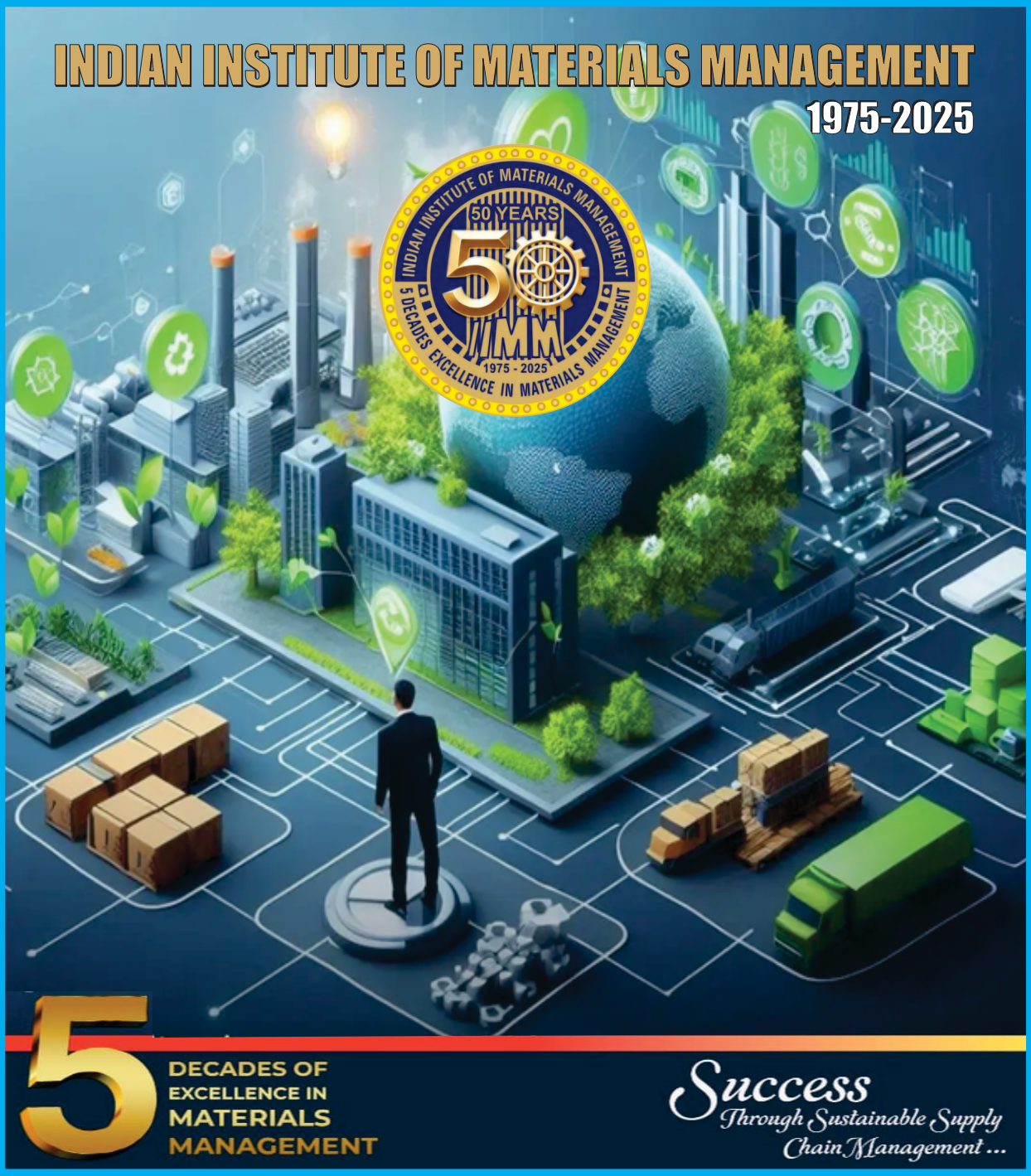
ISSN 2320-0758

PRICE ₹ 50/-

MATERIALS MANAGEMENT REVIEW

Volume 21 - Issue 6 Date of Publication: 1-4-2025 No. of Pages 1-60 April 2025



IIMM NATIONAL PRESIDENTS SINCE 1975

Mr. V Hariharan
Chennai
(1975-76)

Late Mr. M Prabhakar
Mumbai
(1976-77)

Late Mr. M L Capoor
Calcutta
(1977-79)

Late Mr. J N Gupta
Pune
(1979-80)

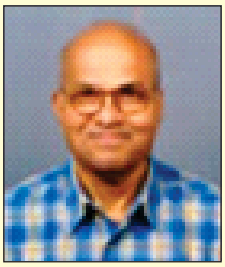
Mr. S Sankaran
Bangalore
(1980-82)

Late Mr. H.P. Kanga
Pune
(1982-83)

Mr. A Dasgupta
Calcutta
(1983-85)

Mr. S Krishnaswamy
Chennai
(1985-87)

Mr. H S Grewal
Delhi
(1987-89)



Mr. J N Mallya
(1989-91)

Mr. A K Sharma
Mumbai
(1991-93)

Mr. C L Kapoor
Bangalore
(1993-94)

Mr. A Mathias
Jamshedpur
(1994-96)

Mr. Richard W Moras
Mumbai
(1996-98)

Mr. V K Jain
New Delhi
(1998- 2001)

Mr. A.S. Navadikar
Pune
(2001- 2003)

Mr. M.K. Bhardwaj
New Delhi
(2003-2005)

Mr. S. K. Sharma
Chandigarh
(2005-2007)

Mr. B V Iyer
Thane
(2007-2009)

Mr. Suresh K. Sharma
New Delhi
(2009-2011)

Mr. C.Subbakrishna
(2011-2013)

Mr. Lalbhai P Patel
(2013-2015)

MR. O P LONGIA
(2015-2017)

Mr. G K Singh
(2017-2019)

Mr. Malay Mazumdar
(2019-2021)

Sh. H K Sharma
New Delhi
(2021-2023)

Sh. L.R.Meena
Alwar
(2023-2025)

From the Desk of National President & Editor in Chief

Greetings from Your National President!!!

Celebrating 50 Years of IIMM – Success Through Sustainable Supply Chain Management“

As we celebrate the Golden Jubilee of the Indian Institute of Materials Management (IIMM), we reflect on a remarkable journey spanning five decades. Established in 1975 through the merger of three professional associations—the National Association of Material Management, the Materials Management Association of India, and the Materials Management Association of Hyderabad—IIMM has evolved into the premier institution for supply chain and materials management in India.““This milestone is not just a celebration of longevity but a testament to the resilience, growth, and impact of IIMM in shaping the future of supply chain management. Over the past 50 years, IIMM has played a pivotal role in professionalizing materials management, fostering industry connections, and advancing knowledge in the field.

Our Golden Jubilee theme, “Success Through Sustainable Supply Chain Management,” reflects our commitment to the future. In today’s rapidly changing global landscape, sustainability is no longer an option—it is a necessity. As businesses and industries navigate environmental challenges, resource constraints, and technological disruptions, sustainable supply chain practices will be the key to long-term success.

This anniversary is an opportunity to honor the contributions of past leaders, acknowledge the dedication of our members, and reaffirm our vision for the future. It is also a call to action—to integrate sustainability into every facet of supply chain management, to embrace innovation, and to build a resilient and responsible industry that serves both economic and environmental goals.

The Golden Jubilee reminds us that success is not just about looking back at our achievements but also about shaping the future. As we step into the next era, let us harness the power of collaboration, knowledge, and ethical leadership to create a sustainable and prosperous tomorrow.

Let this be a moment of renewal, inspiration, and progress. Together, we can drive the transformation needed for a smarter, greener, and more resilient supply chain ecosystem.

Here’s to 50 years of excellence—and many more to come!

LALIT RAJ MEENA
NATIONAL PRESIDENT
mmr@iimm.org

MATERIALS MANAGEMENT REVIEW

Volume 21 - Issue 6 **(April 2025)**

Correspondence :
MATERIALS MANAGEMENT REVIEW

Indian Institute of Materials Management
4598/12 B, Ist Floor, Ansari Road,
Darya Ganj, New Delhi - 110 002.
Phones : 011-43615373
E-mail: mmr@iimm.org
Website : www.iimm.org

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

CONTENTS

PAGE NO.

NO. OF PAGES 1-60

Edited, Printed & Published by :

INDIAN INSTITUTE OF MATERIALS MANAGEMENT
4598/12 B, Ist Floor, Ansari Road, Darya Ganj, New Delhi - 110 002.
Phones : 011-43615373 Fax: 91-11-43575373
E-mail: mmr@iimm.org
Website : www.iimm.org

PUBLIC PROCUREMENT – OPPORTUNITIES AND CHALLENGES

PREM NARAYAN,IRSS DEPUTY DIRECTOR GENERAL, UIDAILIFE FELLOW, IIMM, premn2011@gmail.com

Introduction : Government procurement or public procurement is the procurement of goods, services and works on behalf of a public authority, such as a government agency. Globally, government procurement accounts for a substantial part of the global economy. In India, government procurement constitutes about 30% of the GDP. Governments, just like private companies, have to buy goods and services for their operational needs. Procurement of goods and services is carried out by various ministries, departments, municipal and other local bodies, statutory corporations and public undertakings both at the Centre and at the State level. Promotion of efficiency.

As public procurement utilizes a substantial portion of taxpayers' money, governments are expected to follow strict procedures to ensure that the process is fair, efficient, transparent and minimizes wastage of public resources. To prevent fraud, waste, corruption, or local protectionism, the laws of most countries regulate government procurement to some extent. Laws usually require the procuring authority to issue public tenders if the value of the procurement exceeds a certain threshold. Government procurement is also the subject of the Agreement on Government Procurement (GPA), a plurilateral international treaty under the auspices of the World Trade Organization.

The increasing volume of public procurement opportunities in India, coupled with the scale and magnitude of government projects, holds tremendous economic potential for both local and overseas companies. The recent upward trend in procurement opportunity in India can be attributed to a variety of measures and initiatives.

2.0 Legal and regulatory public procurement framework : The legal and regulatory public procurement framework in India broadly comprises the following elements:

i. Constitutional provisions: The Constitution of India authorises the Central and State Governments to contract for goods and services in the name of the President of India or the Governor of the State (respectively), and directs autonomy in public spending. However, it does not stipulate any procurement policies or procedures.

ii. Legislative provisions:

1) There is no comprehensive central legislation exclusively governing public procurement. Nonetheless, various procurement rules and policies (see below) are guided by central legislations such as the Contract Act 1872, Sale of Goods Act 1930, Prevention of Corruption Act 1988, Arbitration and Conciliation Act 1996, etc.

2) In addition, certain states, like Tamil Nadu, Karnataka, Andhra Pradesh, Assam and Rajasthan have enacted state-specific legislation such as the Tamil Nadu Transparency in Tenders Act, 1998, Karnataka Transparency in Public Procurement Act, 1999, the Rajasthan Transparency in Public Procurement Act, 2012, etc., that govern procedure for procurement in these states.

iii. Administrative guidelines:

a) Comprehensive administrative rules and directives on financial management and procedures for government procurement are contained in the General Financial Rules **(GFR)** initially implemented in 1947 and last modified in 2017. All government purchases must strictly adhere to the principles outlined in the GFR, which include specific rules on procurement of goods and services and contract management.

b) In addition, the Manual for Procurement of Goods, 2017 **(MPG)** contains guidelines for the purchase of goods, and the Delegation of Financial Powers Rules, 1978 **(DFPR)** delegate the government's financial powers to various ministries and subordinate authorities.

c) In 2017, the government issued the Public Procurement (Preference to Make in India) Order 2017 which grants purchase preference to local suppliers based on certain conditions so as to promote manufacturing and production of goods and services in India.

iv. Overseers: The framework is bolstered by authorities including: (a) the Central Vigilance Commission (**CVC**) tasked with increasing transparency and objectivity in public procurement; (b) the Competition Commission of India (**CCI**) which checks anti-competitive elements; and (c) the Central Bureau of Investigation (**CBI**) engaged for investigation and prosecution of the criminal activities in the procurement process such as probity issues.

In summary, a public procurement process must adhere to: (i) GFR and MPG; (ii) sector-specific procurement rules contained in manuals published by the relevant

ministry; and (iii) state-specific legislation on transparency in procurement. As between the procurer and the supplier, these rules above flow down via a tender award and a contract.

3.0 Public Procurement (Preference to Make in India) : Government has issued Public Procurement (Preference to Make in India) to encourage 'Make in India' and to promote manufacturing and production of goods, services and works in India with a view to enhancing income and employment. This Order is issued pursuant to Rule 153 (iii) of the General Financial Rules 2017. The salient features of the aforesaid Order are as under:

- The Order is applicable for procurement by Ministry / Department / attached / subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.
- In procurement of all goods, services or works in respect of which the Nodal Ministry/ Department has communicated that there is sufficient local capacity and local competition, only 'Class-I local supplier', as defined under the Order, shall be eligible to bid irrespective of purchase value.
- The margin of purchase preference shall be 20%. 'margin of purchase preference' means the maximum extent to which the price quoted by a local supplier may be above the L1 for the purpose of purchase preference.
- Classes of Local Suppliers based on local content as per the revised PPP-MII Order dated 04.06.2020 issued by the Department for Promotion of Industry and Internal Trade (DPIIT) are as under:
- **Class-I Local supplier** - a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%.
- **Class-II Local supplier** - a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%.
- **Non-Local supplier** - a supplier or service provider, whose goods, services or works offered for procurement, has local content less than or equal to 20%.
- Only **'Class-I local supplier'** and **'Class-II local supplier'** shall be eligible to bid in procurement of all goods, services or works, and with estimated value of purchases less than Rs. 200 crore.

Government E-Market Place (GeM) Portal and NICSI, the two major procurement agencies of Government of India, are expected to ensure compliance of the Electronic Products Notification in their procurement. In case of a complaint Standardisation Testing and Quality Certification (STQC) will be the agency to look into the domestic value addition.

4.0 Basic Underlying Principles : India's regulatory and institutional framework seeks to ensure responsibility, accountability and efficiency in the public procurement regime. The underlying principle is to procure materials/services of specified quality at the most competitive prices in a transparent and non-arbitrary manner. Typically, various processes in Public Procurement involved include (1) Need, (2) Procurement Planning, (3) Requirement Specification, (4) Tender Preparation, (5) Tender evaluation, (6) Contract Award and (7) Contract Performance.

This is evident in the GFR which declares that all authorities delegated with the financial powers of procuring goods in public interest will be responsible and accountable to ensure efficiency, economy and transparency, fair and equitable treatment of suppliers, and the promotion of competition in public procurement. To this end, specific measures have been set out under the GFR including adherence to a code of integrity to address probity issues, etc.

Further, the Supreme Court of India has recognised that while the government must have freedom of contract:

i. all contracts by the State should only be granted by public auction/tenders to ensure complete transparency and provide all eligible persons with the opportunity to participate in the auction;

ii. all official acts must be actuated by public interest, and should inspire public confidence;

iii. generally, the State should not grant contracts by private negotiation (subject to certain exceptions based on the nature of the trade, emergency circumstances, single source supply, etc.); and

iv. appearance of public justice is as important as doing justice (i.e. government actions should not only be fair but should also be seen to be fair, and nothing should be done which gives an impression of bias, favoritism or nepotism).

The regulatory framework covers all contracts offered by the government at the central, state or local level. Examples of types of contracts covered include PPP contracts, concession agreements, operation and maintenance contracts, engineering procurement and construction contracts, supply of equipment, supply of services, transfer of technology, etc.

4.1 Sectors Specific Special Rules in Procurement : There is no comprehensive central legislation exclusively governing public procurement in India. Instead, the public procurement regime comprises a framework of overlapping administrative rules and guidelines, sector-specific manuals and state-specific legislation.

i. **Defence**: Governed by the Defence Procurement Procedure, 2016 (**DPP**) and the Defence Procurement Manual 2009 (as amended from time to time) which envisage various modes of procurement including indigenous, capital, local purchase, etc.

ii. **Railways**: Governed by a number of specific laws and uses the Indian Railway e-Procurement Systems (**IREPS**) for procurement.

iii. **Energy**: New Exploration Licensing Policy (**NELP**) under the Petroleum and Natural Gas Regulatory Act, 2006, provides for the evaluation of bids according to a quantitative bid evaluation criterion.

iv. **Electronics**: The Preference for Domestically Manufactured Electronic Products Policy (2013) applies to all ministries/departments (except the Ministry of Defence) for electronic product procurement for government purposes.

v. **Electricity**: Electricity Act, 2003 provides for the determination of tariffs through bidding processes by distribution licensees for the procurement of power.

vi. **Telecoms**: Guided by the National Telecom Policy (currently in the process of being re-worked to transition from physical to digital infrastructure. See question 8.1 below).

vii. **Renewables**: The Ministry of New & Renewable Energy has released a National Policy on Biofuels and a Strategic Plan for New and Renewable Energy Sector. In 2017, the government issued guidelines for wind power procurement to enable the distribution licensees to procure wind power at competitive rates in a cost-effective manner.

viii. **Micro, small and medium-sized enterprises** (**MSMEs**): Under the Public Procurement Policy for Micro and Small Enterprises Order 2012, a minimum of 20% of annual value of goods/services of the Central Government and public sector undertakings (**PSUs**) must be procured from micro and small enterprises (with further reservation of 4% in favour of MSMEs owned by 'backward classes').

ix. **Pharmaceuticals**: Pharmaceutical Purchase Policy 2013 reserves the procurement of certain medicines from Central Public Sector Enterprises.

5.0 National Laws- Relevant to Public Procurement : Transparency, competition and curbing of probity issues are further ensured through:

i. **Competition Act, 2002**: Penalises anti-competitive activities such as bid rigging, collusive bidding, cartelisation, and abuse of dominance.

ii. **Right to Information Act, 2005**: Promotes transparency in government dealings by entitling Indian citizens to expeditiously procure information from the government through a "right to information" application.

iii. **Integrity pact under the GFR and CVC guidelines**: Addresses probity in procurement activities including through the appointment of an external monitor to mitigate corruption and ethical risks.

iv. **Prevention of Corruption Act, 1988** and **Prevention of Money Laundering Act, 2002**: Penalise bribery and money-laundering and provide for confiscation of property derived from money-laundering and other illicit activities.

6.0 Opportunities : One of such major initiative of Government of India (GOI) is that, foreign investors are today being granted greater access to the breadth of India's market than ever before. GOI has further liberalized investment and increased foreign direct investment inflow into India, easing investment caps and opening up previously restricted sectors to overseas investors. Another such an initiative towards modernizing existing infrastructure and equipment has also resulted in a number of procurement opportunities. Other new initiatives such as "Digital India" and "Make in India" are geared towards improved physical and social infrastructure, connectivity and local design and manufacturing capability. Nonetheless, working with the government can be a mixed bag of opportunities and challenges, and business exposure to the public sector is not without legal and compliance risks.

7.0 Challenges and Concerns : The principle underlying India's public procurement regime is the acquisition of materials and services of specified quality at the most competitive prices, in a transparent and non-arbitrary manner. Nonetheless, the absence of a central procurement regulation enabling procuring authorities with scope to tweak guidelines and contract format, leads to confusion on one hand and rigidity on the other. In fact, different agencies may even prescribe varying qualification criteria, financial terms, selection procedures etc. for similar public sector work.

Suppliers supplying goods and services to the Indian government must carefully navigate the convoluted procurement framework. Falling foul, inadvertently or otherwise, of any procurement conditions under the tender documents or the aforementioned rules and guidelines could result in the tender award being challenged / disqualified and the contract cancellation, and the supplier being blacklisted for up to 3 years.

In addition, supplying to the government may involve some unique risks and practical concerns, such as (1) Slow and complex tender process (2) Delayed decision – making, (3) Limited scope of negotiations (4) Legality in use of agents etc.

8.0 Conclusions : In the absence of any specific law, public procurement and other related financial matters are governed by GFR 2017 promulgated by the Ministry of Finance. These rules are applicable to all central ministries and their attached and subordinate bodies. These are also deemed to be applicable to the autonomous bodies which do not have their own government-approved financial rules.

●●●

REMEMBERING DR. MANMOHAN SINGH

Former Prime Minister of India

TEJ K. MAGAZINE, MANAGEMENT CONSULTANT & CORPORATE TRAINER
tej@traambiz.com

Dr. Manmohan Singh joined Lord Almighty for his eternal journey on December 26, 2024. May his soul rest in peace in the heavens' choicest gardens!

92 years old, Dr. Singh was a noble soul, a good human being, unassuming, down-to-earth, a gentle man, intellectual, scholar, and internationally recognized development economist.

When Dr. Manmohan Singh took over as Prime Minister of India in the year 2004, my article, "India of My Dreams—Take Care Mr. Prime Minister!" appeared in Chandigarh English Weekly—Northern News issue of October 09, 2004.

The article touched on vital subjects like:

- Criminalization of politics.
- Communists in Singh's coalition cabinet mismatching with his ideology.
- National tragedies like the 1984 riots, infamous Godhra train fire, Ethnic cleaning of Kashmiri Pandits in 1990.
- Speedy development of infrastructure for the benefit of common citizens.
- The necessity of controlling population at a level that ensures basic necessities and quality of life for the common man.
- Abolishing caste-based reservations and quotas for admission to higher professional education as well as state & central governance jobs. At the same time, provide free education from primary to postgraduate level for all.
- Create and implement schemes to improve human productivity.
- Eradicate corruption.
- Improving the system of India's judicial process to deliver speedy justice.
- Water conservation and management.
- Overhaul taxation structure and system.
- Control industrial mis-management.
- Modernize airports in India, etc., etc.

To conclude the article, I wrote: "Finally, you would either discard criminal elements in your ministry and get rid of red support with iron will, or the politician in you would push you to cling to the seat of power till it cracks with red weight, or the noble man in your inner conscience would compel you to quit voluntarily, sooner than later."

Not the politician, but the noble man in him, made Dr. Manmohan Singh cling to the chair when a prominent member of the Congress ruling family tore a document of vital national importance, presented to the Parliament by Prime Minister Dr. Manmohan Singh. Ultimately, the Red weight did crack the PM chair, as the Reds did not like the idea of Govt. of India's strategic nuclear understanding with the USA.

Well known media personality and the critique of high-and-mighty in power- Vinod Dua, said when former Prime Minister of India , Atal Behari Vajpayee passed away: "It's hypocrisy to speak only good things, when someone is no more."

Dr. Manmohan Singh ruled India for a decade. India achieved many progressive changes for the good of common people during his tenure—be it the improvement of public systems, infrastructure development, or the uplift of economically deprived sections, for the overall good of the country. In this process, Dr. Singh withstood resistance and pressures from vested interests with dignity, grace, and humility. Dr. Singh was a good teacher, a visionary, and a great leader for change, sincere to the cause. But he was a soft taskmaster. He was not a politician by ambition, but he was dragged towards politics by compulsion and competence.

But, as the age-old say goes: "No human being is perfect," same holds true for Dr Singh too.

Right from 1972 to 2014, Dr. Singh deeply impacted the finance management of India. He held various important positions with the Government of India, such as Chief Economic Adviser, Finance Secretary, Governor of the Reserve Bank of India, Finance Minister, and Prime Minister of India. Besides, during this period, he continued as a member of the Rajya Sabha (upper house of Parliament) and remained in this capacity until his passing away. During this period, considerable loans were approved and disbursed by India's Nationalized Banks to Private Parties, in the name of development of industry and other economic purposes, after due diligence. Sooner than later, quite a few of these loans became "sick" and were declared "non-performing."

Siphoning of money to foreign banks, especially Swiss, and how much became the talk of the country. Tax evasion and corruption became other sore points. Sickness in public sector undertakings indicated visibility. Some of Dr. Singh's cabinet colleagues had to face criminal procedure , due to alleged corruption.

All said and done, Dr. Manmohan Singh personally maintained the highest level of honesty, integrity, and ethics, throughout his life.

It is popularly said that Dr. Manmohan Singh created a countrywide awakening in India for the Bharatiya Janata Party (BJP), the thrice-elected current ruling party in India, to come to power. This occurred when he stated in Lok Sabha (lower house of Parliament) that "Muslims have the first right to India's resources."

Conclusion: Last but not least, to conclude, Dr. Manmohan Singh was a diamond in the crown of India's development glory. To quote Dr. Manmohan Singh: "Ultimately, all economic processes are meant to serve the interests of our people."

Dr. Manmohan Singh would continue to live in the hearts of Indians forever.

●●●

MANAGING REVERSE FLOWS IN SUPPLY CHAINS – ISSUES AND CONCERNS

DR.C.SENGOTTUVELU, CPM(ISM-USA)
LIFE MEMBER, IIMM, FORMER DGM (IMM),
HAL-CO PROFESSOR AND HEAD-RESEARCH
ACHARYA BANGALORE B SCHOOL, BANGALORE-560091
sengottuvelu138@ gmail.com

Abstract : Managing reverse flow in the supply brings lot of challenges to supply chain managers. This paper explores the importance of reverse flows, types of reverse flows, issues and concerns. The author has classified different types of product recalls by citing automobile, and packaged food product recalls. The traditional and reverse logistics have been illustrated. The reverse flow and reverse logistics have been discussed. The key components of reverse flow in supply chains, types of reverse flows, issues and concerns are discussed. The importances of total quality management (TQM) concepts in operations are also discussed.

Keywords: Product recalls, reverse flow, logistics, supply chains

Introduction : The supply chain encompasses all activities associated with the transformation (conversion) of goods from raw material stage to final stage, when the goods and services reach the end customer. The key components of any supply chain include supply chain planning, design and control flow of materials, information, money transfer, risk transfer and value / title transfer.

The Supply Chain Operations Reference (SCOR) model is unique in that it links business processes, performance metrics, practices and people skills into a unified structure. It is hierarchical in nature, interactive and interlinked (www.apics.org). Figure 1 depicts SCOR Model. SCOR is based 5 distinctive management process components. The process components includes: plan, source, make, deliver and return. SCOR is a process reference model that provides a language for communicating among supply chain partners. SCOR contains 3 levels of process details. Viz i. Top Level (Process Types), ii. Configuration Level (Process categories and iii. Process Element Level (Decompose Processes). Each basic supply chain is 'Chain of Source, Make, Deliver and Return execution process

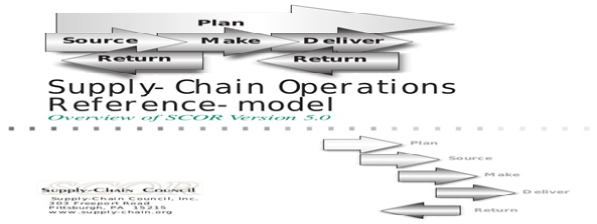


Figure 1: SCOR Model

Table 1 describes the scope of SCM processes components. In this study only the reverse flow in the supply chains has been studied.

Table 1 Scope of SCOR Processes

Process Components	Scope
Plan	Demand / Supply Planning and Management.
Source	Sourcing Stocked, Make-to-Order and Engineer – to- Order product.
Make	Make-to-Stock, Make-to- Order, and Engineer- to- Order production execution.
Deliver	Order, warehouse, Transportation and Installation management for stocked, Make-to-order and Engineer- to- Order product.
Return / Recall	Return of Raw Materials (to supplier), and Receipt of Return of finished goods(from customer) including defective products, MRO products and Excess products.

Meaning of Product Recall : A product is the process of retrieving and replacing defective goods for consumers. When a company issues a recall, the company or manufacturer absorbs the cost of replacing and fixing defective product. For big companies, the costs of repairing faulty merchandize can accumulate to multi-billion dollar losses. Product recalls, generally affects the cash flow and brand recognition- generally cannot sustain the financial losses and brand degradation associated with a product recall (NADA, 2019).

Types of Product Recall : Product recalls are classified into three important types: They are i. Voluntary recall, ii. Involuntary recall and iii. After investigation of Regulator / Agency (NHTSA, FSSAI etc) recall.

i. Voluntary Recall / Proactive Recall: Includes recalling products for wrong color painting, plating etc which are minor in nature. This recall will have least/ lowest financial impact to company's business results. Example: Travel mugs by IKEA.

ii. Involuntary Recall: As a result of an agency (NHTSA

in USA). The agency after their investigation will file a lawsuit to drive the product recall. Example: Automobile cars recall by GM, Honda Motors, Toyota Motors Maruti Suzuki India Ltd., and Ford Motors.

iii. After Investigation of Agency, commencing the product. This results huge fine / loss on the OEM. Example: MAGGI Two Minutes Noodle by Nestle.

Case Study 1: MAGGI 2 Minutes Noodle by Nestle : Food Safety & Standards Authority of India (FSSAI) asked Nestle to recall Maggi noodles as the Maggi sample contained high level of lead and monosodium glutamate (MSG) beyond its prescribed limits. Quality issue started span out of control. Finally, Nestle left with little choice but to recall the popular noodles from the market. The Executive Vice President (Supply Chain), at Nestle India told to lead the recall process. The team collected 38,000 tons of Maggi noodles from retail stores and destroyed them by first crushing the noodles and then mixing them with fuel and burning in incinerators at 11 cement plants across the country (worth of $50 millions). The entire recall process is huge and complex task. All their plants were closed for 6 months; suppliers keeping large volume of Work-in-Process Inventory (Maida etc) could not be used. More number of people becomes jobless in their plants as well as their supply side. Huge loss to the Nestle in terms of business & profit loss, decline in market share, degradation of brand value and shift in customers loyalty.

Case Study 2: Case Study: Automobile Cars by OEMs : Recently, car manufacturers Toyota Motors(TM), General Motors (GM), Honda Motors (HM), and Ford Motors have suffered the embarrassing consequence of product recalls.

Toyota recent stream of gas pedal recalls resulted in a $ 2 billion loss consisting of repair expenses and lost sale. In conjunction with the financial crisis, Toyota's stock prices dropped more than 20% or $ 35 billion (event based performance).

Both Honda and Toyota have both issued recall over three different Airbags (Takata Airbags) affecting more than 6 lakh vehicles worldwide. In Canada alone, the recalls affect more than 7 lakh cars. The affected models are Acura CL, Acura EL, Acura TL, Acura MDx, Honda Accord, Honda Civic, CR-Vs and Honda Odyssey models from 1997 to 2003 (Voluntary Recall).

Meanwhile, Toyota has also issued two separate recalls of its own. The first one involves Takata Airbags and the second recall also related to Airbags issue. More than 4.24 lakh vehicles are involved in Canada. Collision Repair Magazine reported that United States regulator have been investigating this particular issue , as reports claim that as many as eight people have died when their airbags failed to inflate.

Ford Motors is recalling a total of about 50,000 vehicles in Canada due to electrical issue. Ford also recalled the same vehicles in the United States for switch issues.

General Motors has issued recall during 2016 for more than 4 lakh cars. The company has also spent more than $300 million against the subject product recalls. The company also disbursed millions towards the insurance claims for death / major injuries (Sengottuvelu, 2015).

Maruti Suzuki Maruti Suzuki India Limited today announced to proactively undertake a recall of some petrol variants of Ciaz, Ertiga, Vitara Brezza, S-Cross and XL6. This is to inspect for a possible defect in 181,754 units of these models manufactured from 4th May 2018 to 27th October 2020. Recall campaigns are undertaken globally to rectify faults that may be potential safety defects.

In the interest of customers, Maruti Suzuki has decided to voluntarily recall the affected vehicles for inspection/replacement of Motor Generator Unit, free of cost. Affected vehicle owners would be receiving a communication from Maruti Suzuki authorized workshops. The replacement of the affected part shall start from the first week of November 2021. Till then, customers are requested to avoid driving in water logged areas and direct water spray on electrical/electronic parts in vehicle (Voluntary Recall).

Reverse flow is another term for reverse logistics in the supply chain. This includes planning, implementing and controlling the efficient inbound flow, as well as the storage of goods and related information to recover value or proper disposal.

It's the series of activities required to retrieve a used product from a customer and either dispose of it or reuse it. And for a growing number of manufacturers, in industries ranging from carpets to computers, reverse supply chains are becoming an essential part of business (Daniel & Luk, 2002).

In some cases, companies are being forced to set up reverse supply chains because of environmental regulations or consumer pressures. Beginning in 2003, for example, European Union legislation will require tire manufacturers operating in Europe to arrange for the recycling of one used tire for every new tire they sell. In other cases, companies are taking the initiative, seeing opportunities to reduce their operating costs by reusing products or components. Bosch, for instance, has built a successful business selling power hand tools that have been remanufactured.

In general, the companies that have been most successful with their reverse supply chains are those that closely coordinate them with their forward supply chains, creating what we call a closed-loop system. For example, they make product design and manufacturing decisions with eventual recycling and reconditioning in mind. Bosch is a good example.

Reverse Logistics vs. Traditional Logistics

Traditional product flow starts with suppliers and moves on to a factory or distributor. From there, the goods go to retailers and customers (Forward logistics). Thus, while forward logistics is the movement of products from the manufacturing unit or warehousing unit to the consumer, reverse logistics is the movement of goods back from the consumer to the warehousing unit

Reverse logistics management starts at the consumer and, moving in the opposite direction, returns products to any point along the supply chain. In reverse logistics, goods move from the end consumer back to the seller or manufacturer. The most common example of reverse logistics is when a consumer returns a purchased item for a refund. The returned products may be resold or disposed of permanently. Figure 2 shows the difference between forward logistics and reverse logistics.

Products can be returned for various reasons, such as product recalls, product damage, lack of demand and customer dissatisfaction. The challenges associated with reverse logistics can be complicated by the fact that returned products often move in small quantities and may more outside forward distribution channels (Murphy & Knemeyer, 2019).

In addition, reverse logistics can be four to five times more expensive than forward logistics and the reverse logistics process can take 12 times as many steps, i.e., assessing the returned product and repairing the returned product as the forward logistics process (Murphy & Knemeyer, 2019). .

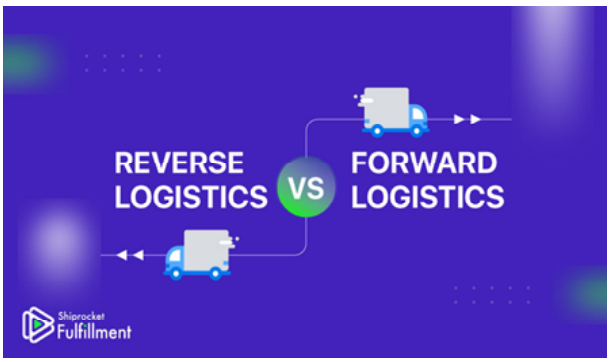


Figure 2: Forward and Reverse Logistics

Product Recalls Vs Reverse Flow in Supply Chains : A product recall is a request to return a product after the discovery of safety issues or product defects that might endanger the consumer or put the maker/seller at risk of legal action. The recall is an effort to limit liability for corporate negligence which can cause significant legal costs due to releasing to the consumer a product that could endanger someone's life and the economic loss resulting from unwanted publicity. Recalls are the first process which comes to our mind about reverse logistics.

But, there are many other processes which are covered by reverse logistics concept. Seasonal products, end of life programs, parts and repairs are other examples. Gencer and Akkucuk (2015) report different examples about reverse logistics. The same report also classifies reverse logistics activities into different categories, each with their own unique challenges and opportunities

Reverse Logistics Vs Reverse Flow in Supply Chains : In reverse logistics, goods move from the end consumer back to the seller or manufacturer. The most common example of reverse logistics is when a consumer returns a purchased item for a refund. The returned products may be resold or disposed of permanently

Consumers purchase iPhones and enjoy the product until they want to upgrade their product. When consumers return to a store to buy the latest model, Apple offers consumers discounts on a new product if they turn in their old product. Apple then collects the old models and brings the products back to their factories.

Reverse supply chain refers to the movement of goods from customer to vendor or at least one step backward up the supply chain. Returning an electric motor from a commercial supply house back to the manufacturer because of a packaging defect is an example of reverse logistics that doesn't involve the end user.

Key components in reverse supply chains: The key components in reverse supply chains are: Production acquisition, reverse logistics, inspection and disposition, reconditioning and distribution & sales.

Types of Reverse Flow in Supply Chains

i. Products that have failed, but can be repaired or reconditioned.
ii. Products that are sold, obsolete, but still have some salvage value.
iii. Products that are unsold from retailers due to overstock.
iv. Products being recalled due to a safety or quality defect that may be repaired or salvaged.
v. Products needing' pull and replace' repair before being put back in service.
vi. Products that can be recycled such as pallets, containers, computer printers cartridges.
vii. Products or parts that can be remanufactured and resold.
viii. Scrap metal that can be recovered and used as a raw material for further manufacturing.

Key issues and concerns

i. Logistics cost of returns is very high due to the uneven size, damages and generally poorer condition of packaging.
ii. Retailers lose 3 to 5 percent of gross sales to returns.
iii. Internet sales (online sales) are high compared to store sale returns.

iv. In the reverse flow of products in supply chains require lot of additional documents like inspection reports, not for sale certificate, insurance assessment report in case of transit damages etc.

v. Re-exporting the products to OEMs for rectification / repair takes lot of time.

vi. Repackaging requires additional resources like packing materials etc.

vii. Sometimes, the buyer and seller will get into argument mode and further to legal litigations. This spoils the supplier and buyer relationship.

Conclusion

Product recalls, generally affects the cash flow and brand equity. Small firms cannot sustain the financial losses and brand degradation associated with a product recall. Most of product recalls are related to poor design, wrong material usage, not compliance to standards / specifications, wrong process including under processing or over processing. So, it is connected to quality of the final product. It is found that total quality cost consisting of appraisal costs, prevention costs, failure costs including internal failure and external failure. Total quality cost amounts to 100%, out of which appraisal costs constitutes 15 -20%, prevention costs 25 – 30% and failure costs works out to 50-60%. Therefore, it is important that OEMs should move from 'fire fighting' to total quality management (TQM) approach (prevention in quality management). All entities in the supply chain should focus on total quality management principles. Every company should have a products recall policy and the most priority should be given for this.

References

1. Paul R.Murphy & A.Michael Knemeyer (2019). Contemporary Logistics, 12th Edition, Pearson India Education Services Private Limited, New Delhi.

2. Sengottuvelu, C (2015). A Study on Automobile Recalls and Its impact on Supply Chains. ARC 2015-III International Conference on Applied Research in Business, Management, Economics and Finance- Colombo, Sri Lanka.

3. V.Daniel R.Guide Jr & Luk N.Van Wassenhove (2002). The Reverse Supply Chain, Harvard Business Review, February, 2002..

4. Y.G.Gencer & U.Akkucuk (2015). Reverse Logistics: Automobile Recalls and Other conditions. Handbook of Research on Waste Management Techniques for Sustainability, IGI Global Hershey, pp-125-154.

●●●

Indian Institute of Materials Management

MISSION

- To promote professional excellence in Materials Management towards National Prosperity through sustainable development.

OBJECTIVE

- To secure a wider recognition of and promote the importance of efficient materials management in commercial and industrial undertakings.
- To safe guard and elevate the professional status of individuals engaged in materials management faculty.
- To constantly impart advanced professional knowledge and thus improve the skill of the person engaged in the materials management function.
- Propagate and promote among the members strict adherence to IIMM code and ethics.

CODE OF ETHICS

- To consider first the total interest of one's organisation in all transactions without impairing the dignity and responsibility of one's office :
- To buy without prejudice, seeking to obtain the maximum ultimate value for each rupee of expenditure.
- To subscribe and work for honesty and truth in buying and selling; to denounce all forms and manifestations of commercial bribery and to eschew anti-social practices.
- To accord a prompt and courteous reception so far as conditions will permit, to all who call up on legitimate business mission.
- To respect one's obligations and those of one's organisation consistent with good business practices.

TRANSFORMING PROCUREMENT FOR A SUSTAINABLE FUTURE : AN IN-DEPTH LOOK AT ISO 20400

SN PANIGRAHI, PMP, ATP (PMI)
GST & FOREIGN TRADE & PROJECTS CONSULTANT & CORPORATE TRAINER
snpanigrahi1963@gmail.com

Introduction: Every organization, regardless of its size or industry, exerts an influence on the environment, society, and economy. Procurement, as a pivotal function, presents a unique opportunity for organizations to demonstrate responsible behavior and contribute meaningfully to sustainable development. The rising awareness of sustainability is reshaping how organizations approach procurement, transforming it from a transactional activity to a strategic enabler of corporate social responsibility (CSR) and environmental, social, and governance (ESG) goals or achievement of UN SDGs.

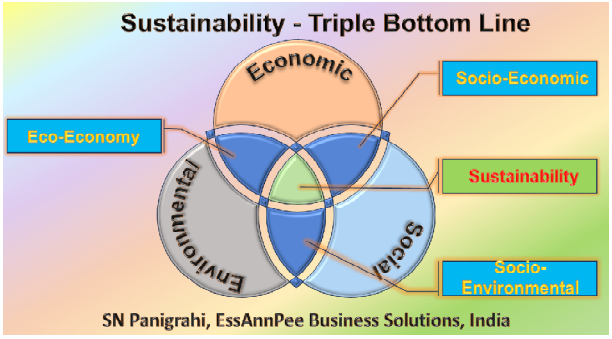
Sustainable procurement is a strategic approach that integrates environmental, social, and economic considerations into purchasing decisions, aiming to achieve long-term value while minimizing negative impacts across the supply chain. It goes beyond cost-efficiency, focusing on responsible sourcing, ethical labor practices, and reducing ecological footprints, ensuring that procurement aligns with broader corporate sustainability goals and stakeholder expectations.

By adopting and seamlessly integrating sustainability considerations into procurement policies, practices, and supply chains, organizations not only mitigate risks and enhance resilience but also contribute to social equity and environmental stewardship, positioning themselves as leaders committed to sustainable development and responsible business conduct.

This article offers an in-depth, clause-by-clause exploration of ISO 20400, highlighting its critical guidelines and practical strategies for sustainable procurement. Organizations looking to adopt sustainable practices can benefit immensely from these insights, helping them manage risk, enhance reputation, and create long-term value.

Keywords: ISO 20400, Sustainable Procurement, Corporate Social Responsibility, Environmental, Social, and Governance (ESG), Risk Management, Supply Chain, Life Cycle Assessment.

Sustainability: Sustainability, rooted in the **Triple Bottom Line** framework, promotes a holistic approach to economic, social, and environmental priorities, ensuring long-term value for organizations and society. The **Economic** aspect focuses on resilient growth and efficient resource use, while the **Social** dimension emphasizes equity, human rights, and community welfare. The **Environmental** component seeks to protect and restore ecosystems. At their intersections, **Socio-Economic** goals support fair economic opportunities, **Socio-Environmental** efforts promote ecological health alongside social well-being, and the **Eco-Economy** balances profitability with environmental stewardship. By fostering equitable opportunities, protecting ecosystems, and aligning financial goals with social and environmental well-being, the Triple Bottom Line empowers organizations to contribute to a **sustainable and resilient future**.



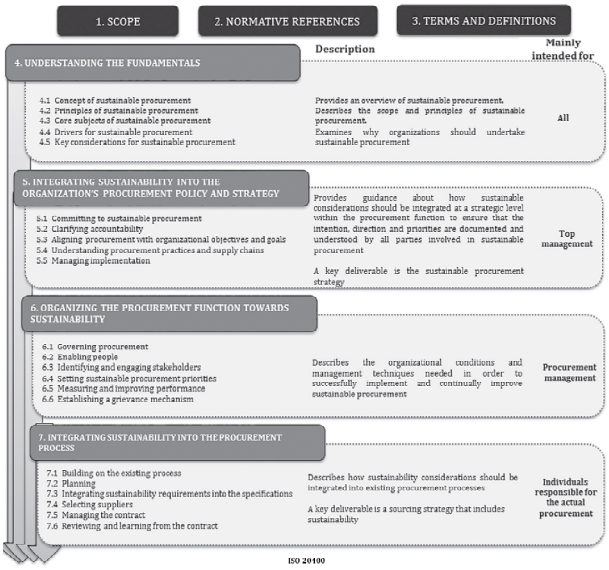
Understanding ISO 20400

ISO 20400 was developed by ISO project committee ISO/PC 277, with contributions from over 50 countries. The first edition of ISO 20400 was published in April 2017.

As the pioneering international standard dedicated to sustainable procurement, ISO 20400 provides a comprehensive framework for integrating sustainability principles into procurement practices. It outlines fundamental principles, elucidates the compelling reasons for organizations to embrace sustainable procurement, and offers actionable strategies for strategic implementation. Moreover, the standard delves into essential management techniques for successful execution.

ISO 20400 provides a strategic framework for sustainable procurement, enabling organizations to balance economic goals with environmental and social responsibilities (Clause 4 – applicable to all). Top management establishes this direction within policy (Clause – 5), procurement leaders implement structured sustainability practices (Clause – 6), and procurement teams operationalize these principles by ensuring each decision aligns with responsible sourcing, resilience, and positive impact across the supply chain (Clause – 7), Together, these roles ensure sustainability is deeply

integrated into procurement, shaping organizational reputation and long-term value.



Designed to empower organizations of all sizes and sectors, ISO 20400 encourages informed decision-making and contributes to sustainable development. As a guidance standard, it offers a flexible framework for aligning purchasing practices with sustainability goals, encompassing economic, environmental, and social dimensions. By adopting ISO 20400, organizations can effectively manage risks, enhance their reputation, and contribute to a more sustainable future.

ISO 20400 Guidance: Principles of Sustainable Procurement (Clause 4)

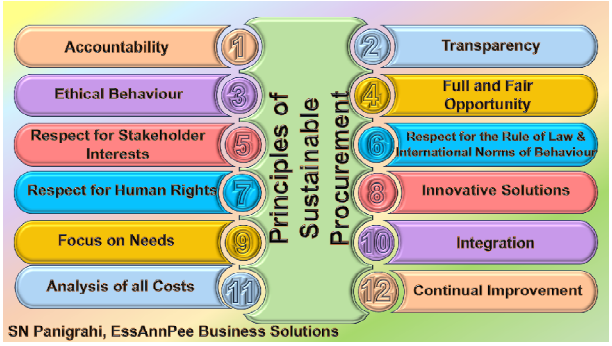
ISO 20400 sets forth a comprehensive framework for sustainable procurement, positioning it as a strategic imperative aligned with an organization's environmental, social, and economic objectives. These principles guide procurement toward long-term value creation, balancing cost-efficiency with responsible practices that reduce ecological impact, uphold human rights, and foster community well-being. Sustainable procurement under ISO 20400 is not an isolated practice but a core component of organizational strategy that shapes both reputation and resilience.

According to **Clause 4** of **ISO 20400**, Sustainable procurement is procurement that has the most positive environmental, social and economic impacts possible across the entire life cycle and that strives to minimize adverse impacts. Sustainable procurement is a powerful instrument when an organization considers sustainability requirements and its own contribution to sustainable development.

Clause 4 of ISO 20400, provides an overview of sustainable procurement. It describes the principles and core subjects of sustainable procurement and examines why organizations undertake sustainable procurement. Important consideration is given to managing risks (including opportunities), addressing adverse sustainability impacts through due diligence, setting priorities, exercising positive influence and avoiding complicity.

Principles of Sustainable Procurement: ISO 20400's principles for sustainable procurement provide a strategic framework that drives accountability, transparency, and ethical practices across the supply chain. These guidelines help organizations integrate sustainability into procurement, ensuring that each decision supports responsible growth and long-term value for society, the economy, and the environment.

As per **Clause 4.2** of **ISO 20400,** the main principles for sustainable procurement are the following:



1. **Accountability:** Organizations should be accountable for their impacts on society, the economy, and the environment, with a particular focus on procurement. This includes responsibility for both direct impacts and those within the supply chain, adopting a life-cycle perspective on all goods and services.

2. **Transparency:** Transparency in decisions and activities that affect the environment, society, and the economy is essential. In procurement, this requires clarity in procurement choices and processes and encourages suppliers to do the same, fostering dialogue and trust with stakeholders.

3. **Ethical Behavior:** Ethical conduct should be central to an organization's operations and promoted across supply chains, upholding integrity, fairness, and compliance with high standards.

4. **Equitable Opportunity:** Procurement decisions must be free from bias, ensuring that all suppliers, including local and small-to-medium enterprises (SMEs), have an equal and fair chance to compete.

5. **Stakeholder Respect:** Organizations must recognize and thoughtfully respond to the interests of stakeholders impacted by procurement activities, fostering an inclusive approach.

6. **Adherence to Law and International Norms:** Organizations must be vigilant regarding compliance within their supply chains, encouraging adherence to legal standards and international norms and actively addressing any violations.

7. **Human Rights Commitment:** Recognizing and

upholding internationally recognized human rights throughout the supply chain is essential.

8. **Encouragement of Innovation:** Organizations should seek innovative solutions that address sustainability goals, promoting practices across the supply chain that lead to sustainable outcomes.

9. **Demand-Focused Procurement:** Reviewing and responding to actual needs, buying only necessary items, and seeking sustainable alternatives help reduce waste and environmental impact.

10. **Sustainability Integration:** Sustainability should be embedded within all procurement practices, ensuring alignment with organizational values and maximization of sustainable outcomes.

11. **Life-Cycle Cost Analysis:** Evaluating costs across the life cycle, including societal, environmental, and economic impacts, is critical to achieving value for money while enhancing sustainability.

12. **Commitment to Continuous Improvement:** Organizations should continually refine their sustainability practices and encourage the same commitment across their supply chain, advancing overall sustainability.

These principles collectively guide organizations toward responsible, resilient procurement strategies that support sustainable development objectives.

Core Subjects of Sustainable Procurement:

Clause 4.3 of ISO 20400 outlines core subjects for sustainable procurement, guiding organizations to uphold responsibility across multiple dimensions. **Organizational Governance** ensures transparency and ethical oversight, embedding accountability into procurement decisions. **Human Rights** and **Labour Practices** mandate respect for individual dignity and fair treatment throughout the supply chain.

Environmental stewardship promotes resource efficiency and minimizes ecological impact, while **Fair Operating Practices** reinforce integrity and anti-corruption measures. **Consumer Issues** prioritize safety, information, and trust in goods and services, and **Community Involvement and Development** encourage positive contributions to local economies, fostering inclusive growth and resilience. Together, these principles shape a holistic approach to procurement that aligns with both ethical standards and sustainable development goals.

Integrating Sustainability into Procurement Policy and Strategy (Clause 5: Role of Top Management)

Top management plays a pivotal role in embedding sustainability into the organization's procurement policy and strategy. By prioritizing sustainability at the policy level, executives set the direction for responsible procurement, establishing a vision that aligns with corporate values, stakeholder expectations, and regulatory standards. Leaders are responsible for defining sustainability goals, allocating resources, and ensuring governance structures that hold all levels accountable, turning sustainability from a concept into measurable action.

Organizing the Procurement Function Toward Sustainability (Clause -6: Role of Procurement Management)

Procurement management is tasked with operationalizing sustainable principles within the function, translating strategic goals into actionable practices and clear responsibilities. This involves structuring the procurement team to focus on sustainability, fostering cross-functional collaboration, and implementing supplier development programs that promote ethical sourcing and transparency. By creating an organized, goal-oriented procurement structure, management ensures the alignment of day-to-day operations with the organization's broader sustainability mission.

Integrating Sustainability into the Procurement Process (Clause – 7: Role of Procurement Individuals)

At the operational level, individual procurement professionals drive sustainability by embedding it into each phase of the procurement process. They assess supplier sustainability credentials, consider life-cycle impacts, and enforce contract terms that support ethical and environmental standards. These professionals are the catalysts of sustainable procurement, ensuring that each transaction reflects the organization's commitment to responsible sourcing, long-term resilience, and positive social impact, in line with ISO 20400 guidelines.

Conclusion: In conclusion, ISO 20400 offers a comprehensive and strategic roadmap for embedding sustainability into procurement, enabling organizations to achieve responsible, resilient growth. By integrating principles of accountability, transparency, and ethical practices across the supply chain, organizations are better positioned to reduce risks, enhance stakeholder trust, and contribute positively to society and the environment. Adopting ISO 20400 standards is more than a compliance measure; it is a commitment to sustainable development, aligning procurement with long-term value creation, and positioning the organization as a leader in responsible business practices.

●●●

HOSPITAL MANAGEMENT IN SUPPLY CHAIN MANAGEMENT SYSTEM

PALLIKKARA VISWANATHAN LIFE MEMBER IIMM BANGALORE/HOSUR BRANCH, vid_shy@yahoo.com

Essential day-to-day care, in health management, in hospitals is to boost patient's outcome, lower medical errors, improve overall quality of health care management, enabling hospitals with a centralised platform, to manage daily operations, with better interest, better communications in supply chain.

The concept of providing in order to meet the regulatory standards, compliance, healthcare in tracking the origin of product management, calls, to safeguard against counterfeit, substandard, products, also to ensure that the patient receive the rightful care at the right time does become the essential part of hospital management in supply chain.

Logistic management system in hospital management process plays an important role, in implementing, controlling, the flow medicine, services, which is informal in hospital to ensure timely delivery of medical supplies, equipment, reduce waste, bringing a management of cost in supply chain.

Management of medicines cycle, are steps to be taken to be effective, on selection, procurement, requirement, are quantifiable effectively, on the assumption of cold storage system, or ambient storage system to be adopted, distribution, applied logistic systems, planning, control, flow of patients, goods, from the information of origin, to the front of use in supply chain.

Vital role played by hospital management, is on the health care, keeping the health care institution moving, providing patient care, proper maintenance of out-patient ward, consistent good quality of service in health care in supply chain.

Medicines includes supply of proper, genetic quality of medicines, well connection with suppliers, wholesalers, distributors, manufacturers, retailers, ensuring availability of highly skilled manpower, doctors, physicians, specialists, nurses, attendees, maintaining the best quality on testing systems to protect the patients in supply chain.

Managing services, suppliers, delivery of medicines, are considered as service providers in hospital management, as with patients with various aspects of health care, are to be protected with care, medical records, radiology images, lab tests, blood test reports, pharmacy available records efficiently in supply chain.

Operation management in hospital management, health care varies with various administrative practices, that is to keep hospital operations, arising due to managing budgets, staffing, employee relationships, customer relationships, service availability, nursing quality cases, hospital policies, regulations, also on the process of hospital organising, to control the operation of health care management both on clinical, non-clinical operations in supply chain.

Management of Hospital is fast changing in supply chain, in order to become efficient, effective, competitive, sustainable, foolproof, investing in smart infrastructure, on a proper network, going into the aspect of digitalisation, planning, procurement, sourcing, inventory control, Just-in-Time concept, with all relevant data, metrics, synthesised to be converted into an actionable insight, enabling on a connected care with patients, leading to a proper operation care in clinical management in supply chain.

Managing health care in hospital management cost effectively demands regulations, better policies, legislative reforms, in order to accommodate economic conditions, to support rate standardisation, with high quality care in supply chain.

Technological revolution in hospital management, is revolutionising health care, making diagnostic faster, more accurate, in coordination through electronic health records, telemedicine's, demonstrating that technology in medical care becomes more accessible to especially remote areas, but also cost-effective, thus reducing pressure on health care facilities, on meeting the delivery of care, on time, directly with patients in supply chain.

Mobile health apps in hospitals, wearable devices, are some of the important crucial factors in managing chronic conditions, with big data driven by insights on

health care policy, as decisions are mainly given importance to increase reliability in hospital management. Data analytics can be shared with patient's outcomes, giving preference to cost efficiency, improving better nuanced rate-setting frame tool in supply chain.

Predictive analytics in supply chain hospital management could foresee long-term impact on rate fixing, on health care in hospitals, by innovation, also helping hospital adjust to regulations, policies encouraging better management on affordable health care, balancing access, innovation, as they may be delicate but imperative to recommend on implementing pilot projects in selected area to gauge rate capitalisation on health care quality in supply chain

Inefficiencies', reduction of unnecessary expenses, is liable to strengthen health care system in hospital management, based on a value chain, resilience, agility, emphasising, on the significance by optimising, care of patients, thus increasing operational efficiency, entailing also overseeing seamless movement of medicine, equipment, health care services from primary health doctors, ultimately to proper care of patients, ensuring timely prescription, treatment, that is liable to cater to healthcare on patients in supply chain.

Basic principles of medicine, medical, surgical, obstetrics, gynaecological emergencies, should be taken up along with common infectious disease, dysentery, gastroenteritis, with proper data management in hospital management, on a competitive, sustainable, having substantial, on a fully fledged record system maintained in supply chain.

Working alongside in hospital management, is necessarily to oversee the facilities in health care, working along with doctors, nurses, health care professionals, connected with various departments in hospital, nursing homes, public health centres, going on to run the daily operations, health care facilities, improve patients care in hospital management, so as to achieve strategic goals in supply chain.

Cost effective approach in hospital management, as it preserves gross margin at every step in supply chain, improves insufficient integrated collaborative planning, digitalisation, in cloud based information technology, with upstream pharmacy supply, controllable for pharmacy organisation, to make up the downstream in supply chain.

Variable demand of health care in hospital management, does become a challenge in hospital management, in order to the requirement of forecasting the correct inventory of medicines, surgical equipments, as is there is liable to be a variability in stock out, also the liability for overstocking medicines, as this is to supplement the essential stock items in supply chain.

Fluctuations in pharmacy prices within the medical products, in hospital management, can lead to volatility in regular supply, leading to cost fluctuations in supply chain, so it thus become to be effective in proper negotiation, price transaction, in procurement, as they become crucial to mitigate the challenges in supply chain. .

Effective management principles is to ensure that patients in hospital management receive right treatment, at right time, as this includes timely medication, maintenance of accurate records of admitted patients, also the availability of proper medicines, equipments, so as to maintain patient's safety, so as to significantly enhance smoother operations on a better aspects in supply chain.

Procurement in hospital management comprises of both medical, non-medicals, clinical, pharmaceuticals, products, like stretchers, Anaesthesia Machines, Monitors, sterilisers, ECG machines, surgical equipments, tools, which are required to provide service to patients in supply chain.

Design activities in planning, procurement, goods service, delivery, returns management, from a provider to a beneficial, the patient is taken into consideration on the flow of value chain, which includes pharmaceuticals product flow, in hospital management, as these activities are driven by digital information flow, believing on various network, in supply leading to financial strategy, to provide optimal acquisition, since quality, safety of patient are essential in supply chain.

Accurate real-time access to creditable data on procurement in hospital management process, supplier relationship, is liable to help health care supply management; to improve compliance, sourcing, initiative based procurement with the assistance of contract sourcing in supply chain.

Digital processing, the ability to data to generate actionable analytics, making it more comfortable for health care in hospital management, organise to communicate value added information to suppliers on pharmacy products, better forecasting, demand planning, data analytics, to generate more data, with generation of information to be accurate, timely, on better supplier performance metrics, in order to strengthen the relationship in supply chain.

Capabilities that help hospital management in the healthcare, is to maintain steady supply of critical items, medications, medical equipment, ensuring patient care maintained is to be not uninterrupted in supply chain.

Inventory management is considered as an important aspect in healthcare hospital management, tracking, observation of transactions, as Doctors, Nurses provide on focussing on high patients care, challenges of managing inventory, require accurate procurement policies, in health care, utilisation of products, also ensure that the hospital management has adequate stock of products stored, made available in supply chain.

Sorting pharmaceuticals product, is the responsibility of the nurses, during the course of requirement, or emergency operations, tracking, tracing, checking on the expiry dates, on the different pharmaceuticals, surgical, items, that are being used, during different aspects of time, or loss, shortages, that may become liable to be passed on to patients, during the emergency period in supply chain.

Artificial Intelligence to be introduced in hospital management, in order to analyse data, better forecast, good supply needs, that is to be accurate, track, trace proper delivery, outpatient activities, on a real-time data in order to instigate no disruption, predicting demand, optimising inventory levels, as per requirement, identifying, potential, bottleneck requirement in supply chain.

Budgets are an important part of hospital management, on a continuous basis for better opportunities, to reduce cost, improve operation, ensure high quality patient care, as logistic, supply chain plays a crucial role in achieve goals in supply chain.

Software in hospital management becomes essential allowing medical staff to be trained, collect data, store, retrieve, share patients information, at ease in supply chain.

●●●

WAREHOUSE MANAGEMENT SYSTEM REVENUES TO REACH $10 BN BY 2030

PRAJAKTA KARNIK

According to a report by ABI Research, companies will need to take their warehouse management systems beyond simple planning tools and leverage advanced systems.

With the advancements in technology and the need for efficient management of warehouse operations, warehouse management system (WMS) revenues are expected to surpass USD 10 billion by 2030, a recent survey said.

Increase in investments : According to a report by ABI Research, investment in both new and existing software packages to optimise warehouse operations will expand through 2025. This will drive warehouse management system (WMS) revenues, which is expected to surpass USD 5 billion by next year and surpass USD 10 billion by 2030.

"The continued rise in investment in what is a well-established technology will largely be driven by the introduction of advanced planning and analysis capabilities, as well as the increasing numbers of connected devices and machines requiring orchestration in the warehouse. Companies will need to take their WMSs beyond simple planning tools and leverage advanced systems that better manage both manual and automated execution," Ryan Wiggin, Supply Chain Management & Logistics Industry Analyst, ABI Research, said.

Double digit revenue growth : According to the latest financial reports, leading providers of supply chain software tools, including warehouse management system, all saw double digit revenue growth through 2024. SAP, Kinaxis, Infor, Manhattan Associates, and Blue Yonder have all reported consistent growth, with a large portion of this attributed to Software-as-a-Service (SaaS) offerings and a shift to advanced cloud-native solutions.

Increase in investment in wireless networks : Ensuring data transfer and orchestrating more advanced picking processes is also leading to a rise in investment in private wireless networks within warehouses, such as private 5G.

ABI Research estimates that the global market for private wireless networks in warehousing has the potential to grow to USD 6 billion by 2030 at a compound annual growth rate (CAGR) of 89.2 per cent, with both established providers including Nokia and Ericsson, as well as emerging providers such as Firecell leading deployments.

"Advanced private wireless networks must be a foundation step for industry 4.0 investment strategies in warehousing. Lower latency, stronger connectivity, and more real-time data transfer are a necessity for advanced software solutions to work to their best ability and ensure the introduction of more automated systems is supported. Companies looking to take their warehouse picking processes to the next level must take a holistic approach and blend multiple technologies to maximise ROI," Wiggin added.

Source: www.logisticsoutlook.com

●●●

WAREHOUSING- PRACTICAL CHALLENGES IN KEY FACTORS WITH BRANDED COMMODITIES

DR E RAVISHANKAR
CHIEF GROWTH OFFICER, AGX(I) LOGISTICS PVT LTD
ravi.maa@agxindia.com

Logistics professionals know various important parameters that go into inventory management at re-distribution points. Parameters such as market requirement, stock levels required, frequency and average quantity of lifting, life of products, packing based stacking, safety requirements, security, record updates, labour availability and their engagement, traffic timing restrictions are some of the important ones.

In this article we shall see some practical issues faced in day to day working in Warehousing used for secondary distribution and ways to resolve these. The four key factors taken up are, namely, **Short Term-Medium Term Forecast, Inward Transit, Inventory Maintenance and Secondary Service.**

Short Term-Medium Term Forecast:

Mostly, short term forecast is required to be done mostly, while medium term plan depends on product life and its ease of availability. Let us look into some of the aspects which can have an impact.

- Seasonal fluctuations causing difficulty in stock predictions: One may ask, "season repeats and does not happen by accident". Agreed! But stock forecasts get into lot of other intricacies and hence up to a minimum quantity level we can make fair guess based on past performance. But one needs to be ready for sudden surprises.
- Collection surprises: Collection delays in the market create restrictions in sales and is something from logistics side we are unlikely to know in advance.
- Price fluctuations: This can result in unpredictable demand- sometimes fast liquidation followed by resistance to sales. We experienced that companies announce likely increase price in advance specifying a later date. In such cases there can be spurt in demand and after implementation of prices, the market will go through a lull period.
- Trader/Customer network Addition/Breakdown: This is another factor which we had to face. In a competitive market, most of the retailers and wholesalers have become multi-brand counters. When we add dealers there will be additional requirements of specific stocks. If the company loses an important dealer, then there will be a decrease in off-take. From logistics side it is difficult to predict these.

Solution: Most of the above are invariably out of Logistics personnel's day to day exposure. Hence, the following solutions are suggested:

- It is important to have good knowledge of the past record of dispatches during season and off-season.
- Idea about Targets Vs Sales and collection issues, if any from specific counters in the regions served, will be an asset. Agreed that logistics personnel cannot ask the management to send a copy of updates on these two, but there are ways to get an idea of these as we shall below.
- Keep live interactions with anchor traders/ customers (who account for >65% sales) of the territory served. This can help us know, One's company's sales trend and for competitors in that territory; if there is likely hood of defaulters in payment. We can get an idea on the pricing climate too. If any new product was launched, then its acceptance levels can be known. The interaction will certainly help in knowing new additions or loss of network in the territory.

Inward Transit:

- Transporter related:
  - Reconciliation: We can come across gaps in SOA balance between what is claimed by transporters and that is reflected in the company's system. Mostly, companies will be right as they have strong software platforms in place. But, Transporters, due to shortcomings in their systems, can have gaps. The onus is on the company to clarify facts.
  - Truck Diversion: The transporters are likely to have contracts with multiple companies. Due to this, they divert trucks as per their advantage.
  - Inadequate Trucks: more often we find transporters do not possess required level of trucks. For example, if for a warehouse, the cycle time for truck to come back to plant is 3 days, and if every day 6 trucks are required at the warehouse, then the transporter should have 18-20 trucks for interrupted service. This does not happen in most of the locations.
  - Market Dependence for trucks: The above cause, makes it mandatory for the transporter to hire trucks from the market. Market truck availability gets tough during month end and during festive seasons.
  - Driver related: Last few years there is increasing feedback from transporters of the labour turnover with drivers and difficulty in finding replacements. In case of market trucks, this is even more an oft repeated problem.
  - Payment delay: Undue payment delays tend to reduce transporters' support. It should be remembered that most of the cost in transportation is variable. Hence payment delays can choke transporters. More so, if there is dependence on market trucks (as advance money is demanded).
- Freight related issues with primary transportation.

- Diesel fluctuations, Return load difficulties, Remote location, Road infrastructure all can cause delays.
- Traffic snarls and sometimes system hang over did cause issues.

Solution:

- Tracking with GPS is mandatory; for this the GPS to be linked with software in the system, so that we can map complete details, for taking corrective actions. Have a dedicated person/team.
- Never entertain pressure from customers to deliver enroute before inward.
- Never allow trader's trucks for stock transfers.
- Mobile APP services customized for the company would alleviate major doubts and phone calls- There are GPS sellers who offer this service free of cost which can be explored.
- Maintain a rule of more than one transporter to a territory. Reward transporters/drivers at the end of the month, for least transit time. Also at the plant, give priority to transporters who perform at lower transit time.
- Perennial offenders must be dealt with firmly.

Inventory Maintenance:

- Rake based Locations: Locations, say, at more than 400Kms from source with potential for high volume, are better off with rakes due to cost effectiveness. But, such locations would be dependent on railways allocating rakes for that destination. Frequent route restrictions (due to track traffic jams) and the importance to rake cycle counts by railways can cause delay in getting rakes. For instance, if a location requires a split rake, there can be time lag in getting rakes.
- Inconsistent orders and movements making stock planning difficult:
- Scheme for specific products making excess demand for few products. Last few years, this sales promotion tool is prevalent due to competition.
- If the brand is 'Push driven' then orders can be inconsistent; if competition is heavy, it adds to the difficulty in closing orders.
- Space constraints due to non-moving stocks. Some of the reasons can be:
- Plants have dispatch targets.
- Excess Rake dispatches cause excess build up or need to hold unwanted stocks- This can also cause FIFO issues.
- Space constraints due to spoilt/damaged stocks lying unresolved.
- Month end stock transfers can be low as priority will be for direct billing from plant.
- New product launches can cause excess storage of those items. If the item does not click as expected it will occupy space.
- Poor documentation, not adhering to SOP and FIFO also cause problems.

Solution:

- Tracking factory dispatches to one's warehouse is not enough. Mandatory to keep track of stock levels in factory; production flow in factory; major decisions regarding productions in the factory.
- Follow SOP in stacking, documentation and FIFO. If these are followed it gives comfort for laborers also and saves time to help increase speed of delivery and do higher volumes.
- A system to inform local sales team of the stock and requirement of orders. This works wonders as we found it in practice.
- Regular interactions with local railway authorities and local bodies for smooth functioning.
- Proactiveness in clearing damage stocks is important because damage approvals involve justifications, two way email movements, and long hierarchy.
- Mandatory to have warehouse audit by commercial team- frequency depending on size and thorough put.
- To have a check-list for Infrastructure and review it in regular intervals and take corrective action at the beginning stage itself.

Secondary Service issues:

- Unloading delay due to 'Push orders' can be the most common issue. More so, if the brand is not the leading brand in the territory. Even in the case of leading brands, with pressure on sales, there can be numerous cases of automatic dispatches with the hope of making the dealer accept the material.
- Transport-related constraints can be similar to primary transportation. The difficulty can be due to shortage of trucks, truck diversion to other businesses of the secondary transporter, and problems that arise due to market dependence for trucks.
- Local bodies can interference in regulatory movements during local functions, public gathering and festive seasons. Temporary Traffic changes in urban localities have become common occurrence.
- Labour timing and order timing non-coherence. For example, in some locations major junk of the orders can come early in the morning, but the labour availability can happen belatedly after 10 am.

Solutions:

- GPS for secondary movement is very important. Due to shorter distances this is often neglected. But huge potential for savings exists in secondary. This regulation can help market price stability also.
- To keep more than one transporter in the supply chain.
- Relationship with dealers/traders helps petty issues not affecting the dispatches.
- System of online/SMS info to customers of the dispatches to improve unloading.
- Annual contract with the agents/transporters to cover all practical issues incorporated- the responsibility to avoid wharfage, demurrage, damage etc.

●●●

THE INDIA ADVANTAGE: 6 REASONS WHY SUPPLY CHAINS ARE LEAVING CHINA

AMY WUNDERLIN

A new survey found U.S. C-Suite executives are over three times more likely to choose India over China for their future supply chain needs. Global trade patterns have been on the move for the last five years as U.S. companies continue to focus on diversifying their supply chains. Combine steep tariffs and an unprecedented pandemic with increasing climate disasters, geopolitical tensions, and greater consumer preference for sustainable and ethical practices, and it becomes clear that supply chains must continue to evolve to mitigate these higher costs and disruptions.

For many companies, this looks like moving away from a reliance on China. A recent survey by OnePoll conducted for India Index found that U.S. C-Suite executives are over three times more likely to choose India over China for their future supply chain needs. Of the 500 U.S. executives surveyed, 61% said they would consider sourcing from India if they knew India had the same materials as China.

So why India? We spoke with Samir N. Kapadia, founder and CEO of India Index, who gave us six compelling reasons companies may choose India over China for future supply chain needs.

1. Rising tariffs and costs : Tariffs placed on imports from China in 2018 have contributed significantly to a need to move American business elsewhere. With no tariff relief in sight, if you hadn't already diversified sourcing either locally or to another country, the pandemic almost made it a necessity.

"In many respects, China is now in a bit of disfavor," said Kapadia, adding that it's not just about costs but concerns of forced labor, intellectual property theft, and increasing shareholder-driven campaigns to motivate companies to diversify out of China.

"If you're an importer in the United States, and you're paying a 25% tariff, now your supplier is getting accused of forced labor, there's constant risk on intellectual property theft...where do you land?" asked Kapadia

2. Concerns over intellectual property theft : Intellectual property theft is another major concern for U.S. companies trading with China, especially fear of stolen technology. The Five Eyes intelligence-sharing network, made up of officials from the United States, Britain, Canada, Australia and New Zealand, recently accused China of stealing secrets across various sectors, including innovations from quantum technology and robotics to biotechnology and artificial intelligence.

OnePoll's survey found that 54% of respondents felt that China had high risk as it relates to intellectual property, while 29% of companies thought the same of India.

3. Fear of reputational risk : While companies could once ignore a mark on their reputation due to the low cost of doing business, today's conscious consumer is holding companies accountable like never before. "The reputation of a company can be very much hinged upon the way they conduct supply chain," said Kapadia. "The Fortune 500, even beyond, are now seeing that they need to operate within countries where they won't get slammed in some op-ed, or they won't get called up to some congressional hearing given their practices."

4. Economic growth in India : As the fastest-growing economy in the world at a rate of 7.2% GDP, India is becoming an interesting alternative for global trade. With economic growth comes greater investment in infrastructure, allowing India to also fill many of the gaps that once prevented it from competing on the world stage. "The whole purpose of India's infrastructure growth is to provide for these companies to now come in and feel they have that support system," said Kapadia. "We think that's very much going to be the trend over the next five years, and this sort of gap that we've seen in India will slowly kind of come to a close."

5. The promise of aligned political landscapes : Political risk (53%) was the top concern amongst U.S. executives when it came to trading with China. Another 26% also felt it was 'very risky' to trade with China, compared with India at 12%.

This perceived safety in India can be attributed in part to greater political alignment between the country and the United States. Under the current administration of Prime Minister Modi, who's promoted the idea that the United States and India have never been more aligned, Kapadia said America is now taking a second look at India in a way they haven't before.

"They feel like India's now matured; that they've kind of arrived on the global stage," he said.

As a result, Kapadia said he expects this year to see a domino effect across sectors as everyone from the large- to small-sized enterprises considerably shift their supply chain away from China.

6. Large corporate commitments : Leading by example is exactly what companies like Tesla, Apple and Walmart have been able to do with greater investment in India over the last few years. Walmart, for example, recently pledged to import $10 billion worth of product every year from India starting in 2027, and others are likely to follow suit.

"You're going to see that incremental shift as a few of those kind of anchor companies show the world that it can be a successful way...to do all the things that China's done well for a very long time and to bring them to India," said Kapadia.

Source: www.scmr.com

●●●

EMERGING ROLE OF TIER 2 AND 3 CITIES IN INDIA'S WAREHOUSING AND LOGISTICS GROWTH

India's logistics and warehousing sector continues to expand in 2025, driven by infrastructure advancements, government-led initiatives, and the rapid growth of e-commerce. While major metropolitan areas have historically dominated the industry, tier 2 and tier 3 cities in the country are emerging as crucial logistics hubs, reshaping India's supply chain landscape.

India's logistics and warehousing sector is expected to play a vital role in India's economic development in the coming years. On March 2, 2025, the Union Minister of Consumer Affairs, Food, and Public Distribution, Pralhad Joshi, highlighted that the **domestic warehousing market** is projected to grow at a compound annual growth rate (CAGR) of 15 percent, reaching an estimated US$35 billion by 2027. This growth trajectory is fueled by increasing demand for warehousing facilities across the country, improved infrastructure, and strategic promotion in the tier 2 and tier 3 cities.

Decentralization and strengthening regional supply chains

Several industry leaders and media reports suggest the emergence of tier 2 and tier 3 cities as the country's preferred logistics hubs, thereby reducing dependence on India's major metropolitan centers, enhancing supply chain resilience, and lowering transportation expenses. Strengthening regional supply chains is also fostering job creation and industrial development in smaller urban areas.

A key driver of this shift is the expanding online consumer base in non-metropolitan cities. With rising digital adoption and improved last-mile connectivity, there is a growing need for efficient logistics and warehousing facilities in these regions. Additionally, central government policies such as the **Urban Infrastructure Development Fund (UIDF)**, which allocates INR 100 billion (US$1.14 billion) annually for infrastructure enhancement in tier 2 and tier 3 cities, are playing a crucial role in supporting this transformation.

Technological advancements influencing India's warehouse preference

Beyond infrastructure development, technological innovations are advancing the country's logistics sector. Industry experts believe that adoption of automation and artificial intelligence (AI) in supply chain management has improved efficiency and reduced operational costs. AI-driven analytics are optimizing inventory management, while automated sorting and packaging systems are streamlining warehouse processes.

India's goals towards sustainability are also steering sectoral growth, with the industry increasingly integrating green warehousing practices. Industry is adopting energy-efficient storage solutions, the use of renewable energy sources, and eco-friendly packaging materials to minimize the environmental impact of logistics operations.

India's total warehouse space is projected to reach approximately 1.2 billion square feet by 2027, encompassing Grade A, B, and C warehouses. A report by JLL, published on October 16, 2024, namely **Future of logistics: warehousing market – India**, highlights a notable shift towards high-quality infrastructure, with Grade A warehousing stock expected to increase from 290 million square feet in 2023 to 400 million square feet by 2027.

The report further states that India is poised to become one of the top six users of warehouse automation systems globally by 2026, with the market value expected to reach US$2 billion annually.

India's quick-commerce industry boosts warehouse demand

Rapid expansion of the **quick-commerce sector** in the country is a major contributor to the increasing demand for warehousing space. Domestic companies, such as Zepto and Blinkit, are aggressively expanding their regional warehousing networks to assist with faster delivery services.

It is worth noting that a surge in warehousing demand continues to be dominated by India's top eight cities: Mumbai, Pune, the National Capital Region (NCR), Bengaluru, Hyderabad, Chennai, Kolkata, and Ahmedabad. An industry observation made by Knight Frank India, a global property consultancy, notes approximately 37.5 million square feet of warehousing space was leased between January and September 2024, marking a 4 percent year-on-year increase. In the third quarter of FY2024-25, lease transactions reached 14.6 million square feet, reflecting a 20 percent rise compared to the earlier period.

Future outlook

As the demand for warehousing space continues to grow, investments in logistics parks are also increasing in the country. Both public and private sector stakeholders are recognizing the potential of **India's logistics sector**, leading to establishments of advanced storage facilities, improved transportation infrastructure, and wider digital integration.

With ongoing modernization efforts, India's tier 2 and tier 3 cities are evolving from emerging markets into critical components of the country's next phase of economic growth.

(US$1 = INR 87.37)

Source: www.india-briefing.com

●●●

SUPPLY CHAIN INNOVATION VITAL FOR PRODUCT TRANSFORMATION

Real-time data visibility is the most crucial aspect of modern supply chain management. Companies should utilize Internet of Things (IoT) devices, blockchain technology and cloud-based platforms to monitor their global supply chain networks. This gives key details on inventory levels, manufacturing progress, and shipping schedules.

RAJIV GANJU, SENIOR VICE PRESIDENT – MANUFACTURING & GLOBAL SUPPLY CHAIN- LUMINOUS POWER TECHNOLOGIES

In order to survive in a dynamic business landscape, keeping up with change and constantly innovating is the only solution. This differentiates companies from other businesses and ensures that they remain ahead of competitors, specifically in supply chain management aspects.

To stay competitive and deliver exceptional results, companies need to adapt their supply chains to meet the demands of their customers. Innovative supply chain management helps achieve operational efficiencies and product transformation. The role of supply chain innovations in improving product quality cannot be overstated. In this way, companies may streamline their operations by integrating advanced technologies or can adopt new methodologies, which can increase agility and respond effectively to market demands.

Role of supply chain innovations

Real-time data visibility is the most crucial aspect of modern supply chain management. Companies should utilize Internet of Things (IoT) devices, blockchain technology and cloud-based platforms to monitor their global supply chain networks. This gives key details on inventory levels, manufacturing progress, and shipping schedules. It helps partners make smart choices before problems arise in their wide-ranging business network.

In the same way, automation and robotics are changing how supply chains work. They cut down on manual work and boost productivity. Automated systems for warehouses filling orders, and managing transportation make things more efficient and accurate. Robots can do repetitive jobs, which lets human workers concentrate on more important tasks. This leads to better overall efficiency in operations.

It is necessary to have a good prediction of the demand to optimize production schedules and minimize waste. Companies can predict market trends and customer preferences with increased accuracy through data analytics and machine learning algorithms. This enhances efficient inventory management which makes sure that products are available at the right time. Warehouse management systems (WMS) ensure FIFO (First-In-First-Out) and real-time location tracking, while freight management systems optimize transportation costs. Container Tracking systems and real-time delivery update through transportation management systems (TMS) provide end-to-end visibility and control over logistics processes.

The future of supply chain innovations

Sustainability is becoming a key consideration in supply chain management. Many companies switched to environmentally friendly practices to reduce their carbon footprint and comply with government regulations. Green logistics, sustainable packaging, renewable energy sources among other innovations do not only save the environment but also improve brand reputation and enhance customer loyalty.

The future of supply chain innovations depends on integrating cutting-edge tech and prioritizing sustainability. AI, ML and blockchain will have an increasing impact on supply chain visibility, decision-making and transparency. Also, adopting circular economy principles will push companies to create more sustainable supply chains. Businesses will put more effort into cutting waste, reusing materials and building closed-loop systems to lessen their environmental footprint and boost resource use.

In essence

Supply chain innovations are crucial to transform products in today's fast-moving business world. When companies use advanced tech, eco-friendly methods and customer-focused strategies, they can boost their efficiency, cut costs, and deliver better products and services. Looking ahead, supply chain innovations will bring even bigger improvements driving more changes and sustainability in the industry.

The views and opinions expressed in this article are the author's own, and do not necessarily reflect those held by **pv magazine**.

Source: www.pv-magazine-india.com

●●●

SUSTAINABLE SUPPLY CHAINS: FROM EMISSIONS TO EFFICIENCY IN INDIA

PARIJAT SOURABH AS A NEWS CORRESPONDENT AT STAT MEDIA GROUP

India's logistics sector is rapidly adopting sustainability measures to cut emissions and enhance efficiency, aligning with the country's pledge to reduce emissions intensity by 45% by 2030.

India's logistics sector stands at a pivotal moment as sustainability transforms from a buzzword into a business imperative. According to data by Blueweave consulting, the India Supply Chain Management (SCM) market was valued at $3.42 billion in 2023 and is expected to grow at a CAGR of 11.1% during the forecast period from 2024 to 2030, reaching an estimated $6.43 billion by the end of 2030. Stakeholders across the spectrum are recognising that environmental responsibility and operational efficiency are not competing priorities but complementary goals.

The green imperative The transportation and logistics sector accounts for approximately 14% of India's total CO2 emissions, according to recent environmental assessments, as per the data by the United Nations Development Programme, India has pledged to reduce the emissions intensity of its GDP by 45% by 2030. This commitment has brought sustainable supply chain practices to the forefront of industry transformation.

The transition towards sustainable logistics is driven by a complex interplay of environmental necessities and economic opportunities. International trade partners are increasingly demanding green certifications, while domestic consumers show a growing preference for environmentally responsible companies. This shift has compelled logistics companies to reimagine their operational strategies, focusing on reducing carbon footprints through innovative technological interventions.

For instance, Liquefied Natural Gas (LNG) has emerged as a promising alternative fuel technology in the logistics sector. LNG is a cleaner-burning fuel compared to traditional diesel, resulting in significantly lower emissions. Essar Group's GreenLine Mobility Solutions, a company specialising in sustainable transportation and logistics in India, is the first in the country to operate a fleet of LNG-powered heavy-duty trucks. Hindustan Zinc, India's largest producer of zinc, lead, and silver, recently partnered with GreenLine to integrate its LNG-powered fleet into the company's supply chain and transportation operations.

According to GreenLine, its LNG-powered trucks, manufactured by Blue Energy Motors, offer significant reductions in emissions compared to diesel: up to 30% in CO2, 100% in SOx, 59% in NOx, 91% in particulate matter, and 70% in CO. "By reducing emissions and enhancing energy security, we're setting new standards for reliable, eco-conscious logistics—building a resilient foundation for the future." Anand Mimani, GreenLine Mobility Solutions Compressed Natural Gas (CNG) has also found widespread adoption in urban and regional logistics networks. Companies such as SafeExpress and Delhivery have strategically adopted CNG vehicles, focusing on high-pollution metropolitan areas like Delhi-NCR, Mumbai, and Bangalore. In June this year, Delhivery introduced 20 Volvo LNG-powered tractor-trailers into its fleet.

These vehicles help lower particulate matter emissions while offering a cost-effective alternative, with CNG priced at nearly half the cost of petrol and diesel. Additionally, Biofuels have also emerged as a promising alternative to traditional fossil fuels in the Indian logistics sector, offering a significant pathway to reduce carbon emissions and enhance sustainability. These renewable energy sources, derived from organic materials such as agricultural waste, plant oils, and biomass, are increasingly being explored as a viable solution to the transportation sector's environmental challenges.

Recently, Amazon India and Hindustan Petroleum Corporation Limited (HPCL) formed a strategic partnership to accelerate the development and adoption of low-carbon fuels (LCFs) for long-haul transportation in India. The two companies will conduct a pilot to test the use of sustainable fuels in Amazon's long-haul transport vehicles, exploring the potential of fuelling hubs and mobile refueling stations for easy access to LCFs. "Biofuels are key to India's energy transition and are set to contribute to jobs and economic growth. Amazon's collaboration with HPCL is a step toward empowering this transformational shift, and we are glad to be a part of this journey," states Abhinav Singh, VP-Operations, Amazon India.

Driving sustainability with electric vehicles : Electric vehicles (EVs) integration represents the most transformative approach to sustainable logistics. According to a report by Wright Research, the EV Industry in India has witnessed remarkable growth, with projections indicating that the market is set to expand from $23.38 billion in 2024 to an impressive $117.78 billion by 2032. The Indian government is also supporting the growth of the EV industry with initiatives like the FAME II scheme and the Electric Mobility Promotion Scheme (EMPS-2024). A key advantage of EVs is their substantially reduced carbon footprint compared to conventional fuel-powered vehicles.

Lower operational costs are also a key driver behind the adoption of EVs in logistics. EVs typically incur lower maintenance expenses and are more energy-efficient, delivering long-term savings for fleet operators. Advances in battery technology have further enhanced EVs with extended ranges and faster charging times, mitigating concerns about vehicle downtime.

Blue Dart, South Asia's leading courier and integrated express package distribution company, recently expanded its EV fleet to over 480 EVs, including 2-, 3-, and 4-wheelers. The company estimates that integrating EVs into its fleet will reduce approximately 15.05 tonnes of CO2 emissions per month.

NITI Aayog estimates that adopting EVs could help India cut logistics costs by 4% of its GDP by 2030. However, while challenges such as limited charging infrastructure

and high upfront investment costs persist for EVs in India, their long-term benefits are becoming increasingly compelling.

"To reduce energy consumption and support our sustainable logistics model, we are integrating electric and CNG vehicles into our fleet." Vishwachetan Nadamani, Ecom Express "In a fast-changing world, GreenLine Mobility Solutions is committed to a sustainable supply chain powered by LNG and EV technologies. By reducing emissions and enhancing energy security, we're setting new standards for reliable, eco-conscious logistics — building a resilient foundation for the future," said Anand Mimani, CEO, GreenLine Mobility Solutions.

Vishwachetan Nadamani, Chief Operating Officer of Ecom Express, a leading provider of technology-enabled logistics solutions for India's retail and e-commerce industry says, "To reduce energy consumption and support our sustainable logistics model, we are also integrating electric and CNG vehicles into our fleet. As of March 2024, we have 175 EVs and CNG vehicles, which helps us reduce our carbon footprint and save on fuel and maintenance costs. This change plays a big part in our goal to create a greener and more sustainable supply chain."

Packaging innovation : The focus on sustainable packaging has intensified as e-commerce volumes surge. Companies are increasingly adopting biodegradable materials and implementing reverse logistics for packaging recovery. From the e-commerce perspective Nadamani of Ecom Express, says, "We're working on eco-friendly packaging to cut down on waste. We focus on materials that can be recycled for plastic seals, canvas bags, and flyers. Plus, we are also working on innovative designs to reduce their size. These steps help us meet the growing demand from customers for green practices while making our logistics network more sustainable overall."

According to Amazon India, replacing thin-film single-use plastic packaging with paper and cardboard-based materials across its India fulfilment network has helped the company avoid 5,300 metric tonnes of plastic packaging over the past three years. Amazon's fulfilment centres in India now ship to customers with reduced or no additional packaging. Building on the momentum of sustainable practices, integrated packaging solutions are also gaining traction across industries. These solutions streamline the packaging process by combining multiple functionalities, such as enhanced product protection, efficient space utilisation, and branding opportunities, into a single package design. A recent blog by TVS Supply Chain Solutions cites a report from the Federation of Indian Chambers of Commerce and Industry (FICCI), highlighting that the Indian packaging industry is projected to reach $205 billion by 2025.

The blog notes that key industries, including fast-moving consumer goods (FMCG), manufacturing, engineering, procurement, and construction (EPC), and pharmaceuticals, are progressively adopting integrated packaging solutions. The integration of technology into packaging is a major game-changer. Smart packaging solutions, like QR codes and NFC technology, enable brands to connect with consumers, offer product information, and enhance the overall customer experience, it mentions.

Warehouse sustainability : Modern warehousing in India is undergoing its green revolution. Solar panels now power multiple fulfilment centres across the country. Advanced warehousing solutions now integrate Internet of Things (IoT) sensors and artificial intelligence to optimise space utilisation, reduce waste, and minimise environmental impact. Companies are implementing rainwater harvesting systems, green building materials, and natural ventilation techniques to create eco-friendly logistics spaces. Intelligent climate control systems use predictive algorithms to manage temperature and humidity, reducing energy consumption while maintaining optimal storage conditions for various goods. Waste management has also become a critical focus, with modern warehouses implementing comprehensive recycling programmes, converting organic waste into compost, and developing closed-loop systems that minimise the overall environmental footprint.

Challenges and future outlook : Despite progress, challenges remain. The high initial cost of sustainable technologies, the fragmented nature of the Indian logistics sector, and infrastructure gaps continue to pose challenges. "One of the key challenges we face at Ecom Express is the infrastructure limitations, especially regarding the availability and accessibility of recyclable materials for packaging. While we have made significant strides with green packaging, switching to eco-friendly alternatives for plastic seals, canvas bags, and flyers, the initial cost of sourcing these materials can be high. Similarly, integrating electric and CNG vehicles into our fleet involves managing maintenance and performance across India's varied climate," says Nadamani of Ecom Express. The path ahead is clear – sustainability in supply chains is not only an environmental necessity but also a key competitive advantage. Government initiatives, such as the Production Linked Incentive (PLI) scheme for electric vehicles and renewable energy, are driving the transition forward. Additionally, the digital transformation in Indian logistics is playing a crucial role in advancing sustainability efforts. Advanced route optimisation algorithms are enabling companies to cut fuel consumption by up to 20%, while IoT sensors and real-time tracking systems are minimising waste through improved inventory management.

Economic benefits of going green : The business case for sustainable supply chains is becoming increasingly clear. According to Wipro, companies can reduce costs by 20-30% by transitioning to a sustainable supply chain. Additionally, sustainable practices are opening doors to international markets where environmental credentials are prerequisites for business partnerships. The potential for creating new revenue streams through innovative sustainable solutions, coupled with government incentives and tax benefits for green investments, makes sustainability a strategic economic opportunity. Sustainable supply chains can create opportunities for new partnerships. The Indian government's National Logistics Policy, launched in 2022, has created frameworks for public-private partnerships in developing green logistics infrastructure.

The journey toward sustainable supply chains in India is gathering momentum, driven by a combination of environmental necessity, economic opportunity, and technological innovation. For India's logistics sector, the path forward is clear – sustainability is not just about being green, it's about being future-ready.

Source: www.itln.in

●●●

TOP 5 E-COMMERCE TRENDS SHAPING INDIA IN 2025

SHASHWAT SWAROOP, FOUNDER, MARMETO

India's e-commerce sector is experiencing an unprecedented boom, driven by widespread internet access, affordable smartphones, and the evolving preferences of a digital-savvy population. By 2025, the Indian e-commerce market is projected to surpass $200 billion, powered by cutting-edge technology, diverse consumer bases, and innovative business models. Here are the top five e-commerce trends set to shape India in 2025:

1. Hyper-Personalization through AI and Data Analytics

Indian consumers are embracing personalization like never before. In 2025, artificial intelligence (AI) and data analytics will play a pivotal role in transforming online shopping experiences. E-commerce platforms will truly leverage AI to analyze consumer behavior, preferences, and spending patterns to deliver tailored product recommendations, dynamic discounts, personalized and localized content.

From AI-driven chatbots offering real-time assistance to curated product bundles based on regional festivals, Indian e-commerce will tap into the vast diversity of its consumers, creating experiences that resonate on an individual level.

2. Video Shopping and Regional Content

Video shopping is poised to become a major force in India's e-commerce ecosystem. Platforms like YouTube and Instagram enable sellers to showcase their products through interactive, real-time streams.

With regional language content driving online engagement, livestream shopping will cater to audiences in Tier II and III cities, bridging the urban-rural divide. Whether it's a beauty influencer demonstrating skincare products or a farmer selling organic produce, video shopping will make e-commerce more engaging and inclusive across the country, especially in low tier cities.

3. Sustainability as a Key Differentiator

India's growing environmental consciousness is influencing e-commerce trends. Consumers, especially millennials and Gen Z, are prioritizing eco-friendly products and practices. E-commerce platforms will incorporate sustainable solutions, such as biodegradable packaging, electric vehicle-powered deliveries, and partnerships with environmentally responsible brands.

The resale and rental economy, particularly for fashion and electronics, will flourish as consumers seek budget-friendly and sustainable options.

4. AR and VR Transforming Online Shopping

Augmented reality (AR) and virtual reality (VR) are set to revolutionize Indian e-commerce, offering immersive shopping experiences. From virtual try-ons for apparel, jewelry, and cosmetics to 3D product demos for furniture and home appliances, AR and VR will give consumers a more tangible feel for online purchases.

With the rise of tech adoption in rural India, these innovations will make online shopping accessible and trustworthy for first-time buyers. Indian retailers, especially in the fashion and home décor sectors, will capitalize on AR/VR to enhance consumer confidence and reduce return rates.

5. Faster Deliveries with Localized Logistics

India's vast geography and dense population have always posed logistical challenges. By 2025, advancements in supply chain infrastructure and technology will ensure faster, smarter deliveries. Hyperlocal delivery networks powered by startups like Blinkit, Swiggy or Zepto will redefine last-mile connectivity.

E-commerce platforms will expand their reach into remote regions with micro-fulfillment centers and partnerships with India Post. Options like same-day and one-hour delivery will become more common, even in Tier III and IV cities, enhancing convenience and accessibility.

India's e-commerce industry in 2025 will be a vibrant blend of technology, inclusivity, and sustainability. From hyper-personalized shopping experiences to AR-powered trials and faster, eco-friendly deliveries, the sector will cater to the evolving needs of India's diverse population. Businesses that adapt to these trends and invest in localized solutions will be at the forefront of India's e-commerce revolution, paving the way for a future where online shopping is seamless, sustainable, and accessible to all.

Source: Indian Retailer

●●●

HOW TO MANAGE MANPOWER MANAGEMENT & PLANNING IN A STRATEGIC WAY?

For any business, inventory is the biggest expense. But the second biggest expense is the workforce, and efficient management of people is more difficult than managing the inventory and products. Especially manpower management and planning for warehouse and logistics systems can get tricky and challenging. The workforce takes up about 50-70% of the warehouse budget. It should be a top priority for people to manage the workforce efficiently to make the best of the capital spent on it and get the highest returns. So today, we'll talk about some tips on managing manpower and planning things in a rather strategic way.

1. Be Diligent in Hiring the Right People

Some companies take this part more seriously than others, and the ones who do, have positive results to show for it. This is the single most productive way to increase turnover and improve efficiency. At every level, you need workers that are dedicated and care about their job. One good rule to focus on is hiring on the basis of attitude and not skills. There are plenty of skilled people on the job market, but the people with the right attitude will care enough about their job to be their best versions, no matter what the challenges are. These are the kinds of people who will take your company to new heights.

2. Be Mindful of Developing Better DC Managers and Supervisors

Your distribution centres have a high monopoly in terms of impact. Inside these distribution centres, there is a disproportionate impact that the supervisors and managers have on the productivity of distribution centres. Associates are happier when you have a manager who is good at his job. For the logistics workforce, these mid-level managers are who represent your company. So for the workers to be invested in their job, you must take your time and hire good managers and supervisors with great communication and management skills.

3. Prioritizing Workforce Retention

Workforce retention is necessary, especially in the logistics department. The more time your workers spend repeating your processes, the more they get adjusted to it. When associates keep rotating in and out of the company, a lot of resources, time, and capital is spent in training new people and replenishing the roles of the old workers. It could take some time to get new workers trained and effective at par with the productivity levels of old experienced workers. Thus, strategies and plans must be put in place to prioritize workforce retention.

4. Promotions from Within the Company

The thing about the logistics business is that it is very customized to every single company. Companies tend to look at outside hires whenever new upper management or mid-management positions open up and look for professionals with years of experience and impressive resumes. But it is always a better option to promote a lower-level worker who has been with the company for several years to that position. There should be programs in place to nurture your workforce to grow and take on more responsibility if needed. If nothing else, they'll be better at their job.

5. Measurement of Individual Productivity

Data can never be a bad thing, especially if it is organized well and actionable. One such metric is productivity percentage which can be tracked using many software systems. Using this data, you can create an air of strictness without any strict actions, where workers will always keep a constant check on their performance. Doing this encourages everyone to perform better because they know that there will be statistics involved in their performance reviews. On the other side of the coin, companies can have a more detailed look at what holes to plug and which area needs more attention to improve productivity.

Source: www.arkindia.co.in

●●●

SUPPLY CHAIN TECHNOLOGY IN 2025: ADVANCEMENTS, BENEFITS AND CHALLENGES AHEAD

ALEXIS MIZELL-PLEASANT
ENANUCHIT/STOCK.ADOBE.COM

In 2025, organizations that embrace these advancements while safeguarding their networks will lead the way towards supply chain excellence.

As we step into 2025, supply chain technology continues to be a dynamic and critical resource for shaping global commerce. Advancements in AI, Internet of Things (IoT), blockchain and automation have redefined how goods are sourced, transported and delivered. On the precipice of a new year, the state of supply chain technology brings along anticipated advancements, the power of visibility and the persistence of cybersecurity challenges that need urgent attention.

Advancements on the Horizon : Next year promises transformative advancements in supply chain technology from AI to track and trace. AI and ML are expected to take predictive analytics to new heights. Mike Kreider, chief information officer at DHL Supply Chain, says considering the growth of AI in the supply chain, expect major developments within the next five years. This will have a powerful impact on customer-centric business approaches for logistics companies, as use cases are identified across a multitude of workflow processes at all transactional levels.

In the future, Michael Hung, CEO at TradeBeyond, says it's clear that AI will play an even greater role, and as these systems become more sophisticated, they will not only help identify and mitigate risks but also adjust operations dynamically to align with sustainability standards and market demands.

According to Jared Green, director of global sales, automation & emerging technologies, at Crown, some of the most significant technological advancements currently shaping the supply chain industry include operator assist technology, real time location systems and enhanced telematics solutions. These technologies can be powerful tools on their own, explains Green, but as more providers collaborate with customers to integrate these data streams into their existing business systems, the value generated could grow exponentially.

With the Internet of things (IoT) now almost everywhere it gives access to real time data in order to know exactly where goods and assets are in the supply chain. And it's based on that large source of data, Jean-Luc Rominger, VP of engineering at QAD explains, but also the capacity of monitoring and seeing the details in advanced analytics dashboards allowing to-down exploration it gives a good view of what the current state is; more importantly with ML capabilities, it's now possible to predict and/or evaluate multiple possible scenario based on multiple criteria and a given level of uncertainty.

"This is pointing out 3 significant technologies but when it comes to highlight the most significant one, I would rather say it's the capabilities of cloud computing, making now all this possible and not only for big players but to each and every company and this is a game changer as it will emphasis emerging new players and more innovation in the supply chain industry," says Rominger. "Enhanced algorithms will provide more accurate demand forecasting, inventory management and route optimization. These tools will help companies reduce waste, manage costs and improve customer satisfaction by preempting market fluctuations."

Today's robotics aren't the Jetsons of yesteryear. Ben Lee, VP of integrated systems sales at Swisslog, says in the supply chain, automated robotic solutions and software technology support market growth and provide greater control and visibility of the whole supply chain, while also offering a more robust, dependable solution— in which the end users can more confidently base their business objectives, quality control and capacity plans. In addition, automated solutions lower operational costs and increase the speed and efficiency of distribution supply chains.

"One of the things we will continue to see is software playing an increasing role in maximizing productivity of robotics. Robotic systems will no longer be optimized mechanically, but rather with software. For instance, the physical speed of robots is nearly at its maximum. For further gains to be made, it now becomes about optimization through the use of software that incorporates AI learning and helps facilitate a more effective use of data," explains Lee.

Blockchain adoption is likely to grow as companies recognize its potential for secure, transparent record-keeping. Enhanced blockchain networks will allow end-

to-end traceability, offering stakeholders confidence in the authenticity of products, from raw materials to final delivery.

"Blockchain technology exists today and is applicable to many segments along a supply chain, although not necessarily to the same degree. To maximize the benefit and utility of blockchain, however, companies need the right data and thus various methods of data collection. This requires coordination and collaboration among many players in the typically highly diverse supply chain ecosystem. Therefore, the small number of blockchain implementations of today are likely to need several more years before they mature to meaningful, comprehensive integration within the end-to-end supply chain," says Kreider.

Implementation Strategies and Benefits : Where technology ends and implementation begins, there are several strategies to getting innovation to work for you. Finding where the most logical application makes sense can sometimes be the determining faction in which solution works, and which doesn't. For example, Lee says, AI in the warehouse makes for more dynamic, more agile and more responsive spaces. It is enabling robotics to self-learn from experience, which means that robotic picking ability improves over time with enhanced picking strategies for new products.

As we delve into AI, a new emerging space for supply chain use comes in the form of Generative AI. With Generative AI, Kreider explains, there's been an expansion in applications that are automating certain back-office processes, as well as supporting operational processes.

"These can range from streamlining IT helpdesk requests, automating simple HR inquiries, or generating translations. In addition, we believe there will be a steep increase in adopting sandboxed environments in which companies can use generative AI tools to try new ideas and initiatives," says Kreider. For example, DHL has developed its own GenAI Hub to test out automating certain processes, developing content and generating information, all with a product funnel approach that includes a pilot period. Two of the use cases in this funnel include:

- A GenAI application for business development that provides insight by enabling faster analysis of a customer's requirements. With GenAI handling the data, business development colleagues can focus on the customer's challenges. This allows the business development team to quickly create more accurate and personalized proposals.
- A GenAI application for solutions design provides colleagues a data cleansing tool. With GenAI quickly cleansing and sorting the data, solutions design colleagues are able to respond faster and with more enhanced solutions.

Integration really becomes pertinent within these high-impact areas where AI can replace repetitive manual processes.

"Multi-enterprise platforms serve as central hubs that allow seamless data exchange between departments, suppliers and logistics partners. By consolidating data on these platforms, companies can access real-time information, allowing them to make quicker, more informed decisions and ensuring alignment across the supply chain," says Hung.

The two main ways for companies to integrate emerging technologies Rominger describes as these: 1. They either they rely on third parties such as SaaS Software providers having these capabilities already enabled in their solutions or 2. With the easier access to native cloud services, they are able to build the solution suiting the best to their specific requirements.

"In both cases the promise is to get more control on their supply chain and a better visibility driving costs down. In my role, with my experience and interaction with customers I can only give tangible benefits in a context of going through third parties SaaS Software," explains Rominger. "What we see mainly is improvement of the service level coupled with a reduction of the inventory and possible scraps. They benefit from a short-term return on investment with low risks around change management or possible failing projects."

Powerful Visibility and Transparency : Ultimately, companies that successfully integrate AI are seeing faster response times to market changes, improved compliance and enhanced ability to forecast and plan accurately, according to Hung. Traceability solutions offer an automated chain of custody that helps businesses verify product origins and compliance standards. This saves time on audits and gives companies a reliable, transparent way to track products from origin to destination, supporting both operational efficiency and sustainability goals.

In 2025, supply chain visibility will remain a top priority. Organizations are deploying many of these technologies for this specific use including IoT sensors, blockchain and AI to provide real-time insights into every link of the supply chain.

"Blockchains, paired with logged records from sensors, provide greater visibility of products as a trusted, immutable ledger. Supply chain professionals and customers can access a blockchain ledger with an

interface from which they can see each product's shipment status and accurately confirm product attributes, such as whether it was locally produced, organically grown, or received certifications," says Kreider. "Additionally, using blockchain technology, companies can quickly identify points of unauthorized removal or the insertion of products, helping to investigate theft, fraud and counterfeiting. Finally, with hundreds of international trade laws and regulations, a blockchain-supported level of transparency enables supply chain organizations to ensure supplier and distributor compliance."

Transparency strengthens relationships with partners and customers, allowing businesses to stand out in an increasingly ethical consumer market. It also ensures compliance with regulatory standards, such as environmental, social and governance (ESG) requirements.

ESG innovations are also reshaping how companies approach social and environmental responsibility. As Hung explains, tools that map and assess environmental and social impacts throughout the supply chain are helping organizations ensure they meet their ESG goals more effectively. In an example, TradeBeyond's AI-powered chain-of-custody solution helps companies validate and track product origins through each stage in the supply chain. Solutions like these aid in regulatory compliance but also allows for more efficient documentation, which builds trust and transparency with consumers who demand sustainably produced goods.

"Implementation of new technology often creates a need for more visibility and transparency. Specifically, if customers are working on continuous improvement initiatives or deploying new technology, a deep understanding of the operations and supporting processes is required to ensure success. Wireless fleet and operator management systems, like those by Crown, have continued to evolve to capture and better manage this information. Technology providers are beginning to utilize simulation and advanced reporting tools to help guide customers through their technology journey," explains Green.

Threats of Cybersecurity

While technology is revolutionizing the supply chain, it also introduces vulnerabilities. Cyberattacks on supply chains have grown in frequency and sophistication in 2024, targeting weak links in the network to disrupt operations.

Rominger says first and foremost the single sign on (SSO) authentication based on modern multi-factors used to connect to software and system allows to secure and identify each and every connection— that's crucial. Then, the security level of the software and infrastructure used behind the scenes should be protected and monitored by best of class dedicated third party systems (updated real time), and combined with a least privilege access layer policy in place.

"It's also important to have external evaluations with different kinds of certifications confirming the good practices in place but also identifying possible improvements in a constantly changing world. Data privacy protocol, encryption in transit and at rest is another standard practice adding safety. When it comes to AI and very important additional factor is to ensure that anything sensitive either in the questions asked to Generative AI for instance will stay in a kind of private space and not be used to enlarge the public knowledge that can then be reused outside of the expected landscape of use," says Rominger.

Today, companies are using AI and ML to identify the unusual patterns and anomalies that indicate potential cyberattack. Kreider says in order to mitigate damage, these technologies can quickly adapt to new threats and automate response actions. Companies can also use behavioral analytics to monitor user and network behavior, detecting the deviations from normal activity that signal potential security breaches.

"Quantum computing can also provide an extra layer of digital privacy and security to counteract hacking. For example, quantum mechanics principles can be used to create almost unbreakable cryptographic keys and ensure secure communication channels are resistant to quantum attacks. Quantum computing can accelerate ML algorithms used for anomaly detection, pattern recognition, and real-time threat analysis. In addition, quantum computers can simulate complex cybersecurity scenarios and potential threats more accurately and rapidly, helping companies achieve proactive defense strategies," says Kreider.

Supply chain technology in 2025 will be even more intelligent, interconnected and efficient than we've seen. However, success will require not only the adoption of the right cutting-edge solutions for you but also a commitment to visibility and transparency to mitigate cybersecurity woes. Organizations that embrace these advancements while safeguarding their networks will lead the way towards supply chain excellence.

Source: www.sdcexec.com

●●●

NEW REPORT SAYS SUPPLY CHAINS MUST EMBRACE AI NOW, OR BE LEFT IN THE DUST

ROBERT J. BOWMA

The progress of supply chains in adopting artificial intelligence varies widely. So does the return on investment. But according to one recent study, there's one strategy that guarantees failure: doing nothing.

"In every era of transformative change, there are early adopters and fast followers," says the report, "The Ultimate Guide to AI ROI," from research firm Zero100. "And the chasm between those who act fast on AI and those who wait and see will be one of the greatest of our generation."

Failure to move forward with an AI adoption strategy is "catastrophic," the report adds, quoting a tech executive who spoke with Zero100 during its preparation.

AI's long-term impact promises to be nothing short of revolutionary. "The global supply chains of tomorrow will be AI-empowered and fully digitized from end-to-end — a complete convergence of supply chain and IT that will fundamentally change the nature of supply chain work," says Kevin O'Marah, co-founder and chief research officer with Zero100.

That said, business leaders' commitment to adopting AI to date has been anything but consistent. Around 90% of large businesses have experimented with AI in their supply chains, the report says, and 29% say it's an area for "heavy investment" over the next three years.

At the same time, just one-third of executives have a "strategic vision" for integrating AI and machine learning into supply chain functions, according to an Zero100 analysis of company earnings calls. And only a quarter of leaders are seeing "tangible returns" so far.

One could argue that the arrival of every transformative technology entails a certain amount of stumbles, wrong turns and dead ends. In the case of AI, business leaders are still struggling to puzzle out where in the supply chain it can deliver the best value in the immediate term.

To a certain degree, they're emboldened by early successes in what can be termed "classical AI" — the application of mathematical algorithms derived from human-made rules. But that kind of AI has progressed in fits and starts over the decades, gradually taking hold in the business word. Only in the last year or so, with the emergence on the scene of generative AI and large language models — as embodied in such tools as ChatGPT — has the technology's full promise become clear.

Early adopters may have been overly enthusiastic about AI's short-term potential. O'Marah cites a "hype component" affecting business leaders who anticipated big productivity gains that were slow to materialize. Spurred by some early successes in limited applications of AI, "their excitement was a little bit ahead of what's currently working," he says.

That's no reason to doubt the true potential of AI, he says. The system's underlying dynamic is that it learns by doing. Every new iteration, therefore, is an improvement over what came before. When he worked for Amazon.com, O'Marah recalls, he was witness to "a constantly improving set of tools for allowing delivery vans to follow an optimal route."

AI is also rapidly getting better in performing such key functions as truck load building and answering questions about transportation execution based on an ever-growing storehouse of experience, O'Marah says. "These proven methods of using traditional reinforcement learning in a machine-learning capacity are working. And have been working for a while."

AI today can mine a treasure trove of content from social media — far more than any human could ever process — to anticipate supply chain disruptions such as strikes, port closures and natural disasters, O'Marah notes.

With the ultimate value to the supply chain of AI and machine learning not in serious dispute, the question becomes: How can it be adopted it in a way that realizes the fastest possible ROI?

Zero100's report is intended as a playbook for achieving that end. Like any good consultant, the firm recommends that companies begin their journey by defining what outcome is driving their AI investment, and what they hope to achieve with the technology in the end.

"Are you aiming to leapfrog competitors, revolutionizing your supply chain with bold moves?" the report's authors ask. "Or do you seek incremental innovation, nudging the edges of existing processes?... Clarity here will guide the scope of your AI investments."

O'Marah says it's important at the outset to establish a dedicated AI team within the supply chain organization, then collaborate with functional users of the technology. In that way, he says, they can draw on the wisdom of "citizen technologists," using their invaluable experience to transition from planning to real-life application of the desired tools.

Developers can adopt "small language models" to address specific problems to be solved — for example, minimizing risk in the purchase of a particular material. Simultaneously, users need to begin training the generative AI model on the fundamentals of their operation. At a certain point, the model becomes sufficiently powerful to exceed the ability of humans to make complex decisions. "Once it's there," O'Marah says, "it's massively scalable."

Certain instances of GenAI have garnered skepticism in recent months by outputting demonstrably false information, or "hallucinating" absurd scenarios. (Nobody followed the recommendation of Google AI to put glue on pizza.) O'Marah says such glitches are to be expected as the model learns and adjusts to the real world. "Until you've debugged it, you're going to run the risk of getting weird faulty statements."

None of which should dissuade companies from progressing with AI adoption, provided that they do so in a measured way that couples a frank assessment of their current state with a long-term vision.

For all its dazzling allure, AI will never function effectively in a supply chain setting without full attention to the human element — leading to what the Zero100 report terms "an AI talent dash."

"Supply chain leaders need an AI-literate workforce, which means ramping up hiring and upskilling for critical AI and machine-learning skills," report says.

Source: www.supplychainbrain.com

●●●

SUPPLIER DIVERSIFICATION, AI READINESS, AND CIRCULARITY TOP SUPPLY CHAIN PRIORITIES FOR 2025

Supply chains are evolving rapidly in 2025 as businesses prioritize resilience, sustainability, and AI-driven innovation to navigate ongoing global disruptions and customer demands.

Lilian Bories,chief marketing officer for TradeBeyond, a provider of retail SaaS supply chain solutions.

One effect of the global pandemic was the elevation of supply chain management from a back-office business function to a C-level strategic priority. As we approach 2025, all indicators suggest that for most industries, including retail, optimizing the supply chain to meet the needs of a post-pandemic world is more than ever a priority.

To stay competitive, businesses can no longer rely solely on past supply chain measures such as cost reduction, inventory minimization, and service improvements. A recent Bain & Company survey of CEO priorities highlights the need for leaders to balance traditional supply chain priorities with newer ones, such as increasing resilience, improving sustainability and responsiveness to customer expectations.

Based on extensive industry research and discussions with our customers and the broader retail community, TradeBeyond's new "Retail Sourcing Report: 2025 Supply Chain Trends" highlights the concerns and priorities that are most top of mind for supply chain leaders going into 2025. These include diversifying and derisking global sourcing and manufacturing, preparing for the long-awaited broad adoption of AI in supply chain operations, and advancing sustainability initiatives beyond compliance.

Diversification and derisking

Ongoing disruption to supply chains is now the norm rather than the exception. In the coming year, we can expect to see similar hiccups in supply chains due to trade wars between regional economic blocs, ongoing conflict in the Middle East and Eastern Europe, and extreme weather—to name a few. Close to half (47%) of global supply chain executives recently surveyed by KPMG, see their business as vulnerable to disruption.

Leading companies in this new normal are focused on resilience, supported by flexibility in their operations, enabling them to quickly respond to potential disruptions. To ensure business continuity, companies will need to make a real-time cost/risk assessment—sometimes accepting higher costs.

Many companies will continue to focus on diversifying their supply chains in the coming year. This might take the form of avoiding reliance on a single supplier, factory, or region. Depending on the product and market, this could also mean shifting manufacturing domestically (onshoring) or closer to the market (nearshoring). Despite the obvious upstream/downstream benefits of manufacturing in China, Vietnam or Mexico, companies will need to keep adapting to the evolving geopolitical environment.

No question, the recent U.S. election will have further implications on global supply chains, with escalation in trade wars and significant tariffs likely. This is just one more implication of the post-globalization era.

AI: Beyond the fundamentals

AI is laying the foundation for dramatic transformation across global supply chains. As industries increasingly turn to digital solutions, AI technologies are poised to drive significant economic value for retail sourcing and supply chain operations. From improving traceability and risk management to automating time-consuming processes, 2025 is set to be a pivotal year for AI adoption.

Core AI technologies such as machine learning and advanced analytics, are ready for widespread implementation. Many companies are leveraging these tools for "level 1" applications, including AI-powered quality risk management and chain-of-custody tools. These technologies have enhanced supply chain visibility, ensured regulatory compliance, and reduced manual effort, marking significant progress in operational efficiency and sustainability. Jeff Alpert, founder and CEO of Pillar AI, notes, "The ability to monitor and analyze supply chains in real time has already unlocked considerable value for forward-thinking organizations."

While these foundational applications are adding measurable impact, that's only the surface of AI's potential in supply chains. Within the next year or two, AI is on track to make deeper inroads into complex supply chain functions, such as probabilistic demand planning, advanced risk assessment, and predictive ESG performance analysis. These "level 2" applications will help businesses not only respond to challenges but anticipate and mitigate them with unparalleled accuracy.

To unlock the full value of AI, organizations must focus on building robust data ecosystems. By centralizing proprietary and external supply chain data in accessible platforms, businesses can empower AI to deliver transformative insights. A well-prepared data foundation enables AI tools to generate breakthroughs in speed, precision, and agility—transforming supply chains into engines of innovation and competitive advantage.

Sustainability is growing up

Over the last few years, most businesses have been heavily focused on sustainability, both from a marketing perspective and to meet an ever-growing body of compliance requirements. In the initial stages of the sustainability movement in the apparel sector, retailers and brands could make unsupported ESG-related claims about material content and origin, emissions and other ESG-related criteria, but those days are ending.

Today, across the globe, rigorous standards are in play to enforce green claims and limit greenwashing. This includes top-down standards governing transparency, traceability, and other areas of ESG compliance. TradeBeyond has produced several reports this year which cover retail supply chain sustainability trends and traceability in greater detail.

In 2025, we expect to see a greater focus on a more mature approach to sustainability, such as building circularity into the business ethos. Increasingly we are seeing leading retailers and brands taking a step back and re-evaluating their business models, building sustainability and circularity into their core, much like brands such as Patagonia and others have done since inception.

Circularity in the retail supply chain refers to a shift away from the traditional linear retail model. Rather than selling new products at increasing speeds, only for them to end up in landfills within a year or two, circularity aims to create a value chain that slows and closes the material loop. While fast-fashion is unlikely to go away anytime soon, there is a nascent trend toward what some call "slow-fashion," which considers the impact of a product in the broader context of people and planet.

Other indicative trends which point to evolution in the sustainability movement include the growth in the resale of secondhand clothing. The global secondhand clothing market is forecast to reach $350 billion by 2027, up from $43 billion in 2023, ThredUp reported. A wide range of brands, including REI, H&M, Carhartt and others now have resale models in place.

Much like AI, the will and the need for circularity exist, as does the supporting technology and systems, but retailers and brands must play catch-up. For example, FibreTrace, a technology that provides digital transparency into the lifecycle of apparel and other products can track a piece of apparel from the material origin to the product's end-of-life, either in a landfill or through recycling.

The above is only a brief overview of the many exciting trends we are observing across both the front-end and back-end of retail. We cover more of these in greater detail in TradeBeyond's "Retail Sourcing Report: 2025 Supply Chain Trends Report."

Source: www.supplychain247.com

●●●

WTO UPDATE
WTO AGREEMENT ON GOVERNMENT PROCUREMENT, AN INSPIRATION FOR THE WTO AS A WHOLE — DG

Opening an event on 9 October marking 10 years since the entry into force of the Agreement on Government Procurement (2012), Director-General Ngozi Okonjo-Iweala said: "The GPA 2012 introduces trade as a booster for public procurement systems. It fosters greater transparency and accountability in procurement systems and is as much a good governance agreement as it is about market access." The chair of the Committee on Government Procurement, Martin Zbinden, presided over the event.

The panels brought together key negotiators of the Agreement on Government Procurement (GPA), representatives from current GPA parties and external stakeholders, who highlighted the key role the Agreement plays in broadening international market access for public procurement, promoting sustainability and strengthening good governance. "This is the first WTO agreement to impose a specific obligation on its signatories to prevent corrupt practices," DG Okonjo-Iweala stressed.

Outlining the benefits of the GPA 2012 for governments and citizens, DG Okonjo-Iweala said: "At the WTO, delivering results that improve people's lives and livelihoods is the top priority. ... Opening up public tenders to potential suppliers from other GPA parties means that governments can get better-quality goods and services at more competitive prices. And delivering better and more affordable public services improves people's lives."

Panelists also discussed how to harness the benefits of the GPA 2012 for the future. This includes optimizing the use of provisions of the Agreement to support innovative practices and sustainability efforts by the parties. Also under discussion was the use of data on current and upcoming government procurement opportunities to enhance competition, achieve greater value for money and comply with the GPA requirement to provide statistics on contracts covered by the GPA 2012.

The initial version of the Agreement — known as the "GPA 1994" — was amended in March 2012 to enhance transparency in procurement practices, improve transitional measures for developing economies and introduce provisions related to the use of e-procurement tools. With the addition of more government entities (ministries and agencies), new services and other areas of government procurement activities, the value of parties' market access commitments increased by an estimated USD 80-100 billion annually. Altogether, the value of the procurement activities covered by the Agreement is currently estimated to be worth over USD 1.7 trillion per year.

Reflecting on the evolution and renegotiation of the GPA over time, DG Okonjo-Iweala said: "The GPA 2012 is an inspiration for the WTO as a whole. It is an example we should bear in mind as we work to make the entirety of the WTO rulebook fit for purpose to meet the needs of the 21st century."

The GPA 2012 currently has 22 parties covering 49 WTO members — the European Union and its 27 member states count as one party.

Government procurement committee approves best practices regarding SMEs, welcomes observer

At a meeting of the Committee on Government Procurement on 9 October, parties to the Government Procurement Agreement (GPA) approved a compilation of best practices aimed at supporting the participation of small and medium-sized enterprises (SMEs) in government procurement opportunities. Parties also welcomed Timor-Leste's first participation in the Committee as an observer and the progress made in the negotiation processes of Costa Rica and Albania.

Improving SME participation in government procurement : The Committee agreed on a compilation of best practices related to measures and policies that WTO members — including non-GPA parties — can use to support the participation of SMEs in government procurement procedures. The chair of the Committee on Government Procurement, Martin Zbinden, said: "This outcome on SMEs is significant. It reflects the efforts that GPA parties have undertaken over the past ten years in the context of the Committee's Work Programme on SMEs."

Easier updates to GPA party-specific information contained in the GPA 2012 : Parties also reached an agreement that makes it easier for parties to update information submitted to the Committee on their laws and regulations on government procurement, procurement statistics, and procurement procedures in which suppliers from GPA parties may participate.

The GPA 2012 has 22 parties (covering 49 WTO members, counting the European Union and its 27 member states as one party). While it is open to all WTO members, it is binding only for those members that have joined it.

New observer and accessions to GPA 2012 : Timor-Leste — after joining the WTO on 30 August — participated in a GPA meeting for the first time since it became an observer to the Committee on 27 September. As part of its accession to the WTO, Timor-Leste committed to joining the Committee as an observer and to submitting its application for GPA membership with a coverage offer within one year after acceding to the WTO.

Timor-Leste's WTO Ambassador Lurdes Bessa said: "This is an important step for Timor-Leste, not only as part of our WTO accession process but also as a testament to our commitment to international economic integration and the establishment of sound procurement practices. ... We firmly believe that participation in the GPA can be a transformative step, providing an opportunity to strengthen governance frameworks, promote private sector development and help protect against monopolistic practices and reduced competition."

Further progress was achieved on the accession negotiations of Albania and Costa Rica, with parties welcoming the new documents submitted by the two countries.

After an initial market access offer circulated in May, Albania submitted in July revised replies to a checklist of issues regarding its government procurement legislation. Albania stressed that it is strongly committed to acceding to GPA 2012 as soon as practicable.

Costa Rica reiterated its strong commitment to acceding to the GPA 2012. GPA parties welcomed the revised market access offer it presented in September.

The meeting also provided an opportunity to exchange information on the GPA accession negotiations of China, Kazakhstan, the Kyrgyz Republic and Tajikistan.

Background

The GPA 2012 aims to open up government procurement markets to foreign competition in a reciprocal manner and to the extent agreed between GPA parties. It also aims to make government procurement more transparent and to promote good governance.

Reciprocal market opening assists GPA parties in purchasing goods and services that offer the best value for their money. The Agreement provides legal guarantees of non-discrimination for the goods, services and suppliers of GPA parties in covered procurement activities, which are worth an estimated USD 1.7 trillion annually. Government procurement typically accounts for about 15 per cent of developed and developing economies' GDP.

Source: WTO website

●●●

TRANSFORMATIVE, BUT SLOWER ADOPTION AHEAD FOR GEN AI

Deloitte, Gartner both find adoption of Gen AI is taking its time to ramp up

BRIAN STRAIGHT

While Gartner is anticipating a rapid shift toward mainstream adoption for Generative AI within procurement over the next two years, a recent report from Deloitte suggest it is not here yet across the broader supply chain ecosystem.

Deloitte's report, "Gen AI transforming transportation: Lessons from the frontier of an emerging technology," found that while nearly all transportation executives (99%) expect the technology to transform their industry, only one in five surveyed companies have matured their GenAI efforts to broad implementation. Additionally, 71% of the 200-plus executives surveyed expect the transformation to take more than three years, which Deloitte noted is slower than most other industries.

Within transportation, asset management, route optimization and warehouse operations are seeing the highest adoption rate so far, but most implementations are limited to date. However, those companies are reporting "extremely high" or "high economic" value in their use cases.

The survey, completed in July of this year, found that companies looking at more qualitative goals reported higher success rates. Conversely, companies looking for "financial-oriented benefits" such as improved efficiency and reduced costs are lagging behind.

Among survey respondents, the most common use cases for Gen AI are to improve traceability (75%), enable dynamic supply chain decisions (74%) and enhanced inventory efficiency (67%). Risk management (39%) and governance (33%) are

among the largest barriers to Gen AI adoption in transportation.

Of the biggest concern, though, is data, with 40% citing misuse of data as the biggest Gen AI-associated risk.

"While it can still be considered early days in gen AI adoption, this technology has the potential to move quickly from novelty to necessity. Leaders will increasingly expect return on their Gen AI investments. Understanding where success is emerging and which challenges appear most frequently, and learning how the savviest are navigating, can help chart a course to effective adoption, and to the leading edge of the coming industry transformation," Deloitte wrote in its report.

Within supply chain as a whole, 18% of respondents said they have at least broad implementation of Gen AI, while 57% more said there is at least one limited implementation ongoing. Another 16% have a pilot project in the works.

The survey results are not that dissimilar from other surveys. While there is intense interest in implementing Gen AI, and widespread agreement on its potential impact, many companies are moving slowly with projects.

IT excited, others not as much

Another survey from Gartner around the same time found that while IT departments are excited about Gen AI, business-led roles are less enthusiastic about it, with only 12% of business-focused roles indicating GenAI was the top priority, compared to 28% of IT roles. The data may indicate that GenAI use cases are currently perceived as less tangible and directly tied to core supply chain processes, Gartner noted.

Specifically, prioritization of AI (including machine learning) in general lagged in Western European companies, with just 14% of respondents citing it as a top priority. Conversely, 26% of North American leaders said it was.

"While enthusiasm for both traditional AI and GenAI remain high on an absolute level within supply chain, the prioritization varies greatly between different roles, geographies and industries" said Michael Dominy, VP analyst in Gartner's Supply Chain practice. "European respondents were more likely to prioritize technologies that align with Industry 4.0 objectives, such as smart manufacturing. In addition to region differences, certain industries prioritize specific use cases, such as robotics or machine learning, which are currently viewed as more pragmatic investments than GenAI."

Gartner noted that regions where manufacturing was a larger portion of the business environment tended to favor robots over AI or Gen AI. For instance, 14% of western European companies noted robots in manufacturing as their top priority while just 1% of their North American counterparts said robots was a top priority.

"The variation in regional priorities has implications for those devising supply chain technology roadmaps," said Dominy. "Companies that have supply chains and operations in multiple geographies might find it more beneficial to invest in digital technologies differently by region versus more common approaches which tend to be by function."

Gen AI use cases expand

With that said, use cases continue to grow.

The past year has seen the number of Gen AI use cases expand, with additional capabilities being added by vendors across the sourcing and procurement landscape, Gartner noted. These include contract management, sourcing and supplier management with additional expected use cases to include supporting supplier performance management, P2P and analytics.

"The window for building competitive advantage through early adoption of Gen AI in procurement is narrowing," said Kaitlynn Sommers, senior director analyst with Gartner's Supply Chain Practice. "Despite this, procurement technology leaders should remain aware of the obstacles to successful implementations, notably in the areas of data quality and integration of GenAI with their current systems."

Sommers added that companies should look to launch "targeted use-case pilots" that can help clarify what capabilities are scalable. Also, monitor developments in the market and look for opportunities to leverage Gen AI without the need to build proprietary infrastructure.

Source:SCMR

●●●

SUSTAINABLE SUPPLY: ZERO-WASTE STRATEGIES AND RENEWABLE ENERGY TRANSFORMING LOGISTICS IN INDIA

The logistics supply chain in India has undergone significant transformations in recent years. The rise in demand has highlighted the need for initiatives to enhance operational efficiency. Of late, the adoption of sustainable practices has gained momentum, aligning with net zero targets. Industry players are integrating electric vehicles (EVs) for transportation and last-mile deliveries, utilising green sources of energy to power warehouses, optimising fleet routes and adopting zero-waste strategies, among other measures. The use of technology has further improved operational efficiency, thereby delivering an overall positive outcome.

Government initiatives : The government has stepped up efforts to promote sustainability in logistics by leveraging digitalisation and automation. The PM Gati Shakti National Master Plan (NMP), which facilitates multi modal connectivity, is also aligned with this objective, aiming to drive sustainable economic activity. Further, initiatives such as the National Logistics Policy, 2022 and platforms such as the Unified Logistics Interface Platform and Logistics Data Bank promote the adoption of digital technology to track and monitor logistics movements.

The government has also introduced several initiatives to promote cleaner mobility and fleet electrification. The environmental concerns associated with road freight transportation have led to the identification of more efficient modes of transportation for certain commodities. The integration of rail transportation, for example, is expected to result in lower emissions. In line with the government's decarbonisation efforts, the Coal Logistics Plan was launched in February 2024 with the aim to modernise coal transportation. A railways based system has been proposed for first-mile connectivity projects. This initiative aims to reduce rail logistics costs by 14 per cent, reduce air pollution and cut carbon emissions by 100,000 tonnes annually.

Further, the National Rail Plan targets increasing the share of freight traffic by rail to 45 per cent by 2030. A dedicated freight corridor (DFC) will help increase this share, with expected benefits such as lower energy consumption rates.

Adoption of cleaner fleet : The transportation of commodities is a crucial component of the logistics supply chain. The success of e-commerce has increased the need for fast and efficient mobility, and direct delivery to the end customers. The surge, coupled with the sector's significant carbon footprint, has driven the demand for more energy-efficient fleets with lower emissions. The adoption of greener fuels and EVs for goods movements aligns with the overall net zero goals while also helping reduce logistics costs. Additionally, liquefied natural gas (LNG) is being increasingly used for the commodity transportation fleet.

EVs have gained prominence in the logistics segment, with e-commerce players leading the transition. Ikea, for instance, is taking measures to increase the use of EVs for deliveries across the country, aiming for 100 per cent EVs for logistics by 2025, with their current share already at 88-90 per cent.

Several other companies have also initiated efforts to decarbonise the fleets. In June 2024, Magenta Mobility, committed to greening its logistics operations in Bhiwandi, launched Project 302. It features a new office and EV charging depot, where EVs would be operated under a hub-and-spoke model. The company has also partnered with other organisations for fleet deployment. Magenta Mobility and Kuehne + Nagel (K+N) have formed a partnership to decarbonise road freight in India by deploying sustainable electric mobility solutions and EVs. Magenta Mobility plans to deploy 10,000 EVs by September 2025 while K+N targets 60 per cent low-emission vehicles in its fleet by 2030.

Zevo India is also making headway in this space by offering sustainable transportation solutions and advanced technologies. The company aims to power 50 per cent of its facilities through solar energy. It also plans to introduce temperature-controlled refrigerated delivery EVs. Meanwhile, Bajaj Auto has signed an MoU to supply 1,000 advanced three-wheeler EVs to Flipkart over the next two years.

Green warehousing initiatives : The rapid growth of the e-commerce segment and positive initiatives promoting manufacturing have driven the demand for warehousing in the country. In response to this, existing warehouses are gearing up for expansions, and new facilities are being constructed to meet this demand. To support this growth, warehouses, known for their high energy consumption, are increasingly turning

towards energy-efficient and sustainable practices in both existing and new warehouses. These efforts will not only reduce their carbon footprint, but also offer economic benefits such as reduced costs and improved efficiency.

Various green warehousing initiatives are being implemented. The majority of warehouses are using renewable energy sources, such as installing solar panels on site. Other sustainable initiatives include maximising the use of daylight, implementing energy-efficient ventilation systems, meeting relevant standards and certifications and using LED lighting. Further, measures have been taken for improving wastewater management.

For example, TVS Industrial and Logistics Parks (TVS ILP) has emphasised sustainability at its warehousing facility in Vijayawada, Andhra Pradesh, incorporating rooftop solar power, a green belt, landscaped areas and rainwater harvesting systems. Further, Robinsons Global Logistics Solutions (RGL) recently signed a deal with IndoSpace to lease a sustainable Grade-A warehouse spanning 30,000 square feet at Bavla, Gujarat.

Other initiatives : Logistics firms are devising routing strategies, and increasingly deploying optimisation software to streamline delivery processes. These tools help ensure timely deliveries while minimising delays. Further, route optimisation reduces fuel consumption.

Rising consumer demand across various industry segments has also driven an increased need for packaging. Previously dominated by single-use plastics, the packaging industry is now gradually moving towards more sustainable solutions, spurred by consumer demands for better packaging solutions. The optimisation of packaging designs not only reduces material requirements significantly, but also minimises waste. Further, companies are adopting alternative, less harmful materials.

Efforts to reduce waste across the logistics supply chain are also gaining momentum, with a focus on zero-waste logistics. Integrating circular economy practices plays a key role in achieving this target. Special emphasis is also placed on reverse logistics, involving the reuse, recycling, or refurbishment of commodities or returned products.

In sum : Increased activity in the industrial segment has driven the need for sustainable and efficient operations. Supply chain and warehousing players are leveraging this opportunity by implementing measures to decarbonise operations. There is also a demand for products with relatively greener supply chains.

Integrating these initiatives into the logistics supply chain is helping reduce carbon footprints, improve efficiency and lower overall logistics costs. Looking ahead, the continued adoption of these practices, combined with the close monitoring of emissions across operations, will pave the way for a greener, more sustainable supply chain.

Source: renewablewatch.in

●●●

THE FUTURE OF BUSINESS: SUSTAINABLE SUPPLY CHAIN IN INDIA'S CSR LANDSCAPE

NANCY JOHRI

As the world becomes increasingly aware of the environmental and social challenges facing our planet, sustainable business practices have emerged as essential pillars of responsible corporate governance. In India, sustainability is now making its mark through sustainable supply chains, a strategy that ensures environmental, social, and economic impact is carefully managed throughout the lifecycle of a product or service.

A sustainable supply chain is a model that seeks to reduce the negative environmental footprint of product procurement, manufacturing, and distribution while optimizing social benefits, creating a circular, eco-friendly model. Companies adopting sustainable supply chain principles actively contribute to the environment's well-being and the betterment of local communities.

The Need for Sustainability in Supply Chains : India, with its burgeoning economy, is a key player in global trade. According to the Indian Ministry of Commerce and Industry, India's total exports stood at $400 billion in FY 2023, with a robust network of suppliers and manufacturers forming the backbone of this success. However, this extensive supply chain infrastructure has also led to a concerning environmental impact. Data from the World Bank suggests that India's carbon emissions account for approximately 7% of the global total, a significant footprint largely driven by industrial

operations, transportation, and agriculture – sectors intimately connected to supply chains.

In a country where rapid industrialization has been a central driver of economic growth, the sustainability of supply chains has often taken a backseat to profitability and growth. This, however, is beginning to change as businesses align their operations with Corporate Social Responsibility (CSR) policies and government guidelines. India's Companies Act of 2013 mandates CSR initiatives for companies earning a net profit of 5 crore or more, making sustainability and responsible business practices critical for large companies to maintain compliance.

The Case for Sustainable Supply Chains

A sustainable supply chain has far-reaching benefits for the environment, society, and business. These include:

1. **Environmental Protection**: Sustainable supply chains address resource overuse, reduce waste, minimize energy consumption, and lower carbon emissions. For instance, India's Ministry of Environment, Forest and Climate Change (MoEFCC) reports that transportation and logistics account for 13% of total greenhouse gas emissions, making these key areas for improvement in supply chain practices. Companies embracing eco-friendly transportation or opting for renewable energy sources in their factories can significantly lower their carbon footprint.

2. **Social Impact**: Sustainable supply chains also prioritize ethical sourcing and fair labor practices, ensuring that suppliers adhere to ethical standards, particularly in developing countries where worker exploitation is still rampant. According to the International Labour Organization (ILO), roughly 50% of the Indian workforce is employed in the unorganized sector, making issues of fair wages, worker rights, and working conditions urgent within supply chains.

3. **Economic Viability**: By reducing inefficiencies and resource wastage, sustainable supply chains can significantly boost the bottom line. A Deloitte Global Survey found that 52% of companies implementing sustainable supply chain initiatives observed improvements in operational efficiencies. Moreover, the FICCI-EY Report on Indian Supply Chains (2020) highlights that Indian businesses are expected to realize savings of $ 33 billion annually by shifting toward sustainable supply chain practices over the next decade.

Companies Leading the Way

Several Indian companies are setting exemplary standards in terms of sustainability in supply chain operations. For example, Tata Group, India's largest conglomerate, focuses heavily on ethical sourcing and energy-efficient manufacturing. The company has launched a global supply chain sustainability program that spans energy, water use, and waste reduction.

Additionally, ITC Limited, a leading FMCG brand, has committed to achieving zero waste to landfill in its production and distribution channels. Through the integration of green practices, ITC has reduced its carbon footprint and bolstered local community support programs.

Furthermore, Reliance Industries has invested heavily in alternative energy and sustainable supply chains. Its Green Mobility Initiative focuses on converting logistic and transportation operations to electric vehicles, cutting down on emissions and fuel costs.

Challenges in the Sustainable Supply Chain Journey

While there is growing enthusiasm for adopting sustainable supply chains, challenges remain in a diverse and resource-heavy country like India. A key barrier is the high cost of adopting sustainable technologies. A 2021 report by the Confederation of Indian Industry (CII) noted that many small and medium-sized enterprises (SMEs) lack access to funding and resources to integrate these practices into their supply chains.

Additionally, regulatory frameworks and technological infrastructure in India remain underdeveloped in comparison with other regions, hindering the swift adoption of green practices. Despite these obstacles, Indian businesses continue to make significant strides, encouraged by CSR obligations and increasing consumer demand for ethical and green products.

The Road Ahead

As the demand for responsible business grows, so does the need for companies to embrace sustainable supply chains. In response to this, India is improving its regulatory framework to promote green and ethical practices. Policies like Swachh Bharat Abhiyan, Make in India, and the National Action Plan on Climate Change (NAPCC) offer additional support to companies looking to enhance sustainability.

With India's growing focus on CSR and sustainable business, the momentum toward creating eco-friendly and socially responsible supply chains is gaining ground. For organizations, transitioning to sustainability isn't just a matter of corporate duty – it's a competitive advantage that drives growth, fosters innovation, and meets global environmental goals.

Source: thecsruniverse.com

●●●

MAXIMIZING EFFICIENCY WITH INTEGRATED SUPPLY CHAIN SOLUTIONS

In the modern business landscape, supply chain efficiency is a critical driver of success. Companies are constantly striving to deliver products faster, reduce operational costs, and meet ever-increasing customer expectations. To achieve these goals, businesses are turning to integrated supply chain solutions—a holistic approach that connects and optimizes every stage of the supply chain, from procurement to delivery. By leveraging technology, data, and strategic collaboration, integrated supply chain solutions enable organizations to streamline operations, enhance visibility, and maximize efficiency.

Integrated supply chain solutions involve the seamless coordination of all supply chain activities, including sourcing, production, inventory management, logistics, and distribution. Unlike traditional supply chain models, which often operate in silos, integrated solutions create a unified ecosystem where every component works together to achieve common goals. This approach relies heavily on technology, data analytics, and collaboration to ensure that information flows smoothly across the entire supply chain.

Key components of integrated supply chain solutions include:

- **End-to-End Visibility:** Real-time tracking of inventory, shipments, and production processes.
- **Automation:** Use of advanced technologies like artificial intelligence (AI), robotics, and the Internet of Things (IoT) to automate repetitive tasks.
- **Data Analytics:** Leveraging data to gain insights into demand forecasting, inventory optimization, and performance metrics.
- **Collaboration:** Improved communication and coordination between suppliers, manufacturers, distributors, and customers.
- **Scalability:** Flexible solutions that can adapt to changing business needs and market conditions.

Why Efficiency Matters in Supply Chains

Efficiency is the backbone of a successful supply chain. Inefficient supply chains lead to delays, increased costs, and dissatisfied customers, all of which can harm a company's reputation and profitability. On the other hand, an efficient supply chain can:

- **Reduce Operational Costs:** By minimizing waste, optimizing resource allocation, and improving inventory management.
- **Enhance Customer Satisfaction:** By ensuring timely deliveries and reducing errors.
- **Improve Agility:** By enabling businesses to respond quickly to market changes and disruptions.
- **Boost Profitability:** By streamlining operations and reducing overhead costs.

Integrated supply chain solutions are designed to address these challenges by creating a cohesive and efficient supply chain ecosystem.

Benefits of Integrated Supply Chain Solutions

Implementing integrated supply chain solutions offers numerous benefits for businesses. Here are some of the most significant advantages:

- **Improved Visibility:** One of the biggest challenges in traditional supply chains is the lack of visibility. With integrated solutions, businesses gain real-time insights into every stage of the supply chain. This visibility allows companies to track inventory levels, monitor shipments, and identify potential bottlenecks before they become major issues.
- **Enhanced Collaboration:** Integrated supply chain solutions foster collaboration between all stakeholders, including suppliers, manufacturers, distributors, and customers. By breaking down silos and improving communication, businesses can ensure that everyone is working toward the same goals.
- **Better Demand Forecasting:** Accurate demand forecasting is critical for optimizing inventory levels and reducing waste. Integrated solutions leverage data analytics and AI to predict demand more accurately, enabling businesses to plan production and inventory more effectively.
- **Increased Automation:** Automation is a key feature of integrated supply chain solutions. By automating repetitive tasks such as order processing, inventory management, and shipment tracking, businesses can reduce manual errors, save time, and improve efficiency.
- **Cost Savings:** By optimizing processes and reducing waste, integrated supply chain solutions help businesses save money. For example, better inventory management can reduce carrying costs, while optimized transportation routes can lower fuel expenses.
- **Scalability:** Integrated solutions are designed to be scalable, meaning they can grow with your business. Whether you're a small business looking to expand or a large enterprise operating in multiple markets, integrated supply chain solutions can adapt to your needs.
- **Sustainability:** Efficiency and sustainability go hand in hand. Integrated supply chain solutions help businesses reduce their environmental impact by

optimizing routes, minimizing waste, and using eco-friendly practices.

- **Competitive Advantage:** A well-integrated supply chain helps businesses stay ahead of competitors by ensuring faster delivery, lower costs, and better service levels. Companies with efficient supply chain integration can scale operations seamlessly without major disruptions.

How to Implement Integrated Supply Chain Solutions

Implementing integrated supply chain solutions requires careful planning and execution. Here are some steps businesses can take to maximize efficiency:

- **Assess Your Current Supply Chain:** The first step is to evaluate your existing supply chain processes. Identify areas of inefficiency, such as delays, high costs, or poor communication, and determine how integrated solutions can address these issues.
- **Invest in Technology:** Technology is the backbone of integrated supply chain solutions. Invest in tools like AI, IoT, and cloud-based platforms to enhance visibility, automation, and collaboration.
- **Foster Collaboration:** Break down silos and encourage collaboration between all stakeholders. Use technology to facilitate communication and ensure that everyone has access to the same information.
- **Leverage Data Analytics:** Use data analytics to gain insights into your supply chain performance. Analyze data on demand, inventory, and transportation to identify trends and make informed decisions.
- **Focus on Continuous Improvement:** Supply chain optimization is an ongoing process. Regularly review your processes, gather feedback from stakeholders, and look for ways to improve efficiency.

TVS Supply Chain Solutions: Driving Integration and Efficiency

At TVS Supply Chain Solutions, we specialize in providing end-to-end integrated supply chain solutions that enhance efficiency, reduce costs, and improve customer satisfaction. Our approach includes:

- **Advanced Technology Integration:** We leverage cutting-edge AI, IoT, and cloud-based supply chain management platforms to provide real-time insights, automate workflows, and optimize logistics operations.
- **Global Network and Expertise:** With a presence in over 25+ countries, we manage complex supply chain networks across industries, ensuring seamless cross-border logistics and efficient international trade operations.
- **Smart Warehousing and Inventory Management:** Our smart warehouses utilize automation, robotics, and real-time tracking to improve order accuracy and reduce turnaround times. We optimize storage space, minimizing costs while ensuring smooth operations.
- **Supply Chain Resilience and Risk Mitigation:** By diversifying suppliers, utilizing multi-modal transportation solutions, and implementing contingency plans, we help businesses mitigate supply chain risks and enhance resilience.
- **Sustainable Supply Chain Initiatives:** TVS SCS is committed to green logistics, implementing energy-efficient warehouses, reducing carbon footprints, and optimizing delivery routes for sustainability.

Case Study: Transforming CKD Packing Operations for a Global Automotive Manufacturer

Challenge: One of our clients, a leading automotive manufacturer, faced challenges with inaccurate and damaged exports, leading to irate dealers, dormant inventory, and missed sales opportunities. Their goal was to:

- Establish a fully managed CKD packing system for 1000 bikes per day, scalable to 2000 bikes per day
- Ensure error-free dispatches
- Expand exports from 5 countries to 75 countries
- Support their full portfolio of 11 two-wheeler models

Solution:

We implemented a cutting-edge warehouse automation solution with:

- Visual AI Functions for material identification and process accuracy
- Digital Twin Manufacturing Control Systems for real-time monitoring
- Process Apps on Cloud for seamless planning, sequencing, and ERP integration
- Automated material movement and validation through 80+ cameras, conveyors, and robotics

Results:

- 100% error-free deliveries within 3 months
- Scalable plant capacity of 1000 bikes/day with provisions for future expansion
- Enhanced operational efficiency through automated workflows
- Reduced lead times and improved accuracy, driving business growth

Integrated Supply Chain Solutions are no longer a luxury but a necessity for businesses aiming to thrive in a competitive global market. From real-time visibility and automation to collaboration and sustainability, integration enhances every aspect of supply chain management.

At TVS Supply Chain Solutions, we are at the forefront of this transformation, providing customized, technology-driven solutions to help businesses maximize efficiency, reduce costs, and improve customer satisfaction.

Are you ready to optimize your supply chain? Connect with us today to explore how our integrated solutions can transform your operations!

Source: www.tvsscs.com

●●●

DELHI- NCR'S WAREHOUSING BOOM: MULTI-CLIENT FACILITIES TAKE CENTRE STAGE

In India's rapidly evolving logistics landscape, multi-client warehouses have emerged as a transformative solution for businesses navigating the challenges of space constraints

India's booming economy and the recent rapid e-commerce expansion have consequently paved the way for a revolution in the country's warehousing sector, with multi-client facilities leading from the forefront.

According to **IBEF**, analysis project the Indian warehousing market to reach $34.99 billion by 2027, growing at a robust CAGR of 15.64% from 2022. Currently, the market is witnessing an extraordinary surge in demand, surpassing supply by 1.4 times in the first half of 2023.

Knight Frank's Asia-Pacific Logistics report indicates a 3.8% slowdown in year-over-year rental growth for the region's logistics market. In comparison, Delhi-NCR achieved a 3% growth, surpassing the regional average of 2.4%. Meanwhile, growth in Mumbai and Bengaluru fell just short of this average.

With Delhi-NCR's ever- evolving logistics landscape, the advent and subsequent rise of MCFs (multi-client facilities) stand to restructure the region's supply chain infrastructure. Businesses seeking flexible and cost-effective warehousing solutions for their inventory have led to these multi-client facilities gaining traction in recent years. Offering flexibility, scalability and the most preferred, cost efficiency, these shared spaces are fast becoming the preferred choices for oriented businesses looking to optimise their supply chains.

What exactly are Multi-Client Facilities?

A multi-client warehouse is a facility shared by several businesses, enabling them to adjust storage capacity based on **changing operational needs**. Moreover, in a market where space is limited and warehousing costs are rising, this model offers an efficient solution. By pooling resources, companies can reduce storage expenses while gaining the flexibility to scale up or down as demand fluctuates, making it an ideal option in today's tight warehousing landscape.

The **multi-client warehousing sector** is projected to experience a robust compound annual growth rate (CAGR) of 9.43% between 2024 and 2031. As a result, as land prices continue to escalate, third-party logistics (3PL) providers that offer multi-client facilities are emerging as a cost-effective and competitive option for businesses aiming to optimise efficiency without overspending.

Key Benefits of Multi-Client Facilities for Businesses : The option to rent storage space on demand and adjust capacity based on short-term requirements has revolutionised the warehousing landscape. If we break down the key advantages:

Cost Efficiency : Sharing space and resources such as security, utilities, and warehouse management services significantly lowers operating expenses for businesses. Additionally, the collaborative model distributes costs across multiple clients, making it an affordable solution for companies looking to optimise their logistics without investing in a standalone facility.

Flexible Scalability : Multi-client facilities allow businesses to scale their storage needs up or down based on demand. This flexibility eliminates the burden of committing to long-term leases or large capital expenditures in infrastructure, making it an ideal choice for businesses facing fluctuating volumes or seasonal variations.

Enhanced Operational and Compliance Support : In addition to providing services like packaging, labelling, and distribution, multi-client facilities often ensure compliance with industry regulations and safety standards. By centralising logistics tasks and adhering to legal requirements in one location, companies can reduce complexity, minimise compliance risks, and focus on core operations, improving overall efficiency.

Resource Sharing : Businesses using multi-client facilities benefit from shared access to technology, skilled labor, and transportation networks. Pooling these resources not only optimises logistical operations but also drives down costs by eliminating redundancies and increasing efficiency in transportation and staffing.

Risk Mitigation : Utilising shared facilities helps companies mitigate the risk of underutilised space, which can be costly. Additionally, these multi-client facilities provide backup storage options that can be critical during supply chain disruptions, ensuring business continuity during unexpected events or demand

spikes.

Strategic Warehousing Growth in Delhi-NCR

There is no denying the fact that location is of paramount importance in the industry and with the **Indian logistics market experiencing an upward trend** as the populace shifts to q- commerce and e- commerce in larger chunks, the industry has to keep up. There are numerous areas in the Delhi–NCR region that provide vast land for setting up MCF units to cater to growing numbers.

The first half of 2024 has, in fact, witnessed 13 million sq. ft of leasing activity, representing a 17 per cent year-over-year growth with Delhi-NCR and Chennai leading the charge, says Colliers report. Located just 50 km from the national capital, FM Logistic's State-of-the Art Multi Client Warehousing Facility at Farrukhnagar commencing with its Phase 2 extension is a step in the right direction. As the firm's first owned MCF in India, the facility has proven to be a torchbearer in it's commitment to providing world class warehousing and distribution solutions. The facility, recognised as India's first-ever LEED Gold-certified warehouse, also sheds light on our dedication towards setting a new benchmark for sustainability and environmental responsibility.

Multi-client facilities (MCFs) support sustainability by optimising shared resources, reducing energy consumption, and minimising waste through efficient space utilisation. FM Logistic's Farrukhnagar MCF enhances sustainability by integrating eco-friendly practices such as energy-efficient operations, copacking and sustainable supply chain management, driving environmentally conscious decision-making.

As Delhi-NCR's warehousing sector expands, multi-client facilities are emerging as the go-to solution for businesses seeking adaptability and cost savings. With their strategic locations and numerous advantages, these hubs will play a critical role in meeting the region's growing logistics needs.

Source: www.fmlogistic.in

●●●

WHY SHOULD LOGISTIC COMPANIES FOCUS ON VENDOR MANAGEMENT?

Vendors are the various other businesses connected to your own company for services and goods. This could be raw materials for your manufacturing, vendors for various machines that help your processes, or different service providers. All these different companies will be connected to yours through various points of contact and have different payment schedules and amounts etc. This complex net of different vendors is something that needs to be paid special attention to.

Traditionally, procurement and vendor management used to be about establishing those relationships once to begin the supply chain and fix things up. But lately, there are so many options, so many different companies with competitive rates, perks, and other factors that could result in profits for you. So it needs a little more than just a bit of effort to make the most profitable relationships. Then vendor management is also about managing relationships to be fruitful with great communication and a strategic approach.

Without proper vendor management, you'd find your company in a position where you are over-paying for goods and services, which eventually eats up a big chunk of your potential profits. So, instead of losing money because of potential mismanagement, focusing on vendor management is a great idea. Today we will talk about why your businesses should pay special attention to vendor management in the current day and age.

Handling Risks : With suppliers, the problems can be subtle but very impactful. In your big chain of various vendors, there will be various kinds of issues, shortages, breakages, absence of personnel, etc. If these things can be tracked, you can fix them or find alternatives before it impacts the entire supply chain. With big data collected from management software, you can take steps to mitigate risks or find alternate suppliers before it turns into a bigger issue.

Optimizing Performance : After you have set up a vendor management system, you can track all the data you need with key metrics to indicate the performance of specific vendors. You can track their performance against the contract to understand whether the needs are being appropriately fulfilled by the vendor. If you find anything that doesn't check out, you can take steps to make sure that the performance is optimized, whether that is by changing the vendor or coming to

terms where performance is more satisfactory.

Cost Reduction : Business is about making more money, and that has to be done by increasing profits wherever possible and reducing costs in any way. If you have a well-established vendor management system, you will also have more visibility and insights on all minute little costs which could be adjusted and optimized. Also, with a vendor management system, you will be able to maintain good relationships with your vendors, which means you can better negotiate costs by asking for discounts, and other incentives.

Building Good Relationships : One thing that you'll rarely find in business is vendors with whom you can sustain smooth and error-free relationships. Such vendors are really hard to come by, and when they do, you must ensure that you are doing everything to strengthen the relationship. Using vendor management practices, you can ensure that processes remain smooth and hassle-free for both parties, creating loyal relationships. This is profitable for you in the longer term since changing vendors every now and again can get complex and expensive.

Brand Consistency : A businesses' brand means a lot for the perception and image of the brand. It directly influences profits, customer loyalty, and gathering new interest. If anything about your branding or messaging is messed up because a vendor acts unethically or unprofessionally, that is bad news for you and your company. This can be easily avoided by focusing a little on your vendor management practices.

It is always better to have professional help in your business wherever you can. ARK India is one such 3PL partner that can provide you with industry-standard services and insights for anything supply chain and logistics related. Our wide range of services includes vendor management services, where we will use our years of gathered expertise and insights to make sure you work with the right vendors and make changes at the right time. Learn more about us by visiting www.arkindia.co.in.

Traditionally, procurement and vendor management used to be about establishing those relationships once to begin the supply chain and fix things up. But lately, there are so many options, so many different companies with competitive rates, perks, and other factors that could result in profits for you. So it needs a little more than just a bit of effort to make the most profitable relationships. Then vendor management is also about managing relationships to be fruitful with great communication and a strategic approach.

Without proper vendor management, you'd find your company in a position where you are over-paying for goods and services, which eventually eats up a big chunk of your potential profits. So, instead of losing money because of potential mismanagement, focusing on vendor management is a great idea. Today we will talk about why your businesses should pay special attention to vendor management in the current day and age.

Handling Risks : With suppliers, the problems can be subtle but very impactful. In your big chain of various vendors, there will be various kinds of issues, shortages, breakages, absence of personnel, etc. If these things can be tracked, you can fix them or find alternatives before it impacts the entire supply chain. With big data collected from management software, you can take steps to mitigate risks or find alternate suppliers before it turns into a bigger issue.

Optimizing Performance : After you have set up a vendor management system, you can track all the data you need with key metrics to indicate the performance of specific vendors. You can track their performance against the contract to understand whether the needs are being appropriately fulfilled by the vendor. If you find anything that doesn't check out, you can take steps to make sure that the performance is optimized, whether that is by changing the vendor or coming to terms where performance is more satisfactory.

Cost Reduction : Business is about making more money, and that has to be done by increasing profits wherever possible and reducing costs in any way. If you have a well-established vendor management system, you will also have more visibility and insights on all minute little costs which could be adjusted and optimized. Also, with a vendor management system, you will be able to maintain good relationships with your vendors, which means you can better negotiate costs by asking for discounts, and other incentives.

Building Good Relationships : One thing that you'll rarely find in business is vendors with whom you can sustain smooth and error-free relationships. Such vendors are really hard to come by, and when they do, you must ensure that you are doing everything to strengthen the relationship. Using vendor management practices, you can ensure that processes remain smooth and hassle-free for both parties, creating loyal relationships. This is profitable for you in the longer term since changing vendors every now and again can get complex and expensive.

Source: www.arkindia.co.in

●●●

WHAT IS INVENTORY LEVELS IN A DISTRIBUTION NETWORK?

AKESH KUMARI
SPECIALIST - MARKETING @SHIPROCKET

Understanding and maintaining inventory levels is critical for effective logistics operations. Minimising stock shortages and excess inventory can significantly decrease the overall inventory expense by up to 10%. It can help you lower operating costs and guarantee efficient shipment of orders and minimum disruptions. Regardless of the kind of business you own, effectively controlling inventory levels is a critical tool for good business management.

As you expand your sales channels, determining the optimal inventory balance gets increasingly difficult. According to a McKinsey report, a considerable majority of organisations, (about 58%) emphasise inventory optimisation to retain their brand image while controlling expenses. Regardless of the kind of business you own, effectively controlling inventory levels is a critical tool for good business management.

Now, let's explore more about optimal inventory levels.

Inventory Levels: A Broad Understanding

Inventory levels are the number of items that a firm has for distribution or sale at any particular time. It assesses the inventory in the company's storage facilities or retail locations. Understanding and managing inventory levels enables firms to optimise their supply chain, improve customer happiness, and strike a balance between satisfying market demand and lowering operating expenses.

Maintaining proper inventory levels is critical to good operational management. When your inventory is low, you need to add additional goods to match client demand. Otherwise, this will cause stock to run out, resulting in missed sales opportunities. Having too much inventory requires a significant capital expense. The longer these goods are in storage, the more money you will spend on storage. There is also the possibility that these things will become obsolete, resulting in decreased profit margins when they are ultimately sold.

Striking the correct balance is critical for good inventory management. Insufficient stock can reduce sales, but excess inventory can be expensive and impact profitability. A company can satisfy consumer demand effectively while minimising needless holding expenses by monitoring and changing inventory levels as needed. This strategic strategy entails matching available supply to market demand while minimising the financial risks associated with stockouts and overstock situations.

What is the Ideal Inventory Level?

Having an ideal inventory level in your organisation involves keeping the proper amount of merchandise. It's about managing client demand while not running out of things or having too much on hand. This allows you to maximise earnings while keeping storage expenses minimal. Not too much, not too little, just the ideal amount for your business.

a. Minimum Inventory Level

The Minimum Inventory Level (MSL) serves as a safety net, preventing stockouts. Maintaining minimal stock levels involves stocking just enough goods required to complete all orders. If your inventory runs out, you have a safety stock of extra products placed aside to avoid stockouts. Each company must maintain a minimum inventory level to ensure a steady supply of raw materials for ongoing operations. If the level falls below this threshold, production could be slowed down resulting in supply shortages.

The minimal inventory level is calculated as follows:

Minimum inventory level = average usage x average lead time (reordering level)

The formula for calculating the reorder level is as follows:

Reorder Level = Rate of Maximum Consumption x Maximum Reordering Period.

b. Maximum Inventory Level.

Determining maximum stock levels involves estimating the greatest amount of items that can be stored to meet requests without incurring extra storage expenses. Exceeding this limit may result in overstock, perhaps causing storage space problems. Unlike the minimum inventory level, which must constantly be maintained to avoid production delays, the maximum inventory level should always be within the specified limit. Exceeding this limit can lead to overstocking, with raw materials lying stagnant for a longer length of time, resulting in higher storage costs, pilferage, disparities in stock numbers, and other irregularities.

The method for calculating the maximum inventory level is:

Maximum Inventory Level = Reorder Level + Reorder Quantity – (Minimum Usage x Minimum Purchase Time).

The reorder level used in this formula is determined by:

Reorder Quantity = Average Daily Consumption x Average Purchase Time

Key considerations to keep in mind while estimating the maximum inventory level are:

Average Daily raw material consumption: The quantity of materials utilised daily.

The average purchase time required to replace raw material reserves: It is the time taken to get a fresh supply.

Availability of storage space: The physical capacity to store products

Reordering quantity: The amount ordered to restock stockpiles

Inventory costs: It is the expenses involved with retaining stock

Potential challenges: Risks such as damage, pilferage, and supplies becoming out-of-date

Pricing: Fluctuations in raw material prices

Raw material shelf life: The amount of time that a material can remain unusable

Consumer preferences shift over time

Things to Consider to Maintain an Optimal Inventory Level

Effective inventory management provides a competitive edge by assuring a consistent flow of goods and safeguarding your company from stockouts and missed transactions. To maintain appropriate inventory levels in the distribution networks, consider the following:

Just-in-time (JIT) Inventory Management: JIT inventory management reduces excess inventory by coordinating production and restocking with real demand. It reduces carrying costs and the danger of old inventory. Although JIT is important, accurate forecasting and a dependable supply chain cannot be avoided to prevent stockouts.

ABC Analysis: ABC analysis divides inventory items into 3 categories: A, B, and C according to their relevance. Items under 'A' are classified as most important, 'B' moderately important, and 'C' low priority. This categorisation helps your company focus on stock management efforts and resources where they are most needed.

Inventory Software and Technology: Using modern inventory software and technology is essential in the digital world. These systems provide real-time insight and automation, enabling firms to make data-driven choices and accurately manage stock levels.

Digitisation to Manage Stock Levels

Businesses are starting to digitalise their work processes to improve their supply chain strategy and execution. Using a Warehouse Management System (WMS) instead of manual inventory management enables real-time stock monitoring.

Logistics managers can calculate suitable inventory levels by tracking all commodities' entrances, exits, and movements. For example, recognising high-demand items ensures that they are always accessible, avoiding stockouts and delays.

The software uses product turnover analysis to automatically calculate optimal inventory levels. With this information, the programme efficiently manages procurement operations, guaranteeing that the company always has the necessary commodities to execute requests.

Managing a large number of products gets more difficult when inventory is scattered across many sites. Companies that use a multi-location inventory management approach can use cloud-based logistics software to coordinate stock management across locations. This enables operators to use the system from anywhere with an internet connection. The management approach also optimises responsibilities in each warehouse and manages stock transfers across centers.

Here's how you can utilise digitalisation to improve inventory management:

Forecasting Demand: Ideal inventory management requires balancing demand for supplies and accessibility. Digitisation enables more accurate forecasting by combining data from a variety of sources, including consumer requests, current market trends, past trends, and manufacturing strategies. This data is used by advanced analytics, AI, and machine learning to generate projections and insights that enable production schedule management and inventory adjustments.

Tracking Inventory: Accurate tracking of quantity, quality, and location is essential for effective inventory management. Through the use of technologies like barcodes, GPS, and the Internet of Things, digitisation makes it possible to monitor several locations and supply chain stages in real-time. Software and cloud-based solutions also make it simpler to access and share inventory information.

Refill Inventory: Through digitisation, restocking of inventory is possible. It can help generate automation according to established standards, which minimises human error and delays.

Analysing Inventory: Optimal inventory level relies on analysing inventory performance. It can help you to discover possibilities for improvement. Digitisation enables the creation of dashboards,visualisation tools, etc offering insights and recommendations.

Shiprocket: Efficiently Managing Inventory!

Discover Shiprocket fulfillment's tech-driven fulfillment solution designed for your retail and eCommerce needs.

Streamline your B2B and B2C operations effortlessly with 42+ fulfillment centers nationwide.

Benefit from efficient inventory distribution without the need for hefty infrastructure investments.

Enjoy same/next day delivery with a unified management system, and seamless integration with 12+ channels for accurate and streamlined operations.

Shiprocket covers 24,000+ pin codes and quickly fulfills B2B orders from 10 to 10,000. Built for scale, they deliver efficiency with 20% lower shipping costs, 60% lesser RTO losses, and zero weight discrepancies. Elevate your sales with fast delivery badges and join over 1000 eCommerce businesses trusting Shiprocket for seamless order fulfillment.

Conclusion : With increasing consumer expectations and competition, developing a seamless supply chain process is crucial. For this, achieving excellent inventory management becomes a top priority. You can start by recognising the significance of inventory levels that extends beyond just numbers on financial records; they serve as a strategic tool to avoid stockouts, excess storage expenses, etc.

You can establish automation in your company by employing successful tactics such as AI technology. Digitisation is important for inventory management to maintain an ideal inventory level, monitor key performance metrics, become flexible to market changes, and encourage healthy partnerships with your suppliers

Source: fulfillment.shiprocket.in

NAVIGATING THE CHALLENGES OF AI ADOPTION IN PROCUREMENT

Incorporating AI into procurement is a technical endeavor that must consider the human impact to be successful, 4C Associates' director of digital innovation writes.

By Joe Gibson, director of digital innovation at commercial and supply chain consultancy 4C Associates

Recent conversations about artificial intelligence adoption in procurement increasingly focus on its potential to completely revolutionize the function. While this may be true in many cases, the greatest challenge facing procurement teams isn't going to be purely technological — it will also be also cultural.

Integrating AI into the organizational technology stack may seem like the priority, but it's the human element of procurement where the real impact lies. The true success of any AI initiative depends on the readiness of the functional culture to adapt, innovate and learn from new approaches to which AI systems will inevitably give rise.

Integrating AI into procurement culture : The success of any AI implementation is determined by the willingness of people to embrace it. Procurement teams need to actively foster a culture of innovation, where new approaches are encouraged even if they don't yield immediate results.

A real-world example of this challenge was seen in a large U.K. infrastructure organization, which attempted to deploy AI-enabled contract lifecycle management software. The system was designed to read, profile, determine patterns, assess risk, flag commercial variances and store complex subcontract agreements across its supply chain. The expected outcomes included greater visibility, enhanced resilience, reduced risk and improved margins.

Despite the clear potential of the technology, the implementation was derailed by resistance from the legal function. Fears of job displacement ultimately overpowered the potential benefits, leading to the initiative's failure.

Without the buy-in from cross-functional teams and a shared vision of how AI can complement human expertise, such innovations are unlikely to succeed.

The importance of a well-defined use case : A well-defined use case is crucial for AI adoption in procurement. Without a clear understanding of how AI will specifically benefit the function, organizations risk implementing technology that fails to deliver meaningful value. The most successful AI projects are those grounded in real-

world challenges.

An oil and gas company experienced this first-hand when it deployed an optical character recognition (OCR) software — an earlier form of machine learning — across its accounts payable function as part of an efficiency initiative. Unfortunately, the project failed due to a lack of clearly defined requirements.

A standard template wasn't utilized, pre-processing wasn't properly implemented, and the company took a 'big-bang' approach across multiple countries and languages without enhanced training for the remaining staff. Instead of increasing efficiency, the project led to an increase in accounts payable staff to manage exceptions, as well as an eight-week supply chain payment backlog.

This example underscores the importance of not only defining the use case, but also ensuring proper planning, training, and execution are in place before deployment. AI should solve specific, well-understood problems to truly add value, and collaboration across teams is key to ensuring it's implemented correctly.

The data paradox: addressing immature data : A significant hurdle in AI adoption is the misconception that AI will instantly solve all procurement challenges. In reality, many procurement functions first grapple with poor-quality data that is unstructured, unclean and poorly governed. Ironically, AI has the potential to enrich and manage such data, but only if organizations first acknowledge the limitations of their current datasets.

Addressing these data issues requires a strategic approach. Standardizing master data fields, limiting the number of staff who can modify supplier data, and harmonizing the intake process are essential first steps. For organizations at the early stages of their journey, introducing a manual gatekeeper to oversee data governance is crucial. As organizations mature, they can automate these governance processes by integrating validation through an application programming interface, or API.

But expectations must be managed accordingly. Rather than expecting AI to provide perfect solutions from day one, procurement teams should focus on improving data quality in tandem with implementation. This ensures that AI solutions have a solid foundation to deliver real value.

Start small and stay agile : Starting small with manageable pilot projects allows teams to demonstrate quick wins, building confidence and momentum for larger-scale AI adoption. By learning from past digitalization efforts, procurement teams can avoid previous pitfalls and chart a more successful course for AI.

Agility also enables organizations to iterate rapidly, refining their AI strategy as they go.

For example, a procurement team might initially deploy AI to optimize supplier selection based on cost and delivery speed. However, as market conditions evolve — such as in today's complex geopolitical landscape — they can quickly adapt the algorithm to prioritize new factors like supplier diversity or sustainability. This ensures that AI remains aligned with broader business goals while being flexible and adaptable to changing procurement needs.

By staying agile, organizations can ensure that AI not only solves immediate problems but continues to evolve in a sustainable way that meets long-term objectives.

Keeping people at the center of AI transformation

AI should be seen as a tool that complements human expertise, rather than replacing it. The procurement stakeholder must remain at the heart of every AI initiative, using the technology to enhance decision-making, not to dictate it. Striking the balance between AI and human intelligence ensures that procurement teams can leverage the full potential of the technology while still applying the critical thinking and judgment vital to the function that only human beings can provide.

Fundamentally, the future of procurement lies in how effectively AI is integrated into an organization's culture. Procurement leaders must lead this transformation by placing people at the center, promoting collaboration and encouraging agile experimentation. The inevitable adoption of AI is going to be a journey, and its success depends on people and culture as it does on technology. The procurement function that can embrace this balance will be best positioned to thrive in an AI-driven future.

All opinions are the author's own.

Source: www.supplychaindive.com

●●●

DIGIT INITIATIVE TO STRENGTHEN PROCUREMENT AND SUPPLY CHAINS

SOPHIE RICE

The UK Government's DIGIT initiative uses distributed ledger technology to modernise procurement, enhance supply chain efficiency and boost security

The UK Chancellor of the Exchequer, Rachel Reeves has announced the launch of the procurement process for the Digital Gilt Instrument (DIGIT), aiming to test the potential of distributed ledger technology DLT in financial markets. This initiative supports the UK's position as a global financial centre by integrating new technology into procurement and supply chain operations. By using DLT, procurement professionals can access greater transparency, automate processes and reduce fraud risks.

Government investment in digital procurement : On Tuesday 18 March, fintech CEOs gathered to discuss the UK gilt market and the role of DLT in modernising financial services. The UK Government is encouraging industry leaders to contribute insights to DIGIT, helping to enhance innovation across procurement and supply chain management. Confirming the start of the DIGIT procurement process, and emphasising the UK's role in digital innovation, Chancellor Rachel Reeves said: "The UK is leading the way on digital innovation and the creation of DIGIT will help to transform our world-leading capital markets sector and drive economic growth."

DIGIT's primary objective is to test how DLT can improve transaction efficiency, security and transparency in government-issued financial instruments. The potential benefits extend beyond financial markets, offering procurement teams new tools to streamline supplier relationships and strengthen supply chain operations.

DLT allows procurement teams to automate approvals, reduce manual interventions and improve accuracy in procurement workflows. Smart contracts, which execute transactions automatically based on predefined conditions, minimise errors and ensure compliance.

How DIGIT enhances supply chains : The integration of DLT into procurement and supply chain management provides several key benefits:

- **Transparency and compliance** – DLT creates an auditable record of procurement transactions, reducing fraud risks and ensuring regulatory compliance.
- **Efficiency and automation** – Automated smart contracts eliminate administrative delays, accelerating procurement processes and reducing human error.
- **Cost reduction** – Removing manual verification lowers operational costs and improves payment accuracy.
- **Supply chain resilience** – Real-time tracking across suppliers enhances response times to disruptions and strengthens risk management.
- **Security and data integrity** – Blockchain-based security protects sensitive procurement data from cyber threats.

By leveraging DLT, organisations can gain real-time visibility into supply chains, enabling faster decision-making and improved logistics. In addition, the technology helps procurement teams track financial transactions, supplier performance and contract fulfilment with greater accuracy. The UK Government's pilot issuance of DIGIT, announced in November 2024, will be a key step in evaluating DLT's potential.

A written statement presented to Parliament outlines the Government's commitment to advancing this technology in 2025. The initiative aligns with efforts in other global financial centres exploring DLT's use in sovereign debt instruments.

Future of procurement with DIGIT

On 18 March 2025, the government launched a preliminary market engagement exercise for the DIGIT pilot. This process will assess investor interest and existing service capabilities, shaping the UK's commercial strategy for DLT adoption. Responses to the engagement notice must be submitted by 13 April 2025 to HM Treasury (HMT) and the Debt Management Office (DMO).

By incorporating DLT into sovereign debt issuance, the UK Government aims to modernise procurement and financial operations. This shift will support a more agile and cost-effective procurement industry, unlocking new efficiencies across supply chains. DIGIT's implementation will allow procurement professionals to use smart contracts to automate payments, simplify supplier agreements and reduce administrative overheads. These advancements contribute to a more resilient, digital-first approach to procurement across the UK.

As the initiative progresses, procurement teams and supply chain professionals can expect increased security, greater efficiency and improved financial control. The UK's investment in DLT signals a broader shift towards technology-driven procurement, setting the stage for future digital transformation.

Source: supplychaindigital.com

●●●

STEEL, ALUMINUM TARIFFS MAY HURT AUTO INDUSTRY, SUPPLY CHAIN RISK EXPERT SAYS

Trump vows no exemptions for tariffs on steel, aluminum

President Donald Trump said Sunday there won't be exemptions on steel and aluminum tariffs and reaffirmed that additional import duties on everything from autos to lumber to appliances will go into effect on April 2.

"It's going to be reciprocal — in other words, whatever they're charging, we're charging," Trump told reporters on Air Force One on Sunday, CNN reported. "Then in addition to that, on autos, on steel, on aluminum, we're going to have some additional tariffs."

Trump was asked by a reporter if he would consider any exemptions on those tariffs, and he replied: "I have no intention of it."

Trump's 25% tariffs on all aluminum and steel imported into the U.S. went into effect on Wednesday, prompting Canada and the European Union to immediately retaliate by imposing duties on about $49 billion worth of U.S. goods.

Ted Krantz, CEO of Interos.ai, said tariffs on steel and aluminum could hit the U.S. automotive manufacturing industry hard. Arlington, Virginia-based Interos.ai is a supply chain risk intelligence company.

"Our data shows there's 400,000 companies impacted, and 3% of that is manufacturing for the auto industry," Krantz told FreightWaves in an interview. "We anticipate, just in terms of carry costs on vehicles, assuming ... the $25,000 average cost, that's an incremental almost $6,500 in additional costs that ultimately have to be passed on to the consumer."

Krantz said the U.S. supply chain for steel, aluminum and auto parts made of rubber and plastics depends heavily on foreign imports.

Trump paused until April 2 across-the-board tariffs that had been set for March 4 on goods from Canada and Mexico that comply with the United States-Mexico-Canada Agreement. However, Trump said he is considering imposing reciprocal tariffs on Canadian lumber and dairy products soon.

"The complexity of the supply chain is pretty interesting, because you've got our top sources for steel are China, then India, No. 1 and No. 2, respectively. Then there is a 20% combination of Mexico, Italy and Germany. Our dependency on those top five is very high in this sector," Krantz said.

Trump imposed a 10% tariff on Chinese goods in February and doubled the rate to 20% on Tuesday. China has responded with up to 15% duties on U.S. foods such as beef, chicken and pork that began March 10.

"The China disruption is going to have a more prolonged, complex outcome," Krantz said. "Thinking of other sources besides China for, you know, our import and export opportunities, or companies headquartered here in the U.S., in other Asia-Pacific areas of opportunity outside of China, I think that is probably a more likely scenario. I do think that the spiciness geopolitically with China will take longer to play out and could actually have more edge than even what we see with Canada and Mexico."

Much of Trump's trade policy is aimed at bringing more foreign investment into the U.S., creating more factories and jobs for Americans.

Taiwan Semiconductor Manufacturing Co., the world's biggest chipmaker, recently agreed to invest $100 billion in the U.S.

While changing supply chains and manufacturing locations quickly will be difficult, Krantz said, companies need to have alternate suppliers ready in case tariffs begin to disrupt their traditional logistics operations.

"Most of these big companies, they know their Tier 1 supplier, but they're not as educated on Tier 2 or Tier 3," Krantz said. "[Companies need] to start shifting and thinking outside of ... Canada, Mexico and China. What other alternative sources are there for some of these supplies? I do think that's going to be a big focus for the Fortune 1000 companies."

Source: www.freightwaves.com

●●●

THE FUTURE OF SUPPLY CHAIN WILL REQUIRE NEW ORGANIZATIONAL SKILLS

REPORT FROM GARTNER SAYS MOST COMPANIES NOT PREPARED

What organizations strategies and skills will be required to succeed in the supply chain of the (near) future?

The analysts at Gartner are out with a new report on this topic, based on a major survey of supply chain executives.

From that and other research Gartner identified five competitive characteristics that will define supply chain readiness in the future world:

Agility: The ability to adapt quickly to changes and disruptions

Resilience: Ensuring supply chain operations can withstand and recover from shocks

Regionalization: Reducing reliance on global supply chains by developing regional hubs

Integrated ecosystems: Strengthening collaboration across supply chain partners

Integrated enterprise strategy: Aligning supply chain goals with overall business strategy

While these seem like common sense observations, and one might guess that many companies have embraced these strategies, not so says Gartner. Its research found that less than one-third (29%) of supply chain organizations have developed at least three of the five key competitive characteristics.

Those that have embraced just three of the five are characterized as supply chain leaders, according to Gartner.

There are other difference between supply chain leaders and laggards, the Gartner report finds.

"Leaders shared a commitment to preparation through long-term, deliberate strategies, while non-leaders were more often focused on short-term priorities," says Pierfrancesco Manenti, VP Analyst in Gartner's supply chain practice.

And although these leading organizations have not yet widely adopted advanced technologies such as real-time visibility and digital supply chain twins, they plan to invest in them within the next three to five years, Gartner adds.

Segmenting Companies by Supply Chain Strategies

Gartner's research identifies four distinct approaches that companies are taking to drive their supply chains.

Each profile prioritizes different capabilities - business model innovation, sustainability, talent and technology - to enhance future resilience.

Each profile prioritizes different capabilities - business model innovation, sustainability, talent and technology - to enhance future resilience.

1. Design: Focuses on business model innovation to simplify operations and reduce complexity. Organizations in this category standardize product designs across variations, enabling streamlined operations and improved adaptability.

2. Durability: Prioritizes sustainability and risk management, ensuring long-term resilience. These organizations emphasize sustainable sourcing and transparency, aiming to minimize environmental impact while strengthening supply chain stability.

3. Deferment: Takes a cautious approach, pausing investments strategically to focus on cost efficiency and operational excellence. This profile is common in industries facing stringent regulations or lower risk tolerance.

4. Decision: Uses technology and talent to navigate complexity. Organisations in this category invest in AI, machine learning and real-time analytics, fostering a culture of innovation and adaptability.

Gartner's research finds that, while any of these approaches can lead to success, organizations embracing the "Design" approach may achieve the greatest benefits.

While CSCOs can be successful aligning to any of the four profiles, the data suggests following the Design profile," adds Pierfrancesco.

"Its emphasis on business model innovation capabilities could be the most fruitful, as there are more leaders aligned with the Design profile compared to the others."

Source: www.scdigest.com

HOW THE FOOD AND BEVERAGE SECTOR CAN IMPROVE SUPPLY CHAIN RESILIENCE

MARCOS SALLA, GLOBAL DIRECTOR, AGRICULTURE, FOOD AND BEVERAGE, DSS

In the second article in our series on practical solutions to challenges to the food and beverage industry, we explore how companies can shore up their defences against supply chain disruption.

Disruption to the supply chain presents a significant challenge for the food and beverage (F&B) sector. Whether it's climate-related or unforeseen events such as Covid, natural disasters or geopolitical events, the capacity to withstand challenges, adapt to change and bounce back from such difficulties is the difference between companies that achieve and improve supply chain resilience and those with fewer products on supermarket shelves.

Navigating such complexities requires companies to develop strategies to ensure that, first and foremost, they can mitigate risks that could jeopardise cost-efficient and uninterrupted production. How companies achieve this requires agility, visibility, collaboration, sustainability and the use of smart technology. Together, these elements support risk mitigation strategies and ultimately enhance efforts to improve supply chain resilience.

Boost visibility and agility across the supply chain

According to the World Economic Forum, only 45% of supply chain leaders have visibility on their first-tier suppliers or no visibility at all, with only 7% achieving multi-tier transparency. This lack of visibility hampers supply chain resilience, making it difficult for retailers to anticipate disruptions. Investing in advanced technologies such as blockchain and the internet of things (IoT) can help track and monitor products throughout their life-cycle.

Collaboration and regular, clear communication are further important visibility and agility boosters. Fostering strong relationships with suppliers, customers and other stakeholders allows F&B companies to share information and data to quickly identify potential disruptions.

Anticipate, diversify and invest to strengthen resilience

Once risks are identified, anticipating and assessing the likelihood and impact of each risk helps encourage a more proactive response. Contingency plans are vital. For example, the Russia-Ukraine conflict disrupted grain exports, impacting global food prices and revealing the need to diversify suppliers and distribution channels to help reduce reliance on any single supply or production source.

Investing in redundant facilities or backup systems helps ensure that unforeseen events that could halt or delay manufacturing processes do not disrupt business continuity. Also, investing in robust quality control measures and safety procedures reduces the likelihood of product recalls and accidents, which can severely impact business continuity and reputation.

Plan ahead for cost-efficient and continuous production

A company's ability to achieve long-term resilience relies on uninterrupted and cost-efficient production cycles, particularly during periods of heightened economic and political disruption. Maintaining optimal inventory levels can balance supply and demand while minimising costs. Also, factoring in lead times, storage costs and potential disruptions adds accuracy to inventory policies.

Lean and Six Sigma manufacturing principles can help eliminate waste and improve efficiency, adding further strength to capacity planning strategies. Equally, value-stream mapping and just-in-time inventory can help with fluctuations in demand based on seasonal variations and new product pipeline plans.

Use collaboration and technology to promote supply chain resilience and optimise costs

Fostering a collaborative culture and leveraging technology can help take supply chain resilience to the next level. Evaluating and selecting suppliers based on reliability, efficiency, quality and sustainability, as well as cost, promotes trust and mutual respect that encourages best-price loyalty and relationship longevity.

Smart technology can also be used to support cost optimisation efforts. Investing in tools to monitor and control costs throughout the supply chain, including raw materials, labour, energy and transportation, helps determine and drive cost-efficiency plans, and improve traceability more accurately. For example, a 2023 report by the Food Standards Agency (FSA) on the impact of labour shortages in the sector pointed out that digitising food checks and introducing more technology to inspect fruit and vegetables could significantly reduce the risks associated with food safety in the medium to long term.

Remain competitive by learning from recent challenges and new trends

The complexity of the F&B supply chain means that learning from past events and anticipating future trends is vital to achieving and improving supply chain resilience. Building the right foundations and supporting strategies offers a clear and proactive pathway to overcoming disruptions and mitigating risks. As we move forward, F&B companies must continue to adapt to a rapidly changing landscape. Technology can offer exciting opportunities to further enhance supply chain resilience to improve forecasting, optimise inventory levels and reduce waste. Additionally, a growing emphasis on sustainability and ethical sourcing will require F&B companies to adopt innovative practices and collaborate with suppliers to minimise their environmental impact. By staying informed about these trends and proactively implementing strategies, F&B companies can build resilient supply chains capable of weathering future storms and achieving long-term success.

Source: www.independent.co.uk

●●●

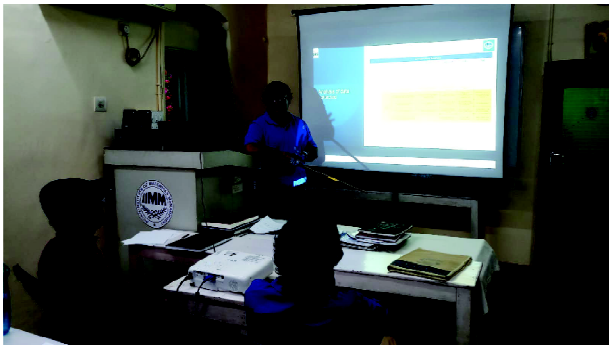
BRANCH NEWS

KOLKATA BRANCH

The Project Viva Voce for PGDMM & PGDSCM/L, GDMM held on 5th March 2025, at 4 p.m. at IIMM – Hall

IIMM, Kolkata Branch organized a viva –voce programme of project presentation for the GDMM and PGDMM students on 5th March, 2025 at the Institute Hall. A total number of 16 students (4 students joined online) made power point presentations and faced viva voce to defend their project. Senior Faculty members Mr. Dinen Nath Chakravarti and Dr. Rajesh Das attended the programme to evaluate the students.

The viva voce conducted in the institute hall at 4 p.m. on 5th March, 2025. The course coordinator Mr. Debasis Mallick thanked and congratulated for approval of the Project report by the National Head Quarters, IIMM, Mumbai. The project work carries 300 marks for the written report and 100 marks for viva voce.



The viva voce consisted of two parts:

- Power Point presentation on your project report
- Question-answer session on your project

2. The PPTs consisted of the following six slides.

(i) Name of the student, name of the organization where you are employed, your present designation, project topic, name of the organization where you have done your project, Name and designation of your project guide, date of submission of the project.

(ii) Statement of the problem

(iii) Methodology

(iv) Existing system/ present practices followed related to the problem

(v) Analysis of data collected

(vi) Recommendations

The students submitted the hard copy of the project report at the time of viva voce. The time allotted for presentation was 5 to 8 minutes. After completion the viva voce program, results were sent to NHQ for their record. At the same day the students submitted their filled application form along with certification fee Rs.1000/- for the final certificate and mark sheet.

AYODAHA BRANCH

Meeting of Branch Executive Committee of IIMM, Ayodhya was convened in the office Hon'ble Chairman of the Branch and attended by the following:

1. Dr Harendra Kumar, Chief Advisor
2. Sri Abhay Mehrotra, Chairman
3. Sri Deep Chand, Treasurer
4. Sri RA Yadav, NC
5. Sri Adarsh Gautam, EM
6. Sri Yogendra Bhardwaj, EM
7. Sri CM Mishra, EM
8. Sri R K Sharma, EM
9. Sri Umesh Dutt Sharma, Spl Invitee
9. Sri Ashish Kherukar, Spl Invitee
10. Sri Anshuman Vajpayee, Spl Invitee

Other members of the Executive Body, being out of town, couldn't attend the meeting. Meeting started with welcome of each member by Chairman himself. Various updates were given by the members including Chairman and Chief Advisor and a kind of satisfaction with added responsibilities were felt by one and all. This year is being celebrated as Silver Jubilee and in April, 2025 forthcoming NC meet is scheduled at NHQ, Mumbai. April is open for adding new members at discounted rate of 25%. It was unanimously agreed upon to look into adding more members to the branch and also to propagate about various academic courses of IIMM to get new professionals. It was also apprised that post inauguration of the branch and conduct of NC Meet at Ayodhya, office bearers of IIMM, Ayodhya branch have attended NC at Nagpur, NATCOM at Alwar/Bhiwadi, besides programs organized by other branches but at their personal expenses. For example Dr Harendra Kumar, Sri VV Chaturvedi and Sri Deep Chand attended

NC at Nagpur. Dr Harendra Kumar, Sri Sanjay Dua, Sri Deep Chand and Sri VV Chaturvedi along with few Life Members attended the NATCOM at Alwar/Bhiwadi. Dr Harendra Kumar was given the Best Faculty award and Membership growth award, apart from chairing a technical session. Dr Kumar also gave a talk of Supply ChainManagement in Govt owned Super Speciality Centre. Sri Abhay Mehrotra, the Chairman was given in non-metro category award. Ayodhya branch also provided substantial amount of financial support, including third party for NATCOM.

After due deliberation following points were approved:

1. To work hard to add new members to IIMM.
2. To explore to get new professionals to pursue the courses of IIMM.
3. To organize one day National Seminar in May, 2025 at Ayodhya, subject to approval of Hon'ble National President, IIMM.
4. Sri Umesh Dutt Sharma Ji has been requested to send periodic updates/news along with photographs of the branch activities for publication in MMR.
5. Office bearers attending the NC meet and NATCOM will be facilitated actual return fare or Rs 10,000/ each, whichever us lesser towards travel expenses ONLY. Delegate fees, Accommodation, Flooding etc will not be borne by the branch.
6. Focus on industry visit to provide them training etc must be explored and special honorarium for this effort will be admissible as per prevailing norms of NHQ.
7. Barabanki being the neighboring district of Ayodhya and looking at potential growth for IIMM, it was found appropriate to include the name Barabanki along with Ayodhya.
8. Chairman's suggestion for industry visit was appreciated and accepted.
9. Representation to BOS, CRIMM and Faculty with paper setter and evaluator from branch level in the name of Dr Harendra Kumar is a matter of pride for all members. BEC applauded and suggested for inclusion of a few more from branch to National level.

THIRUVANANTHAPURAM BRANCH

IIMM – Manorama Reading Corner inaugurated at Government College for Women, Trivandrum on 21st March 2025. To promote reading habit among College Students and also as part of Image Building Exercise, IIMM Trivandrum Branch joined with the leading news publication in Kerala, Malayala Manorama to open a " Reading Corner" at Government College for Women, Trivandrum in the heart of the city.

Branch Chairman Dr. Koshy M George inagurated the project on Friday, 21st March 2025 by handing over the publications to the college Principal Prof. J S Anila. In his inaugural speech he stressed the need to keep abreast with the happenings in and around us by daily reading of newspapers and periodicals apart from prescribed text books of academic nature. Sri M G Narayanan Nair, Branch Secretary offered felicitations.

Malayala Manorama will maintain the Reading Corner in the College for the next one year by daily providing it's various publications including newspaper, The Week magazine, Bhasha Poshini, Karshaka Sree, Sambadyam,etc.

Branch Chairman Dr.Koshy M George inaugurating the Reading Corner by handing over the the publications to college Principal Prof. J S Anila

A view of the audience

CHH.SAMBHAJINAGAR BRANCH

" Procurement and Supply Chain Conference" 14th February 2025 : A one-day Procurement and Supply Chain Conference organized by the Indian Institute of Material Management was held at Chh.Sambhajinagar (Aurangabad) Branch as on 14th Feb 2025. Around 300 representatives from the industry sector were present for the conference.

The conference was held at the Nanasaheb Bhogle Auditorium of Marathwada Auto Cluster. The conference included various topics on Modern-day materials management. Various experts expressed their opinion during the conference on supply chain management challenges.

While guiding in the first session, Mr.Rishi Kumar Bagla, Head of Bagla Group of Industries, guided the attendees regarding the challenges in Leadership in supply chain management. He expressed his opinion that the use of technology, skilled manpower and adopting appropriate methods can definitely increase the profits of the industry.

In the second session, SRG Group Chairman Mr.Vineet Pitti gave guidance on how to manage the supply chain using various appropriate systems and on various measures to increase the efficiency of supply chain management. On this occasion, he gave examples of various technologies used in his industry group.

Mr.Ashutosh Mutsadi, Vice President of Jade Global, gave comprehensive guidance on how to use artificial intelligence and SAP, which is currently being discussed the most in the modern tech world. He asserted that artificial intelligence will be an important step in supply chain management and the use of cutting-edge technology will have to be used to survive in the global competition.

In the fourth session, Mr.Mukund Karadkhedkar, Ret.DGM from Bosch India while giving guidance on the topic of sustainability and green energy in Supply Chain. He guided on the scope & importance of sustainable procurement, sustainability standards, carbon footprint and ISO sustainable Procurement guidelines.

In the last session, Mr.Sanjay Sanghai, Group President of Endurance Technology gave detailed guidance on trustworthiness in supply chain management and asserted that proper use of resources along with modern technology is a very important factor for the development of the industry and that trustworthiness is a very important factor and the growth of business depends on a concept.

Mr.Sushant Patare, Chairman, IIMM CSN Branch said that Pivoting from the traditional material management system to the modern management of materials is the inevitable move that gives an edge to the companies looking to transform its operational processes. Modern-day material management encompasses a wider scope that covers a range of aspects looking to transform procurement into existing supply chains. Considering these facts, the Procurement and Supply Chain Conference was organised and was a grand success. He also said that very soon IIMM will organising the next Procurement and Supply Chain Conference.

IIMM- VP West and Chief Guest of the Event- Mr.Pankaj Panchbhai was felicitated by National Council Member of IIMM Mr.Sanjay Sanghai and Vice Chairman - Mr.Shrikant Mulay. The program was moderated by Mr. Phanikumar and Samruddhi Yelikar, and the vote of thanks was given by IIMM Vice President Shrikant Mulay. MMS students of Nath School of Business & Technology (NSBT) volunteered the event. IIMM President Sushant Patare, Shrikant Mulay, K.Srihari, Paras Mutha, Prem Kadam, Lalit Lohade, Dr.Narendra Joshi, Ramesh Jaulkar, Pankaj Mahajan, Ameya Kolte Dr.Vinay Lomte, etc. worked hard to make this program a success.

BANGALORE BRANCH

28.01.2025 – Half a day workshop: The IMM Bangalore Branch had organized a half-day workshop on "**Developing skills for crafting effective user stories"** on 28th January 2025 from 2.30 pm to 5.30 pm at Paraag Hotel, Bangalore. This practical workshop helped the participants in building careers in Agile/Scrum to:

- Understand the basic concept of writing the user stories
- Dos and don'ts in user story writing
- Understand how the stories are tested and validated
- Understand how the stories are groomed
- Appreciate how effective story writing can bring great values

This workshop also helped to participants to takeaways of the following knowledge skills.

- Introduction to use stores
- Fundamentals of user stories
- Epics, Themes and story mapping
- Estimating techniques
- Prioritization Techniques
- Testing and Validation of User Stories
- Key metrics to measure success of User Stories
- User story workshop

The workshop has started at 2.30 pm with the IIMM Introduction by Mr. G. Balasubramanian, Course Coordinator, and a welcome address by Dr. A.V. Shama Sundar, Branch Chairman. Speaker: **Dr. Sengupta, Rector**

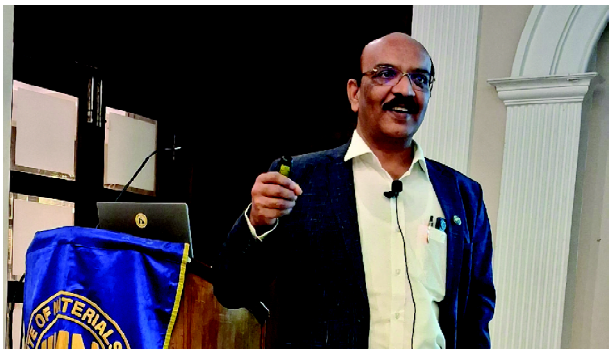
of Techno India University, West Bengal, and Dr. S.K. Chatterji. Interaction with various leaders from different verticals and disciplines provided a great opportunity for knowledge sharing and many key takeaways for the participants. We received excellent feedback from the participants.

24.02.2025 – Workshop: IIMM Bangalore Branch had organized a one-day workshop on "**Best Practices in Supply Chain Management**" on 24th February 2025 at Paraag Hotel, Raj Bhavan Road, Bangalore. Dr. A.V. Shama Sundar, Branch Chairman, welcomed speakers and delegates. Mr. S.M. Nagaraj, Senior Consultant, addressed the participants about IIMM activities. Sessions were handled by senior faculty Mr. Srihari Saragur and Dr. A.V. Shama Sundar. About 32 participants, including members from various sectors and organizations, attended the workshop. The interactive workshop has received very good feedback.

21.03.2025 – Workshop: IIMM Bangalore Branch had organized a one-day workshop on "**Negotiation Skills and Contract Management**" on 21st March 2025 at Paraag Hotel, Raj Bhavan Road, Bangalore. Mr. G. Balasubramanian, Course Coordinator and Faculty, welcomed the participants. Sessions were handled by senior faculty Mr. Rajendran and Mr. G. Balasubramanian. About 32 participants, including members from various sectors and organizations, attended the workshop. Mr. M.R. Achyuth Rao, Branch Vice Chairman, and Mr. Karunakara C.S. E.C. Member attended the workshop, assisted with conducting the role play, and awarded the participation certificates. It was a very interactive session, and I received excellent feedback from all the participants.

22.03.2025 – Monthly Lecture Program : The IMM Bangalore Branch had organized a monthly lecture program/free webinar on "**Navigating the Future: Emerging Trends in Logistics" on** 22nd March 2025 (Saturday) at 6.00 pm on MS Teams Meet. The speaker was Mr. Ganesh Kumar E., founder and director of Supply Vantage Solutions. Well attended by members, it was a professional delivery and excellent presentation. Dr. A.V.Shama Sundar, Branch Chairman, proposed vote of thanks. About 61 participants participated, and feedback was excellent.

A view of Participants in half-day workshop on "Developing skills for crafting effective user stories" on 28th January 2025



Dr A.V. Shama Sundar Branch Chairman handling the session on Best Practices in Supply Chain Management on 24.02.2025

Mr. M.R.Achyuth Rao, Vice Chairman awarding Certificate to the participant on 21.03.2025 - Workshop

---

NEW DELHI BRANCH

Indian Institute of Materials Management, Delhi Branch hosted Seminar on Contract Management" on 1st March 2025 at Hotel "The Park", New Delhi. The seminar was part of the efforts of IIMM Delhi to improve the effectiveness, efficiency and resilience of supply chain in the country by way of focusing on improvements in Contract Management.

MATERIALS MANAGEMENT REVIEW (MMR)

Annual Subscription (for 12 Issues) Rs. 1000.00

Order Form / Renewal Form

Subs. No.: P.N._____

Name of the Subscriber / Organization _____

Address of the Organization _____

Phone _____ Fax _____ E-mail _____

Subscription Period

From (month year)_____ to (Month, Year)_____

Payment enclosed

Cheque / Draft (Favouring IIMM, Payable at Mumbai) No._____ Dated _____ for Rs._____ Drawn on Bank _____ Branch_____.

Please bill us

Signature of the Subscriber_____ Subscription No._____

Please return the form to :

Indian Institute of Materials Management (IIMM)
4598/12 B, Ist Floor, Ansari Road, Darya Ganj, New Delhi - 110 002.
Phones : 011-43615373 Fax: 91-11-43575373
E-mail: mmr@iimm.org
Website : iimm.org

ADVERTISEMENT TARIFFS

Position		Monthly Rate (Rs.)	Annually Rate (Rs.)
Back Cover	(4 Colors)	30,000.00	2,50,000.00
II/III Cover	(4 Colors)	25,000.00	2,00,000.00
Full Page	(4 Colors)	20,000.00	1,75,000.00
Full Page	(B/W)	15,000.00	1,25,000.00
Half Page	(B/W)	10,000.00	1,00,000.00
Quarter Page	(B/W)	8,000.00	75,000.00
Strip		5,000.00	50,000.00
Tender Notice	(F/P B/W)	20,000.00	
Placement News	(H/P B/W)	10,000.00	

Advertisement material alongwith Cheque / Demand Draft should be drawn in favour of IIMM Mumbai and despatched at the following address

INDIAN INSTITUTE OF MATERIALS MANAGEMENT
4598/12 B, Ist Floor, Ansari Road, Darya Ganj, New Delhi - 110 002.
Phones : 011-43615373 Fax: 91-11-43575373
E-mail: mmr@iimm.org

Add Rs. 20/- Extra for Outstation Cheques.

IIMM **Research Centre**

CENTRE FOR RESEARCH IN MATERIALS MANAGEMENT (CRIMM)

IIMM has set up CRIMM in Kolkata jointly with the Techno India University which is one of the renowned and largest Private University in West Bengal. A MOU was signed with TIU on 17th of November, 2017. Techno India University, West Bengal, promoted by the well-known Techno India Group is a leading Private University in the state and the country

Objectives and Activities of CRIMM in brief

- To promote research in materials management discipline.
- To collaborate with industry for furthering the academic advancement of materials management and its application to industry.
- To render assistance to industries in problem solving projects, development activities, etc
- To take up project consultancy work in Materials Management. Centre will act as a nodal point for co-ordination and integration of research information in the field of Materials Management for on-going and completed research work in other countries

Research Fellowship

The candidate should have a Master Degree in any subject/discipline or equivalent professional Management qualification i.e. PGDBM, PGDMM etc. with at least 50% marks in aggregate at the graduation and post-graduation level. The candidate should have experience in working in Materials Management discipline or allied areas in industries. In case of highly experienced candidate in the field of Materials Management, and/or Engineering Graduates, Master Degree may be dispensed with. Preference will be given to industries sponsored candidates

The fees for such research studies will depend on the specific problem/area and the tenure, which will be borne by the sponsoring organisation. Those who will take up such Fellowship research studies on their own expenses, will have to bear the expenditure on their own. Successful Research Fellow from CRIMM shall have the unique opportunity to pursue PhD in Techno India University, West Bengal with condensed course work.

Governing Committee

A steering Committee has been constituted to oversee the working of the centre consisting of nineteen members, eight from Techno India University, West Bengal, eight from IIMM, and three from industry.

For more information please contact

Prof. (Dr.) Suresh Kumar Sharma

Jt. Chairman –CRIMM

M: 09818464359

Email: crimm.sureshiimm@gmail.com

BRANCH ACTIVITIES

RNI NO. DELENG/2004/13227
POSTED AT LPC DELHI RMS
DELHI-110006, DATED 5/6/7

Postal Reg. No.DL(C)-05/1303/2025-27
L.No. U(C)-288/2025-27
Licensed To Post Without Pre Payment

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