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Dear Professionals,

Supply chain management has always been facing challenges. The challenges have become more complex with the passage of time. These challenges became noticeable since the advent of the industrial revolution. The industrial revolution brought about the new branch called Industrial Engineering which focused on improving the simple but labour intensive processes.

World War II brought about the value of analytics in solving the complex logistics problems that were faced in World War II. Both the fields of Industrial engineering and Operations research have time again demonstrated their usefulness in the overcoming the supply chain challenges but the best results have been obtained with the integration of these fields which have evolved into supply chain engineering.

Introduction of computers went a long way in helping supply chain management. MRP (Material Requirement Planning), MRP II (Manufacturing Requirement Planning) gave way to Enterprise Resource planning (ERP). The major difference with ERP was that it integrated all the available data and they could “talk” to each other.

Internet revolution made it easier for objects / data to talk to each other. Today the number of devices connected to the internet exceeds the population of the world. Identification devices like RFIDs, sensors, etc. today make it possible to connect objects to internet. With these devices and smartphones, we have established domestic automation (DOMATICS) and similar interactive systems and we are not very far away from implementing these technologies for the purpose of making the supply chain more effective. Supply Chain Management will continue to leverage technologies of the future to overcome the challenges. Let us make the supply chain of the future robust and reliable.

With warm regards,

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RECAP OF EVENTS

MAKE IN INDIA - Contribution of Supply Chain Management
Professionals in its Success
Rabi Narayan Padhi

BRANCH ACTIVITIES
Dear Supply Chain Professionals,

Greetings for the season!!!

IIMM Bangalore Branch is committed to cultivate the next generation of supply chain leaders. With this vision, IIMM Bangalore Branch is going to organize SCALE 2016 in the month of September 2016. The present era of the supply chain world without internet is not imaginable. The Internet of Things is bringing about that world at a furious pace — very soon over 26 billion devices of all shapes and sizes will be connected to the Internet. Retailers and manufacturers will face greater complexity than ever before, but there are tangible steps you can take to prepare yourself to thrive in the upcoming whirlwind of the internet of things supply chain. The present special issue is on “Internet of Things / Internet of Everything (IoT / IoE) Enabled Supply Chain”.

The team behind the development of this magazine is keeping in mind to deliver very high standard and quality of news in the industry around us. I am sure that it will provide a platform to the students, supply chain managers to sharpen their writing talent and will also strengthen their academic and managerial capability. The world of supply chain managers is full of achievements and success stories.

The team of MATEMANEWS is committed to provide in its current and subsequent issue, top-notch practical applications, providing a deeper understanding, case-studies of supply chain and explaining the opportunities in the current and future economic climate. Although no single issue of the magazine can fully reflect the diversity of the Supply Chain and its allied areas of management.

Once again, I would like to express my considerable appreciation to all authors of the articles in this issue. These contributions have required a generous contribution of time and effort. It is this willingness to make the effort to share knowledge, concerns and special insights with the IIMM community at large that has made this issue possible.

Thank you all!!

AKASH KUMAR GUPTA
Hon. Editor, MATEMANEWS
In the first part of the 20th Century, the phenomenal growth of Railways, Roadways and Automotive industries in the United States led to a very large movement of goods and services unprecedented in human history. The economics of scale in production could be matched by the economics of moving items from coast to coast. This in turn led to super markets that could be stocked with large quantities of thousands of items. The scale involved necessitated an optimisation – right balance between excess storage that improved access VS shortage that led to customer inconvenience, if not loss of customers – leading to inventory control, mostly at the place of storage – warehouses and supermarkets.

In turn, there was a need to organise, display and move a very large number, necessitating a way to uniquely identify each SKU (stock keeping unit). The UPC (Universal Product Code) that evolved during 1940’s and 1950’s and perfected to suit the needs of different industries – particularly food and drug industry that had an extra dimension of safety of human life – can be termed as the first stage of digitisation of the supply chain

The UPC could uniquely identify every possible item across the factory, warehouse, distribution point and the supermarket leading to significant improvements in accurately monitoring and invoicing the items – leading to benefits for customer, shops, manufacturers and the government. The convenience of material handling led to packaging at the shop floor and store level and containerisation at the airport / depot level leading to reduced friction of moving millions of items to billion customers across the globe.

In early 70’s IBM recognised the need for the next stage of digitisation of the supply chain; a way to capture the UPC reliably, fast and affordable so that the benefits of UPC can dramatically make a huge difference to billions of people. This led to Barcode to capture the UPC, Barcode printers to print Barcodes of various sizes on varied materials and Barcode scanners to capture the barcodes, plus the integration of Barcode information into the stores accounting software. Barcodes represent the second stage of digitisation of the supply chain.

The first generation of barcode scanners inherently used a simple scheme where a human operator used a barcode scanner to physically move the scanner over the printed barcode to capture the information. As globalisation exploded to cover practically the nook and corner of the globe and varied items – literally safety pin to aeroplane - and e-commerce boomed after the widespread availability of Internet after 1995, a way to capture barcodes in a near automated way and without a need for proximity and human intervention, was needed; this led to RFID (Radio Frequency IDentification), the third stage of digitisation of the supply chain.

• UPC in the first stage of Digitisation of the supply chain, solved the identification issue
• Barcodes in the first stage of Digitisation of the supply chain solved the issue of distributing and identifying the identity in a practical way
• RFID ensured the identity to be captured in a way that made global e-commerce possible (Amazon and Flipkart) and even electronic toll!
• IOT (Internet of Things) represents the fourth stage of digitisation of the supply chain where the captured barcodes and the information encoded in them can communicate with other devices, users an software and unleash opportunities unseen today.
Internet of Things (IoT) on Supply Chain

Akash Kumar Gupta
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The internet of things (IoT) is a network of objects equipped with radio frequency identification chips and similar technologies so that the objects could communicate and interact with each other. IoT represents the next evolution of the Internet, taking a huge leap in its ability to gather, analyze, and distribute data that we can turn into information, knowledge, and ultimately wisdom. In essence, IoT can be viewed as billions of connections that will encompass every aspect of our lives.

Supply chain (SC) is a network of supplier, factories, warehouse, distribution centers, retailers, and customers, through which raw materials are acquired, transformed, produced, and delivered to the customers. As a complex network of suppliers, factories, warehouses, distributors, and retailers, the highly effective and efficient operations of a supply chain depend on the speedily moving of information flows and material flows. The rapid advances in information technology (IT) have always resulted in innovation, such as the Internet, that is terms of its potential as a channel for collecting, transmitting and storing information.

The Internet has emerged as an effective means of driving information integration and sharing for a supply chain, as well as has supported various coordination mechanisms across a supply chain. It has made a significant impact on the rapid growth of Internet-based information transfer between companies, their suppliers, and their customers. To make decisions promptly and to accelerate material flows via the integration and sharing of information flows improve the effectiveness and efficiency of a supply chain execution. By using this technology, we can automate manufacturing processes remotely. It can also prove useful in optimizing the production processes. We can manage the inventory and the supply chain. We can also diagnose if the machines require repair and maintenance. We can monitor the emission of toxic gases to avoid damage to workers’ health and the environment.
Being the next generation network, the Internet of Things (IoT), which is a comprehensive extension of the Internet and also can achieve the pervasive connections between objects (things) and objects (things), information automotive collecting and real-time processing, as well as ubiquitous computing, close the gap between objects in the material world and their representation in information systems. It is able to real-timely monitor the process of a supply chain execution and also to further improve the efficiency and effectiveness of supply chain over the IoT.

**Internet of Things Adds Intelligence to Supply Chain**

Companies like Whirlpool and General Motors are using IoT technologies for smarter supply chains. The supply chain is getting a lot smarter, thanks to the Internet of Things (IoT). This added intelligence results in lower costs and added efficiency for companies like General Motors and Whirlpool.

Passive sensors in the supply chain are being replaced with more intelligent versions which put companies in a better position to exert more control over the external environment and ultimately execute better decisions. For example, IoT-enabled factory equipment will be able to transmit temperature and machine utilization parameters, change equipment settings and optimize process work flows to raise overall supply chain performance and efficiency.

**IoT in the Warehouse and on the Factory Floor**

One example is General Motor’s Plant Floor Controls Network, which utilizes Cisco’s IoT technology. Sensors installed throughout General Motor’s manufacturing plants measure building humidity and adjust the assembly line so cars are not painted in overly humid conditions, which impair paint quality. Cisco reckons reductions in repainting have saved General Motor’s millions.

Whirlpool harnesses IoT technology to locate misplaced inventory using radio frequency identification (RFID) tags and networked readers. The elimination of paper tags and manual tracking of parts and equipment in the warehouse results in lower inventory levels and greater efficiency.

Instead of a paper label on a container, an e-paper tag dynamically updates with instructions depending on its location. For example, a pallet of parts is delivered to the cross-dock; its e-paper label indicates what is in the container, and upon arrival an instruction on where the pallet should be delivered is displayed on a screen. If circumstances shift, an instruction is sent to the pallet to indicate that it is to be delivered to a new location at any point in the process.

Manufacturing and logistics are in the forefront of the push for an IoT-enabled supply chain. An injection molding company, for example, has set up its parts ‘crib’ (or bin) on its shop floor, networked it with its ERP system and connected it to vendor systems for stock replenishment as a way to remove human interaction, and to keep work flowing and customer demand supplied.

IoT’s impact will be felt in three key areas: making a profit, keeping product on the shelf and staying compliant with certifications and regulations. This encompasses areas such as inventory flow, factory climate conditions, the detection of the presence of allergens, product shrinkage, equipment monitoring/tracking, delivery, stock/ingredient/component replenishment, inventory control, product lifetime expiration dates and maintenance.

The biggest challenge of integrating IoT with existing supply chain systems such as a company’s ERP is to stay focused on the business goal and implement those integrations that will fulfill the overall needs of the specific business”.

These smart containers are bringing the power of IoT to the users and interacting with them and have a real-time supply chain where containers can bere-dispositioned as needed and re-labeled automatically so they can be delivered to the right place, at just the right time.

IoT brings the same level of trackability to the B2B supply chain that consumers now enjoy when ordering a package shipped by UPS or via Amazon. Instead of just affecting the shipping side, though, IoT’s impact will be experienced
across the entire supply chain from sourcing, to reordering of components, just-in-time manufacturing and warehousing.

The most immediate value gained from IoT has been in the form of improved supervision and monitoring of processes. But the biggest benefits will result as more IoT-enabled systems are linked and thus spontaneously able to reconfigure the supply chain with dynamic routing to solve real-time problems or re-route items instantly based on customer changes.

**IoT in operational processes**

Internet technologies allow supply chains to use virtualizations dynamically in operational management processes. This will improve support for food companies in dealing with perishable products, unpredictable supply variations and stringent food safety and sustainability requirements. Virtualization enables supply chain actors to monitor, control, plan and optimize business processes remotely and in real-time through the Internet, based on virtual objects instead of observation on-site. The concept of virtual food supply chains from an Internet of Things perspective and proposes architecture to implement enabling information systems.

The network, object and process complexity of food supply chains demand for advanced systems to keep food supply chains in control. In addition, food control is complicated by a high uncertainty of both demand and supply. Markets are becoming more turbulent, consumer preferences are changing and consequently demand is diverse and difficult to predict. Food processes throughout the supply chain should be continuously monitored, (re)planned and optimized based on real-time information of the location, food quality and other relevant parameters. As a result, sophisticated control systems are needed that provide Supply Chain (SC) capabilities for: (i) monitoring, (ii) event management, (iii) optimization, and (iv) autonomy

**Virtual SC monitoring** enables the comprehensive monitoring of a product’s condition, operation, and external environment through sensors and external data sources. A virtual object can alert supply chain participants on e.g. food safety incidents, temperature deviations or food quality problems. Monitoring also allows companies and customers to track an object’s location, owner and other operating characteristics, as well as to trace its history, its destination and usage by end customers.

**Virtual SC event management** adds intelligence for corrective actions, i.e. rules that direct how objects must respond to specific events (e.g. “if E. coli contamination is detected, trigger food recall procedure” or “if an inbound shipment is delayed, reschedule outbound logistics”). The condition or environment of objects could be corrected remotely by using actuators (e.g. “if temperature gets too high, switch on the cooler”).

**Virtual SC optimization** improves supply chain operations by applying advanced algorithms and analytics for simulation and decision support based on operational data. Moreover, proactive actions can be implemented based on optimization models and predictive analytics (e.g. shelf life simulation to determine consequences of detected quality changes by the time the product reaches its destination).

**Virtual SC autonomy** a combination of monitoring, control, and optimization capabilities enables objects to operate autonomously when travelling through the supply chain, without on-site or remote intervention by humans. Autonomous objects could also become self-adaptive systems that are able to learn about their environment, self-diagnose their own service needs, and adapt to users’ preferences.

So far, the concept of food supply chain virtualization and its underlying complexity were defined. The next section will present the information system architecture that is designed to implement this concept.

As a proof of concept, the architecture is applied to a case study of a fish supply chain. These developments are expected to establish a basis for virtual supply chain optimization, simulation and decision support based on on-line operational data. In the Internet of Things food supply chains can become self-adaptive systems in which smart objects operate, decide and learn autonomously. The information system architecture as developed in the case study was validated in a
user acceptance test and a solution evaluation. The user acceptance test has verified the following test scenarios: (i) Booking and cancellation of shipment, (ii) Search for cargo to increase vessel capacity utilization, (iii) Early anticipation of cancellation, (iv) Transport planning, (v) Automatic booking of transport, and (vi) Early anticipation cancellation alternatives. The scenarios include in total thirty-one tasks that all are approved after fifteen tests by the business architects and five tests by the key users of the use case team.

**IoT: The Boss**

![Diagram of IoT integration](image)

This, however, will require a mindset change across the supply chain, particularly from larger companies that are accustomed to centralized control. They will have to relinquish a good portion of that control to software-based systems that track and automatically make decisions aimed at improving supply chain efficiency. Letting the system become more dynamic is a struggle conceptually for the supply chain industry, which is so very used to specified processes and control.

The Internet of Things gives managers, especially manufacturers and distributors in the supply chain, the visibility and data to outthink outsmart and outperform their competition. When IoT is brought to scale by small- and mid-sized business, they can become competitive with the behemoths in their industry.

**Conclusion**

The Internet of Things is a concept in which the virtual world of information technology integrates seamlessly with the real world of things. The real world becomes more accessible through computers and networked devices in business as well as everyday scenarios. With access to fine-grained information, management can start to move freely from macro to micro levels and will be able to measure, plan and act accordingly. However, the Internet of Things is more than a business tool for managing business processes more efficiently and more effectively – it will also enable a more convenient way of life.

**Reference:**
1. DHL Report on Internet of Things
Advanced Technologies In Stores, Warehouse & Inventory Management

By Prof. G.S. Raju,
B.E, MBA, M.Phil, (Phd)
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Here we see 3 important phrases 1. Advanced 2. Technologies and 3. Functionaries i.e. Stores, warehouse and inventory.

Advanced means moving one step to another there is a progress or the development and it is continuous and dynamic one. You take any of the products or the service there is a development from yesterday to date.

For example, bags started with covering with leaves, then paper, cotton cloth, jute today it is plastic bags which is not environmental friendly thereby conflicts are arising because the plastics do not easily decomposes but degrades the soil which is bad for the soil which losses the fertility and productivity, which is a dangerous situation.

Let us take another example, watches started with hand wound watches then semiautomatic, automatic, day and date, quartz digital, now many combinations. Today watch has become an ornament rather than a time piece, so the technology is changing the course of the product.

You name any field - information, automobiles, machinery, textiles, education either in product or service oriented business organizations the evident of technologies is seen, which one can’t avoid.

Making use of these technologies, how good we can manage the three functionaries of materials management viz., Stores, Warehouse and Inventory more specifically belongs to storage and distribution of the third function of the materials management.

Second phrase here is the Technology - basically is the concepts and thoughts and ideas or systems evolved over period of time on specific issue thereby can make used for specific requirement. Engineering is action oriented which make use of the technologies to arrive at new product and services. Technology is the order of the day, one cannot neglect or ignore otherwise he/she will be ignored and outdated.

Organizations or the businesses should move with the technology, which is more dynamic in nature and fast changing and depending upon the customer and industry requirement per se. There is no second thought about it and one must be prepared to accept and live with it. Technology is boon to the industry, if it used properly otherwise it is a curse to the environment. It also has to be eco friendly.

Technology is used for development and modernization but should also safeguard the environment, therefore development, technology and environment should go hand-in-hand not in the opposite direction. There is a WTO policy guidelines to be adhered to by all the member countries of the WTO. Technology has got both advantages and disadvantages and must take maximum advantages and minimize the disadvantages in the right way of making use of the technology. Technology is dependent upon your product or service and to that technology, software can be used, for e.g. for retail, manufacturing, defense, textiles, automobile spares parts, etc., software can be made available and can be suitably employed.

Technology is for fastness, quickness, automation, make simpler of operations, elimination of majority of manual processing, to meet the challenges in the business scenario, to meet the competition, to meet the customer wants, customer choices, off all the things it is the development which is the major focus.

We are looking here for the advanced technologies to be used in stores, warehouse and inventory management.

Management is simply means getting things done from others at minimum cost to get maximum output. Management otherwise means mange the men tactfully, thoroughly and technically and target fully. Men are one of the resources of the
business which is most critical and complex resource to manage. Here men also include women who become part of the human resource. The other resources are Materials, money, machines and methods which forms the five resources of business organizations. To be more specific human resource managed by human resource management, includes of all levels, materials by materials management, includes all types of materials, money by finance management, machines are by operational management and includes of all types of machines, capital machines for making the products, and consumables as well for making of services oriented ones such as for transport, information, hospitals, housekeeping, waste management, education and other service oriented ones even for our subject concerned service oriented viz., stores, warehouse and inventory related machines for managing effectively and efficiently and methods by system management comprising of policies, planning, strategies and procedures.

WE have to manage these resources by using the management functions namely 1. Planning; 2. Organization; 3. Staffing, 4. Directing; and 5. Controlling. Even in the case of stores, warehouse and inventory by using advanced technologies is the base for managing these service oriented functions of stores, warehouse and inventory.

The base line here is the advanced technologies so what are these technologies, which are

- Information technology
- Automation
- Flexibility based
- Standardization
- Variety reduction
- Elimination of manual approaches
- Robots
- Automated Guided Vehicles
- Suitability
- RFID selecting radio frequency identification built in state of art technology using industry standards
- Cloud computing
- Computers/ printers
- Bulk carriers
- Auto ID Data Capture (AIDC) technology, such as
  - Bar code scanners
  - Mobile computers,
  - Wireless LANs
  - To efficiently monitor the flow of products.
- Software - SAP, ERP, etc.,
- in usage of
- Data in
- Movement
- Storing
- Handling
- In all the functions of stores, warehouse and inventory these advanced technologies are used.

Benefits due to Advanced Technologies Expected:

1. Reduces manual work
2. Fastness/ easiness
3. Maximum output with minimum efforts
4. Bulk load
5. Identification of materials
6. Allocation/ Classification of materials
7. Fast Recording
8. Accurate accounting
9. More data storage
10. Automation
11. Tracing of the material at given point of time
12. Paperless office
13. Minimization of cost
14. Same data can be used for various purposes, etc.,

Objectives of the Stores:

The efficient planning & carrying out of the stores management should aim at:

* Providing efficient service to production and other departments.
* Reducing the cost of carrying the goods.
* Minimizing the costs of operation
* Providing accurate, up-to-date stock, duly supported by all documentation.
* Triggering off materials planning about movement of materials, slow non-moving aspects and excess to schedule of materials.
* Controlling the inventory.
* Preventing the occurrence of Obsolescence.
* Good housekeeping.

The Nature and Importance of Stores:

* Place for the storage of goods.
* It also includes highly specialized storage facilities so that materials stored are properly preserved their value and do not deteriorate during the storage process.

The Role of the Stores in the Logistics System:

The store is a point in the logistics system where a firm stores or holds raw materials; semi-finished goods, or finished goods for varying periods of time. Holding goods in a storage location stops or interrupts the flow of goods, adding cost to the product or products.

Functions of stores: Depending on the type of materials stored.

1. Receiving through valid documents, physically the materials for movement from inspection. Transporting materials through various carriers may be forklifts, trolleys, materials handling equipments.
2. Storing possible by Racks/Bins/Aisles/Cartons/Floor/wooden pallets/boxes/cans, etc
3. Preserving possible by applying oil/grease/seals/outsides the stores/inside the stores/open/ closed/ environmentally protected
4. Distribution by physically and with proper documents where in movement of materials by using forklifts/trolleys and materials handling equipment
5. Security and protection through proper lock and keys
6. Accounting by received/distributed/balance available materials, where information technology means are used in computing the price and quantity and where distributed, when and how much who is authorized and who actually received at the other end. All these information are available at a given point of time through usage of information technology.

Warehouse

* The warehouse is where the supply chain holds or stocks the goods.
* Warehouse is a building/structure or protected enclosure used for the purpose of storing goods
Warehousing provides time and place utility for raw materials, industrial goods, and finished products, allowing firms to use customer service as a dynamic value-adding competitive tool.

It is an activity/trade involving deposit of goods, merchandise, commodities and wares in the warehouses for safe custody and return on payment of warehousing charges.

Warehousing is an economic activity

Is a key part of the supply chain

**Functions of Warehousing**

- Warehousing involves grading and preservation of stocks, handling and transportation of commodities to and from the warehouses, standardization, market intelligence and insurance etc.
- Primarily aims to control the movement and storage of materials within a warehouse.
- Process the associated transactions, including shipping, receiving, stacking and issuing.
- The systems also direct and optimize stock put away based on real-time information.

**Benefits of Warehouse Management**

- Provide a place to store & protect inventory
- Reduce transportation costs
- Improve customer service levels

**Inventory Management**

- Inventory plus management
- Inventory is the stock of items held within us to meet the future requirement.
- It is an idle resource of any kind which has economic value.
- It is current asset shown in the balance sheet at cost
- Liquid asset can be converted into cash easily
- Available in one’s own premises is merchandise raw materials, finished and unfinished products which are yet to be sold.
- Valuing of inventory used in financial statement
- Inventory is nothing but money in the form of stock available
- Inventory is a double-edged sword, higher or lower is a problem
- Therefore managing inventory is an important aspect to be at optimum or appropriate level through management functions thru Planning, Organizing, Staffing, Directing and Controlling.

**Importance of Inventory**

- Smooth and efficient functioning
- Helps in breakdown/repairs
- To meet the demand
- To meet the schedules of production
- Improves the business line of performance
- Impact on profitability
- To invest minimum in inventory
- To maintain optimum size the inventory
- Place over at the right time/with right source/ for right quantity at right price with right quality

A Part of logistics system that stores products between point of origin and point of consumption
Objectives of inventory

✓ Maximize the customer service
✓ Minimize the costs

Types of inventory

✓ Raw materials
✓ Consumables
✓ Work in process
✓ Finished products
✓ Spare parts
✓ Bought outs
✓ Packing materials
✓ Perishable materials
✓ Hazardous materials
✓ Strategic materials

Costs associated with inventory

✓ Purchasing/ordering costs : TC incurred/ Total number of orders
✓ Inventory carrying costs : Opportunity costs, insurance costs, property tax, storage costs, obsolescence costs
✓ Inventory carrying costs = Total Inventory Mgt costs/ Average inventory X 100
✓ Under stocking Cost (KU)/Cost of loss in production
✓ Over stocking Costs : not useful/ not required
✓ Total acquisition costs : 83% costs controlled by supplier
  12% costs by logistics costs
  5% Internally controlled costs

Inventory management : By systems used : Reorder level system, ROL = Normal consumable during lead time + Safety stock
✓ Fixed time system
✓ Imprest stock control
✓ Open access Bins ( Two Or Three)
✓ Perpetual review system
✓ Periodic Review system

Management of Inventory through the systems with the help of technology available, which type of technology would be helpful for what type of system is the required, selection and adoption of technology is the most important aspect.

EOQ (Economic Order Quantity) = \( \sqrt{\frac{2 \times A \times U}{C \times I}} \)
A = Annual consumption in units
C = Unit cost
U = Cost/ order
I = Inventory carrying cost as percentage
Q = Quantity to be ordered per order
Valuation of Inventory:

1. Methods of Average:
   (a) Simple average method
   (b) Weighted average method

2. Depreciation method

It is evident that without the technology, today’s business would be in slow and cannot reach the customers in quick session. This is true even with storage and disposal function of the materials management. The important functions such as storage, warehousing and inventory are to be linked with the advanced technologies available in order to get the benefits. It has been noted here what the benefits are and the various technologies are to be made use of to get the benefits. The technologies to be adopted depends on the type of product and service one is in operating so much so of their storage and inventory functions.

It may not be possible to give all the details of various technologies adoptable in the mentioned functionaries since these technologies are varied with ones requirement and therefore may not be possible to give all the details. But one can approach for specific need to the service providers such as software providers, ERP solutions, IT solutions, Warehousing solutions, accounting solutions, the tools, transport and handling equivalents, etc., which are required invariably. Each one is big enough to deal, however to make it short certain common technologies which are invariably used are to be referred here like Information technology, automation, data storage, data maintenance, data retrieval, data analysis, information generation, information reporting are some of the very essential in terms of the functionaries so much so with the materials storage and disposal functions.

One important and latest technology that needs to be mentioned here is “Cloud Computing” which is very much advanced technology and capturing the business in today’s scenario. From user’s point of view, a good cloud computing definition is using web-based applications and/or server services that you may have to pay to access rather than software or hardware that you buy and install locally.

Cloudcomputing systems are normally designed to closely track all system resources, which enables providers to charge customers according to the resources each consumes. Some customers will prefer this so-called meter. Cloudcomputing involves three major premises: Online File Storage has been around for many years, but is now becoming very widespread as hard drive space now costs less than a dollar per gigabyte. Cloud Computing is a relatively new term that conveys the use of information technology services and resources that are provided on a service basis.

According to a 2008 IEEE paper,

“Cloud Computing is a paradigm in which information is permanently stored in servers on the internet and cached temporarily on clients that include desktops, entertainment centers, table computers, notebooks, wall computers, hand-holds, sensors, monitors, etc.”

Cloud Business Applications

All of the commonly-used desktop business applications have browser-based cloud equivalents, including email, word processing, spreadsheets, presentation software, etc. Usage is charged on a subscription basis, monthly or annually. Online data storage is included in a subscription and more can be purchased as needed.

Well known examples of cloud business software suites include Google Apps, Apple iCloud, and Microsoft Office 365 (Office 365 is actually a hybrid that includes web-based and desktop applications, allowing you to work on or offline). Accounting software such as Intuit Quick Books is also available in cloud versions.

Categories of Cloud Computing

The above examples are from one category of cloud computing, known as Saas (Software as a Service). It might be more
accurate, however, to define cloud computing as computer services delivered via the Internet, as cloud computing encompasses more than web applications and data storage.

There are three categories of cloud computing:

- Infrastructure as a Service (IaaS),
- Platform as a Service (PaaS) and
- Software as a Service (SaaS).

**Infrastructure as a Service (IaaS)** provides the user with virtual infrastructure, such as servers and data storage space. This is where virtualization fits into the cloud. The cloud service provider owns the equipment and is responsible for all the server hardware/software infrastructure costs. For a business, switching to a cloud infrastructure can offload the costs of housing, managing and maintaining mail/file/database servers. Backups and data security become the responsibility of the cloud provider as do server software/hardware upgrades, which can be very costly for businesses (ask any business that has performed a major Windows Server upgrade).

**Platform as a Service (PaaS)** provides the user with development environment services where the user can create and run home-grown applications. This allows the software development/support teams to develop and test applications on various hardware/software platforms without having to constantly upgrade, manage, and maintain the platforms in-house.

**Software as a Service (SaaS)** provides the user with access to already created applications that are operating in the cloud as described above. So if, in another example, I use cloud computing to access online accounting and payroll services, rather than investing in accounting and/or payroll software and installing it on the server that resides at my business, I am using SaaS.

**Advantages of Cloud Computing for Business**

All three categories of cloud computing offers obvious advantages for businesses of all sizes. The huge advantage is that you don’t need the infrastructure or the knowledge necessary to develop or maintain the infrastructure, development environment or application; someone else is taking care of all that. In addition, cloud computing costs are constantly dropping as the major cloud providers such as Google, Amazon, Microsoft and Oracle are engaged in a vicious price war. Outsourcing to the cloud can provide particular benefits to small businesses. But generally, in my opinion, cloud computing is going to make accessing, using and managing IT easier for small businesses than ever before. Why cloud computing? Cloud is a metaphor for the Internet. Plus it’s just a catchy name. Marketing always matters.

- Cost Efficient
- Almost Unlimited Storage
- Backup and Recovery
- Automatic Software Integration
- Easy Access to Information
- Quick Deployment

**Examples:** When you use services or applications such as Salesforce or Google Maps, you are participating in cloud computing.

**Pros and Cons of Cloud Computing**

In cloud computing models, customers do not own the infrastructure they are using, they basically rent it, or pay as they use it. The loss of control is seen as a negative, but it is generally out-weighed by several positives. One of the major selling points of cloud computing is lower costs. Companies will have lower technology-based capital expenditures, which should enable companies to focus their money on delivering the goods and services that they specialize in. The cloud,
then, in this model, is the single point of access for the computing needs of the customers being serviced. In the cloud computing definitions that are evolving, the services in the cloud are being provided by enterprises and accessed by others via the internet. The resources are accessed in this manner as a service—often on a subscription basis. The users of the services being offered often have very little knowledge of the technology being used. The users also have no control over the infrastructure that supports the technology they are using. There will be more device and location independence, enabling users to access systems no matter where they are located or what kind of device they are using. The sharing of costs and resources amongst so many users will also allow for efficiencies and cost savings around things like performance, load balancing, and even locations (locating data centers and infrastructure in areas with lower real estate costs, for example). Cloud computing is also thought to affect reliability and scalability in positive ways. One of the major topics in information technology today is data security. In a cloud infrastructure, security typically improves overall, although there are concerns about the loss of control over some sensitive data. Finally, cloud computing results in improved resource utilization, which is good for the sustainability movement (i.e. green technology or clean technology).

Thus, from the above, you can see, the pros outweigh the cons.

Cloud Computing—Companies to Watch

There is a big push for cloud computing services by several big companies.

Amazon.com has been at the forefront of the cloud computing movement. Google and Microsoft have also been very publicly working on cloud computing offerings. Some of the other companies to watch for in this field are Yahoo!, IBM, Intel, HP and SAP. Several large universities have also been busy with large scale cloud computing research projects.

In Conclusion

Like everything else, cloud computing too has its pros and cons. While the technology can prove to be a great asset to your company, it could also cause harm if not understood and used in real sense.

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Secretariat : Ph: 25327251 /25327252 Mobile: 9900862486
What is Green Sourcing?

Green Sourcing has steadily become the buzzword in the corporate world. With increasing demands of having sustainable procurement owing to its implications in economic, social and environmental perspectives, more and more businesses are realizing the benefits of having a sustainable supply chain.

Procurement trends of 2015 and the first half of 2016 clearly indicate a paradigm shift towards green sourcing. Ideologically, green sourcing as a concept focuses on holistic development and benefits for all parties involved in the procurement process. Although there are some variations where businesses aim at their private profits and revenue growth, still the advantages of a sustainable supply chain can certainly be realized at various interdepartmental levels as well as across suppliers, vendors and companies.

Green Sourcing emphasizes the need to have standard practices of procurement that not only use avenues that are environmentally friendly but methods of procurement that transcend macroeconomics and corporate social responsibility. Green Sourcing through a sustainable supply chain has a plethora of benefits for the organizations as well as vendors. Every product in procurement needs a company’s business goals, company policies and the decision making body to be in complete sync to be able to make the best choices of procurement. This is exactly where Green Sourcing changes the entire dynamics of procurement.

Sustainability is of paramount significance in economics. With environmental benefits and convenience of using green sourcing for procurement, businesses have realized the potential rewards for all parties involved. There is still some time before green sourcing becomes a standard practice for businesses all across the globe. Presently, as per a recent study, 92% businesses identify procurement and its requirement to have a sustainable supply chain as one of the most significant aspects in a company’s modus operandi. Businesses are yet to completely switch over to green sourcing but there is a bright light at the end of the tunnel. Experts observing the situation are optimistic that we are set at the brink of depending entirely on green sourcing for all procurement requirements of a company.

Green sourcing not only promotes having a sustainable supply chain from the perspective of companies ordering the goods and products, but also for suppliers or vendors who themselves have a corporate social responsibility and a need to have optimum impacts on their business by driving revenue growth through sustainable procurement.

Main Features

Green procurement steams from pollution prevention principles and activities. Also known as green or environmental purchasing, green procurement compares price, technology, quality and the environmental impact of the product, service or contract. Green procurement policies are applicable to all organizations, regardless of size. Green procurement programs may be as simple as purchasing renewable energy or recycled office paper or more involved such as setting environmental requirements for suppliers and contractors.

“Green” products or services utilize fewer resources, are designed to last longer and minimize their impact on the environment from cradle to grave. In addition, ‘green’ products and services have less of an impact on human health and may have higher safety standards. Whilst some ‘green’ products or services may have a greater upfront expense, they save money over the life of the product or service.

Before a green procurement program can be implemented, current purchasing practices and policies must be reviewed and assessed. A life cycle assessment of the environmental impacts of products or services is required and a set of environmental criteria against which purchase and contract decisions are made has to be developed. The outcome is a regularly reviewed green purchasing policy that is integrated into other organisational plans, programs, and policies.
green purchasing policy includes date-stamped priorities and targets, the assignment of responsibilities and accountability and a communication and promotion plan.

Green procurement policies and programs can reduce expenditure and waste; increase resource efficiency; and influence production, markets, prices, available services and organizational behavior. They can also assist countries in meeting multi-lateral requirements such as the Kyoto Protocol and Rotterdam Convention. International Standards Organization and other bodies have established guidelines for green procurement programs.

Obstacles to implementing a green procurement program include: lack of readily available environmental friendly products; expensive or zero environmental alternatives; inaccurate studies; lack of organizational support; and inaccurate or unsupported environmental claims by manufacturers and suppliers.

Legislation, organizational policies, directives, environmental management systems or multi-lateral agreements often require organizations to implement a green procurement program.

Amended Procurement Regulations

As early as year 2000, the Government amended its procurement regulations to require bureaux and departments to take into account environmental considerations when procuring goods and services. Specifically, bureaux and departments are encouraged to avoid single-use disposable items, and purchase products:

- with improved recyclability, high recycled content, reduced packing and greater durability;
- with greater energy efficiency;
- utilizing clean technology and/or clean fuels;
- which result in reduced water consumption;
- which emit fewer irritating or toxic substances during installation or use; or
- Which result in smaller production of toxic substances, or of less toxic substance, upon disposal.

Benefits of Green Procurement

**Brand Image**
An organization that has gone green is seen as a good corporate citizen. This increases its image in the eyes of the public.

**Customer Satisfaction**
An organization that goes green in response to customer concerns increases its levels of customer satisfaction, a key point in customer retention.

**Reduced Risk**
Not only is any company that does not go green risking a run in with the law by failing to comply with green regulations, which are multiplying at the rate of Fibonacci’s rabbits around the world, but it is also maintaining more liability than it needs to. Hazardous chemicals are just accidents, and lawsuits, waiting to happen. With green purchasing, you can offset financial and environmental risk, rather than just inheriting it from your suppliers.

**Cost Reduction**
Going green doesn't cost more. Most of the time it actually saves money, especially when the new products use less energy, generate less waste, and last longer. Plus, sometimes green products work better than their toxic counterparts!

Going green can reduce the following costs, among others:
- hazardous material management costs
- operational costs
- repair and replacement costs
- disposal costs
- health & safety costs (which often come in the form of liability insurance and expensive settlements)

**Increased Shareholder Value**
A better brand with happy customers who keep coming back and drive up sales while costs keep falling results in significant ROI and EPS, and this makes investors as giddy as school goers- which is every company's #1 goal, whether they admit to it or not.
Supply chain managers have a tremendous impact on the success of an organization. These managers are engaged in every facet of the business process – planning, purchasing, production, transportation, storage & distribution, customer service, and more! In short, these managers are the “glue” that connects the different parts of the organization. Their performance helps organizations control expenses, boost sales, and maximize profits.

The ‘Make in India’ scheme offers an attractive range of investment opportunities i.e. from aviation and defense to automobiles to biotechnology to renewable energy to yoga and wellness.

The scale, complexity and interdependence of today’s supply chain service systems have been driven to an unprecedented level, due to demographic changes, advance in technology and globalization of markets.

Challenge: Rural India lives in villages that are far flung and remote. Reaching these villages is not easy given the poor state of roads, power problems, low per capita disposable incomes that is half the urban disposable income, seasonal consumption linked to harvests and festivals; and inaccessibility to conventional advertising media.

Opportunity: Rural India comprises of 6,10,000 villages that are spread over 3.2 million sq km. The 700 million Indians living in these villages constitute a large consuming class with 41 per cent of India’s middle-class and 58 per cent of the total disposable income. These 128 million households provide a huge opportunity for goods and services that today are not available due to absent last mile connectivity. The present paper provides a brief overview of Contribution of Supply Chain Professional in Make in India. Opportunities and challenges encountered by the emerging make in India’s economy. It is heartening to note that India is called the ‘Manufacturing hub’ of the world.

Key Words: (Supply Chain, Global, Economic, Crisis, Emerging Markets)

I. Introduction: In the rapid changing business scenario and corporate climate every organisation wants to win at the customers end. And competing global marketplace. Due to advance in technology and globalization of markets, every service provider has to improve their internal processes in order to stay competitive. Not only in the speed of business getting faster but the scope is getting wider.

‘Make in India’, a major national initiative which focuses on making India a global manufacturing hub. Key thrust of the programme would be on cutting down in delays in manufacturing projects clearance, develop adequate infrastructure and make it easier for companies to do business in India.

The 25 key sectors identified under the programme include automobiles, auto components, bio-technology, chemicals, defence manufacturing, electronic systems, food processing, leather, mining, oil & gas, ports, railways, ports and textile.

The national programme aims at time-bound project clearances through a single online portal which will be further supported by the eight-member team dedicated to answering investor queries within 48 hours and addressing key issues including labor laws, skill development and infrastructure.

II. Objective: Our Prime Minister gave a clarion call as Make in India. He is envisaging that India should become a manufacturing hub for the entire world using resources in terms of raw material and technology available in India.
Many have perceived the call in divergence and expressed different opinion. Larger understanding is that India should reduce our import quota at least for components of subassemblies and assemblies of Capital Machinery and also avoid or reduce import of fully finished Capital Machinery. In case, Import of such machinery is inevitable, insist overseas suppliers to source minimum of 30% components from India. This will, to some extent, control the outgo of Foreign Exchange as we may earn foreign exchange by exporting components to our own suppliers of unavoidable Capital Machinery imports.

As companies increasingly use their supply chain to compete and gain market Share, spending and activities in this area are notably on the upswing. Technology and process upgrades at forward-thinking companies clearly show that supply chain excellence is more widely accepted as an element of overall business strategy and that increasing value to customers is not just management’s, but everyone’s business.

This Make in India concept will bring new trend in supply chain function. Instead of conventionally plant level production planning it is better to focus on demand driven model, which is more customer centric. This will also have a telling effect on Inventory holding of the company.

In the present, global business environment, most impacted area is supply chain. Sourcing of material, manufacturing, distribution, invoicing, have all been significantly impacted by the increased integration of global customer and suppliers.

Make in India to be successful, Indian companies is to manage increased global competition and price pressure. They have to look towards supply chain at ways to reduce cost and to create more efficient value chain so that they can remain globally competitive. Cost improvements around inventory management, logistics operations, material management and manufacturing costs, including raw material and component acquisition can be found with:

1. Transportation/distribution management
2. Improved product lifecycle management
3. Improved strategic sourcing and procurement

Suppliers can differentiate themselves in a number of ways as well as provide Value, addition services and capabilities to their customers. The differentiating factors include:

1. Vendor Managed Inventory (VMI)
2. RFID
3. Labelling and packaging

Yet another increased trend is to outsource all non-core jobs. Some time, to get the best in the Industry from superior and high tech or cost competitive suppliers outsourcing is resorted.

In a Make in India project, which is more global even labelling, compliance to environment and responsible packaging are critical to success.

Collaboration is seen in the increased focus around RFID (Radio Frequency Identification). Value chain leaders are looking at functional areas to better integrate the supply chains of their partners with themselves. RFID can serve as a means to quickly and efficiently ensure that critical product information is communicated as products flow through the value chain and ultimately to the consumer.

As supply chain networks have become more complex, the need for greater and Improved supply chain technology solutions have become critical. Enterprise Resource Planning (ERP) and best Supply Chain Management (SCM) solutions have been developed to address the needs of manufacturing and distribution companies such as Inventory Optimization, Logistics Optimization, Product Lifecycle Management, RFID demand based Manufacturing Optimization etc.,
These technologies have helped enable the supply chain function to innovate, drive cost optimization, improve service and meet customer expectations better than ever. In order to have sustainable improvement in supply chain performance, a business must have the right balance of processes and technology.

To remain successful, companies must bestow intensive focus on supply chain excellence and may even need to re-evaluate their current processes and performance.

In the areas like Demand Planning, Globalization, Outsourcing etc. Companies must embrace Supply Chain Excellence as a core competency at all levels throughout the organization and recognize that supply chain management is executed in all relevant areas, not just the functional supply chain function.

The question automatically arises as to whether India is having sufficient skilled manpower on different aspects and at all levels of supply chain. Again our Prime Minister’s call of SKILL INDIA dream can also be realized which is an essential part for MAKE IN INDIA project.

Training and Certification on Demand planning, Procurement and its components like indenting, negotiating, commercial and taxation areas, warehousing, Inventory optimisation, Logistics and even Export and Import Management, will give adequate support to MAKE IN INDIA project. III.

I. Global Manufacturing Hub – “Make In India”
1. This welcome emphasis in our foreign investment policy on efficient and competitive domestic manufacturing will serve multiple objectives.
2. First and foremost, it will enhance job opportunities within the country;
3. Second, it will minimize the imports of such products into the country, thereby mitigating the pressure on our trade deficit;
4. Third, in the long run, if not in the near-term, it will help augment and diversify our exports from the manufacturing sector;
5. Fourth, it will help in bringing latest technologies into the country and lastly, such domestic manufacturing will help minimize some of the trade frictions we have with other countries.

II. Global Challenges of SCM In Downgrade Economy!

SCM follows this notion into supply chain operations. It is the pathway to SCM results, a combination of the Emerging Concepts, Technology and processes. options to guide companies to their results quickly as the complexity and speed of the supply chain increase due to the effects of

- Global Competition
- Rapid Price Fluctuations
- Surging Oil Prices
- Short Product Life Cycles
- Expanded Specialization
- Near-/Far-And Off-Shoring
- And SCM Talent Scarcity

SCM leverages proven solutions designed to rapidly deliver results with the agility to quickly manage future change for continuous flexibility, value and success.

- Globalization and Liberalization
- Removal of barriers in International Trade And Business
- Rapid Developments In It
- Rising Customers' Demand Towards New Products And Changes In Existing Products
• Significant Changes In Buying Behavior Across The Globe
• Worldwide Knowledge Dissemination Through Electronic Technologies

III. Focus Segment In Down Grade Economy

1. Cost Reduction,
2. Cost Avoidance,
3. Cost Elimination,
4. Cost Control,
5. Cost Consciousness,
6. Cost Savings,
7. Cost Optimisation etc.

Challenges in Building and Sustaining Supply Chain:

1. Challenging for Supply Chain Manager – i.e
   - Acquisition Cost
   - Down Time Cost
   - Conversation Cost
   - Post Ownership Cost.

2. Increase cross border sourcing and selling.
3. Collaboration of stakeholders across the value chain.
4. Overseas market differences
5. Difficulty in understanding markets
6. Protectionism
7. Multi-currencies,
8. Multi valuation method in different countries.
10. Different countries policies and different trading protocols in different countries.
11. Lack of management expertise in building up the overseas logistics and distribution networks
12. Share services centres for logistical and administrative function.
13. Increasingly global operations also require increasingly global coordination and planning to achieve sustainable Supply Chain

Emerging Concepts To Be Adopted by Supply Chain Professional

1. Demand Planning
2. Globalization
3. Increased Competition and Price Pressures
4. Outsourcing
5. Shortened and More Complex Product Life Cycles
6. Collaboration Between Stakeholders in the Extended Supply Chain
7. Emerging Concept Green Supply Chain For Environment Sustainability

IV. Recovery from Economy Melt Down – A Combat Strategy

“Vibrant Role of Supply Chain Managers, To Combat with Downgrade Global Economic Circumstances; An Innovative Approach -Towards Industrial And Service Excellence” The well-known SCOR model to identify the strategies required to counter the melt down.

The SCOR model encompasses five major areas viz. PLAN, SOURCE, MAKE, DELIVER & RETURN in SCM. Let us look at each of these:

1. Invest in better forecasting
2. Improve System Sensitivity within the Company.
3. Accelerate Business Processes & Cycles
4. Compress Lead Times
5. Know Your Suppliers: Train, Develop, Rate and Improve them.
6. Invest in E-Procurement & Modernizing Procurement processes
8. Examine & Reduce Logistics & Warehousing Costs
9. Employ Value Analysis/Value Engineering
10. Introduce Green Purchasing practices.

V. Conclusions:
When the sales are down-the focus shifts to reducing costs. Generally, the manpower related costs like salaries, travel, training, etc get the first axe. These cause heart-burns, reduced morale and sometimes weaken the companies as good people start leaving also. Focusing on supply chain related costs in these tough times can result in cost saving “without tears”.

A rupee saved in any area is a rupee in profits. Supply Management techniques like Value Analysis offer unprecedented opportunities of cost reduction, profit improvement and better management of resources.

Efficient Resource Management – Men, Money, Machines, Materials, Markets and Time and Technology are the keys in handling downturns/melt-down. This is the time to focus on vital issues like Green Purchasing for which no one has time in good times.

Today’s Globalization increases the opportunities for buyers. As buyers increase their focus on environment improvement, which increases the supplier environmental performance. It is true for organizations that regard environmental improvement as a social goal, not just an issue cost, risk and public image. Today’s highlighted agenda is to raise environmentally responsible consumption and production to recover environmental quality, reduce poverty and bring about economic growth, with resultant improvements in health, working conditions, and sustainability.

Contribution of Supply Chain Professional in Make in India offers several opportunities in these tough times and some of these covered in this article are:

1. Invest in better forecasting
2. Improve System Sensitivity within the Company.
3. Accelerate Business Processes & Cycles
4. Compress Lead Times

5. Know Your Suppliers: Train, Develop, Rate and Improve them.
6. Invest in E-Procurement & Modernizing Procurement processes
8. Examine & Reduce Logistics & Warehousing Costs
9. Employ Value Analysis/Value Engineering
10. Introduce Green Purchasing Practices.

VI. References:

Books

RECAP OF EVENTS

23rd April 2016 MM Day Celebration:

The final event – Materials Management Day – was celebrated in the evening on 23rd April 2016 at Woodlands Hotel, Bangalore. Theme was “MAKE IN INDIA – Contribution of SCM Professionals in its success” Dr. Anil Chinnabhandar, Sr. Vice President, Landmark Group India – Max Retail, was the Chief Guest. Dr. B.N Balaji Singh, Dean, Management Studies PES university was the Keynote Speaker. Function started with invocation by Mrs. Gayathri Keshav.

Mr. M.S. Shankarnarayanan, Branch Chairman welcomed and introduced Chief Guest and Keynote Speaker to the gathering. Mr. D. Subramani, Vice President (South), IIMM gave presentation about IIMM Activities. Mr. Srinivas V. Rao Vice Chairman, IIMM briefed on the MM Day activities. Chief Guest Dr. Anil Chinnabhandar, Sr. Vice President, Landmark Group India – Max Retail and Key Note Speaker Dr. B.N. Balaji Singh, gave away the prizes to the winners of Essay Contest, Quiz Competition, Debate Competition and Best Supply Chain Manager Competition and also Honored Sr Members and Organizers of MM Day Celebration Committee. Dr. B.N. Balaji Singh, Dean Management Studies, PES University, Key Note Speaker addressed the gathering on the theme “MAKE IN INDIA – Contribution of SCM Professionals in its success”. He focused on the key challenges that India is facing in “Make in India” concept. He emphasized that we should feel proud on the products Made in India, for use in India and used by Indians, then only rest of the world will accept the product. He mentioned the tasks which we need to done at the Government level and at the Corporate level. As a keynote speaker he cited examples as to how other countries like China, Japan, Germany have become successful in this process.

Dr. Anil Chinnabhandar Chief Guest of MM Day in his energetic speech focused on India's achievement in Make in India development. He also mentioned the key strengths where India can be leader in the Supply Chain Management and also why the entire world is looking at India as a big market. He focused on the future opportunity for the growth of Make in India.

Mr. K.V. Sudhindra, Hon. Secretary, proposed vote of thanks. Mr. S. Subhas, Sr. Member was the Master of Ceremony. The program concluded with a dinner.

29th April 2016 – Inhouse Training Program:

Inhouse training program conducted at Pune for Hospital Executives and Doctors on Inventory and Materials Management on 29th April 2016. Mr. P Srinivas Rao, Sr. Faculty handled the session. Program ended with very good interaction sessions and received excellent feed back from the participants.

4th May 2016 – Inhouse Training Program:

Inhouse training program conducted at Nagpur for Hospital Executives and Doctors on Inventory and Materials Management on 4th May 2016. Mr. P Srinivas Rao, Sr. Faculty handled the session. Program ended with very good interaction sessions and received excellent feed back from the participants.

24th May 2016 – One day workshop:

One Day workshop on “Six Sigma Quality for Customer Satisfaction – Supply Chain Management” at IIMM Conference Hall. Mr. T.K. Ramasubbu, Mr. A.V. Naveen Chandra, Mr. P.L. Mohan, K.S. Mohan Kumar Sr. Faculty of IIMM handled the session. The feed back received was very good.
RECAP OF EVENTS

27th May 2016 – Evening Lecture Program:

An evening lecture program was organized at Hotel Woodlands Hotel on the Topic "e-Procurement 1 on 1", on 27th May 2016 (Friday) for the benefit of IIMM Members & Students. Speaker: Mr. R. D. Vijay Kumar, Founder Principal – B-hive.

17th June 2016 – Evening Lecture Program:

Indian Institute of Materials Management, Bangalore has organised Monthly Lecture Program on “Top Trends in Logistics and Top Trends in Shipping in India and benefit to customers” by Mr. R. Raghunandan, Branch Manager, Kawasaki Kisen Kaisha Ltd for the benefit of IIMM Members & Students

24th and 25th June 2016 – Two Days Workshop:

Two days workshop on “Cost Reduction in Sourcing & Purchasing” was organized on 24th and 25th June 2016 at Royal Orchid Central, Bangalore. About 30 participants were attended the program. Mr. T.K. Ramasubbu, K.P. Rajendran, Mr. H.R.T. Chari, Mr. A.N. Sriram, Sr. Faculty handled the session. Program ended with very good interaction sessions and received excellent feedback from the participants.

BRANCH ACTIVITIES

Dr. Anil Chinna Bhandara, Chief Guest addressing Gathering on 23.04.2016

Dr. Anil Chinnabhandar, Chief Guest for MM Day awarding BEML Trophy for 1st prize winner of BMM Competition on 23.04.2016


Dr. Baloji Singh, Deen PES University, Gining Key note speak on 23.04.2016 on MM Day Celebration

Group of Organising Committee - MM Day with Chief Guest and Key Note Speakers

Invocation By Mrs. Gayathri Keshav on MM Day Celebration on 23.04.2016
Members attended on MM Day celebration held on 23.04.2016

Mr. C. Subbakrishna, Former National President welcoming Dr. Balaji Singh, Key Note Speaker of MM Day on 23.04.2016

Mr. C.L. Kapoor, Past National President, welcoming Chief Guest - Dr. Anil Chinna Bhandar on 23.04.2016

Mr. D. Subramani, Vice President (South) giving presentation on about IIMM

Mr. C. Subbakrishna, & Mr. C.L. Kapoor, Former National President felicitating Dr. Murthy - Distinguished Member and Sr. Faculty

Mr. K.V. Sudhindra, Hon. Secretary, proposing Vote of Thanks on 23.04.2016 MM Day Celebration

Mr. M.S. Shankarayarayanan, Branch Chairman, Awarding Certificate to CIT Course Candidate Ms. Trina Baruah, 1st Rank Holder

Mr. S. Subhas, Senior Member was the MC for MM Day on 23.04.2016

Ms. Sirisha Jetri, II Prize winner of BMM Competition receiving trophy from Dr. Balaji Sing, Key Note Speaker, 23.04.2016

Mr. Srinivas V. Rao, Vice Chairman, giving presentation about MM Day

Special Issue of MATTEMANews released on 23.04.2016

MM Day celebration by Dignitaries

Taking Oath by Members presented on 23.04.206 MM Day
BRANCH ACTIVITIES

Mr. M.S. Shankarnarayanan, Branch Chairman welcoming Dignitaries and gathering on the occasion of MM Day celebration held on 23.04.2016

Mr. T.K. Ramasubbu, Sr. Faculty Handling the session on 24.06.2016

Mr. K.P. Rajendran, Sr. Faculty Handling the session on 24.06.2016

Mr. H.R.T. Chari, Sr. Faculty Handling the session on 25.06.2016

Mr. G.S. Raju, Sr. Faculty clarifying points

Mr. A.N. Sriram, Sr. Faculty Handling the Session on 25.06.2016

Delegate receiving Participation Certificate from Mr. Chari and Lakshmaiah on 25.06.2016

Mr. T.K. Ramasubbu, giving presentation and discussing points with participants

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<td>Rs. 2,500/-</td>
</tr>
</tbody>
</table>

Appeal

1) Writers are requested to send their article to iimmbg@airtelmail.in / akashforce@gmail.com
2) Members are requested to send us their latest e-mail id, official and communication address to update our membership database urgently.
3) All Communication are being sent by mail id only, Please send information to iimmbg@airtelmail.in
<table>
<thead>
<tr>
<th>Sl.No</th>
<th>Course</th>
<th>Mode</th>
<th>Eligibility</th>
<th>Total Fees</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Graduate Diploma in Materials Management (GDMM)</td>
<td>2 Years - Regular (Evening classes)</td>
<td>Engg. Diploma / Degree</td>
<td>Rs. 55,500/- 4 instalments</td>
</tr>
<tr>
<td>2</td>
<td>Graduate Diploma in Materials Management (GDMM)</td>
<td>2 Years - Distance</td>
<td>Engg. Diploma / Degree</td>
<td>Rs. 42,000/- 4 instalments</td>
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<tr>
<td>3</td>
<td>PG Diploma in Materials Management (PGDMM)</td>
<td>3 Years - Distance</td>
<td>Degree/GDMM with minimum 55% marks + 2 Years Experience in MM/Supply Chain</td>
<td>Rs. 45,000/- 6 instalments</td>
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<tr>
<td>4</td>
<td>Post Graduate Diploma in Logistics Management</td>
<td>1 Year – Distance</td>
<td>Degree with 3 years experience</td>
<td>Rs. 18,000/- 2 instalments</td>
</tr>
<tr>
<td>5</td>
<td>Diploma in Stores Management (DSM)</td>
<td>1 Year - Distance</td>
<td>Engg Diploma/ Degree or Higher Secondary with 2 years Experience</td>
<td>Rs. 9,900/-</td>
</tr>
<tr>
<td>6</td>
<td>Diploma in International Trade (DIT)</td>
<td>1 Year - Distance</td>
<td>Engg Diploma/ Degree or Higher Secondary with 2 years Experience</td>
<td>Rs. 9,900/-</td>
</tr>
<tr>
<td>7</td>
<td>International Diploma in Purchasing and Supply Chain Management (in association with ITC/WTO)</td>
<td>Intl. Certificate – 6 Months (6 Modules, Advance Certificate - +6 Months(+6Modules)) Intl.Diploma – +6 months (+ 3 Modules + Project)</td>
<td>Degree + 2 Years Experience in Purchase/Supply.</td>
<td>Course Fee: Rs.2,500/- per Module Proj. Rs.3,500/- Exam Fee: Rs.1,500/- per Module</td>
</tr>
<tr>
<td>8</td>
<td>Certified Professional Supply Manager (CPSM) in association with Institute of Supply Mgt, USA</td>
<td>Min six months - Distance</td>
<td>Degree + 5 Years Experience</td>
<td>Rs. 20,000/- Exam Fee:4,500</td>
</tr>
<tr>
<td>9</td>
<td>Graduate Diploma in Public Procurement (GDPP)</td>
<td>1 year – Distance</td>
<td>Engg. Diploma / Degree</td>
<td>Contact our NHQ Edn. Wing</td>
</tr>
<tr>
<td>10</td>
<td>Certificate Course International Trade (International Trade)</td>
<td>6 Months – Regular (Evening Classes)</td>
<td>12th Std and above</td>
<td>Rs. 12,000/-</td>
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<td>11</td>
<td>CIT (Certificate Course on International Trade)</td>
<td>6 Months (Regular - Classes will be conducted weekly three days in the evening 6.30pm to 8.30pm)</td>
<td>Any Degree /12th Standard</td>
<td>Rs. 14,000</td>
</tr>
<tr>
<td>12</td>
<td>SKILL Development Program Purchasing Management Stores Management</td>
<td>4 Months to 6 Months</td>
<td>10th 12th Standards, with Working People</td>
<td>As per Govt. Notification</td>
</tr>
<tr>
<td>13</td>
<td>PDPP (Professional Diploma in Public Procurement (In association with World Bank)</td>
<td>6 Months</td>
<td>Graduates /Post Graduates or Engg. Diploma with three years experience</td>
<td>Rs. 20,000/-</td>
</tr>
</tbody>
</table>

For more details and prospectus, please contact IIMM Secretariat
- July – December 2016 Batch Prospectus and Applications are being issued.
- For further details and prospectus please contact IIMM Bangalore Branch Secretariat at the following address:

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E-mail : iimmbg@airtelmail.in;
Website : www.iimmbangalore.org ; www.iimm.org

National Headquarters:
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Phone : 27565592
e-mail : iimm.edu@iimm.co.in ; iimmnhq55@gmail.com
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- Bill Gates