key learnings that emerged during this exercise were as follows:

- Given the fragmented nature of the sector and various variables such as storage, terminal infra, O-D pair wise commodity flows, affecting the ecosystem, the complexity in estimating logistics cost, was demystified.
- The essential components of logistics cost estimation, including (i) Transportation cost, (ii) Warehousing and storage cost, auxiliary support services cost, (iii) Packaging cost, insurance cost, and (iv) Other administrative / operations cost, were identified.
- It was found that secondary data at a disaggregated level on most of these components is not available.
- Lack of data in public domain for the critical components of logistics cost, implied that non-officials / floating estimates of India's logistics cost lack credibility.
- Immense Big Data being generated in the country is of immense value in computing logistics cost.
- The larger goal of policy making, requires a thorough understanding of trends in disaggregated data in the logistics sector, in terms of trade flows, product groups, EXIM and domestic cargo movement, etc.

  The NCAER team led the academic exercise of computing the baseline results and putting together the comprehensive framework for logistics cost calculation in the long run, supported by academia, multilaterals, industry representatives and line Ministries.

  The results of this report were widely appreciated by the industry representatives. Building a positive perception in the market, this systematic approach adopted by the Government will facilitate more effective and evidence-based decision making, planning production cycles, resource allocation, etc. Disaggregated data and a clear understanding of trends in the sector will lead to identification of targeted interventions and effective policy making.

Source: Ministry of Commerce & Industry

SHRI PIYUSH GOYAL RELEASES THE "LOGISTICS EASE ACROSS DIFFERENT STATE (LEADS) 2023"

Logistics sector is vast in its scope and impact. There is not a single person in the country who is not directly impacted by the logistics sector: ShPiyush Goyal

LEADS report is encouraging States/UTs and other stakeholders to improve their processes and contribute to better future: Sh Goyal

Logistics sector will be a cornerstone in our endeavour to take India to a 10x growth from a USD 3.5 trillion to USD 35 trillion by 2047: Sh Goyal

Union Minister of Commerce & Industry, Consumer Affairs, Food & Public Distribution, and Textiles, Sh. Piyush Goyal released the "Logistics Ease Across Different State (LEADS) 2023" report in New Delhi on 16th December 2023, in the presence of Smt. SumitaDawra, Special Secretary (Logistics), DPIIT, Mr. SajivPuri, President-Designate of Confederation of Indian Industry (CII) & MD ITC, and Mr. Mihir Shah, Partner, Ernst & Young.

Speaking on the occasion, Sh. Piyush Goyal said that LEADS is giving insights to States and UTs for further revolutionary reform in logistics sector, taking us towards our vision of Viksit Bharat. The report serves as a guide for stakeholders in the Logistics Sector by providing strategic insights, he added. He hoped that it will play a pivotal role in instilling healthy competition among States/UTs to enhance logistics performance. It also underscores notable initiatives like planning infrastructure on PM GatiShakti, 'industry' status for logistics, multimodal connectivity, digital initiatives in logistics, City Logistics Plans, Multimodal Logistics Parks, etc, he said, adding that States/UTs need to emphasise skill development, capacity building, and the formalization of logistics policies, implementation of monitoring frameworks, and the promotion of green logistics. He said that Logistics sector will be a cornerstone in our endeavour to take India to a 10 fold growth from a USD 3.5 trillion to USD 35 trillion by 2047.

Sh. Rajesh Kumar Singh, Secretary. DPIIT stated that leveraging digitization will lead to significant reduction in logistics cost. In the last nine years, significant interventions in critical areas like logistics received the much-needed focus, thereby leading to the growth in the logistics sector. Secretary highlighted reforms in Ease of Doing Business, reduction in compliance burden and ongoing work on reducing cost of regulation.

Senior officials from the Central and State/UT governments and representatives from the industry were present at the launch to share their insights and engage in constructive dialogues during various sessions in the day.

LEADS was conceived on the lines of **Logistics Performance Index** of World Bank in 2018 and has evolved over time. While the LPI relies entirely on perception-based surveys, LEADS incorporates both perception as well as **objectivity** thereby enhancing the robustness and comprehensive - ness of this exercise.

The 5th edition of the LEADS annual exercise - LEADS 2023 report, provides insights into improvement of logistics performance at State/ UT level. It highlights an enhanced overall stakeholder perception and impact of various reforms, across States and UTs. This report, signalling a **positive shift** in States' performance across the **key pillars** – Logistics Infrastructure, Logistics Services and Operating and Regulatory Environment, **empowers** the State/UT Governments by providing **region specific insights** for informed decision making and comprehensive growth.

This report is based on a **pan-India primary survey**, conducted between May and July 2023, covering over **7,300 responses** across 36 States/UTs. Additionally, over 750 stakeholder consultations, facilitated by National, Regional, and State Associations, significantly contributed to this comprehensive evaluation.

Performance Highlights from LEADS 2023:

Coastal Group

· Achievers: Andhra Pradesh, Gujarat,

Karnataka, Tamil Nadu

- Fast Movers: Kerala, Maharashtra
- Aspirers: Goa, Odisha, West Bengal

Landlocked Group

- Achievers: Haryana, Punjab, Telangana, Uttar Pradesh
- Fast Movers: Madhya Pradesh, Rajasthan, Uttarakhand
- Aspirers: Bihar, Chhattisgarh, Himachal Pradesh, Jharkhand

North-East Group

- Achievers: Assam, Sikkim, Tripura
- Fast Movers: Arunachal Pradesh, Nagaland
- Aspirers: Manipur, Meghalaya, Mizoram

Union Territories

- Achievers: Chandigarh, Delhi
- Fast Movers: Andaman & Nicobar, Lakshadweep, Puducherry
- Aspirers: Daman & Diu/ Dadra & Nagar Haveli, Jammu & Kashmir, Ladakh

Ms. SumitaDawra, Special Secretary (Logistics), DPIIT highlighted that the 5th edition of the LEADS report launched today has been developed in a collaborative and consultative manner. It has brought objectivity in assessment of infrastructure development and process-related reforms. 23 States/UTs have also notified their State Logistics Polices to align with the National Logistics Policy. Further, 16 States/UTs have given industry status to logistics. Digital reform such as PM GatiShakti, Logistics Data Bank, Unified Logistics Interface Platform (ULIP), GST are propelling India's improved ranking at global level.

During the event two sessions were held: (i) Leveraging Data and technologies to Ease Logistics; (ii) Green and sustainable Logistics.

Efficient domestic logistics are pivotal for both national and international trade competitiveness. The integration of objective and perception-based data in LEADS 2023 ensures a **holistic framework** for evaluating logistics performance. The latest edition builds strengthening objectivity and precision in assessment by considering a wider spectrum of state initiatives, including the adoption of PM GatiShakti National Master Plan for project planning, aligning State Logistics Policies with National Logistics Policy, besides developing City Logistics plans, etc.

Source: PIB

HOW LOGISTICS FURIOUSLY REINVENTS ITSELF

REGINA HENKEL

Currenttrends and futuristic ideas from the logistics industry would seem like thestuff of science fiction. But, as **Regina Henkel** reports, the future may bestranger than fiction.

Whether a parcel is delivered bydrones through the air, or in special tubes under the ground, the latest ideasfor package delivery read like that from a science fiction novel. In fact, thelogistics industry is reinventing itself: with the help of package drones,which find their way to isolated villages or in clogged cities easily, with anunderground tunnel network, especially made for mail, with trucks that produceordered products with a 3D printer themselves, and so on. Many of these futuremodels are being contemplated by online giant Amazon. CEO Jeff Bezos hasarticulated logistics as a top priority, pushing the issue ahead worldwide.

Thefuture is lying in the air : Many of these ideas, of course,are still in testing phases. But plans for the Prime-air drone that Amazon istrying to install are far more mature than experts had expected. The onlineretailer will not simply deliver only packets with flying quadrocopters, italso wants to build a complex supply network, deliver to any potentialrecipient no matter where they reside. Also, the setup of supply- and recharging-stationsfor the drones is part of the vision.

It's not only Amazon that will berelying on drones. Deutsche Post has been experimenting with this for yearsnow. In a pilot project last year, its small 'Paketkopter' made medicinedeliveries from the mainland to a pharmacy on the island of Juist in the NorthSea. The flight succeeded even in darkness, rain and fog-conditions under whichan aircraft cannot ordinarily fly. Swiss Post too has run tests and suppliedremote villages with medication by drones. Despite these successes, experts aresceptical whether a drone is a serious delivery option. A sky full of dronescould fail through the legislature although Amazon has reached an agreementwith the US Federal Aviation Administration for a pilot project with analtitude of approximately 400 feet. Moreover, the economic viability of dronesis not yet proven.

Race isdriven by logistics, not consumers : But why are online retailers suchas Amazon or Alibaba so insistent on drones? Why invest so much capital in thedevelopment of new delivery models, if customers are satisfied? Daniela Zimmer,responsible for the programming of the Internet World Congress in Munich inMarch 2016 which will focus among other things on logistics trends ine-commerce, said: “Recent research shows that it (the delivery) satisfiesa customer when the order arrives within three days. Same-Day-Delivery, whichis possible with drones, is primarily a forward-driven issue bylogisticians.” It is not without reason, say some experts, thatonlineretailers like Amazon are trying to set their delivery service partners underpressure from their own logistics projects. But that’s not all. Even the threatof gridlock has been cited repeatedly over the years in order to show thenegative effects of e-commerce.

The fact, however, is: there is no traffic jam caused by e-commerce yet. However, forecasts say that by 2018 the package volume each year will increase by at least four per cent. At the same time, rural exodus will continue. By 2050, 84 per cent of Germans, for example, will live in cities, a forecast of the United Nations revealed. It is therefore to be expected that urban infrastructure soon must come to terms with a much higher volume of traffic than that at present. This is a key reason for the logistics sector to look out for new models for the future.

Colourful smorgasbord of logistics ideas : But drones are not the only ones in this colourful pool of ideas of the logistics sector. Take, for example, the package pipeline in Great Britain. In cooperation with DHL and funded by the British Ministry of the Environment, Mole Solutions from Cambridge has developed an underground tunnel system whereby the packages float in capsules on a magnetic field. The first of these pipelines are to be installed in Northampton. If the pilot project is successful, in a few years a nationwide underground pipe system could traverse across the UK.

Another model for the future is trunk delivery, which has been tested in Germany by DHL in cooperation with Amazon and Audi, as also Hermes in cooperation with BMW. The idea to deliver packages through the trunks of parked cars is not new. In the B2B sector, the system has been in place for a long time. Miele technicians get their parts directly in their trunks, delivered by TNT. Another patent of Amazon which, however, has found far less media attention than the drones is the so-called anticipatory shipping. “Unlike the drones, many experts consider the model of anticipatory shipping to be really sustainable,” said Zimmer.

In keeping with trends, this idea is associated with Big Data: goods without concrete orders are provided on truck as travelling camps in a region where these goods are ordered often or soon according to data analysis. This helps shorten delivery times dramatically. Amazon will even deliver products before the customer has ordered it-the knowledge of this is based on the click history and the buying behaviour of customers. For instance, a person who has so far always ordered new publications by a specific author will in the future be supplied automatically by Amazon. It’s as amazing as that!

In fact, Amazon can imagine even more in terms of logistics. Another Amazon patent describes a truck with a 3D printer, producing the goods ordered during its cruise. While there are still many technical problems in implementing this idea, the intended target is quite tempting. Deliveries could be made more quickly than ever before, and the logistics costs would still decline-finally the raw material for 3D printing can be stored and transported considerably easier than the bulky finished product.

When it comes to e-commerce logistics, things are changing rapidly right now. And, for sure, it will also impact the fashion business as also the relationship between traders and consumers. It makes sense to keep these developments in mind.

Source: www.fibre2fashion.com

BRANCH NEWS

BANGALORE BRANCH

31st December 2023 – Induction session for CSCM 27th Batch (Online) : IIMM Bangalore Branch organized an Induction session for Short Term Certificate in Supply Chain Management Course (**CSCM) (Online) on 31stDecember 2023** (Sunday). Mr. G.Balasubramanian, Senior Faculty conducted session for the CSCM 27th Batch students.

20th January 2024 Branding IIMM Bangalore Branch : IIMM Bangalore Branchorganised a Brainstorming Session on Branding IIMM Bangalore Branch on 20th January 2024 at IIMM Office premises.It was moderated by Mr. Jayakumar. M, Branch Chairman with guidance and inputs from expert Mrs. Rama Krishnamurthy from BOSCH. The following points were deliberated.

a. How to Brand IIMM and attract more learners for IIMM Courses

b. How to bring more participation from large and MSME organisations and Individual members from organisations.

All Committee Members have participated and given their valuable inputs.

21st January 2024 PGDMM/ PGDL&SCM Entrance Exam: Entrance Exam for PGDMM/ PGDL&SCM has been conducted on 21st January 2024 at IIMM Bangalore Conference Hall, 10 candidateshave been participated for the Entrance Exam.

24thJanuary 2024 – COLLOBORATION With SJIM : Industry ready students are need of India today and for the next 10 years. IIMM Bangalore branch has taken lead in this and made an MOU with SJIM (St Joseph Institute of Management). Next step is to leverage the strength of SJIM for IIMM Members and SCM Professionals and as well with Expertise real life knowledge of our Faculty and SCM professionals we started the 1st discussion to co-create suitable courses with SJIM.

A view of Candidates Appeared for Entrance Exam

This happened on 24th January 2024 at IIMM Office Premises, Professor Dr.Deepika, and Mr. Rajendra Desai from SJIM and from IIMM Bangalore Mr. Achyutha Rao, Mr. Balachandran. T.S, Mr. Jayaraman. B and Mr. Jayakumar lead the discussions to co-develop suitable programs for SCM Professionals and SJIM Post grad Students.

A view of Discussion to Co-create Courses

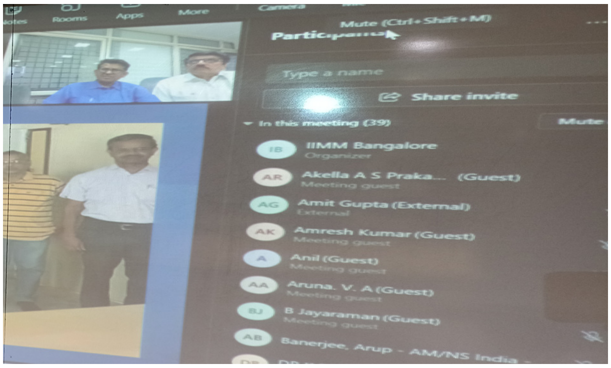
Brainstorming Session for Branding IIMM Bangalore Branch a view of Committee Members with Branding Expert

IIMM Bangalore Branch and St. Joseph's Institute of Management (SJIM) had a meeting on 24th Jan2024

IIMM Bangalore Branching Branding Session, Welcoming by Branch Chairman Mr. JAYAKUMAR. M

HOSUR BRANCH

Free Webinar/Monthly Lecture Program: Indian Institute of Materials Management, Hosur Branch and **Hosur Industries Association (HIA)** had organised a Free Webinar/ Evening Lecture Programon "CUSTOMS PROCEDURES" on 16th December 2023 (Saturday), by Mr. Karunakar C.S., EXIM Consultant on MS Team Meet between 06.00 pm to 7.00 pm



Mr. G. Balasubramanian, IIMM Hosur Branch Vice Chairman welcomed the gathering.

Dr. Sattianarayanane, Branch Chairman introduced the speaker.

Mr. J.H. Sastry, Past Chairman of Hosur Branch was the Guest of Honour and addressed the gathering.

Speaker Mr. Karunakar CS. gave presentation on **Indian Customs Compliance Information Portal detailing customs procedures and regulatory compliances for import-export trade.** About 70 Participants including Members from various sectors/organisations attended the Program. Program was very informative and very good Interactive. Excellent feedbackhas been received from the participants.

KOLKATA BRANCH

Faculty Meet held on Saturday 6th January, 2024 at IIMM Hall at 6 p.m.: Mr.Koushik Roy, Chairman, IIMM, Kolkata welcomed all the faculty members of IIMM, Kolkata branch and wished them success in 2024. He mentioned that Kolkata branch has been excelling in the educational activities which is aptly recognized by our National Headquarters by awarding it the best branch in the education department for the last 11 years. He thanked the faculty for their relentless effort to impart quality education and hoped that with their unstinted support the branch will continue to excel in the academic field.He expressed satisfaction in therespect of various activities of the branch, such as, admission procedure, arrangement of classes, conduct of examination and introducing new course curriculum. Chairman requested Mr.DebasisMallick, Course Coordinator to present a report on the educational activities and future plan of the Education Department.

Online vs. Offline classes: There was an open house deliberation on the issue of switching over to offline mode of classes from online classes. It was decided that the classes for DMLM and PGDMM would continue to be held online. As regards GDMM, efforts would be made to conduct a few sessions on Quantitative Techniques and Research Methodology offline. Chairman suggested that online sessions for PGDMM could be extended to the students of other branches. Kolkata is the only branch offering contact classes at a very nominal fee. The course coordinator informed the house that the number of sessions in respect of PGDMM might increase in the near future as a result of positive feedback received from the students who joined the contact classes.

Kolkata branch has taken up with NHQ at appropriate level for continuation of the GDMM course, as the responses from the students have been quite encouraging. The National President has conveyed the approval of NHQ on 29th December to continue the programme for the current session. The faculty members participated in the discussion and offered valuable suggestions.

The intake of students in session II of 2021 was adversely impacted by covid. The branch is dealing with 200 plus students at any point of time. This is the highest among all the branches of IIMM. Mr.DebasisMallick placed on record the positive contribution from the Admin. staff of the branch, particularly, Mr. K Gupta, Manager, Mr. Tapas Chakraborty, Sr Education Officer and Mr. Sudip Sengupta, in-charge of DMLM programme.

The activity schedule of the Education Department was highlighted to the members.

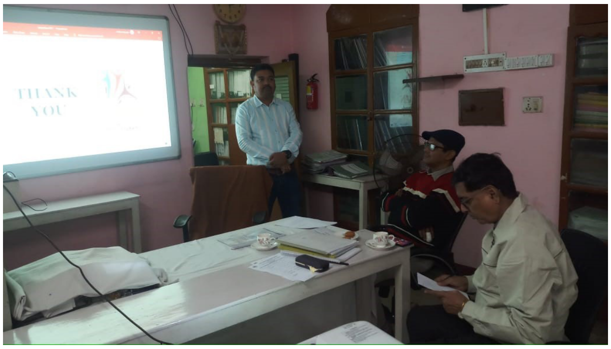
The meeting was concluded with vote of thanks proposed by Mr. Sanjay Gupta, Hony. Secretary, IIMM, Kolkata. He placed on record hearty gratitude to all the faculty members for their kind presence and taking active part in the proceedings.

Written examination for the students of GDMM and PGDMM/PGDSCML was conducted successfully by IIMM, Kolkata branch in December 2023at the Institute of Business Management campus, Jadavpur University.

A record number of 48studentsfrom PGDMM / PGDSCM/ L and 66studentsfrom GDMM (R) appeared in the examination. This number excludes the PGDMM students who opted to appear in the examination online.

The answer sheets were despatched daily following the NHQ norms. IIMM, Kolkata would like to thank the NHQ, faculty and the administrative staff of Kolkata branch to facilitate conducting the examination smoothly and peacefully.

Project presentation at IIMM, Kolkata : IIMM, Kolkata branch organized a programme of project presentation for the GDMM and PGDMM students on 9th January 2024 at the institute hall. A total number of nine students made PowerPoint presentations and faced viva voce to defend their project. Senior Faculty members Mr.Debasis Mallick and Dr. Rajesh Das attended the programme to evaluate the students.



MUMBAI BRANCH

IIMM Mumbai Branch had received a initial Work Order for a Two Day "Orientation Training In Public Procurement" for its Class 1 Officers in November 2022. The First Phase of this Two Day "Orientation Training in Public Procurement" for Systematic Improvement at Regular intervals was completed by IIMM Mumbai Branch in January 2023.

In end September 2023 , Mumbai Port Authority gave IIMM Mumbai Branch a Repeat Work order on the same topic with same Scope of work for its Second Batch of Participants

The Topics/Scope covered by IIMM Mumbai for the initial Two Days of Training Program on 20th November & 21st November 2023, held at Port Management Training Centre (PMTC) Mazagon, were as under :

1) Indian Contract Act
2) Non Disclosure Agreement
3) Workmen Compensation Act
4) General Financial Rules (GFR Rules – 2017 and its latest Amendments)

For

a) Procurement of Goods
b) Procurement of Services
c) Procurement of Works

5) Customs Duty
6) INCO Terms
7) GST Act and Post GST Compliances

The Faculty from IIMM Mumbai Branch wereMr Alok Ranjan Sarkar Advisor IIMM Mumbai Branch (covering topics Serial no (1) to Serial No (4) above.

The Second Faculty from IIMM Mumbai Branch was Mr Pankaj Sinha, G.M (Retd) Indian Oil Corporation Ltd (covering Topics at serial no (5) and serial no (6) above.

The Third Faculty representing IIMM Mumbai Branch was Mr Jitendra Kumar, DGM Finance, Taxation BPCL who took the Session on GST Act

The Third day of Training viz 22nd November 2023 was covered by the In House Faculty of Mumbai Port Authority and covered Topics such as :

- General Principles of Public Procurement
- Estimation of Cost
- Formulation of Specifications
- MbPA Manual for Procurement of Goods
- Public Procurement Policy for Micro & Small Enterprises
- Start Ups
- Make in India Order 2017 and its subsequent Orders
- MbPA Works Manual (Civil)
- Implementation of SORs
- MbPA Transparency Plan
- MbPAIntegrity Pact
- GeM Portal
- CPPP Portal
- CVC Guidelines

The Sessions were conducted by IIMM Mumbai Branch Speakers in interactive mode and queries of the participants were suitably replied. The Total Number of Participants in this Second Batch of Training were 28 Nos. IIMM Certificates were distributed and Feedback forms about the Program were filled up by the Participants. The activities of IIMM Mumbai Branch and Benefits of becoming IIMM Member was explained.

At the end of the two day Training Program, Mr Sushil Kumar Sharma, Actg Head of Materials Management Department, Mumbai Port Authority and Mr H. Sawant Senior Asst Traffic Manager (Training) felicitated Mr Alok Ranjan Sarkar , Advisor IIMM Mumbai Branch & former G.M - Materials & G.M (Engineering & Projects) BPCL by presenting a Flower Bouquet

The above In House Training Program was co-ordinated by Mr Alok Ranjan Sarkar, Advisor, IIMM Mumbai Branch and was well supported by Mr RB Menon, Deputy Director, IIMM Mumbai Office and his team members.

IIMM Mumbai Branch conducted an In House Training Program for Engineers and newly formed Materials Management Department of Air India Engineering Services Ltd Mumbai (New Name : AI Engineering Services Ltd) IIMM Mumbai Branches New Client.

The In House Training Program course content was given to IIMM Mumbai Branch by the client and is given :

- Basics of Materials Management
- Sourcing
- Evaluation of Quotes
- Procurement
- Shipping Process
- INCO Terms
- Customs Procedures
- Receiving
- Stocking
- Issue Procedure
- Inventory Valuation
- Brief Exposure to Impact on Company's Account in accordancewith Statutory Audit & CAG Audit Requirement
- Introduction to GeM Portal
- Tendering Process in PSU Environment
- Process for Classifying Material as "Scrap"and EffectiveScrap Disposal Process
- Post Assessment Training: Questions & Answers

The Training Program was attended by 28 no'sParticipants, including their Dy GM Mr Chaitanya Kumar. The Facultyfor the Training Program was 1) Mr Alok Ranjan Sarkar Advisor IIMM Mumbai Branch and ex GM - Materials & GM (Engineering & Projects) and 2) Mr Neetesh Agarwal , SMM NE Railways. The Program was interactive and various queries and clarifications of the client were answered.

IIMM Certificateswere handedover tothe participants by Mr Sunil Choudhary , GM (Engineering) AI Engineering Services Ltd. This Training Program was coordinated by Mr Alok Ranjan Sarkar, Advisor IIMM Mumbai Branch with support from IIMM Mumbai Branch Office Mr R.B.Menon- Dy Director and his team.

Indian Institute of Materials Management. Mumbai Branch organised a two day in house training program at Material **Organisation** on 13rd and 14th of December 2023 at their training cell at Ghatkopar, Mumbai on the topic "**Materials Management and Soft Skills** ". The training covered the following topics on day one was Warehouse Management, Preservation of Stores, Materials Management, and e-Procurement (GeM). The topics covered on day two were Supervisory skills, Behavioural Skills, Time Management and Human Values and Ethics.

The faculty for day one was Mr. Alok Ranjan Sarkar, Advisor - IIMM (Ex GM - Materials & GM Engineering & Projects BPCL).The faculty for the second day was Dr.Neil Sequeira - Chief Operating Officer (COO)(Head & Neck Cancer Institute of India). The program was highly interactive and the feedback obtained at the end of the program was very encouraging. The Program was co -ordinated by Dy.Director IIMM Mumbai Branch, Mr. R. B. Menon and ably supported by his team at Branch Office.

PUNE BRANCH

Interactive Knowledge Sharing Session : IIMM-Pune successfully organized an Interactive Knowledge Sharing session on Saturday, 20th January 2024 at its branch office. We were honored to have Ms. Sharmila Kesarkar, Head of Pharmacy (Pharma Procurement & Operations) at Jehangir Hospital, Pune, as our esteemed guest speaker. Mr. Suhas Gawas, Chairman, IIMM-Pune Branch welcomed & introduced her to all the members present in the session. The session revolved around the critical topic of "Challenges and Opportunities for Supply Chain Management (SCM) in Hospitals." Under the expert guidance of Mr. Mohan Nair, National Councilor at IIMM, the session was skillfully moderated, ensuring a smooth flow of information and engaging discussions.

Ms. Sharmila Kesarkar, a distinguished expert in the field, brought a wealth of experience and knowledge to the discussion. Her presentation delved into the unique challenges faced by hospitals in managing their supply chains, highlighting the critical role SCM plays in ensuring the seamless functioning of healthcare institutions.

Key takeaways from the session included: Supply Chain Challenges in Healthcare: Ms. Kesarkar discussed the intricacies of supply chain management in the healthcare sector, emphasizing the complexities arising from the need for timely delivery of medical supplies, equipment, and pharmaceuticals.

Technology and Innovation: The speaker shed light on the evolving landscape of SCM in hospitals, exploring how technological advancements and innovative solutions can address challenges and enhance efficiency. This included discussions on the implementation of digital platforms, automation, and data analytics.

Regulatory Compliance: Ms. Kesarkar underscored the importance of compliance with regulatory standards in the healthcare industry. She elaborated on the challenges posed by stringent regulations and the need for SCM strategies that ensure adherence to these standards.

Collaboration and Partnerships: The speaker highlighted the significance of collaboration among stakeholders in the healthcare supply chain. Building strong partnerships with suppliers, distributors, and other relevant entities was emphasized as a key factor in overcoming challenges and leveraging opportunities.

Key Challenges: The speaker placed particular emphasis on the obstacles hospitals face when it comes to attracting and retaining highly skilled professionals. In light of this, she proposed that IIMM take proactive measures by introducing targeted training programs and certifications in Supply Chain Management (SCM) specifically designed for the unique needs of healthcare organizations.

Opportunities for Improvement: Ms. Kesarkar shared insights into areas where hospitals can capitalize on opportunities to enhance their SCM practices. This included recommendations for proactive risk management, continuous process improvement, and the adoption of sustainable practices. The session concluded with a lively Q&A session, allowing participants to further engage with Ms. Sharmila Kesarkar and delve into specific aspects of SCM in the healthcare sector. Overall, the Interactive Knowledge Sharing session attended by about 20 members, proved to be a valuable platform for exchanging ideas, gaining industry insights, and fostering a collaborative learning environment.

THIRUVANANTHAPURAM BRANCH

IIMM Thiruvananthapuram Branch organized a Family get together on Saturday,6th January 2024. The programme was held at IIMM Hall, Sasthamangalam , Thiruvananthapuram.

Shri Justine G. Padamadan, Clinical Psychologist, Trivandrum was the Chief Guest of the function. He was formerly Consultant to the Family Court, Trivandrum and Faculty to Academic Staff College, Trivandrum and Calicut, Child Development Centre, Medical College Campus, Trivandrum, Centre for Adult continuing education, University of Kerala, Institute of Management in Government, Trivandrum, Training College, State Bank of Travancore,Trivandrum and Family Apostolate, Diocese of Trivandrum. He has presented Scientific papers in national and international conferences.

The programme started with a silent prayer.

Chairman Dr.Koshy M George welcomed the Chief Guest and the august gathering. In his presidential address, Chairman highlighted the major activities of the branch and placed on record the co-operation of all the members in all the activities of the branch.

ShriM Janardhanan, NC Member introduced the Chief Guest to the gathering. Thereafter Shri Justine G. Padamadan made a beautiful presentation on " Family Enrichment ". As introductionhe told that Family Enrichment occurs when involvement within the family results in the creation of a positive mood, feeling of support, or feeling of success which can help that individual to cope better, more efficient, more confidence or recharged for one's role at work. Family Enrichment is a process by which families can strengthen their relationships, increase their resilience, and promote healthy development and functioning. People are becoming more and more ego conscious. Culture is concern for the other person. Trust is very important as far as a family is concerned and a lot of flexibility is required in the family. Healthy family relations mainly depend on three Cs. Concern or Caring, Communication and Companionship. The talk was very informative and interesting and was well received by the audience.

Chairman Dr.Koshy M George handed over the Membership Kits to the newly joined members at this meeting. Sri M.G.Narayanan Nair, Secretary proposed vote of thanks. The meeting ended with Lunch. It was a memorable day for the participants. New year gifts were also distributed to the members after the function.

Chairman Dr.Koshy M George welcoming the Chief Guest and the audience. Chief Guest Shri Justine G.Padamadan, Secretary Shri M G Narayanan Nair and Vice Chairman Shri K Raveendra Prasad are on the dias

Chief Guest Justine G.Padamadan delivering the talk on "Family Enrichment".

Chairman Dr.Koshy M George handing over the Membership Kit to Shri.SJayachandran Nair

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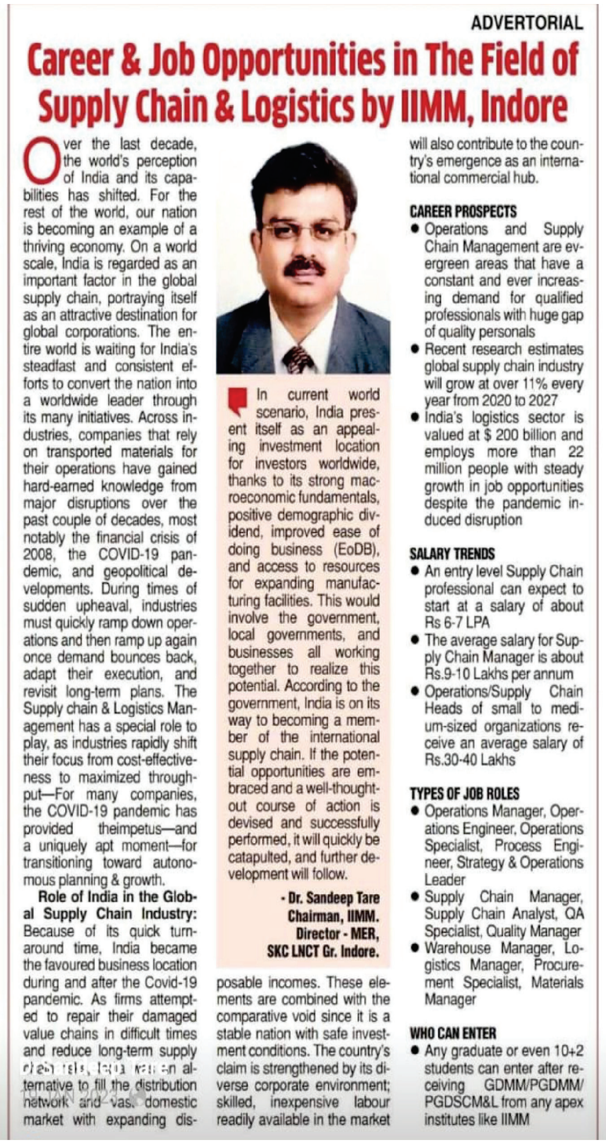
BRANCHES SNAPSHOT

IIMM Aurangabad Branch has distributed 500 New year welcome kit to Materials Management professionals.

Ahmedabad branch is having 10 Active chairmans, who are regularly attending IIMM Ahmedabad branch function. Sharing pic of 6 Chairman welcoming guests of honour in our last MM day program.

Programme at Indore Branch

Programme at Indore Branch



ADVERTORIAL

Career & Job Opportunities in The Field of Supply Chain & Logistics by IIMM, Indore

Over the last decade, the world's perception of India and its capabilities has shifted. For the rest of the world, our nation is becoming an example of a thriving economy. On a world scale, India is regarded as an important factor in the global supply chain, portraying itself as an attractive destination for global corporations. The entire world is waiting for India's steadfast and consistent efforts to convert the nation into a worldwide leader through its many initiatives. Across industries, companies that rely on transported materials for their operations have gained hard-earned knowledge from major disruptions over the past couple of decades, most notably the financial crisis of 2008, the COVID-19 pandemic, and geopolitical developments. During times of sudden upheaval, industries must quickly ramp down operations and then ramp up again once demand bounces back, adapt their execution, and revisit long-term plans. The Supply chain & Logistics Management has a special role to play, as industries rapidly shift their focus from cost-effectiveness to maximized throughput—For many companies, the COVID-19 pandemic has provided theimpetus—and a uniquely apt moment—for transitioning toward autonomous planning & growth.

Role of India in the Global Supply Chain Industry: Because of its quick turnaround time, India became the favoured business location during and after the Covid-19 pandemic. As firms attempted to repair their damaged value chains in difficult times and reduce long-term supply chains, India was an alternative to fill the distribution network and vast domestic market with expanding disposable incomes. These elements are combined with the comparative void since it is a stable nation with safe investment conditions. The country's claim is strengthened by its diverse corporate environment; skilled, inexpensive labour readily available in the market will also contribute to the country's emergence as an international commercial hub.

In current world scenario, India present itself as an appealing investment location for investors worldwide, thanks to its strong macroeconomic fundamentals, positive demographic dividend, improved ease of doing business (EoDB), and access to resources for expanding manufacturing facilities. This would involve the government, local governments, and businesses all working together to realize this potential. According to the government, India is on its way to becoming a member of the international supply chain. If the potential opportunities are embraced and a well-thought-out course of action is devised and successfully performed, it will quickly be catapulted, and further development will follow.

- Dr. Sandeep Tare
Chairman, IIMM.
Director - MER,
SKC LNCT Gr. Indore.

CAREER PROSPECTS

- Operations and Supply Chain Management are evergreen areas that have a constant and ever increasing demand for qualified professionals with huge gap of quality personals
- Recent research estimates global supply chain industry will grow at over 11% every year from 2020 to 2027
- India's logistics sector is valued at $ 200 billion and employs more than 22 million people with steady growth in job opportunities despite the pandemic induced disruption

SALARY TRENDS

- An entry level Supply Chain professional can expect to start at a salary of about Rs 6-7 LPA
- The average salary for Supply Chain Manager is about Rs.9-10 Lakhs per annum
- Operations/Supply Chain Heads of small to medium-sized organizations receive an average salary of Rs.30-40 Lakhs

TYPES OF JOB ROLES

- Operations Manager, Operations Engineer, Operations Specialist, Process Engineer, Strategy & Operations Leader
- Supply Chain Manager, Supply Chain Analyst, QA Specialist, Quality Manager
- Warehouse Manager, Logistics Manager, Procurement Specialist, Materials Manager

WHO CAN ENTER

- Any graduate or even 10+2 students can enter after receiving GDMM/PGDMM/PGDSCM&L from any apex institutes like IIMM

Cochin Branch : One Day Training Programme for Executives at Cochin.

EXECUTIVE HEALTH

TAKING A DAILY MULTIVITAMIN MAY HELP SLOW COGNITIVE AGING AND BOOST MEMORY

- **A new study finds that taking a daily multivitamin may help your cognition and memory.**
- **Researchers found individuals who were given multivitamin had a modest benefit in their memory and cognitive function over two years.**
- **The vitamin may help with cognitive aging.**

New research finds that a multivitamin may help you maintain both your cognition and memory. The new study published online on January 18, 2024, in The American Journal of Clinical Nutrition, reports that daily multivitamin supplementation was beneficial for both global cognition and episodic memory.

Global cognitionTrusted Source refers to the overall status of our cognition while episodic memory deals with our recollection of past events and experiences. The study is the third in a series of studies that are part of the COcoa Supplement and Multivitamin Outcomes Study (COSMOS). The purpose of COSMOS is to determine whether cocoa flavanols or multivitamins have the ability to reduce the risk for certain health conditions including cognitive decline, heart disease, stroke, and cancer.

Multivitamins linked to better memory and cognition : In the two previous COSMOS studies, the researchers assessed people's cognition via telephone and the Internet. For the present study, COSMOS-Clinic, they gave a subset of 573 people in-clinic cognitive assessments.

After analyzing their data, the team saw a "modest" benefit from the multivitamin in these individuals over a period of two years. They also saw a significant improvement in the participants' episodic memory. When the data from all three studies was combined, it was found that there was strong evidence that both global cognition and episodic memory had improved. The study authors estimated that daily supplementation had delayed cognitive aging by about two years in comparison to those who had received a placebo rather than a multivitamin.

Why these findings matter : These findings are important, according to Kelsey Costa, MS, RDN, a registered dietitian and nutrition consultant for the National Coalition on Healthcare because "[m]ild cognitive impairment (MCI) and Alzheimer's disease (AD) pose significant health challenges in the US, especially in the aging population." Costa noted that those who have MCI are about three to five timesTrusted Source more likely to develop some form of dementia.

Additionally, the prevalence of AD is expected to reach over 14 millionTrusted Source by 2060. This especially affects Hispanics, African Americans, and people over the age of 85. It is also expected to be more prevalent among women.

"Given the increasing prevalence rates of MCI and AD, particularly in older adults and specific groups, finding safe and effective preventative measures is crucial," said Costa. "The study suggests that daily multivitamin supplementation could serve as a key part of the solution."

Why multivitamins might help with memory

and cognition : Melanie Murphy Richter, MS, RDN, a Registered Dietitian Nutritionist and instructor of Nutrition Physiology at the University of California, Irvine, explained that the vitamins and minerals that are found in multivitamins play an important role as catalysts in a variety of brain functions. "For instance, we need certain vitamins like B6 and B12 to produce the neurotransmitters serotonin and dopamine for the brain," she stated.

Richter went on to say that neurotransmitters are involved in sending signals to other parts of the body. "If they are underproduced, our signaling pathways will be slowed or even ineffective. Not to mention, serotonin dictates our sleep cycles. Underproduction of serotonin can lead to impaired sleep which is known to accelerate whole-body aging, including of the brain," she explained.

Yet other micronutrients found in multivitamins — such as vitamins C and E and minerals like selenium and zinc — can protect against the oxidative damage that is associated with age-related cognitive decline, per Richter. Richter added that micronutrients are also important in breaking down macronutrients like carbohydrates, fats, and proteins. Micronutrient deficiencies can leave us unable to break down our food for energy which can also deprive the brain of energy.

"This can lead to brain fog, poor memory recall and eventually more serious decline over time," she explained. Finally, Richter pointed to minerals like magnesium, zinc, and copper which play a big role in maintaining the brain's electrical charge. "Inadequate supply of these micronutrients … can lead to malfunctioning communications between brain cells and degradation of our overall brain functioning," she remarked.

Should you be taking a multivitamin supplement?

Claire Sexton, DPhil, Alzheimer's Association senior director of scientific programs and outreach said that although these results are encouraging, the organization is not ready to recommend widespread multivitamin use in order to prevent cognitive decline.

"Independent confirmatory studies are needed in larger, more diverse and representative study populations," she stated. "It is critical that future treatments and preventions are effective in all populations," Sexton added. "COSMOS-Clinic, for example, had less than 2% non-White in the multivitamin group and 5% non-White in the placebo group."

She noted, however, that multivitamins are easy to obtain and relatively affordable. "With confirmation, these promising findings have the potential to significantly impact public health — improving brain health, lowering health care costs, reducing caregiver burden — especially among older adults." Sexton further advised that people speak with their healthcare providers about the benefits and risks of any dietary supplements they are taking, including multivitamins, noting that, although it's preferable to obtain nutrients through a balanced diet, this is not always possible for people.

Takeaway : Researchers have found that a daily multivitamin supplement was linked with slowed cognitive aging and improved memory. This is important because of the growing prevalence of dementia. The improvements in memory and cognition could be because vitamins and minerals play important roles in brain health.

It's too soon, however, to say whether people should be taking a multivitamin as a strategy to prevent cognitive decline as they age. You should speak with your doctor if you have questions about whether a multivitamin supplement is right for you.

Source: www.healthline.com

Key Features of Budget 2024-2025

Viksit Bharat by 2047

Vision: Prosperous Bharat in harmony with nature, modern infrastructure and opportunities for all

Development Mantra

Sabka Saath, Sabka Vikas

Comprehensive development of all

Sabka Saath, Sabka Vikas, Sabka Vishwas

Trinity of demography, democracy and diversity, backed by 'Sabka Prayas'

Developed India @ 2047

People-Centric Inclusive Development

Substantive development of all forms of infrastructure-Physical, Digital and Social

Digital Public Infrastructure (DPI)-Promoted formalisation and financial inclusion

Deepening and widening of tax base via GST

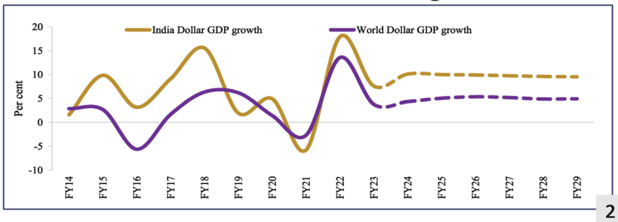
Strengthened financial sector brought savings, credit and Investment back on track

GIFT IFSC- A robust gateway for global capital and financial services for the economy

Proactive Inflation management

All parts of country becoming active participants in economic growth

India and World Dollar GDP growth



Focus Areas (1/2)

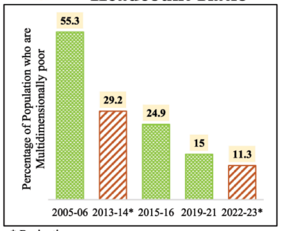
Garib Kalyan, Desh ka Kalyan

DBT has led to savings of ₹2.7 lakh crore

25 crore people moved out of Multi-dimensional poverty

Credit assistance to 78 lakh street vendors under PM-SVANidhi

Decline in Headcount Ratio



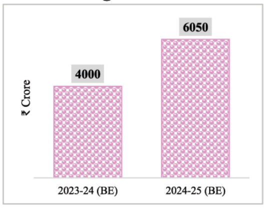
* Projections

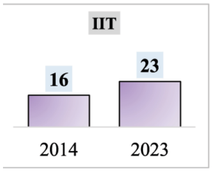
Empowering the Youth

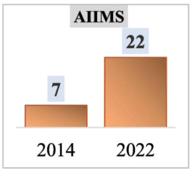
1.4 crore youth trained under Skill India Mission

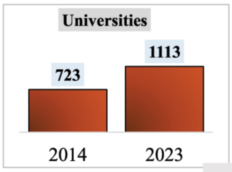
Fostering entrepreneurial aspirations of Youth-43 crore loans sanctioned under PM Mudra Yojana

Increase in PM-SHRI Budget Allocation









Focus Areas (2/2)

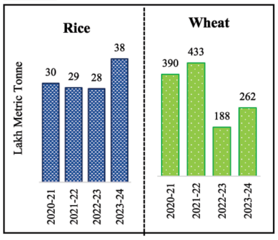
Welfare of Farmers-*Annadata*

Direct financial assistance to 11.8 crore farmers under PM-KISAN

Crop Insurance to 4 crore farmers under PM Fasal Bima Yojana

Integration 1,361 mandis under e-NAM, supporting trading volume of ₹ 3 lakh crore

Increasing Procurement of Wheat and Rice



Nari Shakti

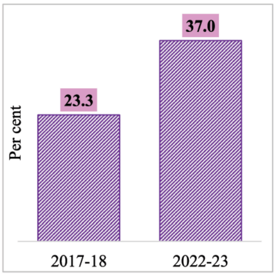
30 crore Mudra Yojana loans disbursed to women entrepreneurs

Increased female enrolment in higher education by 28 per cent in 10 years

43 per cent of female enrolment in STEM courses

1 crore women assisted by 83 lakh SHGs to become Lakhpati Didis

Rise in Female Labour Force Participation Rate



Strategy for Amrit Kaal (1/5)

Sustainable Development

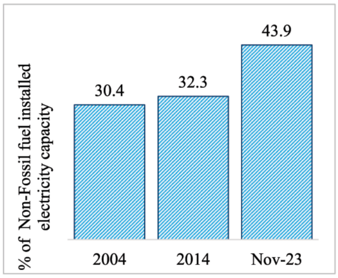
Commitment to meet 'Net Zero' by 2070
- Viability gap funding for wind energy
- Setting up of coal gasification and liquefaction capacity
- Phased mandatory blending of CNG, PNG and compressed biogas
- Financial assistance for procurement of biomass aggregation machinery

Rooftop solarization-1 crore households will be enabled to obtain up to 300 units of free electricity per month

- Adoption of e-buses for public transport network
- Strengthening e-vehicle ecosystem by supporting manufacturing and charging

New scheme of biomanufacturing and bio-foundry to be launched to support environment friendly alternatives

Per cent increase in Non-Fossil Fuel installed electricity capacity



- >10 crore LPG connections released under PMUY
- 36.9 crore LED bulbs, 72.2 lakh LED Tube lights, and 23.6 lakh Energy efficient fans distributed under UJALA
- 1.3 crore LED Street Lights installed under SNLP

Strategy for Amrit Kaal (2/5)

Infrastructure and Investment

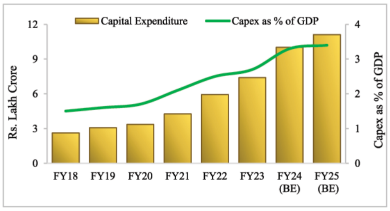
Implementation of 3 major railway corridor programmes under PM Gati Shakti-to improve logistics efficiency and reduce cost

Promotion of foreign investment via bilateral investment treaties to be negotiated

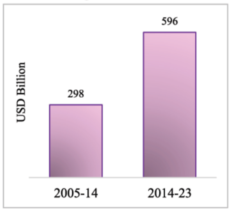
Expansion of existing airports and comprehensive development of new airports under UDAN scheme

Promotion of urban transformation via Metro rail and NaMo Bharat

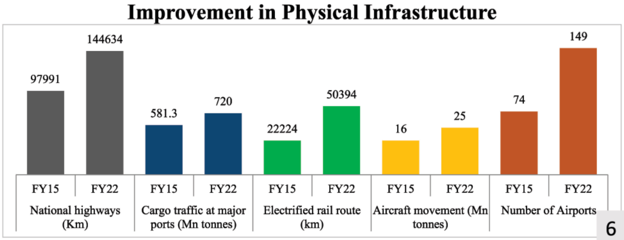
Increase in Capital Expenditure



Doubling of FDI Inflow



Improvement in Physical Infrastructure

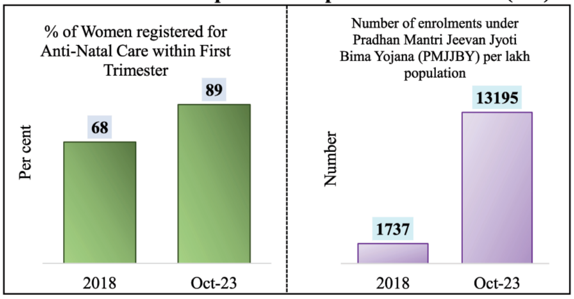


Strategy for Amrit Kaal (3/5)

Inclusive Development (1/2)

Aspirational District Programme to assist States in faster development, including employment generation

Inclusive Development in Aspirational Districts (112)



Health

Encourage Cervical Cancer Vaccination for girls (9-14 years)

Saksham Anganwadi and Poshan 2.0 to be expedited for improved nutrition delivery, early childhood care and development

U-WIN platform for immunisation efforts of Mission Indradhanush to be rolled out

Health cover under Ayushman Bharat scheme to be extended to all ASHA, Angawadi workers and helpers

Strategy for Amrit Kaal (4/5)

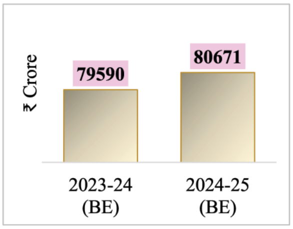
Inclusive Development (2/2)

Housing

Pradhan Mantri Awas Yojana (Grameen) close to achieving target of 3 crore houses, additional 2 crore targeted for next 5 years

Housing for Middle Class scheme to be launched to promote middle class to buy/built their own houses

Increased allocation for PMAY



Tourism

States will be encouraged to undertake development of iconic tourist centres to attract business and promote opportunities for local entrepreneurship

G20 meetings in 60 places presented diversity of India to global audience

Long-term interest free loans to be provided to States to encourage development

Projects for port connectivity, tourism infrastructure, and amenities will be taken up in islands, including Lakshadweep

Strategy for Amrit Kaal (5/5)

Agriculture and Food Processing

Government will promote private and public investment in post-harvest activities

Application of Nano-DAP to be expanded in all agro-climatic zones

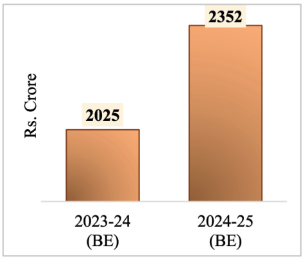
Atmanirbhar Oilseeds Abhiyaan-Strategy to be formulated to achieve atmanirbharta for oilseeds

Comprehensive programme for dairy development to be formulated

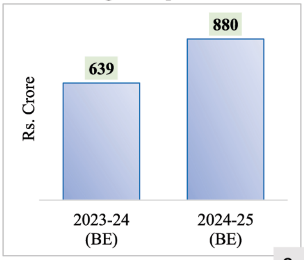
Implementation of Pradhan Mantri Matsaya Sampada Yojana to be stepped up to enhance aquaculture productivity, double exports and generate more employment opportunities

5 Integrated Aquaparks to be set up

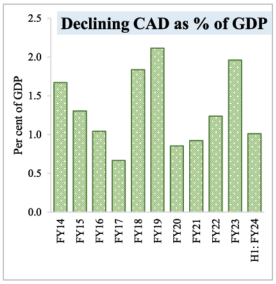
Increased allocation for Blue Revolution

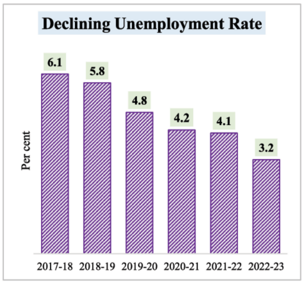


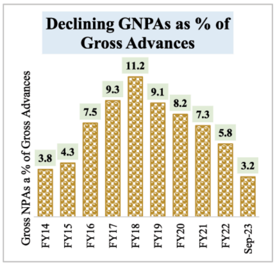
Increased allocation for PM-Formalisation of Micro Food Processing Enterprises scheme

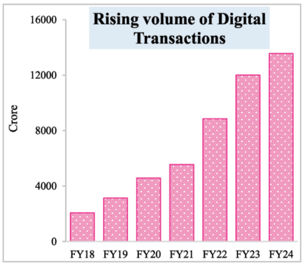


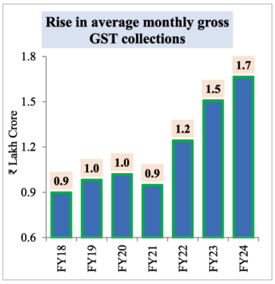
Resilient Performance of the Indian Economy

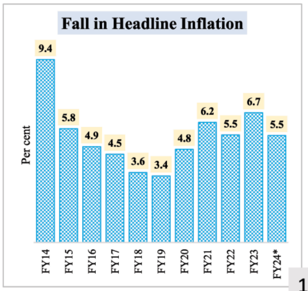












Achievements of Taxation Reforms

Direct Tax Collections more than trebled in last 10 years

Number of return filers swelled to 2.4 times

Faster refunds: Reduction in average processing time of returns from 93 days (2013-14) to 10 days (2023-24)

Average monthly Gross GST collections doubled to ₹1.66 lakh crore in FY24

Increase in tax buoyancy of State revenue from 0.72 (2012-16) to 1.22 in the post-GST period (2017-23)

Benefit to consumers: Reduction in logistics cost and prices of most goods and services

Positive sentiment about GST

- 94% industry leasers view transition to GST as largely positive
- 80% of respondents feel GST has led to supply-chain optimisation

(As per a survey conducted by a leading consulting firm)

Decline in import release time since 2019 by: -

- 47 per cent at Inland Container Depots
- 28 per cent at Air Cargo complexes
- 27 per cent at Sea Ports

Tax Proposals

Continuity in taxation: Certain tax benefits to Start-ups and investments made by sovereign wealth funds/pension funds, tax exemption of some IFSC units earlier expiring on 31.03.2024 extended up to 31.03.2025

Withdrawal of outstanding direct tax demand: -

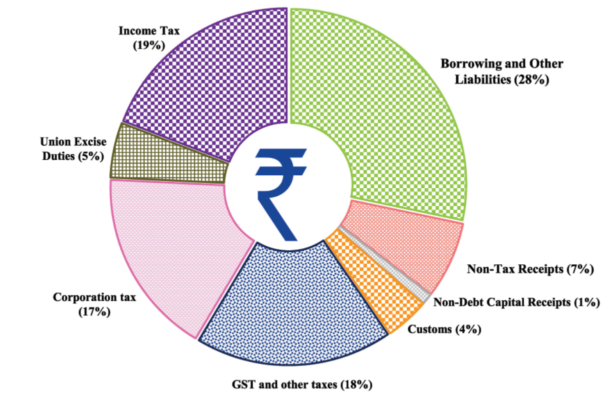
- Up to ₹25,000 pertaining up to FY10
- Up to ₹10,000 for FY11-FY15

Expected to benefit approx. 1 crore taxpayers

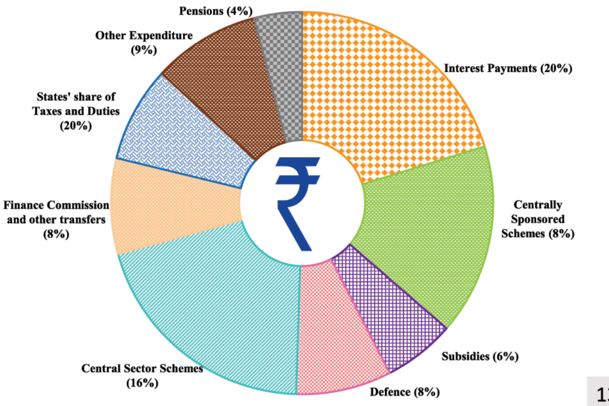
Retention of same tax rates: -

- For direct and indirect taxes, including import duties
- For Corporate Taxes-22% for existing domestic companies, 15% for certain new manufacturing companies
- No tax liability for taxpayers with income up to ₹7 lakh under the new tax regime

Rupee Comes From



Rupee Goes To



Allocation for Specific Ministries

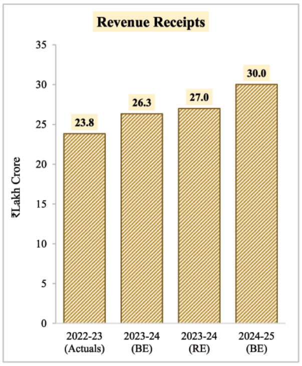
in ₹ Lakh Crore

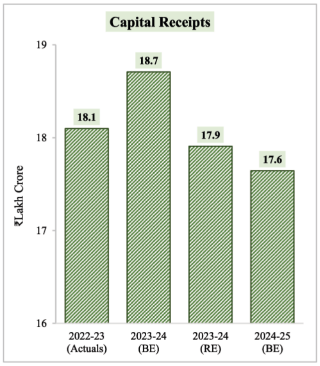
Ministry of Defence	6.2
Ministry of Road Transport and Highways	2.78
Ministry of Railways	2.55
Ministry of Consumer Affairs, Food & Public Distribution	2.13
Ministry of Home Affairs	2.03
Ministry of Rural Development	1.77
Ministry of Chemicals and Fertilizers	1.68
Ministry of Communications	1.37
Ministry of Agriculture and Farmer's Welfare	1.27

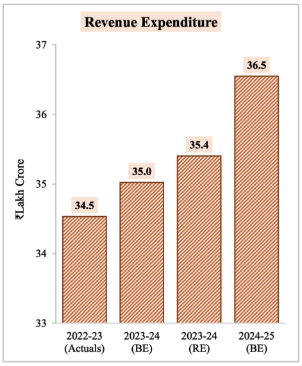
Allocation to Major Schemes (in ₹ crore)

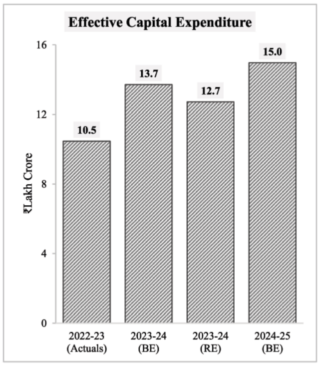
Scheme	2023-24(BE)	2024-25(BE)
Mahatma Gandhi National Rural Employment Guarantee Scheme	60,000	86,000
Ayushman Bharat-PMJAY	7200	7500
Production Linked Incentive Scheme	4,645	6,200
Modified Programme for Development of Semi-conductors and display manufacturing ecosystem	3,000	6,903
Solar Power (Grid)	4,970	8,500
National Green Hydrogen Mission	297	600

Receipts and Expenditure









APPRECIATIONS AND VIEWS OF PROFESSIONALS IN THE NC MEET HELD AT BHIWADI FOR THE NEWLY ELECTED COMMITTEE OF IIMM - 2023-2025

Ist Experiences Great Positives. I feel it was professionally conducted, diversity and acceptance seen in all topics discussed in the NC meeting and Seminar Constructive and in the positive direction under the leadership of IIMM National President Mr. L.R. Meena - Shri Jay Kumar-Bangalore Branch

-Professional and healthy discussion is back on track in IIMM under the able leadership of Mr. L.R. Meena Ji - Mr. Malay Mazumdar, Former President

-Highly professionally and well conducted NC Meeting and Seminar. All discussions on solutions not problems and merely progressive talk. All participants were there with the positive intent of taking the institute to the next level. - Mr. Talpesh Patel, Ahmedabad Branch

-NC meeting was held in a very professional manner under the leadership of Mr. L.R. Meena, National President of IIMM - Mr. Pankaj Panchbhai, VP West

-Congrats to Alwar and Bhiwadi Branch under the dynamic leadership of Meena Ji for their hospitality extended to all of us to participate in Business Plan and NC Meeting and providing opportunities to all Chairmen and NCs to present their views and suggestions. - Shri S.K. Sharma, Former National President- IIMM.

Congratulations Meena ji for the great leadership quality. NC Meeting and Business plan held in a manner to grow IIMM in next level of heights - Shri P. Khandelwal

A very special word of appreciation to our NEC team and Chairman for having planned a new format of NC meet. Meena Ji, you have set new standards for IIMM in its journey towards excellence. - Shri Sukumar Adhikari - VP Central

Congratulations to Alwar and Bhiwadi Branch for conducting such a vibrant NC Meet. I am so thrilled to witness that we all reached our goal to have a participative event with a positive and constructive approach. Each branch is inspired by having such ambitious visions, then putting in the hard work to achieve them. Congratulations for incredible success! It was well organized even under the leadership of National President Shri Meenaji and all NEC members. This amazing accomplishment is just one step on the journey of success of IIMM. Your ability to relentlessly search for solutions to problems and find innovative ways to improve the ecosystem is the key to this success and many to come. - Priya Mogra

-It was heartening to meet the New Committee of IIMM and upcoming professionals full of zeal and new ideas in the way to lift IIMM to greater heights. - Shri V.K. Jain, Former President – IIMM

It been a wonderful NC meeting organized by Alwar - Bhiwadi branch with great hospitality and very comfortable arrangements. This particular NC has given a platform to all IIMM branches and in particular to Chairmen of various branches to present their performance drive combined with Vission/Mission. National President L R Meena ji is an excellent host looked after all participants well, giving all comforts throughout two days of stay. It is really commendable. Presentation by past NPs, NP/NEC members, Chairmen/ NCs were of the highest order.- P M Biddappa, Sr. Vice President

Congratulations to Bhiwari and Alwar team for organising such Great NC meeting under the able leadership of Shri Meena ji our National President.

This is first NC meeting I have attended where all the participated branches have allowed to express their views. Hope all the participants have gained confidence on newly elected NEC and they will take the IIMM to a new height. - Kailash Nath, Chairman Kanpur branch

It was a great pleasure and experience attending the NC meeting. It was very knowledgeable and informative. Thanks to Bhiwadi and Alwar chapters for their hospitality. I will try to convert the lesson learnt to practice. - K P Singh, Greater Noida

-I have great pleasure to be a part of NEC and attending 1st. comprehensive N.C.Meeting in Bhiwadi with coordination of Alwar branch on 27th and 28th Jan 2024 under dynamic National presidentship of Shri Lalit Raj Meena ji. Dedicated presence of our professional Chairmen and Natioal Councilors have put a mile stone by presenting skillful Roadmap and Vision of their branches. I express my deep sense of gratitude to stalwarts of Alwar and Bhiwadi branch for hosting 196th NC meeting nicely with unforgettable hospitality in Hotel RAJMAHAL. Approval of New branch in AYODHYA of North Region of IIMM. - Gopi Krishna Agnihotri V.P. (North)

-After a long span of four years I attended this NC Meeting where all the Concellors and Former NPs were extended warm reception and great Hospitality during NC Meet and Seminar.The Seminar on the eve of NC meeting organized by the Bhivadi/Alwar Branch was superb with A class technical session.

Many more appreciations and views are there for the National President Shri L.R. Meena Ji and for his team who pursue excellence in Supply Chain Management and take IIMM greater heights. Dr. Suresh Sharma, Co-chairman BOS, Joint Chairman CRIMM and Former National President 2009-11.

196th National Council Meeting was jointly hosted by Alwar and Bhiwadi Branch on 27th and 28th January 2024 at Bhiwadi, wherein a record number of 51 NC members from 25 branches actively participated. Seminar on **"Way Towards Next Generation Industry 5.0 and its Impact on Indian Industry"** by Mr Rajesh Luthra, attended by approx 100 delegates, was an additional attraction.

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