

MANIFEST

**A MONTHLY NEWSLETTER BY CII SCHOOL OF LOGISTICS,
AMITY UNIVERSITY**



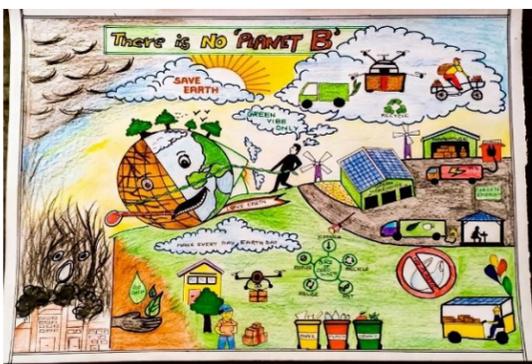
Director's Note

DR ANITA KUMAR

Hello everyone!
This month's theme of Technology and SCM is very special as the 21st century has been pertinently labelled as "the information age". In recent times, various technological tools have been adopted by global value chains to improve supply chain integration and coordination, leading to faster delivery of quality goods at reduced costs. In fact, the entire premise of Industry 4.0 is based on the digital transformation that enables organizations to gather and analyze data across machines for enhanced process and supply chain efficiency and better customer demand fulfilment.

Moving away to a more personal note, there is no doubt that Technology has brought us together in the virtual world but has also created distances in the real world. I personally believe that technology is like fire; it is integral to our existence, but it needs to be treated with caution, especially in the context of cyberbullying, cybersecurity, and privacy invasion.

I leave the debate open to the floor and invite your feedback and comments.
Stay safe and Happy reading!



Winning poster by Alok Pandey

UNITY Industry 4.0 Roadmap: Logistics



Industry 4.0					
Logistics					
Supply Chain Logistics	Local Operating Structure	Global Operations Structure	Partial Global Resource Planning / Controlling	Complete Global Resource Planning / Controlling	Open and Flexible Operations Footprint
Inbound Logistics	Push Delivery Process	Pull Delivery Process / JIS	Vendor Managed Inventory	Autonomous Inventory Management	Predictive Inbound Logistics Management (Big Data)
Warehouse Management	No Automation	Automatic Warehouse System	Automatic Warehouse Network	Supply Chain Warehouse Network	No Warehouse in Supply Chain
Intralogsitics / Line Feeding	Manually steered rack, trolley	Manually steered train	Autonomous FTS on fixed routes	Autonomous FTS on open area	Autonomous FTS on open area steered by production machine
Outbound Logistics	Push Delivery Process	Order-Based Delivery Management	Active Delivery Management	Automatic Delivery Management	Predictive Delivery Management
Logistics Routing	Decentralized Vehicle / Equipment Fleet	Centralized Vehicle / Equipment Fleet	Pre-planned and Centralized Fleet	Real-Time Routing and Connected Navigation	Autonomous Transportation Vehicle / Equipment

A webinar was held on **Advanced Technologies in Supply Chain Management** on May 16, 2020 by Mr. Rajesh Ray – Associate Partner, IBM India Pvt Ltd. at CII-SoL

Kalakriti at CII- SoL

The CII School of Logistics organized an online inter-college **Kalakriti** -poster making competition on **Sustainable Logistics and Supply Chain Management on the broad themes of Earth and Labor Day on May 07, 2020**. The participants were required to make posters on the given sub themes, that were:

- ✚ Earth Day
- ✚ Truck drivers' day /Labor Day
- ✚ Fuel efficiency
- ✚ Reducing carbon footprints
- ✚ Green manufacturing
- ✚ Green warehousing
- ✚ Eco friendly transportation
- ✚ Fair trade sourcing practices

The 5 Rs: Refuse, Reduce, Reuse, Repurpose and Recycle.

The event witnessed an enthusiastic participation of 137 entries from the students of different Schools and Institutes of Delhi NCR pursuing Under graduate and Post graduate programmes.

The CII SoL Alumni from 2018 and 2019 batches actively participated in the event. Industry experts in the field of Logistics and Supply Chain were the judges for the competition. There were 6 winning entries in both the categories with a tie between Alok Pandey and Shishant Dhoundiyal for the First Position, Rishabh Agarwal bagging the Second Position, Ayesha Parveen and Udipta Bhattacharya holding the Third Position displaying their creative skills.

KEY FOCUS

Leveraging IT Investments to cope with Covid-19 crisis

DR. AMIT SETHI

The Covid-19 crisis continues to disrupt global supply chains and cause immense economic and humanitarian challenges worldwide. As the lockdown is incrementally lifted, supply chain leaders are busy trying to get their factories re-opened and supply chains stabilized. As they try to restore normalcy, they need to creatively leverage the portfolio of existing IT tools available at their disposal to manage core functions of their organizations. This article highlights the many other functional areas IT investments can be leveraged to gain enhanced efficiency and visibility of operations.

Workforce Planning

The immediate challenge organizations are facing in getting supply chains normalized is in the availability of skilled workforce. Business leaders can leverage current technology investments in their ERP and HR tools to help them plan their workforce and contractor labor force requirements for the next 12 months.



Additionally, organizations can map employee current skills in HR tools and identify critical skills needed for plant and supply chain to be operational. IT tools can then be used to forecast key skill gaps and address any critical gaps with recruitment/contracting teams.

Remote Work Enablement

Organizations across the world are grappling with the challenge of keeping their employees safe. One option that keeps employees the safest is the option of remote work from home. Organizations are trying to shift any job that can be performed in offices to employee homes. IT teams today offer remote work technologies like Virtual Private Network, Video-conferencing tools and online collaboration tools to employees to enable remote work. Additionally, for collaboration beyond organization boundaries, IT teams can offer platforms that enable high quality video conferencing across multiple technology stacks.

Health and Safety

Employee Health and Safety will be a core area of concern for the next few years. Supply chain leaders should ensure they leverage existing technology solutions to help provide a safe working environment to their workers. Organizations can leverage mobile enabled solutions and simple workflows for employees to self-report on health before travelling for work. Organizations should minimize visitors and maintain adequate records of visitor addresses and contacts in visitor management systems to support contact tracing if required. Employee travel for meetings should be replaced by investments in video conferencing tools. Interactions with IT support personnel should be minimized. Tools that allow IT support personnel to gain remote control of a computer to address any potential issues on the computer should be leveraged.

Supply Chain Process Excellence

An immediate challenge that supply chain leaders will face in the near future is of raw material supply bottlenecks and finished product inventory stock outs. Supply chain leaders should ensure that they take a close look at their supply chain planning algorithms and inventory management policies. Supply chain planning teams should closely track Available to Promise levels for key products. Planning teams should place limits on critical material order quantities to prevent hoarding of critical products by a few customers.

Management of Maintenance spare parts

Supply chain teams should work with the Maintenance management function to track health of key equipment and forecast critical spares requirements. Maintenance teams should track critical spares stocks and leverage IT tools available to plan equipment shutdown for planned maintenance. Organizations should leverage IOT and sensor investments to track health of key equipment and implement condition-based maintenance where feasible. Maintenance managers should work with OEM suppliers to ensure they track the health of your equipment using remote diagnostic technologies and keep the maintenance teams updated about the health of equipment and planned outage needs, if any.

Collaboration with Supply Chain Partners

Organizations should work in close partnership with their suppliers and customers in this hour of crisis. Supply chain leaders should ensure that they are communicating transparently and promptly with strategic suppliers. They should leverage Digital tools like Electronic data interchange or ERP triggered emails to track the flow of key documents like purchase orders, invoices, advance shipping notifications. Many companies have already invested in supplier collaboration portals and these investments will help in share information with key suppliers in a transparent manner. Electronic signatures can be used to minimize the flow of paper between organizations



Supply chain leaders should ensure they provide available to promise inventory levels to sales teams to ensure they do not over commit to customers. They should provide transparency to customers on potential order shipment dates, goods manufacturing dates, quality inspection reports.

Analytics and Dashboards to monitor Business Health

Leaders should define the leadership dashboard to track the supply chain end to end during the COVID-19 crisis. Comprehensive dashboards should be built to track workforce availability, employee health, supply chain metrics, supplier and customer relationships. If organizations do not have a robust data and analytics toolset, they should leverage existing ERP reporting capabilities to meet current information needs. Organizations should run daily stand up meetings at the start of the day to review these dashboards and track key operational metrics for their plants and supply chains.

Cybersecurity Threats

As organizations shift to remote work to meet the social distancing norms imposed by the crisis, the risk of cybersecurity attacks on your organization's critical IT and OT infrastructure is real. Supply chain leader should ensure cybersecurity threats are actively forecasted, tracked and managed by the organization's IT security function. Protection of Intellectual property and preventing data loss is another key threat that organizations should track as they shift their personnel into remote work models.

CONCLUSION

Looking beyond the conventional IT usage in organizations, this article has presented some of the key areas where supply chain leaders need to pay attention. These are Workforce planning and remote work enablement, Employee Health and Safety, Supply chain Business process excellence, Collaboration with supply chain partners, Business Health tracking through KPIs and Dashboards. Finally, supply chain leaders need to partner with their IT and security leaders to protect their organizations from the risk of cybersecurity attacks. We discuss some of the opportunities to leverage IT effectively in each of these areas next.

ABOUT THE AUTHOR



Dr. Amit Sethi


<https://bit.ly/2zKf0Ou>

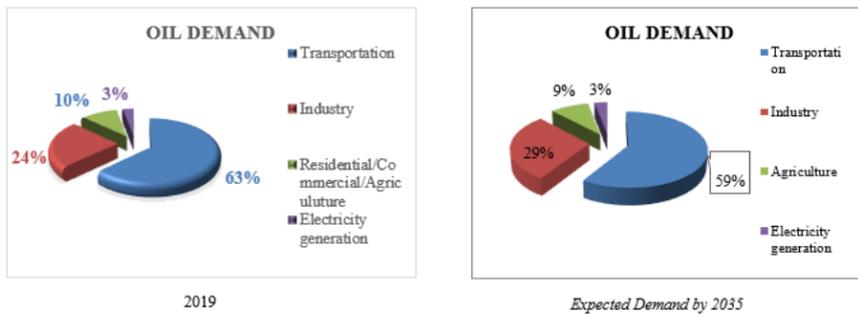
Amit currently plays the role of CIO for Baker Hughes, GE (BHGE) in MENAT and India. He also heads the Global Digital Customer Experience team for BHGE. In addition to his CIO responsibilities, Amit also works with Regional BHGE customers in helping them define their IoT strategy and Execution roadmap on Predix - GE's Industrial Internet Platform. Amit has successfully completed Executive Fellow Program in Management with IIM Lucknow. His area of research is Impact of online customer collaboration on brand loyalty in the B2B space.

Technology: A Game Changer in the Transportation sector

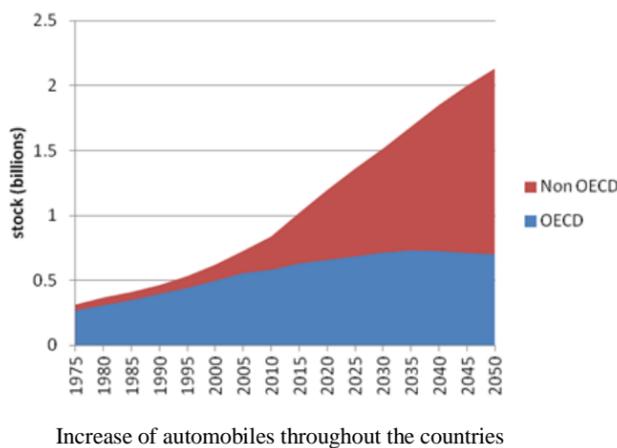
PRAVEEN M.

PART 1: INTRODUCTION

The global trade has been changing over the past decades with more involvement of contemporary technology in the supply chain management and logistics sector. It gives industry a system that improves efficiency, reduces cost and is responsive to customer requirements (ECR) and enhances the organizational value. Transportation plays an important role in the contemporary environment in the logistics industry. Present day technology acts as an enabler for the organizations in fulfilling their customer demand and creating new benchmarks in the logistics industry. For achieving this benchmark, fuel plays a crucial role in the transportation cost of the organizations.



According to the study conducted by the **Organization for Economic Co-operation and Development (OECD)** in 2009, the percentage of oil demand by sectors like electricity generation 3%, Agriculture 10%, Industry 24% & Transportation 63%. This graph shows that there is a high oil demand in the transportation sector. By 2035, the forecast shows that there will be a high demand in the transportation Sector. The OECD report shows that the transport sector gives about 60% global oil demands. In the future decade's automobile sector is going to play a major role in the countries even though there will be electric vehicles, Fuel vehicles still a part of industry ecosystem.



The global auto fleet is set to double, if not it will be triple in the next 2-3 decades. 90% of this growth taking place in developing countries.

Category (Registration per annum)	2012-13	2013-14	2014-15	2015-16	2016-17	2017-18
Passenger vehicles	26.7	25	26	27.9	30.5	32.9
Commercial vehicles	7.9	6.3	6.1	6.9	7.1	8.6
Three Wheelers	5.3	4.8	5.3	5.3	5.1	6.4
Two wheelers	137	148	159	165	176	202
Grand total	178	184	197	205	219	250

Category	% (in 2017-18)
Passenger Vehicles	13
Commercial Vehicles	3
Three Wheelers	3
Two Wheelers	81
Grand Total	100

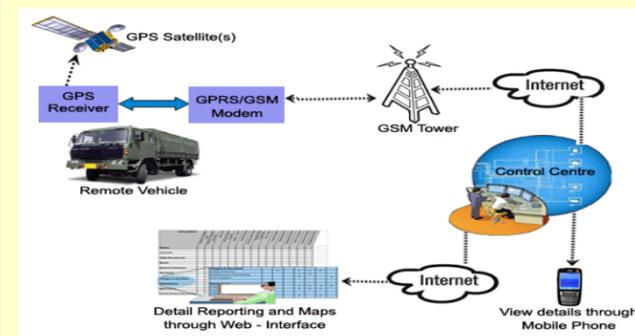
As the automobiles were increasing the diesel price also increased compare to the past decades. The following graph shows the increasing level in diesel pricing.



PART 3: IMPLEMENTING FMS

Fuel Management Surveyor (FMS) is a primarily a detection system. Its role is to detect wastage of diesel also the type of wastage and to record a set of key parameters in real time. Based on the information and analysis of these parameters the owner/manager can identify the type of wastage and take necessary remedial steps to prevent diesel wastage. This in turn brings down the running cost and increases the revenue of the logistics/Transportation companies.

Working Principle



The following 4 parameters are monitored using recording devices like sensors, etc.:

- Fuel
- Speed
- Load
- Distance travelled

The following **assumptions** are made to showcase scenarios where the type of diesel wastage can be estimated:

- A truck having Diesel tank of capacity **100 L**
- Mileage of the truck's Diesel Engine is 7 km for every 1 litre of Diesel
- The recommended safe loading of the truck is **8 tons**.
- The manufacturer recommends complete servicing of the truck every 6 months.

Under these conditions 4 cases are possible

- Case 1:**
 - Actual mileage and Known mileage differ by 15%
 - Then the cause is **Pilferage**
- Case 2:**
 - Actual mileage and Known mileage differ by 4%
 - Then the cause is either **Overloading or Maintenance**.
 - The exact cause can be found by looking into maintenance records and current load on truck.
- Case 3:**
 - Actual mileage and Known mileage differ by 7%
 - First Check for Case 2 if not, then the cause is **Bad Driving**

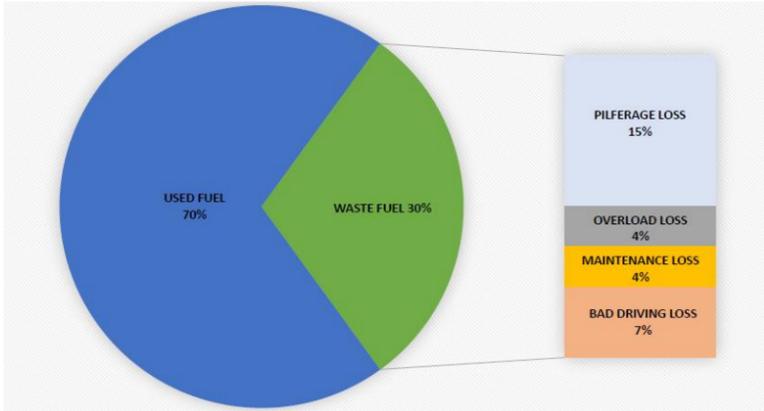
PART 2: DIESEL UTILIZATION IN THE TRUCKING

Trucking services in the transportation sector is one of the largest consumers of diesel fuel. There is a steady increase in the number of automobiles, hence multiple times increase in fuel consumption further leading to the rise in the diesel prices resulting in an overall increase in the running cost of logistics companies which operate thousands of trucks/buses etc. running on diesel.

Also, there is a significant amount of diesel wastage (30% approx). If this wasted fuel can be checked. We can bring down the fuel costs.

1. Diesel wastage – Pilferage

Pilferage is the highest contributor to wastage of diesel. An estimated 15% of diesel is lost due to pilferage and the diesel is sold for half the prices in the black market. This attracts both fuel thieves and drivers to pilferage diesel and make money out of it.



2. Diesel Wastage – Overload

The more a vehicle weighs the more fuel it consumes. Each Kilogram of extra weights requires the vehicle's engine to work harder, increasing fuel consumption. An extra 100 kilogram in vehicle makes tires run rotter since the rubber becomes more pliable under the extra weight. This causes them to deflate more rapidly, which also leads to higher fuel costs because under inflated tires can lower mileage by about 0.2 percent for every 1 psi drop.

3. Diesel wastage - Maintenance

Poor Maintenance causes about 4% loss on diesel. Common issues due to poor maintenance: Worn or fouled spark plugs, Dirty fuel injectors, Wrong oil viscosity, Dirty Air filter, Clogged converter or exhaust restriction, slipping clutch or transmission, Low tires, dragging brakes.

4. Diesel wastage – Bad driving

Inefficient driving skills of the truck drivers also lead to fuel wastage.

DTP for Heavy Motor Vehicles (HMV)

PCRA has been conducting a 3-days "Driver Training Programme" for Heavy Motor Vehicles (Diesel Driven) since 1985. This is a specially designed programme to impart training to the drivers and the driver trainers to enable them to acquire and apply improved driving skills and fuel conservation techniques. This training programme is a mix of practical training being imparted on the vehicle that the driver drives and class room inputs by Qualified Instructors on good driving habits. The total number of drivers trained since 1985-86 is 1.70 lac and the cumulative savings till 2010 that have been realized due to this programme is more than Rs. 650 crore.



Through this specially designed Driver Training Programme (DTP) for the sector, drivers from STUs, Army, BSF, Oil companies and private transporters are imparted training to improve their driving skills which lead to substantial amount of fuel saving.

The good driving habit tips given during the DTP is the quickest and cheapest way to effect saving of fuels. Proper driving not only saves fuel but also reduces breakdowns and increases road safety. This also reduces the pollution levels due to vehicle emissions.

Benefits from DTP

- Improves driving skill
- KMPL improvement
- Brings attitudinal change towards fuel conservation
- Improves fuel economy
- Helps maintaining the vehicle and reduce break down
- Reduce emission
- Motivation to Drivers to take pride in their work.
- The importance and relevance of oil conservation in today's scenario can be understood and their role in achieving this conservation for the country can be appreciated.

(Check out part 3 on the page sidebar)

4. Case 4:

- Actual mileage and Known mileage differ by >15 %
- Then it's due to multiple causes

The above analyses and results can be done by a simple computer program.

A report that reflects the impact on profitability and other critical financial metrics can be sent to the owner / manager for necessary remedial action.

CONCLUSION



Diesel price is on the rise. Diesel wastage is a serious issue Pilferage is the highest cause for the wastage Systems to rectify wastage of diesel. Fuel management surveyor can reduce diesel wastage to a great extent if properly tested and implemented in the trucks. Also, further research is needed to practically implement FMS at a large scale.

ABOUT THE AUTHOR



Praveen Muthusamy

Praveen Muthusamy - B. Tech (Mechanical) - is a final year student of MBA Supply Chain Management at CII SoL, batch 2018-20. He has interest in logistics operations and fleet management.

The findings shared in this article are a part of his research project on the topic of *Fuel Management Surveyor* (FMS) which can be found [here](#).

For more details on the topic, you can always reach out to him on LinkedIn using [this link](#).

IoT and Block chain Application in SCM

SCENARIO #1

A man ordered a Samsung Galaxy Note 4 on May 25, 2020 on Flipkart and the product was delivered on May 30, 2020. He opted for cash-on-delivery and paid Rs 29,900 to the delivery boy. He was not allowed to open the box before payment. After opening the box, the purchaser found that it contained a bar of soap and an Android phone charger instead of the smartphone.

Many questions emerge from such scenario. Whose fault is this? At what point the product got tampered? Obviously, Flipkart didn't have such intentions as Flipkart observes a zero-tolerance policy on incidents that impact customer trust. How can Flipkart manage and avoid these incidents?

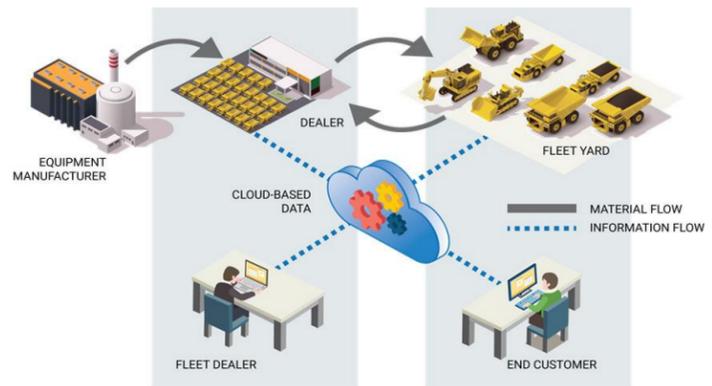
The ecommerce retailer should make sure that the package does not open until it reaches the customer and that it does get damaged. These business rules must be set up at the order creation level. This will create a smart contract between the parties involved. For instance, there is a manufacturing plant and a customer ordered a smartphone online which is then reflected in the dashboard of the manufacturing plant. At the time when customer creates the order a smart contract will be generated within the block chain along with a new *node* (where information is stored) which will have all the business rules and regulations regarding the product that needs to be shipped. This will then be sent to the manufacturing plant. At the manufacturing plant the product will be packed with the sensors that are required. In this case, pressure sensor and RFID (sensing technologies that won't require batteries and shall be alterable for different products) will be packed. These technologies provide capabilities that go beyond tracking, such as sensing, serialization, and anti-tampering, or a thin flexible NFC (near-field communication) tag on the box of phone where tapes are being put. This will help to access product and brand information. These tags will be made using *Thinfilm's Open Sense* technology; being applied to the boxes in such a way that the tag shall get damaged and will relay a signal back to the node if someone tries to open or tamper with the box before the smart phone is delivered to the final customer.

Now the reason why people receive *soaps* instead of *phones* in India is because in a traditional supply chain there are minimum six parties involved in a single shipment before it reaches to the final customer. In a typical scenario of air transport, the chain starts with a seller (*Shipper*), then the one that ensures documentation and movement of the shipment (carrying forwarder), to the local warehouse (central warehouse/ fulfillment centers), from there it goes to a warehouse (Distribution Centers) that is closer to the *consignee*, who ordered the product and then there is the last mile delivery (*Transporter*).



The problem that *Flipkart* and *Amazon* face in India today is that there is no visibility as to where in the entire supply chain the product is being adulterated/tampered due to which these organizations suffer losses due to bad returns. With the sensor technology, transparency and traceability in the product movement through the supply chain is likely to increase. It will be streaming all the data into the block chain. And in instances where devices will not have the connectivity itself, at that point, the data will be stored locally in the meantime and when it reaches the next point of connectivity the data will then be streamed and stored into the blockchain.

This way throughout the life cycle one can almost create a story for every single product. A story that says it originated in say, *Chennai*, on day two it has reached *Gujarat* via the list of DCs and stop-overs. This will be extremely useful information for both the customer and the supply chain partner.



This information comes in handy and the operations team at *Flipkart* gets to know at what stage during the entire process the product got damaged. Also, customer can have access to product's journey until it reaches the final destination, the customer, himself.

Advantages of IoT and Block chain integration:

- As soon as the company gets to know that their product is being adulterated, any further shipment to customer is stopped at that stage itself.
- Better *Customer Relationship Management (CRM)* as timely notice can be sent to the customer.
- Better efficient system
- Reduced cost of reverse logistics.
- Building of brand image
- Minimizing pilferage and damage.

Interestingly, a statistical survey result showed that *40% people don't shop online again if they find the delivered product to be defective/damaged*. That's a whole lot of customer churn woes for any company let alone one in a highly competitive e-commerce space.

SCENARIO #2

In International shipments around 30% of the logistics cost (Deloitte Report) is incurred due to the paperwork that is required in custom clearance and documentation.

What if this information could be stored on a closed loop blockchain including all the parties involved in the shipment like, the shipper, freight forwarders, Customs, banks involved and consignee?

Blockchain is a closed loop distributed ledger technology which aggregates multiple users to a single platform improving transparency, trust and security in the closed network of participants. A pilot test using Blockchain has been done in Singapore on an import shipment, from China to Singapore and it has been deemed as extremely successful and the Singapore Government is taking steps of blockchain implementation in the import and export shipments.

CONCLUSION

The present-day scenario is of agile, resilient, and digital organizations. The companies need to adopt latest technologies to perform efficiently, ensure customer satisfaction and compete with the competition. Integrating blockchain and IoT can bring radical change in the traditional processes and provide benefits like increased compliance and transparency, efficient and effective tracking and traceability, reduction in errors and enhanced customer trust, but on the other side involves financial investment and support from government and other supply chain partners both upstream and downstream.

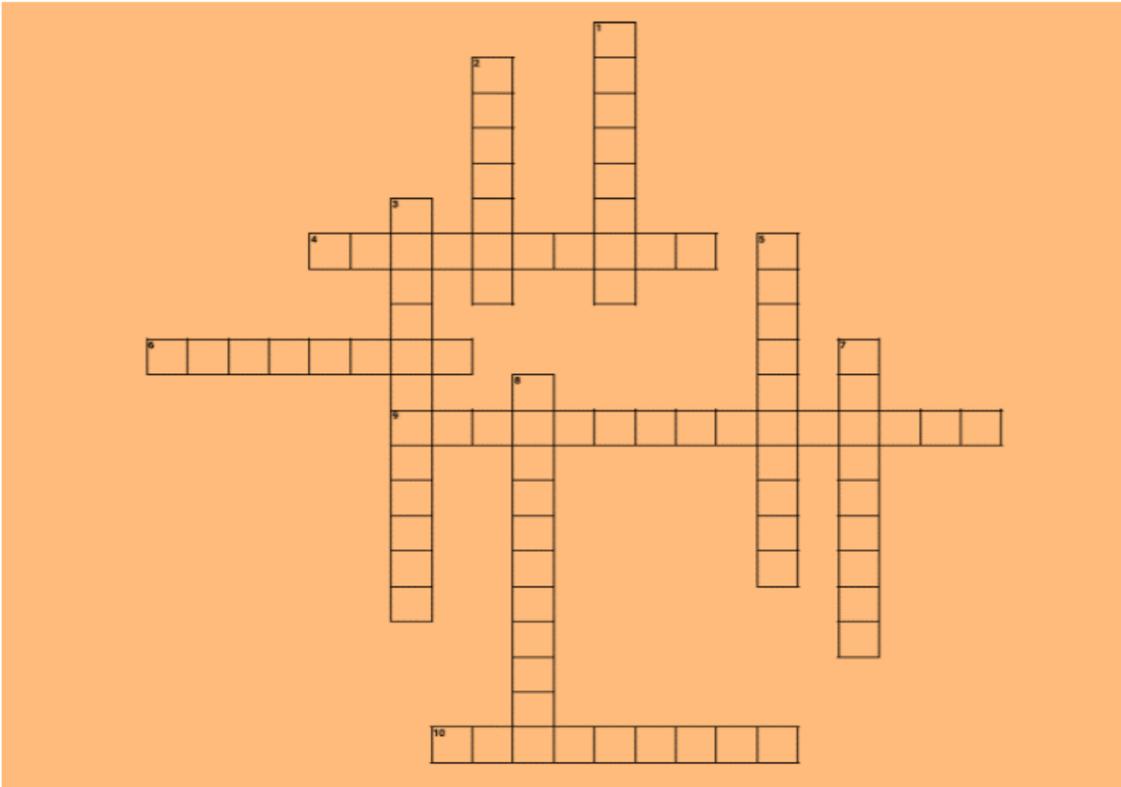


Abdul Rehman

Abdul Rehman is a final semester student of MBA Logistics (2018-20). He aspires to pursue PhD from an International University in the area of customer relationship management and role of information technology in logistics.

ABOUT THE AUTHOR

SCM Crossword Puzzle #1



- | Across | Down |
|---|--|
| 4. A constraint, obstacle or planned control that limits throughput | 1. A person or organisation that resell goods or services directly to consumers or end-users |
| 6. Also known as the vendor | 2. Document containing description of goods that are part of common carrier freight shipment |
| 9. The cost of NOT doing something | 3. An individual or group who will be impacted in some way by a change |
| 10. Commercial activity of transporting goods to customers | 5. One or more companies or individuals who participate in the flow of goods and services moving from the manufacturer to the final customer |
| | 7. Quantity remaining to be shipped if an initial shipment(s) has been processed. |
| | 8. Final step in the management process |

LOGI-TOONS Series #2

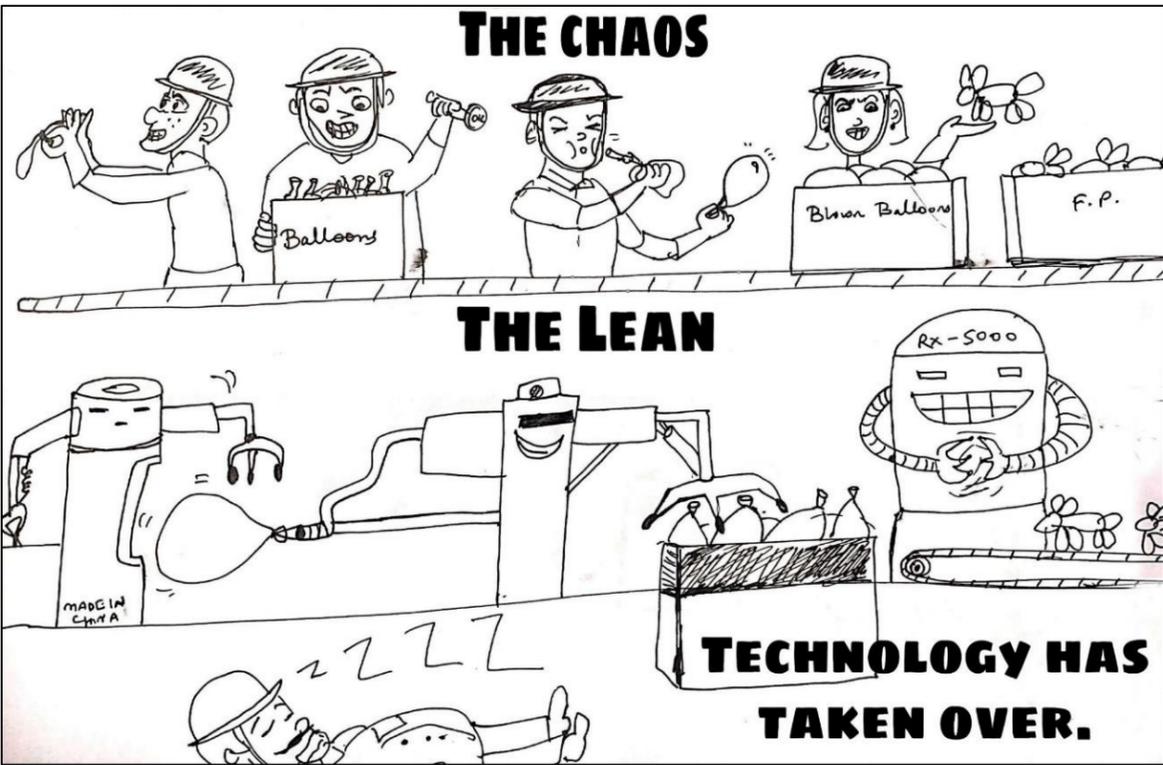


Illustration by Gaurav Ghosh, Student (CII-SOL, 2019-21 Batch)