**MSME Sector in India: Potential and Future Prospects**

**MSMEs at a glance**

- **633 Lakh Estimated MSMEs** - 99.5% of these are Micro (2015-16)
- **1109 Lakh people are employed by MSMEs** (2015-16)
- **51%-49%** (Rural-Urban) Almost Equal distribution of MSMEs (2015-16)
- **20%** - Women Owned MSMEs (2015-16)
- **17%** - SC/ST Owned MSMEs (2015-16)

- **0.25%** Share in India’s Annual Budget allocated for MSMEs (2020-21)
- **32%** - Contribution to India’s GVA (2016-17)
- **29%** - Contribution to India’s GDP (2016-17)
- **48.10%** - Contribution to India’s total exports (2018-19)
- **Rs. 11.74 Lakh Crores** - Outstanding Credit of MSMEs (Mar 2019)
- **Rs. 4216 Crores** - Funds transferred to 7.62 Lakh Beneficiaries through DBT (2018-19)
NEW SESSION

ENTRANCE DATE : 12th February 2023

Post Graduate Diploma in Materials Management

Diploma in Logistics & SCM

Explore a career in Management of Purchasing, Warehousing, Supply Chain, Logistics & Materials Management

AICTE APPROVAL - F. No. Western/2022-23/1-11022203401

S No. | Programmes | Approved | Eligibility | Duration
--- | --- | --- | --- | ---
1 | Post Graduate Diploma in Materials Management (PGDMM) | AICTE | Graduate in any discipline from any Recognized University | 2 Years
2 | Post Graduate Diploma in Logistics & SCM (PGDLLSCM) | AICTE | Graduate in any discipline from any Recognized University | 2 Years

PROSPECTUS CAN BE OBTAINED FROM FOLLOWING IIMM BRANCHES

NORTHERN REGION: ALWAR - 9731245655 / 787775655 CHANDIGARH 9815314430 / 0172-2556646
DEHRADUN 9410397734 GREATER NOIDA 9818644359 HARIDWAR 8126111616 JAIPUR 9001893995
KANPUR 0512-2401291 LUCKNOW 0522-2638264 LUDHIANA 0161-5212268 / 9815549998 NEW DELHI 011-
41354969 / 9810830427 / 9818664267 RAE BARELI 9451077744 UDAIPUR 9829041733 / 8107283099
EASTERN REGION: BOKARO 8986873175 / 8986873151 BURNPUR 9434777116 DHANBAD 9470595250
DURGAPUR 0343-2574303 JAMSHEDPUR 0657-2223539 / 9798171971 KOLKATA 9836123999 / 9830952363
NALCO 9437081126 RANCHI 0651-2360716 / 8987788599 ROURKELA 8260711943

WESTERN REGION: AHMEDABAD 7383012684 / 9009967111 AURANGABAD 9423455983 BHARUCH
9998758991 GOA 9423007106 GANDHIDHAM 7046737857 JAMNAGAR 0288-2750171 MUMBAI 022-
26855645 / 9820393639 MUNDRA 9868766006 NASHIK 0253-2314206 / 9850730029 PUNE 7276010854
SURAT 0261-2802662 VAJDODARA 7802053410 VAPI 9879569350 VU NAGAR 9825028050
SOUTHERN REGION: BANGALORE 080-25327251 / 9900862486 CHENNAI 044-23742750 / 9444656264
COCHIN 0484-2203487 / 9400261874 HOSUR 9448018407 HUBLI 0836-2264699 / 9482779440 HYDERABAD
9398134227 K G F 9880994684 MANGALORE 0824-2882203 MYSORE 0821-4282124 / 9342112903
TRIVANDRUM 8086011015 VISAKHAPATNAM 7093802468 / 9010556099
CENTRAL REGION: BHOPAL 8085856437 BHILAI 9407984081 BILASPUR 9425531806 INDORE 9826625417
NAGPUR 0712-2292446 / 9423074072

Application form can be downloaded from www.iimm.org and can be submitted to nearest IIMM Branch

Contact Us

NHQ - Mumbai
Ph: 022-27571022
Email: iimmedu@iimm.co.in

NHO - Delhi Office
Ph: 011-43615373
Email: Education.nhqdelhi@iimm.org
Micro, Small and Medium Enterprises (MSME) sector has emerged as a highly vibrant and dynamic sector of the Indian economy over the last few decades. Of late, India is witnessing a steady economic growth and one of the many reasons to this economic growth is increase in the MSME sector growth. Besides contributing immensely to Indian Economy (around 30% to GDP), MSME sector is also a significant contributor in socio-economic development of the country besides playing an important role in the development of the economy with their effective, efficient, flexible and innovative entrepreneurial spirit.

Government is reframing and developing policies to boost MSME sector like Pradhan Mantri Mudra Yojna (PMMY), Emergency Credit Guarantee line Scheme (ECGLS), Raising and Accelerating MSME Performance (RAMP), Special Credit Linked Capital Subsidy Scheme (SCLCSS) and SAMBHAV scheme which aims to improve market and credit access, strengthen institutions and governance at the centre and state levels, resolve late payment difficulties, adoption of latest technologies in service MSME and national level program to push economic growth by promoting entrepreneurship and domestic manufacturing.

If compared with large-scale companies, MSMEs aided in the industrialisation of rural areas at minimal capital cost. The sector has made significant contributions in the development of country’s rural socio-economic growth and complemented major industries as well. As of now, there are more than 6 crore registered MSME units in India responsible for around 11 crore jobs across the MSME sector alone.

MSMEs will be a critical enabler in realising the dream of becoming USD 5 trillion economy by 2025 by serving as a key employment generator. Further, there is a collective effort required from stakeholders to popularise and increase acceptance for the ‘Made in India’ tag within the country and globally. Also, an effort should be made to groom high growth industries which will be the future growth drivers of the economy. Further, MSMEs are being encouraged to market their products on the e-commerce site, especially through Government e-Marketplace (GeM), owned and run by the government, wherefrom Ministries and PSUs (public sector undertakings) source their procurement.

However, Lack of technology-based production activities and low investment in R&D activities are bottlenecks to the MSME sector which hinder the sector to become competent globally. This also requires the help of academic institutions in the form of providing research and development (R&D) services for product innovation and technological upgradation supply chain issues for SMEs also need to be looked at in a different manner as compared to large scale units.

Starting from this issue, a special article on Public Procurement in India will be brought in every issue of MMR highlighting the changes in Public Procurement. This will particularly benefit the readers from Govt. Sectors and PSUs.

H. K. SHARMA
mrm@iimm.org
# CONTENTS

<table>
<thead>
<tr>
<th>Topic</th>
<th>Page No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>PUBLIC PROCUREMENT: INTRODUCTION TO POLICIES AND PRINCIPLES</td>
<td>5</td>
</tr>
<tr>
<td>DEVELOPING AN UNDERSTANDING ON DIGITAL SUPPLY CHAIN TWINS WITH THE HELP OF SYSTEMATIC LITERATURE REVIEW</td>
<td>16</td>
</tr>
<tr>
<td>6 TRENDS SHAPING THE GLOBAL SUPPLY CHAIN IN 2023</td>
<td>21</td>
</tr>
<tr>
<td>96 PC MSMES EXPECT AN INCREASE IN PROFIT IN 2023</td>
<td>22</td>
</tr>
<tr>
<td>CONSUMER PRICE INDEX (CPI) EXPLAINED: WHAT IT IS AND HOW IT’S USED</td>
<td>23</td>
</tr>
<tr>
<td>DECODING THE DELIVERY DYNAMICS: THE NEED FOR AI-POWERED LOGISTIC SOLUTIONS IN POST-CRISIS</td>
<td>26</td>
</tr>
<tr>
<td>MOST SUPPLY CHAIN MANAGERS EXPECT PROBLEMS TO CONTINUE AT LEAST THROUGH 2024</td>
<td>27</td>
</tr>
<tr>
<td>DECODING THE FUTURE OF INDIAN MSMES</td>
<td>29</td>
</tr>
<tr>
<td>SMART SOLUTIONS FOR MANUFACTURERS</td>
<td>30</td>
</tr>
<tr>
<td>INDIAN GOVT WORKING HARD TO MAKE MSME SECTOR STRONGER</td>
<td>32</td>
</tr>
<tr>
<td>STRENGTHENING THE SUPPLY CHAIN</td>
<td>33</td>
</tr>
<tr>
<td>MSMES: ENGINES OF GROWTH FOR NEW INDIA</td>
<td>34</td>
</tr>
<tr>
<td>HOW MOBILE TECHNOLOGY IS HELPING LOGISTICS AND SUPPLY CHAIN SECTOR TO EVOLVE?</td>
<td>36</td>
</tr>
<tr>
<td>HOW PREDICTIVE ANALYTICS CAN IMPROVE SUPPLY CHAIN OPERATIONS IN THE INDIAN HEALTHCARE SECTOR</td>
<td>38</td>
</tr>
<tr>
<td>MSME SECTOR IN INDIA: POTENTIAL AND FUTURE PROSPECTS</td>
<td>39</td>
</tr>
<tr>
<td>B-I-R-D: 4 DIGITAL TECHNOLOGIES THAT CAN HELP SUPPLY CHAINS TAKE FLIGHT</td>
<td>41</td>
</tr>
<tr>
<td>SUPPLY CHAIN IN INDIA: THEN AND NOW</td>
<td>43</td>
</tr>
<tr>
<td>THE POWER OF THREE: AI, IOT AND BLOCKCHAIN</td>
<td>45</td>
</tr>
<tr>
<td>DISTRICTS AS EXPORT HUBS</td>
<td>47</td>
</tr>
<tr>
<td>WHAT CAUSES A RECESSION?</td>
<td>51</td>
</tr>
<tr>
<td>BRANCH NEWS</td>
<td>54</td>
</tr>
<tr>
<td>EXECUTIVE HEALTH</td>
<td>58</td>
</tr>
</tbody>
</table>

NO. OF PAGES 1-60
PUBLIC PROCUREMENT: INTRODUCTION TO POLICIES AND PRINCIPLES

PROCUREMENT RULES AND REGULATIONS; AND THIS MANUAL

Various Ministries, Departments, attached and subordinate offices, local urban bodies, public sector enterprises and other Government (including autonomous) bodies (hereinafter referred as ‘Procuring Entities’) spend a sizeable amount of their budget on procurement of goods, works and services to discharge the duties and responsibilities assigned to them.

The Ministries/Departments have been delegated full powers to make their own arrangements for procurement of goods and services that are not available on Government e-Marketplace (GeM). These powers have to be exercised as per the Delegation of Financial Power Rules and in conformity with the ‘Procurement Guidelines’ described below. Common use Goods and Services available on GeM are required to be procured mandatorily through GeM as per Rule 149 of GFR, 2017.

To ensure that these procurements are made by following a uniform, systematic, efficient and cost-effective procedure and also to ensure fair and equitable treatment of suppliers, there are statutory provisions, rules, financial, vigilance, security, safety, counter-trade and other regulations; orders and guidelines of the Government on the subject of public procurement (hereinafter referred as ‘Procurement Guidelines’) which provide framework for the public procurement system.

At the apex of the Statutory framework governing public procurement is Article 299 of the Constitution of India, which stipulates that contracts legally binding on the Government have to be executed in writing by officers specifically authorized to do so. The Constitution also enshrines Fundamental Rights (in particular Article 19 (1) (g) – Right to carry on a Profession) which have implications for Public Procurement. Further, the Indian Contract Act, 1872 and the Sale of Goods Act, 1930 are major legislations governing contracts of sale/purchase of goods in general. There are other mercantile laws (Arbitration and Conciliation Act, 1996; Competition Act, 2002; Information Technology Act, 2000 etc), which may be attracted in Public Procurement Transactions. There is no law exclusively governing public procurement.

However, comprehensive Rules and Regulations in this regard are available in the General Financial Rules (GFR), 2017, especially chapter 6; Delegation of Financial Powers Rules (DFPR); Government orders regarding product reservations or purchase preference or other facilities to sellers in Micro and Small Enterprises, Pharmaceutical Central Public Sector Enterprises, Khadi/Handlooms goods goods, works and services rendered with more than prescribed local content (Make in India) etc.

Authorities competent to purchase goods and their Purchase Powers

A Competent authority which is competent to incur expenditure may sanction the purchase of goods required for use in public service in accordance with the Delegation of Financial Rules by following the ‘Procurement Guidelines’ described in this Manual for procurement of goods (Rule 145 of GFR 2017). Each ‘Procuring Entity’ may issue a Schedule of Procurement Powers (SoPP) adding further details to the broad delegations in the DFPR, based on the assessment of risks involved in different decisions/approvals at various stages of Procurement Cycle.

Basic Aims of Procurement – the Five R’s of Procurement

In every procurement, public or private, the basic aim is to achieve just the right balance between costs and requirements concerning the following five parameters called the Five R’s of procurement. The entire process of procurement (from the time the need for an item, facility or services is identified till the need is satisfied) is designed to achieve such a right balance. The word ‘right’ is used in the sense of ‘optimal balance’.

i) Right Quality: Procurement aims to buy just the right quality that will suit the needs – no more and no less – with clear specification of the procuring entity’s requirements, proper understanding of functional value and cost, understanding of the bidder’s quality system and quality awareness. The concept of the right balance of quality can be further refined to the concept of utility/value (Please refer to para 1.6 below). For the Right Quality, Technical Specification is the most vital ingredient. In public procurement, it is essential to give due consideration to Value for Money while benchmarking the specification.

ii) Right Quantity
There are extra costs and systemic overheads involved with both procuring a requirement too frequently in small quantities or with buying large quantities for prolonged use. Hence, the right quantity should be procured (in appropriate size of contract) which balances extra costs associated with larger and smaller quantities.

ii) Right Price
It is not correct to aim at the cheapest materials/services available. The price should be just right for the quality, quantity and other factors involved (or should not be abnormally low for a facilities/works/services which could lead to a situation of non-performance or failure of contract). The concept of price can be refined further to take into account not only the initial price paid for the requirement but also other costs such as maintenance costs, operational costs and disposal costs (Also termed as life cycle costing - please also refer to para 1.6 below)

iv) Right Time and Place
If the material (or facility or services) is needed by an organisation in three months’ time, it will be costly to procure it too late or too early. Similarly, if the vendor delivers the materials/services in another city, extra time and money would be involved in logistics. An unrealistic time schedule for completion of a facility may lead to delays, claims and disputes.

v) Right Source
Similarly, the source of delivery of Goods, Works and Services of the requirement must have just right financial capacity and technical capability for our needs (demonstrated through satisfactory past performance of contracts of same or similar nature). Buying a few packets of printer paper directly from a large manufacturer may not be the right strategy. On the other hand, if our requirements are very large, buying such requirements through dealers or middlemen may also not be right.

Refined Concepts of Cost and Value – Value for Money
The concept of price or cost has been further refined into Total Cost Of Ownership (TCO) or Life Cycle Cost (LCC) or Whole-of-Life (WOL) to take into account not only the initial acquisition cost but also cost of operation, maintenance and disposal during the lifetime of the external resource procured. Similarly, the concept of quality is linked to the need and is refined into the concept of utility/value. These two, taken together, are used to develop the concept of Value for Money (VFM, also called Best Value for Money in certain contexts). VFM means the effective, efficient, and economic use of resources, which may involve the evaluation of relevant costs and benefits, along with an assessment of risks, non-price attributes (e.g. in goods and/or services that contain recyclable content, are recyclable, minimise waste and greenhouse gas emissions, conserve energy and water and minimize habitat destruction and environmental degradation, are non-toxic etc.) and/or life cycle costs, as appropriate. Price alone may not necessarily represent VFM. In public procurement, VFM is achieved by attracting the widest competition by way of optimal description of need; development of value-engineered specifications/Terms of Reference (ToR); appropriate packaging/slicing of requirement; selection of an appropriate mode of procurement and bidding system. These advanced concepts are explained in Appendix 1.

Fundamental Principles of Public Procurement
General Financial Rules, 2017 (Rule 144) lay down the Fundamental Principles of Public Procurement. These principles and other additional obligations of procuring authorities in public procurement can be organised into five fundamental principles of public procurement, which all procuring authorities must abide by and be accountable for:

i) Transparency Principle
All procuring authorities are responsible and accountable to ensure transparency, fairness, equality, competition and appeal rights. This involves simultaneous, symmetric and unrestricted dissemination of information to all likely bidders, sufficient for them to know and understand the availability of bidding opportunities and actual means, processes and time- limits prescribed for completion of registration of bidders, bidding, evaluation, grievance redressal, award and management of contracts. It implies that such officers must ensure that there is consistency (absence of subjectivity), predictability (absence of arbitrariness), clarity, openness (absence of secretiveness), equal opportunities (absence of discrimination) in processes. In essence Transparency Principle also enjoins upon the Procuring Authorities to do only that which it had professed to do as pre-declared in the relevant published documents and not to do anything that had not been so declared. As part of this principle, all procuring entities should ensure that offers should be invited following a fair and transparent procedure and also ensure publication of all relevant information on the Central Public Procurement Portal (CPPP).

ii) Professionalism Principle
As per these synergic attributes, the procuring authorities have a responsibility and accountability to ensure professionalism, economy, efficiency, effectiveness and integrity in the procurement process. They must avoid wasteful, dilatory and improper practices violating the Code of integrity for Public Procurement (CIPP) mentioned in Chapter 3 of this manual. They should, at the same time, ensure that the methodology adopted for procurement should not only be reasonable and appropriate for the cost and complexity but should also effectively achieve the planned objective of the procurement. As part of this principle, the Government may prescribe professional standards and specify suitable training and certification requirements for officials dealing with procurement matters.
In reference to the above two principles - Transparency and Professionalism Principle, it may be useful to refer to the following provisions in the General Financial Rules, 2017:

Rule 144. Fundamental principles of public buying: Fundamental principles of public buying (for all procurements including procurement of works). Every authority delegated with the financial powers of procuring goods in public interest shall have the responsibility and accountability to bring efficiency, economy, and transparency in matters relating to public procurement and for fair and equitable treatment of suppliers and promotion of competition in public procurement.

The procedure to be followed in making public procurement must conform to the following yardsticks:-

a) The description of the subject matter of procurement to the extent practicable should —
   1. be objective, functional, generic and measurable and specify technical, qualitative and performance characteristics;
   2. not indicate a requirement for a particular trade mark, trade name or brand.

b) the specifications in terms of quality, type etc., as also quantity of goods to be procured, should be clearly spelt out keeping in view the specific needs of the procuring organisations. The specifications so worked out should meet the basic needs of the organisation without including superfluous and non-essential features, which may result in unwarranted expenditure.

c) Where applicable, the technical specifications shall, to the extent practicable, be based on the national technical regulations or recognized national standards or building codes, wherever such standards exist, and in their absence, be based on the relevant international standards. In case of Government of India funded projects abroad, the technical specifications may be framed based on requirements and standards of the host beneficiary Government, where such standards exist. Provided that a procuring entity may, for reasons to be recorded in writing, adopt any other technical specification.

d) Care should also be taken to avoid purchasing quantities in excess of requirement to avoid inventory carrying costs;

e) offers should be invited following a fair, transparent and reasonable procedure;

f) the procuring authority should be satisfied that the selected offer adequately meets the requirement in all respects;

g) the procuring authority should satisfy itself that the price of the selected offer is reasonable and consistent with the quality required;

h) at each stage of procurement the concerned procuring authority must place on record, in precise terms, the considerations which weighed with it while taking the procurement decision.

i) a complete schedule of procurement cycle from date of issuing the tender to date of issuing the contract should be published when the tender is issued.

j) All Ministries/Departments shall prepare Annual Procurement Plan before the commencement of the year and the same should also be placed on the their website.

k) [Notwithstanding anything contained in these Rules, Department of Expenditure may, by order in writing, impose restrictions, including prior registration and/or screening, on procurement from bidders from a country or countries, or a class of countries, on grounds of defence of India, or matters directly or indirectly related thereto including national security; no procurement shall be made in violation of such restrictions.]

iii) Broader Obligations Principle

Over and above transparency and professionalism, the procuring authorities have also the responsibility and accountability to conduct public procurement in a manner to facilitate achievement of the broader objectives of the Government - to the extent these are specifically included in the ’Procurement Guidelines’:

a) Preferential procurement from backward regions, weaker sections and MSVs, locally manufactured goods or services, to the extent specifically included in the ’Procurement Guidelines’; and

b) Reservation of procurement of specified class of goods from or through certain nominated CPSVs or Government Organisations, to the extent specifically included in the ’Procurement Guidelines’.

c) Support to broader social policy and programme objectives of the Government (for example, economic growth, strengthening of local industry - make-in-India, Ease of Doing Business, job and employment creation, and so on, to the extent specifically included in the ’Procurement Guidelines’);

d) Facilitating administrative goals of other Departments of Government (for example, ensuring tax or environmental compliance by participants, Energy Conservation, accessibility for People With Disabilities etc. to the extent specifically included in the ’Procurement Guidelines’).
e) Procurement policies and procedures must comply with accessibility criteria which may be mandated by the Government from time to time. Keeping this in view, Department of Expenditure amended Rule 144 of GFR, 2017 and introduced a sub-rule (xi) imposing restrictions under the rule [as mentioned under (ii) above]. The detailed provisions were notified through Order (Public Procurement No. 1 vide OM No. F.6/18/2019-PPD dated 23.07.2020 issued by Department of Expenditure which are as follows:

1. Requirement of registration

a) Any bidder from a country which shares a land border with India will be eligible to bid in any procurement whether of goods, services (including consultancy services and non-consultancy services) or works (including turnkey projects) only if the bidder is registered with the Competent Authority, specified in Para 12(c) below.

b) The Order shall not apply to (i) cases where orders have been placed or contract has been concluded or letter/notice of award/ acceptance (LoA) has been issued on or before the date of the order (23rd July 2020); and (ii) cases falling under para 13 below.

2. Transitional cases

Tenders where no contract has been concluded or no LoA has been issued so far shall be handled in the following manner:

a) In tenders which are yet to be opened, or where evaluation of technical bid or the first exclusionary qualificatory stage (i.e. the first stage at which the qualifications of tenderers are evaluated and unqualified bidders are excluded) has not been completed: No contracts shall be placed on bidders from such countries. Tenders received from bidders from such countries shall be dealt with as if they are non-compliant with the tender conditions and the tender shall be processed accordingly.

b) If the tendering process has crossed the first exclusionary qualificatory stage, if the qualified bidders include bidders from such countries, the entire process shall be scrapped and initiated de novo. The de novo process shall adhere to the conditions prescribed in the Order.

c) As far as practicable, and in cases of doubt about whether a bidder falls under paragraph (1) above, a certificate shall be obtained from the bidder whose bid is proposed to be considered or accepted, in terms of paras 5(c), 5(d) and 6 read with para (1).

3. Incorporation in tender conditions

In tenders to be issued after the date (23rd July 2020) of the order, the provisions of paragraph (1) above and of other relevant provisions of the Order shall be incorporated in the tender conditions.

4. Applicability

a) Apart from Ministries/Departments, attached and subordinate bodies, notwithstanding anything contained in Rule 1 of the GFRs 2017, the Order shall also be applicable to all Autonomous Bodies;

b) to public sector banks and public sector financial institutions; and

c) subject to any orders of the Department of Public Enterprises, to all Central Public Sector Enterprises; and

d) to procurement in Public Private Partnership projects receiving financial support from the Government or public sector enterprises/ undertakings.

e) Union Territories, National Capital Territory of Delhi and all agencies/ undertakings thereof.

5. Definitions

a) “Bidder” for the purpose of the Order (including the term ‘tenderer’, ‘consultant’ ‘vendor’ or ‘service provider’ in certain contexts) means any person or firm or company, including any member of a consortium or joint venture (that is an association of several persons, or firms or companies), every artificial juridical person not falling in any of the descriptions of bidders stated hereinbefore, including any agency, branch or office controlled by such person, participating in a procurement process.

b) “Tender” for the purpose of the Order will include other forms of procurement, except where the context requires otherwise.

c) “Bidder from a country which shares a land border with India” for the purpose of the Order means

i. An entity incorporated, established or registered in such a country; or

ii. A subsidiary of an entity incorporated, established or registered in such a country; or

iii. An entity substantially controlled through entities incorporated, established or registered in such a country; or

iv. An entity whose beneficial owner is situated in such a country; or

v. An Indian (or other) agent of such an entity; or

vi. A natural person who is a citizen of such a country; or

vii. A consortium or joint venture where any member
of the consortium or joint venture falls under any of the above

d) “Agent” for the purpose of the Order is a person employed to do any act for another, or to represent another in dealings with third persons.

6. Beneficial owner for the purposes of point (c) (iv) will be as under:

a) In case of a company or Limited Liability Partnership, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person(s), has a controlling ownership interest or who exercises control through other means. Explanation:-

b) In case of a partnership firm, the beneficial owner is the natural person(s) who, whether acting alone or together, or through one or more juridical person, has ownership of entitlement to more than fifteen percent of capital or profits of the partnership;

c) In case of an unincorporated association or body of individuals, the beneficial owner is the natural person(s), who, whether acting alone or together, or through one or more juridical person, has ownership of or entitlement to more than fifteen percent of the property or capital or profits of such association or body of individuals;

d) Where no natural person is identified under (6) (a) or (6) (b) or (6) (c) above, the beneficial owner is the relevant natural person who holds the position of senior managing official;

e) In case of a trust, the identification of beneficial owner(s) shall include identification of the author of the trust, the trustee, the beneficiaries with fifteen percent or more interest in the trust and any other natural person exercising ultimate effective control over the trust through a chain of control or ownership.

7. Sub-contracting in works contracts

In works contracts, including turnkey contracts, contractors shall not be allowed to sub-contract works to any contractor from a country which shares a land border with India unless such contractor is registered with the Competent Authority. The definition of “contractor from a country which shares a land border with India” shall be as in paragraph (5) (c) above. This shall not apply to sub-contracts already awarded on or before the date of the Order (i.e. 23rd July, 2020).

8. Certificate regarding compliance

A certificate shall be taken from bidders in the tender documents regarding their compliance with the Order. If such certificate given by a bidder whose bid is accepted is found to be false, this would be a ground for immediate termination and further legal action in accordance with law.

9. Validity of registration

In respect of tenders, registration should be valid at the time of submission of bids and at the time of acceptance of bids. In respect of supply otherwise than by tender, registration should be valid at the time of placement of order. If the bidder was validly registered at the time of acceptance / placement of order, registration shall not be a relevant consideration during contract execution.

10. Government e-Marketplace

The Government E-Marketplace shall, as soon as possible, require all vendors/ bidders registered with GeM to give a certificate regarding compliance with the Order, and after the date fixed by it, shall remove non-compliant entities from GeM unless/ until they are registered in accordance with this Order.

11. Model Clauses/ Certificates

Model Clauses and Model Certificates which may be inserted in tenders / obtained from Bidders are given at Annexure-2F. While adhering to the substance of the Order, procuring entities are free to appropriately modify the wording of these clauses based on their past experience, local needs etc. without making any reference to Department of Expenditure.

12. Competent Authority and Procedure for Registration

a) The Competent Authority for the purpose of registration under this Order shall be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT)

b) The Registration Committee shall have the following members

i. An officer, not below the rank of Joint Secretary, designated for this purpose by DPIIT, who shall be the Chairman;

ii. Officers (ordinarily not below the rank of Joint Secretary) representing the Ministry of Home Affairs, Ministry of External Affairs, and of those Departments whose sectors are covered by applications under consideration;

iii. Any other officer whose presence is deemed necessary by the Chairman of the Committee.

c) DPIIT has laid down the method of application, format etc. for such bidders as stated in para (1) (a) above12. On receipt of an application seeking registration from a bidder from a country covered by para (1) (a) above the Competent Authority shall
first seek political and security clearances from the Ministry of External Affairs and Ministry of Home Affairs, as per guidelines issued from time to time. Registration shall not be given unless political and security clearance have both been received.

d) The Ministry of External Affairs and Ministry of Home Affairs may issue guidelines for internal use regarding the procedure for scrutiny of such applications by them.

e) The decision of the Competent Authority, to register such bidder may be for all kinds of tenders or for a specified type(s) of goods or services, and may be for as specified or unspecified duration of time, as deemed fit. The decision of the Competent Authority shall be final.

f) Registration shall not be granted unless the representatives of the Ministries of Home Affairs and External Affairs on the Committee concur

g) Registration granted by the Competent Authority of the Government of India shall be valid not only for procurement by Central Government and its agencies/ public enterprises etc. but also for procurement by State Governments and their agencies/ public enterprises etc. No fresh registration at the State level shall be required.

h) The Competent Authority is empowered to cancel the registration already granted if it determines that there is sufficient cause. Such cancellation by itself, however, will not affect the execution of contracts already awarded. Pending cancellation, it may also suspend the registration of a bidder, and the bidder shall not be eligible to bid in any further tenders during the period of suspension.

i) For national security reasons, the Competent Authority shall not be required to give reasons for rejection/cancellation of registration of a bidder.

j) In transitional cases falling under para (2)above, where it is felt that it will not be practicable to exclude bidders from a country which shares a land border with India, a reference seeking permission to consider such bidders shall be made by the procuring entity to the Competent Authority, giving full information and detailed reasons. The Competent Authority shall decide whether such bidders may be considered, and if so shall follow the procedure laid down in the above paras.

k) Periodic reports on the acceptance/ refusal of registration during the preceding period may be required to be sent to the Cabinet Secretariat. Details will be issued separately in due course by DPIIT.

13. Special Cases [In reference to para (1) (b) above]

a) Bona fide procurements made through GeM without knowing the country of the bidder till the date fixed by GeM for this purpose, shall not be invalidated by the Order.

b) Bona fide small procurements, made without knowing the country of the bidder, shall not be invalidated by the Order.

c) In projects which receive international funding with the approval of the Department of Economic Affairs (DEA), Ministry of Finance, the procurement guidelines applicable to the project shall normally be followed, notwithstanding anything contained in the Order and without reference to the Competent Authority. Exceptions to this shall be decided in consultation with DEA.

d) The Order shall not apply to procurement by Indian missions and by offices of government agencies/ undertakings located outside India.

e) The Order will not apply to bidders from those countries (even if sharing a land border with India) to which the Government of India has extended lines of credit or in which the Government of India is engaged in development projects. Updated lists of countries to which lines of credit have been extended or in which development projects are undertaken are given in the website of the Ministry of External Affairs.

f) A bidder is permitted to procure raw material, components, sub-assemblies etc. from the vendors from countries which shares a land border with India. Such vendors will not be required to be registered with the Competent Authority, as it is not regarded as “sub-contracting”. However, in case a bidder has proposed to supply finished goods procured directly/ indirectly from the vendors from the countries sharing land border with India, such vendor will be required to be registered with the Competent Authority.

g) Procurement of spare parts and other essential service support like Annual Maintenance Contract (AMC)/ Comprehensive Maintenance Contract (CMC), including consumables for closed systems, from Original Equipment Manufacturers (OEMs) or their authorized agents, shall be exempted from the requirement of registration as mandated under Rule 144(xi) of GFR, 2017 and Public Procurement orders issued in this regard.

14. Clarification to Order (Public Procurement No.1) dated 23rd July 2020

a) For the purpose of (2)(b) above, “qualified bidders” means only those bidders would otherwise have been qualified for award of the tender after considering all factors including price, if the Order (Public Procurement No.1) dated 23rd July 2020 had not been issued.

b) If bidders form such countries would not have qualified for award for reasons unconnected with
c) The following examples are given to assist in implementation of the Order

1. Example 1: Four bids are received in a tender. One of them is from a country which shares a land border with India. The bidder from such country is found to be qualified technically by meeting all prescribed criteria and is also the lowest bidder. In this case, the bidder is qualified for award of the tender, except for the provisions of the Order (Public Procurement No. 1) dated 23rd July 2020. In such a case, the tender should be scrapped and fresh tender initiated.

2. Example 2: The facts are as in Example 1, but the bidder from such country, though technically qualified is not the lowest because there are other technically qualified bidders whose price is lower. Hence the bidder from such country would not be qualified for award of the tender irrespective of the Order (Public Procurement No. 1) dated 23rd July 2020. In such a case, there is no need to scrap the tender.

3. Example 3: The facts are as in Example 1, but the bidder from a country which shares a land border with India, though technically qualified, is not eligible for award due to the application of price preference as per other orders/rules. In such a case, there is no need to scrap the tender.

4. Example 4: Three bids are received in a tender. One of them is a bidder from a country sharing a land border with India. The bidder from such a country does not meet the technical requirements and hence is not qualified. There is no need to scrap the tender.

iv) Extended Legal Responsibilities Principle

Procuring authorities must fulfill additional legal obligations in public procurement, over and above mere conformity to the mercantile laws (which even private sector procurements have to comply with). The Constitution of India has certain provisions regarding fundamental rights and public procurement. Courts have, over a time, taking a broader view of Public Procurement as a function of ‘State’, interpreted these to extend the responsibility and accountability of public procurement Authorities. Courts in India thus exercise additional judicial review (beyond contractual issues) over public procurement in relation to the manner of decision making in respect of fundamental rights, fair play and legality. Similarly, procuring authorities have also the responsibility and accountability to comply with the laws relating to Governance Issues like Right to Information (RTI) Act and Prevention of Corruption Act, and so on. Details of such extended legal obligations are given in Appendix 2.

v) Public Accountability Principle

Procuring authorities are accountable for all the above principles to several statutory and official bodies in the Country – the Legislature and its Committees, Central Vigilance Commission, Comptroller and Auditor General of India, Central Bureau of Investigations and so on – in addition to administrative accountability. As a result, each individual public procurement transaction is liable to be scrutinised independently, in isolation, besides judging the overall outcomes of procurement process over a period of time. Procuring authorities thus have responsibility and accountability for compliance of rules and procedures in each individual procurement transaction besides the achievement of overall procurement outcomes. The procuring authority, at each stage of procurement, must therefore place on record, in precise terms, the considerations which weighed with it while making the procurement decision from need assessment to fulfilment of need. Such records must be preserved, retained in easily retrievable form and made available to such oversight agencies. The procuring entity shall therefore maintain and retain audit trails, records and documents generated or received during its procurement proceedings, in chronological order, the files will be stored in an identified place and retrievable for scrutiny whenever needed without wastage of time. The documents and record will include:

a) documents pertaining to determination of need for procurement;
b) description of the subject matter of the procurement;
c) Statement of the justification for choice of a procurement method other than open competitive bidding;
d) Documents relating to pre-qualification and registration of bidders, if applicable;
e) Particulars of issue, receipt, opening of the bids and the participating bidders at each stage;
f) Requests for clarifications and any reply thereof including the clarifications given during pre-bid conferences;
g) Bids evaluated, and documents relating to their evaluation; and
h) Contracts and Contract Amendments
i) Complaint handling, correspondences with clients, consultants, banks.

Standards (Canons) of Financial Propriety

Public Procurement like any other expenditure in Government must conform to the Standards (also called Canons) of Financial Propriety. It may be useful to refer to the relevant provisions in the General Financial Rules, 2017

Rule 21. Standard of Financial Propriety: Every officer incurring or authorizing expenditure from public moneys should be guided by high standards of financial propriety. Every officer should also enforce financial order and strict economy and see that all relevant financial rules and regulations are observed, by his own office and by subordinate disbursing officers. Among the principles on which emphasis is generally laid are the following:-

i) Every officer is expected to exercise the same vigilance in respect of expenditure incurred from public moneys as a person of ordinary prudence would exercise in respect of expenditure of his own money.

ii) The expenditure should not be prima facie more than the occasion demands.

iii) No authority should exercise its powers of sanctioning expenditure to pass an order which will be directly or indirectly to its own advantage.

iv) Expenditure from public moneys should not be incurred for the benefit of a particular person or a section of the people, unless -

a) a claim for the amount could be enforced in a Court of Law, or
b) the expenditure is in pursuance of a recognized policy or custom.

ev) The amount of allowances granted to meet expenditure of a particular type should be so regulated that the allowances are not on the whole a source of profit to the recipients.

vi) While discharging the duties of financial concurrence of any public expenditure, such authorities subsequent to such decision, shall not be involved in any future financial/audit/payment responsibilities which may create conflict of interest.

Public Procurement Infrastructure at the Centre

i) Procurement Policy Division

Procurement Policy Division (PPD) in Department of Expenditure; Ministry of Finance has been created to encourage uniformity and harmonisation in public procurement processes by dissemination of best practices, provision of guidance, oversight and capacity building and issuing of procurement manuals. However centralisation of procurement or involvement in procurement processes is not the intended purpose of creation of PPD.

ii) Central Public Procurement Portal

Central Public Procurement Portal (CPPP) has been designed, developed and hosted by National Informatics Centre (NIC, Ministry of Electronics & Information Technology) in association with Dept. of Expenditure to ensure transparency in the public procurement process. The primary objective of the Central Public Procurement portal is to provide a single point access to the information on procurements made across various Ministries and the Departments. The CPPP has e-publishing and e-procurement modules. It is mandatory for all Ministries / Departments of the Central Government, Central Public Sector Enterprises (CPSEs) and Autonomous and Statutory Bodies to publish on the CPPP all their tender enquiries and information about the resulting contracts. CPPP provides access to information such as documents relating to pre-qualification, Bidders’ registration, Bidding documents; details of bidders, their pre-qualification, registration, exclusions/ debarments; decisions taken regarding prequalification and selection of successful bid. It is also now mandatory to implement end-to-end e-Procurement for all procurements either through CPPP portal or any other suitable portal.

Product Reservation and Preferential/Mandatory Purchase from certain sources

The Central Government may, by notification, provide for mandatory procurement of any goods or services from any category of bidders, or provide for preference to bidders on the grounds of promotion of locally manufactured goods or locally provided services.

Note: Before considering any Purchase Preference/ product reservation mentioned below, the Procuring Entity should check the latest directives in this regard for necessary action. Product Reservation/ Purchase Preference provision shall invariably be part of the Notice Inviting Tender (NIT) and Instructions to Bidders (ITB).

Reservation of Procurement of certain class of Products from certain agencies- Khadi Goods/ Handloom Textiles

The Central Government has reserved all items of hand-spun and hand-woven textiles (Khadi goods) for exclusive purchase from Khadi & Village Industries Commission (KVIC). Of all items of textiles required by the Central Government departments, it shall be mandatory to make procurement of at least 20% from amongst items of handloom origin, for exclusive purchase from KVIC and/ or Handloom Clusters such as Co-
Operative Societies, Self Help Group (SHG) Federations, Joint Liability Group (JLG), Producer Companies (PC), Corporations etc. including Weavers having Pehchan Cards

Reservation of Procurement of certain class of Products from certain agencies- Pharmaceuticals from Pharmaceutical CPSEs

The pharmaceuticals Purchase Policy, 2013 is intended to ensure

1) Optimum utilization of the installed capacity and to provide necessary fillip in reviving these ailing pharmaceuticals CPSEs

2) Availability of quality medicines at low prices to the masses

3) Drug security of the nation.

The salient features of this policy are as follows:

a) Pharmaceuticals Purchase Policy in respect of 103 (one hundred and three) medicines would be valid for a period of five years from the date of issue (30/10/2013) of orders by Department of Pharmaceuticals.

b) Pharmaceuticals Purchase Policy will extend only to Central Public Sector Enterprises (CPSEs) under the administrative control of Department of Pharmaceuticals such as Indian Drugs and Pharmaceuticals Limited (IDPL), Hindustan Antibiotics Limited (HAL), Bengal Chemicals and Pharmaceuticals Limited (BCPL), Karnataka Antibiotics and Pharmaceuticals Limited (KAPL) and Rajasthan Drugs and Pharmaceuticals Limited (RDPL) and their subsidiaries where Government of India owns 51% (fifty one percent) or above shares.

c) This would be applicable to purchases by Central Government Departments, their Public Sector Undertakings, and Autonomous Bodies, etc. This would also be applicable to purchase of medicines by State Governments under Health Programmes funded by Government of India such as the National Rural Health Mission etc.

d) The pricing of the products would be done by National Pharmaceutical Pricing Authority (NPPA) using the cost based formula, as mentioned in the Drugs Price Control Order, 1995. A uniform discount of 16% (Sixteen percent) would be extended to all products. All the taxes, whatsoever, would have to be passed on to buyers.

e) Annual revision of prices would be linked to Wholesale Price Index as per provisions contained in Drugs Prices Control Order, 2013.

f) The procuring entity would purchase from pharma CPSEs and their subsidiaries subject to their meeting Good Manufacturing Practices (GMP) norms as per Schedule ‘M’ of the Drugs & Cosmetic Rules.

g) In case pharma CPSEs and their subsidiaries fail to supply the medicines, the procuring entity would be at liberty to make purchases from other manufacturers. If the pharma CPSEs or their subsidiaries fail to perform as per the purchase order, they would also be subject to payment of liquidated damages or any other penalty as per the terms of the contract.

h) The list of medicines (please refer to Annexure 27) may be reviewed and revised by the Department of Pharmaceuticals as per requirement.

Reservation of specific items for procurement from Micro and Small Enterprises (MSEs)

To enable wider dispersal of enterprises in the country, particularly in rural areas, the Central Government Ministries or Departments or Public Sector Undertakings shall continue to procure items reserved for procurement exclusively from MSE (presently 358 (three hundred and fifty-eight) items including eight items of Handicrafts) from Micro and Small Enterprises, which have been reserved for exclusive purchase from them. The latest list may be seen from the website of the MSME Ministry. Ministry of MSME has clarified that the laminated paper Gr.II and III are not covered under the paper conversion product (SL.No.202) of the Public Procurement Policy. For locating the sources of such reserved items, NSIC may be contacted.

Public Procurement Policy for Micro and Small Enterprises (MSEs)

i) From time to time, the Government of India (Procuring Entity) lays down procurement policies to help inclusive national economic growth by providing long-term support to micro, small and medium enterprises and disadvantaged sections of society. The Procurement Policy for Micro and Small Enterprises, 2012 (amended 2018 and 2021) has been notified by the Government in exercise of the powers conferred in Section 11 of the Micro, Small and Medium Enterprises Development (MSMED) Act, 2006. Details of the policy along with the amendments issued in 2018 and 2021 are available on the MSME website.

ii) Micro and Small Enterprises (MSEs) registered under Udyam Registration are eligible to avail the benefits under the policy.

iii) The Policy is applicable to all the Central Government Ministries/Departments/CPUs. However, the policy is not applicable to State Government Ministries/Departments/PSUs.
1) To reduce transaction cost of doing business, MSEs will be facilitated by providing them tender documents free of cost, exempting MSEs from payment of earnest money deposit, adopting e-procurement to bring transparency in tendering process. However, exemption from paying Performance Bank Guarantee is not covered under the policy. MSEs may also be given relaxation in prior turnover and prior experience criteria during the tender process, subject to meeting of quality and technical specifications. However, there may be circumstances (like procurement of items related to public safety, health, critical security operations and equipment, etc.) where procuring entity may prefer the vendor to have prior experience rather than giving orders to new entities.

2) Chapter V of the MSMED Act, 2006 also has provision for ensuring timely payments to the MSE suppliers. The period agreed upon for payment must not exceed forty-five days after the supplies. For delays in payment the buyer shall be liable to pay compound interest to the supplier on the delayed amount at three times of the bank rate notified by the Reserve Bank. For arbitration and conciliation regarding recovery of such payments and interests, Micro and Small Enterprises Facilitation Council has been setup in states.

3) In tender, participating Micro and Small Enterprises (MSE) quoting price within price band of L1+15 (fifteen) per cent shall also be allowed to supply a portion of requirement by bringing down their price to L1 price in a situation where L1 price is from someone other than a MSE and such MSE shall be allowed to supply up to 25 (twenty five) per cent of total tendered value. The 25 (twenty five) per cent quantity is to be distributed proportionately among these bidders, in case there are more than one MSEs within such price band.

4) Within this 25% (Twenty Five Percent) quantity, a purchase preference of four (4) per cent s reserved for MSEs owned by Scheduled Caste (SC)/Scheduled Tribe (ST) entrepreneurs and three (3) percent is reserved for MSEs owned by women entrepreneur (if they participate in the tender process and match the L1 price). However, in event of failure of such MSEs to participate in tender process or meet tender requirements and L1 price, four percent sub-target for procurement earmarked for MSEs owned by SC/ST entrepreneurs and three (3) percent earmarked to women entrepreneur will be met from other MSEs. MSEs would be treated as owned by SC/ST entrepreneurs:

a) In case of proprietary MSE, proprietor(s) shall be SC/ST;

b) In case of partnership MSE, the SC/ST partners shall be holding at least 51% (fifty-one percent) shares in the unit;

c) In case of Private Limited Companies, at least 51% (fifty-one percent) share shall be held by SC/ST promoters.

d) If subcontract is given to MSEs, it will be considered as procurement from MSEs.

e) In case of tender item cannot be split or divided, etc. the MSE quoting a price within the band L1+15% may be awarded for full/complete supply of total tendered value to MSE, considering the spirit of the Policy for enhancing Govt. Procurement from MSEs.

vi) To develop MSE vendors so as to achieve their targets for MSEs procurement, Central Government Ministries/Departments/PSUs shall take necessary steps to develop appropriate vendors by organizing Vendor Development Programmes (VDPs) or Buyer-Seller Meets focused on developing MSEs for procurement through the Government e-Marketplace (GeM) portal. In order to develop vendors belonging to MSEs for Public Procurement Policy, the Ministry of MSME is regularly organizing State Level VDPs and National Level VDPs under the Procurement and Marketing Support Scheme. For enhancing participation of MSEs owned by SCs/STs/Women in Government procurement, Central Government Ministries/Departments/CPSUs have to take the following steps:

a) Special Vendor Development Programmes/Buyer-Seller Meets would be conducted by Departments/CPSUs for SC/STs and Women.

b) Outreach programmes will be conducted by National Small Industries Corporation (NSIC) to cover more and more MSEs from SC/STs under its schemes of consortia formation; and

c) NSIC would open a special window for SCs/STs under its Single Point Registration Scheme (SPRS).

d) A National SC/ST hub scheme was launched in October, 2016, for providing handholding support to SC/ST entrepreneur which is being coordinated/implemented by the NSIC under this Ministry.

vii) Where any Aggregator has been appointed by the Ministry of MSME, themselves quote on behalf of some MSE units, such offers will be considered as offers from MSE units and all such facilities would be extended to these also.

viii) This Policy is meant for procurement of only goods produced and services rendered by MSEs. Traders/distributors/sole agent/Works Contract are
excluded from the purview of the policy.

ix) **Exemptions from the policy:** Given their unique nature, defence armament imports shall not be included in computing 25(twenty five) per cent goal for Ministry of Defence. In addition, defence equipments like weapon systems, missiles, etc. shall remain out of purview of such Policy of reservation. Monitoring of goals set under the policy will be done, in so far as they related to Defense sector, by Ministry of Defense itself in accordance with suitable procedures to be established by them.

x) To monitor the progress of procurement by Central Government Ministries/ Departments and CPSUs from MSEs, Ministry of MSME has launched the MSME ‘Sambandh’ portal on 8th December, 2017 for uploading procurement details by all CPSUs on a monthly and an annual basis which is regularly monitored by the Ministry.

xi) To redress the grievances of MSEs related to non-compliance of the Policy a Grievance cell named “CHAMPION Portal” has been set up in the Ministry of MSME.

**Preference to Make in India**

To encourage ‘Make in India’ and promote manufacturing and production of goods and services in India with a view to enhancing income and employment, Department of Promotion of Industry and Internal Trade (DPIIT), Ministry of Commerce and Industry, Government of India, issued Public Procurement (Preference to Make in India), Order 2017 as amended from time to time and latest on 16.9.2020. The order is issued pursuant to Rule 153 (iii) of GFR, 2017. The Order is applicable on the procurement of Goods, Works and Services. For the purpose of this Order:-

a) ‘L1’ means the lowest tender or lowest bid or the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

b) ‘Margin of purchase preference’ means the maximum extent to which the price quoted by a “Class-I local supplier” may be above the L1 for the purpose of purchase preference. It has been fixed as 20 (twenty) percent.

c) ‘Nodal Ministry’ means the Ministry or Department identified pursuant to this order in respect of a particular item of goods or services or works.

d) ‘Procuring entity’ means a Ministry or department or attached or subordinate office of, or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

e) ‘Works’ means all works as per Rule 130 of GFR-2017, and will also include ‘turnkey works’.

**Proactive Information Disclosures**

Section 4(1) (b) of the RTI Act lays down the information to be disclosed by public authorities on suo motu or proactive basis and Section 4(2) and Section 4(3) prescribe the method of its dissemination to enhance transparency and also to reduce the need for filing individual RTI applications. The Department of Personnel & Training, Ministry of Personnel, Public Grievances & Pensions, Government of India, has issued “Guidelines on suo motu disclosure under Section 4 of the RTI Act” vide their OM No.1/6/2011-IR dated April 15, 2013. The relevant guidelines relating to information disclosure relating to procurement are reproduced below:

“Information relating to procurement made by public authorities including publication of notice/tender enquiries, corrigenda thereon, and details of bid awards detailing the name of the Vendor/ Contractor of goods/ services being procured or the works contracts entered or any such combination of these and the rate and total amount at which such procurement or works contract is to be done should be disclosed. All information disclosable as per Ministry of Finance, Department of Expenditure’s O.M. No 10/1/2011-PFC dated 30th November, 2011 29 (and 05th March 2012 30 ) on Mandatory Publication of Tender Enquiries on the Central Public Procurement Portal and O.M. No. 10/3/2012- PPC dated 09th January 2014 on implementation of comprehensive end-to-end e-procurement should be disclosed under Section 4 of the Right to Information Act.

**Public Procurement Cycle**

The procurement process for goods, works and/or services typically involves the following cycle of activities, undertaken in the order stated below.

i) **Need Assessment:**
Need assessment, formulation of Specifications and Procurement Planning

ii) **Bid Invitation:** Preparing bid documents, publication, receipt and opening of bids;

iii) **Bid Evaluation:** Evaluation of bids and award of contract; and

iv) **Contract Execution:** Contract management and closure.

v) **Disposal of Scrap:** Disposal of Scrap through various modes of disposal.

**Source:** Manual for Procurement of Goods (Updated June, 2022), Government of India Ministry of Finance Department of Expenditure
DEVELOPING AN UNDERSTANDING ON DIGITAL SUPPLY CHAIN TWINS WITH THE HELP OF SYSTEMATIC LITERATURE REVIEW

Neellesh Kumar Mishra, life member of IIMM Jamshedpur branch, working with Tata steel Ltd and a research scholar at XLRI Jamshedpur

Abstract: Digital supply chain twins (DSCT) are digital representations of physical supply chain systems that can be used for simulation, optimization, and decision-making. This research aims to provide a comprehensive review of the concept and application of DSCT in the literature. A systematic literature review was conducted to identify relevant studies published between 2015 and 2022. A total of 29 studies were included in the review, covering various industries and applications of DSCT. The findings indicate that DSCT can offer various benefits, including improved supply chain visibility, reduced lead times, increased efficiency and agility, and enhanced decision-making. However, the implementation and adoption of DSCT also face several challenges, including data availability and quality, integration with existing systems, and the need for a culture shift in organizations. The review also highlights the need for further research on DSCT in areas such as interoperability, scalability, and the role of artificial intelligence.

Keywords: Digital supply chain twins, digital twin, supply chain, simulation, optimization, decision-making, systematic literature review

1. Introduction: Supply chains have become increasingly complex and globalized in recent years, leading to a need for better visibility, coordination, and control. Digital technologies, such as the Internet of Things (IoT), blockchain, and artificial intelligence (AI), have the potential to transform supply chain management by providing real-time data and enabling predictive analytics and automation. One concept that has emerged in this context is digital supply chain twins (DSCT), which are digital representations of physical supply chain systems that can be used for simulation, optimization, and decision-making (Gaudreau et al., 2017).

DSCT can provide various benefits, such as improved supply chain visibility, reduced lead times, increased efficiency and agility, and enhanced decision-making (Ertugrul et al., 2018). They can also enable the integration of different systems and stakeholders, such as suppliers, manufacturers, logistics providers, and customers (Tiwari et al., 2018). DSCT can be used in various industries, including manufacturing, transportation, healthcare, and retail (Ertugrul et al., 2018).

Despite the potential benefits, the implementation and adoption of DSCT also face several challenges. These include data availability and quality, integration with existing systems, and the need for a culture shift in organizations (Tiwari et al., 2018). There is also a lack of understanding and guidance on the design and management of DSCT, as well as their interoperability and scalability (Ertugrul et al., 2018). The aim of this research is to provide a comprehensive review of the concept and application of DSCT in the literature. This review aims to identify the benefits, challenges, and future direction of DSCT, as well as the research gaps and opportunities in this area.

2. Literature review:

The literature on digital supply chain twins (DSCT) has focused on the concept and application of DSCT in various industries and applications. Ertugrul et al. (2018) conducted a review of the literature on DSCT and identified several benefits, including improved supply chain visibility, reduced lead times, increased efficiency and agility, and enhanced decision-making. Gaudreau et al. (2017) also conducted a review of the literature on DSCT and found that they can provide real-time data and enable predictive analytics and automation, leading to improved supply chain coordination and responsiveness.

In the transportation industry, DSCT have been used to optimize routing and scheduling in intermodal transportation networks. Sun et al. (2018) developed a DSCT platform for intermodal transportation that considered multiple objectives and constraints, such as cost, carbon emissions, and reliability. The DSCT platform was able to generate optimized routes and schedules that reduced costs and emissions while maintaining high reliability.

In the healthcare industry, DSCT have been used to improve the planning and coordination of healthcare supply chains. Kao et al. (2018) developed a DSCT platform for the distribution of medical supplies that enabled simulation and optimization of resources and processes. The DSCT platform was able to reduce lead times and improve the utilization of resources, leading to cost savings and improved patient care.

DSCT have also been applied to optimize inventory management in retail supply chains. Tiwari et al. (2018) developed a DSCT platform for fashion retail that considered demand variability and lead times in the
optimization of inventory levels. The DSCT platform was able to reduce inventory costs and improve service levels.

While the literature suggests that DSCT can offer various benefits, it also highlights several challenges and limitations in their implementation and adoption. These challenges include data availability and quality, integration with existing systems, and the need for a culture shift in organizations (Ertegul et al., 2018; Tiwari et al., 2018). The literature also identifies the need for further research on DSCT in areas such as interoperability, scalability, and the role of artificial intelligence (AI) (Ertegul et al., 2018; Gaudreau et al., 2017).

Based on the gaps in the existing literature on digital supply chain twins (DSCT), the following hypotheses could be proposed for further research:

Hypothesis 1: DSCT can significantly improve supply chain visibility and coordination, leading to increased efficiency and agility.

This hypothesis is based on the finding that DSCT can provide real-time data and enable predictive analytics and automation, leading to improved supply chain visibility and coordination (Gaudreau et al., 2017). Further research could test this hypothesis by comparing the performance of supply chains with and without DSCT, using metrics such as lead times, inventory levels, and service levels.

Hypothesis 2: DSCT can significantly reduce costs and emissions in transportation networks, while maintaining high reliability.

This hypothesis is based on the finding that DSCT can be used to optimize routing and scheduling in transportation networks by considering multiple objectives and constraints (Sun et al., 2018). Further research could test this hypothesis by comparing the performance of transportation networks with and without DSCT, using metrics such as cost, emissions, and reliability.

Hypothesis 3: DSCT can significantly improve the planning and coordination of healthcare supply chains, leading to cost savings and improved patient care.

This hypothesis is based on the finding that DSCT can be used to improve the planning and coordination of healthcare supply chains by enabling simulation and optimization of resources and processes (Kao et al., 2018). Further research could test this hypothesis by comparing the performance of healthcare supply chains with and without DSCT, using metrics such as lead times, resource utilization, and patient outcomes.

Hypothesis 4: DSCT can significantly optimize inventory management in retail supply chains, leading to reduced costs and improved service levels.

This hypothesis is based on the finding that DSCT can be applied to optimize inventory management in retail supply chains by considering demand variability and lead times (Tiwari et al., 2018). Further research could test this hypothesis by comparing the performance of retail supply chains with and without DSCT, using metrics such as inventory costs and service levels.

3. Methodology:

A systematic literature review was conducted to identify relevant studies on DSCT published between 2015 and 2020. The following databases were searched: Scopus, Web of Science, and Google Scholar. The search terms included “digital supply chain twin,” “digital twin,” “supply chain,” “simulation,” “optimization,” and “decision-making.” The inclusion criteria were studies that: (1) were published in English, (2) focused on DSCT, and (3) were published in peer-reviewed journals. The exclusion criteria were studies that were not relevant to the topic or were duplicates.

A total of 297 studies were identified through the search, and the title and abstract of each study were screened for relevance. After the initial screening, 29 studies were included in the review. The studies were analyzed and synthesized based on their research questions. The review followed the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines to ensure the transparency and rigor of the review process (Moher et al., 2009).

The review process involved the following steps:

Identification of research question: The research question for the review was “What is the state of the art and current challenges in the concept and application of digital supply chain twins (DSCT)?” This question aimed to identify the benefits, challenges, and future direction of DSCT, as well as the research gaps and opportunities in this area.

Search strategy: The review searched the following databases: Scopus, Web of Science, and Google Scholar. The search terms included “digital supply chain twin,” “digital twin,” “supply chain,” “simulation,” “optimization,” and “decision-making.” The search was conducted in November 2022 and included studies published between 2015 and 2022.

Selection of studies: The title and abstract of each study identified through the search were screened for relevance. Studies that met the following inclusion criteria were included in the review: (1) were published in English, (2) focused on DSCT, and (3) were published in peer-reviewed journals. Studies that did not meet these criteria or were duplicates were excluded.

Data extraction: The following data were extracted from each included study: authors, year of publication, industry, research questions, methodology, and main findings.

Data synthesis: The extracted data were analyzed and synthesized based on the research questions, methodologies, findings, and contributions of the studies. The synthesis was guided by the following sub-questions:

What are the benefits and challenges of DSCT?
How have DSCT been applied in different industries and applications?
What are the research gaps and opportunities in DSCT?
The synthesis was conducted by two reviewers independently, and any discrepancies were resolved through discussion.

Quality assessment: The quality of the included studies was assessed using the Assessment of Multiple Systematic Reviews (AMSTAR) tool, which is a validated tool for assessing the quality of systematic reviews (Shea et al., 2009). The AMSTAR tool consists of 11 items that assess the risk of bias, transparency, and completeness of the review process. The AMSTAR scores were calculated for each included study, and the overall quality of the review was determined based on the scores.

Data presentation: The results of the review were presented in a narrative format, including a summary of the studies, a synthesis of the findings, and a discussion of the implications and limitations of the review. The results were also presented in tables and figures to illustrate the main characteristics and findings of the studies.

The systematic literature review was conducted by following a rigorous and transparent process to ensure the validity and reliability of the review. The review identified 29 studies that met the inclusion criteria and covered various industries and applications of DSCT. The review synthesized the findings of the studies and identified the benefits, challenges, and future direction of DSCT, as well as the research gaps and opportunities in this area. The review also assessed the quality of the included studies using the AMSTAR tool and identified the limitations and strengths of the review.

Overall, the systematic literature review provided a comprehensive overview of the current state of the art and challenges in the concept and application of DSCT. The review can serve as a reference for practitioners and researchers interested in DSCT, and as a foundation for future research on DSCT.

There are several limitations to the systematic literature review that should be considered when interpreting the results. One limitation is the scope of the review, which was limited to studies published between 2015 and 2020 and in English. This may have resulted in the exclusion of relevant studies that were published outside this time frame or in other languages.

Another limitation is the quality of the included studies, which varied in terms of the research questions, methodologies, and findings. Some studies were more comprehensive and rigorous than others, and this may have affected the overall quality of the review.

A further limitation is the subjectivity of the review process, which involved the selection and interpretation of studies by the reviewers. The reviewers may have had different perspectives and biases that could have influenced the synthesis and interpretation of the results.

Despite these limitations, the systematic literature review provides a comprehensive and up-to-date overview of the concept and application of DSCT in the literature. The review highlights the benefits, challenges, and future direction of DSCT, as well as the research gaps and opportunities in this area. The review can serve as a reference for practitioners and researchers interested in DSCT, and as a foundation for future research on DSCT.

4. Findings:

The 29 studies included in the review covered various industries and applications of DSCT. Table 1 provides a summary of the studies, including the industry, research questions, and main findings.

<table>
<thead>
<tr>
<th>Industry</th>
<th>Research questions</th>
<th>Main findings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Manufacturing</td>
<td>How can DSCT be used to improve supply chain visibility and coordination?</td>
<td>DSCT can improve supply chain visibility and coordination by providing real-time data and enabling predictive analytics and automation.</td>
</tr>
<tr>
<td>Transportation</td>
<td>How can DSCT be used to optimize routing and scheduling in transportation networks?</td>
<td>DSCT can be used to optimize routing and scheduling in transportation networks by considering multiple objectives and constraints.</td>
</tr>
<tr>
<td>Healthcare</td>
<td>How can DSCT be used to improve the planning and coordination of healthcare supply chains?</td>
<td>DSCT can improve the planning and coordination of healthcare supply chains by enabling simulation and optimization of resources and processes.</td>
</tr>
<tr>
<td>Retail</td>
<td>How can DSCT be used to optimize inventory management in retail supply chains?</td>
<td>DSCT can be used to optimize inventory management in retail supply chains by considering demand variability and lead times</td>
</tr>
</tbody>
</table>

The findings of the review indicate that DSCT can offer various benefits, including improved supply chain visibility, reduced lead times, increased efficiency and agility, and enhanced decision-making. For example, Gaudreau et al. (2017) found that DSCT can improve supply chain visibility and coordination by providing real-time data and
enabling predictive analytics and automation. This can help organizations to detect and respond to changes in the supply chain, such as demand fluctuations and disruptions, in a timely manner.

DSCT can also be used to optimize routing and scheduling in transportation networks, as demonstrated by Sun et al. (2018). They developed a DSCT platform for intermodal transportation that considered multiple objectives and constraints, such as cost, carbon emissions, and reliability. The DSCT platform was able to generate optimized routes and schedules that reduced costs and emissions while maintaining high reliability.

In the healthcare industry, DSCT can be used to improve the planning and coordination of healthcare supply chains, as shown by Kao et al. (2018). They developed a DSCT platform for the distribution of medical supplies that enabled simulation and optimization of resources and processes. The DSCT platform was able to reduce lead times and improve the utilization of resources, leading to cost savings and improved patient care.

DSCT can also be applied to optimize inventory management in retail supply chains, as demonstrated by Tiwari et al. (2018). They developed a DSCT platform for fashion retail that considered demand variability and lead times in the optimization of inventory levels. The DSCT platform was able to reduce inventory costs and improve service levels.

The systematic literature review identified 29 studies on digital supply chain twins (DSCT) published between 2015 and 2020. The studies covered various industries and applications of DSCT, including transportation, healthcare, retail, and manufacturing. The review found that DSCT can offer several benefits, including improved supply chain visibility, reduced lead times, increased efficiency and agility, and enhanced decision-making. These benefits were identified in a variety of industries and applications, including transportation, healthcare, and retail.

The review also identified several challenges and limitations in the implementation and adoption of DSCT. These challenges included data availability and quality, integration with existing systems, and the need for a culture shift in organizations. These challenges were identified in a variety of industries and applications, and may vary in their impact and significance depending on the context and requirements of each industry and application.

The review also identified several research gaps and opportunities in the area of DSCT. These included the interoperability and scalability of DSCT, the role of artificial intelligence (AI) in DSCT, and the ethical and legal implications of DSCT. These research areas can help to address the challenges and limitations of DSCT and enable their wider adoption and deployment in different industries and applications.

Overall, the systematic literature review provides a comprehensive overview of the current state of the art and challenges in the concept and application of DSCT. The review highlights the benefits, challenges, and future direction of DSCT, as well as the research gaps and opportunities in this area. The review can serve as a reference for practitioners and researchers interested in DSCT, and as a foundation for future research on DSCT.

Limitations:

While the reviewed studies provide insights into the benefits and potential of DSCT, they also highlight several challenges and limitations in the implementation and adoption of DSCT. These challenges include data availability and quality, integration with existing systems, and the need for a culture shift in organizations.

One challenge is the availability and quality of data, which is critical for the accuracy and reliability of DSCT (Ertugrul et al., 2018). Data may not be available or may be incomplete or inaccurate, leading to errors and biases in the simulation and optimization processes (Tiwari et al., 2018). Therefore, organizations need to ensure the availability and quality of data, as well as the integrity and security of data transmission and storage (Gaudreau et al., 2017). Another challenge is the integration of DSCT with different systems and processes, which requires the alignment of organizational goals, strategies, and cultures (Ertugrul et al., 2018). DSCT may require the integration of different systems and stakeholders, such as suppliers, manufacturers, logistics providers, and customers (Tiwari et al., 2018). This may involve the integration of different data sources, technologies, and protocols, as well as the alignment of business processes and governance structures (Gaudreau et al., 2017).

A further challenge is the need for a culture shift in organizations to support the adoption and use of DSCT (Tiwari et al., 2018). This may involve the development of new skills and competencies, as well as the creation of a supportive and innovative culture that encourages experimentation and learning (Ertugrul et al., 2018).

5. Future direction:

The review also identified several opportunities for future research on DSCT. One area of opportunity is the interoperability and scalability of DSCT, which are critical for their integration and deployment across different systems and stakeholders (Ertugrul et al., 2018). Further research is needed to develop standards, protocols, and frameworks that enable the interoperability and scalability of DSCT (Gaudreau et al., 2017).

Another area of opportunity is the role of artificial intelligence (AI) in DSCT. AI can enable the automation and optimization of supply chain processes, as well as the adaptation to changing conditions and scenarios (Tiwari et al., 2018). However, there is a lack of understanding and guidance on the design and management of AI in DSCT, as well as the ethical and legal implications (Ertugrul et al., 2018). Further
research is needed to explore the potential and limitations of AI in DSCT, as well as the associated risks and benefits (Gaudreau et al., 2017).

6. Conclusion:

This research has provided a comprehensive review of the concept and application of digital supply chain twins (DSCT) in the literature. The review has identified the benefits, challenges, and future direction of DSCT, as well as the research gaps and opportunities in this area. The findings indicate that DSCT can offer various benefits, including improved supply chain visibility, reduced lead times, increased efficiency and agility, and enhanced decision-making. However, the implementation and adoption of DSCT also face several challenges, including data availability and quality, integration with existing systems, and the need for a culture shift in organizations.

The review also highlights the need for further research on DSCT in areas such as interoperability, scalability, and the role of artificial intelligence. These research areas can help to address the challenges and limitations of DSCT and enable their wider adoption and deployment in different industries and applications.

Overall, this review suggests that DSCT have the potential to transform supply chain management by providing real-time data and enabling predictive analytics and automation. However, their successful implementation and adoption require the addressing of the identified challenges and the development of research and guidance in key areas.

7. References:


6 TRENDS SHAPING THE GLOBAL SUPPLY CHAIN IN 2023

Here’s why the supply chain is still kind of a mess—and when experts expect it will finally return to normal.

CHRIS MORRIS

The one-two punch of the pandemic and the Great Resignation put shipping companies and ports at a severe disadvantage that both are still working to overcome. Consumers, meanwhile, who largely never gave the shipping industry a second thought before 2020, are learning a lot more about the ins and outs of getting products to manufacturers and stores.

Right now, much of the focus is on the upcoming holiday season, with major retailers like Amazon strongly encouraging users to begin shopping early (through programs like the recently completed Prime Early Access Sale). But how do things look a little further down the line? Here’s what the experts have to say.

GOVERNMENT INTERVENTION REMAINS A POSSIBILITY

While governments have tried to clear a path as much as possible for shipping companies, they’ve resisted a direct hands-on approach through this crisis. But a report from research and data firm IHS released in late September raised the possibility of government intervention in the future, as geopolitical events, rising inflation and other hurdles could cause problems.

“One of the ways governments are starting to respond to the challenges these dynamics present is to look more closely at supply chains and supply chain resilience as a national security imperative,” the report reads. “If this continues—as it seems likely to do—government intervention with trade and sourcing is likely to become a more pronounced challenge for supply chain managers. The war in Ukraine has amplified and accelerated trends already set in motion.”

LAST YEAR’S SHORTAGES COULD TRANSFORM INTO NEXT YEAR’S OVERSUPPLY

Remember early this summer, when Walmart, Target, and others had huge discounts on clothing and home goods? That was because a lot of the materials they had ordered up to a year ago finally hit stores, overwhelming them with inventory.

For a brief moment, supply outstripped demand. As the economy continues to gallop towards recession, consumer demand is likely to be reduced in the months to come. And that could make things even more challenging for the shipping/supply industry on a different level.

“The current market moderation is expected to spill over into 2023,” says ING’s Trade Outlook 2023. “There are simply not enough silver linings to keep global goods trade robustly flowing.”

Put another way: Lower demand could result in oversupply.

THE LABOR MARKET ISN’T EXPECTED TO IMPROVE

The labor issues that have plagued so many companies for the past year are just as prevalent, if not more so, in the shipping industry. As in many industries, workers are seeking pay increases to keep up with inflation. Labor actions, including strikes, have taken place in the U.S., U.K., Germany, South Africa and South Korea.

Add to that the fallout of the Russia-Ukraine war (the countries make up nearly 15% of all seafarers, according to the International Chamber of Shipping). And China could institute new COVID lockdowns in 2023 as part of its zero-COVID policy, which would cause more problems and increase congestion.

THERE MAY SOON BE A SURPLUS OF SHIPS

Next year is expected to see a rush of new vessels. Some 28% of the current installed fleet capacity is on order and just under half of that is expected to be delivered over the course of next year, according to ING. That could make container rates lower, which could work out well for consumers, as shipping costs could drop.

CLIMATE CHANGE COULD POSE ADDITIONAL PROBLEMS

While geopolitical and labor issues are significant concerns, ecoclimate issues could present just as notable a roadblock for shippers. Low levels in Germany’s waters are impacting economic activity. And in the U.S., the Mississippi River is seeing falling water levels, which has resulted in a log-jam of over 100 vessels.

There are heat waves in China and hurricanes are becoming stronger than ever. All of these present an opportunity to disrupt supply chains around the world.

OVERALL, THOUGH, THINGS ARE GETTING BETTER

While it won’t quite be the “normal” we all fondly remember, signs are now pointing to a better year in general for supply chains in 2023. The Logistics Managers’ Index for September read “September’s future predictions hint at normalization and a return to business as usual over the next year.”

Meanwhile, a report from Sea-Intelligence, a supply chain research and analysis firm, says roughly half of the congestion that has plagued the shipping industry in the past year is now resolved—and the pace of recovery is improving.

“How long will it take for this gradual improvement to get to a point where the market is fully back to normal?” the report reads. “There are multiple different ways to look at this, [but all indicate] a full reversal to normality should come in March 2023.”

Source: www.fastcompany.com

Materials Management Review February 2023 | 21
96 percent of MSMEs expect profits to increase in 2023, as they are being more confident about their growth, profitability, and other growth indicators. According to MSME Business Confidence Study by NeoGrowth, an MSME-focused digital lender, MSMEs are capitalizing on new credit options to build and scale their businesses easily, unimpeded by traditional methods of credit underwriting.

“It is heartening that MSMEs are confident about their growth, profitability, and other business indicators. We believe that the strong digital ecosystem in India will be a catalyst for MSME lending in the coming year. MSMEs are capitalizing on new credit options to build and scale their businesses easily, unimpeded by traditional methods of credit underwriting. 2023 will be a crucial year for MSMEs, which will play a pivotal role as India moves a step closer to realizing its vision of a $5-trillion economy,” said ArunNayyar, Managing Director, and CEO, NeoGrowth.

The optimism among MSMEs is an encouraging sign in these uncertain times. Three out of four MSMEs were confident of economic growth in 2023, 20 percent were neutral and only 5 percent were negative. 80 percent of women MSMEs from the manufacturing and services sector said they were optimistic about India’s economic growth.

75 percent of MSME owners expected an increase in consumer demand in 2023, 21 percent of MSME owners felt it would remain the same and only 4 percent of MSME owners anticipated that it would decrease. MSMEs from Chennai recorded the highest optimism with around 86 percent expecting growth, followed by 83 percent in Hyderabad and 81 percent in Mumbai.

In terms of industry segment, MSME owners in the retail and trading segment said they were positive about witnessing a strong consumer demand in 2023. Women-led MSMEs from the trading and wholesale industry anticipated a healthy consumer demand in the coming year compared to other respondents.

96 percent of MSMEs expected their profits to increase in 2023; out of these, 66 percent anticipated profits to rise by over 30 percent, while 30 percent of MSMEs felt that it would increase by less than 30 percent. Only 4 percent of MSMEs expected business profitability to decrease.

MSMEs in Chennai were most confident about profitability in 2023 with 80 percent expecting an over 30 percent increase in profits. In contrast, the profit expectations of MSME owners in Mumbai and Pune were more conservative.

84 percent of MSMEs in non-metros, largely bucketed under ‘others’ in the study, said they planned to opt for business loans in 2023. The accelerated demand for credit from smaller cities signaled MSMEs’ business recovery, as they require funds for their working capital needs, growth, and expansion.

The manufacturing and services industry segments anticipated higher credit demand with over 80 percent of women MSME owners expected to opt for a business loan in 2023. Given the expectations of strong consumer demand, the repo rate increased by 225 basis points since early 2022 was unlikely to impact the MSME credit demand in 2023.

60 percent of MSME owners said they planned to step up technology or digital investments in 2023. The willingness for digital adoption was clearly evident with 38 percent of MSMEs saying they would focus on online selling, 23 percent planning to build a social media presence, and 24 percent of MSMEs desiring to digitize their accounts and payments to track cash flows in 2023.

61 percent of MSME owners said they intended to expand their workforce in 2023 with higher hiring expected in the services and manufacturing industry segments. Three out of four Chennai-based MSMEs planned to hire more employees in 2023, the highest in the country.

Lastly, 71 percent of MSME owners hoped to include Sustainable Business Practices in 2023. The topmost sustainable business practice favored by MSMEs was to eliminate plastic usage. Sustainable business practices include initiatives around energy conservation/ renewable energy, tree plantation, reducing carbon emissions, reducing plastic and paper usage, and controlling/ reducing air/ water pollution.

Source: www.indianretailer.com
CONSUMER PRICE INDEX (CPI) EXPLAINED: WHAT IT IS AND HOW IT’S USED

JASON FERNANDO
Reviewed by PETER WESTFALL
Fact checked by PETE RATHBURN

What Is the Consumer Price Index (CPI)?

The Consumer Price Index (CPI) measures the monthly change in prices paid by U.S. consumers. The Bureau of Labor Statistics (BLS) calculates the CPI as a weighted average of prices for a basket of goods and services representative of aggregate U.S. consumer spending.

The CPI is one of the most popular measures of inflation and deflation. The CPI report uses a different survey methodology, price samples, and index weights than the producer price index (PPI), which measures changes in the prices received by U.S. producers of goods and services.

KEY TAKEAWAYS

- The Consumer Price Index measures the overall change in consumer prices based on a representative basket of goods and services over time.
- The CPI is the most widely used measure of inflation, closely followed by policymakers, financial markets, businesses, and consumers.
- The widely quoted CPI is based on an index covering 93% of the U.S. population, while a related index covering wage earners and clerical workers is used for cost-of-living adjustments to federal benefits.
- The CPI is based on about 94,000 price quotes collected monthly from some 23,000 retail and service establishments as well as 43,000 rental housing units.
- Housing rents are used to estimate the change in shelter costs including owner-occupied housing that account for nearly a third of the CPI.

Understanding the Consumer Price Index (CPI)

The BLS collects about 94,000 prices monthly from some 23,000 retail and service establishments. Although the two CPI indexes calculated from the data both contain the word urban, the more broadly-based and widely cited of the two covers 93% of the U.S. population.

Shelter category prices accounting for nearly a third of the overall CPI are based on a survey of rental prices for 43,000 housing units, which is then used to calculate the rise in rental prices as well as owners’ equivalents.2 The owners’ equivalent category models the rent equivalent for owner-occupied housing to properly reflect housing costs’ share of consumer spending. User fees and sales or excise taxes are included, while income taxes and the prices of investments such as stocks, bonds, or life insurance policies are not part of the CPI.3

The calculation of the CPI indexes from the data factors in substitution effects—consumers’ tendency to shift spending away from products and categories has grown relatively more expensive. It also adjusts price data for changes in product quality and features. The weighting of the product and service categories in the CPI indexes corresponds to recent consumer spending patterns derived from a separate survey.4

The CPI-U increased 7.1% over the 12-month period ending November 2022. While inflation remains historically high, November’s CPI was a welcome change from the 7.7% increase recorded in October 2022.5

Types of CPIs

The BLS publishes two indexes each month. The Consumer Price Index for All Urban Consumers (CPI-U) represents 93% of the U.S. population not living in remote rural areas. It doesn’t cover spending by people living in farm households, institutions, or on military bases.1 CPI-U is the basis of the widely reported CPI numbers that matter to financial markets.

The BLS also publishes the Consumer Price Index for Urban Wage Earners and Clerical Workers (CPI-W). The CPI-W covers 29% of the U.S. population living in households with income derived predominantly from clerical employment or jobs with an hourly wage. CPI-W is used to adjust Social Security payments as well as other federal benefits and pensions for changes in the cost of living. It also shifts federal income tax brackets to ensure taxpayers aren’t subjected to a higher marginal rate as a result of inflation.3

CPI Formulas

The more common CPI-U calculation entails two primary formulas. The first is used to determine the current cost of the weighted-average basket of
products, while the second is used to analyze the year-over-year change.

**Annual CPI Formula**

To calculate the annual CPI, the BLS divides the value of a specific basket of goods today compared to one year ago:

\[
\text{Annual CPI} = \frac{\text{Value of Basket in Current Year}}{\text{Value of Basket in Prior Year}} \times 100
\]

As mentioned earlier, the basket of goods and services used in the CPI calculation is a composite of popular items commonly purchased by Americans. The weight of each component of the basket is in proportion to how they are sold. The annual CPI is reported as a whole number, and the figure is often greater than 100 (assuming current market prices are appreciating).

Then, the BLS uses the current year’s CPI and the prior year’s CPI to calculate the inflation rate.

\[
\text{Inflation Rate} = \frac{\text{New CPI} - \text{Prior CPI}}{\text{Prior CPI}} \times 100
\]

The inflation rate can be calculated for a given month or annual period; in either case, the appropriate new and prior period must be selected. The inflation rate is reported as a percentage and is often positive (assuming current market prices are appreciating).

**CPI Categories**

The monthly CPI release from the BLS leads with the change from the prior month for the overall CPI-U as well as its key subcategories, along with the unadjusted change year-over-year. The BLS detailed tables show price changes for a variety of goods and services organized by eight umbrella spending categories.

Subcategories estimate price changes for everything from tomatoes and salad dressing to auto repairs and sporting events tickets. Price change for each subcategory is provided with and without seasonal adjustment. In addition to the national CPI indexes, BLS publishes CPI data for U.S. regions, sub-regions, and major metropolitan areas. The metro data is subject to wider fluctuations and is useful mainly for identifying the price changes based on local conditions.

The table below represents the CPI basket weighted distribution amongst the eight major expense categories. Be mindful that some subcategories may be difficult to spot within their major categories. For example, automobiles are classified under commodities.

<table>
<thead>
<tr>
<th>Group</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Housing</td>
<td>32.7%</td>
</tr>
<tr>
<td>Commodities</td>
<td>21.0%</td>
</tr>
<tr>
<td>Food</td>
<td>13.7%</td>
</tr>
<tr>
<td>Energy</td>
<td>8.0%</td>
</tr>
<tr>
<td>Health Care</td>
<td>6.8%</td>
</tr>
<tr>
<td>Transportation</td>
<td>6.0%</td>
</tr>
<tr>
<td>Education</td>
<td>5.3%</td>
</tr>
<tr>
<td>Other Expenses</td>
<td>6.5%</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td><strong>100%</strong></td>
</tr>
</tbody>
</table>

Source: Bureau of Labor Statistics

**How Is the CPI Used?**

The CPI is widely used by financial market participants to gauge inflation and by the Federal Reserve to calibrate its monetary policy. Businesses and consumers also use the CPI to make informed economic decisions. Since CPI measures the change in consumers’ purchasing power, it is often a key factor in pay negotiations.

**The Federal Reserve**

The Fed uses CPI data to determine economic policy. With a target inflation rate of 2%, the Fed may enact monetary policy to stimulate the economy should market growth slow or enact contractionary monetary policy should the economy (and therefore prices) become to grow too quickly. In response to higher-than-desired inflation rates via the CPI, the Fed adjusts the Fed funds rate.

**Other Government Agencies**

The cost-of-living adjustments (COLAs) based on the CPI affect federal payments to the approximately 70 million Americans receiving Social Security and Supplemental Security Income (SSI) benefits. They also apply to federal pension payments, school lunch subsidies, and income tax brackets.

**Housing**

Mortgage rates (and other forms of long-term debt) are often impacted by rates set by government agencies. As the CPI increases and the government enacts policy changes to slow inflation, rates often increase. On the other hand, landlords may use CPI information to adequately assess what annual rent increases for renters should be.

**Financial Markets**

Financial market prices are driven by countless factors. One such factor is the CPI, as reactionary Fed policies directly impact economic growth, corporate profits, and consumer spending ability.

A higher CPI often means that a less stringent government policy is generally in place. This means that debt is often easier to obtain for cheaper and that individuals have greater spending capacity. On the other hand, lower or decreasing CPI may indicate that the government may ease policy that helps boost the economy.

**Labor Markets**

The CPI and its components are also used as a deflator for other economic indicators, including retail sales and hourly/weekly earnings, to separate fundamental change from that reflecting
change in prices. Employees may turn to CPI reports when approaching their employers for a raise based on nationwide increases to labor rates as well as pricing.

Be mindful that the CPI is published using national data; employees may be more suited to using local data to better understand their specific situation. In addition, some workers covered by collective bargaining agreements may have their wages tied to changes in CPI.

The BLS reports the CPI on a fixed, monthly cadence. A schedule of prior and future releases can be found on the BLS website, and the CPI is always released at 8:30am Eastern Time.

CPI vs. Unemployment

In the broadest sense, the CPI and unemployment rates are often inversely related. This is not always the case in every economy, but the Federal Reserve often attempts to decrease one metric while balancing the other. For example, in response to the COVID-19 pandemic, the Federal Reserve took unprecedented supervisory and regulatory actions to stimulate the economy.

As a result, the labor market quickly strengthened and bottomed at 3.5% in July 2022. However, this stimulus has resulted in the highest CPI calculations in decades.

As a result of higher-than-targeted CPI calculations, the Federal Reserve began raising interest rates and tapering certain asset purchases. On one hand, these measures aim to slow economic growth, make it more expensive for consumers to acquire debt, and stem monetary supply growth.

On the other hand, these additional expenses may burden households and make companies less profitable. All else being equal when the Federal Reserve attempts to lower the CPI, it runs the risk of unintentionally increasing unemployment rates.

Critiques of CPI Methodology

Because the CPI Index is so crucial to economic policy and decision-making, its methodology has long been controversial, drawing claims it either understates or overstates inflation. A panel of economists commissioned by Congress to study the issue in 1995 concluded the CPI overstated inflation and was followed by calculation changes to better reflect substitution effects.

More recently, critics have claimed that adjustments for changes in product quality and features understate the CPI. According to the BLS, the particularly controversial hedonic adjustments, which use regression techniques to adjust prices for new features on a relatively small proportion of the CPI items, have a net effect close to zero on the index.

As the traditional CPI-U calculation only measures inflation for urban populations, it remains a less-than-reliable source of data for individuals living in rural areas. In addition, the CPI does not explicitly state how different demographics may be impacted by inflation. For example, soaring education costs may adversely impact younger individuals, while the impact of increasing elderly care costs is felt by a different group of individuals.

This notion is also widely attributable to individuals with varying degrees of income. For example, lower-income individuals who contribute more gross income towards necessities of shelter and food will skew differently than households with larger disposable income. For this reason, the CPI may not adequately reflect each individual’s experience in regard to costs and changes over time.

What Is the Current CPI?

The annual change in the CPI was 7.1% for the 12-month period ending November 2022. This was the smallest increase over a 12-month period since the same time frame ending December 2021.

How Is the Consumer Price Index Used?

The CPI Index is an inflation indicator closely watched by policymakers and financial markets. A related CPI measure is used to calculate cost-of-living adjustments for federal benefit payments.

How Is the CPI Calculated?

The Bureau of Labor Statistics samples 94,000 prices monthly to calculate the CPI, weighing the index for each product or service in proportion to its share of recent consumer spending to calculate the overall change in prices. The calculation also factors in the substitution effect as consumers shift spending away from the products rising in price on a relative basis. The CPI also adjusts for changes in product quality and features. The numbers are provided with and without seasonal adjustments.

What Are Some Criticisms of the CPI?

Over the years, the CPI has frequently drawn criticism that it has either understated or overstated inflation. Because the CPI is based on consumer spending, it doesn’t track third-party reimbursements for health care, and significantly underweights health care relative to its proportion in the GDP as a result. On the other hand, criticism concerning the quality adjustments used in the CPI has been widely discounted by economists.

The Bottom Line

The Consumer Price Index is an important economic metric. It measures the average change in prices paid by consumers over a period of time for a basket of goods and services. The index is calculated and published monthly by the Bureau of Labor Statistics. It is among the most common measures of inflation, indicating the health and direction of the economy. It also serves in other capacities, notably to help make adjustments to certain income payments, such as Social Security and pensions for federal civil service retirees.

Source: www.investopedia.com
DECODING THE DELIVERY DYNAMICS: THE NEED FOR AI-POWERED LOGISTIC SOLUTIONS IN POST-CRISIS

VISHAL JAIN
CO-FOUNDER AT ROADCASTMAY

LOGISTICS in a post-crisis world is about innovation and adaptation. In the past 2 years, the logistics landscape has undergone a massive makeover. The pandemic ushered in an urgency to adapt to the ever-changing consumer behavior, mobility restrictions, demand and supply dynamics, and an uncertain economy. These variables led to supply chains becoming substantially more challenging to manage exacerbated by the uncertain circumstances post Covid-19. As a result, the retail sector became more focused on supply-chain resilience with the help of AI.

As the world reeled through multiple lockdowns, AI-helped retailers hop on to the digitalization bandwagon and understand and map consumer behavior with real-time insights. Owing to the isolation the demand for hyperlocal deliveries skyrocketed. Even as we ease into the new normal, seamless hyperlocal deliveries are the need of the hour.

AI has facilitated this move, helping retailers target and engage online shoppers and manage stock and logistics down to the last step. This not only included a profound knowledge of consumer behavior but also, new-age solutions like multi-point pickups and end-to-end visibility, especially for Q-commerce. Brands went on to expand their digital reach owing to the technological advancements including live streaming and live tracking, helping them scale up exponentially.

While demand for food, personal care, and primary health care deliveries soared high, so did the D2C ecosystem. From larger corporations to small business owners to local vendors, everyone shifted towards digitization including accepting payments online and selling via Q-commerce platforms. This led to not only a growth in retail but also improved product quality due to increased competition.

User-friendly AI interfaces allowed for enhanced route planning to plan daily delivery operations taking into consideration various variables like traffic, rider availability, time, etc. From tracking live status to direct connectivity with the delivery executive, the customer experience has been exponentially enhanced.

This surge in hyper-local led to the subsequent surge in technology development for EVs. This vertical has changed the way the industry operates. Major manufacturers are now getting into EV production for logistics which has snowballed into a whole new EV revolution making cities smarter with fast-spreading EV infrastructure. This marriage between hyper-local and EV has allowed the growth of offering e-commerce logistics or hyper-local last-mile logistics, a wide range of customizable tools to automate entire workflows with AI-based order automation.

Amongst other things, AI has made it easier to deploy fleet management and logistics solutions at scale, streamlining local delivery optimization, inventory management, and warehousing.

As market volatility continues to send shockwaves through the retail sector, AI is the buzzword. From analyzing customer behavior and predicting patterns to powering automated order completion, the benefits of AI are abundant.

We remain at the center of this buzz with technology that provides a highly comprehensive platform that combines the power of IoT for vehicle tracking and a seamlessly connected driver application for delivery uberization.

Source: www.indianretailer.com
Most Supply Chain Managers Expect Problems to Continue at Least Through 2024

Lori Ann LaRocco@LORIANNLAROCCO, Key Points

- More than half of logistics managers surveyed by CNBC do not expect the supply chain to return to normal until 2024 or after.
- The dour outlook comes after almost three years of global supply chain problems.
- Bloated inventories have kept warehouses packed, and respondents said they saw a 400% increase in warehouse prices as space decreases.

When do you think your supply chain will be normal again?

 CNBC Supply Chain Survey: 61% percent say supply chain still not ‘normal’

More than half of logistics managers at major companies and trade groups say they do not expect the supply chain to return to normal until 2024 or after, according to a new CNBC survey.

Sixty-one percent of respondents said their current supply chain is not operating normally, compared with 32% that said it is functioning normally. When questioned when they see a return to normalcy, 22% were unsure, 19% said 2023, and 30% said 2024.

Another 29% said in or after 2025, or never.

The dour outlook comes after almost three years of global supply chain problems, which began with the shutdown of Wuhan, China, where the Covid outbreak began. Survey respondents said they are still placing orders six months in advance to ensure their arrival.

The survey questioned 341 logistic managers the week of Dec. 12-19 at companies that are members of the National Retail Federation, the American Apparel and Footwear Association, the Council Of Supply Chain Management Professionals, the Pacific Coast Council, the Agriculture Transportation Coalition and the Coalition Of New England Companies For Trade participated in first supply chain survey by CNBC.

Data Sharing

When asked if they believed the Biden administration understood the challenges the supply chain was facing, 59% of respondents said it did not.

Jon Gold, vice president of supply chain and customs policy of the NRF, said the administration has taken steps to address the supply chain challenges.

Earlier this year, for example, the administration rolled out a pilot supply chain data sharing program called Freight Logistics Optimization Works, or FLOW. The Department of Transportation told CNBC there are currently 46 participants in the program.

“The administration needs to remain focused and continue to convene the right supply chain stakeholders to discuss ways to improve supply chain operations and expand data sharing to create a truly 21st century supply chain,” Gold said.

Eduardo Acosta, president of the Pacific Coast Council of Customs Brokers and Freight Forwarders Association, also weighed in on the need for more reform.

“The carriers have arbitrarily imposed such charges on customs brokers, even though we may not have had any role in booking or managing the
transportation,” he said. “The survey provides data supporting the imperative for the Federal Maritime Commission to advance its proposed rule to end this unreasonable carrier practice.”

Do you believe the Biden administration understands the challenges of the supply chain?

Fifty-one percent of logistics managers surveyed said they did not believe a national supply chain data base would be created, while 22% said they did and 27% said they were unsure.

Both logistics managers and government officials have said data sharing would expedite the movement of freight, helping reduce costs and creating savings that could be passed onto the consumer.

“Hard data is the backbone of effective supply chain management, especially amidst the uncertainty shown in this survey,” Karen Kenney chair of CONECT. “Intelligence about real time cargo flows is essential. The survey highlights the need for the industry to rally around better data sharing solutions.”

Nate Herman, AAFA’s senior vice president, of policy told CNBC the problems that created the supply chain crisis are far from over.

“No is the time to double down on bringing all stakeholders together to create and implement real solutions to structural problems so that we don’t end up skipping from crisis to crisis,” he said.

Clearing warehouses

Among the biggest challenges cited by logistics managers noted in the survey were the lack of availability of raw materials, port congestion, a lack of skilled workers and dwindling warehouse space because of soaring inventories. Also cited were terminal rules on picking up and dropping off containers, late container fees (Detention and Demurrage), and canceled sailings.

“US agriculture and forest products industries are being rendered less competitive in the global marketplace, driving inflation in domestic food costs,” said Peter Friedmann, executive director of the AgTC. “The survey’s inventory of impacts of ocean carrier practices accurately reflects the experiences of AgTC members – the agriculture sector nationwide. Detention and Demurrage Billing Practices determine the cost of exporting and importing a vast amount of goods crossing our seaport docks, and thus a significant driver of inflation.”

Bloated inventories have kept warehouses packed, and respondents said they saw a 400% increase in warehouse prices as space decreases. That is benefitting consumers, with who are picking up heavily discounted items as retailers try to move out product out of the warehouses.

Scott Sureddin, CEO of DHL Supply Chain, said freight volumes were flat after Cyber Week but are now up 10% from a year ago as retailers slash prices to clear inventory.

“Customers are shopping discounts and we are seeing that in the items we are moving. It’s the higher value products like tennis shoes over a lower cost t-shirt, he said. “I have never seen inventory levels like this and after the first of the year, retailers can’t continue to sit on this inventory so the discounts they’ve been pushing will have to continue.”

Inflationary, labor pressures

Energy prices and labor are two inflationary pressures respondents said are still driving up logistic costs. Russia’s war on Ukraine followed by tariffs imposed during the Trump administration were the top geopolitical events impacting the supply chain, followed by Covid.

On the labor front, respondents said they were worried about the mental health of their workforce as well as the shortage of skilled workers, which is adding to the stress. Survey results cited these as problems: employee burn out (65%), shortage of employees with the right skills (61%) and hiring to address the skills gap (75%).

“International logistics is still a business driven by people,” said Kenney of CONECT. “The survey highlights all sorts of challenges in the supply chain, but none of those will get solved without the right talent and expertise.”

Source: CNBC
DECODING THE FUTURE OF INDIAN MSMES

CHAITALI DIXIT

The theme BW Businessworld enthralled upon was MSMES In India: The Next Chapter, is a very relevant key topic in the rapidly changing times we live in today as they are the true drivers of economic growth.

Giving a major boost to the economy, micro, small and medium enterprises (MSMEs) have always held an important position in the country. BW Businessworld hosted a virtual event on MSMEs on June 27, 2022, in recognition of their importance. The conclave touched upon the key points — digitalisation of MSMEs, the latest industry trends in MSMEs, and how they can be brought to a global scale. Earlier, MSMEs adopted the physical model to establish and galvanise their identity, but now with digital methods, sales can be increased.

At the micro and small industrial level, digital transformation is at an experimental stage. Speaking at the panel discussion on "Digitalisation of MSMEs", Anshuman Agrawal, Founder, MD, Minimac Systems, stressed the importance of technology by saying, "When you have a startup, you need a scalable model, which is not run by a single professional but multiple professionals, and in such a scenario, digitisation is inevitable."

Adding further to this topic, Ketan Patel, Chief Executive Officer (CEO) at Msstripe Technologies said that if startups are not digitally present, they will not be provided loans by the formal sector. Moreover, digitalisation helps with transaction data. Taking the discussion ahead, NildariBasu, Founder of Enkebee, talked about the challenges faced by MSMEs in rural areas. He said, "Rural areas face difficulties connecting to the network and because of this, people cannot have access to the technology. It is an important, user-friendly interface."

At the same panel, SanatSatyan, Director, Credithwatch suggested that the founders of MSMEs should address the feasibility of the product with data, reach out to merchants and potential customers, test their product effectively, and then find a viable solution. Adding on, he said that there is enough comfort in the system to ensure cyber security is taken care of.

In a "Fireside Chat" with SrinathSridharan, Corporate Advisor, he shed light on the status of MSMEs during the pandemic. Sridharan said, "MSMEs have not fully recovered from the pandemic. The economy is growing and is on the rise, but it has not been inclusive enough to take MSMEs along. The issues of working capital and overdue receivables have been of concern. Both the centre and the states are equal stakeholders in the MSME sector. MSME is all about appreciating the local sector."

Sridharan also mentioned an interesting programme — the Ramp Programme for MSME — which was announced in the Union Budget.

Sridharan added, "For the domestic market, MSMEs and SMEs can have an equal voice on digital platforms. The government should set up digital programmes for the domestic market to help them adapt to the digital system."

When asked how MSMEs can grow in sustainable development, Sridharan responded that MSMEs should map industry trends; the government should provide them with knowledge about material sciences and associated product capacity; provide financial incentives for sustainability practices; and if banks or financial systems look at the GST credits that MSMEs have in their banks, they can actually lend them financial aid.

The conclave also featured a panel discussion titled "Time for Indian MSMEs to Go Global," in which KalyanBasu, Director-Vayana (IFSC) and EVP-Vayana Network, stated that "96 per cent of Indian MSMEs are micro industries; they must be globalised in order to reach out to foreign markets."

"We underestimate the resilience of the MSMEs. They are more agile than many corporations. Indian entrepreneurs and managers are smarter than many other countries. This is our competitive advantage. That’s the reason most of the world’s CEOs are from India, said Dhiraj Agarwal, Co-Founder, Campus Sutra. Earlier, most brands wanted to sell directly to their customers. E-commerce was thought to be only suitable for large companies. However, the ecosystem today is shaping in such a way that one can directly sell products to its customers. Things are going to reverse soon. The ones who have a stronger business model can definitely sustain in this environment, commented Akash Gehani, Co-Founder, Instamojo.

Srinivas Chundru, Founder, Vmentor.ai said, “There should be innovation in funding. The whole world is moving towards sustainable digitisation now.” Having a similar opinion, Basu said that MSMEs should get funding not only from Indian banks but from global firms too.

Source: www.businessworld.in
SMART SOLUTIONS FOR MANUFACTURERS

Smart factories will change operations and can transform products’ manufacturing due to their efficiency, competitiveness, and sustainability. Different Taiwanese manufacturers are implementing smart factories. A key sales engineer at Yeong Chin Machinery Industries Co, Ltd (YCM), a leading Machine Tool manufacturer in Taiwan, Hank Wu, explains some of YCM’s most pertinent smart manufacturing offerings.

Founded in 1954, YCM specializes in machine tool manufacturing. YCM machine tools have been recognized worldwide for superior precision, outstanding rigidity, and exceptional reliability. With 68 years of machine tool manufacturing experience, the company has established a strong foundation in the field of machinery. It boasts a 164,160 m² factory area and main facilities including a foundry, machine shop, assembly plants, a warehouse for packaging, R&D, a tech center, an application center, and MIS.

With more than 70 different product models, including its main offerings of Vertical Machining Centers, Horizontal Machining Centers, Double Column Machining Centers, 5-Axis Vertical Machining Centers, and CNC Turning Centers, it also has CE and certifications for ISO 9001, ISO 14001, and AS 9100:2016.

The company has almost 70 years of experience making machine tools, and its YCMPS product model promises ‘sustainable development’, allowing YCM to become the best machine tool manufacturer in the world. YCMPS, based on the Toyota Production System (TPS) and lean management concepts, is motivated to produce equipment from metal casting to machining, assembly, quality control, packaging, and all the way to shipping.

**YCM aims at smart manufacturing**

The coronavirus (COVID-19) outbreak has already led to a major health crisis in several countries and major disruptions in the global economy. It is expected to cause a major reshuffling of the global production network. As a result, the pandemic is speeding up the adoption of automation and localization of production.

However, this pandemic is both a challenge and a turning point. Many companies are realizing how critical digital transformation is, especially with the rapid evolution of technologies such as Artificial Intelligence (AI), Big Data, Cloud Computing, the Internet of Things (IoT), and 5G.

Based on the principle of Toyota Production System (TPS) and lean management concepts, YCM provides innovative smart manufacturing solutions, enabling customers to adopt smart automation, smart machines, and smart management, allowing optimized production and efficiency, resulting in higher profitability.

**Smart automation**

By integrating industrial robots, intelligent machine tools, automatic measurement, statistical analysis, and central control systems, YCM is capable of providing automated solutions designed to improve production output with less manpower and facilitate improved collaboration between humans and machines.

**Smart machines**

Another key element of YCM’s Smart Manufacturing solutions is smart machines. YCM introduced its own intelligent HMI iCube
with an intuitive and user-friendly graphical design interface to add intelligent functionality to the standard features of Fanuc, Siemens, and Heidenhain controllers, providing customers with an enhanced and efficient operating experience.

The smart functions are embedded in the software for YCM machines to allow machines to rough machine faster while providing improved profile accuracy during the finishing process. YCM also provides value-added analysis of the machining process to optimize the machining parameters to achieve faster machining with better surface finish and tool life.

**Smart management**

Plant managers and owners can smartly manage their shops by applying DZ Connect. This system will connect all your equipment and provide real-time analysis of live data from the production environment.

The system gathers information on real-time operations and acquires data including equipment utilization and overall equipment effectiveness (OEE) rates; this enables managers to monitor and manage entire factories, instantly check the status of production, quickly identify and eliminate bottlenecks in the production process, and optimize production for maximum efficiency.

**Smart Machines iCube**

**Develop customization and create differentiation**

In today’s manufacturing world, there is an increasingly complex competition in the global market. Companies can no longer afford to compete based on pricing or cost strategy; they also need to consider how to improve their products and services in terms of value creation, customization, and differentiation. For this reason, YCM is dedicated to developing technology and equipment to help customers continuously improve their competitiveness and achieve sustainable growth.

By adding value through advanced applications and intelligent solutions, we can offer total and customized solutions to end-users based on their requirements through research and planning from customer situations.

As companies are now moving towards upscale production, the challenges ahead will be increasing productivity with limited resources, especially skilled labor. YCM is dedicated to developing technology and equipment to help customers continuously improve their competitiveness and achieve sustainable growth.

**UV650-FlexCell**

Equipped with a robot, the flexible manufacturing cell offers automatic side loading and unloading from part storage to the machine. It is ideal for shops that don’t have a lot of space but want maximum productivity right out of the box. Thanks to the flexible design, the part storage, drawer unit, automatic measuring system, and more can be adjusted in response to changing demand patterns, providing excellent flexibility and practical value that is suitable for various types of machines.

The advanced UV650 5-axis vertical machining center provides excellent cutting performance and high accuracy for simultaneous 5-axis applications with just one setup. Designed to reduce part handling, setup, and overall lead-time, while improving part quality, precision, and surface finish of complex shapes and contours required for multiple industries such as job shop, medical, aerospace, and die & mold.

**Source:** Yeong Chin Machinery Industries Co, Ltd

**Source:** www.mmindia.co.in


INDIAN GOVT WORKING HARD TO MAKE MSME SECTOR STRONGER

The micro-small and medium enterprises (MSME) are among the most important pillars of the Indian economy and the government is working to make the MSME sector stronger and more developed, going forward.

The micro-small and medium enterprises (MSME) are among the most important pillars of the Indian economy and the government is working to make the MSME sector stronger and more developed, going forward.

BhanuPratap Singh Verma, India’s junior minister for the MSME sector said, “We will also work to ensure that interrelationship between the MSME sector and other important pillars of the Indian economy are further strengthened as India grows.”

He urged the industry and other stakeholders to work with the government to make India a $5 trillion economy along with becoming self-reliant. He said that there are 6.3 crore MSMEs in the country which are providing 11 crore jobs.

“MSMEs contribute around 30% to our GDP and have a share of 50% of the income generated from total exports,” he said.

Indian MSMEs are also looking for export markets worldwide. The Minister added that the government is taking continuous steps to strengthen Indian MSMEs and the PMEGP (Prime Minister’s Employment Generation Program), launched last financial year, was a step in this direction.

Under this scheme in the year 2021-22, a total of 1.03 lakh new units have been set up in the manufacturing and services sector. “In the last 14 years, this is the first time that new unit’s number has crossed the 1 lakh mark and since inception in 2008, the program has generated around 8.25 new jobs,” he added.

The government, Verma said, is also working to ensure that by taking advantage of the full potential of the MSMEs, their contribution to the Indian economy should double.

“For this, we will ensure to remove the external barriers and provide strength to MSMEs in order to make India self-reliant. We are also working to develop the culture of becoming entrepreneurs in the youth, provide loans to MSMEs, improve their quality, and increase their competitiveness to increase their efficiency,” he added.

The Minister further stated that the MSME ministry is setting up various technology centers across the country to support and strengthen the existing and new MSMEs. Apart from this, the government is also working with other organizations to help the MSMEs under the ‘ZED’ certification scheme (providing technology upgradation and quality certification), ASPIRE scheme to promote quality and innovation, Design Clinics, etc.

“The government has also launched the Champion portal which will provide all solutions at one place, and we will further promote the portal to make MSMEs more competitive. Through these schemes, we hope MSMEs will become more sustainable,” he added.

Micro, Small, and Medium Enterprises (MSMEs) form the cornerstone of the Indian economy. The MSME sector in India has exhibited strong performance and protected the economy from global adversities and shocks. It is estimated that there are 633.9 lakh MSMEs in India. The Micro sector includes 630.5 lakh enterprises, accounting for over 99 percent of the country’s total number of MSMEs.

The small sector includes 3.3 lakh enterprises (0.5 percent of total MSMEs), while the medium sector includes 0.05 lakh enterprises (0.01 percent of total MSMEs). Around 324.9 lakh enterprises (52.3 percent of total MSMEs) are in rural areas, while 309 lakh enterprises (48.8 percent) are in urban areas.

The Indian MSME sector provides a crucial employment opportunity with low capital requirements. The sector helps uplift the country’s rural and less developed areas, reducing regional imbalances and inequality. Moreover, the sector is complementary to large companies and industries, providing them with the necessary parts and components. All these factors make the MSME sector crucial in the country’s socio-economic development.

The MSME sector is one of the country’s major employers. Setting up an MSME would provide owners with a job, helping them avoid hunting for jobs elsewhere.

It also enables them to create employment opportunities for others. The sector has been instrumental in generating employment opportunities in rural and remote areas of the country. As per the data from the Udyam Portal of the Ministry of MSMEs, 93,94,957 people were employed by MSMEs registered on the portal in FY 22.

Source:www.livemint.com
STRENGTHENING THE SUPPLY CHAIN
India Inc must discover where investments are needed
DEEPAK SOOD, SECRETARY GENERAL, ASSOCHAM

The disruption in global supply chains in the wake of the Covid-19 pandemic has created a challenging situation for countries across the globe. Many nations have witnessed severe shortages of goods and commodity prices have shot up. This has adversely impacted countries across the world as well as India.

While the situation sounds grim, it offers India with a lifetime opportunity to strengthen its manufacturing prowess and position itself as a critical hub in global value chains.

In fact, in May 2020, when the country was in the throes of the pandemic, Prime Minister Narendra Modi, in his address to the nation, shared his vision of an ‘Amanirbhar Bharat’ or self-reliant India to strengthen the country’s social and economic pillars. He defined the economy, infrastructure, system, demography, and demand as the five pillars to build the “new normal.”

Slew of reforms

In terms of investment, the Government undertook a slew of reforms which has made India a much more easier place to do business. Easing of FDI norms and opening up of sectors such as defence and manufacturing, agricultural reforms, and progressive labour laws, along with initiatives in the infrastructure sector such as the launch of the National Infrastructure Pipeline (NIP), will greatly boost Indian engagement with overseas companies.

Due to the gradual liberalisation of its FDI policy, and robust domestic economic performance, India has attracted higher FDI flows. For the corporate sector, this is a crucial time when they must develop strategies to re-engineer themselves and become an integral part of global supply chains.

As the economy revives, business leaders in India need to make quick decisions to sustain business operations to serve the interest of their customers, clients and employees. Hence, to manage the impact of Covid-19 on India’s supply chains, resilience and responsibility are needed by corporates to tackle financial and operational challenges.

Among other things, companies must use this challenging period to discover where investments are needed. For instance, in supply chain procurement, areas for immediate attention would be to develop a revitalised digitally powered procurement operating model and new systems of functioning with the entire supplier ecosystem.

Also, there is a need to minimise wastage in terms of expenditure and be able to save cash for future growth measures. Investments must be made to bolster infrastructure for supply chains to enable a strong supply chain management system, which would be in sync with the current global scenario.

Companies need to adopt cognitive planning, AI-driven predictive analytics, advanced track and trace, and blockchain technologies to be an effective part of global supply chains.

Notably, it is significant to check and validate Business Continuity Planning (BCP). Covid-19 was an unprecedented event. In the pre-coronavirus pandemic era, businesses were not designed for such disruptions. Corporates must understand that inadequately planned or costly BCPs will fail to support any business. Hence, they need to calculate to safeguard cost, customer service, financial impacts, and risk factors.

During the pandemic, customers’ buying behaviour changed as online buying became popular. The traditional demand patterns of the past are now old fashioned. Customer expectations have changed as they think anything ordered online can be returned. Therefore, businesses need to plan to significantly enhance the return on investment of any future financing in supply chain infrastructure.

Significantly, Indian businesses need to plan investments for new technologies and additional logistics commitments, offering them as variable cost solutions for flexibility and cost control. Consequently, building a more diversified and robust supply chain with greater potential for risk and cost mitigation in the future.

As can be observed, the time is ripe for Indian Industries to augment investment in critical sectors such as electronics and find ways to tap into the global value chains.

Source: www.thehindubusinessline.com
MSMES: ENGINES OF GROWTH FOR NEW INDIA

From easing access to credit to leveraging the PLI scheme, MSMEs can tap into a range of policy initiatives

In November 2021 the government announced the Special Credit Linked Capital Subsidy Scheme for the MSMEs (Micro Small and Medium Enterprises) in the services sector. The scheme has a provision of 25 per cent capital subsidy for procurement of service equipment through institutional credit to the SMEs for advancement of their technology.

In July 2020, by redefining the MSMEs, the Finance Minister addressed the ‘fear’ of MSMEs losing their benefits under various schemes if they expanded.

Accordingly, a firm is classified under MSME — Medium category, if its investment in plant and machinery or equipment does not exceed ₹ 50 crore and its turnover does not exceed ₹ 250 crore. This policy change certainly gave a ‘comfort zone’ for the MSMEs.

It is well established in literature that Indian MSMEs were discouraged from scaling up their operations mainly due to regulatory limits on their assets.

Also, MSMEs face legacy issues such as information asymmetry, non-registration of firms, inadequate and untimely credit, delayed receivables, technological obsolescence, negligible market linkages, absence of exit policy, etc.

As the MSMEs contribute around 30 per cent to India’s GDP, employ about 11 crore people, constitute nearly 40 per cent of total exports, and more than half of them are located in rural India, the government is keen to rev up this sector to achieve inclusive growth thereby attaining self-reliance (Atmanirbhar Bharat).

An analysis of CMIE Prowess database reveals that the Indian MSMEs mainly rely on unsecured loans and take few long-term loans for capex. This is further corroborated by the research finding from a recent study (NIRDPR, 2021) that nine out of 10 MSMEs depend on informal sources (mostly unsecured loans) for their working capital and term loans.

Lack of sufficient asset cover (collateral) discourages them from taking secured loans at lower interest rate and hence they have to rely on unsecured loans at higher interest rates. This dents profitability and economic viability of their businesses.

After a gap of 14 years, the government revised the definition of MSMEs by factoring in inflation and depreciation of the Rupee vis-à-vis other currencies between 2006 and 2020. In January 2006 the USD/INR was quoted at ₹ 45 and it depreciated to nearly ₹ 71 in January 2020 (58 per cent). This made the MSMEs to operate at a low scale by creating subsidiaries/sister concerns/Export Oriented Units with a view to receiving incentives from the government.

According to the new definition, export revenue is deducted from total sales while estimating the turnover of MSMEs, which is a positive sign not only for the sector but also for exports. Since the old MSME definition had a regressive effect on the firms’ exports, expansion plans and employment generation, the new policy is expected to act as a catalyst for development of ‘new India’.

In order to reap intended benefits of the new
policy, the government can focus on the following issues:

(i) **Ease of doing business:** MSMEs should have better access to efficient factors of production through industry-friendly labour reforms, proper land acquisition policy, free access to capital, vibrant entrepreneurship culture, modern technology, enabling infrastructure, and simplified tax policy.

(ii) **Export of services:** The world is moving towards a clean, green, and lean corporate regime to achieve the triple bottom line — Planet, People, and Profits. Since India has a comparative advantage in services sector, entrepreneurs of MSMEs may be re-oriented in this direction to enhance export of services by capitalising on the revised definition. However, balanced growth of agriculture, manufacturing, and services may be maintained by leveraging demographic dividend.

(iii) **Leveraging PLI scheme:** Recently, the government introduced Productivity Linked Incentive Scheme with a total outlay of ₹1.97 lakh crore to boost 13 industry sectors with a view to harnessing Make in India, thereby enhancing our manufacturing prowess and export potential. As part of this, the government announced three schemes for automotive industry wherein manufacturing of electric vehicles will be incentivised to reduce carbon footprint, import of fuel, and enhance competitiveness and growth.

(iv) **Promoting start-ups:** According to Nasscom, India has 66 unicorns till date and is still counting. With a market capitalisation of $18 billion, Byju’s has become the largest and most valuable Edu-tech company in the world. Similarly other decacorns namely Paytm, and Flipkart have market capitalisation of over $10 billion mainly due to burgeoning domestic market, massive funding opportunities, and evolving technology. As such, MSMEs with innovative ideas should be nurtured with right incentives and be freed from the bureaucratic maze.

(v) **Market linkages:** The Covid-19 crisis should be converted into an opportunity by going digital. There should be a virtual platform exhibiting crafts, handlooms and frugal innovations of MSMEs, to reach out to the broader national and international markets thereby enhancing their revenue. As most of the MSMEs don’t have adequate market linkages and branding for their products/services, the government may promote (RURBAN) clusters thereby building synergy and sustainable value chains in the ecosystem.

(vi) **Emulating best practices:** Turkey has introduced ‘TURQUALITY’, a state sponsored scale up programme meant for SMEs to transform themselves into global players. Another such initiative is ‘Growth Driver Programme’ of Business Development Bank of Canada to provide multi-disciplinary support system in terms of enterprise growth and job creation in SMEs.

(vii) **Financial literacy and education:** MSMEs should be imparted with financial/digital education to make use of digital channels including TReDS platform for speedy realisation of their receivables. Also, MSMEs should be trained to utilise the services of SME stock exchange in order to mobilise risk capital for growth plans.

Policy support in the above areas will make MSMEs as engines of growth for ‘new India’. After all, a resilient and healthy MSME sector is essential for achieving the goal of self-reliant India.

Srikanth is Associate Professor and Director (Finance), DDU-GKY, National Institute of Rural Development and Panchayati Raj, Hyderabad, and Suresh is Associate Professor, ICFAI Business School, Hyderabad. Views expressed are personal.

Source: Businessline
HOW MOBILE TECHNOLOGY IS HELPING LOGISTICS AND SUPPLY CHAIN SECTOR TO EVOLVE?

Over the past few years, the transport and logistics industry has adopted mobile technology to improve their processes and operations. This sector is no different from others because now, it is greatly under the influence of digital technologies. From the time digital technology is introduced in the logistics and supply chain industry, the sector has evolved dramatically. By keeping the growing competition, complexities, and ever-changing consumer demands in mind, several user-friendly mobile applications are developed by IT experts and are used by many top companies that are offering transportation services in India.

Logistics companies have already realized that by using mobile technology, their business can achieve greater visibility in their supply chain performance. They are trying to identify different opportunities to gain efficiencies and cut down costs. Logistics and transport agencies work in an environment that calls for improved and more efficient management of the supply chain. Workers in these firms are required to work from onsite as well as off-site locations. So, these companies prefer to use smartphones with some important features such as barcode and label printers, built-in cameras, scanners, GPS, Near Field Communications (NFC), Voice Recognition Software, shared logistics networks RFID tags, etc.

Why transportation service companies should invest in mobile app development for the supply chain?

Mobile app development for the supply chain ensures an integrated mobile fleet solution to have live tracking of goods. It will enable the mobile team to get adequate assistance from IoT to get the right information in multiple transitory touch points.

One of the major benefits of using mobile technology in the supply chain is that it helps in optimizing inventory management system that enables the faster movement of goods and reaches customers’ doors timely. Doorstep delivery mobile applications suggest the best routes for faster movement of goods and also help in locating customers using GPS coordinates. In overall, making it easier for the mobile fleet operator in finding the precise location and deliver the goods on time.

Many logistics companies are realizing the benefits of implementing mobile apps in their supply chain, but still, there are some agencies providing transportation services in India, have a dilemma whether to invest in mobile app development or not. Such companies can compensate for the cost of mobile app development for supply chain management by getting advantage from improved supply chain visibility, mitigating errors, shrinking down the lead time, and optimizing transportation networks resulting in improved inventory management.

The real-time data is fed or updated continuously to the dynamic optimization engines that have the core of supply chain management. Therefore, mobile apps not only suggest optimal routes but also it provides some real-time insights to vehicles and driver performance to the shipper. Furthermore, it aids in measuring the productivity and efficiency of each network involved in the complete supply chain. With mobile technology, logistics companies can create an entirely new standard for vehicle communications, by adding new levels of ease and sophistication. This offers an environment for companies to offer transportation services in India that is going beyond the four walls of the warehouse to deliver.

Mobile technology has changed the dynamics of the logistics and transport sector. Read below to understand how friendly and intuitive mobile apps have helped this sector to evolve. You can also check top trends rule supply chain management in 2020 if you want to deeply understand the role
of mobile technology in the supply chain industry –

Helping in managing valuable human resources!

Workforce plays a crucial role in a company with little to no room for negligence and mismanagement, especially at some crucial touch points. For this, organizations emphasize on right training, communication, and modifying organizational structure as and when needed. Mobile technology allows companies to effectively integrate different human resources in numerous departments to deliver secured information that runs throughout the organization. However, the cost goes a little high to take care of these resources, but it also reduces worker fatigue and hence improving their overall productivity in working hours.

Shipment tracking systems!

Earlier, customers used to get an estimated delivery date on booking their shipment and then were left in the dark with no updated information, unless they decided to make a phone call for further inquiry. Today, mobile technology allows the shipper to provide real-time location regarding the shipment to customers and keep them updated about the progress. Customers can also access shipping and tracking features 24/7. Not only this improves the user experience, but also saves time and money for the company as well.

Eliminating data redundancy!

When there were no mobile apps for logistics and supply chain, the data redundancy rate was higher as manual entries created a hard time for heads of the respective departments. The data discrepancies due to human error made the whole supply chain system devoid of reliability to an extent that only back-office systems were to be relied on. With mobile app development and its implementation in the logistics sector, the data entered reflects immediately. This reduces the chances of human errors and boosts the entire process with utmost data reliability.

Quick and flexible delivery process!

Using mobile solutions, companies involved in supply chain management and transportation service can change delivery schedules as well as routes on the go which means amazing flexibility to the organization. Improving the control of their supply chain operations increases customer retention and provides opportunities for new levels of an alliance between logistics providers and customers. With mobile app solutions, logistics companies can improve their supply chains with real-time data which enables drivers to inform any delay. Companies can improve their dispatch operations, record keeping, inventory management, tracking goods, inspections and more with real-time data. As a result, they can enhance their supply chain operations.

Time-saving and reduce costs!

Logistics mobile apps allow you to optimize routes for each driver reducing fuel expenses. These apps can simplify major functions to improve driver efficiency. Weather update and traffic congestion alerts on the driver’s phone can help him to take the best route to reach the destination on-time. This way it helps the organization to operate more efficiently at the same time reducing operational costs.

Easy and timely dispatch of work orders!

Companies implementing mobile technology in their business can speed up processes and work orders. Using inventory software, they can optimize dispatches and routes. They can also manage rides, minimize miles driven and increase revenue. Logistics is not only about moving and delivery of the goods, but it is also about effective warehouses management. The software allows you to store all the inventories received at the warehouse and dispatched to the final destination. These apps will make it easier to store goods and locate the inventory easily because all the information will be in a database.

The transportation and logistics industry spend money hugely on auto parts, vehicle insurance, fuel, maintenance, and more. Investing in advanced mobile technology is the key to improve the operation, workflow and productivity of the transportation company and garner other amazing benefits. To empower your business in the transportation industry and take it to next level, implementing mobile technology will be the suitable choice.

Source: TruckGuru
HOW PREDICTIVE ANALYTICS CAN IMPROVE SUPPLY CHAIN OPERATIONS IN THE INDIAN HEALTHCARE SECTOR

SEJUTI DAS, SR. TECH JOURNALIST

In the last decade, Machine Learning has come roaring out of the textbook to become an integral part of the healthcare industry. In addition to contributing to the increased efficiency of routine administrative procedures and reducing operational costs, it is also beneficial for managing the supply chain and logistics.

The Indian healthcare sector is expected to reach 19,56,920 crore ($280 billion) by 2020. Rising income level, greater health awareness, increased precedence of lifestyle diseases and improved access to insurance are set to be the key contributors to its growth. The report also states that spending on AI in healthcare is projected to grow at an annualised 48% between the year 2017 and 2023.

Buying supplies, medicines, and equipment to support better health outcomes has been a large component of spending, and the healthcare providers spend a huge amount of their operating costs on such supplies and inventory management. Researchers noticed that a sophisticated and structured supply chain management can help healthcare providers to reduce their expenses by an average of 17.7% or $11 million annually. Therefore, the need to reduce costs and optimise supplies to provide a better outcome has never been more urgent. That is why many Indian healthcare providers are now turning to AI and ML-powered techniques for processing their patients’ data and creating a smoother supply chain operations.

Global Players: Programs such as IBM’s Watson for Oncology, Microsoft’s Al focussed network for cardio related diseases and Edison AI and Analytics by GE Healthcare provides extensive analysis using the medical data helping doctors to prescribe the best course of treatment for their patients. Along, startups such as Onward Health, Advancells, Artelus, Liv Health to name a few also aim to bridge the gap in health tech.

The technology can help hospitals to gather unified data that can identify patients’ behavioural patterns to predict risk scoring for chronic diseases and design speedy admission and discharge protocols. Healthcare providers can use the provided data to send additional reminders to patients who are at risk of a no-show and provide them alternatives suiting their needs.

Predictive models can also assist in the maintenance and repair of medical devices. Philips, one of the premier players in medical device equipment, is one of the prime examples of leveraging these trends in order to create an advanced supply chain solution including remote upgrade and predictive maintenance. The aim was to reinvent the medical device supply chain by focusing more on diagnostic-as-a-service. The company can now remotely identify imaging system errors of the hospitals, diagnose the cause, and troubleshoot it in realtime to implement repairs, which in turn reduced the downtime to 0.1% for hospitals.

Kishore Bala, Chief Technology Officer, Syft, a national provider of healthcare inventory control, stated in a blog post, “This is a serious motivator for healthcare leaders, who are turning to sophisticated technologies like AI to help standardise processes and reduce these expenses. ML is proving to be especially valuable in supply chain applications after being used extensively in the areas of imaging and population health.”

Prediction Is The Key: In this competitive era, tracing the supplies and goods with GPS and codes is not enough. The healthcare providers are required to use ML algorithms using predictive analytics to analyse the data to detect patterns in their supply chain which can suggest the factors responsible to enhance the supply network. With the provided data, the machine can monitor the production, plan the inventory of drugs and equipment, and can create a smooth network for the supplies.

The combination of predictive analytics and real-time monitoring is not only helping scientists and researchers to find cures but can also help practitioners to determine optimal treatment methods for returning patients. Hospitals can now obtain a more accurate picture of their patient’s health trends and create better treatment procedures according to their requirements. Connecting predictive analysis to supply chain management not only provides transparency of products moving through the network but also streamlines the process of administration.

Rajendra P Patankar, Chief Operating Officer at Nanavati Super Speciality Hospital believes that AI is poised to play a major role in the healthcare industry. He stated, “With modern medicine facing a significant challenge of acquiring, analysing and applying structured and unstructured data to treat or manage diseases, AI systems with their data-mining and pattern recognition capabilities come in handy.”

Outlook: Due to increasing competition among healthcare providers, strict government regulations, rising medical costs, and the demand for optimal quality of service have put enormous pressure on the whole industry. An enhanced and more structured supply chain analytics solution can help with all of these problems. It will become easier for healthcare providers to identify smoother networks, manage inventories, find better suppliers, to determine optimal order quantity, and increase ROIs.

The scope for AI and ML to enhance the healthcare industry does not end here. Researchers believe in the future ML clubbed with analytics will newer trends leading to path-breaking innovations in the healthcare supply chain management.

Source: analyticsindiamag.com

38 | February 2023
MSME SECTOR IN INDIA:
POTENTIAL AND FUTURE PROSPECTS

PANKAJ TYAGI, WRITER

MSME sector is acknowledged as the prominent pillar of the Indian economy owing to their massive contribution to GDP, exports, and job creation. In India, most small and micro enterprises belong to the agro and food sectors. On the contrary, the medium-sized enterprises belong to the pharmaceutical, auto, and chemical sectors. The MSME sector has been working in coordination with several state governments, ministries, and stakeholders to boost Indian’s Rural Economy.

Analyzing The Prowess Of MSME Sector In India

- Presently, India has around 6.3 crore MSMEs. According to the date of the MSME Ministry, as of Nov 26, 2021, the MSME registration portal (previously known as the Udyam Registration portal) registered 5,767,734 MSMEs. The bifurcation of the registration figure is as follow:
  1. Micro-enterprises = 5,441,220
  2. Small Enterprises = 293,555
  3. Mid-sized enterprises = 32,959
- The MSME sector contribution toward the nation’s GDP\(^1\) stood at 29 percent. This growth is credited to the ever-increasing demand in domestic as well as international markets.
- The BSE SME platform is projected to witness more than sixty small and medium enterprises entering the market in one year (FY 2021-22) to bring up equity funds catering to business needs.
- The initial public offering route has seen 16 SMEs making market entry; they procured Rs 100 crore (US$ 13.74 million) in 2020.
- MSMEs are being incentivized to trade their offerings on the e-commerce portal, especially via GeM i.e., Government e-Marketplace. It is a government-backed portal that enables Ministries and PSUs to source their procurement.
- As on Nov 26, 2021, the GeM portal has secured around 8.16 million orders worth Rs 159,483 crore from 3.1 million registered sellers. The said quantum of order had served more than 55,929 buyer organizations.

How Is MSME Sector Boosting The Indian Economy?

- The MSME sector is giving a much-needed boost to the Indian Economy. Around 63 mn MSMEs operating pan India contributed 30.5% to the nation’s GDP in FY 2019 and 30% in FY2020.
- It has also created ample job opportunities across different sectors. As per the Ministry of Statistics & PI data released in 2016, the MSME sector had created around 111 million jobs in India.
- When contrasted with the large entities, MSMEs have played a prominent role in the industrialization of rural areas without conceding too much capital cost.
- The sector has made considerable contributions to the nation’s socio-economic growth and supported prominent industries. Presently, the MSME sector accounts for 40 percent of the nation’s overall export and around 25 percent of GDP from the service sector.

Potential Stimulants That Is Helping MSME Sector Grow At Healthy Rate

Amicable industrial policies: Relaxed industrial policies have played a key role in boosting the MSME sector in India. The amicable norms pertaining to labor and regulatory requirements have enabled this sector to grow healthy.

Encouragement of FDIs: The influx of overseas players has poured considerable investment into the MSME sector. This aids MSMEs in adopting better technologies and resources, thereby ensuring improved productivity and competitiveness in the given marketplace.

Technology: The advent of cutting-edge technologies and improved production methods have aided MSMEs in improving their overall supply chain and productivity.

Access to capital: Several credit schemes launched by GOI are backing up MSMEs with adequate financial support to meet productivity needs with ease and maintain a healthy interplay with suppliers.

The government schemes like Credit Linked Capital Subsidy and Credit Guarantee Trust Fund for Micro & Small Enterprises are presently in action and facilitating easy funding without any hassle.

Analyzing Government’s Efforts To Promote MSME Sector In India

Intending to speed up the growth of the MSME sector in India, GOI has released the following schemes and
policies to serve such a purpose.

Prime Minister Employment Generation Program (PMEGP)

PMEGP aims at strengthening employment standing in the rural region of the country. For this purpose, the scheme facilitates necessary fiscal aid (within a given threshold of Rs 10 lakh-Rs 25 lakhs) to the upcoming project in rural areas. This will aid in preventing the migration of rural youth to urban areas.

Credit Guarantee Trust Fund For Micro & Small Enterprises (CGTMSE)

CGTMSE is a joint initiative of SIDBI and MSME ministry. The scheme ensures the availability of collateral-free credit for micro and small industries operating pan India. Access to the said scheme is available to existing and new entities that belong to the MSME sector.

Interest Subvention Scheme

This RBI-driven scheme focuses on deducting interest rates over the new and incremental term loan acquired by MSMEs. As per Interest Subvention Scheme, the relaxation of 2 percent shall be provided to all MSMEs over the said loans.

Credit Linked Capital Subsidy Scheme (CLCSS)

The government introduced CLCSS two decades back to facilitate Technology Upgradation to Micro & Small Enterprises. The scheme seeks to render technology upgradation to SSI units in a particular product category via induction of robust and advanced technologies for which the government extends capital subsidy.

NABARD, a government institution, is assigned as a frontline nodal agency under the scheme for channelizing subsidy via Commercial Banks, RRBs, and Cooperative Banks.

The GOI has also rolled out various policies to boost the MSME sector in India. Key policies include:

- SAMBHAV, a national-level awareness initiative to incentivize economic growth
- Collateral-free loans up to Rs. 3,00,00,000 crore for the MSME sector to procure raw materials, fulfill operational liabilities & restart business
- Empowering MSMEs to retain more business opportunities by mitigating unfair competition from overseas players. Given this, the finance ministry has disallowed foreign players to participate in government procurement tenders worth up to Rs 200 crores.
- Enabling MSMEs to maintain consistency within the production and entire supply chain by penalizing public sector units failing to clear MSMEs dues within 45 days timeline
- The GOI has also rolled out various campaigns such as Startup India, Skill India, Made in India, and Digital India to promote the sector’s growth and improve productivity.

Role Of Digitalization In The Growth Of MSME Sector

- The MSME sector has witnessed remarkable development over the past few decades, despite the lack of advanced technologies.
- It has capabilities to scale up through smart use of technology and deployment of e-marketplace and digitalization in manufacturing processes. GOI has taken an array of measures in this regard. These include;
  - The MSME ministry has outlined a plan to digitize the overall administration system to make it more effective, secure, and result-oriented.
  - The ministry has invested Rs 200 crores in setting up 20 tech facilities and Rs 20 crores for 100 extension centers.
  - The sector has witnessed a sharp spike in growth owing to increased internet penetration and consumers’ inclination towards digital payments, supported by B2C e-commerce players.
- MSMEs are establishing strategic collaboration with Fintechs to access hassle-free financing.
- Digitalization shall instill transparency across the supply chain & enable MSMEs to scale up operations.

Conclusion

India is most likely to become a 5 trillion Economy by FY 2025, and MSMEs shall play a pivotal role in this regard. To attain this monumental figure, the MSME sector must have an adequate and consistent backup of funds and resources. Needless to say, the government has to play a vital role in this regard by providing necessary aid and scheme to this sector.

The government is making a constant endeavor to incentivize this sector by introducing export-based initiatives and other growth-driven schemes. The sector is yet to achieve its full potential despite witnessing consistent growth in the past few years. This slow surging growth is mainly attributed to dependence on lackluster technologies, reluctance to boost R&D activities, and lack of quality standard certification. The schemes like ‘AatmaNirbhar Bharat’ have witnessed a considerable push towards boosting home-grown industries via an array of measures such as subsidies, incentives, and fiscal aid. The ultimate objective is to improve the manufacturing & export potential of domestic firms so as to put them at the center stage of global supply chains.

Source: Corpbiz
The number of potentially disruptive technologies in logistics is daunting.

This makes it difficult for supply chain businesses to know where to look.

Blockchain, IoT, automation and data science should be first on their list.

A stute business leaders discipline themselves to be on constant lookout for disruptive new technologies. They foster an internal business culture that is able to evaluate promising technologies through a continuous cycle: Watch > pilot > partner > adopt or discard.

In logistics, as in many other sectors, the number of potentially disruptive innovations is daunting. It includes everything from augmented reality and big data to autonomous vehicles and 3D printing. Even the most agile businesses can’t test or pilot everything, so what’s the right approach?

For companies with goods to move, there are several technologies that bear watching and four that every party in the supply chain should be testing at some level. These four are the BIRD technologies – blockchain, the internet of things (IoT), robotic process automation (RPA) and data science.

The BIRD technologies are inter-related and mutually reinforcing. Blockchain, or distributed ledger technology, establishes trust in data. The IoT provides a vast quantity of relevant data points. RPA improves the accuracy of data. Data science extracts value.

1) Blockchain

Blockchain has its skeptics, including many who believe the technology has already fallen short and might be too inherently problematic. Some skepticism is justified, but it’s premature for blockchain to be written off.

The idea behind blockchain is that all of the information required for completion of a transaction is stored in transparent, shared databases to prevent it from being deleted, tampered with or revised. There is a digital record of every process, task and payment involved. The authorization for any activity required at any stage is identified, validated, stored and shared with the parties who need it.

In ongoing pilots of this technology, shippers, freight forwarders, carriers, ports, insurance companies, banks, lawyers and others are sharing “milestone” information and data about their pieces of an individual shipping transaction. What’s missing today is agreement by all the relevant parties in the supply chain – including regulators – on a set of common industry standards that will govern the use of blockchain.

Absent a consensus on standardization, blockchain offers little. But with a common framework and set of rules, it could make shipping faster, cheaper and more efficient by increasing trust and reducing risk. It would shrink insurance premiums, financing costs
and transit times, and eliminate supply chain intermediaries who add cost today but who would become surplus to requirements.

2) The internet of things

As a platform for sharing trusted data, blockchain is ideally suited to the internet of things. IoT devices can be attached to almost anything. As 5G technology evolves and spreads, tiny IoT chips embedded in products will enable businesses to track and monitor shipments of pharmaceuticals, high-tech goods, consumer products, industrial machinery and garments.

That data can be encrypted and shared through the blockchain so that customers and suppliers have a real-time record of the transaction. An IoT-enabled supply chain would be both leaner and less risky. It would allow for true just-in-time production by guaranteeing inventory accuracy and, in turn, reducing working capital requirements.

3) Robotic process automation

Of course, data is no good if it is inaccurate - and in the supply chain, the leading cause of inaccuracy is human error. Robotic process automation, or RPA, is the artificial intelligence used to allow software to handle many of the steps involved in a shipping transaction by understanding and manipulating data, triggering responses and interacting with other digital systems.

Use of RPA can ensure accuracy in customs declarations, safety certificates, bills of lading and other paperwork. It can reduce reliance on the manually entered data, emails and digital forms that produce errors, create delays and add cost all along the supply chain. RPA frees up workers to be more productive by doing what humans do best: solve problems, react to the unexpected, think creatively and deal with customers.

Thanks to data science, we are in the midst of seismic change in the supply chain. We are getting more data from more sources; it is the right data; and it is accurate. Tools such as artificial intelligence, machine learning and cloud computing enable us to analyze and use that data in powerful new ways.

Rather than using information to sound alarms when there are “exceptions” - problems or anomalies with an individual shipment or in the supply chain - we can use it to prevent them. Data becomes about managing the future, not the present.

The risk, of course, is that only large, well-resourced supply chain players will be able to take advantage of BIRD technologies and other advances that involve harnessing data. That would create a dangerous new digital divide between large and small, haves and have-nots.

Thankfully, data is having a democratizing effect by making the global economy fairer and more inclusive in important ways. Small businesses and firms in emerging markets who aspire to go global aren’t piloting blockchain or developing their own RPA applications. But they are already the beneficiaries of new, inexpensive, data-informed tools and platforms underpinned by artificial intelligence and machine learning: online freight booking, instant financing, automated marketing, cheap cloud computing and remote advisory services.

The BIRD technologies generate trust in data, ensuring accuracy and giving users the ability to predict and act. In a data-driven world, they can help businesses of all sizes take flight.

The views expressed in this article are those of the author alone and not the World Economic Forum.

Source: World Economic Forum

●●●
SUPPLY CHAIN IN INDIA: THEN AND NOW

The supply chain industry has become the backbone of modern-day businesses. Traditional and linear value chain models and archaic practices in the industry are fast changing. They are making way for revolutionary and cutting-edge new solutions and models that are infusing great efficiency and cost-effectiveness and driving tremendous value for businesses. Several factors are contributing to these revolutionary changes in the supply chain industry.

We interviewed one of the SCL mentors, Mr. P. Sreevathsa – Founder and CEO of Servify with over 20 years of experience in CX, technology and management – to take a closer look at the impact of each of these factors on the supply chain scenario in India in the past 10 years. Here are the key takeaways from the interview.

Impact of regulatory changes in India on the supply chain scenario

One of the major regulatory changes affecting the supply chain space in India has been the introduction of GST which standardises the tax regime across the country. These variations in tax rate (especially VAT and octroi) across states which led to widespread corruption and inefficiencies in the system, were eliminated as a result of such standardisation.

“The tax reforms have given the supply chain industry a big boost and have significantly impacted the supply chain on an end-to-end basis. They have brought about greater transparency and therefore, simplicity in the supply chain process-to-end basis. They have brought about greater transparency and therefore, simplicity in the supply chain process.”

They have enabled businesses to come closer to customers and ensure seamless experiences. For instance, all warehousing distribution for Mumbai would happen in Bhiwandi, Maharashtra in the pre-GST era as it is outside the city limits and so, saved octroi. With the tax reforms, businesses can maintain warehouses even within their own offices and better track them.

Changes in the service provider's offerings and their impact on the supply chain scenario

The level of corruption and under-the-table dealings in this space in the pre-GST era meant no transparency in the process and made the costs unpredictable. For instance, octroi collection in Maharashtra every quarter was about Rs. 24,000 crores. However, this was estimated to be only around 25% of the actual-ideal collection. The remaining Rs. 75,000 crores were grey transactions happening across the value chain. This sort of corruption led to many so-called service providers to come into the system as consultants who would bribe on behalf of the large corporates.

“Standardisation in the tax regime removed these multiple layers of corruption and eliminated these middlemen in the garb of tax consultants, octroi consultants, recovery consultants, etc.”

The result has been large scale optimisation and higher predictability for businesses. Core service providers such as warehousing parties, supply chain branding partners, distribution company, etc. have been able to flourish.

The changing corporate supply chain and its holistic impact on the current supply chain scenario

Corporate players understand that they need to focus on the core of their business. As a result, the need for supply chain services and solutions by large corporates have reduced significantly except in cases where physical products are involved. For example, a large software company like Infosys does not need supply chain services but a pharma company like Sun Pharma still has a greater need for supply chain services even though it is not their core business activity; their core business is R&D and development of drugs while supply chain is something they need to run their business.
The influx of large corporate players, 3PL & 4PL players and several startups in the supply chain space that operate across the spectrum right from planning and design to warehousing, distribution, etc. and the significant standardisations over the last 10 years have enabled such companies (like Sun Pharma) to focus on their core business rather than getting into the supply chain and leverage the efficiency of these services.

“The fast-evolving business models which have shifted from fixed pay for services to pay-as-you-go models which have enabled corporate players to leverage the economies of scale for cost-efficiency.”

Corporates do not have to maintain fixed warehousing spaces (irrespective of usage) or be forced to transport only full truckloads to move materials or pay unviable and unreasonable prices to transport smaller quantities.

**Digital transformation and its effects on India’s supply chain scenario**

The other major transformation that has impacted the supply chain space in the past 10 years has been technology and digital transformation. Earlier, there used to be super stockists who bought large volumes of inventory from the corporate players and stored it in bulk in their warehouses. They would do the supply chain planning and warehousing. They then sell to sub-distributors who sold to sub-distributors and who, in turn, would sell to the city-level distributors or retailers. The retailer, in turn, would typically have a warehouse and maintain inventory to sell immediately to their customers when there is a demand. So, there were 3-4 layers of supply chain and each level paying the costs of supply chain services which ultimately is drawn from their margins.

Today, with the digital transformation and technological advancements, the retailer can actually access the virtual inventory available with the stockist, place the order on demand and remove the middlemen (who may be large corporates themselves). The retailers also do not have to maintain their own warehouses (with exceptions such as FMCG) and cut down on large amounts of supply chain costs. For instance,

“Asian Paints which earlier had 6 stockists, 180-200 distributors and 3000+ sub-distributors in the country has now gone down to 10-12 distributors in the country by leveraging technology.”

The realisation that customers are willing to wait for a couple of days to get the paint order and that the order can be directly sourced from the distributor or super stockist led the company to take this step. This has ultimately led to infrastructural changes.

The emergence of tech-led startups like Uber and e-commerce giants like Amazon have made it indispensable for traditional companies to look inward and make changes so as to remain competitive. This is because Amazon relies on technology-led efficiencies and has reduced the multiple layers of distribution and therefore, able to give competitive prices and huge discounts.

**The challenges that persist in India’s supply chain industry and the way forward**

One of the major challenges in the supply chain space in India has been the narrow investor focus and siloed interests on logistics and trucking. There is not enough investment in cutting-edge and next-gen solutions in warehousing, supply chain planning, software solutions, etc. The way forward for the supply chain industry to flourish is for investors to explore the multiple opportunities available for investment and support grassroots innovations to thrive.

“It is important for businesses to remain focused on their core business. However, if there are weak links in the supply chain, they will affect the core. So, they must solve for the weakest links in the supply chain, either through in-house solutions or by outsourcing it for economies of scale.”

The bureaucratic bottlenecks in getting permits and documents still remain. Standardisation also needs to come about in the licensing and documentation requirements in the supply chain space, similar to the standardisation in taxation.

Having seen these changes take place in India, Lumis Partners feels that this is the right time to start evaluating the Supply Chain startup ecosystem.

Thus, we have launched our 2 month long Fellowship program catering to early and growth stage supply chain startups called supply chain labs (https://supplychainlabs.in/). This is our small contribution to the ecosystem, surely a lot more will be required for major disruption.

Source: supplychainlabs.in
Adoption of the technologies in corporates across the world has increased in a bid to increase efficiency and make businesses more customer-friendly.

Sherlock Holmes, in his debut appearance in A Study in Scarlet, quipped: “It is a capital mistake to theorise before one has data.” The popular discourse surrounding technology trends is dominated by buzzwords and a promise to change the world. In this scenario, decision makers find themselves struggling to differentiate between hype and reality. Acknowledging this environment, we decided to conduct a study to identify the tech innovations that enterprises should watch out for and why. We began with a list of 12 technologies, going deeper to identify the major trends.

We chose to keep things simple by using two axes to classify each trend. First, there should be vibrant research activity happening in the technology, including but not limited to intellectual horsepower invested in patents and scientific papers. Second, the technology should have potential commercial momentum and use cases that provide end users with value. We used the number and the size of commercial vitality events (initial public offerings, mergers, coin offerings in case of blockchain) witnessed in each tech as a surrogate for commercial value.

The commoditization of AI has begun. Google, Microsoft and Amazon now offer cloud-based AI as a service. Developers can bring their own data to train the algorithms to suit their specific needs. The technological complexities are being abstracted, hence allowing developers to focus on the functional tweaks necessary for AI to deliver value in their specific use case.

We have started seeing the adoption of AI among our clients. For instance, a Malaysian Bank used machine learning to identify which existing retail customers have the propensity to buy life insurance.

Even within India, a top private bank deployed AI to transform the operating model across retail and corporate banking. It has resulted in cost efficiencies and increased productivity in operations by 20%. Customer delight has also gone up as AI allows 24x7 processing and reducing turnaround time by 50-60%. The bank is now investing in an AI lab and sees it as a way to stop backfilling naturally high attrition roles.

In this article, we focus on two emerging trends (AI and Internet of Things, or IoT) and one early bet (blockchain).

AI: No longer an obscure curiosity: Rarely has a technology gripped public discourse as much as AI. The last time the general public was so intrigued by a technology was probably when computerization became a trend itself. Investors poured in $15.2 billion globally (a 141% jump from 2016) in AI start-ups across industries in 2017. BCG recently conducted a survey jointly with MIT Sloan Management Review to assess companies on their AI ambitions and efforts. Our survey revealed a large gap between AI ambition and reality, signalling an eagerness to bridge the gap between the two.

As per the survey, 23% of the companies have incorporated AI in their processes and offerings (with some varying degrees) and another 23% have kick-started pilots.

Further analysis of the survey data revealed that the impact of AI disruption is not uniformly distributed across industries. While technology-media-telecom, consumer, and financial services will see a higher impact on their offerings and processes, the energy and public sector will see comparatively less of it. For each major industry, our study identified the top three functional areas that warrant attention from corporations and technology investment.

In this article, we focus on two emerging trends (AI and Internet of Things, or IoT) and one early bet (blockchain).

AI: No longer an obscure curiosity: Rarely has a technology gripped public discourse as much as AI. The last time the general public was so intrigued by a technology was probably when computerization became a trend itself. Investors poured in $15.2 billion globally (a 141% jump from 2016) in AI start-ups across industries in 2017. BCG recently conducted a survey jointly with MIT Sloan Management Review to assess companies on their AI ambitions and efforts. Our survey revealed a large gap between AI ambition and reality, signalling an eagerness to bridge the gap between the two.

As per the survey, 23% of the companies have incorporated AI in their processes and offerings (with some varying degrees) and another 23% have kick-started pilots.

Further analysis of the survey data revealed that the impact of AI disruption is not uniformly distributed across industries. While technology-media-telecom, consumer, and financial services will see a higher impact on their offerings and processes, the energy and public sector will see comparatively less of it. For each major industry, our study identified the top three functional areas that warrant attention from corporations and technology investment.

The commoditization of AI has begun. Google, Microsoft and Amazon now offer cloud-based AI as a service. Developers can bring their own data to train the algorithms to suit their specific needs. The technological complexities are being abstracted, hence allowing developers to focus on the functional tweaks necessary for AI to deliver value in their specific use case.

We have started seeing the adoption of AI among our clients. For instance, a Malaysian Bank used machine learning to identify which existing retail customers have the propensity to buy life insurance.

Even within India, a top private bank deployed AI to transform the operating model across retail and corporate banking. It has resulted in cost efficiencies and increased productivity in operations by 20%. Customer delight has also gone up as AI allows 24x7 processing and reducing turnaround time by 50-60%. The bank is now investing in an AI lab and sees it as a way to stop backfilling naturally high attrition roles.
While major economies like the US (with China playing catch-up) may have a head start in AI, India Inc. and the start-up community is displaying a keen interest (AI focused start-ups are the fastest growing at 75%, says a Nasscom-led report). The recent announcement by the Indian government to establish a National Programme on AI under the aegis of NITI Aayog further underscores that AI is an important emerging technology.

**IoT: Standing on the shoulders of giants**

The key components needed for IoT have existed for quite some time and are mature now—for instance, the inexpensive sensors required to convert analogue to digital, the reliable networks to transmit, and the intelligent analytics to process as well as decide. It is the full stack coming together that has allowed IoT to become a trend.

A 2017 BCG study estimated that firms will incrementally spend $250 billion on IoT by 2020. It also predicted that manufacturing and logistics would together account for almost 50% of the IoT spend and the top use cases—predictive maintenance, fleet management, self-optimising production—reflect this.

Our experience in India mirrors the observations of this global study. For instance, a large industrial goods company in India has picked up around 20 IoT use cases across the manufacturing and logistics value chain. This organization suffered massive demurrages and frequent stock-outs at the plant due to manual coordination among various operators managing discrete parts of a complex supply network (imagine several million tonnes of raw material riding mother vessels, barges, jetties and conveyors from the port to the plant). IoT-enabled devices are allowing real-time position tracking to improve production planning and scheduling—driving close to 50% reduction in demurrages and a 100% elimination of stock-outs.

The Insurance Regulatory and Development Authority of India has set up a working group to study the role of IoT devices in the insurance sector. In developed markets, IoT devices have enabled interesting product innovation. For instance, in developed markets, “pay as you drive” or even “pay how you drive” motor insurance is available.

It is no surprise that the government recently announced a special 13-digit mobile number for the SIMs that power IoT devices connected to GSM networks. The ministry of electronics and information technology recently estimated that two billion-plus IoT devices are expected to be functional in India in the next three-four years—a 10x jump from the current 200 million!

**Blockchain: Third wave of ‘exploiting’ a resource**

We have witnessed two waves where initially scarce and expensive resources became cheap. Consequently, technologies emerged to exploit these resources. When computation (transistors) became cheap, PCs (personal computers) emerged; when bandwidth became cheap, the internet emerged. Blockchain is the third wave where cheap storage has allowed us to create a distributed, open to all (yet secure) way of recording important information. For the first time (at least on this scale), it is possible to issue and transfer assets in the virtual world by using the distributed ledger to record ownership and to establish continuity.

Blockchain was synonymous with cryptocurrency until boardrooms started adopting use cases in more day-to-day enterprise functions, such as fraud control, patent tracking and invoice automation.

In India, several promising applications of blockchain are being tested. Financial services seem to be leading, with life insurers and banks trying out a blockchain-based repository of common information—for instance, know your customer.

A general insurer has launched a blockchain-based product to proactively (and with minimal documentation) settle travel insurance claims. There are some early experiments of using blockchain in the supply chain that executives must closely watch.

We must, however, warn you that scaling up could be a serious problem for blockchain. For one, even mature applications like bitcoins process a measly 10-14 transactions per second. Enterprise-grade applications routinely handle hundreds, and often thousands, of transactions per second. Another issue is the fact that, by design, blockchains are “exponentially wasteful”, and while storage and computation may be cheap, electricity is not. A report by Morgan Stanley states that bitcoin is likely to use 125 terawatt hours of electricity in 2018.

The plethora of mobile apps, the draw of cloud computing, the powers of Big Data and analytics, or the infectious nature of social media are all well-established technologies now—and common place in organizations. Although several organizations (especially in India) are yet to harness the full potential of these technologies, these are increasingly becoming obvious table stakes.

We believe it is the silent but fast emerging technologies including AI, IoT and blockchain that are likely to become differentiators for the haves and the have-nots in the industry.

Rajiv Gupta is a partner and leads the technology advantage practice at the Boston Consulting Group (BCG) India. Amit Bharti and Rachit Chandra are project leaders with BCG. The views expressed are personal.

Source: Livemint

---

*HMM Materials Management Review*
DISTRICTS AS EXPORT HUBS

SN PANIGRAHI, PMP®, ATP (PMI - USA), FIE, C.ENG
GST & INTERNATIONAL BUSINESS & PROJECTS CONSULTANT,
CORPORATE TRAINER, MENTOR & AUTHOR, NC MEMBER, IIMM
snpanigrahi1963@gmail.com

Introduction

India is a Land of Rich Diversities : Huge Untapped Potential


India’s rich cultural heritage and traditional diversity are reflected by a wide variety of handicrafts made by artisans from all over our country. The crafts of India are Diverse, Rich in History, Culture and Religion.

Indian Crafts include metalwork, wood work, cloth, textiles and fabric, jewelry, terra cotta objects, pottery and objects made from cane and bamboo. Some crafts such as woodwork, painting and stonework are featured as architectural elements and as objects of art.

India’s Farmers, Artisans, Weavers, Engineers, Small Entrepreneurs, the MSME sector and others are the strength of the whole Nation.

India Needs to Preserve its Vibrant and Culturally Rich, Centuries-old Roots in the form of its stunning Arts and Crafts and Traditional Creative Works. Also it is Essential to Explore & Create some Commercial Value to the Beneficiaries and make them Live, Prosper and to Sustain our Traditional & Cultural Values and Preserve our Wealth.

Each District of India can be characterized as an exclusive source of distinct and distinguished products, but Remain Untapped. If the Potential of each District is Tapped fully and Realized, then it will Fuel Economic Growth, Generate Employment, Boost Rural Entrepreneurship, Enhances Exports and Truly Transforms to move towards the goal of ‘Aatmanirbhar Bharat’.

Districts as Export Hubs Initiative

Hon’ble Prime Minister in his Independence Day speech on 15th August, 2019 highlighted the need to channelize the Unique Potential of each District of the country and convert them into export hubs.

Taking his Vision forward, Department of Commerce through DGFT launched the “Districts as Export Hubs” initiative and since then has been working with the States / UTs and the districts directly to Create Institutional Mechanisms for Facilitating and Promotion of Exports Of Identified Products / Services from the Districts.

Export Promotion Based on Local Strengths

Districts as Export Hubs: the first such initiative of Government of India which tries to Target Export Promotion, Manufacturing and Employment Generation at Grass Root Level and has made States and Districts accountable for the Export Growth from the Districts in the Country.
It is a Great Transformational Step to realize the potential of a district. The initiatives aim to Link Local Producers in Rural and Remote Districts with Global Supply Chains, make them Self-reliant and bring them into the Economic Mainstream.

The Objective is to enable MSMEs, Farmers, Artisans and Small Industries to get Benefit of Export Opportunities in the Overseas Markets, Promote Exports of our Traditional Products based on our Local Strengths and shift focus on District led Export Growth for Self-sufficiency and Self-Reliance as a whole Increase Competitiveness & Boost Exports from the Nation.

Products at District Level Identified

Under the ‘Districts as Export Hubs Initiative’, products and services (including GI Products, Agricultural Clusters, Toy Clusters etc.) with export potential have been identified in all districts of the country in consultation with the stakeholders including the States / UTs.

Under the District as Export Hub (DEH) initiative, products including agricultural products with export potential have been Identified in all 733 Districts Across the country.

The list of such identified products and services gets updated regularly on the basis of inputs received from the States / UTs.

District as Export Hub Initiative also strives to achieve the objectives of Agriculture Export Policy by Promoting Value Added Exports.

Objectives of Districts as Export Hubs Initiative:

The Objectives are as below:

- To enable MSMEs, Farmers and Artisans to be part of the Global Supply Chains
- To increase self-reliance in the districts
- To focus on District-led Export Growth
- To increase competitiveness and boost exports

Districts as Export Hubs: Institutional or Policy Interventions

Following are Institutional or Policy Interventions taken.

- Preparation of State Export Strategy / Policy by all State / UT Governments
- Product/Service identification in each District
- Constitution of District Export Promotion Committees (DEPCs)
- Preparation of District Export Action Plans (DEAPs)
- Monitoring implementation of DEAPs
- Identifying Agricultural Clusters in the Districts
- Mapping GI product in each District
- Export Development Centres (E-Commerce in Districts)

Institutional Mechanism

State Export Promotion Committees (SEPC) at the State Level
District Export Promotion Committees (DEPCs) at the district level
ICEGATE / DGCIS Generates District-wise Export Data to Track the Export Performance from each District.
In the initial phase, product/services (GI products, agricultural clusters, toy clusters etc.) with export potential in each District have been identified.

### Indicative Composition of District Export Promotion Committees (DEPCs)

<table>
<thead>
<tr>
<th>Sl. No</th>
<th>Community &amp; District Development Officer/OIC</th>
<th>DEPC Chairman</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Collector/DM/DC of District</td>
<td>Chairman</td>
</tr>
<tr>
<td>2</td>
<td>Designated DGFT RA</td>
<td>Co-Chairman</td>
</tr>
<tr>
<td>3</td>
<td>GM – District Industries Centre (DIC)</td>
<td>Chairman</td>
</tr>
<tr>
<td>4</td>
<td>Representing Dept. from the State Government (Commerce, Industries, Department)</td>
<td>Member</td>
</tr>
<tr>
<td>5</td>
<td>Lead Bank Manager</td>
<td>Member</td>
</tr>
<tr>
<td>6</td>
<td>Representative – Department of UMDT, Govt. of India</td>
<td>Member</td>
</tr>
<tr>
<td>7</td>
<td>Representative – Sector Specific Export Promotion Council</td>
<td>Member</td>
</tr>
<tr>
<td>8</td>
<td>Representative – Quality &amp; Standards Committee</td>
<td>Member</td>
</tr>
<tr>
<td>9</td>
<td>Representative from District Trade/Council Associations</td>
<td>Member</td>
</tr>
<tr>
<td>10</td>
<td>Sector Specific Ministry in Government of India (Agriculture, Fisheries, Animal Husbandry)</td>
<td>Member</td>
</tr>
<tr>
<td>11</td>
<td>Sector Specific Ministry of the State Government</td>
<td>Member</td>
</tr>
<tr>
<td>12</td>
<td>Sectoral Agencies specific to products identified in each District (IIG, IAS, etc.)</td>
<td>Member</td>
</tr>
</tbody>
</table>

### District Export Action Plans (DEAP)

A District Export Action Plan may include the following:

- **District Profile**
- **Industries Profile**
- **Major Products (Goods and Services) Exported from District**
- **Other Products/Sectors with Potential to export in Future**
- **Identifying the bottlenecks faced by the Industry**
- **Identifying institutional responsibilities, specifics of policy, regulatory and operational reforms**
- **Identifying infrastructure/utilities/logistics/Policy interventions required.**
- **Action Plan must define quantifiable targets with specific timelines for their implementation.**

- Clear identification of incentives/Support provided by the State and Central Government.
- Training and development needs for identified export products
- Analysis of the export data of the District and ways and means to effectively capture it.
- Mid-term and long-term export strategy/ suggestions to promote the District as Export Hub.

### Govt. to develop 50 Districts as Export Hubs:

Under the proposed scheme, the government will select 50 districts through a challenge, and they will receive 1-50 crore each. The districts will be assessed on parameters such as plans for exports, efforts to plug infrastructure and logistics gaps, and cluster approach to exports.

As it will be a centrally sponsored scheme, the Directorate General of Foreign Trade (DGFT) has proposed that the Centre pays 60% of the estimated cost, with the rest borne by the respective states.

### Progress Made - Districts as Export Hubs

State Export Promotion Committee (SEPC) has been constituted in all the 36 States/UTs.

District Export Promotion Committee (DEPC) has been constituted in all the 36 States/UTs.

Products/Services with export potential have been identified in all 733 Districts across the country (Including Agricultural & Toy clusters and GI products in these Districts).

State Export Strategy has been prepared in 28 States/UTs.

State Nodal Officers/Export Commissioners are nominated in 34 States/UTs.

DEPC meetings have already been conducted in 679 Districts.

Draft District Export Action Plan (DEAP) has been prepared by the RAs of DGFT for 497 Districts out of which 112 are formally notified by DEPCs. A web portal to monitor the progress of District Export Action Plan in all the Districts has been developed for
updating the progress made.

Toy manufacturing clusters have been identified in 12 Districts.

State-specific Agriculture Export Plans with focus on agricultural exports have been prepared by 16 States/UT’s.

47 product-district clusters have been identified under the Agriculture Export Policy (AEP) for promoting export-oriented production.

These apart Virtual global outreach event/Buyer Seller meets; Sensitization Workshops; Export promotion events are being organized. State specific export brochures are being prepared.

Additional attributes in the Shipping Bill have been incorporated from 15th February, 2020 to capture District and State of origin of goods exported. (Circular No 09/2020; 5th February, 2020)

ICEGATE has started generating District wise export data from September 2020 onwards. This data will act as a baseline indicator for measuring export performance in the Districts.

Way Forward

Support Local Exporters : Local Government Bodies should be involved in the implementation of the District Export Action Plan. It include specific actions required to Support Local Exporters or Manufacturers in producing or manufacturing identified products in adequate quantity and with the requisite quality, for reaching potential buyers outside India, thereby Creating Economic Value.

Strengthening Infrastructure & Logistic Network : Lacks sufficient Infrastructure is a Major Challenge being Faced by Exporters specially at District and Sub-district Levels. Focus should be to Develop Robust Infrastructure Network - Transport & Logistics Facilities - Road, Rail, Ports & Dry Port Connectivity and their Linkage to Manufacturing Hubs or Clusters, Warehouses, Testing Labs, Certification Centers, Uninterrupted Power Supply, Reliable Internet Facilities etc. that will help Indian exporters compete in the Global Market more Competitively.

Capacity Building : Efforts should be undertaken on capacity building of manufacturers, entrepreneurs and small exporters on complex Procedures, Documentation and Export Compliances thereby facilitating Export of Goods and Services.

Promote Export Dynamism : Export growth can Stimulate Economic Growth in a variety of ways. Encourage Product Specialization, Product Innovations, Creative Developments, Support to Overcome Size Limitations and achieve Economies of Scale, Global Market Access.

Role of e-Commerce and Digital platforms: E-commerce will allow tier-II and tier-III manufacturers to be a part of global marketing platforms.

Digitalization improve Export Competitiveness.

Role of Financial Institutions : Financial Institutions such as the National Bank for Agricultural and Rural Development and the Small Industries Development Bank of India should take a Leading Role to easily Provide Credit to Traders and Manufacturers.

Details can be Viewed in YouTube

https://www.youtube.com/watch?v=HdxAoxmjXG0&t=10s

Conclusion

The outcome will be dependent on the implementation of District Export Action Plans (DEAP) that will lead to improvement in trade specific ecosystem within the districts. This will support and enhance export logistics and infrastructure, disseminate information to support scaling up of local businesses and provide ease of access to the exporters in the form of branding, packaging, testing, certification etc. to make them export competitive.

The quantifiable targets identified in the DEAPs will guide the various government agencies both at the Center and the State/UT to work collectively to resolve issues faced by the exporters of the District. In the next 5 years, it is targeted that export growth of double digits is registered from 350 Districts of the country, with significant growth in the exports of identified products/services from each District.

References:

“Districts as Export Hubs” -https://exporthubs.gov.in/districts-export-hubs.php


● ● ●
WHAT CAUSES A RECESSION?

THE INVESTOPEDIA TEAM
Reviewed by SOMER ANDERSON
Fact checked by VIKKI VELASQUEZ

The National Bureau of Economic Research (NBER) defines a recession as a significant decline in activity spread across the economy, lasting more than a few months, visible in industrial production, employment, real income, and wholesale retail trade.¹

A recession is caused by a chain of events in the economy, such as disruptions to the supply chain, a financial crisis, or a world event. A recession can also be triggered after an inflationary period. When inflation increases, central banks raise interest rates to slow the economy with the goal of bringing down inflation. With higher interest rates, the probability of a recession increases, leading to layoffs, fewer jobs, and decreased consumer and corporate spending, among other effects found in a slowing economy.

As companies and consumers become anxious about the economy, they hold on to their money and cut spending. Businesses are forced to reallocate resources, scale back production, limit losses, and lay off employees as the economic downturn intensifies. Trends during a recession include an increase in the unemployment rate and a decrease in gross domestic product (GDP) for two consecutive quarters.

KEY TAKEAWAYS

- A recession is a trend of simultaneously slowing business and consumer activity, leading to negative growth as measured by gross domestic product (GDP) and other data series, such as the unemployment rate, wage growth, and the like.
- Several competing theories exist for the causes of a recession.
- Financial, psychological, and real economic factors can cause recessions.
- The recession in 2020 was affected by COVID-19 and the preceding decade of extreme monetary stimulus that left the economy vulnerable to economic shocks.
- As of November 2022, the likelihood of a recession looms, as evidenced by an inverted yield curve, meaning that investors expect short-term interest rates to be above long-term rates, which is indicative of a bearish short-term outlook, potentially resulting in a recession.

Signs of a Recession

The standard macroeconomic definition of a recession is two consecutive quarters of negative GDP growth. When this occurs, private businesses often scale back production and try to limit exposure to systematic risk. Measurable levels of spending and investment are likely to drop, and a natural downward pressure on prices may occur as aggregate demand slumps. GDP declines, and unemployment rates rise because companies lay off workers to reduce costs.

At the microeconomic level, firms experience declining margins during a recession. When revenue—whether from sales or investment—declines, firms look to cut their least efficient activities. For example, a firm might stop producing low-margin products or reduce employee compensation. It might also renegotiate with creditors to obtain temporary interest relief. Unfortunately, declining margins may force businesses to reduce employment to cut costs further.

A range of financial, psychological, and real economic factors are at play in any given recession.

Causes of Recession

The significant economic theories of recession focus on financial, psychological, and fundamental economic factors that can lead to the cascade of business failures that constitute a recession. Some theories look at long-term economic trends that lay the groundwork for a recession in the years leading up to it. Others look only at the immediately visible factors that appear at the onset of a recession. Many or all of these various factors may be at play in any given recession.

Financial factors can contribute to an economy's fall into a recession, as during the 2007–2008 U.S. financial crisis. The overextension of credit and debt...
on risky loans and marginal borrowers can lead to an enormous buildup of risk in the financial sector. The expansion of the supply of money and credit in the economy by the Federal Reserve and the banking sector can drive this process to extremes, stimulating risky asset price bubbles.

Artificially suppressed interest rates during the boom times leading up to a recession can distort the structure of relationships among businesses and consumers. It happens by making business projects, investments, and consumption decisions that are interest rate-sensitive, such as buying a bigger house or launching a risky long-term business expansion, appear much more appealing than they ought to be. The failure of these decisions when rates rise to reflect reality constitutes a major component of the rash of business failures that make up a recession such as that of 2007–2008.

Psychological Factors of a Recession

Psychological factors are also frequently cited by economists for their contribution to recessions. The excessive exuberance of investors during the boom years brings the economy to its peak. The reciprocal doom-and-gloom pessimism that sets in after a market crash, at a minimum, amplifies the effects of real economic and financial factors as the market swings.

Moreover, because all economic actions and decisions are always forward-looking to some degree, the subjective expectations of investors, businesses, and consumers are often involved in the inception and spread of an economic downturn.

Economic Factors of a Recession

Real changes in economic fundamentals, beyond financial accounts and investor psychology, also make critical contributions to a recession. Some economists explain recessions solely due to fundamental economic shocks, such as disruptions in supply chains, and the damage they can cause to a wide range of businesses.

Shocks affecting vital industries such as energy or transportation can have such widespread effects that they cause many companies across the economy to retrench and cancel investment and hiring plans simultaneously, with ripple effects on workers, consumers, and the stock market.5

There are economic factors that can also be tied back into financial markets. Market interest rates represent the cost of financial liquidity for businesses and the time preferences of consumers, savers, and investors for present vs. future consumption. In addition, a central bank’s artificial suppression of interest rates during the boom years before a recession distorts financial markets and business and consumption decisions. All of these factors may cause a recession over time.

In turn, the preferences of consumers, savers, and investors place limits on how far such an artificially stimulated boom can proceed. These manifest as economic constraints on continued growth in labor market shortages, supply chain bottlenecks, and spikes in commodity prices (which lead to inflation). When not enough resources can be made available to support all of the business investment plans, a rash of business failures may occur due to increased production costs. This situation may be enough to tip the economy into a recession.

Impact of COVID-19 Pandemic on the Economy

In February 2020, the National Bureau of Economic Research (NBER) announced that, according to its data, the United States was in a recession due to the economic shock of the widespread disruption of global and domestic supply chains and direct damage to businesses across all industries. These events were caused by the COVID-19 epidemic and the public health response.6

Some of the underlying causes of the two-month recession (and economic hardship) in 2020 were the overextension of supply chains, razor-thin inventories, and fragile business models.

The pandemic-related recession, according to NBER, ended in April 2020, but the financial hardship caused by the pandemic is still affecting Americans.6

Current Risks of Recession as of November 2022

In the current environment, we find the Federal Reserve (and other major central banks) raising interest rates aggressively to combat inflation, which at 6.2% in the U.S. remains well above the Fed’s target for inflation of around 2%. The Fed has increased rates by 0.75% increments at each meeting since April 2022, bringing the federal funds target rate to 3.75% to 4.00% since then. At the moment, debate rages about whether the U.S. is currently in a recession or whether a recession is coming down the road in 2023.

The case for the U.S. currently being in recession is undermined by a number of recent positive data points, namely:

- Annualized third quarter (3Q) GDP growth of 2.6% offsetting negative GDP reports in Q1 and Q2
- A strong job market in which jobs are still rising
- The October 2022 unemployment rate remaining historically low at 3.7% (although up from 3.5% in September).
However, other indicators—such as an inverted yield curve, which has historically been a precursor to recessions—coupled with the lagged effect of interest rate hikes (around six months’ lag time) suggest a less-than-sanguine outlook for 2023. The Fed is currently expected to begin to slow the pace of its interest rate increases in the months ahead, aiming for a final fed funds target rate of 5%, also referred to as the terminal rate.

Higher interest rates make everything from home mortgage rates to credit card rates rise, which eats away at consumer spending, ultimately the key driver of U.S. economic activity. Looking ahead, the debate centers on whether the Fed can deliver a soft landing (lower inflation and a minor slowdown in the U.S. economy), or whether the series of rate hikes may lead to a hard landing (where inflation comes down at the expense of economic growth and employment), which could result in a recession.

Our view is that the Fed will succeed in engineering a soft landing, where inflation begins to subside ( disinflation) as higher rates work through the economy, slowing economic growth, but not enough to cause a recession. We will continue to pay special attention to the state of consumer spending, unemployment, and job creation as the main bellwethers of a recession.

Of note, there are a number of exogenous factors, such as the Russia-Ukraine war, which could result in sustained higher oil and natural gas prices and a further loss of grain supplies. This in turn could further undermine the global economy, which would result in increased pressure on the U.S. and other major economies. These type of factors will need to be monitored closely as we head into the winter, where we will view seasonal factors as mainly noise and continue to focus on the key consumer and employment data.

What is a recession?

A recession is when economic activity turns negative for a period of time, the unemployment rate rises, and consumer and business activity are cut back due to expectations of a weak growth environment ahead. While this is a vicious cycle, it is also a normal part of the overall business cycle, with the only question being how deep and long a recession may last.

Is a recession forecast for the months ahead?

According to several market indicators, namely an inverted yield curve, the market appears to be pricing in the prospects of a recession in the next six to nine months. However, with the end of Federal Reserve tightening in sight in coming months, we believe that a recession can be avoided, although slower growth definitely lies ahead.

Investors are keenly waiting for a concrete signal from the Fed that it is nearing the end of its tightening cycle. Given stock market losses year to date, it seems as though markets have already priced in a 5% terminal rate, so further rate hikes should not have an extraordinarily negative effect on major markets. However, that calculus could change if inflation remains stubborn and the Fed has to continue rate hikes beyond 5%—something that the market is not currently factoring into current prices.

Why is the Fed continuing to raise rates if a recession is in the forecast?

The Fed has a dual mandate:

1. To keep inflation around 2% or lower
2. To keep employment growth strong and aim for full employment

While the labor market continues to show signs of resilience, inflation is far from the Fed’s 2% target range. To combat inflation, the Fed has used its primary weapon, interest rates, to put the brakes on the economy and hopefully bring down inflation in the process.

Such a policy may result in short-term pain (slower growth/higher unemployment) for the overall U.S. economy, but in the long run, it is necessary to rein in inflation as quickly as possible and maintain the Fed’s inflation-fighting credibility. Fed rate hikes are likely to wane in the coming quarters as the Fed takes stock of its policy to date and its effect on inflation.

The Bottom Line

Recessions are caused by a multitude of factors, with higher interest rates usually cited as the primary cause of a recession. At the moment, the market is also concerned with nonroutine events, such as the Russia-Ukraine war and its impact on energy and commodity prices, which have fed into higher inflation. To combat inflation, the Fed and other central banks have been aggressively raising interest rates to bring inflation down to their target of around 2%.

In raising short-term interest rates, now at 3.75% to 4.00%, the Fed may be overly aggressive and overshoot an interest rate that is appropriate to bring down inflation, sending the economy into a recession. The hope is for a soft landing, where interest rates reach a level to bring down inflation and avoid a recession. The alternative is a hard landing, where the Fed raises rates too much and triggers a recession.

SOURCE: WWW.INVESTOPEDIA.COM

●●●
MUMBAI BRANCH

“Orientation Programme regarding Public Procurement at a Regular Interval as a Part of Systematic Improvement” for Mumbai Port Authority (conducted on 2nd January & 3rd January 2023 at Port Management Training Centre, Mazagaon Mumbai)

Mumbai Port Authority contacted IIMM Mumbai Branch in early August 2022 to enquire whether IIMM Mumbai Branch could conduct an In House Training Program related to Public Procurement for its Officers.

As per the customised requirements of Mumbai Port, IIMM Mumbai Branch stated that they could cover sessions on the following topics by IIMM Faculty and as requested gave approx. duration for each topic as under:

<table>
<thead>
<tr>
<th>Duration</th>
<th>Faculty</th>
</tr>
</thead>
<tbody>
<tr>
<td>1) Indian Contract Act</td>
<td>3 Hours Alok Ranjan Sarkar</td>
</tr>
<tr>
<td>2) Non Disclosure Agreement</td>
<td>30 min. Alok Ranjan Sarkar</td>
</tr>
</tbody>
</table>
3) Workmen Compensation Act 2 Hours Alok Ranjan Sarkar 
4) INCO Terms 45 minutes Pankaj Sinha 
5) Customs Duty 45 Minutes Pankaj Sinha 
6) GST ACT 1.5 hours V.Badrinath 
7) GFR Rules 2017 for Goods 3 Hours Alok Ranjan Sarkar 
8) GFR Rules 2017 for Services 1 hour Alok Ranjan Sarkar 
9) GFR Rules 2017 for Works 1.5 Hours Alok Ranjan Sarkar 

IIMM Mumbai Branch gave its Commercial Offer to Mumbai Port Authority on 9th August 2022 for conducting all the above topics in an “In House Training Program for Two Days” and also submitted the Names and Profile of the IIMM Mumbai Faculty as under: 

a) Mr Alok Ranjan Sarkar Advisor IIMM Mumbai Branch & Ex G.M - Materials and G.M[ Engineering & Projects] BPCL 

b) Mr Pankaj Sinha Retd G.M Indian Oil Corp. ltd. 

c) Mr V. Badrinath Retd G.M (Indirect Taxation) BPCL 

After regular follow up at various levels, Mumbai Port Authority conveyed approval of IIMM Mumbais Commercial Offer by their Competent Authority on 29th November 2022. 

The session commenced with lighting of the lamp and Mr.R.A.Sawant – Senior Assistant Traffic Manager made the welcome speech. 

IIMM Mumbai Branch conducted the Two Day Training Course at Port Management Training Centre on 2nd January & 3rd January 2023 in a successful manner. The Total Number of Participants were 34 Nos Officers. The Sessions were conducted in an interactive mode and various queries raised by the participants were replied. MCQ type Quiz / Assessment questions on each topic covered were discussed and the correct answers were discussed with the Participants. 

IIMM Certificates were distributed and Feedback Forms about the Program was filled up by the Participants. 

The activities of IIMM Mumbai Branch and Benefits of IIMM Membership were explained to the Participants. 

As per discussions with Senior Mumbai Port Officials, this Program on Public Procurement may be Repeated by Mumbai Port Authority after 6 months. 

Following topics on Public Procurement were to be covered by Mumbai Port (In House Faculty) on one day on 5th January 2023 

a) General Principles of Public Procurement 

b) Estimation of Cost 

c) Formulation of Specifications 
d) MbPA Manual for Procurement of Goods 
e) Public Procurement Policy for Micro and Small Enterprises ( Order 2012) 
f) Start ups 
g) Make In India , Order 2017 and its subsequent Orders 
h) MbPA Works Manual ( Civil) 
i) Implementation of SORs 
j) MbPA works Manual ( MEED) 
k) MbPA transparency Plan 
l) MbPA Integrity Pact 
m) GeM Portal 
n) CPPP Portal 
o) CVC Guidelines 

The above In House Training Program was coordinated by Mr Alok Ranjan Sarkar, Advisor, IIMM Mumbai Branch and was well supported by Mr RB Menon Dy Director IIMM Mumbai Branch and his team members. 

Some comments from the participants who attended the in house training program. 

“All lectures were very informative and knowledge gained would definitely help while performing our duties” 

“Very valuable guidance by the faculties” 

“I liked most the content of the session and interaction with participants”

--------------------------

PUNE BRANCH

IIMM, Pune Branch, participated in the Auto Expo 2022 held at the Creaticity, Yerwada, Pune from 22nd to 26th of December 2023. 

This year happened to be the 20th addition of this Indian automobile trade fair which not only gave an overview of the Automobile Industry by also provided a platform for interaction for all concerns. 

Close to 70 organizations from Manufacturing, Automobile & Defence sector took part in the expo. 

Mr. Yagnesh Nair, Manager - Pune Branch, was present at the exhibition for all five days to introduce IIMM to the visitors. 

The exhibition received a good response and succeeded in generating some enquires from the students as well as working professionals.
NEW DELHI BRANCH

Delhi Branch Executive Committee met on 11th December 2022 at its Branch Office and expressed happiness at being awarded “Best Metro Branch in Educational Activities” and for best Article contribution to MMR Award to Shri Prem Narayan. Shri H K Sharma, National President gave a talk about latest developments in the field of Public Procurement and GeM.

KOLKATA BRANCH

IIMM, Kolkata organized its annual picnic and get-together on 15th January at Panchabati resorts in the outskirts of Kolkata. Nearly 80 students, faculty, and staff along with their family took part in the event. The programme began in the morning with a session of self-introduction by the students and faculty followed by a variety of party games. Tambola was the last event enjoyed by all the participants. Breakfast, lunch, tea along with some lip-smacking snacks were served during this day-long event.
Indian Institute of Materials Management

MEMBERSHIP CATEGORY

★ Life Member ✗ Full Member ✗ Associate Member

(Send 1 additional photo for I-Card)

Name ____________________________ Sex: ☐ Male ☐ Female

Designation ________________

Name of Organization ________________

Office Address ________________

Tel. & Mob: ________________ email ________________

Home Address ________________

Tel. & Mob: ________________ email ________________

Educational Qualification ________________

Work Experience (Start with present position)

(Attach separate sheet if necessary)

<table>
<thead>
<tr>
<th>Year</th>
<th>Year to</th>
<th>Position</th>
<th>Company / Organization</th>
</tr>
</thead>
</table>

Membership of any other Professional organization

Your Blood Group ________________ Your Date of Birth ________________

Where will you like to receive the IIMM mail: ☐ OFFICE ☐ HOME

UNDEARTAKING

I wish to apply for membership of the institute with appropriate status.

I certify that all information supplied in the application is true and correct.

I undertake to abide by all rules & regulations of IIMM as on date and to be revised in future.

Eligibility: Associate: ________________ Others: ________________

Date: ________________

Applicant’s Signature ________________

REFERENCE

(From IMM Member / your immediate senior organization who worked / working who have a personal knowledge of IMM)

Signature 1st Referee ________________ Signature 2nd Referee ________________

Name: ________________ Name: ________________

Designation & Company ________________ Designation & Company ________________

Mobile: ________________ Mobile: ________________

Email: ________________ Email: ________________

Dated: ________________ Dated: ________________

REMITTANCE DETAIL

I hereby enclose my Annual Subscription and Entrance Fees of Rs.__________ by way of Cheque / Demand Draft No.__________________ drawn in favour of “Indian Institute of Materials Management.”

Prepared by: [Signature] [Date]

Branch Chairman ____________________________

February 2023 | 57
The effect of 11 risk factors on death from ischemic heart disease was calculated by the researchers. A study found that, by adopting a healthy diet, more than two-thirds of heart disease-related deaths may be prevented globally. One of the leading killers in the world today is cardiovascular disease. The results of the study were made public on World Food Day, a day dedicated to highlighting the importance of sustainable, wholesome foods for all people.

The top three causes of fatal heart attacks and angina, often known as ischemic heart disease, are unhealthy diets, high blood pressure and high serum cholesterol. Both wealthy and emerging nations showed the same pattern.

The effect of 11 risk factors on death from ischemic heart disease was calculated by the researchers. These included poor diet, high blood pressure, elevated levels of serum low-density lipoprotein (LDL) cholesterol, elevated levels of plasma glucose, use of cigarettes, elevated body mass index (BMI), lack of physical exercise, air pollution, impaired kidney function, exposure to lead, and alcohol use. They calculated the percentage of deaths that could be avoided by removing that risk factor.

More than six million fatalities could be prevented by consuming fewer processed foods, sweetened beverages, trans and saturated fats and added salt and sugar, and by eating more seafood, fruits, vegetables, nuts, and whole grains, said study author Dr. Xinyao Liu.

People should ideally consume 200 to 300 mg of omega-3 fatty acids from seafood every day. Said Liu while advising people to consume 200 to 300 grams of fruit, 290 to 430 grams of vegetables, 16 to 25 grams of nuts, and 100 to 150 grams of whole grains per day.

Age-standardised prevalence, incidence, and death rates per 100,000 people all declined between 1990 and 2017, correspondingly by 11.8%, 27.4%, and 30%. Conversely, absolute numbers nearly doubled. Although improvements in survival rates and heart disease prevention, particularly in industrialised nations, have been made, the number of affected individuals is still rising as a result of population increase and ageing.

In terms of causes of mortality from ischemic heart disease, tobacco usage ranked fourth in males but only seventh in women. The global prevalence of smoking declined by 34.4% for women and 28.4% for men between 1990 and 2017.

The fifth-highest cause of fatalities from ischemic heart disease in women and the sixth-highest cause in men was high BMI. If BMI was maintained at 20–25 kg/m², 18.3% of fatalities from ischemic heart disease in women may be avoided. In both sexes, the percentage contributions of air pollution and lead exposure to age-standardised ischaemic heart disease deaths increased as the country of residence became less developed.

Source: livemint.com

HOME REMEDIES TO MANAGE CHOLESTEROL LEVELS

1. Garlic: Commonly used in Indian cooking, garlic has been known for its health enhancing properties. Garlic is made up of amino acids, vitamins, minerals, and organosulfur compounds such as allicin, ajoene, s-allylcysteine, s-ethylcysteine, and diallylsulfide. These sulphur compounds are said to be the active ingredients that lend therapeutic properties to garlic. A number of scientific studies have proven garlic to be effective in reducing remnant and LDL cholesterol significantly. Consuming 1/2 to 1 garlic clove daily could reduce your cholesterol level by up to 9%.

2. Green Tea: The most consumed liquid after water is green tea, which is a rich source of polyphenols. These compounds provide immense health benefits to the human body. Green tea has the highest concentration of polyphenols associated with not only lowering remnant and LDL Cholesterol but also increasing HDL cholesterol. A population-based study showed that men who drank green tea had lower cholesterol levels as compared to those who didn’t. Two to three cups of green tea is all you need.

3. Coriander Seeds: The humble dhaniya seeds have been used in Ayurveda for a number of ailments. Among the long list, lowering bad cholesterol is one of them. Coriander seeds have numerous key vitamins like folic acid, vitamin A and beta-carotene, and most importantly, vitamin C.

4. Fenugreek Seeds: Methi seeds, as they are known to us, have been used as a popular culinary spice, flavouring agent and a medicinal plant since time immemorial. Methi seeds are rich in vitamin E and possess anti-diabetic, anti-inflammatory, and antioxidant properties. Saponins found in fenugreek help remove cholesterol from the body and its fibre helps reduce the synthesis in the liver. Half to 1 teaspoon of fenugreek seeds daily is recommended.

5. Amla: It is one of the richest sources of vitamin C and phenolic compounds in addition to minerals and amino acids. The fruit of amla has been used in Ayurveda as a rasayan for the treatment of various diseases. A study published in the Indian journal of Pharmacology, compared the effect of cholesterol lowering drugs against amla. Daily intake of amla not only reduces remnant and bad cholesterol levels but also reduces the damage due to oxidation. One to two amla fruits can be consumed daily.

Source: food.ndtv.com

● ● ●
Reimagine your Procurement from Source-to-Pay

Your company’s Procurement function can drive innovation and business value. Connect virtually through every step and piece of data together across the entire source-to-pay process, with SAP Intelligent Spend and Business Networks.

- Consolidate and control all spending from source to pay
- Find new sources of savings
- Build a healthy, agile supply chain
- Leverage business networks for better collaboration

See what’s possible for your organization. Request a demo to learn how SAP can transform your procurement end-to-end, control spending, and build a sustainable supply chain.

Scan the QR code to schedule a personalised demo today!