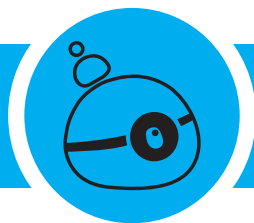# LOGISTICS TECHNOLOGY TRENDS SHAPING THE FUTURE

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The logistics world ticks by the microsecond, with every player investing extensively in innovations that help them beat the clock. Amazon is shrinking the clock from days, to hours, to minutes with its disruptive transportation models, while UberEATS, Uber's food delivery arm has been exponentially growing in popularity, thanks to its "uber" fast models of last-mile logistics for smart food delivery. Yes, time has certainly become the hero of the logistics world in the recent times.

Most disruptive technologies that have transformed the logistics ecosystem have focused on shortening geographic distances using time. The landscape has realized that the key to a sustainable future involves fulfilling the "right here, right now" expectations of customers and stakeholders of the logistics network. Hence all these trending logistics technologies are obsessed about solving some of the toughest challenges that logistics faces today, which includes:

1. **Enhancing warehouse space, productivity, and time-related efficiency**
2. **Achieving complete real-time transparency across the logistics network and for customers**
3. **Reducing risk of errors and fraud with a single version of truth**
4. **Simplifying communication with first-contact resolution**
5. **Assessing non-traditional modes of delivery**
6. **Effortless order picking and inventory management**
7. **Taking critical data-driven decisions in real time**

So let's reveal the trending technologies that will help the logistics world win its race against time.

CHATBOTS - EFFECTIVE COMMUNICATION WITH THE PROMISE OF FIRST-TIME RESOLUTION

Delivering real-time visibility and transparency is certainly a core logistics focus area. But of equal importance is the network's ability to communicate effectively and easily with customers seeking information. Today's world is comfortable with the chat interface, requiring none of the hassles of app download or multiple clicks to access urgent information. The success of the many thousand Siris and other virtual assistants has proved the capabilities of artificial intelligence to the world of logistics. Chatbots can fast become the first communicative face for almost every logistics-related interaction with customers.

Chatbots work on automating responses to routine and repetitive queries with ease. Their ability to resolve straightforward queries and FAQs within just a few minutes, delivering accurate answers right at the first instance, makes them one of the most sought-after logistics trends. Chatbots easily cut through the complex backend data to retrieve just the required information. Chatbots have an amazing memory and remember identifiers such as tracking information for subsequent interactions involving the same consignment. Chatbots also know when to stop and request for human support for complicated queries that require further assistance. With extensive possibilities to create auto alerts, chatbots have immense potential to expand extensively into many other areas of detailed communication and this is why chatbots will be one of the most trending logistics technologies of the future.

BLOCKCHAIN - ENSURING TRANSPARENCY IN TRANSACTIONS

A critical element of logistics is ensuring transparency and reliability in every supply chain transaction. This need is fulfilled by Blockchain, the latest buzzword of the logistics world. Blockchain delivers a single version of truth, thereby protecting supply chain assets and resources from errors and fraudulent activity.

One of the biggest dangers of a supply chain is duplicity of content and unlimited access to data in the network. This leads to two disastrous possibilities: increased risk of error with multiple stakeholders entering the same data from multiple sources and forgery due to data manipulation. Blockchain seals these gaps by delivering complete visibility of all transactions and asset availability. Every stakeholder hence receives the same version of data, accessible even when on the go.

One of the most relevant advantages of Blockchain in the current scenario is its ability to maintain confidentiality of information its and permission-based access. Any stakeholder outside the ring of approved access will only be able to view the data in an encrypted format. Another feature of Blockchain is its capability of allowing approved stakeholders to enter data at source from a single location. This same version of data will be visible to the other relevant stakeholders. Blockchain networks are not hierarchical; instead, they are decentralized and extensively distributed, with each stakeholder considered as an equal player. With many more such solutions from Blockchain awaiting discovery in 2018, this technology is definitely one of the most favorite logistics trends.

SENSOR-ENABLED REAL-TIME VISIBILITY IN TRANSPORTATION MANAGEMENT

A critical factor that contributes to the streamlining of supply chain operations, leading to time savings, is the ability to visualize and comprehend every aspect of transportation with zero latency. It's not just the location and the estimated time of arrival that matters but also other parameters such as fuel efficiency, environmental-friendly means of transport, safety, and compliance with regulatory norms. Smart tracking solutions provide a complete overview of the logistics landscape. They support in every aspect of transportation management right from agile fleet planning and optimization to assessment of vehicle capacity. But the current trending technology in this area is much more intricate. It involves the use of sensors and radars for real-time tracking and tracing.

Radars create alerts based on vehicle- and environment-related parameters. They capture the entire spectrum of vehicular data, and algorithms correlate all the collated information to calculate the accurate delivery time and possibility of disruption in real time. These analytics trigger alarms when any parameter dips or exceeds beyond a threshold value. Promising a spectacular user experience, including a real-time, map-based, and interactive review of the transportation status, this level of granular visibility builds confidence and trust among every stakeholder of the process. Radar-based solutions are likely to open new venues of innovation in future.

IMPREGNABLE DATA SECURITY

The spectacular innovations of the digital era have brought with it serious concerns about data security. The logistics landscape is no exception. The need to deliver complete visibility across the network and provide real-time information is possible only because of the extensive data capture that occurs at every node of the process. If any of the data captured gets leaked or is used illegally, the resulting loss to the customer and the business can be devastating. Hence, the logistics ecosystem has been investing considerable attention and resource on ensuring data security. Stringent regulatory requirements such as the General Data Protection Regulation (GDPR) intend to ensure strict compliance with data security specifications. Logistics players are leveraging technology to create a monitored and controlled environment to capture, process, and store sensitive data, as well as ensure that all the required consents are obtained and regulatory requirements complied with right from the first stage of data capture.
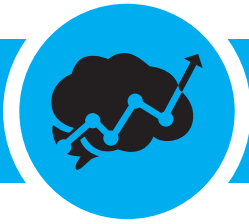
Mitigating the risk of data breach will indeed continue to be the top priority of the logistics world. Regulatory bodies have implemented robust regulations such as the GDPR that have forced logistics players to start thinking about data security. What are the implications of sharing sensitive customer data such as identity proof and credit card information? How do these transparent systems and solutions ensure that the personal data customers share are secure? Logistics technology has already answered many of these questions and enabled regulatory compliance, but the journey is not complete. The rest of this journey will be the focus - in terms of using technology to ensure complete compliance with data-based regulations.

VISUALIZATION-DRIVEN MIXED REALITY SOLUTIONS: HOLOLENS

Microsoft's HoloLens has added a completely unique dimension to interactive learning or activity. This spectacular technology has opened up a world of opportunities in disruption management. Let's assume that a truck breaks down during one of its trip. A mechanic who arrives at the scene immediately does not have the expertise to repair a specific part but the expert is available in a remote location. This is where HoloLens is valuable. With this technology, the skilled expert can immediately provide you with immediate support even from remote locations. HoloLens provides an intricate three-dimensional view of every single detail of the vehicle. This life-like interaction with experts is enhanced through tools that help the expert to mark specific parts, annotate the three-dimensional image, and attach support diagrams with ease. HoloLens also provide a clear top-down three-dimensional perspective of warehouses to smartly plan and manage multiple warehouse activities. HoloLens also enables managers to monitor and train their employees from remote location with ease.

Unexpected disruptions contribute significantly to logistics losses every year. Hence HoloLens technology can help the entire network to be ready to overcome disruptive challenges with ease. Resource availability is another hurdle in the logistics landscape. A HoloLens-based training and mentoring will easily simulate real-time experiences and catalyze the learning process. Warehouses are often the Herbies of any logistics network. HoloLens brings unimaginable efficiency into this system with ease. With such powerful applications and potential for many more, HoloLens are indeed the logistics technology worth grabbing in the future.

POWERFUL BUSINESS INTELLIGENCE& ANALYTICS

The logistics world is under the threat of a serious data overload, with unharnessed and wild data floating across the network. However, streamlining this data and dividing them into pockets of relevance through business analytics and intelligence has helped stakeholders take brilliant decisions based on strong data-driven insights. Logistics technology has been using business intelligence to optimize resource utilization and achieve operational excellence at every stage of the logistics process. From algorithm-based optimal pricing models and pattern- or usage-based operational best practice recommendations to real-time inventory management, business intelligence analyzes every aspect of the logistics ecosystem to deliver smart insights recommending practice and technologies that are critical business drivers.

The year 2017 started with a bang as UPS drivers were suddenly asked to not take any left turns when enroute. Their routing software developed route strategies completely avoiding left turns. The response stupefied every critic. The UPS team not only delivered on time but also saved on fuel but also easily cut down on their maintenance costs. Did UPS take an arbitrary decision that accidentally paid off? Not really! This instruction resulted from analyzing humungous data on route efficiency, deriving a strong pattern, evaluating the validity of the pattern, deriving possible solutions, trialing them, and finally implementing this huge change with constant monitoring. This is the power of data-driven decision making.

Data-driven decision-making tools are critical for business success in today's scenario to deliver operational excellence to the complicated logistics network. Technologies with a strong ability to read, evaluate, and understand data will enable stakeholders to take accurate and timely decisions. The currently popular platoon trucks are another example of robust data-enabled conversations. Since data is the current emperor of the digital world, this trend is indeed one of the most precious for the future.

WAREHOUSE 2.0 – AUTOMATED OPERATIONS

AGVs exploded into the logistics world many decades back as efficient options of simplifying warehouse management. However, the recent years have seen exponential innovations in this area of expertise. In their current form, these intelligent machines use sensors that support remote navigation by avoiding physical obstacles and increasing operational speed. Kiva, now called Amazon Robotics, too is stretching boundaries of the scope of robotics in warehouse management. Their robots have intelligently automated a significant percentage of picking and packing processes.

AGVs minimize the manual effort and physical labor required to navigate each aisle of the warehouse. AGVs are super-efficient in optimizing shelf space. Since the aisles can be made narrower without the need for human traffic, more shelves can be accommodated within the same space. AGVs are extremely customizable in terms of dimension, capacity, and functionality. The robots are robust and extremely fast. They also support seamless collaboration with humans, with the robots taking over the routine and repetitive activities that involve increased physical effort and

human being will manage tasks that require higher intellect such as taking smart decisions involving selection of the items that need to be picked, the location, packaging, and loading. This synergistic operation exponentially improves the productivity of warehouses and optimizes space management. The incredible potential of these technologies in simplifying warehouse operations makes them the trend to look out for in future.

CONCLUSION: THE FUTURE OF CLOSING GEOGRAPHIC DISTANCES WITH TIME

The logistics ecosystem is indeed hopeful of a spectacular tech fest ahead. The technology-enabled solutions focus on deriving qualitative benefits in terms of customer satisfaction, cost savings, efficiency, and collaborative functioning. But the clear winner is time - almost every innovative trend is looking at compressing the time taken at each node of the logistics network without compromising on time.

This common trend across the logistics network certainly echoes with Ramco's tech priorities for the logistics landscape. Hence to stay ahead of your competition you will definitely require the support of a strong tech partner like Ramco and a clear plan to tame the time that's ticking away.

SO WHAT'S YOUR PLAN FOR THE FUTURE?

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Ramco Systems is part of the USD 1 Billion diversified conglomerate, the Ramco Group of companies and has 1600+ employees with 24 offices spread across USA, Canada, Australia, Middle East, India, Europe, South Africa and APAC. Ramco is a fast growing enterprise software player disrupting the market with its multi-tenanted cloud and mobile-based enterprise software for ERP, HCM and M&E MRO for Aviation.

Ramco's Logistics Software is a unified cloud based software covering the end to end needs of 3PL, Freight Forwarders and Parcel/ Courier Service Providers. Ramco's 'Power of One' suite includes the complete gamut of logistics operations covering TMS, WMS, Order Management, Fleet Management, Billing & Rating with comprehensive HR and Finance modules tailor made for Logistics Service Providers. To know how Ramco can help you create business value for your organization, feel free to reach out to contact@ramco.com