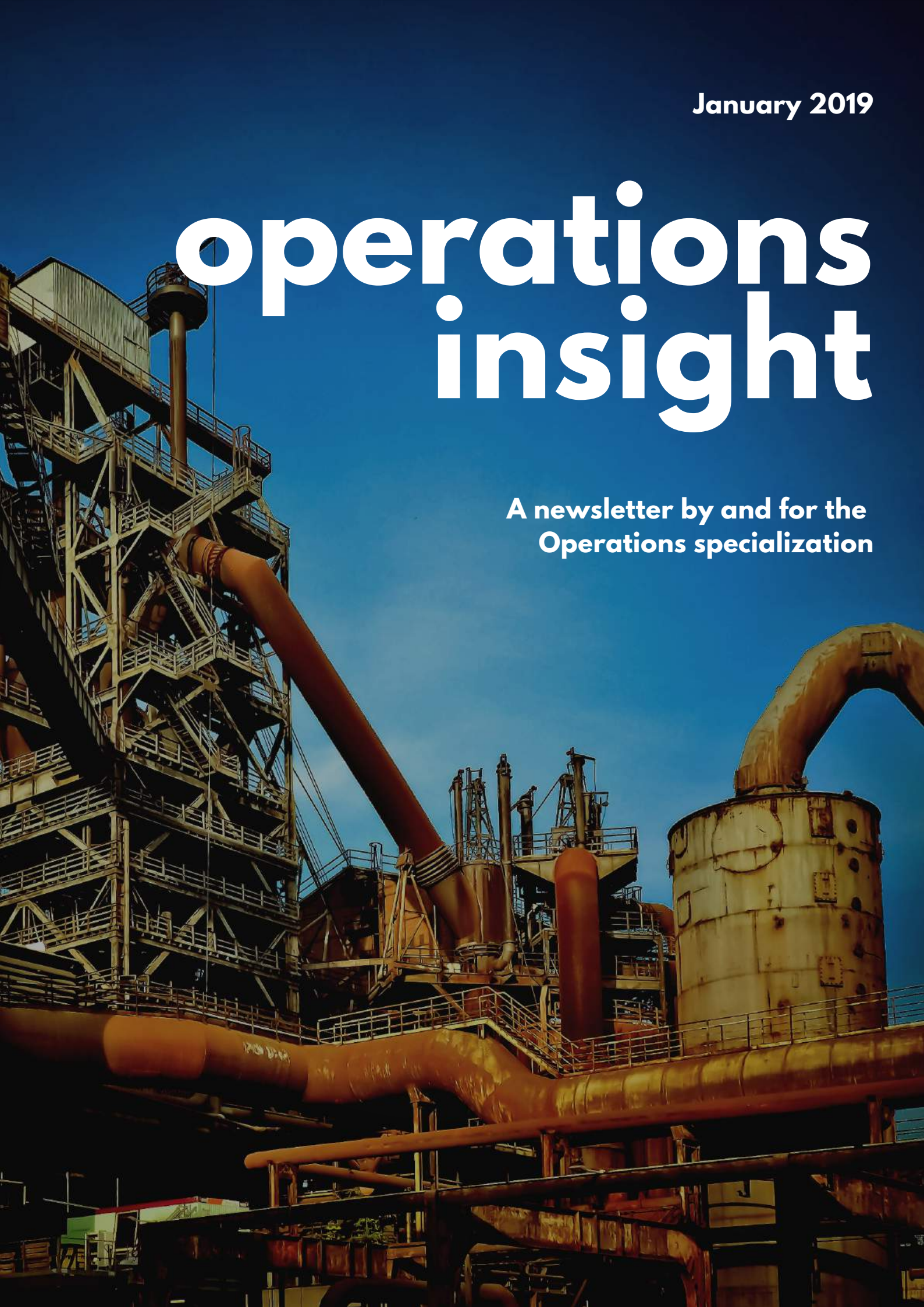
January 2019

operations insight

A newsletter by and for the Operations specialization



WHAT'S INSIDE

LEVERAGING THE INTERNET OF THINGS (IOT) IN SUPPLY CHAIN

By Kalpesh Patil
Dec 10, 2018

End-to-end visibility into the supply chain is more important now than ever before, and goes beyond the methods that have been effective in the past. The changing economics of manufacturing, inventory and shipping require new technologies that close visibility gaps to lower cost, improve speed and yield, prevent loss and achieve competitive levels of customer service.

New Internet of Things (IoT) solutions provide:

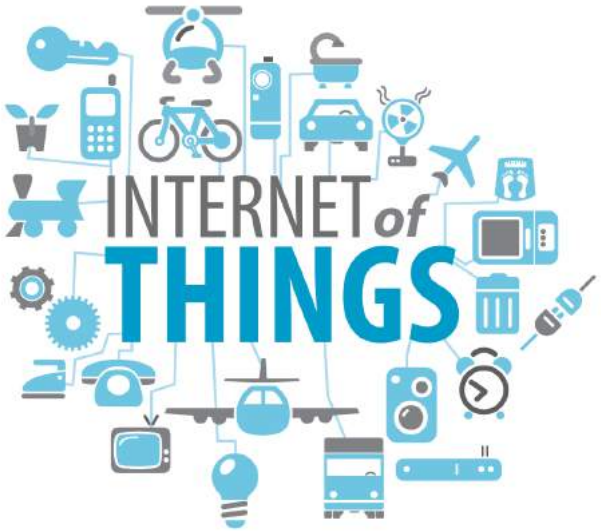
On-Board Tracking – enabling your shipments with GPS-based tracking is the starting point for filling visibility gaps enable your shipments with geospatial pairing to delivery location and tracking device for location confirmation down to the pallet- and package-level.

Convenience – smart devices can be simple to deploy and make it easy to secure the right type of information based the needs of your organization.

Timeliness – real-time reports, alerts and advisories provide need-to-know information without disrupting your workflow while allowing remediating action.

Appropriateness – the right information and alerts to the right stakeholder at the right time enable your organization to optimize operations and take needed actions with low friction.

Compliance – providing all the right validation of shipment integrity – temperature, humidity, shock, light and other factors that need to be adhered to for regulatory assurance.



20 THINGS TO KNOW ABOUT ARTIFICIAL INTELLIGENCE FOR SUPPLY CHAIN MANAGEMENT

By Rinta Muscrean
Jan 01, 2019

This article provides a good premise for a more focused article on the topic of artificial intelligence as it applies to supply chain management.

1. Any device that can perceive its environment and takes actions that maximize its chance of success at some goal is engaged in some form of artificial intelligence (AI). AI is a loosely defined term that can refer to several technologies.

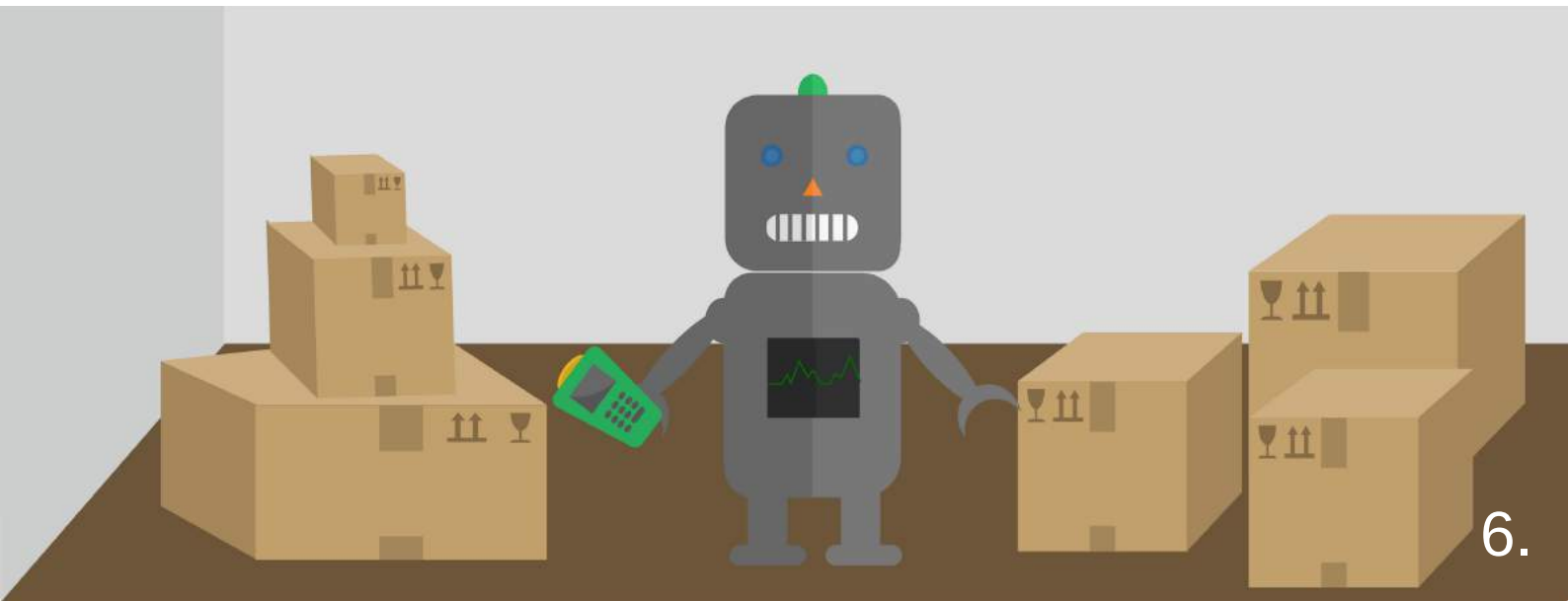
2. In the supply chain realm, machine learning is where most of the activity has been focused.

3. Demand planning applications rely on a series of algorithms to take historical shipment data and turn it into a forecast. The machine looks at the forecast, compares it to actual shipments, and suggests when it may be time to move from one algorithm to a different one for a certain stock keeping unit or product family.

4. Forecasting that same product at the warehouse level on a monthly basis, an algorithm applied to warehouse shipment history and warehouse ordering patterns has more predictive power.

5. But based on the volume of data used, and volume of forecasts across
diverse time horizons and ship to locations, some companies have gone with a fully automated learning-based solution that takes humans out of the loop. E2open provides a black box solution that fully automates the forecasting process.
6. Black box solutions are controversial.
7. Whether a solution is black box or not, part of the power of AI and machine learning will come from joining it with more traditional BI and business process management technologies.
8. Demand planning applications are working to use machine learning to better incorporate competitor pricing data, weather data to improve demand forecasts, and potentially many other factors.
9. In a demand management application, the system is continuously monitoring forecasting accuracy.
10. There is something of an arms race to leverage machine learning in supply chain applications.
11. Suppliers of transportation management systems are also envisioning using weather data to improve their transportation planning.
12. Work is being done to look at the critical parameters in supply planning, like lead times, and use machine learning to update these parameters.
13. Pick density may be the initial priority, but as carrier cut-off times approach, meeting order SLAs takes precedence. Machine learning is used to predict the time required to complete work.
14. Machine learning learns best when there is Big Data. The more at bats, the faster these systems learn.

15. Machine learning functions best when it is narrowly focused on well- scoped problems.
16. Some big companies have enough resources that they can hire data scientists and explore custom solutions that make sense for their business.
17. One ROI issue associated with machine learning and AI is that we can use AI to search through mountains of data, including new sources Internet of Things (IoT) data, to find new variables that might add some predictive power to formulas.
18. 3CE is using natural language processing and information retrieval processing to help automate the impossibly arcane process of classifying goods for importing and exporting.
19. AI is also being used in hardware solutions that have relevance to logistics professionals. The autonomous mobile robot (AMRs) is growing very fast. More than half a billion dollars in venture capital has been invested in this market in recent years. AMRs are used to help automate eCommerce fulfillment.
20. Autonomous trucking will also rely on SLAM technologies, but this is an example of a problem that is not narrowly scoped. The best guess is that SLAM-based trucks used to carry freight without drivers are at least three years away from being technologically feasible.



FMCG COS KNOCK ON START-UPS' DOORS TO SOLVE THEIR SUPPLY-CHAIN PROBLEMS

By Oonita D'mello
Dec 05, 2018

Over the past few years, start-ups have woken up to the massive potential in fixing underlying supply chain issues that plague consumer goods firms. In India, traditional retail still dominates the market, which comes with a unique set of challenges. Increasing demand for consumer goods in smaller towns, coupled with a sharp spike in the number of stock-keeping units (SKUs) that FMCG companies offer, planning and forecasting becomes a challenge, and a lack of accurate planning can have a direct impact on logistics costs. Credable, a fintech firm works with vendors of fast-moving consumer goods (FMCG) firms to offer better credit terms to help ease cash-flow pressures and help them manage supply chains.

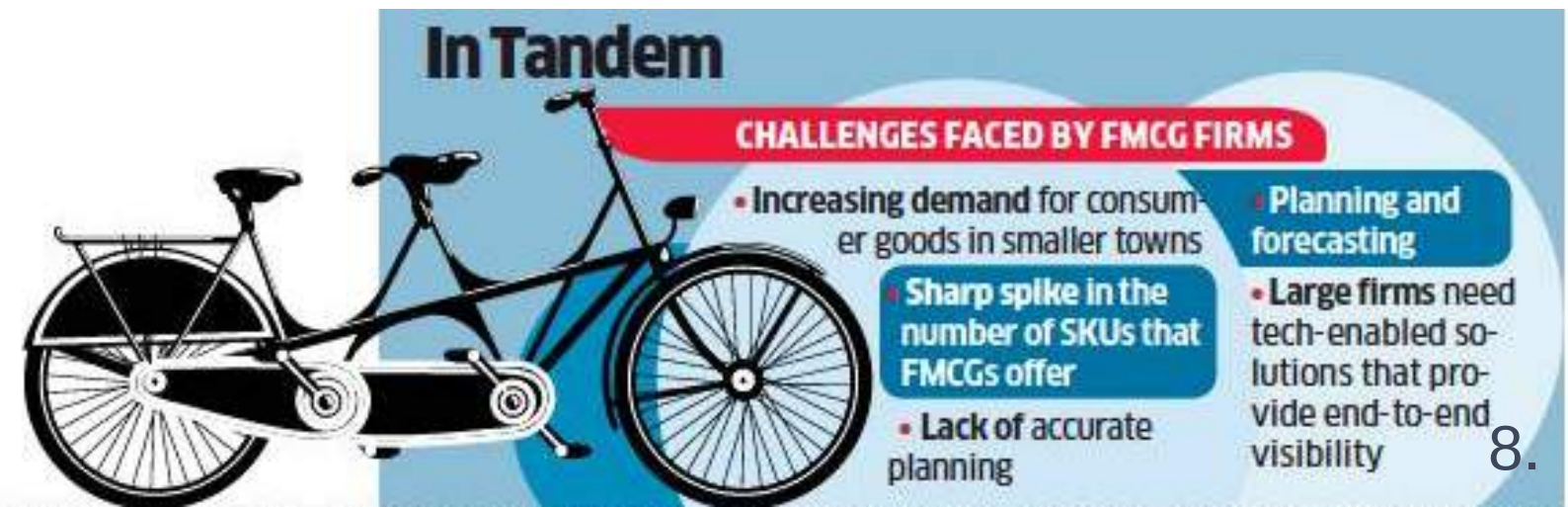
To ensure customer stickiness, large e-commerce and FMCG players tend to spend more on logistics to ensure quick and seamless last-mile delivery, leading to reduction in margins. For example, when Kolkata-based ice-cream maker Rollick wanted to fix issues in its cold supply chain, it turned to Locus, a three-year-old start-up that focuses on logistics management. Locus implemented a set of solutions, including route optimisation, which resulted in savings on costs and three hours of daily planning time.

Lack of integrated technology platforms across planning, forecasting, manufacturing, delivering and inventory management is also a challenge which various FMCG companies are facing.

In India, the supply chain responsibility is with the consumer goods company and they are all concerned about how to increase their organic reach. Route optimisation solutions help keep the time spent on the road to the minimum and maximise the time spent in stores. It drives efficiency and helps fulfil demand at a lower cost.

For larger firms too, tech-enabled solutions that provide end-to-end visibility are essential. While most large companies have implemented their own solutions over the past few years, smaller firms still rely on basic Excel and pen and paper methods. These start-ups primarily bring in tech-based solutions that these companies would have struggled to come up with on their own.

In consumer goods, stocks are constantly moving so IoT-based solutions can give real-time visibility on inventory. Large companies are dealing with thousands of distributors and retailers and a tech solution that can help with real time inventory management is useful for both the company and the distributor like the fintech firm Obopay which also provides a solution which allows companies to monitor and track the movement of goods to the distributor and retailer. Obopay transmits the information real-time and everyone has timely access to information. It also captures how the product is being sold, whether on credit or cash, and who it is being sold to.



IBM LAUNCHES ITS BLOCKCHAIN PRODUCE TRACKER, IBM FOOD TRUST

By Akshay Jadhav
Oct 09, 2018

The US-based technology company, IBM, has released its IBM Food Trust for commercial purpose.
As food travels through the supply chain, the blockchain-based tracker will check for freshness of the food to be monitored. The testing of this blockchain tracker has been conducted for the past 18 months, and is now available in the market to be used by retailers, wholesalers, and suppliers.
Companies such as Carrefour–the largest retailer in Europe-Wakefern Food Corp and Topco have all joined IBM's food network with the launch of this technology.
"Being a founding member of the IBM Food Trust platform is a great opportunity for Carrefour to strongly accelerate and widen the integration of blockchain technology to our products in order to provide our clients with safe and undoubted traceability," said Laurent Val lee, General Secretary.

This blockchain produce tracker system provides information to be traced and shared across the industry, such as how produce is grown, processed, and travelled, etc. It can mainly reduce the checking time for provenance from days or weeks to seconds.
IBM Food Trust is priced at around $100, $1,000 and around $10,000 for small businesses with less than $50mn in revenue, for medium businesses with up to $1bn in revenue, and for business giants respectively.

HIRANANDANI GROUP TO FORAY INTO INDUSTRIAL AND LOGISTICS PARKS

By Geomon Joseph
Nov 19, 2018

Real estate developer Hiranandani Group is looking to develop industrial and logistics parks across the country.

Apart from its own land bank of over 500 acres in different parts of the country reserved for this purpose, the company is acquiring new land parcels either directly or through partnership and joint venture models in strategic locations. To begin with, the Mumbai developer has earmarked land parcels at Talegaon in Pune, Nashik, Chennai's Oragadam and Durgapur in Kolkata for developing these projects.

"The government's Make-in-India programme and introduction of unified tax structure in the form of GST has brought a structural shift to small fragmented warehouse networks in the consolidated space, along with large distribution chains and centralized hubs," said Niranjan Hiranandani, managing director, Hiranandani Communities.

The operating model of GreenBase, the company's new vertical for industrial and logistics parks, will include built-to-suit industrial facilities, cold storage and built-to-suit warehouses for end customers as well as large third-party logistics players. The government's decision to accord infrastructure status to the logistics industry is allowing developers to access low-cost funds for the development. All these factors together provided an impetus to the group to diversify and enter the industrial and logistics sector, said Hiranandani.

AGILITY TO INVEST $100M IN DIGITAL LOGISTICS PLATFORM 'SHIPA'

By Geomon Joseph
Dec 20, 2018

Logistics major Agility will invest $100 million over three years in Shipa.com, a digital logistics platform that lets businesses, entrepreneurs and consumers manage their freight, e-commerce, and urban deliveries online.

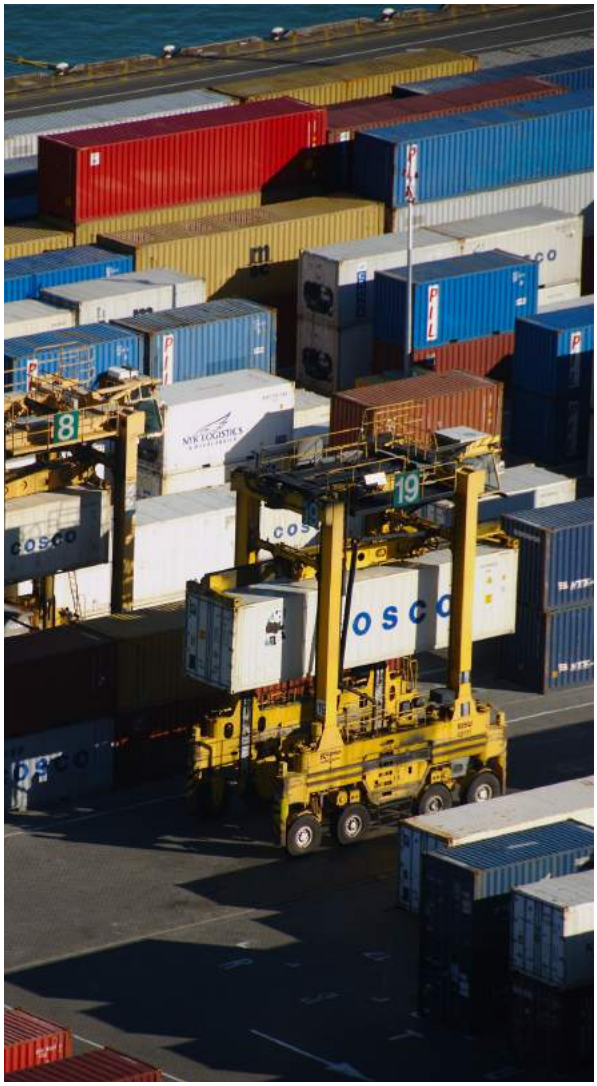
Shipa.com's service lines include Shipa Ecommerce, Shipa Delivery and Shipa Freight. Shipa Ecommerce offers integrated freight, fulfilment, delivery and returns solutions across the Arabian Gulf with additional reach into the EU and Africa planned for the near future. Customers are cross-border retailers based in the US, EU and Asia, as well as regional merchants based in the Middle East. Shipa Ecommerce solutions are underpinned by easy-to-use digital integration: APIs and web interfaces such as checkout integration with customer portals, websites and apps. Shipa Delivery offers businesses and consumers on-demand same-day, next-day or cross-border delivery across the Arabian Gulf. The platform is accessible by mobile or directly integrated with its business customers' systems, and provides solutions to optimise for speed, convenience, and affordability. Shipa Freight allows small businesses to get instant and transparent freight quotes, and to book, pay and track ocean and air shipments around the world on any digital or mobile device

4 WAYS TO CHANGE THE GAME FOR LOGISTICS ANALYTICS

By Anuj Ghag
Nov 07, 2018

Over half of shippers claim that digitization is important to their business strategy, but less than a third reported that they plan to invest in it. In fact, Deloitte has found that many of those investing remain in the early stages of adoption.

But, arguably, the shift from retail to e-tail is the biggest change and opportunity the industry has seen since the integration of the global supply chain. The fight to deliver the lion's share of the ever-growing volume of goods bought online is heating up between logistics companies and online retailers. That last mile is going to make or break logistics companies, and if they don't invest in their data strategies and analytics now, they cede their territory to digital retailers who are hungry for opportunities integrate and streamline their businesses and to expand their market share.



As the volume of machine data in supply chain and logistics increases, new opportunities to improve efficiency and customer experiences arise. It is now possible for logistics organizations to interactively derive insight from vast volumes of streaming data for truly real-time analytics on inventory optimization, route optimization, and transport analytics. Logistics professionals gain deeper, faster, actionable insights into operations, customers, and markets, giving them the edge they need.

Here are four ways the logistics industry is able to address the challenges presented by the growing unpredictability of data and the increasing complexity of analysis in the post-big data era of the Extreme Data Economy:

1. Advanced Transportation Analytics

Today, the challenge is figuring out how to use all this data effectively to inform planning activity, aid in managing transportation networks, improve operations, reduce costs, and better serve travelers. New tools are needed, such as scalable databases that can leverage compute dense devices such as the NVIDIA (NVDA) GPU for geospatial analysis, to allow transportation professionals to act on real-time transportation data.

2. Route Planning and Optimization

Fleet managers can integrate data from vehicles, scanners, sensors, personnel, and live weather and traffic reports, to more effectively manage and deploy assets.

And by using machine learning and advanced analytics, they can discover and act on insights to optimize delivery routes in real time.

One of the world's largest logistics organizations optimizes the operations of its several hundred thousand vehicles and employees, using visualizations and analytics of real-time data to more efficiently deliver goods.

3. Just-In-Time Inventory Optimization

Retailers have discovered that the more they can make data fast, actionable, and intelligent, the more likely they'll be to build a long-term relationship with a customer.

Retailers can get tracking visibility and notifications of store deliveries, to provide store managers and distribution centers with just-in-time insights, even for thousands of trucks delivering millions of shipments every month.

One such retailer deployed Kinetica, a GPU database engine, to fuse their transaction data with their inventory text descriptions. With just two queries, the retailer could see where their highest organic food product sales were occurring throughout the nation.

4. Condition-Based Equipment Maintenance

By simultaneously ingesting, analyzing, and visualizing real-time sensor data from aircraft, cars, trucks, and ships, and combining that with more static data such as maintenance schedules, logistics organizations can gain contextual insight into the condition of their vehicles and assets. Performing predictive analytics on this data in real time helps organizations to detect patterns, anomalies, deteriorating performance, and future failures. They can proactively maintain equipment, improve fleet productivity, and avoid costly downtime.

HOW BLACK FRIDAY AFFECTS LOGISTICS COMPANIES

By Oonita D'mello
Nov 25, 2018

Black Friday, the day after the US holiday of Thanksgiving, regarded as the first day of the Christmas shopping season, on which retailers make many special offers. Black Friday has been a fixture in the US retail calendar for the last five years. The two days of intense shopping (in some cases, a week for some retailers) can be the most challenging to logistics companies due to the sheer number of orders that must be processed and delivered.

A business owner needs to be aware of the potential issues they could encounter during that period. Main anxieties of businesses during the sales are: that they may not have the right stock, business owners are concerned that they will not be able to service their deliveries and fear that they won't have enough team members to handle the increased demand. Here are some of the ways that Black Friday affect logistics companies:

- Increased Planning

The level of management and planning that goes into logistics on any average day is extensive, but for Black Friday, planning reaches new heights. Companies are required to not only arrange transportation for many different clients, but must ensure that backup plans and backup vehicles are in place should a link in the supply chain suffer from delays or problems.

Any issues that arise have the potential to affect the entire supply chain, disrupting all the orders behind the delay.

- More staff

Logistics companies need to increase the size of their workforce to help manage the increased demand. However, hiring staff adds strain over this period, as new workers must be trained to do their job safely and efficiently, which takes a lot of planning and organisation.

- Unpredictable elements

Regardless of how much planning a company puts into the period before Black Friday, it is likely that something unexpected will crop up, meaning spur-of-the-moment decisions frequently need to be made. The responsibility to quickly identify solutions to often technical problems will usually fall onto the operations managers.

- Increased profits

The rise in demand for logistics services over this period gives businesses the opportunity to increase their profits and grow the company in the new year. However, with this increase in demand comes tougher competition, as companies will be vying for the most lucrative clients.

Black Friday is, without doubt, the busiest day of the year for couriers, delivery drivers and retailers across the world, who are responsible for ensuring orders and deliveries run smoothly. And it's clear that there are many ways in which their operations could become disrupted but with serious planning and anticipation of what could go wrong, the logistics sector comes through the sales period unscathed.

EKA TO OFFER MORE SOLUTIONS TO COMMODITY BUSINESS

By Akshay Jadhav
Jan 04, 2019

The Bengaluru-based company, Eka Software Solutions, after the wide acceptance of its digital platform in commodities market, is looking to build on it and come up with more solutions to modernise to keep pace with the fast changing trends in the market.

The technologies used currently in the traditional industries such as commodities are dated. Commodity businesses need to modernise, to emerge as a winner, as they need better visibility in their trading operations across value chain,'' said Manav Garg, CEO and founder of Eka Software Solutions.

The company offers cloud-based commodity management software solutions across the value chain from sourcing and trading & risk management to supply chain and operations and downstream operations. Our recently launched digital platform is disrupting commodities market with 20 businesses across agriculture, energy and metals and mining switching to an app-based commodity management within eight months of launch,'' he said

He also added that the company plans to build on the platforms to help come up with solutions that lets commodity businesses stay future ready.

It also helps improve income generation for smallholder farmers. The company had recently worked with Coffee Board on a pilot project to help the board to improve quantity and quality of coffee produced. The Coffee Board is now employing apps ranging from hyper local weather forecast, disease identification and prevention to blockchain marketplace.

Large trading and food companies are taking on a technology-based approach globally by implementing (AI) artificial intelligence, machine learning and blockchain into their businesses. This would also bring in traceability, a critical in international premium food market.

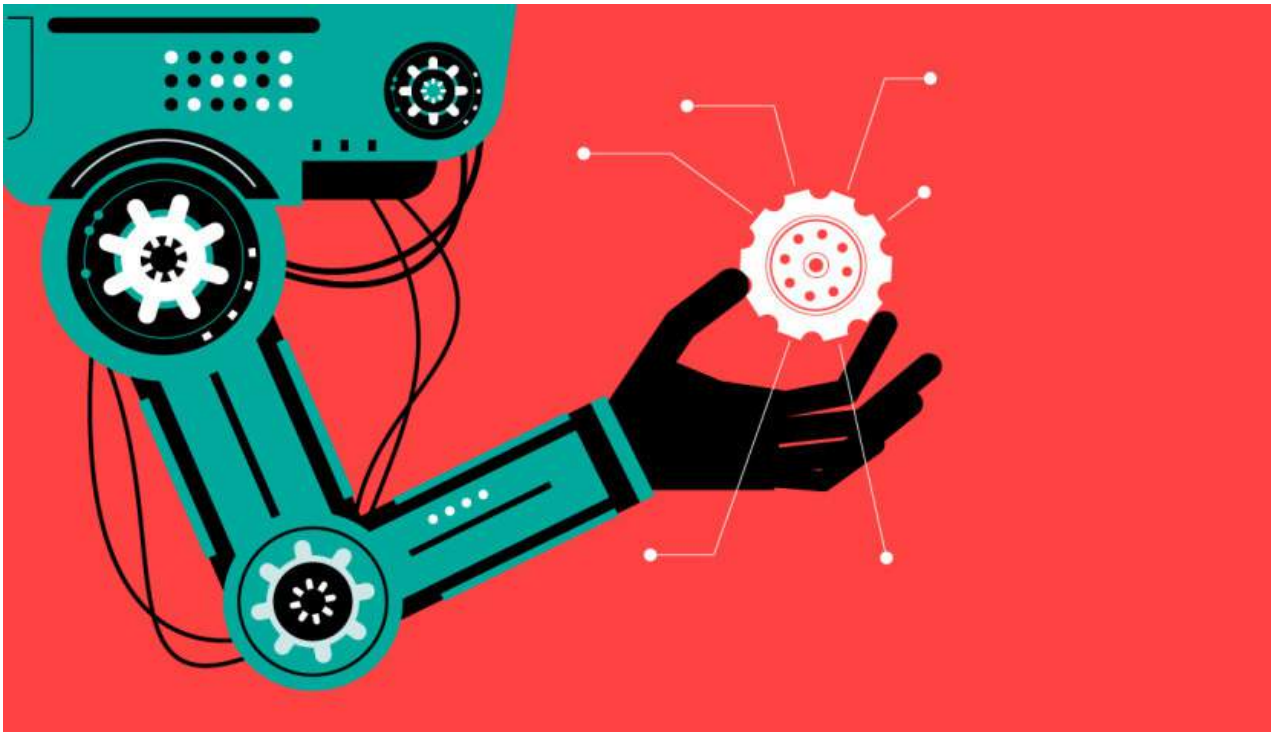
NEW SUPPLY CHAIN JOBS ARE EMERGING AS AI TAKES HOLD

By Anuj Ghag
Jan 04, 2019

Companies are cutting supply chain complexity and accelerating responsiveness using the tools of artificial intelligence. Through AI, machine learning, robotics, and advanced analytics, firms are augmenting knowledge-intensive areas such as supply chain planning, customer order management, and inventory tracking.

It does not mean human workers will become obsolete. While AI will be deployed to manage certain tasks, including higher-level decision making, the technology's true power is in augmenting human capabilities — and that holds true in the supply chain.

In this new environment, both machines and humans are essential: By collaborating in roles such as supply chain planning and inventory management, the combined power of humans and machines will create new sources of value for businesses.



"AS A TECHNOLOGIST, I SEE HOW AI AND THE FOURTH INDUSTRIAL REVOLUTION WILL IMPACT EVERY ASPECT OF PEOPLE'S LIVES."

We've explored the nature of the new value-enhancing roles that will emerge and identified three new categories of AI-driven jobs:
Trainers who help AI systems learn how to perform, which includes everything from helping natural language processors and language translators make fewer errors, to teaching AI algorithms how to mimic human behaviors.
Explainers who interpret the results of algorithms to improve transparency and accountability for AI decision making and processes.
Sustainers who ensure intelligent systems stay true to their original goals without crossing ethical lines or reinforcing bias.
AI, combined with advanced analytics, will enable supply chain planners to make more forward-looking, strategic decisions and spend less time on reactive problem solving. These planners will lead the charge in moving away from a traditional supply chain operating model, which is inflexible and slow, to a new dynamic model with true end-to-end segmentation. That means planning multiple supply chains that meet the needs of specific customer micro-segments as well as managing business relationships and exceptions. Concurrently, a new digital engineer role will emerge: a highly analytical, digitally savvy data scientist who manages, models, and tweaks the algorithms, alert protocols, and parameters guiding the automated decision-making planning systems. The importance of strong analytical skills will grow with the demand for human workers with a digital engineer's skill set.

Leading companies recognize this change is coming and are starting to evolve their supply chain workforces. According to Accenture Strategy research, 90% of executives believe this workforce will become adept at digital technologies such as augmented reality, 3D printing, and automation. And 92% of executives surveyed said supply chain workforces will be upskilled and enabled to interact and work with machines seamlessly.

In other words, supply chain workers are already beginning to adjust to work effectively with a range of intelligent technologies — from cobots to robots to virtual agents — to get tomorrow's jobs done. For example, these technologies can help reinforce correct procedures on the shop floor, monitoring how employees execute tasks and coaching them to do it the best way. Thyssenkrupp is overcoming skill mismatches through AI. The industrial services giant equips its elevator technicians to consult subject-matter experts through Microsoft HoloLens, an augmented reality headset.

Supply chain leaders need to ready their people for this inevitable shift that is already under way. That means making the commitment to reskill and move people to other areas of the business where they can add value. A major consumer goods company applied machine learning to complement more-traditional techniques for forecasting, which increased accuracy for forecasts and inventory management and made unnecessary the manual reviews and calculations that previously took almost 80% of the time. As a result, the company refocused human workers to provide valuable market intelligence.

The supply chain is and always has been a people business. We're moving toward a world where humans and machines are collaborating, not just coexisting. The result will be an efficient, sustainable supply chain that delivers better business outcomes.

NISSAN TO RECALL 150,000 CARS ON NEWLY FOUND INSPECTION FAILURES

By Akshay Jadhav
Dec 07, 2018

After uncovering more failures in its final vehicle inspection process, Nissan Motor Co. is planning to recall 150,000 vehicles in Japan dealing another blow to the carmaker.

The new problems include inappropriate tests of steering and brakes, the carmaker said in a statement. At plants in Japan, since last year's discovery of noncompliance in the final vehicle inspection process, Nissan has been under scrutiny.

It has recalled a total of 1.14 million vehicles over the issues.

Wrongdoings Nissan has found so far include allowing unauthorized workers to certify vehicles, conducting exhaust emissions and fuel economy tests under conditions that deviated from the prescribed testing environment, and tweaking measurement values.

This scandal is another embarrassment for the carmaker. In the first sign of blowback from the scandal for Nissan, the carmaker is also set to be indicted for breaching Japan's financial instruments and exchange act by making false statements on securities reports.

GLOBAL SUPPLY CHAIN PRICING MAY FACE NEW PRESSURES IN 2019, SAY EXPERTS

By Kalpesh Patil
Dec 27, 2018

The global economy started 2018 with strong, synchronized growth, but the momentum faded as the year progressed and growth trends diverged. Notably, the economies of the eurozone, the United Kingdom, Japan and China began to weaken. In contrast, the U.S. economy accelerated, thanks to fiscal stimulus.

Experts predicts that global growth will edge down from 3.2% in 2018 to 3.0% in 2019—and will keep eroding over the next few years.

One major risk in the coming year is the sharp drop-off in world trade growth, which fell from a pace of above 5% at the beginning of 2018 to nearly zero at the end. The risk of an escalation in trade conflicts remains elevated. If such an escalation were to occur, a contraction in world trade could slow the world economy even more.

At the same time, the sell-off in equity and commodity markets, on top of the gradual removal of accommodation by some central banks, means that financial conditions worldwide are tightening.

Supply chain managers may face mixed blessings on the domestic front, based on estimates about sustainable growth in the labor force and productivity next year.

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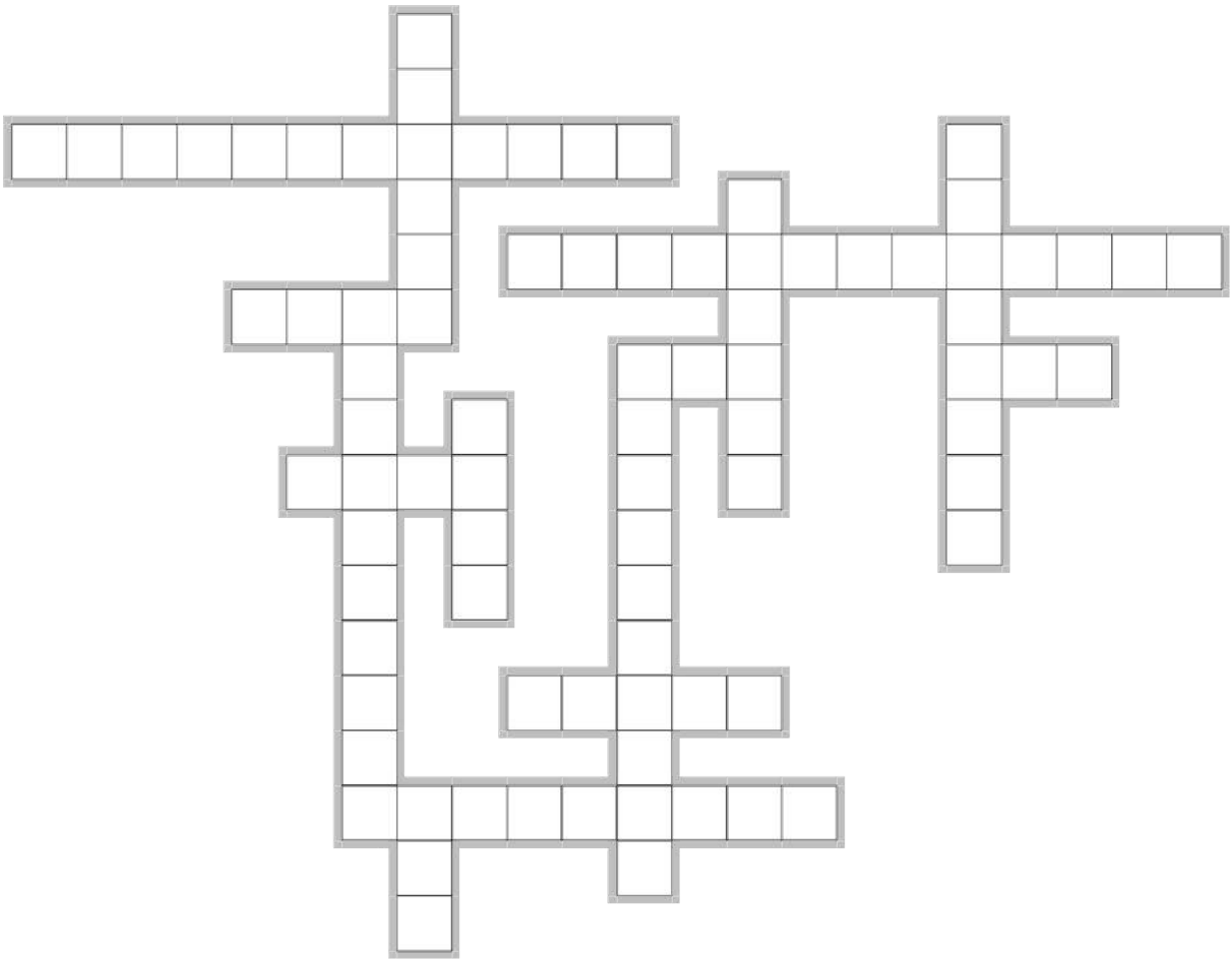

Across

2. output measured against the inputs
5. production done by machines but operated by people
6. production techniques used by business to cut down any waste
8. production method where single product is made at a time
9. acronym for Total Quality Management
11. production method where the production line is divided into separate units
12. method where quantity of a product made at one time.
13. benefits of producing on large scale

Down

1. continuous improvement
3. margin of time between the date stock received and the date when sold.
4. system of ordering used alongside JIT production.
7. Difference between the cost of inputs and final selling price
8. method eliminating the need to hold stock
10. method where large quantities of a product are produced
14. acronym for Computer aided designing