Deloitte.



Product Analytics

A Strategic Overview of Product and Data



"Believing in progress does not mean believing that any progress has yet been made. That is not the sort of belief that indicates real faith" [F. Kafka]

The Product Path



Why Now



Unlock the True Potential of Analytics

Analytics, together with a holistic approach to the value chain, enables data to flow across the entire business in an easier, more straightforward way

This approach allows **product companies** better to analyze their data in the entire value chain, maximizing and **unlocking** their **true potential** and **delivering value**.

The **acceleration** to analytics is a critical success factor today. The product offering constantly evolves, and organizations have access to large-scale and **complex information**.

Companies can realize value by managing and analyzing the increasing volume of new and existing data. The deployment of analytics, including data, technologies and processes, plays a crucial role in **strategic choices** and empowers organizations to **design** and **drive** long-term strategies by identifying **new opportunities**.



Track Analytics Down into Product Pillars

Data unveil **precious insights** for companies willing to **dominate** the market. The adoption of analytics creates a **multiplier effect**, generating significant **disruption** in the domain of product companies.

Analytics represents a **unique repository of potential value** to positively impact financial outcomes and operational efficiency **across the product value chain**: cost improvement, allocation and replenishment automation, optimization of manufacturing and inventory planning, and data-driven marketing strategies.



Product Development

Enhance R&D functions and all stages involved in bringing a product from concept or idea through market release and beyond



Procurement & Pricing

Enhance in-depth scouting of the target market to find the best technical and economic offer and identify best-in-class suppliers



Product Management & Planning

Enhance the assets of the business and operational factors to focus on product development and deliver the highest probability of success in achieving business goals through effective product planning



Transportation, Logistics & Warehouse

Get to know your daily stock availability and activate replenishment strategies

Product Management for Consumers

A comprehensive **strategy** and **process** for acquiring, retaining, and discovering **product data insights** to **maximize Consumer value** for the organization. Each of the Product Management elements can be supported by data analytics models. Data Analysis is a business-driven process that discovers and consistently uses good knowledge from organizational data.

It typically refers to all stages involved in bringing a product from concept or idea through market release and beyond. It also covers renewing an existing product and introducing an old product to a new market.



IDENTIFICATION

Involves targeting the most profitable product for the company and analyzing the target market in which to place it, obtaining maximum consumer traction

- Target market analysis
- Time-pacing product



ATTRACTION

Organizations can direct effort and resources towards the creation of a product that attracts target customer segments through communication and marketing services

- Product interaction marketing
- Product differentiation



DEVELOPMENT

Maximize the intensity and value of the product through the determination of recurring rules and an analysis of the Consumer's purchasing behavior

- Complimentary products analysis
- Pricing strategy



INTERACTION

Tailor the product supply strategy to enhance the interaction with the consumer and provide them with what they want when they need it

- Product Portfolio analysis
- 1-day delivery strategy

Data Trends to Shape Product Management

Extracting **hidden predictive** insight from **product** telemetry datasets can help **identify** valuable intuitions and **predict future** consumers' **behaviors**, enabling firms to make **proactive data-driven decisions**.

By analyzing **product sales data**, organizations can **predict** prospects' **profitability** as they become active consumers, how long they will remain active, and how likely they will leave.

In light of this, the new trend in **consumer product companies** is to use data analytics to **better sense product demand** throughout the value chain. They are collecting and sharing data with retailers to jointly plan and predict consumers' purchase activity, thus **reducing uncertainty**.

That will allow companies to improve responsiveness to consumers' needs enabling better production planning and reducing the cost of inventory.

Advanced Analytics can make R&D more efficient by replacing instinct and guesswork with factual data for decision-making.

Companies can use analytics to create models, anticipating future developments, such as R&D bottlenecks that could delay production.

Also, there is the need to **improve product profitability, achieving** efficiency on consumer-specific costs by **tailoring** the *product supply strategy*.

Manufacturing process enhanced by advanced data analytics



Product differentiation

Rely on multiple data sources to discover and investigate patterns in data leads and select the most valuable target product to enhance consumer attraction



Profitability analysis

Combine and analyze internal data on costs with external data on the market and products to build a tailored consumer profitability strategy and boost margins



Sentiment analysis

Extract information from the text delineating a classification of consumer reviews to evaluate the product holistically, enabling better decision-making for consumers

Product Development

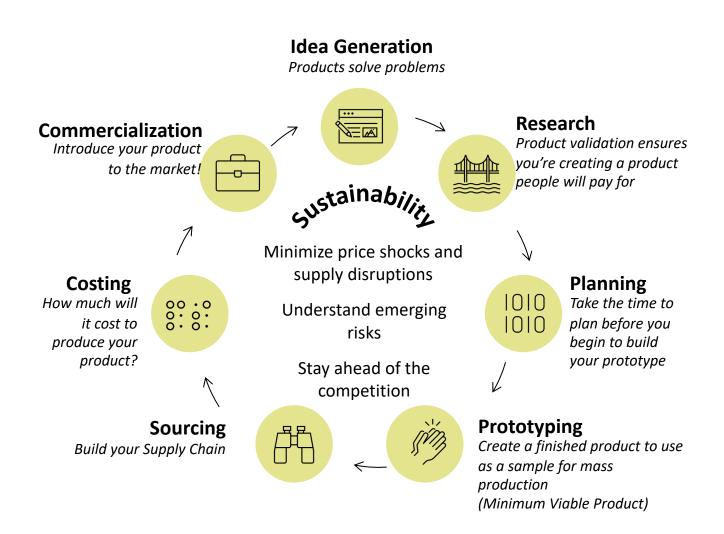




Focus on Product Development

The **Product Development Process** is one of the business processes involved in *Supply Chain Management* and incorporates a product's entire journey.

It typically refers to all stages involved in bringing a product from concept or idea through market release and beyond. It also covers renewing an existing product and introducing an old product to a new market.





A Data-Driven Product Development

New analytics techniques can help companies **make insight-driven decisions** using reliable and valuable information to **analyze risk**, **optimize processes**, and **predict failure**.

Optimizing **product lifecycle management** is increasingly important to improve companies' **sustainable competitive advantage**.

With emerging analytics technologies, product-embedded information devices are widely used to improve the efficiency of routine enterprise management at the operational level.

Applying Big Data to the product lifecycle faces several challenges, such as the lack of accurate, consistent, complete and correct data that can be used to support **enhanced** decision-making in product lifecycle management.

Advanced Analytics can make R&D more efficient by replacing instinct and guesswork with factual data for decision-making.

Companies can use analytics to create models, anticipating future developments, such as R&D bottlenecks that could delay production.

Sustainability analytics can help companies **reduce resource usage**, making them less vulnerable to price and supply volatility.

It can also help them **identify future risks** in several areas such as environmental impact and labor practices across the extended supply chain.

Advanced analytics gives a company the data needed to show business partners and customers a forward-looking vision, highlighting that sustainability is more than talk.

Product Development powered by Analytics:



Accelerating R&D innovation through an Analytics Centre of Excellence (CoE)



Measuring innovation through product-related metrics



Anticipating equipment failures and R&D bottlenecks



Driving Value with Analytics **Use Cases**

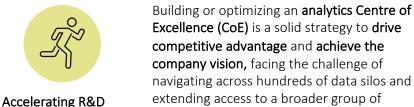
DESCRIPTION

USE CASE

innovation through

an Analytics CoE

KEY BENEFITS



business users.

- Encourage collaboration and communication
- Promote data culture and data competencies
- Provide consistency in organizational structure and tools
- Accelerate and drive technological innovation



Measuring innovation through product-related metrics

Product analytics can help companies manage R&D activities by balancing new features and technologies against cost, risk, and time-to-market. By identifying productand supplier-related KPIs and linking them to financial performance, companies can show positive and negative correlations to reach a trade-off between short- and longterm strategic goals

- Monitor the share of sales and the gross margin from new-product sales, thus optimizing R&D spending
- Improved allocation of people, time and money
- Increase ROI
- Stack up against competitor offerings



Anticipating equipment failures and R&D bottlenecks

A multivariate analysis could enhance the maintenance strategy that involves examining specific indicators to determine if equipment performance is decreasing. In addition to preventing equipment failures, companies could link equipment and process-level data to inspection and metrology data to make more accurate predictions about yield degradation, applying algorithmic approaches to identify patterns in the data before building any models.

- **Predict** when parts or consumables will fail
- Prevent yield loss early in the production process
- Decrease equipment downtime, costs for parts and labor
- **Optimize** the planned maintenance schedule

Procurement





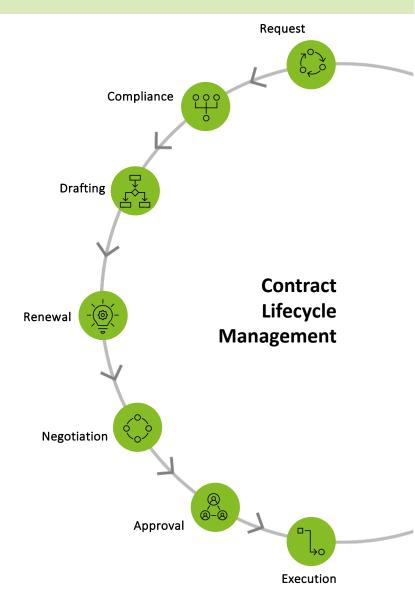
Focus on Procurement

Procurement is the act of obtaining direct materials, typically for business purposes. Procurement is commonly associated with businesses because companies need to solicit direct materials, usually on a relatively large scale.

Procurement generally refers to the final act of purchasing, but it can also include the **procurement process overall** which can be critically important for companies leading up to their **final purchasing decision**

Contract management and the associated performance is a continuous procurement process that ensures suppliers and buyers adhere to their agreed contractual obligations along with negotiating any future changes that need to take place until such a time that termination is required.

Source to settle is an integration of sourcing and purchasing processes. The stages involved in a source-to-settle cycle include requisitioning, sourcing, RFx, auctions, generation of purchase orders, receipt and payment of invoices, and every process in-between.





Data-Driven Process for Digital Procurement

Digital procurement is the application of **disruptive technologies** that enable Strategic Sourcing (S2C) to become **predictive**, Transactional Procurement (P2P) to become **automated**, and Supplier Risk Management (SRM) to become **proactive**.



Professionals in the Strategic Sourcing or Source to Contract (S2C) space—who worry about sourcing goods and services, selecting suppliers, and securing the best value and prices for their organizations—are already in a world in which it is possible to:

- Categorize and manage spend in real-time, leveraging machine learning
- Predict demand with artificial intelligence
- Know landed cost for any commodity for all alternate countries of origin
- Predict future sources of supply
- Act on timely alerts from all negotiated agreements (e.g., indexed pricing, penalties, renewals) through smart



Professionals in Supplier Relationship Management (SRM)—who develop strategies to increase the value of supplier relationships and mitigate risks—are in a world in which it is possible to:

- Monitor potential supplier risks in real-time through the aggregation and visualization of third-party data feeds
- Conduct supplier visits from their own office utilizing augmented reality
- Enhance supplier audits through crowdsourcing



Professionals in the Transactional Procurement or Procure to Pay (P2P) space—who enable operations, process transactions, and ensure goods and services are delivered and rendered—are now in a world in which it is possible to:

- Automatically sense material demand and requisition replenishment deliveries from suppliers
- Eliminate repetitive processing through robotic process automation
- Trigger payments utilizing real-time signals of material delivery
- Execute automated secure payments
- Exchange goods through validated and trusted decentralized ledgers

Leveraging better data from the S2C, P2P, and SRM processes, advanced analytics, increased computing power, and improved visualization technologies, digital procurement ultimately provides better evidence-based options for decision making and improves the accuracy of strategic decisions.



Driving Value with Analytics Use Cases

USE CASE

DESCRIPTION

KEY BENEFITS



Spend classification and enrichment

Accurate spend data is foundational in developing effective category, sourcing, and spend management strategies. Spend classification algorithms are generally based on several AI techniques (E.g., NLP).

- Increased precision and accuracy in the analysis of spend information
- Facilitate businesses seeking to augment their data with external sources (e.g., to identify products purchased from sustainable suppliers).



Global sourcing insights

New analytics tools are now enabling businesses to support high-level sourcing strategies. These help identify where to source specific products and evaluate the savings potential against the corresponding risk. Analytics is used to aggregate and make sense of a myriad of data and identify shifts and future global supply trends.

- Critical evaluation of sourcing opportunities through data-driven product and supplier insights
- Better understanding of the key industry and macroeconomic trends.
- Create transparency in the supply chain
- Identify new sources of supply
- Shift category spend to a more optimal allocation



Contract lifecycle management (CLM)

The data-driven approach is now beginning to make an impact in this area. CLM tools that use analytics can support contract generation, contract negotiation, and the identification of risks within contract language starting from the first phase of spend and market analysis up to the actual contract management.

- Significantly reduce the negotiation
- Discrepancies identification and analysis in contracts
- Support and facilitate large change projects such as mergers and acquisitions, specifically, identifying assignment or termination rights and consent negotiation.

Manufacturing



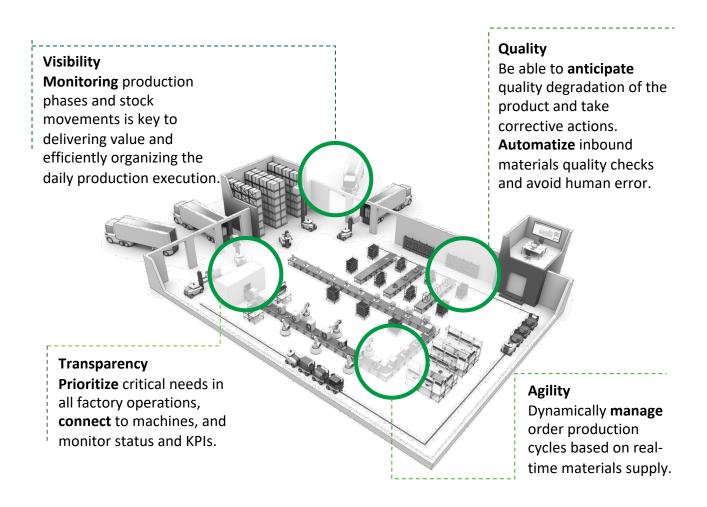


Focus on Manufacturing

The manufacturing process is the daily execution of the production steps and actions at plant level.

Plant directors typically check intraday production schedules, monitor lead times and remaining production quantities down to a single **production phase**.

During product manufacturing, the **availability** of timely and detailed information is crucial to **guarantee greater reliability** of the whole process and product **quality trust**. The aim is to reduce the overall **order cycle time** by increasing asset **productivity** and process **accuracy**.





The Smart Factory Initiative

The concept of Smart Factory is the main implication of **advanced analytics** and **IoT** in the manufacturing process. A **Smart Factory** develops from the **full interconnection** of assets and systems and is fundamental to creating an advanced production integration.

The idea behind the Smart Factory relies on the vision that manufacturing plants can largely be managed without human intervention through a self-organized process.

According to data from the Deloitte and MAPI (Deloitte and MAPI Smart Factory Study) Smart Factory Study, between 2018 and 2021, Smart Factory initiatives triggered double-digit growth in key performance indicators: increased product output, more efficient plant utilization capacity, significant cost savings and more efficient labor productivity.

That means that Smart Factory investments show both operative and financial benefits and have already been classified as critical success factors.

Today, thanks to more accessible computing and storage resources, advanced analytics, IoT and robotics, emerging technology solutions can help address issues correlated to manual process steps or line stoppages that lead to the loss of valuable production time.

Manufacturing process enhanced by advanced data analytics



Predictive diagnosis and maintenance

Use sensor data to predict machine downtime and reduce workplace accidents and **unplanned production stoppages**. Increase and control equipment lifetime and utilization.



Product quality assurance

Measure quality degradation in real-time and predict materials defects. Immediately enact correction **efforts to sustain high-quality standards**.



Transparency and agility boost

Reach a renewed level of visibility into material movements, production schedules and workforce performance. **Dynamically schedule production** cycles based on resource availability.



Driving Value with Analytics Use Cases

USE CASE

DESCRIPTION

KEY BENEFITS



IoT for conditionbased monitoring and predicting machine failure Install sensors and build a holistic machine learning solution using systems, data architecture and analytics. With new insights feeding into a real-time user dashboard, the client can monitor the current and future state of assets via a solution that can be scaled across the plant.

- Improve OEE, throughput and quality
- Reduce time-consuming and labor-intensive physical inspections of the plants
- Reduce the risk of production stoppages and the safety risk correlated the human intervention in plant maintenance



Production shifts optimization based on demand and supply variables

Optimization problems programmed and resolved through specific advanced analytics tools can be used for dynamic crew planning and optimal worker allocation according to fluctuations in product demand and materials supply.

- Optimize the workforce employed on the production line and benefit from direct costs saving
- Maximize workers' performance
- Support workforce reallocation according to production priorities and develop a higher degree of employee interchangeability
- Propose advanced worker solutions to your staff and increase their satisfaction



Built-in Command Center Visibility

With an IoT-enabled data architecture with pre-integrated use cases to address most common manufacturing issues, plant directors can use scalable, flexible performance and prioritization tools to gain increased visibility of the overall plant.

- Exploit more programming and computing resources without new physical assets investment
- Fast adoption of built-in performance monitoring tools and machine learning models for your business

Planning

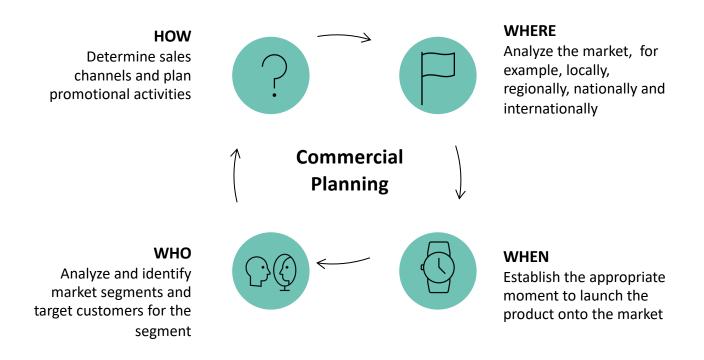




Focus on Commercial Planning

Commercial planning typically helps a company launch a new product into the marketplace. The company needs to focus on four aspects to launch new products: when, where, who and how.

The aim is to develop an action plan for introducing and launching the new product in selected markets and spend the budget for marketing activities to plan and determine the **marketing mix** (product, price, distribution and promotion).



The first decision is understanding if it is the **right time** to launch the new product. Next, the company should address the distribution and the promotional activities toward customer groups that can potentially represent the **product's target**.



Data Analytics for Commercial Planning

The Commercial Planning solution brings together closed-loop commercial planning with advanced revenue management analytics (specific to the consumer products sector). It delivers a "single view of demand" that can help transform the way decisions are made throughout the organization.

Corporate planning is becoming increasingly important. But, especially now, **decision-makers** need short-term transparency about what is happening as well as access to relevant data.

Integrated corporate planning and analytics quickly provide reliable and relevant information for corporate management.

Build for the future, not just today, by transforming and simplifying financial and operational planning across the organization and automating planning processes by creating a single version of the truth that enables finance and line-of-business professionals to collaborate on plans, budgets and forecasts.

Product companies have a tremendous opportunity to "do more...with less" by re-inventing their Commercial Planning capabilities and leveraging Next-Gen technologies

Manufacturing process enhanced by advanced data analytics



Integrated advanced analytics and insights to inform decision-making



Increased automation and integration with demand planning, promotion planning, and retail execution



Real-time visibility of category, brand, and customer P&Ls, and the associated levers of performance



Simplified customer and trade planning through improved user experience



Driving Value with Analytics Use Cases

USE CASE

DESCRIPTION

KEY BENEFITS



Renewal Strategy with Optimized Commercial planning

Develop an ML model integrated into the renewal process and set the best renewal price based on price sensitivity, thus offering the product at the most profitable price while maintaining the revenue share

- Reduce renegotiation rate during renewal, increasing product fidelity
- Maintain the revenue share by maximizing product profitability



Tailor the product supply strategy

Design and implement a solution that combines elements of clustering and the neural networks and will enable consumer companies to automatically review their point-of-sale history and associate groups of stores to sales patterns based on the sold quantity

- Lead the strategies to avoid consumer churn using data from the product data platform
- Increase the profitability of specific product segments, encouraging up/cross-selling
- Connect products to consumers based on their potential and relationship maturity



Optimize product demand forecasting

With an IoT-enabled data architecture with pre-integrated use cases to address most common manufacturing issues, plant directors can use scalable, flexible performance and prioritization tools to gain increased visibility of the overall plant.

- Perform the clustering of similar items into actionable groups based on sold quantity per store, allowing each consumer to have the requested amount of product just-in-time
- Enable a 1-day delivery strategy allowing the company to suitably distribute their products
- Rationalize the ordering process, thus reducing the inventory and increasing revenues

Pricing





Product-Led Pricing Strategy

Pricing Strategy covers decisions about setting initial prices and adapting prices in response to opportunities and competitive challenges. Pricing decisions have become **more challenging** in a changing economic and technological environment.

"85% of B2B management teams believe their pricing decisions need improvement, and just 15% have effective tools and dashboards to set and monitor prices" (Forbes, 2020)

For any organization, effectively designing and implementing pricing strategies requires a deep understanding of consumer pricing psychology and a systematic approach to setting, adapting, and changing prices.

To unlock the full potential of pricing initiatives, companies need a robust analytics foundation throughout the Price-setting process.

Setting Final Price

Product Price needs to be adapted over time according to product features and cost variations.





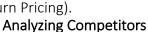


Pricing Objective

Determination of how the product should be positioned in the market (mass product vs niche product).

Selecting Pricing Method

The Pricing Method is highly influenced by product features (Product costs in Markup Pricing, Product investments in Target Return Pricing).



Comparison between product features and competitors' comparable solutions in the market (product switching costs).



How Products affect Pricing Strategy & Management



Determining Demand

Evaluation of how pricing-demand curves impact product Operations and Logistics processes (components supply and selection).

Estimating Costs

Assessment of products costs and how they vary with production volumes (economies of scale, economies of learning)



Product Pricing Analytics

Analytics has a potentially significant impact on each phase of the price-setting process. As a result, the term **Pricing Analytics** has spread widely among organizations.

Pricing analytics is defined as the **metrics and associated tools** used to understand how pricing activities affect the overall business, analyse the profitability of specific price points, and optimize a business's **pricing strategy** for maximum revenue.

Pricing Analytics **impacts every phase of the product lifecycle**: more profitable logistics contracts and lower production and distribution costs.

Product Pricing Analytics

Identifying Pricing Opportunities

Assessment of more profitable products on which higher prices can be set



Improving Operational Efficiency

Higher precision in defining Logistics and Procurement contracts

Planning Pricing Strategies

Capability to compare and assess the best pricing solutions before applying them

Higher Pricing Decision Acceptance

Greater simplicity in justifying Pricing decisions within the Organization

Manufacturing process enhanced by advanced data analytics

ROPE	Market indicators	Analytics output needs to adapt to changes in product features and uniqueness in the Market

rimeseries for	Need to train the end-users of Pricing Analytics solutions correctly
pricing	

	Pricing	Pricing Analytics output needs to be aligned with the decisions
	strategies	taken in further Company divisions



Driving Value with Analytics Use Cases

USE CASE

DESCRIPTION

KEY BENEFITS



Diagnostic-adjusted Pricing Model

Dynamic Diagnostic Tool collects data from internal and external sources to provide a successful recipe for a competitive and updated pricing model within the market

- Competitive offer based on fitting price and services
- Improvement of selling proposition considering feedback from the market
- Favor upselling by matching willingness to pay and price density



Data-Driven Pricing

Suggesting the right price by developing multiple demand curves for different product clusters while also taking account of future increases in the amount of product requested

- Increase revenues by setting the right price
- Set the right price according to the targeted market cluster in order to maximize product attractiveness
- Enhance market offering with a custom pricing strategy



Effective Discount Pricing

Using dynamic deal scoring indexed to discounts provides the guidance sales reps need in determining what level of discounting will win the deal and not sacrifice margin, thus leading to more effective use of pricing discounts

- Faster discount approval process as it is based on algorithms that maximize revenues
- Reduced price variability by identifying the best price to both win a deal and not sacrifice margins
- Sensible deals clustering to enable reasonable comparisons, which turn into a deal score

Transportation, Logistics & Warehousing



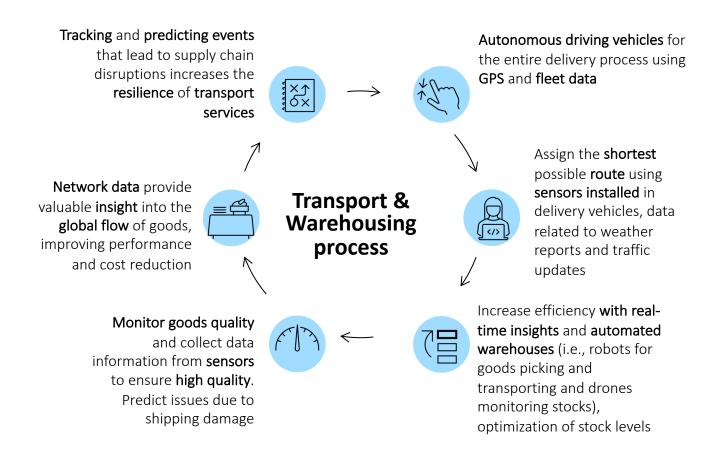


Transportation, Logistics & Warehousing

Data-Driven Logistics aims to **run predictable**, **controllable and transparent processes**, in which all the systems involved expose relevant data used to drive optimization, decisions and monitor information. Many companies are acting to adopt them to innovate their business intelligence, transports, and warehouses.

"People, machines, sensors, and devices will be able to share the data necessary for the supply chain to operate efficiently, which will enable end-to-end visibility and control.

This will also support top management decisions by providing in advance insights and prediction about delays, breakdowns, and interruptions to the stakeholders involved in the supply chain.





How Does Data Analytics Help Logistics?

Data replicates vast chunks of data gathered from across all sectors and **analytics** is the adoption of effective tools, processes and methodologies that help gain relevant insights from the **collected** data.

Data analytics is one such technology that helps track products and machinery in real-time. From the production phase to the last mile of goods distribution, one can manage and monitor vehicles and keep track of the shipment. Continuous monitoring of devices leads to better delivery and improved status of shipment.

Predictive analysis is believed to be one of the significant implications of data analytics in logistics. This is because it plays a crucial role in balancing demand and supply.

A silver lining was digital transformation. The last few years witnessed a massive shift in the growth of the supply chain and logistics industry. Much of this has been the impact of data analytics.

Using past data and existing models, shippers can effectively generate consumption reports and predict demand.

Smart logistics powered by Analytics:



Prediction of future incidents and situations based on extrapolations of existing data and current trends



Smarter traffic predictions and fastest route suggestions



Organized multiple pick-ups and drops



Driving Value with Analytics Use Cases

USE CASE

Data-Driven Logistics

DESCRIPTION

Companies are learning to turn large-scale quantities of data into a competitive advantage. Their precise forecasting of market demand, radical customization of services, and entirely new business models demonstrate exploitation of their previously untapped data. Big Data has become a disruptive trend in the logistics industry. The digitalization of the logistics chain enables the real-time tracking of products and machinery.

KEY BENEFITS

- Reduce stock levels
- Complete information on flow and status of goods
- Optimization of the production line to adapt to failures in the supplier chain
- Actionable data and prediction of downtimes and delays due to disruptive events



IoT in warehousing: Amazon Kiva Systems

The ability to accurately track and manage product status data can enable real-time data insights, faster issue identification and resolution, and ultimately improved decision-making and operational efficiencies.

Kiva robots have automated Amazon's warehouse environment. When an order is entered into the Kiva database system, the software locates the closest automated guided vehicle (bot) to the item and directs it to retrieve it.

- Increase efficiency and cut operating expenses
- Decrease equipment downtime
- Improve warehouse efficiency
- Cut operating expenses
- More accurate & efficient tracking of inventory volume and location in the warehouse
- Reduce hazards for warehouse workers
- Improve maintenance quality



Combining IoT and vehicle Telematics data to simplify fleet operations

Combining the power of IoT and Telematics to collect real-time vehicle data feed, which is then consolidated and analyzed over an Al power cloud application, dramatically increases the visibility and efficiency of fleet operations. For medicines shipments, it is crucial to know whether the product is undamaged and can be taken by a patient. Its integrity depends on the conditions during shipment, for example, on the proper functioning of the van's temperature control system.

- Real-time visibility
- Optimized routing
- Extended lifetime vehicles
- Identify critical issues
- Prevent goods damage
- Optimize the planned maintenance schedule

What's Next?

Support enterprise management in adopting a data-driven approach to develop a holistic view of the internal value chain, exploiting the added value of Analytics.





Product Analytics focuses on the company value chain, highlighting the product lifecycle and syncing enterprise strategy with data-driven market evolution.



A Product Analytics-oriented vision will propel companies into current disruptive trends, enabling them to leverage the power of data and adopt AI end-to-end throughout the actual product flow - from the idea through the early stage of development and product lifecycle to the end consumer.



The disruptive rise of AI is overwhelming standard processes. Therefore, broad analytics adoption in the Product value chain will be a crucial element to leverage for enterprises, with new solution enablers providing analytics insight to rethink and shape the future.



Contacts

Alfredo Maria Garibaldi

Senior Partner agaribaldi@deloitte.it

Daniele Pier Giorgio Bobba

Senior Partner dbobba@deloitte.it

Giuseppe Taranto

Partner gitaranto@deloitte.it

Deloitte.

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited ("DTTL"), its global network of member firms, and their related entities (collectively, the "Deloitte organization"). DTTL (also referred to as "Deloitte Global") and each of its member firms and related entities are legally separate and independent entities, which cannot obligate or bind each other in respect of third parties. DTTL and each DTTL member firm and related entity are liable only for their own acts and omissions and not those of each other. DTTL does not provide services to clients. Please see www.deloitte.com/about to learn more.