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From the Desk of Chief Editor & National President

Technologies have always played a pivotal role in development of Industrial face right from conventional mode to digitalised world of business and supply chain sector is no exception from this technological upgradation.

Of late, business leaders havefocussed as to how one can staycompetitive and profitable in the market by improving their supply chain with the help of new, innovative and disruptive technologies not only as a source of competitive advantagebut also to address digital transformation in today's volatile and non-predictive environment. This means that traditional applications, developed around aging infrastructure are not fit for current jobs anymore and needs immediate revamping. As the brittleness, incomprehensibility and non-liner nature of supply chain increases, it is expected to work out further investment in advanced technology solutions to enhance supply chain performance.

The next generation supply chain supported by advanced technologies including Artificial Intelligence& Machine Learning (AI/ML), the Internet of Things (IoT), robot process automation (RPA), and Augmented Reality (AR) will find its way to identify patterns, errors and supply chain data issues in real-time.The implementation of predictive and prescriptive analytics will give companies an edge to have greater visibility, data-driven real time decision-making, execution efficiency, predictability and profitability.

Commercial supply chain houses are now focusing on developing supply chain applications embedded with more of such disruptive technologies which will help supply chain professionals to develop more agile, reliable, flexible and resilient supply chains.

Supply chain can't be completed without Logistics which is a critical life line of the entire supply chain and to further strengthen the next generation supply chain, it is equally important to hasten up the development across logistics sector. Over the last few years, government has worked upon such policy called National Logistics Policy and has launched it successfully on 17th September 2022.

National Logistics Policy revitalises many fields and is a comprehensive effort to address cost and inefficiency issues by lying down an overarching interdisciplinary, cross-sectoral, and multi-jurisdictional framework for the developing entire logistics ecosystem. The goal of this policy is to provide services related to quick last-mile delivery, ending transport-related issues, saving manufacturers time & money and preventing agricultural products from being wasted.This will boost economic growth, provide employment opportunities, and make Indian products more competitive in the global market.

For India to become $ 5 trillion economy by 2025, it is important to improve upon logistical activities across various supply chains and providing robust infrastructure to our business houses so that economic transactions can take place frequently and smoothly.

As the year comes to an end, the threat of another wave of Covid 19 with a dangerous BF.7 variant looms large. Though India has done very well in areas of vaccination, focussing on improving health infrastructure and the supply chain management in general, a lot more focussed effort will be needed for dealing with challenges of threat from new variant. Lessons learnt from earlier waves will be handy and once again focus will be on technological upgradation.

I wish all the readers a happy, healthy and safe 2023.

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MRO INVENTORY MANAGEMENT – AN INTRODUCTION

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1. INTRODUCTION : In spite of the fact that we have many capital intensive Manufacturing companies functioning in our country, this author is of opinion that we have not given MRO Inventory Management, its due recognition and importance. And it is only sad to notice that we have failed to realise its creditable importance in our growth. Despite the fact that even the developing countries of Asia have advanced in this field, we are yet to follow suit. Of course, if we want to succeed in our ambitious endeavour of achieving World Class Performance objective in industrial production and growth, we have to follow the path taken by our competitors, without delay. More importantly, the technical literature both in the form of Books and research Articles published in this field in our country is limited. The ensuing sections of this article will give an introduction to MRO Inventory Management.

2. FLOW OF MATERIALS IN MANUFACTURING ENVIRONMENT

A Typical Flow of Materials in Manufacturing Environment as given in figure 2.a. will help us study and understand the Material Flow and the concept of MRO clearly in Manufacturing Environment.

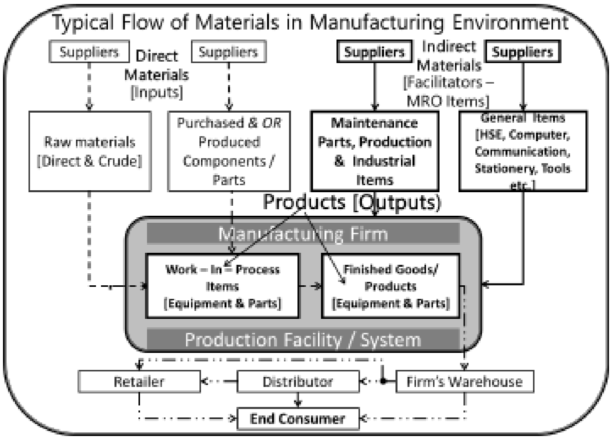

Figure: 2.a.

Materials (or Items)

Oxford Dictionary defines Material as "The matter from which a thing is or can be made" while Cambridge Dictionary states that it is "A physical substance that things can be made from". Both the dictionaries define Material as input (Raw Materials) to manufacturing processes only. But in practice in manufacturing organizations, the term Material is used with a wider meaning. Joseph D. Patton Jr in his book Maintainability and Maintenance Management, Page 13, Instrument Society of America, 1980, defines Material, as "All items used or needed in any business, industry or operation as distinguished from personnel". In the above definition, term Materials is equated with term Items. In practice Materials and Items are used synonymously.

Definition: The term Materials (or Items) in a manufacturing organization stands for all the inanimate things and objects purchased and or produced for Current Operations and or kept in Stock for Future Sales and or Captive Consumption.

Materials are generally classified as Direct Materials, Indirect Materials and Products. It is to be realized that as it is primarily an Accounting Control Classification, it is not easily amenable to other control measures especially Inventory Control of Indirect Materials.

Direct Materials (Production Materials) : Materials used to manufacture the Products, come under this classification. These become integral part/(s) of the final product and can be traced to specific product or job. Typically this class of materials include Raw Materials and Components procured from Suppliers and produced in-house. And thus the cost of the materials is identifiable and chargeable directly to the final product or job.

Indirect Materials (Non-Production Materials or Facilitating Materials) : Indirect Materials do not become integral part/(s) of final products. However they are highly essential for manufacturing the products because they include Materials for aiding the Production Equipment and Facilities Operating and making them Available at rated capacity as per Production Schedule. Further they include Materials for facilitating and or accelerating Chemical Manufacturing Processes. As these materials do not become integral parts of Products or Jobs (Services), the cost of which is not identifiable with or directly chargeable to a specific product or job. Hence the cost is captured as overhead in a specific period and apportioned subsequently on some rational basis to all the products manufactured and or jobs completed in the same period as that of data capture.

Finished Products (Production Outputs) : Definitions of Product given in Oxford and Cambridge dictionaries state that it is manufactured or refined by industrial processes and stocked for future sale. The Products of a manufacturing organization consists of Finished Products (Equipment Units and Service Parts) and Work-In-Process materials (Semi-finished Equipment Units and Service Parts). And these are the materials for satisfying the Customer Demands. The Customers can be other Manufacturing organizations, Distributors, Retailers or End Consumers (End Users).

3. MRO ITEMS– WHAT DOES IT STAND FOR?

The abbreviation MRO has two prevalent versions of expansion among Maintenance and Materials Management professionals in Industrial Manufacturing sector and they are: 1] Maintenance, Repair and Overhaul Items and 2] Maintenance, Repair and Operation / Operational / Operating Items. Operational and Operating are two variants of Operation only. The former is used mainly in Aviation Industry while the latter has its popularity among capital intensive Manufacturing Industries such as Oil and Gas, Chemical, Petrochemical, Power Generation, Fertiliser, Cement etc

In both the above mentioned expansions, Maintenance and Repair are common terms. Overhaul and Operation (Operational and Operating) are two distinct designations in the two expansions. These denominations are explained further in the following sub sections:

M IN MRO STANDS FOR MAINTENANCE

Maintenance is described by John E. Day, Jr. a renowned Maintenance Engineer, as "The act of maintaining. To keep in an existing state: preserve from failure or decline, protect etc." (Richard D. Palmer, Page 122, Maintenance Planning & Scheduling Handbook, 3rd Edition, McGraw-Hill, 2003). This definition is well in line with the dictionary definitions of Maintenance: "the process of preserving a condition or situation or the state of being preserved" (Oxford) and "the work needed to keep a road, building, machine, etc. in good condition" (Cambridge). Thus the emphasis is to retain or preserve the equipment in the original or existing condition and to protect it from further performance deterioration. And these measures can be proactive and preventive in nature. In this juncture it is only apt to analyze a couple of definitions of Preventive Maintenance (PM).

In Page 15, Maintainability and Maintenance Management, Joseph D. Patton, Jr, defines PM as "Actions performed in an attempt to keep an item in a specified operating condition by means of systematic inspection, detection, and prevention of incipient failure". Another definition of Preventive Maintenance as given in BS EN 13306:2010 is quite relevant: "Maintenance carried out at predetermined intervals or according to prescribed criteria and intended to reduce the probability of failure or the degradation of the functioning of an item".

BS EN 13306:2010 further defines Overhaul as follows: "Comprehensive set of preventive maintenance actions carried out, in order to maintain the required level of performance of an item. Overhaul may be performed at prescribed intervals of time or number of operations". As Overhaul itself is an integral part and subset of Preventive Maintenance, there is no need to mention it separately in the expression MRO. And thus, according to this author, Operations is the right expansion of "O" in the expression of MRO and not at all Overhaul.

R IN MRO STANDS FOR REPAIR

John E. Day, Jr. describes Repair as: "To restore by replacing a part or putting together what is torn or broken: fix, rejuvenate, etc.". (Richard D. Palmer, Page 122, Maintenance Planning & Scheduling Handbook, 3rd Edition, McGraw-Hill, 2003). Another definition by Joseph D. Patton, Jr. given in his book Service Parts Management, Page 12, 1st Edition, 1984, Instrument Society of America, is as follows: "Restoration or replacement of parts or components as necessitated by wear, tear, damage, or failure; to return the facility, equipment, or part to efficient operating condition". These definitions are in harmony with those given by the dictionaries: "restore (something damaged, faulty, or worn) to a good condition" (Oxford) and "to put something that is damaged, broken, or not working correctly, back into good condition or make it work again" (Cambridge).

BS EN 13306:2010 defines Repair as: "Physical action taken to restore the required function of a faulty item. Repair also include fault localization and function checkout" and Corrective Maintenance as: "Maintenance carried out after fault recognition and intended to put an item into a state in which it can perform a required function". These definitions make Repair and Corrective Maintenance synonymous and so it is established that R denotes Repair (Corrective Maintenance) in MRO.

O IN MRO STANDS FOR OPERATIONS

A few commonly used expansions of term MRO are given below:

- "Maintenance, Repair, and Operating" { 1] APICS Dictionary, Page 52, 2] IIMM, Glossary, Page 172, 3] JR Tony Arnold, et al., Page 259, 4] Eugene C. Moncrief, et al., Page 15, 5] Joel D. Wisner, et al., Page 32, 6] Peter Baily and David Farmer. Page

53.}

a) "Maintenance, Repair, and Operations". { 1] Philip Slater; Page 8, 2] Sunil Chopra, et al; Page 17, 3] P Gopalakrishnan et al. Page 27. }

b) "Maintenance, Repair, and Operational" { 1] JR Tony Arnold, et al., Page 257. }

Now it is important to analyze the meanings of terms OPERATIONS, OPERATIONAL and OPERATING in standard Dictionaries. Oxford, Cambridge, Longman and Collins Dictionaries give more or less similar connotations for these terms when used with Items of Production Facility, Equipment and Plant. However the term Operations gives a better implication of relatedness with the proper Operation of Plant and Equipment as well as the Manufacturing Operation. In fact, both types of Operation are required for smooth functioning of Production Equipment and Facility. Based on the above fact, this author strongly suggests to use the term Operations instead of the widely used term Operating, in MRO Items to give the real and full implication of grouping.

MRO EXPANSION

Definition: MRO stands for Maintenance, Repair and Operations.

MRO ITEMS

Materials classified under MRO are termed MRO Supplies, MRO Products, MRO Materials, MRO Items etc. This author prefers the term "MRO Items" and it is used in this article. In Industrial parlance, Maintenance and Materials Management professionals use the terms Materials and Items synonymously, with Items being the frequent choice. It is only apt to note that a comprehensive definition of Item can be generated based on the definitions from a few standard sources, the references of which are given after the suggested definition: "Item is a generic term used to identify a distinct single thing or specific entity of materials, kept in stock in an organization for future use. Items may be any unique manufactured and or purchased materials, products, parts, components, assemblies, subassemblies, accessories, groups, equipments, intermediate or attachments." Item is identified by this definition in this article. [Donald Waters, Page 4, Joseph D. Patton, Jr. Page 6, IIMM Glossary, Page 146, 2nd Edition, and APICS Dictionary, 9th Edition, Page 46].

Definition: MRO Items include those Items which are needed for the proper and safe Maintenance, Repair and Operation of Production Facility (Plant, Equipment and System) and Auxiliary Systems directly supporting and or aiding Production Operations, in addition to those required for facilitating and or accelerating the Chemical Manufacturing processes.

Major MRO Items include:

- Spare Equipment Units, Spare Parts, Special Tools and Equipment Accessories for Production Facility, Plant and Machinery. They can be Unique (Captive) parts, Standard parts, Commercial parts and Production & Industrial Consumables.
- Spare Equipment Units, Spare Parts, Accessories, Special Tools and Consumables for Fire and Safety System.
- Materials for facilitating and or accelerating Chemical Manufacturing Processes: Catalysts and Production Chemicals.
- Spare Equipment Units, Spare Parts, Accessories, Special Tools and Industrial Consumables for Auxiliary Systems for Operating and Supporting Production:
  - o Material Handling Vehicles and Systems in Production Plant and Warehouse,
  - o Cooling Water Plant,
  - o Instrument Air System,
  - o Hydraulic System,
  - o Plant Electrical System,
  - o Cooling, Heating and Ventilation System of Plants, etc.
- House Keeping and Cleaning materials and Consumables for Plant.
- Industrial and General Consumables for Plant use etc.

In a capital intensive industrial organizations, there will be thousands of units of various kinds of Equipment and Systems; and thus the total number of the Items mentioned above can be in the order of Hundreds of Thousands. May be 90% to 95% or even more of MRO Items can be Spare Parts and Spare Equipment (Spares) as is evident from the list of Items detailed above.

MRO Items can have unit prices ranging from couple of Rupees to Tens of Lakhs of Rupees. In fact, many low value Items can be highly Vital to the functioning of the Plant and Equipment and their unavailability can cause extreme production loss. This author has observed that when these are classified as Indirect Materials, many employees inadvertently attach a wrong connotation to these Items as unimportant ones. Under these circumstances, for effecting efficient and effective Inventory Management, it is not at all pragmatic and realistic to classify these items just as Indirect Materials. To avoid this undesirable situation, it is only advisable to classify these as MRO Items. But the classification of Indirect Materials is quite relevant for

Financial and Cost Accounting.

4. MRO INVENTORY MANAGEMENT

MRO Inventory Management is explained in two stages such as MRO Inventory and MRO Inventory Management.

MRO INVENTORY

Inventory has four meanings as per Cambridge Dictionary and they are: 1] A detailed list of all the Items, 2] The amount of stock of goods, 3] The value of Items, and 4] The counting of all the goods, materials, etc. stocked in an organization. In this article, the definition of MRO Inventory is given as follows:

Definition: MRO Inventory indicates the total number of MRO Items Stocked for future Consumption as per Company Stocking Policy and their amounts of Stock, including Nil Stock, in an Organization at the time of consideration.

MRO INVENTORY MANAGEMENT

This author's quest for an authentic definition of MRO Inventory Management revealed the fact that there is no comprehensive and proper definition readily available. This led to the author's critical analysis and review of the definitions of Inventory Management as applicable to all Items in general, as available in some of the standard sources, the references of which are given below.

References:

'$ Tony Arnold et al., Pages 254 & 259, Introduction to Materials Management, 6th Edition, Pearson, 2010; a$ Donald Waters, Page 7, Inventory Control and Management, 2nd Edition, John Wiley, 2003; b$ James F. Cox III et al., Page 45, APICS Dictionary, 9th Edition, 1998; c$ MK Bhardwaj, Page 143, Glossary of Purchasing and Materials Management, 2nd Edition, IIMM, 2002; d$ Peter Wanke, Federal University of Rio de Janeiro, Page 9, Production And Inventory Management Journal (APICS), Volume 49, No 1, 2014; e$ P. Gopalakrishnan and Abid Haleem, Page 127, Handbook of Materials Management, 2nd Edition, PHI, 2015 and f$ Douglas K. Orsburn, Page 314, Spares Management Handbook, 1st Edition, McGraw Hill, 1991.

The study revealed two points: '$ There are wide variations among the definitions given by these sources and a$ the definitions lacked completeness. Hence this author's endeavor to evolve a proper and comprehensive definition of it, is rightly justified. Before proceeding further, it is quite natural and logical to analyze the activities involved in MRO Inventory Life Cycle at the End User Side, as the basis for developing the definition. As Spares have all the specific stages in the Inventory Life Cycle, their case is described in 4.2.1. as a typical example. Other MRO Items need not go through all these stages of Inventory Life Cycle shown in the figure 4.2.1.a., and hence Spares have been selected to represent all the MRO Items in this context.

Now it is only mandatory to define Spare before proceeding further. This author has developed the following definition:

Definition:

Spares: Spares can be Items such as individual Parts, Modules, Subassemblies, Assemblies, Functional Units or Equipment Unit itself and uniquely identified as per the Manufacturing Bill of Materials of the Actual Equipment or Systems in service, and kept in Stock for future replacement of the original installed Item removed due to Life Expiry, Worn out, Weakening, Damage or Malfunctioning during Maintenance and Repair of Equipment, Systems or Spares themselves. The Spare should be Form, Fit and Function interchangeable completely with like Item removed, without any attachment or modification of the Item, Equipment or Systems and compatible to be integral with the Equipment or Systems in which the Spare is to be installed. Further the Spare may be repairable or non-repairable. Spares can be either Captive Parts or Standard Parts or Commercial Parts. Spare Part, Spare Item, Service Part, Repair Part and Maintenance Part are synonyms of Spare.

This definition has been evolved by combining the personal experience of this author in planning and controlling Spares to the level of nearly Hundred Thousand Items, in Chemical and Oil & Gas industries, with the substances derived from the critical study of definitions of terms such as Spare Part, Repair Part, Service Part etc. given by various authors in their books, the references of those are given in the ensuing paragraph:

References:

'$ Joseph D. Patton, Jr, Pages 12, 13, and 14 Service Parts Management, 1st Edition, 1984, Instrument Society of America.

a$ Douglas K. Orsburn, Pages 319 and 320, Spares Management Handbook, 1st Edition, 1991, McGraw-Hill, Inc.

b$James F. Cox III et al., Page 87, APICS Dictionary, 9th Edition, 1998. c$ MK Bhardwaj, Page 236, Glossary of Purchasing and Materials Management, 2nd Edition, 2002, Indian Institute of Materials Management. d$ P. Gopalakrishnan and Abid Haleem, Page 227, Handbook of Materials Management, 2nd Edition, 2015, PHI Learning Private Limited. e$ Lt. General S. S. Apte, Page 24, Spare Parts Management. f$ Philip Slater, Page 9, Spare Parts Inventory Management, 1st Edition, 2017, Industrial Press, Inc. g$ Adin B Thomas, Page 31, Stock

Control in Manufacturing Industries, 2nd Edition, 1980, Gower Press, Teakfield Limited. h$ Page 517, Dictionary of Engineering, 2nd Edition, 2003, McGRAW-HILL. i$ David Lowe, Page 226, Dictionary of Transport and Logistics, 1st Edition, 2002, Kogan Page. Plus Oxford, Cambridge, Merriam-Webster and Collins Dictionaries.

Spares' (typically an MRO Item) Inventory Life Cycle at End User Side

There are seven (7) distinct stages in the Inventory Life Cycle of Spares at the User End. These are shown as a self-explanatory Stock – Time Curve model (drawn Not-to-Scale) in figure 4.2.1.a.:

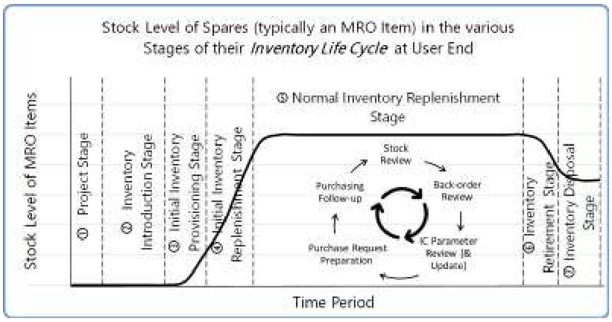

Figure 4.2.1.a.

Major Inventory Management Decisions during the Inventory Life Cycle of Spares

The Major Inventory Management Decisions to be taken in each stage are given in table 4.2.2.a.

Inventory Life Cycle Stage	Major Inventory Management Decisions
① Project Stage	Collection of Technical and Purchasing Data related to Equipment and their Parts, Matrix Bill Of Materials of Equipment with Tag Numbers and Technical Literature and Equipment Manuals with emphasis on Data Correctness and Completeness.
② Introduction Stage	Decision on What to Stock and Preparation of Master Data Management with Initial Inventory Control (IC) Parameters. IC (Inventory Control) Parameters are: Inventory Planning Category, Review Frequency, Re-Order Level, Minimum Stock, Service Level, Safety Stock, Maximum Stock, Economic Order Quantity, Standard Order Quantity, etc.
③ Initial Provisioning Stage	Decision on Order Quantities for Initial Provisioning and Where to Store.
④ Initial Operation Stage	Decision on Replacement of Commissioning Spares (Optional) and Replenishment of Spares as needed with IC Parameter Updating.
⑤ Normal Operation Stage	Decisions on What and When to Reorder and How much to Reorder based on Inventory Control Parameters of Review Frequency, Service Level, Reorder Level etc. And updating of IC Parameters of Spares.
⑥ Retirement Stage	Identification of Surplus Quantities of Spares, , Obsolescent, Obsolete and Unwanted Spares with Quantities and IC Parameter Updating.
⑦ Disposal Stage	Scrapping and Disposal of Unwanted Quantities of Spares and or Unwanted Spares and IC Parameter Updating.

Table 4.2.2.a.

DEFINITIONS OF MRO INVENTORY MANAGEMENT AND MRO INVENTORY CONTROL

Again the definitions of MRO INVENTORY MANAGEMENT and MRO INVENTORY CONTROL have been developed by merging the personal experience and knowledge of this author in planning and controlling Spares to the tune of nearly Hundred Thousand Items, in Chemical and Oil & Gas industries, with the essential ideas derived from the critical study of definitions of Inventory Management given by various authors in their books, the references of those are given in 4.2. above.

Definition: MRO Inventory Management is a highly important organizational function responsible for Planning and Controlling of MRO Items especially Spares, for ensuring the Availability of Items as required by the Internal Customers (Maintenance and Operations departments) and also for obtaining Optimum Inventory Levels, in line with the Management Approved Optimization Criteria such as Highest Customer Service, Optimum Inventory Cost and Minimum Plant Operation Cost etc., from the Birth through Growth to the Death of the Items. It establishes Organization specific Policies, Procedures and Standard Operating Practices and ensures their adherence in carrying out the activities such as: Collection of Technical and Commercial Data related to Plant and Machinery, Instituting Master Data Management, Provisioning of Items, Stock Management with appropriate Service Level, Periodical Inventory Analysis and Review, Scrapping and Disposal of Items, Maintaining Up to Date Inventory Data, Performance Evaluation, etc.

Definition:

MRO Inventory Control is the most important and the central function of MRO Inventory Management, responsible for Planning and Controlling of MRO Items especially Spares, for ensuring Highest Customer Service, Optimum Inventory Cost and Minimum Plant Operation Cost with Optimum Inventory Levels. The Inventory Control activities are carried out based on the established Organization specific Policies, Procedures and Standard Operating Practices. They include Stock Status Review, Demand Forecasting and Requirement Determination, Inventory Control Parameter Updating, Stock Replenishment for the pre-defined Service Level, Purchasing follow-up, Periodical Inventory Analysis and Review, Maintaining Up to date Inventory Data, etc.

Major Objectives of MRO Inventory Management The major objectives are:

* Highest Customer Service achieved with Maximum Plant Availability,
* Minimum Plant Operation Cost obtained with Maximum Production at Required Quality and
* Optimum Inventory Cost attained with Inventory Optimization.

These objectives are achieved by co-ordinating with other functions namely Purchasing, Operations, Maintenance and Warehousing.

●●●

SUSTAINABLE SUPPLY CHAIN MANAGEMENT

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The constant flow of raw materials, energy, and food along the supply chain is what keeps modern civilization going. Yet over 90 percent of the impacts on the air, soil, and land caused by consumer products is due to the supply chain. Over 80 percent of a consumer company's greenhouse gas emissions also come from its supply chain. The harvesting of resources, the inefficient use of those resources, and the waste products entering the environment at the end of the supply chain are degrading the natural world. Eventually, the waste, pollution, and resource depletion caused by supply chain operations will put the livelihoods and the lives of those billions of people it supports at risk

Sustainable supply chain management involves integrating environmentally and financially viable practices into the complete supply chain lifecycle, from product design and development to material selection.

SSCM may be perceived as the proper management of related environmental, social, and economic impacts in constructing and maintaining effective and efficient global supply chains. SSCM encourages governance practices at all levels of lifecycles of goods and services that reduce waste, ensure long-term maintainability and economic value of environmental and social well- being of all stakeholders' interest in the creation and delivery of products and services. Although it is a very difficult task to bring into the decision process of the rights and needs of all interested stakeholders in the marketplace, it is to the long-term benefit of the properly managed supply chain relationships and corporate sustainability initiatives that ultimately promote broad- based sustainable development objectives for the good of people, plant, and profits (i.e., triple bottom-line)

SUPPLY CHAIN SUSTAINABILITY

Supply chain sustainability refers to companies' efforts to consider the environmental and human impact of their products' journey through the supply chain, from raw materials sourcing to production, storage, delivery and every transportation link in between. The goal is to minimize environmental harm from factors like energy usage, water consumption and waste production while having a positive impact on the people and communities in and around their operations. These concerns are in addition to traditional corporate supply chain concerns around revenue and profit.

HOW CAN A SUPPLY CHAIN BE SUSTAINABLE?

Companies around the world have taken steps to lower their carbon emissions, cut back on waste and improve labor conditions. By tracking sustainability metrics in supply chain management (SCM) systems, they monitor multifaceted programs that, for example, prioritize renewable energy, recycle products and materials or encourage greater social responsibility among suppliers.

WHY IS SUSTAINABILITY IMPORTANT IN THE SUPPLY CHAIN?

Research has shown that, for most companies, the supply chain is responsible for the bulk of their environmental impact. By their very nature, supply chains often involve energy-intensive production and transportation as goods are made and moved around the globe. Therefore, organizations can often make the biggest difference by making changes to their supply chain rather than other business operations.

BENEFITS OF SUPPLY CHAIN SUSTAINABILITY

Supply chain sustainability benefits not only companies' own interests and those of their stakeholders but also society and the planet at large. Companies have realized that climate change, for example, can put their business continuity at risk with extreme weather disruptions and growing resource scarcities.

Here are five frequently cited business activities that benefit from sustainability:

1. Supply chain operations: Recent examples show that energy costs decrease, for example, as companies set emission targets with suppliers and help them identify potential areas for improvement.
2. Branding: Consumers are more concerned than ever about where products come from and how they're produced. Researchers at MIT's Sloan School of Management found that consumers may pay 2-10% more for products that provide supply chain transparency.
3. Investor relations: Institutional investors are keenly aware of the reputational risk of unsustainable supply chain operations. In recent years, the media has reported many irresponsible supply chain practices, and in some cases, it's hurt a given company's stock prices. These accounts have revealed businesses sourcing electronics from overseas, maintaining hazardous working conditions, using suppliers that routinely polluted local rivers, and procuring defective components or toxic materials.
4. Corporate culture: Millennials, in particular, seek greater purpose in their work, according to demographers. Successfully hiring and retaining employees often depends on a company's corporate culture and values, and sustainability plays a key role in that.
5. Compliance: Governments around the world are mandating greater supply chain sustainability, in part to meet the United Nations' 2030 deadline for achieving Sustainable Development Goals, like clean water for all. Government regulations cover many areas, including the traceability of pharmaceuticals, disposal of electronics and avoidance of conflict minerals.

CHALLENGES OF SUPPLY CHAIN SUSTAINABILITY

Cost is the primary impediment to sustainable supply chains, with smaller companies finding it particularly difficult to afford the upfront costs of making a supply chain more sustainable. However, an investment in something like compact packaging, for example, can lead to a reduction in the size and number of shipments, a lower environmental footprint and cost savings over time.

SUSTAINABILITY GOALS IN THE SUPPLY CHAIN

More companies have moved beyond paying lip service to sustainability to embracing it and tracking its return on investment.

Why are more companies embracing the principle of sustainability? What prompted them to move from merely paying it lip service as something "nice to do" to formulating new accounting line items to track its return on investment?

At the **Institute for Supply Management**, we believe companies made the change because they realized sustainability goals are:

- Necessary because consumers are demanding attention be paid to sustainability and the government is regulating efforts to uphold it.
- Prudent because they can help save millions of dollars.
- Crucial to protect the environment for future generations.

According to the **Environmental Protection Agency**, "Sustainability is based on a simple principle: Everything that we need for our survival and well-being depends, either directly or indirectly, on our natural environment. To pursue sustainability is to create and maintain the conditions under which humans and nature can exist in productive harmony to support present and future generations."

We're seeing many companies build sustainability goals into their supply management objectives. Equally important, they expect their suppliers to do the same. Some of the leaders in this effort are:

- **Pepsi-Cola**: as part of its "Water Stewardship" Program, it's reducing the amount of water to produce soft drinks from about three gallons per bottle of soda to less than two gallons per bottle.
- **Subaru**: its commitment to be "America's first 'Zero Landfill' automaker" by recycling or reusing all its waste products is making it a favorite of millennials as they shop for cars.
- **Repurposed Materials**: this company turns one company's would-be trash into another company's useful product and as a result, has seen its operation grow from one site in Denver to four more in Atlanta, Philadelphia, Chicago and Dallas.
- **Packaging company Sonoco**: it operates by the statement "Every day, we commit ourselves to the singular notion that smart packaging is more than plastics, cardboard, and paper - it's a promise to people, products and our planet," and expects its suppliers to as well.

THE SUSTAINABLE DEVELOPMENT GOALS (SDGS):

These are collection of 17 interlinked global goals designed to be a "shared blueprint for peace and prosperity for people and the planet, now and into the future". The SDGs were set up in 2015 by the **United Nations General Assembly** (UN-GA) and are intended to be achieved by 2030. They are included in a **UN- GA Resolution** called the **2030 Agenda** or what is colloquially known as **Agenda 2030**. The SDGs were developed in the **Post-2015 Development Agenda** as the future global development framework to succeed the **Millennium Development Goals** which were ended in 2015. The SDGs emphasize the interconnected environmental, social and economic aspects of **sustainable development**, by putting **sustainabilit**y at their center.

Consumer and investor demands One reason for **growing attention** on supply chain sustainability is that **consumers are more aware of the unethical practices that exist in many supply chains** - like **child labour, forced labour, and gender discrimination.**

Sustainability within a supply chain involves investigating not just environmental concerns, but also social, economical and legal responsibility as well. Supply Chain Digital investigates the importance of sustainability within an organisation's supply chain.

The **Sustainable Development Goals (SDGs)**, also known as the Global Goals, are a global initiative to end poverty, protect the environment, reduce economic inequality and ensure peace and justice for all. These 17 Goals build on the successes of the Millennium Development Goals (MDGs) which ended in 2015. Unlike the MDGs, the SDG framework does not distinguish between "developed" and "developing" nations. Instead, the goals apply to all countries. These goals are interconnected and based on the principle of "leaving no one behind". There are 169 targets for the 17 goals.

In this article we are publishing the list of 17 the Sustainable Development Goals (SDGs) and their prime objectives;

The Sustainable Development Goals (SDGs) or Global Goals are a collection of 17 interlinked global goals designed to be a "shared blueprint for peace and prosperity for people and the planet, now and into the future". The SDGs were set up in 2015 by the United Nations General Assembly (UN-GA) and are intended to be achieved by 2030.

The 17 SDGs Goals	Objective	Description
Goal -1	No Poverty	By 2030, eradicate extreme poverty for all people everywhere.
Goal -2	Zero Hunger	End hunger, achieve food security and improved nutrition by 2030.
Goal -3	Good Health and Well-being	Ensure healthy lives and promote well-being for all at all ages by 2030.
Goal -4	Quality Education	Ensure that all girls and boys complete free, equitable and quality primary and secondary education by 2030.
Goal -5	Gender Equality	To achieve gender equality and empower all women and girls.
Goal -6	Clean Water and Sanitation	Ensure availability and sustainable management of water and sanitation for all by 2030.
Goal -7	Affordable and Clean Energy	Ensure access to affordable, reliable, sustainable and modern energy for all by 2030.
Goal -8	Decent Work and Economic Growth	Promote sustained, inclusive and sustainable economic growth.
Goal -9	Industry, Innovation and Infrastructure	Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation by 2030.
Goal -10	Reduced Inequality	Reduce inequality within and among countries by 2030.
Goal -11	Sustainable Cities and Communities	Make cities and human settlements inclusive, safe, resilient and sustainable.
Goal -12	Responsible Consumption and Production	Ensure sustainable consumption and production patterns.
Goal -13	Climate Action	Take urgent action to combat climate change and its impacts.
Goal -14	Life Below Water	Conserve and sustainably use the oceans, seas and marine resources for sustainable development.
Goal -15	Life on Land	Protect, restore and promote sustainable use of terrestrial ecosystems, combat desertification and halt biodiversity loss.
Goal -16	Peace and Justice Strong Institutions	Promote peaceful and inclusive societies for sustainable development; provide access to justice for all.
Goal -17	Partnerships to achieve the Goal	Strengthen the means of implementation and revitalize the global partnership for sustainable development.

THE SUSTAINABLE DEVELOPMENT GOALS IN INDIA

India's overall Sustainable Development Goals (SDG) score was 66 out of 100.

India Ranks 120 On 17 Sustainable Development Goals Adopted As 2030 Agenda

India is critical in determining the success of the SDGs, globally. At the UN Sustainable Development Summit in 2015, Prime Minister Narendra Modi noted, "Sustainable development of one-sixth of humanity will be of great consequence to the world and our beautiful planet.

It will be a world of fewer challenges and greater hope; and, more confident of its success". NITI Aayog, the Government of India's premier think tank, has been entrusted with the task of coordinating the SDGs, mapping schemes related to the SDGs and their targets, and identifying lead and supporting ministries for each target. In addition, the Ministry of Statistics and Programme Implementation (MoSPI) has been leading discussions for developing national indicators for the SDGs.

State governments are key to India's progress on the SDGs as they are best placed to 'put people first' and to ensuring that 'no one is left behind'. The UN Country Team in India supports NITI Aayog, Union ministries and state governments in their efforts to address the interconnectedness of the goals, to ensure that no one is left behind and to advocate for adequate financing to achieve the SDGs.

India has slipped three spots from last year's 117 to rank 120 on the 17 Sustainable Development Goals adopted as a part of the 2030 agenda by 192 United Nations member states in 2015, a new report said.

With the latest rankings, India is now behind all south Asian nations except Pakistan, which stands at 129. The south Asian countries ahead of India are Bhutan ranked 75, Sri Lanka 87, Nepal 96 and Bangladesh 109.

India's overall Sustainable Development Goals (SDG) score was 66 out of 100.

According to the Centre for Science and Environment's State of India's Environment Report, 2022, released by Union Environment Minister Bhupender Yadav on Tuesday, India's rank dropped primarily because of major challenges in 11 SDGs including zero hunger, good health and wellbeing, gender equality and sustainable cities and communities.

India also performed poorly in dealing with quality education and life on land aspects, the report stated.

The previous year, India had suffered on the fronts of ending hunger and achieving food security, achieving gender equality and building resilient infrastructure, promoting inclusive and sustainable industrialisation and fostering innovation. On the state-wise preparedness, the report said Jharkhand and Bihar are the least prepared to meet the SDGs by the target year 2030.

Kerala ranked first, followed by Tamil Nadu and Himachal Pradesh in the second position. The third position was shared by Goa, Karnataka, Andhra Pradesh and Uttarakhand. Among the Union Territories, Chandigarh was ranked first, followed by Delhi, Lakshadweep and Puducherry in the second place and the Andaman and Nicobar Islands on the third, the report said.

The 2030 Agenda for Sustainable Development, was adopted by all United Nations Member States in 2015, which provides a shared blueprint for peace and prosperity for people and the planet.

There are 17 Sustainable Development Goals which are an urgent call for action by all countries in a global partnership.

Some of these goals are no poverty, zero hunger, good health and wellbeing, quality education, gender equality, clean water and sanitation, affordable and clean energy, decent work and economic growth, industry, innovation and infrastructure.

It also includes, reduced inequalities, sustainable cities and communities, responsible consumption and production, climate action, life below water, life on land, peace, justice and strong institutions and lastly strengthening global partnerships for the goals.

Source : Google

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INTERNET OF THINGS (IOT): WHY IS IT BECOMING IMPORTANT

NIKHIL S. GURJAR, PRESIDENT
CONSULTING CONNOISSEURS

INTRODUCTION

One of the 3 pillars that have been driving the transformation of supply chains has been the Internet of Things. To make matters simple, the 3 key pillars include:

1. **ArtificialIntelligence/MachineLearning**

real world data gets converted into digital signals. This layer is also called the Device Sensor Layer. We will talk more about these as we go along.

The information that is obtained has

2. **Blockchains**
3. **Internet of Things**

Most IoT systems are not too focused on the 'return' flow of information back to the controller/ actuator at the sensor end.

So, IoT has been working in tandem with the the other two. Machine learning and Artificial Intelligence have their focus on building logic or converting unstructured data to computationally useful information. This is primarily used in areas like image processing, speech recognition, etc. The other areas where ML and AI are used include converting digital data into higher order to, in the next step, be transferred to a computer that is possibly housed at a different location. This is done using the next layer called the Network Layer. There are multiple options in this area. The conventional approach is using a wired network with cables. For instance, in the robotic application that we commissioned back in 2000, the transfer was using wired networks. Today, we have multiple options like WiFi, LTE, LoRa (that is Long Range Wide Area which could achieve ranges computationally useful information. So, for instance, using algorithms to determine optimal inventory levels, etc. , are also areas under the domain of ML and AI. The blockchains have been instrumental in automating and creating secure and 'trust-based' environments. IoT enables the transfer of data between these entities.

UNDERSTANDING IoT AS A LAYERED TECHNOLOGY

The Crux of IoT lies in the ability to optimize and provide information that could be used to transmit data and control other devices. At the interface level, there are basically three types of elements that are important viz. The device, The sensors and the Gateway. The device usually houses the sensors and the gateways, however, they could also be independent units. This is where the over 9 km), NB-IoT, etc. As 5G networks are still being rolled out, many companies are already looking at how they can use 5G to develop new factory automation, self-healing energy grids, autonomous vehicles and other new types of IoT applications. However, those who are focusing only on 5G might be missing out on the fact that two Low Power Wide Area (LPWA) networking technologies also offer them opportunities to develop and launch transformative new IoT applications. These two LPWA technologies viz. Narrowband IoT (NB-IoT) and LTE Machine Type Communication (LTE-M, also known as eMTC) transmit data at rates slower than Long Term Evolution (LTE), and 5G New Radio (5G NR). But their low cost, high capacity, low power consumption, and wide coverage (also called the 4 Cs of LPWA) make them well suited for a wide range of IoT applications. Thus, there are a huge set of opportunities that are being explored and unleashed.

The information that comes over the network, typically comes to what is called an IoT Platform. A platform is a layer that enables sensors to hook-up to the systems and helps perform a host of functions on the systems. I would, however, like to keep the application software as a separate entity. We would touch upon this aspect in the next point. Moving on, the IoT Platform functions in areas like System Management, Alert Management, Rule Engine Management, Data Storage, Data Aggregation, Device Access Management, Configuration Management, Device Remote Access, Data Integration, Data Intelligence, Device Authentication, Security Management, Firmware Management, Data Visualization, Data Analytics, etc. In short, the IoT

Platform can draw a parallel with C-Panels in the Website parlance. Modern programming languages have made it possible to develop and customize these systems with relative ease. For instance, sensor calibration in our robotics project in 1999, took around a week as we had to program the ports and the hardware systems with custom-build circuits to tailor to our requirements. Today, this is done in a matter of minutes.

The final layer is the application layer. This actually puts in a lot of business logic and processes the data. The application layer is often 'fused' with the platform layer. The reason for differentiating this layer is because the AI/ML and BlockChain elements are actually on this layer. That apart a host of conventional software solutions are also possible.

Most IoT systems are not too focused on the 'return' flow of information back to the controller / actuator at the sensor end. This is because most of these systems are highly modular and the challenges are mainly on the input end. The post processing control is less complicated these days.

DESIRABLE CHARACTERISTICS IMPACTING IoT ADOPTION

At the crux is the sensor and the device, which seems to be changing. We are now dealing with the 7th generation of sensors. Sensors and devices are becoming more intelligent. They 'know' when they are to be activated, they are able to output data in digitally optimized formats and also send or transmit data. The sending or transmitting could be self-triggered or periodic. They also perform health check ups, thereby, being able to predict maintenance needs, self correct smaller issues and reflect the proper status or information when required.

More interesting is the fact that their setup and assembly is highly simplified. They are mostly plug-and- play components today. They also have limited calibration efforts, most being self-calibrating in nature and they are amenable to quick removal when required.

THE NETWORK ELEMENT

The most significant change is that on the network side. What was once a huge bottleneck, is today becoming an enabler. The 5-G networks that are being rolled out across the country are the biggest accelerators to the IoT revolution. With new 5-G technologies, the transmission cost is low, and with optimized sensors, the flow is seamless. Jio network, for instance, has invested across all spectrums and would be able to provide services through a single operator and a single network platform. This is a big boon for the IoT adoption. Most 5G providers are setting up their networks as independent companies and not merging them with the 4G networks. This also implies that they are able to leverage on the networks more efficiently, and channelize the revenue streams in a better way.

THE BUSINESS DYNAMICS

Its important for the SCM professional to understand the ramifications of these developments. Oftentimes, SCM professionals fail to decipher the technologies and understand the technological structures involved in their supply chains. Repetitive jobs are going to be phased out over the next few years. The vast changes that IoT would bring in, would essentially be in the areas of automation and information driven supply chain decision making.

Together with AI/ML, most typical jobs would be phased out. One would need to be prepared to develop skills in higher niche areas over time. The quicker the IoT adoption, the faster would be the phasing out of jobs. All said, human workers are still a liability, especially due to the safety and security of organizational processes. With automation, people would have better work conditions. The complex and laborious jobs would be automated through sensors. This would reduce operational risk and chances of accidents.

From a different perspective, the AI/ML implementations that are underway in most organizations would also affect the strategic applications of IoT solutions. The AI/ML applications would guide organizations on the priorities to implement IoT. So, each of these would feed into the other.

Most importantly, the key enabler to this ecosystem, the 5G networks are already here.There is no turning back now. Its time to leverage and move ahead.

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INTERNATIONALIZATION OF THE INDIAN RUPEE

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Introduction : Given the current Geo-Political and Economic Situation prevalent across the Globe, US Sanctions on use of US Dollar for Transactions with Iran & Russia and considering the continuous weakening of the Indian Rupee (INR), and to promote growth of global trade with emphasis on exports from India and to support the increasing interest of global trading community in INR**,** the Reserve Bank of India (**RBI**) vide A.P. (DIR Series) Circular No.10, dated 11 July 2022 has **allowed International Settlement of Trade in INR for export and / or import of goods and services as an additional arrangement for Invoicing, Payment, and Settlement of Exports / Imports in INR.**

Key Words: International Settlement of Trade, Export/ Import Payment, Forex.

International Trade Settlement in Indian Rupees (INR) : A Right Step to Internationalization of the Indian Rupee

- The **Settlement in Indian Rupees (INR)** is a right step aiming to internationalization of the Indian Rupee and to promote growth of global trade with emphasis on exports from India and to support the increasing interest of global trading community in INR.

- Specially keeping in view of the Restrictions for trade settlements in US Dollar for Transactions with Iran & Russia and to address strained situations like scarcity of Forex Reserves in case of Countries like Sri Lanka, the decision is an important step rightly taken to facilitate trade in INR.

- **This would ease India's hard currency outflow substantially. Reduce the Dependency on US dollar requirements and Strengthen Rupee. This mechanism also may Reduce Cost of Conversion Charges of Exporters and Importers.**

- This is **an additional arrangement** for invoicing payment, and settlement of exports / imports and would **co-exist with the current practice** of trade settlement in freely convertible foreign exchange (**FOREX**).

International Trade Settlement – Current Practices

- At present, **all export contracts and invoices shall be denominated either in freely convertible currency or Indian rupees but export proceeds shall be realized in freely convertible currency.**

- The Practice of Export invoicing in INR is already existing however, the payment must come through Vostro Accounts maintained by foreign banks with a bank in India.

- **Trade with Nepal and Bhutan in INR** is covered by special arrangements which is existing for a long time.

- Also **Asian Clearing Union (ACU)** Transactions which shall be denominated in **ACU Dollar** are existing for promoting regional co-operation and with the objective to facilitate payments among member countries (Bangladesh, Bhutan, India, Iran, Maldives, Myanmar, Nepal, Pakistan and Sri Lanka) for eligible transactions on a multilateral basis, thereby economizing on the use of foreign exchange reserves and transfer costs, as well as promoting trade among the participating countries.

- India had a **barter-like mechanism for trade settlement with Iran**, wherein Indian oil refiners were paying in Rupees to a local Iranian bank and the funds were used by Iran to pay for imports from India.

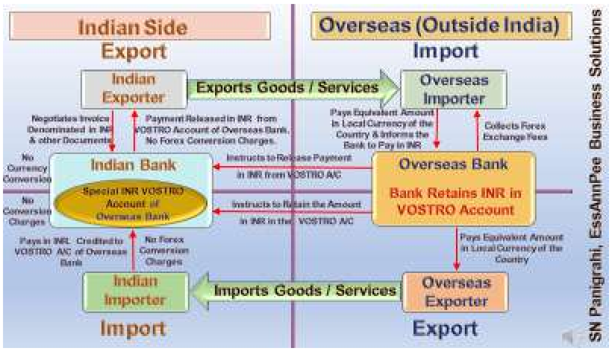
Salient Features of RBI Circular

Reserve Bank of India (**RBI**) issued A.P. (DIR Series) **Circular No.10, dated 11 July 2022**, under **Foreign Exchange Management Act, 1999 (FEMA)** .

Some of the Salient Features of the said Circular are :

- **All exports and imports under this arrangement may be denominated and invoiced in Rupee (INR).**
- **Exchange rate between the currencies of the two trading partner countries may be market determined.**
- **The settlement of trade transactions under this arrangement shall take place in INR.**
- **An authorized bank would require an approval from the RBI to implement this arrangement.**
  - Ø **Indian banks will be permitted to open a Special Vostro Account (SV Account) of the correspondent bank of the trading country.**
  - Ø **Indian importers undertaking imports through this mechanism shall make payment in INR which shall be credited into the Special Vostro account of the correspondent bank of the partner country, against the invoices for the supply of goods or services from the overseas seller / supplier.**
  - Ø **Indian exporters, undertaking exports of goods and services through this mechanism, shall be paid the export proceeds in INR from the balances in the designated Special Vostro account of the correspondent bank of the partner country.**
  - Ø **Payment towards advance for exports from SV Account is, however, subject to the availability of funds, executed export orders / export payments in the pipeline.**
  - Ø **Advance against export may also be received in INR.**
  - Ø **Set-off of export receivables shall also be permitted subject to existing RBI master directions.**

Details of how the Scheme Operates can be Viewed @ https://www.youtube.com/watch?v=Gwp8kM8vXkM



Recent Developments for Russian Rupee Trade: To give a boost to India's rupee trade with sanction-hit Russia, the Reserve Bank of India (RBI) has extended its **approval to as many as 14 Indian banks**, including **UCO, YES, SBI, HDFC, Canara and IndusInd**, to **open Special Rupee Vostro Accounts** in partnership with correspondent banks in Russia. But the mechanism is yet to take-off smoothly as some apprehensions are being expressed regarding issue of Bank Realization Certificates (BRCs) for claiming export incentives and benefits offered by the government.

India-Russia Trade Imbalance

India-Russia trade has jumped to almost $27 billion since April 2022 but it is "**too one-sided**" to be sustainable as Indian exports account for only **$2 billion** in the total figure. The sharp surge in trade, up from $13 billion during the fiscal year 2021-2022, is largely due to India's increased purchases of discounted Russian commodities, especially crude and fertilisers, since the start of the Ukraine war in February.

Since Indian exporters, undertaking exports of goods and services through the Special Vostro Account (SV Account)mechanism, shall be paid the export proceeds in INR from the balances in the designated Special Vostro account of the correspondent bank of the partner country.

The trade settlement in INR with countries where **India has Trade Surplus will be successful. The Imports from Russia to India is almost 10 Times more than Indian Exports to Russia. The trade needs to be balanced, otherwise may result in one side accumulates more than the other.** The two countries will continue to work to find a solution to the problem.

New Possibilities to Make Rupee an International Currency:

Many Banks are looking at the possibility of initiating Rupee Trade and exploring more countries like **Bangladesh and African countries: Egypt and Algeria** as part of the Government's plans to expand bilateral trades through SVRAs and make Rupee an International Currency.

India imported goods worth USD 3,520.83 million from Egypt, of USD 1,004.24 million from Algeria and USD 2,725.08 million from Angola in the last financial year. As far as Bangladesh is concerned, the import in the last year from the neighboring country stood at USD 1,977.93 million.

Amendments Carried out by DGFT in Sync with RBI Circular : Realizations in Indian Rupees - Export Benefits Allowed

❖ DGFT Notified vide **Notification No. 33/2015-2020, Dated: 16th September, 2022** by inserting the Para 2.52(d), to **permit Invoicing, payment and settlement of exports and imports in INR** in sync with RBI's A.P. (DIR Series) Circular No. 10 dated 11th July, 2022.

❖ Further, DGFT vide **Notification No. 43/2015 - 2020-DGFT, Dated: 9th November, 2022**, made

Amendments under FTP, to **permit exports benefits / fulfilment of Export Obligations for Invoicing, payment and settlement of exports and imports in INR**, as per RBI's A.P. (DIR Series) Circular No. 10 dated 11th July, 2022. Accordingly amendments in FTP were made in para **2.46** (Import for export); **2.53** (Export to Iran — Realizations in Indian Rupees to be eligible for FTP benefits / incentives); **3.20** (Status Holder); **4.21** (Currency for Realization of Export Proceeds)

❖ Vide **Public Notice No. 35/2015-20-DGFT; Dated 9th November, 2022**, Amendment made in **Para 5.11 of the HBP**, to permit the Invoicing, payment and settlement of exports and imports in INR for **Export Proceeds under EPCG Scheme**

Export Realizations in Indian Rupees - Export Benefits : RoDTEP & Duty Drawback

RoDTEP Scheme : As per **Para 4 of Notification No. 76/ 2021-Cus(NT) dated September 23, 2021**, **Duty Credit** allowed under the RoDTEP scheme is subject to realization of sales proceeds within the period allowed by the RBI. **But no specific mention about realization in any Particular Currency**. So **Realizations in Indian Rupees is entitled for RoDTEP Benefits.**

Duty Drawback : Similarly, **Section 75 of the Customs Act, 1962**, and the Customs and Central Excise Duties Drawback Rules, 2017, only say that the sales proceeds must be realized, but not mentioned particular currency. So, **the entitlements of Drawback will be available against payments received through SVAs also.**

Refunds due to Zero-Rated Exports under GST

Rule 96A of GST Rule: Export of Goods or Services under Bond or Letter of Undertaking

Rule 96A (1) (a) for Export of Goodsstates Exporter to Pay the Tax due along with the interest if the goods are not exported out of India within three months from the date of issue of the invoice for export. Here in this Rule it states only condition of Exporting the Goods Out of India, but Not Stated any Condition of Realization of Export Proceedings.

Rule 96A (1) (b) for Service Exportsstates Exporter to Pay the Tax due along with the interest if **payment of such Services is not received by the exporter in convertible foreign exchange or in Indian rupees, wherever permitted by the Reserve Bank of India.** Here in this Rule states Realization either in Convertible Foreign Exchange or in INR as permitted by RBI.

Rule 96B of GST Rule: Recovery of Refund of Unutilized Input Tax Credit or Integrated Tax Paid on Export of Goods where export proceeds not realized.

Rule 96B Refers to **sale proceeds** in respect of such **Export Goods** have **not been realized**, in full or in part, in India **within the period allowed under the Foreign Exchange Management Act, 1999 (42 of 1999).** This Rule also Not states any thing specific about Realization of Export Proceeds in convertible foreign exchange or in Indian rupees.

Therefore, from the above Rules it is very clear that **Export Refunds are allowed even if the Export Proceeds are Received in INR.**

Positive Net Foreign Exchange Earnings (NFE)

Certain Mandatory provisions of Achieving **Positive Net Foreign Exchange Earnings (NFE)** under SEZ Act, 2005 & SEZ Rules, 2006 and also corresponding provisions of FTA in respect of EOU need to be suitably amended for allowing **Export Proceeds Received through SVA in INR.**

Conclusion : Trade settlement through **INR Denominated Special Vostro Account (SV Account)**by RBI is a welcome move that would facilitate trade with sanctioned countries like Iran and Russia wherein it has increasingly become difficult to use United States Dollar (US$) or Euro denominated correspondence account for trade settlement.

Rupee Settlement mechanism introduced amid a steadily falling rupee, would help India pay for its imports using rupees instead of U.S. dollars from its foreign exchange reserves. This will to some extent **Lessen Draining of Forex** and **Reduce the Dependency on US dollar requirements and Strengthen Rupee. This mechanism also may Reduce Cost of Conversion Charges for Exporters and Importers.**

This would ease India's hard currency outflow substantially. The International Trade in rupee would safeguard the external sector from fluctuation in the forex market.

However,it is expected that trade settlement in INR with countries where **India has trade surplus will be successful**, but **settlement with trade deficit countries would be difficult** unless a strong line of credit mechanism is also put in place.

Several Asian economies such as Indonesia, the United Arab Emirates (UAE), Sri Lanka, Myanmar, and India are also in discussion with each other to settle trade in their domestic currencies.

Though proper amendments are suitably made in respect of Export Incentives and Refunds, certain other Mandatory provisions of Achieving **Positive Net Foreign Exchange Earnings (NFE)** under SEZ Act, 2005 & SEZ Rules, 2006 and also corresponding provisions of FTA in respect of EOU need to be suitably amended for allowing **Export Proceeds Received through SVA in INR.**

International Trade Settlement in Indian Rupees (INR)isA Right Step to Internationalization of the Indian Rupee.

Reference :

Reserve Bank of India (**RBI**) vide A.P. (DIR Series) Circular No.10, dated 11 July 2022

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E-INVOICING UNDER GST – WHAT IS E-INVOICING? APPLICABILITY & IMPLEMENTATION DATE

e-Invoicing under GST denotes electronic invoicing defined by the GST law. Just like how a GST-registered business uses an e-way bill while transporting goods from one place to another. Similarly, certain notified GST-registered businesses must generate e invoice for Business-to-Business (B2B) transactions.

Team Clear provides the best-in-class e-invoicing solution for businesses of any scale and industry. Do not miss exploring the Clear e-Invoicing solution!

11th October 2022 : The GST Council may implement the next phase of e-invoicing for businesses with an annual turnover of more than Rs.5 crore from 1st January 2023. The system may get extended to businesses with a turnover of over Rs.1 crore by the end of the next fiscal year.

1st August 2022 : The e-Invoicing system for B2B transactions has now been extended to those with an annual aggregate turnover of more than Rs.10 crore up to Rs.20 crore starting from 1st October 2022, vide notification no. 17/2022.

24th February 2022 : The e-Invoicing system will get extended to those annual aggregate turnover of more than Rs.20 crore up to Rs.50 crore starting from 1st April 2022, vide notification no. 1/2022.

What is e-invoicing under GST?

'e-Invoicing' or 'electronic invoicing' is a system in which B2B invoices and a few other documents are authenticated electronically by GSTN for further use on the common GST portal.

In its 35th meeting, the GST Council decided to implement a system of e-Invoicing, covering specific categories of persons, mostly large enterprises. Later on, it has been expanded to cover mid-sized businesses and small businesses as well.

e-Invoicing does not imply the generation of invoices on the GST portal but it means submitting an already generated standard invoice on a common e invoice portal. Thus, it automates multi-purpose reporting with a one-time input of invoice details. The CBIC notified a set of common portals to prepare e invoice via Notification No.69/2019 – Central Tax.

Under the electronic invoicing system, an identification number will be issued against every invoice by the Invoice Registration Portal (IRP), managed by the GST Network (GSTN). The National Informatics Centre launched the first IRP at einvoice1.gst.gov.in.

All invoice information gets transferred from this portal to both the GST portal and the e-way bill portal in real-time. Therefore, it eliminates the need for manual data entry while filing GSTR-1 returns and generation of part-A of the e-way bills, as the information is passed directly by the IRP to the GST portal.

Who must generate e invoice and its Applicability?

The e invoice applicability can be explained as follows-

Turnover criteria or e Invoice limit

Phase	Applicable to taxpayers having an aggregate turnover of more than	Applicable date	Notification number
I	Rs 500 crore	01.10.2020	61/2020 – Central Tax and 70/2020 – Central Tax
II	Rs 100 crore	01.01.2021	88/2020 – Central Tax
III	Rs 50 crore	01.04.2021	5/2021 – Central Tax
IV	Rs 20 crore	01.04.2022	1/2022 – Central Tax
V	Rs 10 crore	01.10.2022	17/2022 – Central Tax

The taxpayers must comply with e-invoicing in FY 2022-23 and onwards if their e invoice limit or turnover exceeds the specified limit in any financial year from 2017-18 to 2021-22. Also, the aggregate turnover will include the turnover of all GSTINs under a single PAN across India.

If the turnover in the last FY was below the threshold limit but it increased beyond the threshold limit in the current year, then e-Invoicing would apply from the beginning of the next financial year i.e. FY 2023-24.

Suppose, ABC ltd aggregate turnover was as follows-

FY 2017-18: Rs 15 crore
FY 2018-19: Rs 17 crore
FY 2019-20: Rs 24 crore
FY 2020-21: Rs 19 crore
FY 2021-22: Rs 18 crore

Suppose, QPR ltd started business in FY 2019-20 and earned aggregate turnover as follows-

FY 2019-20: Rs 4 crore
FY 2020-21: Rs 7 crore
FY 2021-22: Rs 11 crore

The ABC Ltd shall mandatorily generate e invoices from 01.04.2022 irrespective of the current year's aggregate turnover as it has crossed the Rs 20 crore turnover limit in FY 2019-20.

On the other hand, QPR ltd should comply with e-Invoicing from 1st October 2022 since its previous year's annual turnover exceeds Rs.10 crore.

The fifth phase of e-Invoicing works similar to the fourth phase. Watch the

Transactions and documents criteria

The following transactions and documents listed below fall under e invoicing applicability –

Documents	Transactions
Tax invoices, credit notes and debit notes under Section 34 of the CGST Act	Taxable Business-to-Business sale of goods or services, Business-to-government sale of goods or services, exports, deemed exports, supplies to SEZ (with or without tax payment), stock transfers or supply of services to distinct persons, SEZ developers, and supplies under reverse charge covered by Section 9(3) of the CGST Act.

Who need not comply with e-Invoicing?

However, irrespective of the turnover, e-Invoicing shall not be applicable to the following categories of registered persons for now, as notified in CBIC Notification No.13/2020 – Central Tax, amended from time to time-

Notified Businesses	Documents	Transactions
1)An insurer or a banking company or a financial institution, including an NBFC2) A Goods Transport Agency (GTA)3) A registered person supplying passenger transportation services4) A registered person supplying services by way of admission to the exhibition of cinematographic films in multiplex services5) An SEZ unit (excluded via CBIC Notification No. 61/2020 – Central Tax)6) A government department and Local authority (excluded via CBIC Notification No. 23/2021 – Central Tax)7) Persons registered in terms of Rule 14 of CGST Rules (OIDAR)	Delivery challans, Bill of supply, financial or commercial credit note or debit note, bill of entry, and ISD invoices.	Any Business-to-Consumers (B2C) sales, Nil-rated or non-taxable or exempt B2B sale of goods or services, nil-rated or non-taxable or exempt B2G sale of goods or services, imports, high sea sales and bonded warehouse sales, Free Trade & Warehousing Zones (FTWZ), and supplies under reverse charge covered by Section 9(4) of the CGST Act.

Systems before & after e-invoicing

Before e-invoicing could apply, businesses generated invoices through various software, and the details of these invoices were manually uploaded in the GSTR-1 return or using ERP.

Once the respective suppliers file the GSTR-1, the invoice information gets reflected in GSTR-2B for the recipients. On the other hand, the consignor or transporters had to generate e-way bills by again importing the invoices in Excel or JSON manually or via ERP.

Under the e-invoicing system, the process of generating and uploading invoice details will remain the same. It's done by importing using the Excel tool/JSON or via API integration, either directly or through a GST Suvidha Provider (GSP). The data will seamlessly flow for GSTR-1 preparation and for the e-way bill generation too. The e-invoicing system will be the key tool to enable this.

Process of getting an e invoice

The following are the stages involved in generating or raising an e-invoice.

1. The taxpayer has to ensure to **use of the reconfigured ERP system** as per PEPPOL standards. He could coordinate with the software service provider to incorporate the standard set for e-invoicing, i.e. e invoice schema (standards) and must have the mandatory parameters notified by the CBIC, at least.

2. Any taxpayer has got primarily **two options for IRN generation**:

- The IP address of the computer system can be whitelisted on the e-invoice portal for a direct API integration or integration via GST Suvidha Provider (GSP) such as ClearTax.
- Download the bulk generation tool to bulk upload invoices. It will generate a JSON file that can be uploaded to the e invoice portal to generate IRNs in bulk.

The taxpayer must thereafter raise a regular invoice on that software. He must give all the necessary details like billing name and address, GSTN of the supplier, transaction value, item rate, GST rate applicable, tax amount, etc.

Once either of the above options is chosen, raise the invoice on the respective ERP software or billing software. Thereafter, upload the details of the invoice, especially mandatory fields, onto the IRP using the JSON file or via an application service provider (app or through GSP) or through direct API. The IRP will act as the central registrar for e-invoicing and its authentication. There are several other modes of interacting with IRP, such as SMS-based and mobile app-based.

IRP will validate the key details of the B2B invoice, check for any duplications and generate an invoice reference number (hash) for reference. There are four parameters based on which IRN is generated: Seller GSTIN, invoice number, FY in YYYY-YY, and document type (INV/DN/CN).

IRP generates the invoice reference number (IRN), digitally signs the invoice and creates a QR code in Output JSON for the supplier. On the other hand, the seller of the supply will get intimated about the e invoice generation through email (if provided in the invoice).

IRP will send the authenticated payload to the GST portal for GST returns. Additionally, details will be forwarded to the e-way bill portal, if applicable. The GSTR-1 of the seller gets auto-filled for the relevant tax period. In turn, it determines the tax liability.

A taxpayer can continue to print his invoice as being done presently with a logo. The e-invoicing system only mandates all taxpayers to report invoices on IRP in electronic format.

Benefits of e-Invoicing to businesses

Businesses will have the following benefits by using e-invoice initiated by GSTN-

- e-Invoice resolves and plugs a major gap in data reconciliation under GST to reduce mismatch errors.
- e-Invoices created on one software can be read by another, allowing interoperability and helping reduce data entry errors.
- Real-time tracking of invoices prepared by the supplier is enabled by e invoice.
- Backward integration and automation of the GST return filing process – the relevant details of the invoices would be auto-populated in the various returns, especially for generating part-A of e-way bills.
- Faster availability of genuine input tax credit.
- Lesser possibility of audits/surveys by the tax authorities since the information they require is available at a transaction level.
- Faster and easy access to formal credit routes such as invoice discounting or financing, especially for small businesses.
- Improved customer relations and growth in prospects for small businesses to do business with large enterprises.

How can e-invoicing curb tax evasion?

It will help in curbing tax evasion in the following ways-

- Tax authorities will have access to transactions as they take place in real-time since the e invoice will have to be compulsorily generated through the GST portal.
- There will be less scope for manipulating invoices since the invoice gets generated before carrying out a transaction.
- It will reduce the chances of fake GST invoices, and only genuine input tax credit can be claimed as all invoices need to be generated through the GST portal. Since the input credit can be matched with output tax details, it becomes easier for GSTN to track fake tax credit claims.

What are the mandatory fields of an e-invoice?

e-Invoice must primarily adhere to the GST invoicing rules. Apart from this, it should also accommodate the invoicing system or policies followed by each industry or sector in India. Certain information is made mandatory, whereas the rest of it is optional for businesses. Many fields are also made optional, and users can choose to fill up relevant fields only. It has also described every field along with the sample inputs for the interested users. One can see that certain required fields from the e-way bill format are included now in the e-invoice, such as the sub-supply type.

Below is the gist of the contents of the latest e-invoice format as notified on 30th July 2020 via Notification No.60/2020 – Central Tax:

1. 12 sections (mandatory + optional) and six annexures consisting of a total of 138 fields.
2. Out of the 12 sections, five are mandatory, and seven are optional. Two annexures are mandatory.
3. The five mandatory sections are basic details, supplier information, recipient information, invoice item details, and document total. The two mandatory annexures are details of the items and the document total.

The following fields must be compulsorily be declared in an e-invoice:

Sl. no.	Name of the field	List of choices/ specifications/sample Inputs	Remarks
1	Document Type Code	Enumerated List such as INV/CRN/DBN	Type of document must be specified
2	Supplier_Legal Name	String Max length: 100	Legal name of the supplier must be as per the PAN card
3	Supplier_GSTIN	Max length: 15 Must be alphanumeric	GSTIN of the supplier raising the e-invoice
4	Supplier_Address	Max length: 100	Building/Flat no., Road/Street, Locality, etc. of the supplier raising the e-invoice
5	Supplier_Place	Max length: 50	Supplier's location such as city/town/village must be mentioned
6	Supplier_State_Code	Enumerated list of states	The state must be selected from the latest list given by GSTN
7	Supplier Pincode	Six digit code	The place (locality/district/state) of the supplier's locality
8	Document Number	Max length: 16 Sample can be " Sa/1/2019"	For unique identification of the invoice, a sequential number is required within the business context, time frame, operating systems and records of the supplier. No identification scheme is to be used.
9	Preceeding_Invoice_Reference and date	Max length:16 Sample input is " Sa/1/2019" and "16/11/2020"	Detail of original invoice which is being amended by a subsequent document such as a debit and credit note. It is required to keep future expansion of e-versions of credit notes, debit notes and other documents required under GST.
10	Document Date	String (DD/MM/YYYY) as per the technical field specification	The date when the invoice was issued. However, the format under explanatory notes refers to 'YYYY-MM-DD'. Further clarity will be required. Document period start and end date must also be specified if selected.
11	Recipient_ Legal Name	Max length: 100	The name of the buyer as per the PAN
12	Recipient's GSTIN	Max length: 15	The GSTIN of the buyer to be declared here
13	Recipient's Address	Max length: 100	Building/flat no., road/street, locality, etc. of the supplier raising the e-invoice
14	Recipient's State Code	Enumerated list	The place of supply state code to be selected here
15	Place_Of_Supply_State_ Code	Enumerated list of states	The state must be selected from the latest list given by GSTN
16	Pincode	Six digit code	The place (locality/district/state) of the buyer on whom the invoice is raised/ billed to must be declared here if any
17	Recipient Place	Max length: 100	Recipient's location (City/Town/Village)
18	IRN- Invoice Reference Number	Max length: 64 Sample is 'a5c12dca8 0e7433217…ba4013 750f2046f229'	At the time of the registration request, this field is left empty by the supplier. Later on, a unique number will be generated by GSTN after uploading the e-invoice on the GSTN portal. An acknowledgement will be sent back to the supplier after the successful acceptance of the e-invoice by the portal. IRN should then be displayed on the e-invoice before use.

19	ShippingTo_GSTIN	Max length: 15	GSTIN of the buyer himself or the person to whom the particular item is being delivered to
20	Shipping To_State, Pincode and State code	Max length: 100 for state, 6 digit pincode and enumerated list for code	State pertaining to the place to which the goods and services invoiced were or are delivered
21	Dispatch From_ Name, Address, Place and Pincode	Max length: 100 each and 6 digit for pincode	Entity's details (name, and city/town/village) from where goods are dispatched
22	Is_Service	String (Length: 1) by selecting Y/N	Whether or not supply of service must be mentioned
23	Supply Type Code	Enumerated list of codes Sample values can be either of B2B/B2C/ SEZWP/S EZWOP/E XP WP/EXP WOP/DE XP	Code will be used to identify types of supply such as business to business, business to consumer, supply to SEZ/exports with or without payment, and deemed export.
24	Item Description	Max length: 300 The sample value is 'Mobile' The schema document refers to this as the 'identification scheme identifier of the Item classification identifier'	Simply put, the relevant description is generally used for the item in the trade. However, more clarity is needed on how it needs to be described for every two or more items belonging to the same HSN code.
25	HSN Code	Max length: 8	The applicable HSN code for particular goods/service must be entered
26	Item_Price	Decimal (12,3) Sample value is '50'	The unit price, exclusive of GST, before subtracting item price discount, can not be negative
27	Assessable Value	Decimal (13,2) Sample value is '5000'	The price of an item, exclusive of GST, after subtracting the item price discount. Hence, gross price (-) discount = net price item, if any cash discount is provided at the time of sale
28	GST Rate	Decimal (3,2) Sample value is '5'	The GST rate represented as a percentage that is applicable to the item being invoiced
29	IGST Value, CGST Value and SGST Value Separately	Decimal (11,2) Sample value is '650.00'	For each individual item, IGST, CGST and SGST amounts have to be specified
30	Total Invoice Value	Decimal (11,2)	The total amount of the Invoice with GST. Must be rounded to a maximum of 2 decimals

How does Clear e-Invoicing help?

Team Clear provides the best-in-class e-invoicing solution for businesses. The Clear e-invoicing solution also provides an e-Invoicing Tally Connector, enabling taxpayers to perform e-invoicing activities without leaving a tally screen. Team Clear ensures a safe migration to an upgraded UI with no changes to your historical data.

Team Clear also offers various modes through which e-invoices can be generated by the taxpayers, such as seamless API integrations, Excel mode, FTP, SFTP or Tally connector. The user can enjoy numerous value additions such as-

- Seamless generation of 5,000 e-invoices per minute
- Integration with a high-fidelity solution with 99.99% uptime
- 100+ data validations to ensure an error-free smooth e-invoicing experience
- Auto-retry of failed EWBs (with distance error) to improve the success rate of EWB generation
- Automatic generation of the e-way bill after IRN generation without any ingestion of data
- Faster loading of 'e-invoices' and 'e-way bills' on the screen for as many as 1 lakh documents
- Reconciliation vis-a-vis e-way bill and GSTR-1 data, insightful reports, customised print template for e-invoice, data archiving, etc.

FAQs on e-invoicing

- **To whom will e-invoicing apply**

  Currently, the e-invoicing system is already implemented for the GST registered persons whose aggregate turnover in any previous financial years (2017-18 to 2021-22) exceeds Rs.20 crore. From 1st October 2022, it shall apply to those with a turnover of more than Rs.10 crore up to Rs.20 crore. There are some exceptions as listed in the above section.
- **Can an e-invoice be cancelled partially/fully?**

  An e-invoice cannot be cancelled partially but can be cancelled wholly. On cancellation, it must be reported to the IRN within 24 hours. Any attempt to cancel thereafter cannot be done on the IRN and must be manually cancelled on the GST portal before the returns are filed.
- **Will the bulk uploading of invoices for the generation of IRN be possible?**

  No, invoices must be uploaded one at a time into the IRP. The ERP of a business will need to be designed to place the request for the upload of individual invoices.
- **Will there be a facility for e-invoice generation on the common GST portal?**

  No, invoices will continue to be generated on the individual ERP software currently in use by businesses. The invoice must adhere to the e-invoicing standard format and include the mandatory parameters. The direct generation of invoices on a common portal is not being planned at the moment.
- **What are the types of documents that are to be reported to the IRP?**

  Invoices by the supplier, credit notes and debit notes as per the GST law or any other document as notified under GST law are to be reported as an e-invoice.

Source: cleartax.in

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GEM REGISTRATION GOVT E-MARKETPLACE ONLINE LOGIN GEM.GOV.IN

ANJU

GEM Registration:-Online government e-marketplace registration is available at gem.gov.in. On gem.gov.in, log in: GEM is the name of a store acquisition portal established by the Indian government. On its official website, one can register for online access to gem.gov.in. You may obtain the documents necessary for government E marketplace registration in this page, along with a direct link to complete GEM Login. We advise you to please complete the GEM Portal Registration in order to receive all the benefits and lead a self-sufficient life.

GEM Registration : Government E Marketplace Registration is relatively simple to accomplish because it must be done online at gem.gov.in. Second, it is a requirement under the most recent rules that Government Offices purchase their stocks on the GEM Portal. As a result, users looking to sell their goods to the government will find it to be a very popular marketplace. You may obtain the documents necessary for government E marketplace registration in this page, along with a direct link to complete GEM Login. We advise you to please complete the GEM Portal Registration in order to receive all the benefits and lead a self-sufficient life. For further information on the advantages of the government e-marketplace, read this page through to the end.

Additionally, services from gem.gov.in and government tenders are obtained through governmentGem.gov.in, the E Marketplace Portal. As the most recent fiscal year has begun, it is anticipated that the government will post new tenders; if you haven't registered yet, please do so so that you can apply for these Tenders. We are all aware that the GEM Portal currently serves as the primary method for all government departments to place their orders, making registration there a must for sellers.

GEM Registration Details

Portal Name	GEM Portal
GEM Full Form	Government E Marketplace
Started by	Ministry of Commerce and Industry
Purpose	Government Marketplace
GEM Buyers	Government Offices
GEM Sellers	Enterprises and OEMs
Registration Doc.	Aadhar Card, Firm Name, GST Number and other documents
Benefits of GEM	Efficient, Corruption Less, Compare Prices Online, Dedicated Products for Government Offices
Category	Government Scheme
Official Website	gem.gov.in

About Government E Marketplace Registration

This section has addressed how to register for the GEM Registration Govt E-Marketplace Portal online at gem.gov.in. You must all be aware that only users who have finished their GEM Seller Registration are permitted to sell on the Portal. Documents like an Aadhar card, a GST number, a firm registration number, and more could be required. We advise you to register online for the GEM website in order to make money & sell your products to the government directly through the GEM Portal. Doing booking is very easy as you have to complete the process Online at gem.gov.in. 2nd As per Latest Rules, it is mandatory for Government Offices to buy the stocks from GEM Portal.

So this makes it a very hot marketplace for users who want to sell their products to the Government. In this post you can find Documents required for GEM Registration and Direct Link to do GEM Login. We suggest you to kindly complete the Portal to get all the perks and be a self sufficient person in your Life. Go through this post till the end for complete information about Benefits of Government E Marketplace.

E Marketplace Seller Registration Form 2022

- Firstly GEM Registration Govt E-Marketplace Registration Form is available online @ gem.gov.in
- Secondly, you have to fill the GEM Portal Application Form in which details like your products, Firm name, GST number & other things are asked.
- Moreover, you cannot sell the products as a reseller as this facility is not available.
- There are two types of Government E Marketplace Registrations, first one is Primary Registration which is for buyer only & second one is Secondary Registration which is for Seller Only.
- Complete process of the Government E Marketplace Registration Form is done online only.

Government E Marketplace Login Online

1. 1st you have to open gem.gov.in.
2. Then Click on the GEM Login button.
3. After that enter your GEM User ID & clear captcha code.
4. Click on Submit button & then further enter your PIN.
5. Finally your dashboard will open up where you can see your Listed products.
6. This is the process of GEM Login Online.

Read Also- PM KisanYojana Registration

Paper Required For Government E Marketplace Registry

You may need the following documents to upload while doing GEM Registration Govt E-Marketplace. So make sure you have a pdf copy of these documents while doing Portal Registration or Login.

- Aadhar Card.
- Firm Name.
- GST number.
- Address of Enterprise.
- Photo of user.
- Products Listing.

How To Check GEM Registration Govt E-Marketplace Online?

- Visit gem.gov.in & then click on Sign up Button.gem.gov.in
- After that choose between Seller or Buyer Registration.
- Now enter your Name & Firm details.
- Further fill your GST Number, Aadhar Card & other vital details.
- Submit the form & wait for GEM Portal to approve your Registration.
- Once the GEM Registration is complete, you will get a GEM ID & Password.
- This GEM ID is required by you for further login & fill Bids or tenders Online.

Source: teqip.in

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INNOVATION, TIE-UPS KEY FOR INDIA TO BECOME CORE OF SUPPLY CHAIN: M&M CEO

ANISH SHAH, MANAGING DIRECTOR AND CEO
MAHINDRA AND MAHINDRA

Mahindra & Mahindra MD and CEO Anish Shah asked why India was on periphery and not at the centre of global supply chain

Scaling up innovation, more collaboration across businesses, larger firms, MSMEs and innovators are critical for India to become the core in the global supply chain instead of just being in the periphery, Mahindra & Mahindra Managing Director and CEO Anish Shah said on Friday.

The country has got the best talent with innovations happening across universities and has strengths in manufacturing and it should not be just a "plus one" to China or Europe, he said, while speaking at the annual convention of industry body FICCI.

"You heard a lot about 'China plus one' and more recently 'Europe plus one'. Why is it plus one? Why is India not at the core? Why are we on the periphery? What is missing?" he asked.

Shah further said, "If you look at what we have today, we have got the best talent. We have got innovations that happen across our universities, across various different areas in India. We are the manufacturing strength now.

"We have a government that's committed to driving change to get logistics better in India and a number of other things happening. So why is India plus one?" To go from "plus one to becoming India at the core", Shah said, "Driving innovation at scale, I think it is critical to make that happen.

Collaboration across businesses, across large firms and MSMEs, across innovators. This collaboration is going to make it happen."

He said domestic groups such as Mahindra and Tata are successfully competing and winning against global players in the domestic automotive sector, encouraging them to replicate it in the world market.

"In automobiles today we compete with all the global makers, except for some who have left India, where they couldn't find India an attractive market or they could not serve the demand of consumers in India. All the other global players are here, despite that domestic manufacturers both Mahindra and Tata are not just competing but are winning," Shah asserted.

He further said, "If we can win in India why can't we win around the world? We have the capabilities. Why can we not take it around the world now? So we have the ability to do that. That's one big area for us to do."

Brookfield Asset Management Managing Partner, Head of India and Head of Real Estate India and Middle East, Ankur Gupta also pointed out that India can play a major role in sectors like medical research and semiconductor manufacturing with the development of infrastructure and be at the core and not just "China plus one".

He asserted that "India is a fantastic place to invest up" and the optimism on the country "backed by data and underwritable growth is really top notch".

Sembcorp Industries South Asia CEO Vipul Tuli suggested that the nature of work in the innovation clusters in India "needs to get back to more groundbreaking, more ambitious kinds of innovations" beyond adapting global technologies to Indian conditions.

Also, he said the sources of funding for innovation need to be thought through on a national level, citing the examples of the US and Japan where the lion's share of funding came from the government.

The FICCI in partnership with McKinsey & Company unveiled a document aimed at catalysing actions to achieve the country's full economic potential.

The multi-stakeholder initiative outlines over 50 actions in 10 priority sectors by 2030 to lay a pathway to increase India's per capita income six-fold to Rs 10 lakh, achieve 600 million jobs, double female participation in the labour force, cut carbon emissions, and provide access to clean water for all, by 2047.

Source: www.business-standard.com

TO BE SUPER PURCHASER
- LEARN FROM CORONA

RAJIV GOEL, VICE PRESIDENT, HINDUSTAN COMPOSITES LTD.
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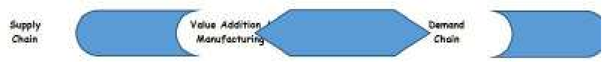
There is a saying that every incident, every person, every entity and every occasion teaches us something or other. Teachings and/or learnings can be both positive and negative. As human beings and most intelligent living being, we are always encouraged to find and learn positives, and to ignore negatives.

And here comes the ever popular saying that – "every cloud has a silver lining". So what we can learn from the on-going corona pandemic. With so much of losses, pain and suffering surrounding all of us; it is very difficult to divert our mind and soul towards positive aspects of this on-going crisis. However, there are positives and we need to identify, highlight and learn from them. I have made a very small effort towards the same.

Value Chain : Value Chain of any company or economic entity consists of three components.



Supply Chain principally consists of 1) Purchasing & 2) Inward Logistics. And, similarly Demand Chain consists of 1) Sales & 2) Outward Logistics.

With the advancement of time, changing business environment and accompanying technological advancements, many new and additional components have got added to both Supply Chain and Demand Chain. However the core steps remain the same.

I am focusing or restricting my presentation to the 1st component of the Supply Chain, which is Purchasing.

I. Be Half Visible

Corona Virus : The core of any living being is the "Genes", which define all the characteristics and features of that particular living being.

As we all know by now, the gene structure of the corona virus has RNA (RiboNucleic Acid) structure. RNA is a single helix polymeric molecule. On the other hand, the gene structure of we all human beings are having DNA (DeoxyriboNucleic Acid) structure. DNA is a double helix polymeric molecule. We are having technology and know-how to study genes, based on their DNA structure.However, we do not have know-how to study RNA based gene structure.

The single helix RNA nature of corona has made it difficult for us to identify and understand its nature. Presently, the corona virus is studied through RT-PCR (reverse transcription PCR) way, where RNA is converted into DNA

Purchaser : A person should only reveal or state half of his personality to the seller/other entity. Thus, the other entity should be aware of only half of your strengths and weaknesses.

This shall be usefull to a Purchaser during all his negotiations, discussions, points, counter-points, actions, counter-actions and other traits of the purchasing process.

Any purchasing process is usually a long drawn affair, which involves multiple interactions and meetings. During the said processboth purchaser and the seller or the other entity try to know each-others' maximum possible traits or features or nature. As a purchaser, our efforts shall always be to reveal less or at the most half of our features.

Thus, we should reveal less of our existing suppliers, existing purchase prices, existing stock details, your current urgency for the particular purchase, your actual quantum of current requirement, your time-line of purchase, your payment plan, and so on.

This shall help us as a Purchaser to negotiate and strike a successful deal from a point of strength, rather than falling into a weak and surrendering position.

This "half-rule" shall not only apply to our weakness, but also to our strengths. We should not only hide weakness, but also our strength. Many times the seller devise their strategy based on our strengths; and hence in such cases not revealing all our strengths serves our purpose and strengthens our position in long runs.

Thus Not Letting the other person to know your full or true nature is your biggest strength in any purchase-negotiation situation.

II. Influence the core or the chief person

Corona Virus : Corona lives in our lungs, and the respiratory system is central to our life. Thus, corona is capable of influencing our core survival system. And this has made corona such a lethal entity, and we all fear for corona for our lives.

Purchaser : As a purchaser, our effort should always be to reach to the core orto the chief person at theseller-side entity.

Please note that the initial interaction for any purchasing process can and shall start at any level of the sales-hierarchyat the seller-end. We should not get bogged-down or disheartened by the situation, where the position/level/hierarchy of the seller-side is lower than our own. In fact, we should start with a low position level at the seller-end, and slowly and steadily build up the relationship at their higher level. Please note that in most of the situations, the true and actual information is passed and shared at lower level only; and not at the top or higher levels.

It is an open secret that in most situations the actual information is obtained through the field sales person or the dispatch person at the seller-end. And similarly, on the buyer-side, such valuable information is shared by the stores person or stores security who handles all the documents in the factory.As a purchaser we should explore such things on the seller-side and be cautious of such things on the buyer-side.

Moving back to the point of core person, we should try to slowly move up the hierarchy on the seller-side, and ultimately establish and develop relationship at the Head-of-Sales, MD or the Owner level at the seller-side.

At lower levels, we shall get current information and updates, however the future course and the strategic inputs can be get only at the core or top level.

Having relationship at the top level on the seller-side shall always come handy in case of crisis or economic-stress situations.

III. Be Mutant capable

Corona Virus : Corona is frequently changing its nature, and mutating fast. By the time we develop a vaccine for corona, the corona develops into a new mutant. Mutant variant of corona is making it difficult for us to control and neutralize it.

Purchaser : As an efficient and smart purchaser, we should always be ever ready to change as per evolving economic and market conditions.

The economic and market conditions keep on changing, and these factors make the market buyer-driven or seller-driven as per situation.

As a Purchaser we should change our positions by tweaking our strengths and weakness. This shall always give us upper-hand or equal-hand in dealing with the seller-sides. Let us take an analogy from the current Indian market condition.

Past >>In February-March 2021 period, the Indian economy was experiencing fabulous growth. The demand was outpacing supply making it a seller-driven market. And, the ever increasing commodity prices (steel, non-ferrous metals, petroleum, petrochemicals, rubber and so on) was making the situation further difficult and harsh for a Purchaser. On top of these adverse scenarios was the delayed import shipping line schedules. All these had pushed the purchaser on the back-foot. In such a scenario, those Purchaser were able to manage who had realized the situation and giving more importance to securing supply linesand less to price negotiations.

Present >>Come May 2021 month, and the cycle has changed, though only a little. There is lockdown in multiple states and overall market demand has come down. This has eased off the commodity price pressure on the Purchaser to some extent. But the situation has not changed completely in favour of the Purchaser. Corona pandemic has also made worker availability a major issue and the on-going oxygen related crisis has made the operations of many factories and companies difficult. So although there is very small cooling on the commodity prices, the supply-chain pressure remains as many of the suppliers are not able to work or are working at reduced capacities. Now, the focus of the Purchaser has changed to negotiating and bringing down prices, and also to ensure supplies.

Future >> in June-July 2021 months, the scenario shall change again. Hopefully the corona situation shall be subdued (my personal hope and prayer), which shall allow everybody to operate their factories or manufacturing operations at full capacity. However, there shall be less demand or demand shall be slow to pick-up as general public shall be economically bruised and scared. This shall make a buyer-driven market. Here the Purchaser has to again change his roles and has to give focus on hard-core price negotiations, since supply-lines shall be fairly smooth.

Thus, as you can see, within a short span of 6 months, as a Purchaser we have to change our roles and priorities multiple times. And, in order to play our roles effectively during all the above mentioned three phases, we have to play with our strengths and weakness vis-à-vis the seller-side.

IV. Be Super-Spreader

Corona virus : Corona spreads among all and in all conditions. The virus spreads equally among all citizen segments and also along different geographic locations of urban, semi-urban, rural and remote areas.

Purchaser : A purchaser should have no reservation in dealing with different types of people in different seller organizations.

As stated in previous paragraphs, in many cases as a Purchaser we may have to start with a junior or lower level sales person in an organization, and then slowly we have to move ahead in the seller-side hierarchy. By this I also mean that as a purchaser we should not carry our ego or status or position on our sleeves, and deal with any person as per situation.

This kind of approach from a Purchaser side, shall allow whoever person is there on seller-side to become comfortable andeasy. This approach shall allow a Purchaser to get required information and inputs from the seller-side, as and when the situation arises.

V. Be Resilient and Invincible

Corona virus : The corona virus is becoming invincible or is hard to conquer. In spite of the availability of so many vaccines, we are not sure if the virus has been contained. There are also incidents of virus relapsing.

Purchaser : A purchaser should also be invincible or hard to be won (or convinced). A seller shall and may deploy many options and way-outs, however as a purchaser we should always get away easily, without getting caught or won.

As a purchaser we should always deploy multiple options or way-outs to counter or neutralize the ways and means of a seller-side. Resilience is a trait which always pays in long-run.

Additionally, a Purchaser should also have relapsing nature. Which means that even if a seller convinces or wins you in one round or incident that does not mean that as purchaser, we should surrender or forgo our rights entirely.

Purchasing is an on-going and long-drawn process. Thus there shall always be multiple occasions, when a Purchaser can regain his position or negotiation power. As they say, what goes up, also comes down. Hence, as a Purchaser we should wait for that one opportunity when we can regain our strength and negotiation power. And any purchase process shall bring multiple such occasions.

I shall end with : "Life must go on". And so we have to keep the human spirit alive by finding and learning from the positives that this corona pandemic is throwing at us.

●●●

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.

SIX SUPPLY CHAIN AND LOGISTICS TRENDS FOR 2023

CHRIS JONES, SCB CONTRIBUTOR, EXECUTIVE VICE PRESIDENT OF INDUSTRY AND SERVICES WITH DESCARTES

The last several years have made a mockery of many predictions. The economy didn't tank. The mid-term election wasn't a wipeout. There wasn't a carrier "Armageddon."

Those years have also made a mockery of many supply chain and logistics strategies and services. A number of macroeconomic and geopolitical challenges, as well as significant learnings about risk and disruption, are setting shippers and logistics service providers (LSPs) down different paths in 2023 and beyond.

Looking at research and analysis combining economic, demographic and industry insight, six significant trends have emerged for 2023.

1. Cost containment. High inflation and the Federal Reserve Bank's efforts to get it under control shaped much of the C-suite's thinking in 2022 and will continue to do so in 2023. For most companies, cost containment (as opposed to growth) will be the top priority in 2023, and the supply chain will be under intense scrutiny as everyone tries to get costs under control.

Given the softening demand for all modes of transportation, shippers and LSPs will have the opportunity to take advantage of newfound excess market capacity. They will also be able to move to less expensive transportation modes where there is little-to-no impact on business performance.

From strategic sourcing to rate shopping and alternate mode selection, shippers and LSPs will look to reset their strategies and supporting technologies to take advantage of rapidly evolving transportation market conditions. Shippers, however, won't be looking only at carriers; they will also be looking at customers and customer service policies, which are a big driver of transportation costs. Numerous strategies and tactics can be applied to either reduce transportation costs or increase transportation-related revenue.

2. Global supply chain rebalancing. A plethora of factors, ranging from extended and disrupted supply chains to uncertainty driven by geopolitical tension and lingering impacts of the COVID-19 pandemic, are causing supply chain executives to rethink their sourcing strategies in 2023. Despite a softening in U.S. container import volumes, port congestion and delays still exist.

Instead of cost-optimized supply strategies, there will be more focus on resilience and agility. The move to on- or near-shore high-demand/highly volatile goods will continue as organizations seek to be more reactive to demand changes without missing opportunities or carrying excess inventory. National initiatives to ensure the availability of critical materials and products will cause supply chain executives to employ "friend-shoring" or to further diversify their sourcing beyond specific countries and regions.

In many cases, these tactics will make supply chains more complex to manage but better able to respond to continuing market volatility. The degree of rebalancing will create a capacity arbitrage situation, so rapid identification of new sourcing, manufacturing and logistics options will be critical as alternate capacity will be quickly consumed or become costly.

3. Home/last-mile delivery performance improvement. The pandemic brought a step-back in delivery performance in the B2C and B2B markets as a result of exceedingly high delivery volumes and driver shortages. This poor performance is evidenced in a home-delivery consumer sentiment study conducted by Descartes. Almost three-quarters of consumers, 73%, indicated that they experienced a delivery failure in the three-month period prior to the study.

Over time, customers have become less forgiving and are penalizing B2C and B2B companies for poor delivery performance. As a result, these companies will focus on their own and third-party delivery capabilities and performance in 2023.

They will look to provide a better customer experience by offering a broader array of delivery options and improving the accuracy of delivery services. To further enhance the customer experience, leading B2C and B2B companies will offer real-time shipment tracking and proof-of-delivery information directly to the customer.

4. Sustainable logistics. More consumers are making purchase choices based on brand and retailer sustainability efforts. In fact, 39% of respondents in Descartes' survey on consumer sentiment around sustainable delivery said they "regularly" or "always" make purchasing decisions based on the company's or product's environmental impact.

Traditionally, the focus has been on product or packaging sustainability; however, consumers are increasingly focusing on more sustainable logistics options. In fact, half of consumer respondents in the same Descartes study were "quite/very interested" in environmentally friendly delivery methods.

In 2023, leading retailers and last-mile delivery service providers will offer more sustainable delivery options to capture market share and increase customer loyalty. The most important reason? Most of the sustainable delivery options are actually lower cost deliveries.

5. The elusive worker. Despite what appears to be a softening of consumer demand, there still are not enough warehouse workers and drivers. For shippers and the logistics industry, the competition for workers is not just with competing companies — it is with every company in every industry. Currently, there are only 0.6 people available for every job, according to the U.S. Bureau of Labor Statistics.

Analysis Descartes conducted explains that the labor shortage is actually structural due to a declining birth rate in the United States and failed immigration strategies. As a result of the labor demand/supply imbalance, hiring challenges will continue, especially for peak seasons.

To combat the labor shortage in 2023, shippers and logistics companies will focus on automation, especially soft automation. The goal will be to improve the productivity of the workers they do have and to minimize the number of workers they need in peak season.

6. Global logistics digitization. With softening shipping demand and excess logistics capacity, LSPs and carriers will be under tremendous pressure to find ways to be more competitive, keep costs down and improve customer service. In 2023, digitization will be the most important strategy for LSPs and carriers to simultaneously address all of these factors.

Digitization should not be confused with automation; it is about fundamental transformation that is recognized by the customer and the market. For example, digitization addresses the customer experience, giving a customer the ability to rate, quote and book shipments in seconds as opposed to days. Digitization opportunities abound for LSP and carriers and stand to make a positive difference in many areas.

For shippers and LSPs, 2023 is going to be another "pivot" year. Instead of a growth focus where demand appeared to be insatiable, cost and service will drive the agenda.

Many shippers learned during the last several years that their supply chain and logistics strategies were no longer sound and must change. For LSPs, the shipping "party" has ended, and in 2023, they will have to double down on efforts to differentiate, operate more cost-effectively and improve service. All of these important trends will improve the performance and resiliency of supply chain and logistics and better align the industry with key global macro-trends such as sustainability.

Source: www.supplychainbrain.com

TIME FOR ECONOMIES TO FACTOR IN HAPPINESS AND WELL-BEING

SURJITH KARTHIKEYAN, DEPUTY SECRETARY
MINISTRY OF FINANCE

Global economies must consider integrating and capturing happiness and well-being while designing their key national policies and priorities

Globally, economies are on the path of targeting high economic growth and, in this context, have witnessed significant rise in global living standards and wealth. However, with advanced standard of living, whether people have become happier is something which seems difficult to answer considering a whole lot of subjective and objective factors associated with the term 'happiness and well-being'.

Another aspect worth consideration is to what extend the existing measures of growth and prosperity such as Gross National Product (GNP) or Gross Domestic Product (GDP) capture the aggregate well-being of a nation considering it misses a lot of economic activities like unpaid household work, and failing to factor in economic and environmental sustainability.

Access to necessities

One angle for measurement of happiness and well-being is whether a country's population has access to the basic necessities of life at an affordable cost coupled with freedom for its citizens to perform basic activities without any hindrance. In this context, mention may also be on societies which are still suppressed due to colonisation/war and social discrimination and similar such issues, which are indeed the basic reason for unhappiness.

This necessitates social equality to be an important component in the development agenda. Thus, it is argued that measures of national well-being should capture not just the monetary well-being but also adequately represent overall happiness. Nevertheless, both conceptual and measurement issues have been associated with such measures of progress.

This provides direction for a new paradigm of research known as 'happiness research'. The basic notion underlying the new paradigm is the belief that 'money is not everything', or perhaps the age-old question: 'does money buy happiness?' Consider the Indian economy of yesteryear, characterised by joint families with meagre income, traditional mode of livelihood and lack of technological development, against the present society of nuclear families, busy urban life coupled with digital revolution and growth in all sectors of the economy.

Therefore, the inevitable question to be asked is whether countries having higher income or GDP are happier than countries with lower income?

Comparing the above two from the happiness point of view may indeed be an intricate exercise. One may necessarily opt for the social and secure set-up, prevalent long back, along with the improved life in the modern technological and digital world. Thus, happiness cannot be measured comprehensively based on just income criterion.

From the happiness angle, the other factors that could be considered are human welfare such as educational attainment, life expectancy, quality of governance, health outcomes, etc. Additional factors such as freedom, environment and security. may also be considered. Accounting for these factors may reflect well-being far better than economic output does.

Biological basis

Another angle worth exploring may be the biological basis for happiness, which reveals that 30-40 per cent of the differences in happiness among people can be attributed to individual's genetic differences and the other 60-70 per cent differences not to genes but to effects of environmental influences. Studies show that some people have genetic variants that make them happy easily. The findings of these genetically informative studies thus recommend social policies, activities, intervention and environments that flourish genetic potential and, at the same time, offsets risk and vulnerability.

Well-being is indeed a combination of feeling good coupled with positive emotions such as happiness and contentment and experience of positive relationships. Subjective well-being is synonymous with positive mental health. Well-being can also be linked to success in career, creativity in workplace and similar such achievements which place an individual in a better position compared to others.

Studies have shown that an individual brought up in a better environment with good educational facilities are more inclined to be in better 'well-being' in the later part of his/her life. It is pertinent that in the World Happiness Report, the measurement of subjective well-being relies on three main well-being indicators — life evaluations, negative emotions and positive emotions, wherein, life evaluations are considered as the more stable measure of quality of people's lives in happiness rankings.

Trustworthiness is another key component which influences happiness and well-being. This could be explained better with an example; the probability of, say, getting a lost wallet in a crowd differs across countries. Studies conducted in Scandinavian countries reveal 100 per cent chance of getting a lost wallet from a crowd compared with other developed and developing economies, where it may be much lower.

Another example could be linked with the workplace. An individual spends a major part of his/her time in office, and thus the environment in the workplace has a significant role in his/her happiness or well-being. It depends on how a senior officer treats his junior in workplace — that is, as a partner or as a source for deriving maximum work? This indeed determines a person's happiness in the workplace which may have an effect on his/her productivity and dedication to work.

In view of the above, it is time for global economies to integrate and capture national well-being into their policies by unveiling plans to measure national well-being. The involvement of psychologists, behavioral economists and other strands of social thinkers may necessarily be involved in designing policies.

The idea of maximising happiness as originally proposed by Jeremy Bentham is getting back into discussions, though consensus on how to measure happiness has not yet been resolved in spite of the World Happiness Report being released every year.

Views expressed are personal

Source:www.thehindubusinessline.com

KEYS TO MITIGATING SUPPLY CHAIN DISRUPTION IN INDIAN STEEL INDUSTRY

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Introduction: Manufacture of Steel from raw material to final product totally depends upon an effective Supply Chain Management (SCM). In the Steel sector, the supply chain logistics have a vital role in sourcing of raw materials, transportation to the plant and processing at various stages till transformation to the final product. A continuous monitoring of the Supply chain with Cost consciousness at every stage of the process, without any compromise on the quality and safety is of utmost importance in achieving the high level of efficiency in the Steel production. Modern Steel manufacturing process is mostly automated with specialized technological developments like ERP, encompassing the various input costs at various stages in the Supply Chain determining the cost of the final product instantaneously.

In the process of Steel Manufacture, raw materials like Iron Ore, Coking Coal, Low Silica Limestone, Dolomite, Non Coking (Boiler) Coal etc. are required in bulk. While Iron Ore, Dolomite, High Silica Limestone etc. are available domestically, other raw materials like Coking Coal, Low silica Limestone, Boiler Coal are imported due to non availability of these materials as per requirements of the Steel manufacturers.

The Imported bulk raw materials are sourced mainly from Australia, USA, Canada, Indonesia, Africa, UAE etc. The bulk raw material cost and ocean freight, being highly valued and market driven through various price indices which are, at times, volatile and unpredictable, the Steel manufacturers plan their requirements with minimum inventory levels and any disruption in the Supply Chain would adversely affect the production process.

Keywords: Supply Chain Management(SCM), Non Coking (Boiler) Coal, Enterprise Resource Planning (ERP), Supply chain disruption, Mitigating Supply Chain Disruption, Pandemics, Supply Chain Risk

Coking coal is converted to Coke in the Coke oven Batteries. The Coke is the basic fuel in the Blast Furnace. Low Ash Coking Coal is mainly sourced from Australia, Mozambique, USA and Canada. Supply chain management (SCM) is the centralized management of the flow of goods and services and includes all processes that transform raw materials into final products. By managing the supply chain, companies can cut excess costs and deliver products to the consumer faster and more efficiently. Good supply chain management keeps companies out of the headlines and away from expensive recalls and lawsuits.

The five most critical elements of SCM are:

- developing a strategy,
- sourcing raw materials,
- Production,
- distribution, and
- Returns.

A supply chain manager is tasked with controlling and reducing costs and avoiding supply shortages.

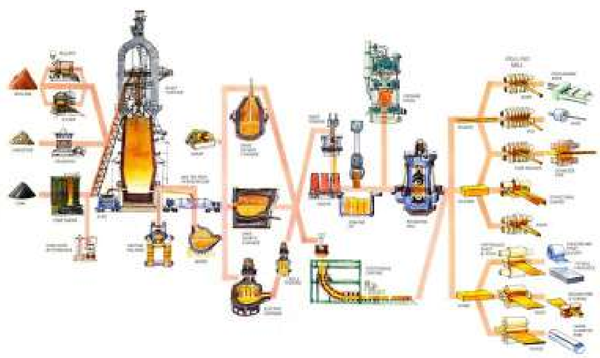

Fig.1: Schematic representation of Steel production in an Integrated Steel Manufacturing Unit

Defining Supply Chain Risk : The risk facing any particular supply chain reflects its 1) level of exposure to different types of shocks, multiplied by the 2) underlying weakness in the supply chain as a whole. **Disruptions** are serious and costly but do not cause the same cumulative toll as catastrophes.

Supply chain disruptions : Disruptions in the steel sector might be an unexpected interruption of flow of raw materials for manufacturing recognized as an inevitability within a supply chain. It is not a matter of if a supply chain will encounter a problem, but rather a matter of the timing and severity of the event. Supply chain disruptions may stem from unpredictable natural disasters, earthquakes, tsunamis, Conflicts, strikes, trade policies, global health pandemics like COVID 19, political uncertainty, economic upheaval, devaluation of currencies in Asia, economic financial crises, cyber and terrorist attacks, supplier threats, and rapid swings in consumer preferences and demand.

The past few decades have been notable for major changes in supply chains due to an increasing level of globalization and a higher rate of innovation. Over the last 10 years, supply chain disruptions mainly due to:

1. **Global Health Pandemics:** as experienced in various phases during 2019 till 2022, the supply chain in the global market got adversely affected due to lock downs imposed in many countries. The steel sector had to innovate alternative sourcing or develop indigenously. The Russia-Ukraine conflict changed the dynamics with sanctions being imposed by western countries on Russian fuel, which was earlier the top supplier to Europe. This led to escalation in gas and thermal coal prices. Russia's invasion of Ukraine in February 2022 is having deep human, social, and economic impact across countries and sectors. The implications of this conflict had adversely affected the Supply Chain.

2. **Climate Change**: Unexpected rains resulting in choking of underground mining areas, disruptions in the rail and road transportation systems from mine head to the port of loading etc. as experienced in Australia and Africa during the last 2 years is also one of the factors affecting the supply chain.

3. **Labour**: Inadequate availability of Labour both, skilled and unskilled due to strikes, closures, and delayed union negotiations are compounding supply chain labor shortages, as experienced during the lock down in the Pandemic COVID-19 due to exodus affects the supply chain.

4. **Trade Policy:** The Govt. of India, during the Pandemic COVID-19 had envisaged a Industry support mechanism through the Atma Nirbhar Campaign. This campaign is with a vision of new India with the aim to make the country and its citizens self reliant in all aspects with make in India concept,review on procurement action on all commodities to be imported above 200 cr, ban on issue of global tender enquiries to border sharing countries with India and abnormal increase of coal indices affecting the raw material prices.The steel export duty imposition by the Indian government negatively impacted coking coal demand and prices too.

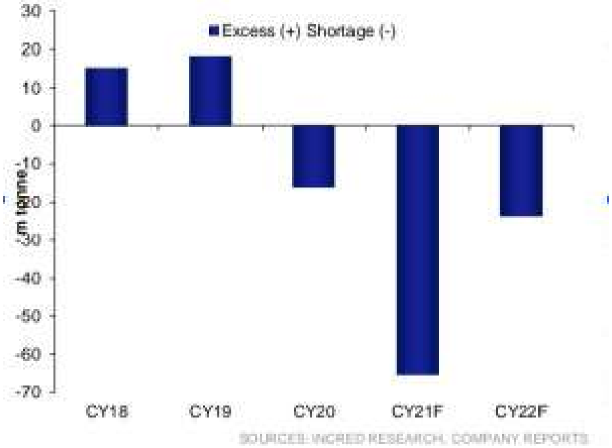

Fig.2: It's unlikely that production ramp-up in Australia will lead to shortage of coking coal in CY 22F as well

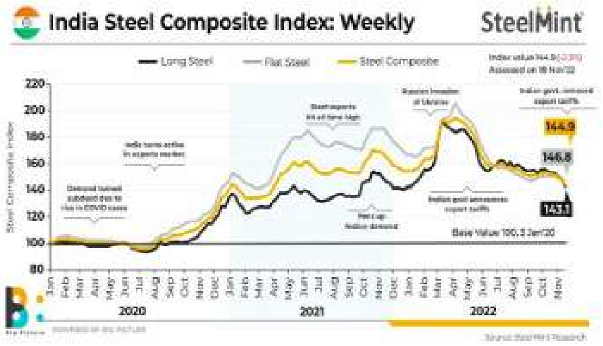

Fig.3 Indian Steel Composite Index

Keys to Mitigating Supply Chain Disruption

Mitigation of Major business disruptions follow:

- To improve their financial performance, such as return on assets, they implemented various supply chain initiatives
- to increase revenue (e.g. increase product variety, frequent new product introduction),
- reduce cost [e.g. reduce supply base, just-in-time (JIT) inventory system, vendor-managed inventory]
- and reduce assets (e.g. outsourced manufacturing).

The steel export duty imposed by the Indian government negatively impacted coking coal demand and prices too. Steel demand took a hit due to inflationary pressures and supply disruptions.

By implementing Atmanirbar Bharat campaign with a vision of new India with the aim to make the country and its citizens self reliant in all aspects with make in India concept,review on procurement action on all commodities to be imported above 200 cr, ban on issue of global tender enquiries to border sharing countries with India and abnormal increase of coal indices affecting the raw material prices. Most of the supply chain organizations experience less than one-third of the supply chain disruptions of their peers thanks to best-practice sensing capabilities, continuous review and rapid response, all enabled by innovative technology solutions and advanced analytics. Supply chain analysts must prepare for supply chain disruption by prioritizing visibility,

agility and resilience in the end-to-end supply chain related to supply chain cost management, supply chain risk management, supply chain sustainability and supply chain logistics.

- Visibility ensures the supply chain senses risks early and knows what the best response options are so that it can act accordingly
- Agility is the ability to sense and respond quickly to supply chain disruption, minimizing risk impacts
- Resilience is the ability to resist, absorb and recover from supply chain disruption The various strategies useful for mitigating supply chain disruption includes
- Supply chain strategy for raw material shortage: Shifting from a global supply chain model to one that is regionally based, response to growing trade barriers and calls to bring manufacturing and supply bases back to their home countries
- Raw material price inflation: Supply chain strategy: Supply chains are under immense pressure to counteract supply instability stemming from runaway price inflation and severe material shortages.
- Supply chain strategy for logistics capacity shortage: Geopolitical forces, pervasive unsafe and poor working conditions, and high insurance premiums.
- Supply chain strategy for logistics cost surge: Supply chain sustainability keeps climbing higher on corporate agendas across the globe.
- Supply chain strategy for Labour: This can be overcome with the introduction of mechanization to some extent.
- Govt Supply chain strategy: PM Gati Shakti - National Master Plan for Multi-modal Connectivity, essentially a digital platform to bring 16 Ministries including Railways and Roadways together for integrated planning and coordinated implementation of infrastructure connectivity projects. The multi-modal connectivity will provide integrated and seamless connectivity for movement of people, goods and services from one mode of transport to another. It will facilitate the last mile connectivity of infrastructure and also reduce travel time for people. Integrate automation A transport management system (TMS) can mitigate the risk of supply chain management.

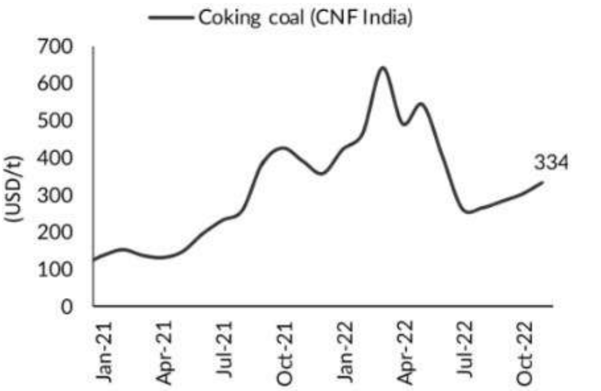

Fig.4: Australian Coking coal Price up 10% MoM

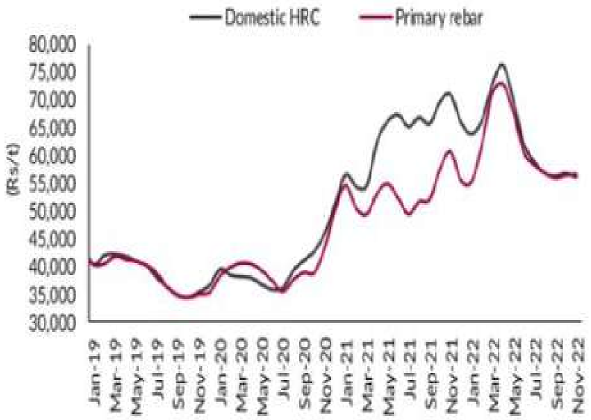

Fig.5: Indian steel Prices stabilized in past three months but likely to correct

Australian coking coal prices have been quite volatile in the past few months While the global coking coal demand continues to remain sluggish, this price recovery can be attributed to:

- Elevated thermal coal prices
- Supply issues due to rains
- Hopes of Indian demand recovery post monsoons

India, the top buyer of Australian coking coal, took a backseat from purchasing due to the steel export duty in the third week of May, which severely impacted coking coal demand. This, coupled with the start of the monsoon - which is usually a dull season for domestic steel demand - further led to very limited bookings by Indian steel mills. This made thermal and coking coal prices move in different directions.

Due to massive stockpiles and weak demand worldwide, demand from Japan and Europe will likely remain subpar in the upcoming quarter, causing Australian coking coal prices to remain range-bound. The most common redundancy practices are keeping inventory, contracting with backup suppliers, and investment in supplier protection.

CONCLUSION

As India works to become a manufacturing powerhouse through legislative initiatives like Make in India, the steel industry has emerged as a major emphasis area given the importance of a multitude of industries on its output. The steel industry and the nation's export manufacturing capacity have the potential to help India reclaim its favorable steel trade balance. The country's steel industry needs to become more competitive immediately. Cost reduction across the supply chain, the development of effective logistics, and a reduction in finance costs are some of the steps needed to accomplish this.

The steel sector is undergoing an exciting shift with the development of new emerging technologies like robotics, digitalisation, and Internet of Things that offer useful solutions to business. In addition to automating processes, these technologies link all of the components of a plant, enabling real-time interaction and increasing system efficiency. Labor productivity will also increase because of effective performance and technology integration. This will contribute to cost- cutting and an increase in industry profitability. Success in the future depends heavily on how developing technologies are adopted. A push from the government and the adoption of cutting-edge technologies will allow India to become a trillion dollar economy.

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NATCOM 2022 - ANNUAL CONFERENCE OF INDIAN INSTITUTE OF MATERIALS MANAGEMENT HELD AT MMA HALL CHENNAI ON 2ND AND 3RD OF DECEMBER 2022.

The Flagship event began with the MoC Mr. N.Sivaraman inviting the IIMM Senior dignitaries on the dais, which included

1) Mr. H.K. Sharma – National President
2) Mr J S Prakash Rao – Sr. Vice President
3) Mr. S Deodhar Mumbai – National Secretary &Treasurer
4) MR S.Krsihnaswamy- Former National President
5) Mr.N.Swayambhu VP-South
6) Mr. K. Nagappan - NATCOM chairman
7) Dr.B.Ramesh - Chairman Chennai branch

National Song, VandeMatram, was sung by all present and was followed by Lighting KuthuVilakku by all the dignitaries with the audience standing and applauding the inauguration ceremony. Thereafter, devotional song was sung by Ms. HariniRangan. The dignitaries on the dais were welcomed with a tree sapling as a mark of respect and concern for the environment by IIMM.

Dr. B. Ramesh, Branch chairman IIMM Chennai, welcomed everyone for the conference.

Mr. KNagappan – Natcom 2022 Chairman, thereafter, addressed the gathering. In his address, he mentioned about Natcom Coming back to Chennai after two decades and thanked the National body for reposing faith in Chennai branch to handle the flagship event in Chennai. He thanked all those who worked tirelessly for nearly 6 months to make the event a grand success.

Mr. N Swayambu, VP (South), addressed the gathering and welcomed all the participants. He briefed about various courses and programs conducted by IIMM at national level.

MOC, Mr. N Sivaraman, welcomed Mr. H K Sharma, National President to the dais and introduced him and invited him for his keynote address. Mr. Sharma began by saying he was happy to be in Chennai for NATCOM, being held in Chennai after 21 years. As they say "Be a Roman when you are in Rome" Mr. Sharma being in Chennai, used the tamil couplet from Thirukural, to drive on the theme of the event. He added the famous Tamil tagline "EnniThunigaKarumam" which translates into "Do plan well before execution'.He emphasized on the role of planning which is essential to manage in uncertain periods such as during the pandemic. He opined that from the VUCA world (VUCA – Volatility, Uncertainty, Complexity, and Ambiguity) it is now changing to BANI World (BANI stands for Brittle – Anxious – Nonlinear and Incomprehensible).With the advent of pandemic, there is a huge disruption in supply chain world over which has led to a new thinking and BANI Concept, had emerged. Therefore, SCM Professionals have to be more agile to overcome the seamless and overwhelming data flow across the supply chain to remove anxiousness. The non-linearity of the situation demands for better understanding of the context and develop and manage accordingly.

Mr. Sharma emphasized that the current situation in supply chain environment demands the need for reinventing and future proofing global supply chain and hence the conference theme on the same lines was a very appropriate one. He talked about Gartner survey, Ivalua&Procuriuos global survey 2022 and various highlights of it for SCM.

Mr. Sharma mentioned that the Government of India has taken several initiatives in the recent past to strengthen the Indian supply chain. This includes New National Logistics Policy, Atmanirbhar Bharat, Vocal for Local initiatives, Gatisakthiinitiative, Faster Dispute Resolution mechanism, Digital Procurement, Signing of free trade agreements with various countries, GeM Portal and QCBS based procurement guidelines.

Mr. Sharma pointed out that the Procurement through GeM Portal have exceeded Rs3 Lakhs crores and was likely to be nearly 4 % of GDP in near future and comparable to developed world.

Mr. Sharma also mentioned that reinvention of supply chain is all about commercial growth from supply chain, authentic fulfilment of ESG Commitments, real-time supply chain execution and flexible work experiences. He mentioned that future proofing supply chain requires investment in talent, technology, data validation and insurance. He mentioned that for future proofing of supply chain, the focus has to be on embrace digitalization, shift to e-commerce, build scalable capacity, move to the cloud, ensure trade compliance and localise stock.

Mr. Sharma added that the future of SCM depends on better risk management, demand and technology management. Data analytics shall be a key strength area for all SCM Professionals apart from resilience and agility, in the supply chains.Mr. Sharma concludedthat integration and standardizationof all standalone Processes is the key focus area which shall result in reducing order fulfilment time, transportation time and enhanced customer delight.

Following the speech of National President, the chief Guest and Key note speaker Mr.K.Srinivasan-MD Kirloskar Pneumatic Company, Pune, set the tone for the conference through online mode. He stressed on the three pillars of reliability, predictability and efficiency drawn from the traditionally operated, supply chain function. As every company thrives to create value for their customers and the ones which could differentiate themselves from others will be able to move ahead of others.

Mr. Srinivasan exposed the futility and dependency on single source i.e. China for manufacturing and now the world is moving towards China + 1 Strategy. After the pandemic, SCM personnel are also looking at more insourcing than outsourcing to meet the demands. Local sourcing is now preferred over global sourcing. In local sourcing better controllability is assured.

Mr. Srinivasan elaborated on how shortage crisis triggers panic buying in excess quantities which in turn creates more demand in the market and shortage looms over again. People tend to stockpile more than what is needed by them. Mr. Srinivasan cited the case of oxygen demand by hospitals, during Covid 19 which forced many industries to even convert their nitrogen plant to produce oxygen just to meet the demand for oxygen in the market.

Mr. Srinivasan motivated by adding that there is going to be a high demand for supply chain professionals, in India as the country is targeting to move from it's current 3.5 Trillion USD economy to 25 trillion USD in the coming decade. India would be emerging as the global manufacturing hub and providing an alternative to China.

Thereafter, next speaker, Mr. PawanBargel, Head of E commerce operations, Tata Digital, released the NATCOM souvenirwhich was received by the National President Mr. H.K. Sharma. The souvenir is an excellent compilation on IIMM – NATCOM 2022 and a series of articles written by eminent personalities on the latest trend in supply chain and Logistics Management.

Mr. Pavan Bargel also released another book on Contracts Management authored by Mr. H.K. Sharma and the same was received by IIMM Chennai Branch chairman,Dr. B. Ramesh. Mr. Sharma announced that the book is going to be directly used by Indian Institute of Coal Management (IICM) and Management Training Institute, SAIL as a reference book. This was followed by addressing the gathering on the New Logistics Policy – Challenges and the initiatives being undertaken by the Government.

Mr. Pawanmentioned that, India is at the 44th place in Logistics performance index among 147 countries in the world andthe most critical challenge is the last mile connectivity in the country.In order to address the various issues faced by the industry, the Government has come out with the New Logistics Policy 2022. Through this policy, they are planning to develop 14 Multi Model Logistics Parks across the country.Some of the other Key developments through the policy were listed as

- Integration of Digital system across various ministries like Railways, Road Transport, Aviation, commerce, and Foreign Trade to Permit single window clearance
- Unified Logistics Interface Platform to enable shorter and smoother cargo movement and permits exchange of information confidentially on a Real Time Basis.

- Improvement of the Logistics effectiveness across various cities in India

He also mentioned about Gatishakti and Sagarmala projects.

Thereafter, best CEO awards were announced. BEST CEO award for Public Sector was given to Mr. Om Prakash Singh – CMDMahanadi Coalfields Limited. The award was received Mr. Mihir Chandra, GM (MM) of MCL on behalf of Mr. Om Prakash Singh. The Next award for CEO of the year 2022 (Private Sector)was given to Tata Steel Jamshedpur and would be presented sometime later in Jamshedpur.

Award for CEO of the year 2022(Infrastructure)was givento Mr. Anjum Parvez -MD of Bangalore Metro Rail corporationand the award was received by a Senior executive of Bangalore Metro rail Corporationon behalf of Mr. AnjumParvez.

Vote of thanks for the inaugural function was proposed by NST, Mr. Surendra Deodhar.

Technical session 1:Circular Supply chain the new face of sustainability

Speaker of the session was Mr. P.M. Balaji from Toshiba. Mr. Rana Das, Chief Procurement Officer, Tata Steelchaired the technical session.

Mr. Balaji came out with an interesting anecdote on how "Pongal", the south Indian dish is a classic example of circular economy. Mr. Balaji also cited the case of cow dung being used for producing energy wherein the cow dung which otherwise is a waste, is used for producing energy.Another example was that of palm oil production wherein the waste generated in the process is used again as agricultural manure.

Another interesting case pointed out by Mr. Balaji was the extracting of Gold from e-waste where waste gold foils are extensively used and it has become a very lucrative business. He said the circular economy helps in re-using everything as far as possible.This not only improves the economy but also saves the planet in terms of better environment for future generations. He concluded by referring to the recent hit movie RRR and said Let us remember the 3 R's to Repair – to Re use – to Recycle to save the environment.

Technical session 2: Farm to Fork - Management of Agri food supply chain

This session facilitated by Mr. AmritBajpai COO of Way Cool. The session was chaired by Mr. T.A. B. Bharathi, Vice President, TVS.

Mr. Amrit Bajpai talked about the revolution in Agri products movement from the place of production to the place of consumption and how their company has revolutionized this movement using Cold chains and Temperature controlled vehicles to transport the agricultural productssuch as fruits and Vegetables

Mr. Amrit Bajpai began by saying that there would be 10 billion people to be fed by 2050 and the average food waste is nearly 1.3 billion tonnes. He further stated that moving perishables like fruits and vegetables is like moving patients in an ambulance and not like moving cargo in a vehicle. One has to take a lot of care in preserving them. Nearly 1/3rd of Agricultural produce in India gets wated in supply chain.

Mr. Amrit Bajpai explained how Way cool is transforming the business with focussed attention in multiple areas and particularly on app for farmers using AI & ML through which several critical and useful information to the farmers are spread/conveyed.

From the traditional module Way cool has facilitated the farmers to adopt Demand driven cultivation adopting scientific methods and data analysis. Through Demand mapping, Way cool reduced the food miles and food loss considerably through sustainable supply chain. They educated the farmers to become climate Smartand therebybusiness smart.

Through such concerted efforts in multiple directions,Way cool managed to reduce the food waste to just 2 % as against the industry average of 30%.

Technical session 3: Digital Supply chain (AI, Industry 4.0, IoT, Block Chain and Analytics)

The speaker for the session was Dr.PratapSriramSundar, Academic Director – (ISB – Mohali), a Deming Price winner. In his address, the lean Production and six sigma tools and industry 4.0 were highlighted. He revisited the 8 wastages i.e. Over Production, Waiting, Transporting, Inappropriate Processing, Unnecessary Inventory, Unnecessary Motion, Defects and Excess Processing faced by Industry and the need to minimize /eliminate these wastages.

Dr. Pratap Sriram Sundar stated that the activities in any industry can be classified into 4 types i.e. Humans Only Activity, Machines Only Activity, Humans Compliment Machines Activity and Machines Compliment Human Activity

Mr. Sundar Emphasized on the steps towards effective supply chain by mapping the SCM Processes. He suggested the following

- Select or develop the technology for automation/Digitization.
- Estimate the Improvement, automate all the Repetitive Tasks and
- Develop an "as it is at present model" and explore what needs to be done for monitoring and tracking the improvements.

Mr. Sundar mentioned that when a study was conducted on Indian Textile industry, it revealed that only 30 out of 103 activities must remain with human effort and the rest can be automated. A combination of men and machine must work in certain cases to complete the task.

Technical session 4: Unique Identity Aadhar Card Success Story

The speaker of thesession was Mr. Prem Narayan – Deputy Director General with UIDAI Government of India. Session Chairman was Mr. K.R. Nair, VP (west), IIMM.

Mr. Prem Narayan elaborated in detail, the efforts of Central Govt in issuing Aadhaar Cards to about 135 Crore People in the country.

The Government has set up more than 1.5 Lakh Aadhar registration centres across the country.This is the biggest contributing factor for distributing direct benefit transfer of funds. Technology was used fully for the implementation of the scheme. Aadhar Mitra – the Digital Chat box was used to address the queries of the Customers.

The Session ended with question and answers addressed by the speaker and the day's proceedings concluded with this and adjourned for the following day.

EVENING Programme & Awards Function

The evening programme had AGM of IIMM at MMA Hall between 18.30 to 20.30, followed by dance programme showcasing traditional dances from Tamil Nadu by Ms.Shobana Ramesh followed by a singingsession conducted by Mr.G.D.Sharma and his team.

The Annual awards for various activities and performances were given by National President.

Day 2 Proceedings:

Technical session 5: Green Home Health Care Supply Chain

The speaker of the session was Mr. SojwalVora, Chief Supply Chain Officer,Manipal Hospital and the session was chaired by Mr K.Nagappan NATCOM 2022 Chairman.

Mr. Vora in his speech brought out the major difference between a traditional supply chain and a Hospital Supply chain mentioning the following

- Low Mix & High-Volume Vs High Mix and High Volume
- Demand is reasonably predictable Vs Demand Highly unpredictable
- Fixed BOM Vs No BOM & Continuously Changing SKU Count in Hospitals
- Distributed supply base by region type category speciality etc
- Risk of Only Loss of Production VS Risk of Loss of Life

Thus health Care Supply Chain is far more Critical and Riskier than traditional Supply chain and emphasized on the following aspects.

- Home health care is now a digital ecosystem with an overlay of services
- Tracking the patients' health condition remotely
- Bring a hospital to your home for added customer value perception
- Extending care beyond the walls of a hospital
- With utmost regard to data security and privacy
- Wearable devices used for monitoring the patient post-surgery and doctors gets alarm when something goes wrong
- Move from therapeutic care to preventive

care

- From health care to health management
- Key Drivers of home health care
- Green initiative ambulance run on extra green gasoline in partnership with Indian oil corporation
- Route optimization for fleet of ambulances
- Leveraging hyperlocal eco system
- Seamless movement of information
- Safe movement of drugs and bio medical bio hazardous waste
- Integrated inventory management
- 18 days of inventory maintained
- Vendors maintained inventory

Technical session 6: Digital Twin on the automotive Industry or Manufacturing

Thissession was facilitated by Mr. Sunil Kumar Dassault Systems New Delhi. Mr Ageet Kumar, VP (north) was the session chairman.

He presented the virtual twin experience consisting of 4 discrete components - Collaboration, Modelling, Optimization and Performance.

A Digital Twin Simulations that can predict how a Product or Process will perform was well illustrated. He added that a virtual world can help extend and improvethe real World. He briefly stated about Product Virtual Twin Experiences and Enterprise Virtual Twin Experiences.

Mr. Sunil explained how a car has become more of electronic and less of mechanical device. The design validation and usage experience can be done using virtual twin experience. They can also be used to explore and compare alternative business scenarios.

Mr. Sunil explained about how Business future depends on many planning decisions such as what possible future options are there? what drives the maximum value in service planning accuracy, process timeliness,maximum what ifs situations,demand plan,supply plan, getting inputs for consensus forecast , updating of portfolio product lifecycle events , risk assessment

Mr. Sunil further briefed on supply planning solution overview and long term planning process to decide the operations alignment with 1 to 3 years Sales and operations planning. He also added that the technology can be used for end-to-end model of the supply chain for each product S&OP / KPIs, by using visual images to understand the methodologies.

He mentioned that EV Game Changers are using 3D Experiences & 3D Experiences can be used for the mobility of the future.Coming to the factory virtual twin, Mr. Sunil stated that how the factory is going to look like after construction can be viewed before construction using this technology.

Technical session 7: Harness full potential of mind- IQ,EQ,SQ,AQ

This session was facilitated by Dr.Kumarbabu Head (Retired) Stanley Medical College and the Chairman of this interesting session is Mr. SurendraDeodhar National Secretary & Treasurer, IIMM HQ

He defined IQ as Empowerment i.e, the process of discovering and developing the inborn capacity to be responsible for one's own Life. He defined empowerment as being responsible for your own life. Many of us give 80% importance to money. However, the remaining 20 % can decide the quality of life.

He stressed on the importance of values in life. This is a fundamental state which makes you feel good about yourself, following an action, without violating the rights of others. An act which makes your feel good about yourself is value and you need to follow it on a day-to-day basis.

While elaborating on self-esteem, he stressed on the importance of having goals. Goals drive you to reach a specific target. There can be goals in many areas of life, like personal,relational,professional, and financial

One's full Engagement also requires one to be spiritually aligned, mentally focussed, emotionally connected and physically energized. Physical energy is the foundation of the full engagement

IQ EQ SQ AQ

IQ – Intelligence quotient is an attempt to gauge human intelligence while people have different cognitive strengths and weaknesses

EQ emotional quotient which is your way of managing your own emotion in positive ways so that you can effectively deal with issuesof life. He mentioned that, pillars of EQ are Self-awareness, Self-Regulation, Social awareness, Social Regulation and Empathy.

SQ: It is the spiritual quotient not much known. This is the positive use adversity, building compassion, celebration of diversity. He suggested all to read the book by Od Mandingo "Greatest salesman on the earth" to build on self confidence

AQ i.e. adversity quotient is a score that measures the ability of a person to deal with adversities from everyday hasslesand face the big adversities. This can be assessed based on 4 core dimensions i.e. Control, Ownership, Reach and Endurance.

You may not be able to control a situation but you can control your reaction to the situation

He mentioned that there are three types of people i.e. Climbers, Campers and Quitters

Be aware of what type of person you are

Time for sponsors: The sponsors were honoured before closing for lunch with playing of their promotional videos.

Thereafter, the BEST CEO (Public utility services) award 2022 from IIMM was given to Mr. N Jayaraman, Chairman, BSSWB, Bangalore and was accepted by an officer from their organization. CRIMM Fellowship award was given to Ranjit Das

Technical session 8: Panel discussion- Click & Mortar and is it right for your Retail Business?

Mr.RajaramanCo-Founder, Oxy-ZEN Express moderated the discussion. The three panel members were 1. Mr. Vinod Giri, VP Commercial, Flipkart-, 2 .Mr. Jayashankar.M.S., Founder and Director, Jayam SCM Consultants P Ltd. and 3. Mr. Krishnan.J., Partner, S. NatesaIyer Logistics.

Moderator initiated the discussion by illustrating the emergence of Physital – physical + Digital platforms.

Mr Jayashankar started the discussion by highlighting the success of ola and uber for cab aggregation and Urban clap for cleaning aggregation. He pointed to the E commerce scale up with last mile connectivity.

Mr.Vinod Giri provided the example of telephone directory and yellow pages that led to connecting the suppliers and clients. The modern version of it was the first product delivered by Flip kart in India was by delivering a book. He gave an example of cab driver placing order online for his household demands.

Mr. Krishnan indicated that the way to move forward is a continuous raise on the bar of technology and function. There is an element of technology that must come in as skills to enter the organization. A purchasing person should know something about analytics, something about artificial intelligence and ware house person should know something about traceability and picking technique etc. Online apps become vital. A combination of some amount of technology knowledge is essential. People need to upskill to deal with the customers directly which itself is creating more efficiency in the system.

Technical session 9 Multi model Transport Strategies to lift Supply Chain.

The speaker of the session was Mr. V. Raju, SVP of Avvashya CCI, Mumbai. This session was chaired by Mr.R.Balakrshnan Co- Chairman, Content Committee, NATCOM 2022.

Mr. v Raju mentioned that Multi Model transport includes all modes of transportation to reach the end customer. Shippers have a single contract with the MTO and this MTO coordinates and manages the contracts with providers of different modes of transport. Key benefits of multimodal transportation are Single point of contact, improvement in carrying capacity of the train rakes, better handling facilities in railway racks for the containers, good roads and good vehicles to move speedily, growth from 25390 million dollars to 70000 million dollars in Multi model transport segment and emergence of Mobility as a service (Maas).

He also mentioned about importance of Gatishakti, GST, fastag and RFID.

Closing of the event

Vote of Thanks and Closing was carried out by Mr.JRavishankar, immediate past Chairman

To bring the event to a close the NATCOM 2022 team handed over the NATCOM flag National President and NHQ team. National President gave appreciation memento to Chennai Branch team.

The NATCOM 2022 formally closed at 17.00 hrs with the singing of National Anthem

2022 SUPPLY CHAIN DISRUPTIONS STUDY

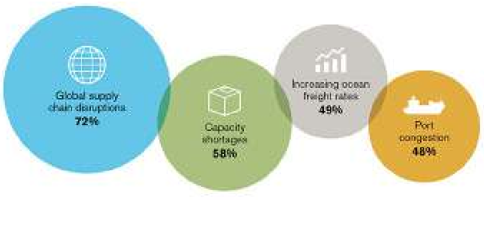
BRIDGET MCCREA
EDITOR FOR LOGISTICS MANAGEMENT

New survey reveals the top pain points that logistics and supply chain management professionals continue to manage through, including higher freight costs, capacity constraints, severe labor shortages, and port slowdowns—all disruptions that are still forcing shippers to re-engineer their supply chain operations.

After a multi-year stint of dealing with the impacts of the pandemic, supply chain shortages, transportation capacity constraints, rising costs and a persistent labor shortage, logistics managers are now facing a host of new roadblocks as they finish out 2022 and look ahead to 2023. Warehouse bottlenecks, vehicle backups at inland hubs and dock worker contract negotiations were just some of the newer issues that companies were grappling with by midyear.

To learn more about these challenges, how they're affecting organizations and how companies are overcoming them, Logistics Management decided to survey its readers for a 2022 Supply Chain Disruptions Study. Most (55%) of the respondents were vice presidents, general managers, logistics/distribution managers, supply chain managers or operations managers. The bulk of them work in manufacturing (43.8%), wholesaling (13.4%) or third-party logistics (10.7%), and represent industries like food, beverage and tobacco; industrial machinery; automotive and transportation equipment; and chemicals and pharmaceuticals.

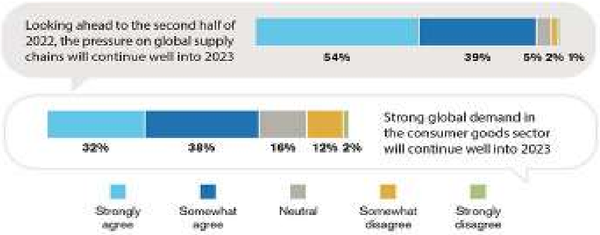
This majority of the 2022 Supply Chain Disruptions Study respondents work for companies with less than $50 million in revenues and 16.1% have employers with over $2.5 billion in annual revenues. The rest fall somewhere between those two ends of that spectrum. The same variation can be seen in the companies' employee count, which ranges from less than 100 (for 40.2% of those responding) to more than 5,000 (21.4%). Most of the companies (63.4%) ship less than 9,999 domestic and international shipments annually.



What is your organization handling on an ongoing basis with the state of your global supply chain?

Source: Peerless Research Group (PRG)

How much do you agree with the following…



Source: Peerless Research Group (PRG)

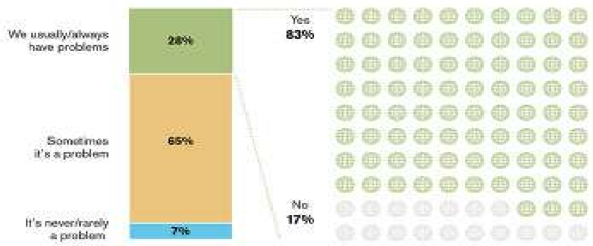
The state of the global supply chain

Global supply chains have faced more than their fair share of challenges since the pandemic emerged in early-2020, and the stressors haven't let up yet. According to the survey, 71.8% of companies are dealing with global supply chain disruptions right now and 57.7% are trying to work through ongoing transportation capacity shortages.

Nearly half of those surveyed (49%) are facing challenges with increasing ocean freight rates and about 48% say port congestion is one of their biggest obstacles in 2022. Russia's invasion of Ukraine has also affected global supply chains. Asked how the invasion has affected their strategies, nearly 60% of readers say their operations have either been highly or somewhat affected by the war while 40.4% have seen no such impacts.

These results align with what Logistics Management has been reporting throughout the year and paint a picture of a global supply chain environment that's still working to stabilize itself in the face of an ongoing pandemic, high demand for products, a persistent labor shortage and continued upticks in e-commerce sales.

How do you currently view the state of your global freight network? / Has the last two years forced your company to rethink it's overall global supply chain operations?



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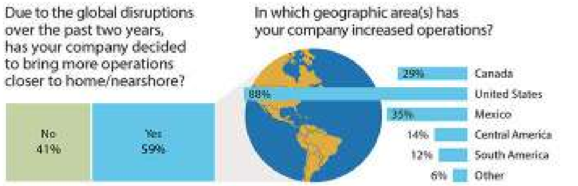
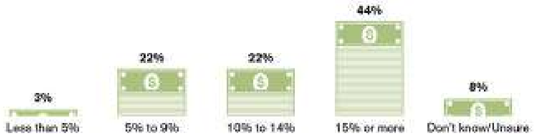


How have the global disruptions over the past year affected your global airfreight rates?

How much did your global airfreight rates increase from 2021 to 2022?

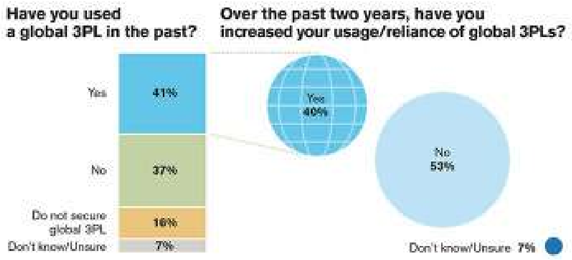


Source: Peerless Research Group (PRG)

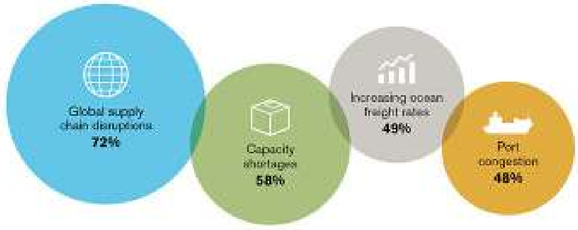
Readers aren't expecting any immediate relief to their ongoing challenges. Looking ahead, more than 93% of survey respondents either "strongly or somewhat agree" that the pressure on global supply chains will continue well into 2023. Asked whether strong global demand for consumer goods will also continue into next year, 70% of readers either "strongly or somewhat agree."

Outside of North America, most companies have realized the biggest global disruptions in Asia (64.7%), Europe (12.1%), Central America (2.6%) and South America (2.6%). More specifically, the disruption in these countries tends to take place at ports (for 80.6% of respondents), trade in general (43.9%), during the customs clearance process (20.4%) and on the road (10.2%).

Assessing supply chain performance: The events of the last 2.5 years have forced 82.6% of companies to rethink their overall global supply chain operations. In assessing the performance of their global supply chains, nearly 96% of survey respondents say their networks are either "usually, always or sometimes" a problem. Just 4.2% of the companies surveyed have global supply chains that are either "never or rarely a problem."



Have you used a global 3PL in the past? Over the past two years, have you increased your usage/reliance of global 3PLs?



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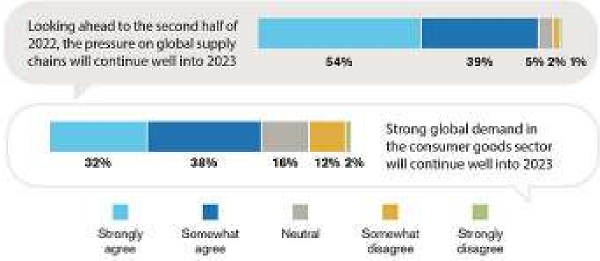

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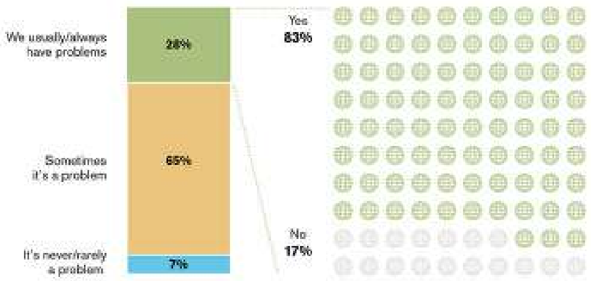

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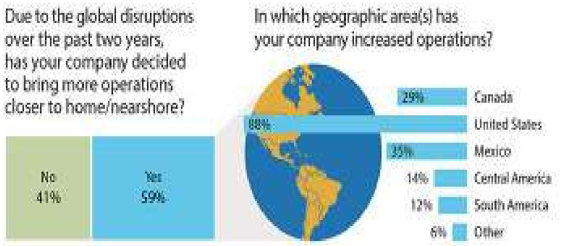

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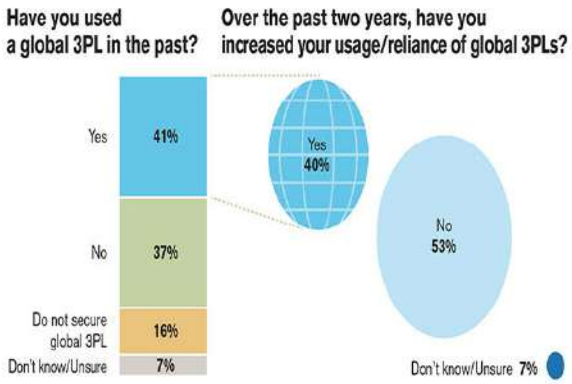


Source: Peerless Research Group (PRG)

Global freight networks are also creating headaches for logistics, supply chain and operations managers right now. According to the survey, just over 92% of companies rely on global freight networks that are either always, usually or sometimes a problem. Just 7.6% of respondents either rarely or never have problems with their global freight networks.

To offset some of the challenges brought on by the pandemic and resultant supply chain disruptions, some companies have been moving their manufacturing and/or sourcing closer to home.

According to the survey, more than half (52.3%) of respondents have used this approach over the last two years while 36.4% have not (11.4% are unsure of whether their companies have done this).

As they bring more operations closer to home using a reshoring or near-shoring strategy, the geographic area(s) where companies have increased operations include the U.S. (87.9%),

Mexico (34.8%), Canada (28.8%), Central America (13.6%) and South America (12.1%).

Freight rates continue to rise

Along with the port congestion, container shortage and transportation delays that keep shippers from getting their goods on time, companies are also dealing with escalating ocean freight rates. By mid-2022, in fact, ocean shipping freight costs were up to eight times their pre-pandemic levels—and even higher for some routes.

According to the study, more than 70% of respondents have seen their ocean freight rates escalate over the last year. Just 4% say those rates have stayed the same and 2.4% have seen decreases.

Asked exactly how much their ocean freight rates increased from 2021 to 2022, readers who reported an increase say they're currently paying 15% higher rates (50.6% of respondents), are shelling out 10% to 14% more (25.3% of readers) and 10.3% of respondents have seen their rates increase by 5% to 9%.

Companies using airfreight have also been paying more for transportation this year. Asked how global disruptions over the past year have affected their airfreight rates, nearly 59% of companies have experienced increases, 4.1% are paying the same that they did one year ago, and less than 1% have seen their airfreight rates go down. Between 2021 and 2022, 44.4% of respondents saw their rates jump by 10% to 14% and an equal percentage experienced rate hikes in the 5% to 14% range.

Ocean and air capacity trends

The global supply chain disruptions severely affected transportation capacity in 2021, driving up rates and forcing companies to rethink their strategies, find alternatives and seek out new modes. The situation has eased slightly this year, but the constraints remain, according to the survey findings. For ocean freight, 37.2% of companies are dealing with decreased capacity while 36.4% say that shipping capacity has either stayed the same or increased this year.

Asked to specify how much their ocean freight capacity increased compared to 2021, 54.6% of companies say it expanded by anywhere from 10% to 15% or more. Another 18.2% say capacity has loosened up by 5% to 9% and 13.6% feel the increase was less than 5%. Of the readers who reported ocean freight capacity decreases this year, 60% say the decrease falls into the 5% to 15% or more range, while 17.8% have watched capacity contract by 10% to 14%.

According to the survey, 19.3% of respondents have witnessed decreases in airfreight capacity this year, although nearly 40% say it has either increased or stayed the same (compared to 2021).

Nearly all companies (88.2%) reporting airfreight capacity increases say those improvements fall into the 10% to 15% range (or higher). Of those reporting airfreight capacity decreases, most (66.5%) say the declines range from 10% to 15% or more and 21.7% have seen decreases of 5% to 9%.

The role of the global 3PL

Overall, the global third-party logistics (3PL) market, worth about $1 trillion in 2020, is estimated to reach more than $1.75 trillion by 2026, according to Mordor Intelligence. This translates to a growth rate of 8% for 2021-2026.

Factors affecting that growth are the increasing number of companies that use 3PLs for major transportation and logistics services—while 3PLs are also increasingly being used to grow e-commerce. In response, third-party providers continue to find creative solutions and expand their service portfolios.

How important have emerging markets become in your global sourcing strategy? Which emerging market(s) have you considered as channel(s) for growth?

Source: Peerless Research Group (PRG)

According to the 2022 Supply Chain Disruptions Study, 40.5% of companies have used a global 3PL in the past, while 37.1% have yet to enlist the help of a global 3PL. Over the last 2.5 years, more than 40% of respondents have increased their usage of and reliance on global 3PLs, while 53.2% have not. Just over 79% have engaged such a partner for freight forwarding over the last 2.5 years and most companies (66.7%) work with just one global 3PL for these services.

Expanding their global reach

Despite the supply chain challenges brought on by the pandemic, companies continue to think globally. In fact, 65.6% of survey respondents say that emerging markets have become either an extremely or somewhat important component of their global sourcing strategies.

Another 34.5% don't consider emerging markets to be key to their global sourcing strategies. When asked which countries they've considered as channels for their growth, 46.6% say Asia is a core target for their organizations.

Some of the other markets that companies view as having good growth potential are South America (32.9%), Central America (24.7%), Europe (23.3%), Africa (15.1%) and Oceania (5.5%), the latter of which encompasses Australasia, Melanesia, Micronesia and Polynesia.

Source: Logistics Management

WTO UPDATE : TRADE GROWTH TO SLOW SHARPLY IN 2023 AS GLOBAL ECONOMY FACES STRONG HEADWINDS

World trade is expected to lose momentum in the second half of 2022 and remain subdued in 2023 as multiple shocks weigh on the global economy. WTO economists now predict global merchandise trade volumes will grow by 3.5% in 2022—slightly better than the 3.0% forecast in April. For 2023, however, they foresee a 1.0% increase—down sharply from the previous estimate of 3.4%.

World trade is expected to lose momentum in the second half of 2022 and remain subdued in 2023 as multiple shocks weigh on the global economy. WTO economists now predict global merchandise trade volumes will grow by 3.5% in 2022—slightly better than the 3.0% forecast in April. For 2023, however, they foresee a 1.0% increase—down sharply from the previous estimate of 3.4%.

Import demand is expected to soften as growth slows in major economies for different reasons. In Europe, high energy prices stemming from the Russia-Ukraine war will squeeze household spending and raise manufacturing costs. In the United States, monetary policy tightening will hit interest-sensitive spending in areas such as housing, motor vehicles and fixed investment. China continues to grapple with COVID-19 outbreaks and production disruptions paired with weak external demand. Finally, growing import bills for fuels, food and fertilizers could lead to food insecurity and debt distress in developing countries.

"Policymakers are confronted with unenviable choices as they try to find an optimal balance among tackling inflation, maintaining full employment, and advancing important policy goals such as transitioning to clean energy. Trade is a vital tool for enhancing the global supply of goods and services, as well as for lowering the cost of getting to net-zero carbon emissions," Director-General Ngozi Okonjo-Iweala said.

"While trade restrictions may be a tempting response to the supply vulnerabilities that have been exposed by the shocks of the past two years, a retrenchment of global supply chains would only deepen inflationary pressures, leading to slower economic growth and reduced living standards over time. What we need is a deeper, more diversified and less concentrated base for producing goods and services. In addition to boosting economic growth, this would contribute to supply resilience and long-term price stability by mitigating exposure to extreme weather events and other localized disruptions. The success of the WTO's 12th Ministerial Conference (MC12) in June is proof that with sufficient political will, members can cooperate and move forward together."

The new WTO forecast estimates world GDP at market exchange rates will grow by 2.8% in 2022 and 2.3% in 2023 — the latter is 1.0 percentage points lower than what was previously projected.

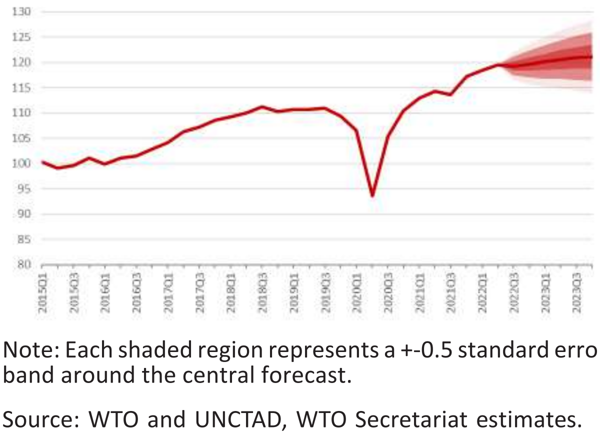
In their April forecast, released only weeks after the start of the war in Ukraine, WTO economists had to rely on simulations to generate reasonable growth assumptions, in the absence of hard data about the war's impact. As events have unfolded, the WTO's GDP projections for 2022 turned out to be broadly correct. The estimates for 2023, however, now appear overly optimistic, as energy prices have skyrocketed, inflation has become more broad-based, and the war shows no sign of letting up.

If the current forecast is realized, trade growth will slow sharply but remain positive in 2023. It should be noted that there is a high degree of uncertainty associated with the forecast due to shifting monetary policy in advanced economies and the unpredictable nature of the Russia-Ukraine war. Chart 1 shows quarterly world merchandise trade volume through 2023 with error bands around the forecast period. If current assumptions hold, trade growth in 2022 could end up between 2.0% and 4.9%. If the downside risks materialize, trade growth in 2023 could then be as low as -2.8%. If the surprises are on the upside, however, trade growth next year could be high as 4.6%. Trade could also finish outside of these bounds if any of the underlying assumptions change.

The Ukraine crisis has pushed up prices for primary commodities, particularly fuels, food, and fertilizers. These are illustrated by Chart 2, which shows global commodity price indices on the left and natural gas prices by region on the right. In August, energy prices were up 78% year-on-year, led by natural gas, which was up 250%. The 36% increase in the price of crude oil over the same period was small by comparison but still significant for consumers.

Chart 1: Volume of world merchandise trade, 2015Q1-2023Q4

Seasonally-adjusted volume index, 2015=100



Note: Each shaded region represents a +-0.5 standard error band around the central forecast.

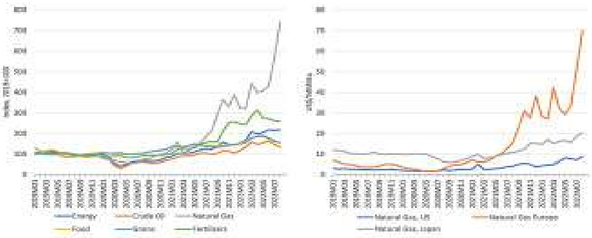
Source: WTO and UNCTAD, WTO Secretariat estimates.

Natural gas prices have diverged strongly across regions, with European prices up 350% year-on-year in August. U.S. prices were up 120% in the same month but remained well below European levels (US$ 8.80 per million Btu compared to US$ 70.00 in Europe). European demand for liquified natural gas (LNG) to supplement reduced supplies from the Russian Federation has also pushed up energy costs in

Asia, where the price of LNG was up 87% in August. European gas prices have moderated recently, falling 34% between 31 August and 23 September, but they remain high by historical standards. Oil prices have also receded from recent peaks, possibly indicating weaker global demand rather than an improved supply situation.

Chart 2: Primary commodity prices, January 2019 - August 2022

Index 2019=100 and US$ per million Btu



Source: World Bank.

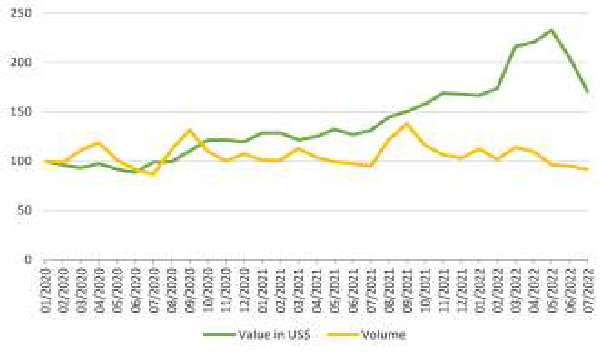
Food prices in US dollar terms have also risen sharply due to the fact that the Russian Federation and Ukraine are both major suppliers of grains and fertilizers. This raises food security concerns in many countries, particularly low-income ones that tend to spend a large fraction of household income on food. Many currencies have also fallen against the dollar in recent months, making food and fuels even more expensive in national currency terms.

Global grain prices in August were up 15% year-on-year while wheat alone was up 18%. This marks an improvement over April, when grains had increased 33% and wheat had risen 76%. Potentially more worrying for the future are fertilizer prices, which were up 60% year-on-year in August after nearly tripling since 2020. Reduced fertilizer imports and use could reduce crop yields and increase food insecurity next year.

While the supply situation for grains may not be as dire as some had feared at the start of the Ukraine war, it is still a cause for concern. This is illustrated by Chart 3, which shows the estimated value and volume of world trade in wheat. In July the volume of traded wheat was down nearly 20% compared to March but only 4% year-on-year. Underlying data suggest that some countries have responded to higher prices by reducing consumption and imports. Since March, quantities of imported wheat are down year-on-year in Bolivia (-69%), Jordan (-41%), Zambia (38%), Nigeria (-37%), and Ecuador (30%), among others.

Chart 3: Estimated value and volume of world trade in wheat, January 2020 - July 2022

(Index, January 2020=100)



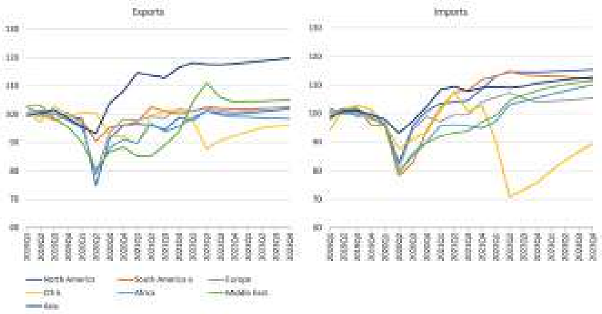
Source: WTO estimates based on partner statistics.

Chart 4 below shows quarterly merchandise trade volume developments and projections by region from 2019 to 2023. The CIS region suffered a strong 10.4% quarter-on quarter export decline in Q2 of 2022 as sanctions against the Russian Federation started to bite. Exports from South America, Africa and especially the Middle East beat expectations in the first half of the year, helping to make up for reduced shipments from the CIS region. Exports from North America, Europe and Asia in the first half of the year were broadly in line with expectations.

On the import side, the CIS region plunged 21.7% during the second quarter of 2022, probably as a result of the Russian Federation's exclusion from the SWIFT payments system. Imports by other resource rich regions (South America, Africa and the Middle East) came in stronger than expected, as higher commodity prices inflated export revenues, allowing countries in these regions to import more. North America and Europe recorded stronger than expected import growth in the first half of 2022 but Asian imports stagnated, registering year-on-year growth of just 0.7% in the first half.

Chart 4: Merchandise exports and imports by region, 2019Q1-2023Q4

Volume index, 2019=100



a. Refers to South and Central America and the Caribbean.

b. Refers to the Commonwealth of Independent States, including certain associate and former member States.

Source: WTO and UNCTAD.

Table 1 summarizes the revised annual trade projections for 2022 and 2023. Note that annual trade volume statistics may diverge slightly from quarterly statistics due to differences in methodology, but in general they track each other quite closely.

The WTO's current forecast of 3.5% growth in the volume of world merchandise trade in 2022 is close to but slightly stronger than the previous estimate of 3.0% from last April, but the difference is mostly explained by statistical revisions and the availability of new data. The Middle East is expected to record the strongest export growth of any WTO region this year (14.6%), followed by Africa (6.0%), North America (3.4%), Asia (2.9%), Europe (1.8%) and South America (1.6%). In contrast, CIS exports should decline by 5.8% for the year. The Middle East also had the fastest trade volume growth on the import side (11.1%), followed by North America (8.5%), Africa (7.2%), South America (5.9%), Europe (5.4%), Asia (0.9%) and CIS (-24.7%).

One notable feature of Table 1 is the resilience of trade growth in the Middle East and Africa in 2022. These regions should see small declines in exports next year, but imports will remain strong, each set to grow by 5.7%. The CIS region is expected to post a large growth rate for imports next year, over 9%, but if this happens it will be mostly due to the reduced base for 2022. Other regions can expect modest growth in both exports and imports in 2023.

Table 1: Merchandise trade volume and real GDP, 2018-2023a

Annual % change

	2018	2019	2020	2021	2022P	2023P
Volume of world merchandise trade b	3.2	0.5	-5.2	9.7	3.5	1.0
Exports						
North America	3.9	0.4	-8.9	6.5	3.4	1.4
South America c	0.6	-1.3	-4.9	5.6	1.6	0.3
Europe	1.8	0.6	-7.8	7.9	1.8	0.8
CIS d	4.1	-0.1	-1.7	0.5	-5.8	3.3
Africa	3.2	-0.4	-8.1	5.2	6.0	-1.0
Middle East	4.8	-1.3	-8.9	1.4	14.6	-1.5
Asia	3.7	0.9	0.5	13.3	2.9	1.1
Imports						
North America	5.1	-0.6	-5.9	12.3	8.5	0.8
South America c	4.6	-1.8	-10.7	25.4	5.9	-1.0
Europe	1.9	0.3	-7.3	8.3	5.4	-0.7
CIS d	4.0	8.3	-5.5	9.1	-24.7	9.4
Africa	5.5	3.1	-14.7	7.7	7.2	5.7
Middle East	-4.4	11.2	-10.1	8.4	11.1	5.7
Asia	5.0	-0.4	-1.0	11.1	0.9	2.2
Real GDP at market exchange rates	3.2	2.6	-3.4	5.8	2.8	2.3
North America	2.8	2.1	-3.8	5.5	1.7	1.0
South America c	0.4	-0.6	-6.9	7.2	3.7	1.6
Europe	2.1	1.7	-5.8	5.8	2.7	0.9
CIS d	3.1	2.6	-2.5	4.9	-3.2	-2.1
Africa	3.2	3.0	-2.5	5.1	3.5	3.6
Middle East	1.6	1.3	-4.5	3.5	5.7	3.4
Asia	4.9	4.0	-0.9	6.2	3.7	4.2
Memo: Least Developed Countries (LDCs)						
Volume of merchandise exports	5.4	0.0	-1.8	4.9	7.1	3.8
Volume of merchandise imports	4.9	3.1	-10.9	9.5	6.6	8.9
Real GDP at market exchange rates	4.6	4.9	0.4	2.1	4.4	4.4

a. Figures for 2022 and 2023 are projections.

b. Refers to average of exports and imports.

c. Refers to South and Central America and the Caribbean.

d. Refers to Commonwealth of Independent States (CIS), including certain associate and former member States.

Note: These projections incorporate mixed-data sampling (MIDAS) techniques for selected countries to take advantage of higher-frequency data such as container throughput and financial risk indices.

Sources: WTO for trade, consensus estimates for GDP.

These projections incorporate mixed-data sampling (MIDAS) techniques that use higher frequency data to improve forecasting accuracy. Specifically, monthly data on container throughput are exploited to capture the effects of port congestion and supply disruptions in the United States and China. Taking this information into account had a small positive impact on imports by North America and Asia in 2022, reflecting the clearance of backlogs at U.S. West Coast ports and increased container handling in Chinese ports following pandemic-related stoppages earlier in the year.

Risks to the forecast are numerous and inter-related. Major central banks are already raising interest rates in a bid to tame inflation but overshooting on tightening could trigger recessions in some countries, which would weigh on imports. Alternatively, central banks might not do enough to bring inflation down, possibly necessitating stronger interventions in the future. High interest rates in advanced economies could trigger capital flight from emerging economies, unsettling global financial flows. Escalation of the Russia-Ukraine war could also undermine business and consumer confidence and destabilize the global economy. An underappreciated risk would be the decoupling of major economies from global supply chains. This would exacerbate supply shortages in the near term and reduce productivity over the longer term.

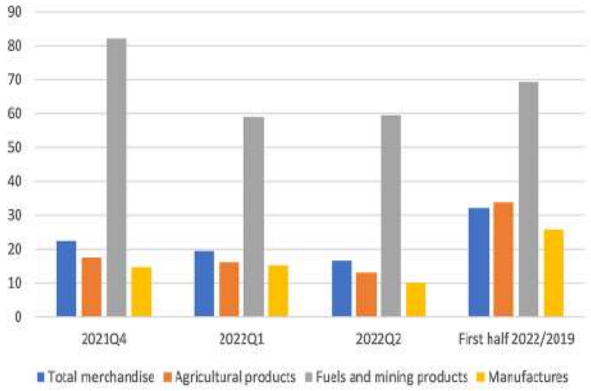
Trade developments in value terms

The WTO's trade forecasts are issued together with quarterly and annual trade statistics in nominal U.S. dollar terms. These can be downloaded from the WTO's online database at stats.wto.org.

Chart 5 below shows year-on-year growth in merchandise exports over the last three quarters in value terms. It also compares the value of exports in the first half of 2022 to exports in the first half of 2019, before the start of the pandemic. It shows that total merchandise trade was up 17% year-on-year in the second quarter of 2022, as compared to 22% year-on-year in the fourth quarter of 2021. Trade in the first half of 2022 was also up 32% compared to 2019. The main takeaway is that because of changes in prices, merchandise trade values are growing at double digit rates even as trade growth in volume terms remains in the low single digits.

Chart 5: Year-on-year growth in world merchandise exports through 2022Q2

% change in US$ values

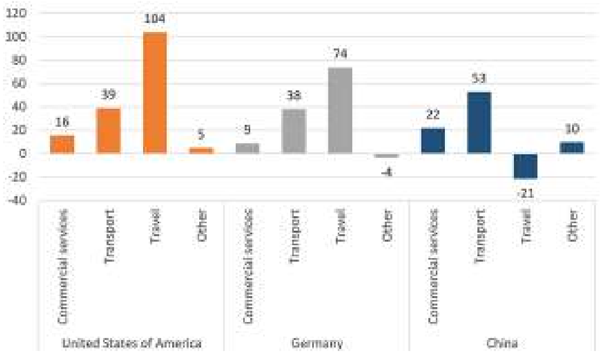


Source: WTO/UNCTAD.

WTO quarterly statistics on commercial services trade for the second quarter have not been released yet, but monthly data through July provide an indication of trends for major economies (Chart 6). Exports of travel and transport services rebounded strongly in many countries as pandemic-related restrictions have eased. China is an exception, with travel spending held back by the country's zero-COVID policy. Exports of other commercial services (a category that includes financial and business services) grew at a modest pace, partly due to the fact that they did not decline much during the pandemic.

Chart 6: Year-on-year growth in commercial services exports by category, January-July 2022

% change in US$ terms



Source: WTO estimates based on national statistics.

Source: OpenSky Network and WTO secretariat calculations.

Supplemental indicators

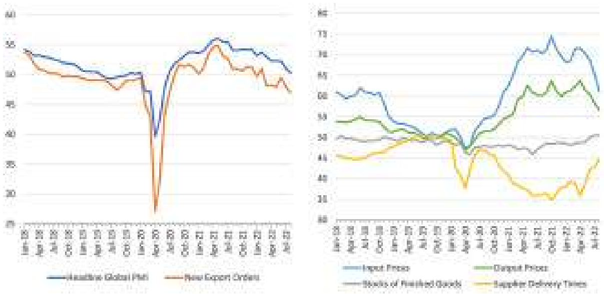
The WTO tracks a number of indicators to identify current trends in merchandise and commercial services trade. Some of these are presented below to provide additional context to the forecast.

Purchasing managers' indices (PMIs) are monthly economic indicators based on business surveys. J.P. Morgan aggregates PMIs from over 40 countries into a global manufacturing PMI, with values greater than 50 indicating expansion and values less than 50 denoting contraction (Chart 7). The headline PMI index fell to a 26-month low of 50.3 in August, just above the threshold value of 50 separating expansion from contraction. Meanwhile, the sub-index representing new export orders fell to 47.0, signalling contraction. This suggests that global manufacturing activity has stalled, and that goods trade will continue to slow in the coming months.

Other sub-indices of the PMI cast light on the state of global supply chains. An index representing input prices fell from 71.6 in April to 61.1 in August. Another index of final goods prices dropped from 63.8 to 56.7 over the same period. Together, these suggest that inflationary pressures, while still high, may have peaked. Delivery times also shortened in August and stocks of finished goods rose. A few months ago, these would have been seen as positive indications that supply chain pressures were easing, but today they could signal that global demand is weakening.

Chart 7: Global Purchasing Managers Indices, January 2018 - August 2022

(Diffusion index, base = 50)



Note: Values greater than 50 indicate expansion while values less than 50 denote contraction.

Source: J.P. Morgan and S&P Global.

The RWI/ISL container throughput index tracks global goods trade quite closely. Although the index remained near its all-time high in July, it has been mostly flat since October 2020. Throughput of Chinese ports dipped in the spring due to pandemic-related lockdowns, but traffic rebounded again after these measures were relaxed. The decline in China was partly compensated by increased container handling at U.S. ports, which had previously experienced severe congestion. Overall, the index suggests continued stagnation in merchandise trade.

Chart 8: RWI/ISL global container throughput index, January 2015-July 2022

Index 2015=100

Note: The index is based on data gathered from 94 ports accounting for 64 percent of global container traffic.

Source: Leibniz Institute for Economic Research and the Institute for Shipping Economics and Logistics.

The WTO does not forecast services trade, but Chart 6 shows that travel and transport are its most dynamic components. This is backed up by data on international flights from the OpenSky network (Chart 9). Daily commercial flights (including those within the European Union) finally exceeded pre-pandemic levels this summer but in late August they turned down slightly. Whether this pause is temporary or long-lasting remains to be seen.

Chart 9: International commercial flights, 1 January 2020 — 22 August 2022

Index, week of 1 January = 100, 7-day moving average

Source: OpenSky Network and WTO secretariat calculations.

Source: WTO website

QUIZ

1. **A statement NOT true about logistics is**
   a) Logistics executes the collection of raw materials from suppliers and delivery of finished goods to customers
   b) Logistics moves both intangible and intangible items
   c) Logistics manages the flow of resources between the point of origin and point of consumption
   d) Resources managed in logistics are only physical in nature

2. **Identify the statement that is NOT true about supply chain**
   a) Supply chain consists of a series of activities involving many organizations
   b) Supply chain may be considered as a group of organizations connected by a series of trading relationships
   c) Supply chain spans all the movement and storage of only raw materials, and finished goods from point of origin to point of consumption
   d) Supply chain objective is to maximize overall value generated

3. **For nurturing a healthy vendor relationship it is important**
   a) To select vendors randomly
   b) To keep an arms length relationship with suppliers
   c) To make promises that are beneficial to the organization
   d) To make trust a priority

4. **All are dispute resolution mechanisms except**
   a) Declaration
   b) Negotiation
   c) Mediation
   d) Arbitration

5. **All are characteristics of supply chain except**
   a) Supply chain is a group of organizations focusing on optimizing their individual performances
   b) Money enters the supply chain when customers pay for the product they buy
   c) Supply chain includes all the internal functions plus external stakeholders
   d) Supply chain identifies and fulfills customer needs in an optimized manner

6. **Identify the statement that is NOT true about lean production**
   a) Designed to achieve production through minimal inventories
   b) Activities are completed and parts move through the process quickly
   c) Forecasts are the base for estimating demand in lean production
   d) Production need is created by actual demand

7. **Which of the following is NOT true about 4PL**
   a) Effectively delivers an integrated supply chain solution
   b) Capable of creating supply chain collaboration and synchronization
   c) Helps in enhancing product quality
   d) Reduces investment in capital assets and enhances asset utilization

8. **All are green initiatives of supply chain activities except**
   a) Improving environmental footprint
   b) Improving capacity utilization in transportation through consolidation
   c) Increasing miles travelled to improve customer satisfaction
   d) Reducing process wastage

9. **A strategic sourcing activity is**
   a) Ensuring competitive offers for each sourcing transaction
   b) Vendor performance rating
   c) Optimization of supply base
   d) Meeting payment timelines

10. **JIT is built on two philosophies. They are**
    a) Waste elimination and respect for people
    b) Kanban and kaizen
    c) Set up time reduction and source inspection
    d) Good housekeeping and and Jidoka

Quiz Ans

1.	c
2.	d
3.	a
4.	d
5.	d
6.	c
7.	a
8.	b
9.	b
10.	c

BRANCH NEWS

AURANGABAD BRANCH

Indian Institute of Materials Management (IIMM), Aurangabad Branch Bags seven awards at National Convention of IIMM. held at Chennai, Tamil Nadu. Mr. Srihari Kanthamani received Best Chairman (Non-Metro) & President Gold Medal. Other awards which are received by the branch are Mr.Shrikant Muley- President Gold Medal, Mr. Sushant Patare for Enhancement of Research Activity award, Dr. Parmotan Singh Mihnas for Distinguished Member, IIMM Aurangabad Branch Excellence in Publicity (Non-Metro) & Marathwada Auto Compo Pvt Ltd for Best MSME (Non-Metro). The awards were presented by Mr. H.K.Sharma – National President of IIMM. 500 Members from 52 branches were present for the convention.

Executive Committee Members of Aurangabad Branch accepted Excellance in Pubulicity Award Non Metro by National President Mr. H.K.Sharma

Mr. Sushant Patare accepted Best MSME Award Non Metro by of Nation President Mr. H. K. Sharma

Mr.Srihari Kanthamani, Chairman said, "the IIMM national award represents all the hard work done IIMM executive committee members. It takes a lot of hours from a lot of people working towards up-gradation of Supply chain function, and I'm glad that the effort of each member has been recognized at National Level. He dedicated this award to Supply Chain fraternity across Aurangabad Industrial Zone"

Mr.Suhant Patare, Vice Chairman said that IIMM is a non-profitable organization which organizes various training program and seminars every month to enrich the knowledge of people working in Industries. In the month of Dec & Jan, IIMM is the support & knowledge partner for two major EXPO to be held at Aurangabad region organized by AISA (Aurangabad Industrial Supplier Association) and MASSIA (Marathwada Association of Small Scale Industries & Agriculture). Also very soon IIMM will be opening a Training Excellence Centre at August High street, Aurangabad in service of Industry and students.

Mr.K.Srihri accepted Best Chairman Non Metro Award by Mr H.K.Sharam National Presendent of IIMM

From Aurangabad Branch - Mr.K.Srihari (Chairman), Mr.Sushant Patare (Vice Chairman), Mr.Shrikant Muley (Hon. Secretary) , Mr.Lalit Lohade (Hon Treasurer), Mr.Paras Mutha (EC Member) and Mr.Ramesh Jaulkar (Course Coordinator) attended NATCOM 2022

IIMM Branch Chairman - K.Srihari, Hon Secretary – Shrikant Muley, Vice Chairman- Sushant Patare, Secreary Mr.Shrikant Muley, National Council Member – Dr.Narendra Joshi, Mr.Sanjay Sanghai, Executive Committee members Mr.Lalit Lohade Mr.Paras Mutha, Yogesh Koshe, Phanikumar, Ramesh Jaulkar, Milind Ghogle, Prem Kadam, Ameya Kolte, Sushil Pande, Mr.Sunil Ved, Dr. Vinay Lomte, Dr. Abhay Kulkarni, Ravindra Mohite, Sachin Raut, Vikas Narwade took efforts for the getting these seven awards.

Marathwada Auto Compo Pvt Ltd bags Best MSME (Non-Metro) at National Convention of IIMM.

Marathwada Auto Compo Pvt Ltd has received best MSME (Micro, Small & Medium Enterprises) award (Non-Metro) from Indian Institute of Materials Management (IIMM) at National Convention held at Chennai, Tamil Nadu. For Best Award (Non-Metro), MACPL has competed against 45 MSME's across the country- received perfect scores for Supply chain management (SCM) practices, Smart & Lean Manufacturing, TPM practices, Vision & Mission of Company and Factory of Future.

Mr.Sushant Patare, Materials Head received the award on behalf of company. He said "This award is a collaborative effort of creative minds and determined spirits that work together to make the quality products to their esteemed customers based across India. I'm glad that Marathwada Auto Compo Pvt Ltd, one of the leading auto compo manufacturing companies having its manufacturing Units at Aurangabad, Kolhapur and Hosur has received National recognition at IIMM platform. Mr. Ram Bhogale (Chairman), Mr.Ajit Soundalgikar (Vice-Chairman), Mr. Mihir Soundalgikar (Director) appreciated the efforts of the Senior staff of MACPL - Mr.Shrikant Damani, Mr.Sushant Patare, Mr. Vivek Deshpande, Mr. Avinash Kude, Mr.Madhukar Wattamwar, Mr. Ganesh Jadhav, Mr.Bappa Golhar, Mr.Sachin Rajput, Mr.Datta Khodse and Mr.Rajendra Bhandari.

BANGALORE BRANCH

26[26th] November 2022 – Study Circle Meeting: IIMM Bangalore Branch organized a **Study Circle Meeting** / free webinar for the month of November 2022 on "**Customs Bonded Warehouse (MOOWR Scheme)"** on 26th November 2022 (Saturday) on MS Team Meet.

Mr. CA. Navjot Singh, **Partner**, SUNG & Company, Delhi spoke on the Topic. He addressed that, Manufacture and Other Operations (MOOWR), Commonly known as Custom Bonded Warehouse Scheme allows Importers to import the raw material and Capital Goods duty-free, and then Bonded Facility is allowed to conduct the manufacturing or Other Process on the same, and then the material is exported or cleared for the domestic market. The scheme was framed considering the Make in India concept. In today's time, when we see the Foreign Trade Policy, through which an importer may import while opting for Advance Authorization or EPCG License and import duty-free, but such schemes come with Export Obligations, whereas the MOOWR is not having any export obligation. Study circle meeting was very interesting with good interaction from the participants and speakers. We received very good feed back.

2nd & 3rd December 2022-Participation - NATCOM 2022: IIMM Bangalore Branch team, about eleven members from EC (Office Bearers, NC Members, EC members and Past National President) participated NATCOM 2022 held at Chennai on 2nd and 3rd December 2022.

Best Branch Award (Metro) receiving by IIMM Bangalore Team

Distinguished Award Receiving By Branch Chairman on Behalf of Mr.G.M. Govind

IIMM Bangalore Branch bagged following awards (2021-22) and felicitated in NATIONAL CONVENTION 2022 held at Chennai.

1. IIMM Bangalore Branch : Best Branch (Metro) Award received by Dr. P. Sengottaiyan and Team – IIMM Bangalore Branch
2. Best Faculty Award, received by Mr. B. Jayaraman, Sr Faculty IIMM- Bangalore
3. Distinguished Membership Award: Received by Mr. G.M. Govind, Past Chairman, IIMM Bangalore Branch
4. Best Membership Growth (Metro) award received by IIMM Team
5. Individual Membership Growth award received by Mr. P.M. Biddappa, National Council Members, IIMM Bangalore Branch

IIMM Bangalore Team receiving Award at NATCOM 2022

18th December 2022 – Monthly Lecture Program / Webinar: IMM Bangalore Branch organised a Webinar / Lecture program for the month of December 2022 on **18th December 2022 (Sunday 5.30 pm to 6.30 pm)** on "**Key enabler for digital transformation - Automation in Manufacturing" by** Dr Satyanarayana, IT Head - ABB India Limited - Electrification Division. The program was well received by the participants. Mr. M.R. Achyuth Rao, Honorary Secretary, proposed Vote of Thanks.

IIMM Bangalore team receiving Membership Growth Award at NATCOM 2022

Mr. B. Jayaraman, Sr. Faculty receiving Best Faculty Award at NATCON 2022

Mr. P.M. Biaddappa, receiving Membership growth awards at NATCOM 2022

CHANDIGARH BRANCH

Indian Institute of Materials Management, Chandigarh Branch has organized its 37th Annual Day Celebrations and one day seminar and Awards Ceremony on **Friday, December 16, 2022 at Hotel Radisson, Zirakpur near Panchkula.**

Theme of the seminar was:

“SCM Challenges and Opportunities in prevailing Global Uncertainties”

At the outset, Mr Rajesh Gupta Branch Chairman welcomed all delegates, eminent speakers, and all guests.

Mr S. K. Sharma, Former National President of the Institute informed that Supply Chain Management is very important for all segment of industry may be in pvt. or Govt. sector. It is the backbone of the economy of any country. During Global Volatility especially Russia Ukraine war, recession , inflation, and post covid scenario, Indian agile and robust Supply Chain has proved better than other Supply Chain across the world.

Mr Kul Bhushan Goyal, Mayor Panchkula and renowned industrialist Chief Guest shared that cost competitiveness and seamless Supply Chain is the need of the hour.

At this juncture following Awards were given:

Bharat Electrical Ltd (BEL) Panchkula has been given Innovative Digital Smart City. Project Award and on their behalf Mr. Rajiv Basur AGM of BEL received the award.

Innovation in Technology Award was given to M/s Godrej And Boyce Mfg. Ltd Godrej. Mr Akash Sehgal, Local Head Sourcing and Supply Chain,Godrej, Mohali received the award.

Mr Deepak Kumar Khullar ofKSI Medicare has been given Outstanding CEO Healthcare MSME award.

Mr S.K Sharma Former National President IIMM has been awarded LIFE Time Achievement Award for his outstanding contribution and distinguished services to the profession and society.

“Lean, Green and Zero defectsCertification” Platinum category certificate wasawardedto Ms EcoGenics Solution Pvt Ltd and Gold category certificate to MS Laxmi industries.

Mr T. K. Magazine Founder & distinguished member of the branch shared successful case studies of different industries with the participants.

Mr Akash Sehgal and Godrej team presented a paper on SCM challenges and opportunities in prevailing Global Uncertainties.

Mr Naveen Joshi an expert on GEM, shared technical points on GEM (Govt e Marketplace) Introduced by Central Govt a few years back to bring transparency in Public Procurement.

Mr O.P.Longia, Former National President, IIMM shared journey of IIMM during the last 40 years. Mr Dilip Manchanda, Convener of the Seminar highlighted various features of the celebration and seminar.

Mr V.S. Maniam summed up the program and stressed that Continuous learning of professionals can sharpen their skills to beat the competition.

Delegates from various companies like BEL, Panchkula, SML Isuzu, Godrej, TBRL, Poly Plastics Y.Nagar, Monte Carlo, Hero Cycle, Nabha Power, Ecogenics, Laxmi Ind, Sangeeta Steels etc. have participated in the seminar.

Dr Ashish. K. Saihjpal, Hon Secretary proposed the vote thanks.

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