DIGITAL SUPPLY CHAIN - IS YOUR DATA READY?

How to ask the right data questions for your business

Exceptional Data Growth

Is your supply chain ready to withstand the rising data volume and the complexities it brings?

The exponential increase of data volumes represents a major challenge for businesses today, delivering unseen levels of complexities.

New-age businesses require new-age digital models to contain the accelerated growth of data and to maintain a competitive advantage. Large data sets and their complexities result in barriers to innovation, inhibiting the ability to derive meaningful insights and achieving the levels of automation and efficiency that businesses desire. To put data growth in perspective, according to Statista's forecasts, data grows at an exponential rate, with the total amount of data created, captured, and consumed globally by 2020 of approximately 64.2 zettabytes. However, it is projected that globally, data will grow to more than 180 zettabytes by 2025.

The Exponential Data Growth

As we witness significant growth and progress in the supply chain industry, we also notice increasing volumes of data coming from diverse data sources, processes, and systems. However, while most businesses set 'data capturing' as their number one priority, they do not know how to utilize data.

In truth, advanced technologies are behind the increased complexities and the exponential data growth, while the competitive market is responsible for pushing the enterprises in a race to acquire data faster, with little regard to time or a cohesive enterprise data strategy. This leads to faster 'time to insights' but the insights generated may be largely incorrect. Now, the question lies with the simplification of such complex data collections to derive relevant information and strategies.

Simplify Data Complexity

Executives must now focus on managing the rapid supply chain data growth, along with the increased number of data sources. Data complexity must be aggressively simplified, guided by "enterprise data strategies" that make the most sense for the organization's business goals.

Large enterprises are trying to handle this by introducing new technologies, big data analytics tools, cloud, IoT, etc., which, in turn, are leading to further challenges such as:

Increasing Cost Executives today are focusing their attention towards capturing all the data and trying to gain insights. This leads to ramping up data storage and solutions costs. A recent survey of nearly 1,500 companies in Europe, the Middle East, and Africa (EMEA) reported that a midsize company with 500 terabytes of data is likely spending roughly $1.5 million USD per year in storage and management costs.

Geographical Compliance Risk Organizations are now trying to capture everything they get their hands on for analyzing. This approach leads to accumulating sensitive data which may not comply with relevant regulations.

Inaccurate Reporting & Insights Business insights remain hidden within the pool of complex data, as seeming correlations between data sets may not have an actual link, which may lead the company on the wrong path.

Supply Chain Enterprise Data Strategy

How to manage the 'Data Growth' dilemma?

- **Plan your way from chaos to insight:**

  It is important to develop a culture within a company where if a data tool does not align with the corporate data strategy and the goals, it should not get funded.

- **Unifying Enterprise Data:**

  Supply chain enterprises are generating exponential data in silos, which can result in several challenges.

  a) Negatively impacting operational costs, downtime, and reducing service levels.

b) Inconsistent performance measurements across the manufacturing units and warehouses due to the lack of data transparency.

c) The inability to analyze the impacts due to ever-changing requirements.

Companies with multiple data sources and incompatible data analysis tools must obtain a unified view of the disparate data systems. The best approach is to enable a unified data view through defining an enterprise data warehousing and analytics strategy. The benefits of integrating both the enterprise data warehousing and the analytics strategy include:

a) **Integrated Supply Chain Ecosystem:** A complete 360- degree view of the supply chain data, which should enable stakeholders with holistic decision-making abilities.

b) **Self-Service Data Management and Operational Agility:** Enable enterprises to minimize unnecessary planning and management, improve accuracy and faster time to insights, and help stakeholders explore new avenues for generating revenue.

c) **Enterprise level Planning and Collaboration:** Successfully align enterprise priorities and goals with a single source of truth.

- **Aligning Business Goals and Enterprise Data Strategy:**

  Business goals and related hypotheses drive a successful enterprise data strategy. The enterprise data warehousing strategy should focus on unifying the view of how data flows throughout the supply chain ecosystem and provide the ability to understand possible opportunities that data presents to drive supply chain productivity.

- **Data Standardization:**

  Once an enterprise data warehousing strategy is established, it is necessary to focus and simplify the rest of the data management and analytical process, including standardizing data taxonomies across the organization.

Advanced Technologies for the Supply Chain

- **Machine Learning**

  Machine learning has a tremendous potential to accelerate business insights when it comes to enterprise supply chain data. The advantage that ML models bring to the table is the ability to identify parameters critical to plugging gaps and removing inefficiencies in the supply chain process.

  The root causes of supply chain management challenges depend on variables such as inadequate inventory to fulfill demand, order backlogs, demand variation, communication gaps between stakeholders and disparate systems, complex and varying performance indicators, and many more. The root causes of these variables differ on a day-to-day basis, making it difficult to forecast, especially based on predefined business rules.

Machine learning models use algorithms that can quickly process large volumes of data, a task that is impossible to achieve manually. A data enriched machine learning methodology enables real-time solutions targeted towards specific business challenges through customized algorithms by:

a) Collecting disparate data, cleansing it, and then combining data from all relevant sources that impact the supply chain process.

b) Identifying the factors that have the maximum impact on transactional data and assigning higher weightages to them.

c) Based on the problem and the unique use cases, select the dependent and independent variables.

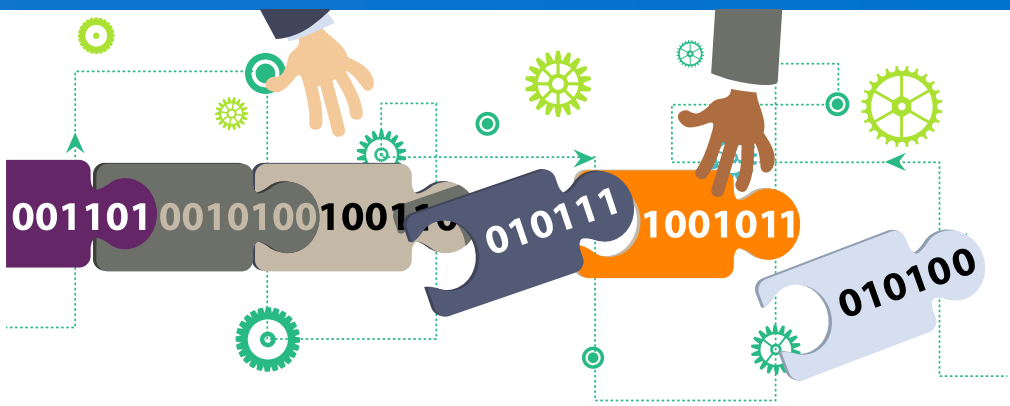
When properly directed, machine learning technologies excel at the classification of unstructured data and at matching similar data from disparate environments.

Internet of Things (IOT)

It has been estimated that by 2021 there will be 28 billion IoT global connected devices worldwide. The rise of these connected devices will subsequently flood companies with more data and more complexities. These devices will challenge the traditional supply chain models and will open new avenues, enabled by IoT data flowing back from sensors within the supply chain network. With IoT coming into play, supply chain ecosystems will start using more heavily predictive analytics solutions to serve customers in real-time.

As supply chain processes and their raw materials and components become instrumented with IoT sensors, the signals they send about the state of those processes can be analyzed by increasingly capable machine learning systems. This enables businesses to dynamically make data-driven decisions, even in the face of changing conditions.

Blockchain



Blockchain has also started making an impact on supply chain operations and it is just a matter of time before the ability to 'automate trust' through a distributed ledger database and automated transactions will significantly improve supply chain efficiency.

Experts envision a future in which blockchain technology results in most or all supply chains becoming publicly open, distributed networks.

We already see more and more businesses now working over collaborative, multi-enterprise value chains run on a blockchain or a series of blockchains

Has your supply chain organization taken steps to embrace these emerging technologies to generate operational improvements relevant to delivering revenue growth?

A look across the industry dashboard reveals that digital technology in the supply chain facilitates end-to-end decision-making, provides transparency into supply-demand information across networks, and enables real-time responses at the operational level, while most of the organizations suffer from friction generated by legacy processes and systems. Industry experts say that up to 35 to 40 percent of data is and systems.

The siloed nature of data production, incompatibly formatted, difficult to access, and hard to analyze comprehensively represent a major stumbling block with the current systems. There may have been advantages to such decentralized approaches in the past and it would be unwise to be insensitive to that. However, going forward, this approach will hamstring the data analysis capabilities of new technologies.

In the future, new challenges like managing data quality will be a major hurdle for these businesses, but for now, businesses must properly go through the digital transformation process.

Conclusion

Companies must respond quickly to tackle data growth, its complexities, and the chaos it brings. That includes focusing, simplifying, and standardizing data analysis through an enterprise data management strategy and exploring the range of possibilities offered by machine learning, IoT, and blockchain. Businesses that do this will receive meaningful insights that truly matter. They will be the first to detect changing market conditions and trends, and most importantly, they will be able to innovate and adapt more quickly. Their supply chains, business models, and operational processes will continuously evolve from a position of strength derived from those insights, and those that don't will find themselves at a significant disadvantage.

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About Author

Problem solver armed with a sound grasp of emerging technologies and supply chain industry determined on wielding them to unlock real value. Driven by a desire to bring innovative solutions and products to the market by combining technical competency, modern data analytics, and an old school business intuition, harnessed and hardened over 7+ years of consulting with Retail CPG, Supply Chain and Manufacturing Industries.

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