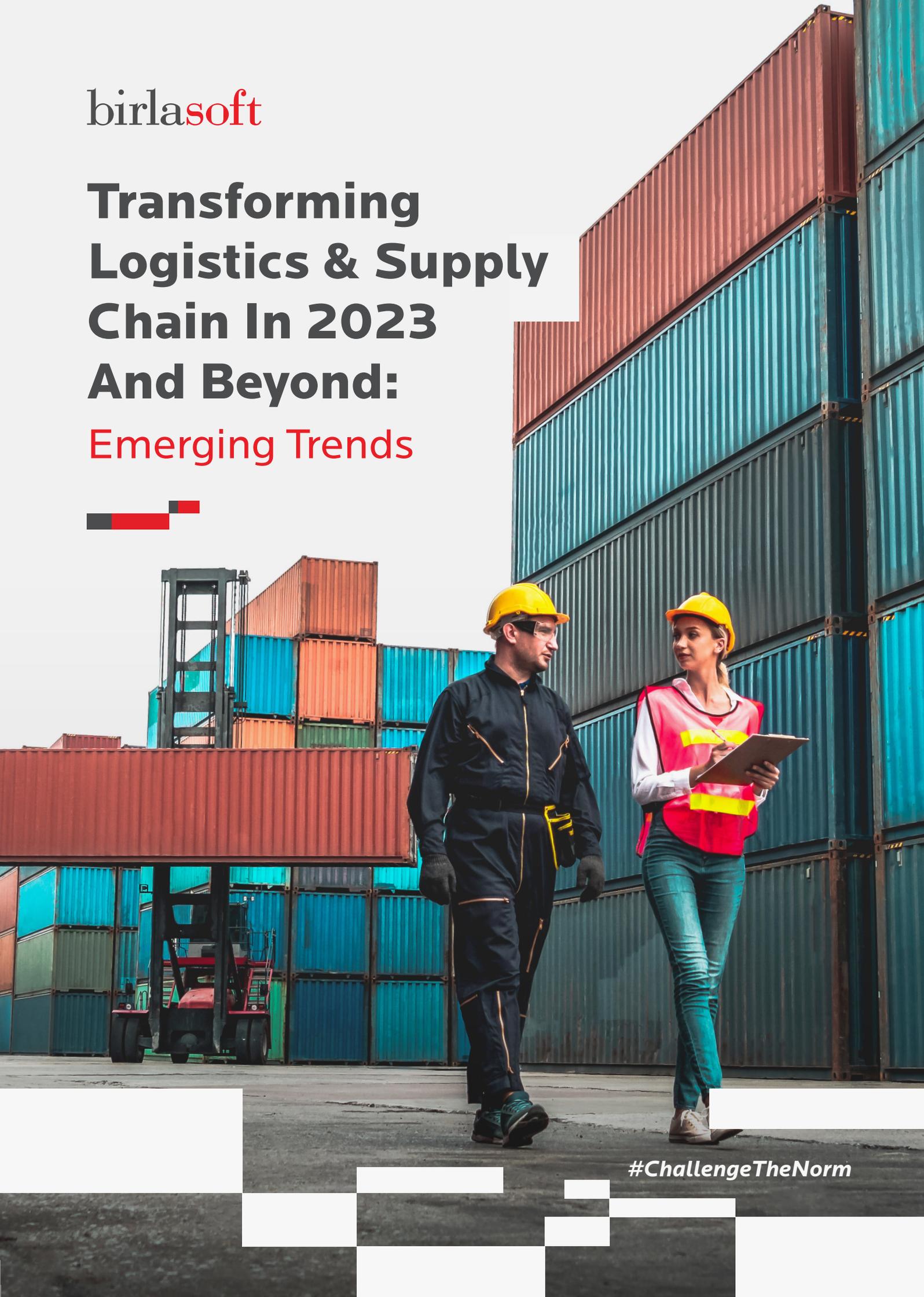
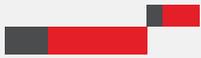


birlasoft

# Transforming Logistics & Supply Chain In 2023 And Beyond: Emerging Trends

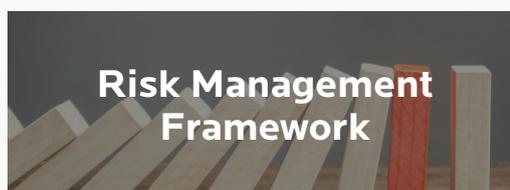


#ChallengeTheNorm

Logistics and supply chains have recently seen a colossal digital transformation through cutting-edge technology solutions. In addition, the restrictions and lockdown imposed during the global pandemic turned self-isolated individuals into online customers, which entailed customer-centric reformations in the e-commerce industry. With the growing demand, the supply chain and logistics systems faced significant pressure to keep up with the rapidly shifting landscape.

Logistic companies have embraced this challenge by building resilience and agility through innovative strategies. From automated warehousing technology to last-mile delivery solutions, we analyze the top 15 emerging trends in the supply chain and logistics industry in 2023 and beyond.

## In this ebook, read about:

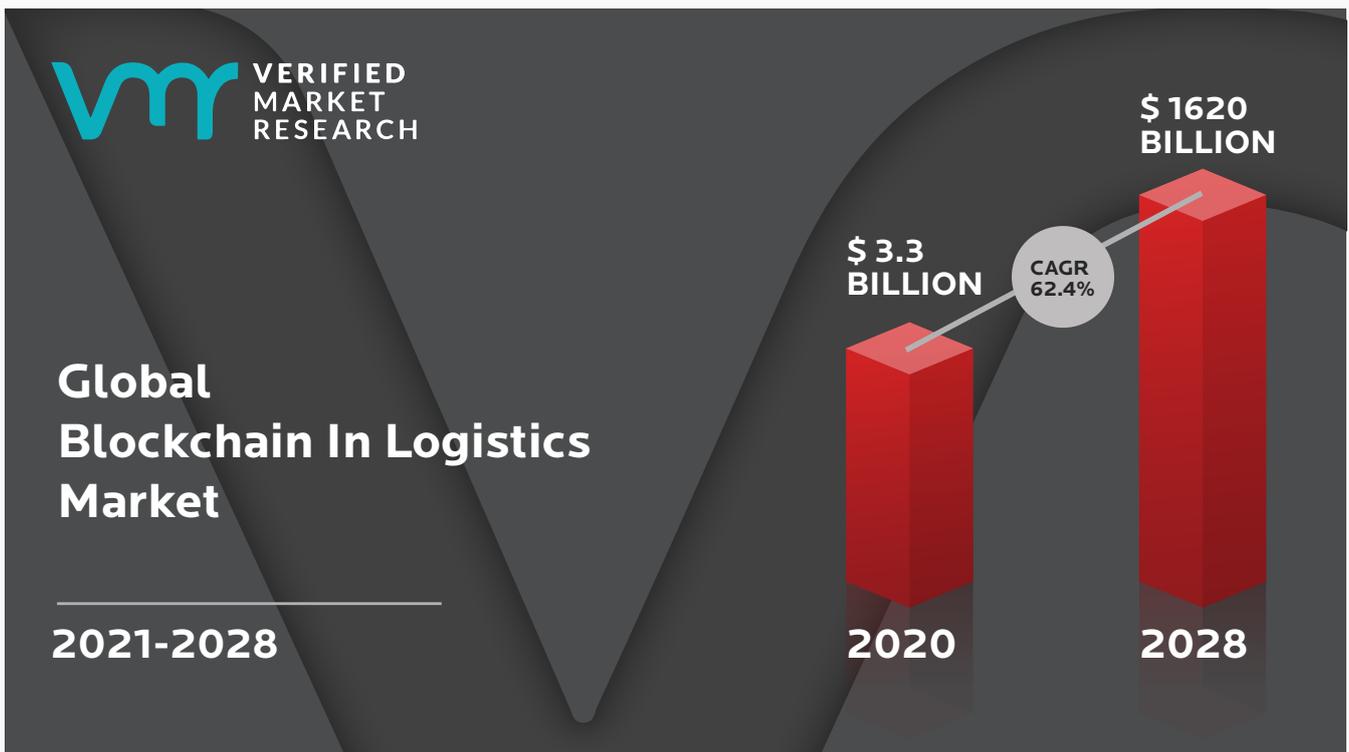


# Blockchain

*"In 2021, global spending on blockchain solutions is projected to reach 6.6 billion dollars. Forecasts suggest that spending on blockchain solutions will continue to grow in the coming years, reaching almost 19 billion U.S. dollars by 2024 (Statista Research Department, May 23, 2022)"soon.*

Blockchain has the potential to revolutionize the logistics and supply chain as it improves visibility and traceability throughout the supply chain, improving efficiency and reducing operational costs along all business processes. One key example of this is the success of Koopman Logistics, a Dutch company that uses the bitcoin blockchain to regulate the logistics of automotive delivery. Koopman is the first company to deliver automotive vehicles through an entirely paperless, data-driven system (Daley, 2019).

IBM's Food Trust platform, which tracks food products, and Maersk's TradeLens platform, which tracks shipping containers worldwide, are the other two major deployments of blockchain technology that show significant logistics companies will cut out waste with blockchain processes soon.



# E-commerce Logistics

*"The global E-commerce logistics market reached a value of US\$ 317.34 Billion in 2021. Looking forward, IMARC Group expects the market to reach a value of US\$ 803.24 Billion by 2027, exhibiting a CAGR of 15.60% during 2022-2027. (Imarc group, 2022)."*

*"According to recent polling by Peerless Research Group (PGR), 10% of respondents saw their company's e-commerce channel grow by 60% or more since the pandemic began."*

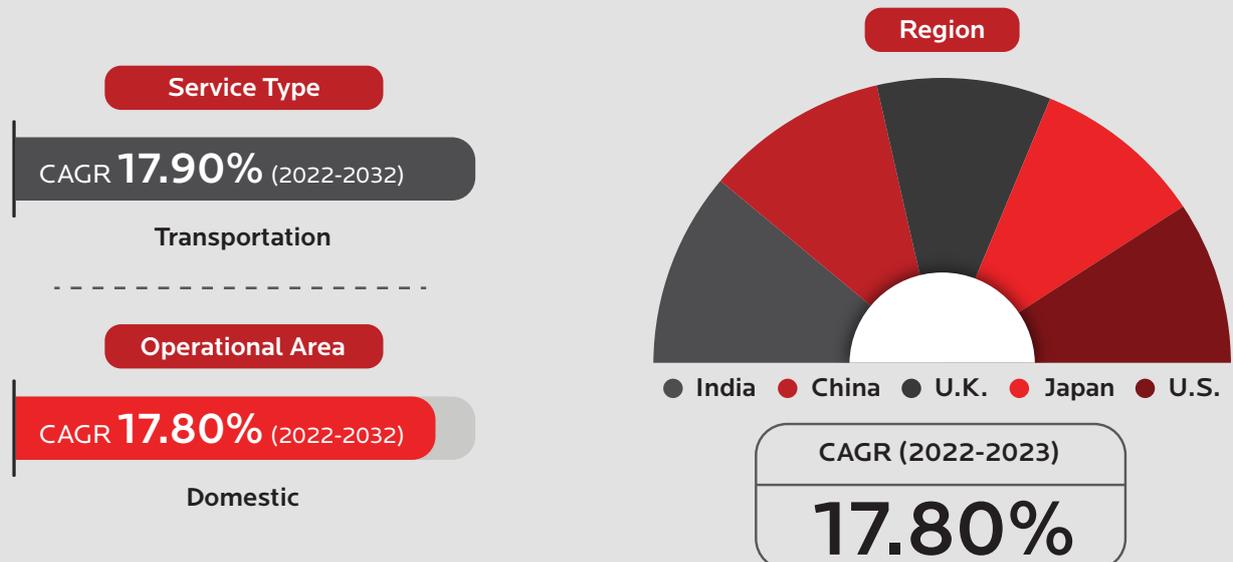
*"A combined 28% of respondents saw e-commerce growth of 40% or more in the same period (Michel, 2020a)".*

The growth of online shopping has entailed more efficient and reliable delivery methods for the E-commerce industry. This has led to an increase in third-party logistics providers (3PLs) and other outsourcing arrangements to keep up with the demand for fast and accurate deliveries.

As a result, warehouse operations have been revolutionized with new technologies such as automated order picking systems and real-time inventory tracking.

Additionally, there has been a shift from the traditional transportation pattern of time-sensitive deliveries by employing air shipping over ground shipping to get the products to the customers as soon as possible.

## E-Commerce Logistics Market Growth Rate (%)



Source: Future Market Insight

Note: Market share are not depicted as per the actual scale and are only for illustration purposes.

# Reverse Logistics

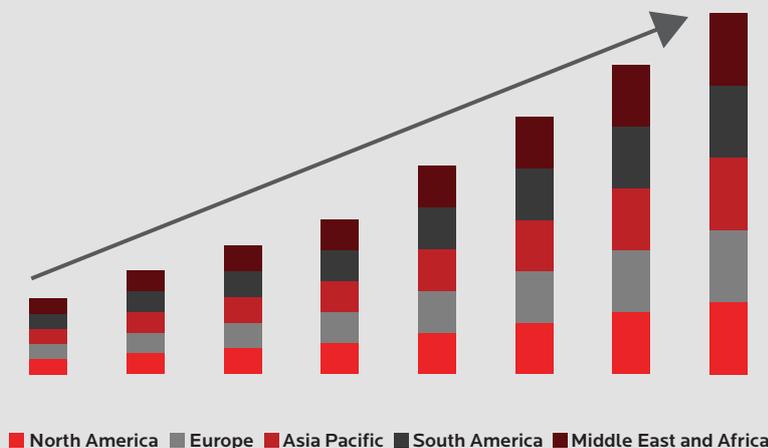
*“The global reverse logistics market reached a value of US\$ 563.2 Billion in 2021. Looking forward, the publisher expects the market to reach US\$ 812.6 Billion by 2027, exhibiting a CAGR of 5.80% during 2022-2027.(PRNewswire March 1, 2022).”*

Reverse logistics is an essential component of supply chain management, including product returns, repairs, and recycling.

Many companies now offer free return shipping labels and easy-to-use return portals on their websites to make things easier. In addition, retailers are now partnering with tech companies specializing in reverse logistics.

These partnerships help to streamline the process and take some burden off the retailers. For example, Amazon has partnered with UPS to create a Return Center that allows customers to return items they don't want quickly. Reverse logistics also achieve sustainability goals as companies find innovative strategies to reuse and recycle products.

Global Reverse Logistic Market is Expected to Account for USD 954,500.37 Million by 2029



Global Reverse Logistic Market, BY Regions, 2022 to 2029



Data Bridge Market Research

# Digital Training

*"Modern warehouse workers are used to the interactivity and ease-of-use they associate with their cell phones and other devices, and respond well to digital training (Robinson, 2018)."*

Digital training solutions optimize the logistics onboarding and training process for the employees. They are more convenient, affordable, and customizable than traditional in-person training methods.

Digital training is an excellent companion to the modern blue-collar workforce as it can be tailored to the company's needs. Companies can use adaptive technologies to upskill and train employees to meet the growing industry demands.

For example, Amazon embraced digital training methods to handle the major onboarding challenges the 2020 hiring spree posed; it employed over 1,000 technology professionals who created digital tools to automate the recruiting, hiring, and training processes.



# Gamification

*"In 2022, engaging your workforce through interactive and motivating productivity boosters like gamification is a great way to enhance warehouse worker training and boost productivity (MacPherson, 2020)."*

*"A study from consulting firm MarketsAndMarkets indicates that gamification methods will be key in industry. The gamification market is set to grow by 337% in the next five years: from \$9.1 billion in 2020 to \$30.7 billion by 2025."*

*Gamification in education is likely to grow at a compound annual growth rate of 14% by 2025. If this occurs, the market will be worth \$25.7B in 2025, \$12.3B more than the current market value.*

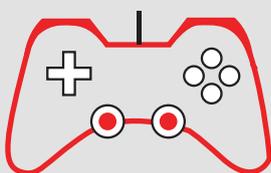
Gamification is the use of game mechanics and design elements in non-game contexts. In logistics and supply chains, gamification can motivate and engage employees, customers, and other stakeholders in the supply chain process.

Through gamification, logistic companies can access their workers' skills, intelligence, and critical thinking abilities. This process can help assess credibility and foster healthy competition among workers for incentives and promotions.

Gamification can also be used as an outward process to engage customers by giving rewards for providing feedback or participating in surveys. This would help to gather valuable customer insights that could be used to improve the logistics and supply chain process.

## The Impact of Gamification

90%



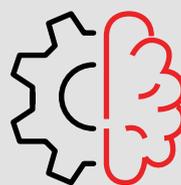
of employees are more productive when they use gamification

69%



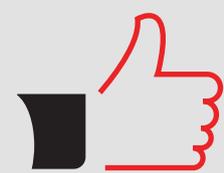
of workers are more likely to stay at a company for 3+ years when tasks are gamified

72%



of people believe that gamification inspires them to work harder

95%



of employees enjoy using gamified systems

Source: Medium.org

# Elastic Logistics

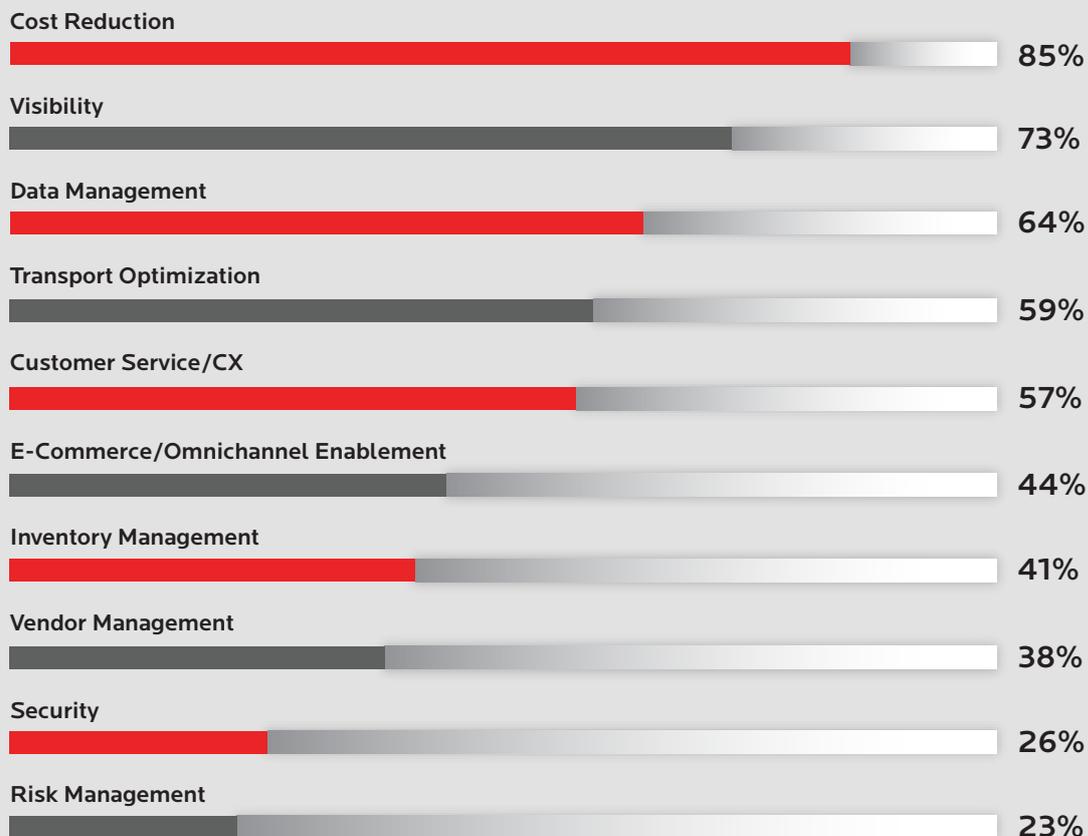
*“With a projected worth of US\$1,789.94 billion by 2027, 3PL companies have the flexible infrastructure and labor capacity to quickly take on warehousing and processing needs for online retailers (Sonpimple, 2020). ”*

Elastic logistics is the ability of logistics firms to quickly shrink or expand its supply chain operations, warehousing capacities and transportation systems to meet the changing market demands.

To adopt elastic logistics, logistic companies have introduced transportation management systems to enhance business performance and optimize their logistic fleets. The flexibility of elastic logistics has enabled businesses to provide on-demand services with quicker delivery times that have elevated the customer experience.

It also assists in mitigating logistic risks, reducing costs, and forecast demands through AI-powered solutions that provide predictive data reports for analysis.

## Transportation/Logistics Challenges Most Critical to Customers



Source: Inbound Logistics

Designed by  FinancesOnline

# Warehouse Automation

*"A 2019 report predicted the warehouse automation market will grow at a CAGR of 12.6% over the next five years, making automation one of the leading trends in supply chains in the foreseeable future (MH&L, 2019)."*

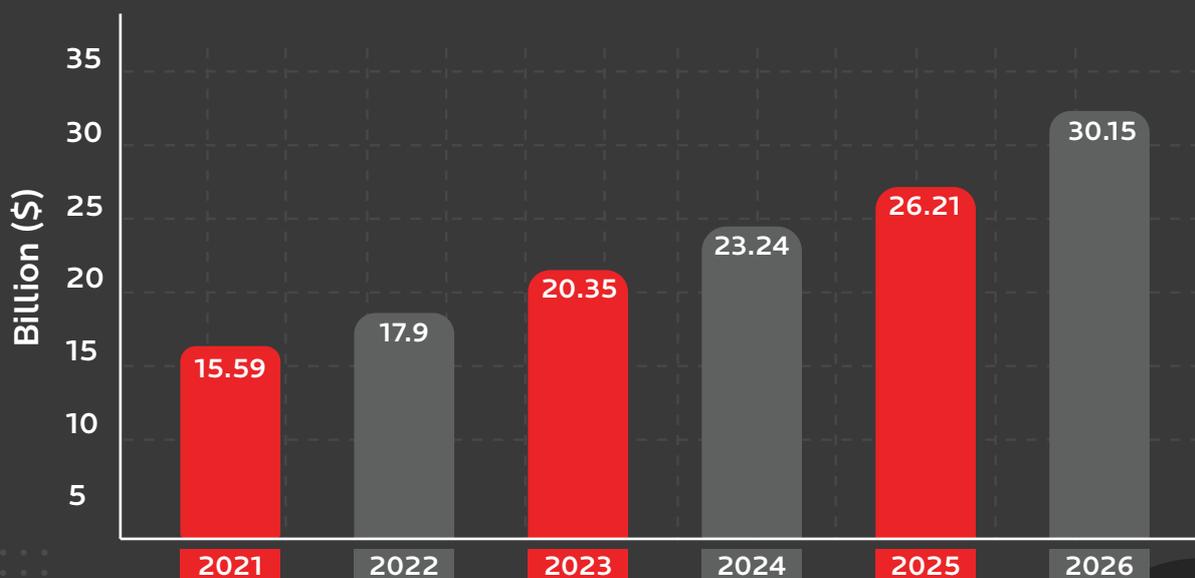
*"Amazon is likely to save around \$18 billion in warehousing operating costs in 2022, despite record hiring in 2020 (Hall, 2020)."*

Warehouse automation is helping companies improve efficiency and accuracy by deploying automated systems to handle tasks such as picking, packing, and shipping orders.

These systems keep track of inventory levels and replenish stock as needed. Additionally, automation ensures that items are stored in the correct location to reduce the need for manual labor, which can improve safety conditions in the warehouse.

Finally, automated systems can enhance communication between different warehouse parts, further improving efficiency.

## Warehouse Automation Market Size 2021 - 2026



Source: Statista: Worldwide Warehouse Automation Market Size

SelectHub

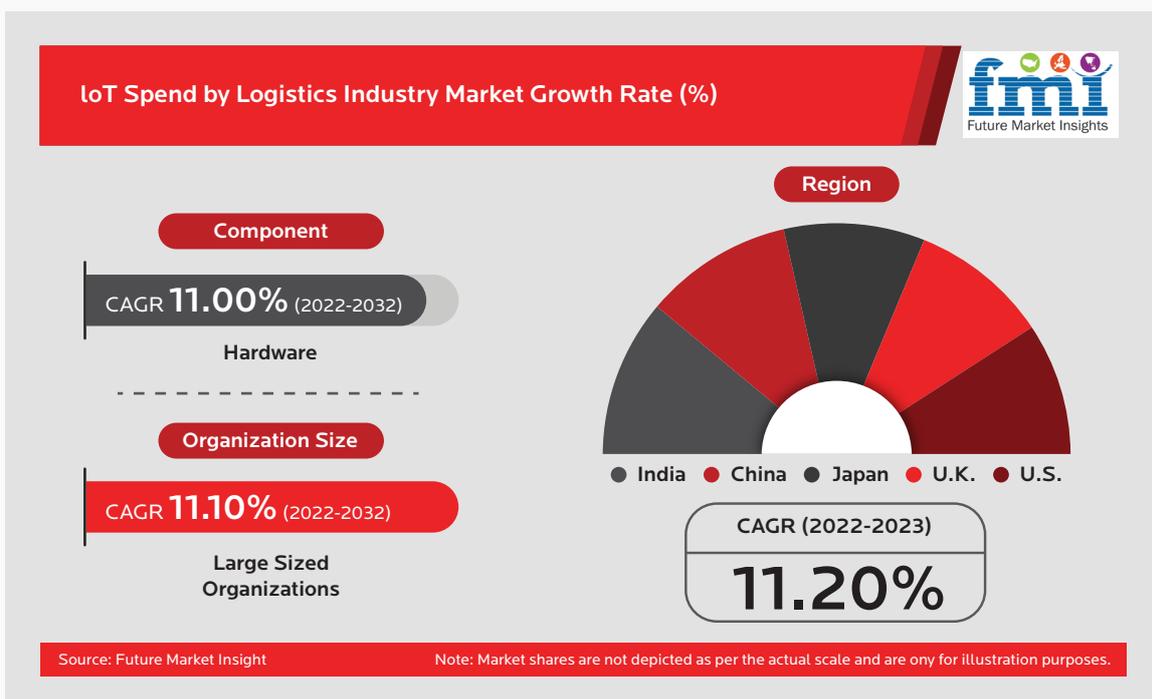
# IoT- Internet of Things

The global e-commerce logistics market size was valued at US\$ 35.2 Billion in 2021 and is projected to grow at a compound annual growth rate of 11.2% reaching US\$ 114.7 Billion by 2032, up from US\$ 39.6 Billion in 2022. From 2021 to 2022, the market registered a Y-o-Y growth of 12.5% (Futuremarketinsights,2022)

By 2023, it is estimated that there will be over 30 billion connected devices, which suggests more and more devices will be able to communicate with each other and share data. The data collected from these devices can be used to improve the efficiency of logistics and supply chain operations.

Therefore, the enterprises will have to roll out better-embedded software solutions to quickly develop data transformations to optimize and secure data to ensure good logistics and transportation management.

| Attributes                                     | Details            |
|--|--------------------|
| IoT Spend by Logistics Market CAGR (2022-2032) | 11.2%              |
| IoT Spend by Logistics Market Size (2022)      | US\$ 39.6 Billion  |
| IoT Spend by Logistics Market Size (2023)      | US\$ 114.7 Billion |



# IoT- Internet of Things

## Global IOT In Logistics Market

### North America

Largest Market  
By Region (2019)

### APAC

Fastest-Growing Market  
By Region (2020-2030)



**2019**  
Market Size  
**\$ 34,504.8**  
million

Market  
Growth Rate  
(2020-2030)  
**13.2%**

# Cloud Computing

"Cloud computing is one part of the thriving global digital logistics market. The global digital logistics market is set to grow 21.7% annually between 2020 and 2025, at which point it will be worth US\$ 46.5 billion (Malhotra, 2022)."

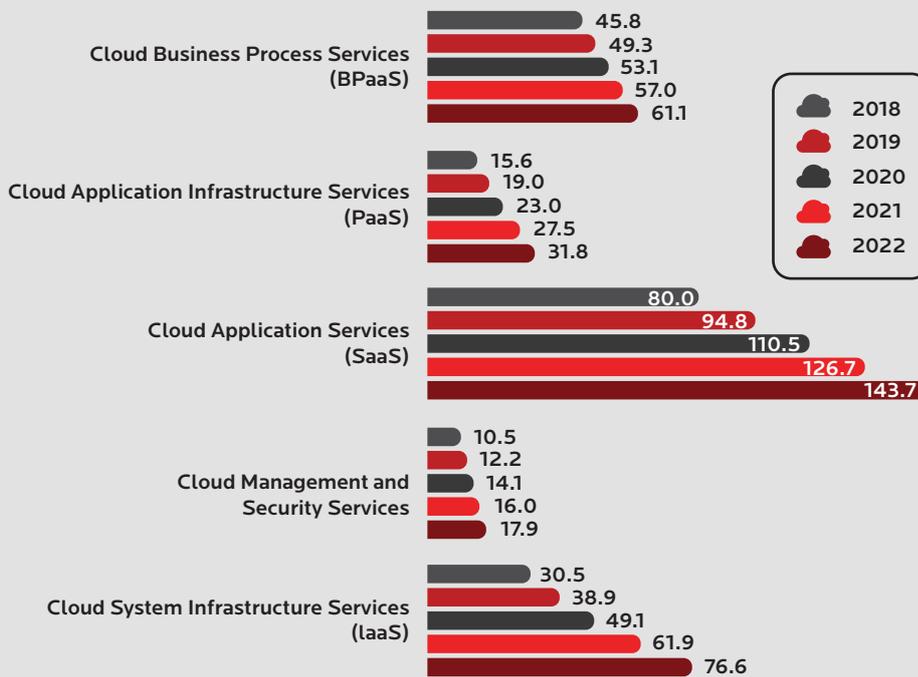
As digital transformation advances in the logistics industry, cloud-based SaaS solutions will play a pivotal role in structuring the framework for the IT infrastructures of logistic enterprises.

Cloud-based operations mitigate communication risks and enhance data security to facilitate efficient cross-department collaborations between product manufacturers and logistic companies.

Additionally, cloud computing empowers companies to manage and optimize the data for analysis that assists warehousing and logistic leaders in monitoring, visualizing, and mitigating risks for seamless business processes.

## Worldwide Public Cloud Service Revenue Forecast

(Billions of U.S. dollars)



### Total Market



BPaaS: Business Process as a Service  
PaaS: Platform as a Service

IaaS: Infrastructure as a Service  
SaaS: Software as a Service

# Last Mile Delivery

*"Coupled with growing e-commerce needs, expanding urbanization means that a major transportation and logistics industry trend will be last-mile delivery initiatives (Mordor Intelligence, 2022)."*

*"Traffic congestion in city centers caused by the increase in last-mile delivery initiatives in logistics is an environmental issue that companies must deal with (Fuldauer, 2019)."*

The last mile delivers goods from a distribution center to the final destination, typically a home or business address. This type of delivery has become increasingly popular in recent years as more businesses offer online ordering and direct-to-home deliveries.

Last-mile delivery helps enterprises save money by reducing the need for multiple shipments and handling fees compared to the traditional method, where the products are shipped to a central facility.

According to a study by UPS, the last-mile delivery market is expected to grow from \$48 billion in 2015 to \$86 billion by 2025. This growth is driven by several factors, including the increasing popularity of online shopping for goods such as groceries, medicine, and daily essentials, with the desire for faster delivery times.

## Global last mile delivery market 2022 - 2026



Market Growth will **DECELERATE** at a CAGR of

**13.1%**



Incremental Growth (\$B)

**143.75**



The Market is **FRAGMENTED** with several players occupying the market



Growth Contributed by **NORTH AMERICA**

**35%**



Growth for 2022

**13.48%**

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# Sustainable Supply Chain Management

*"Sustainability is now a top concern of buyers and companies alike. Many buyers push for more transparency in supply chains and reward brands that showcase their progressive political stances and green behavior.*

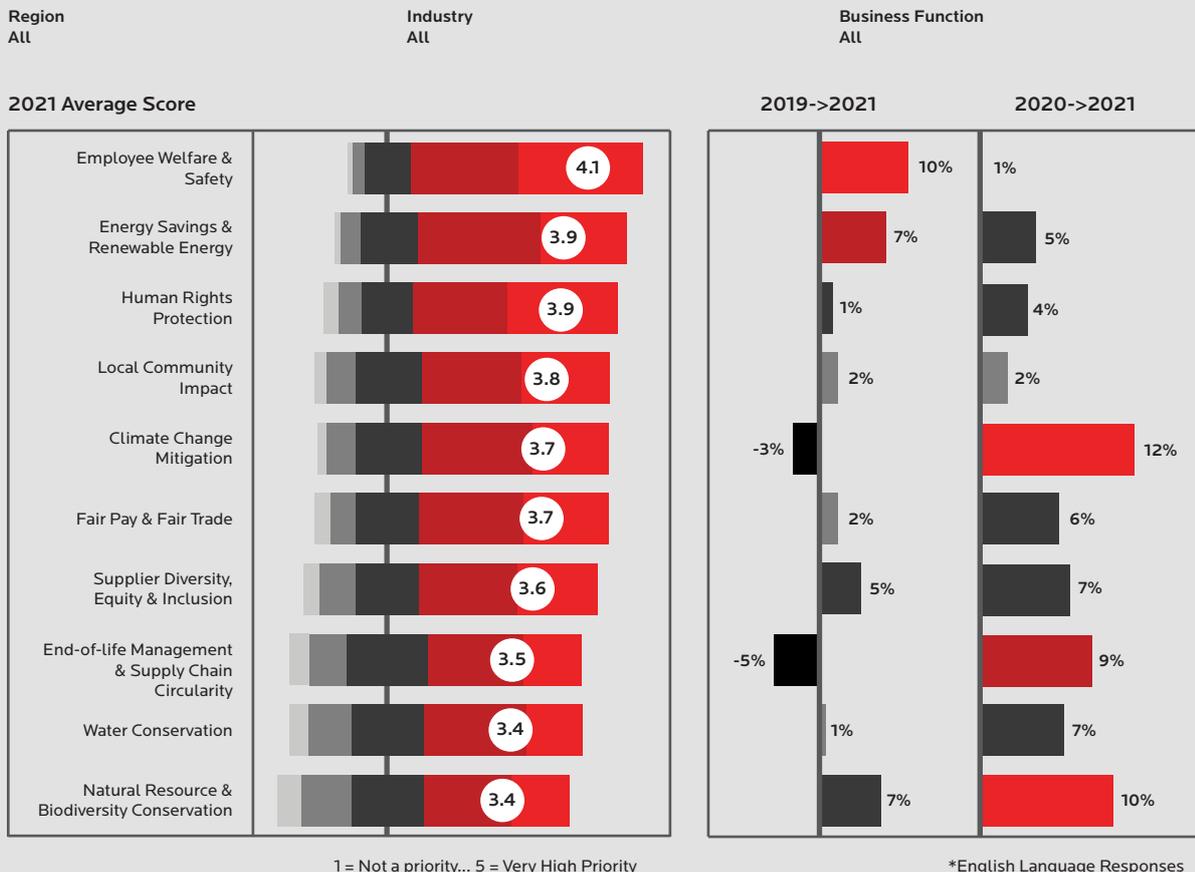
*At the same time, consumers are demanding increasingly fast and convenient fulfillment and shipping that requires highly reactive manufacturing and logistics processes (Amed et al., 2022)."*

Sustainable supply chain management integrates environmentally sensitive practices into a coherent and successful business model. To bring greater transparency into supply chain operations, logistic companies are introducing initiatives that include sustainable raw material sourcing, eco-friendly packaging, late-mile delivery practices, and product recycling.

Sustainable supply chain management is becoming more significant as government regulations on sustainability are becoming more stringent with the changing environmental landscape.

Enterprises must comply with various environmental laws, making sustainable practices more critical and paving the way for greener technologies soon.

## To what extent is each of the following issue areas a focus of your firm's SCS goals?



# Social Sustainability

Social sustainability practices refer to the process where logistic companies manage the people in the supply chain by addressing their social issues, such as safety, health, hygiene, wages, labor rights, education, housing, and other basic needs, which leads to the overall sustainability of the organization.

It is often an influential topic when gazing at third-party logistic industry trends where companies rely heavily on temporary workers to confirm they will increase and reduce their capacity on-demand to fulfill manufacturers' or partner warehouses' output needs.

Social sustainability is about influential leaders empowering workers and providing the proper knowledge and skills to help them achieve their professional goals.

Social sustainability is an implausible tool for boosting productivity and accelerating growth in the logistic enterprises.

## Four Dimensions of Social Sustainability

By <https://Diversity.Social>

### Equality & Diversity

Equality is the act to reduce disadvantages to certain groups, or helping certain groups to remove barriers to have more control of their lives.



### Quality of Life

Atffordable housing, physical & mental medical support, education training opportunities, employment opportunities, access to support, and of course safety and security.

### Social Cohesion

Social Cohesion means increasing participation by individual in a target group. As well as helping target groups to access public and civic institutions.



### Democracy & Governance

Governance is to make sure budget and resources are adequate to sustain sustainability programs and the ability to measure it.

Read more at <https://Diversity.Social>.

# Logistics Industry Investment Trends

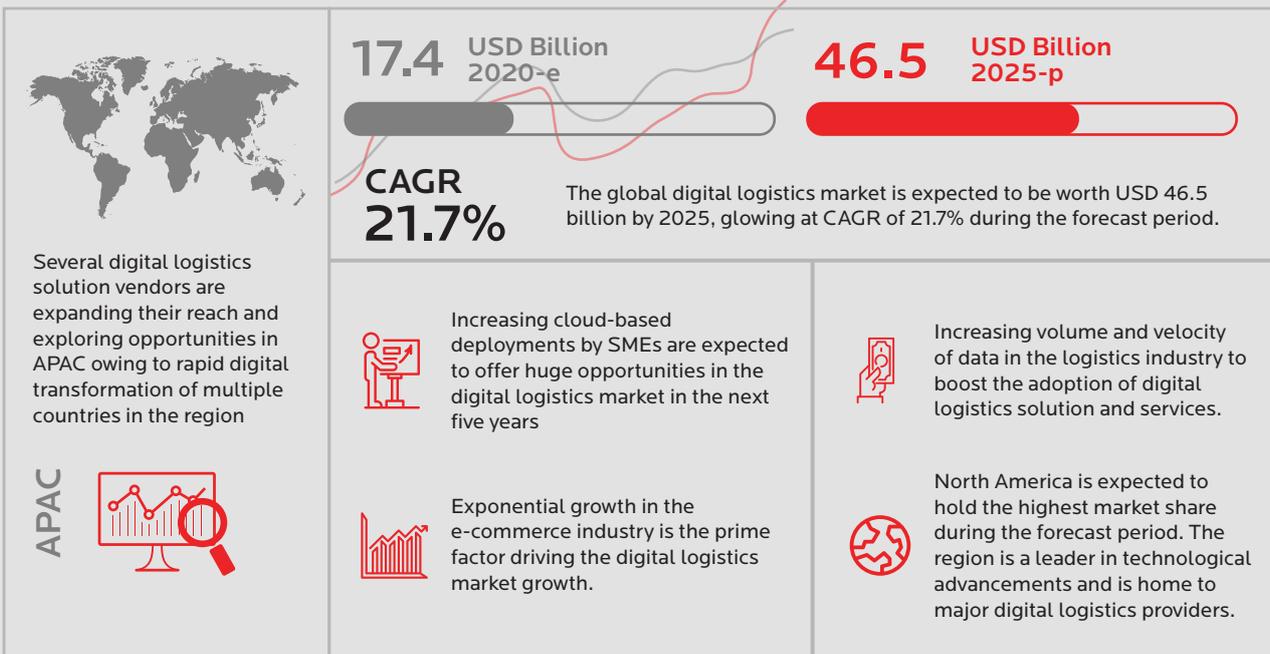
*"When asked about broad investment goals over the next 18 months, companies told Peerless Research Group (PGR) that the biggest spending area would be in maintenance, up from 5% to 42%, and outsourcing/ 3PL services, which stayed steady at 13%. On the other hand, enterprise investments were only 20%, down 9% from 2019 (Michel, 2020)."*

There are a few key factors that drive investment in the logistics industry:

- A. E-commerce continues to proliferate, increasing the demand for last-mile delivery services.
- B. The rise of omnichannel retail puts pressure on logistics providers to offer more flexibility and faster delivery times.
- C. The increasing complexity of supply chains is leading companies to invest in more sophisticated logistics solutions.

Investment is flowing into logistics companies to provide innovative solutions to these challenges by introducing new technologies, upgraded transportation vehicles, docking systems, and essential IS services such as barcodes and business models, resulting in the transformation of logistics operations.

## Attractive Opportunities in the Digital Logistics Market



# Risk Management Framework

*“94% of the Fortune 1000 are seeing coronavirus supply chain disruptions after 2021: **Fortune** Report)*

The risk management framework in logistics and supply chain is a comprehensive system that helps businesses to identify, assess, and manage risks. The framework consists of four key components:

**First**, identify risks that could impact the enterprise.

**Second**, evaluating the consequences of the risk involved in business operations.

**Third**, controlling the likelihood of the risks occurring in the business framework.

**Continuous** monitoring of new threats.

As the effects of the pandemic are still being evaluated, the companies are likely to work to minimize economic risk factors sensitive to large-scale disruptions like COVID-19 making risk management a growing trend for logistics in 2023 and beyond.

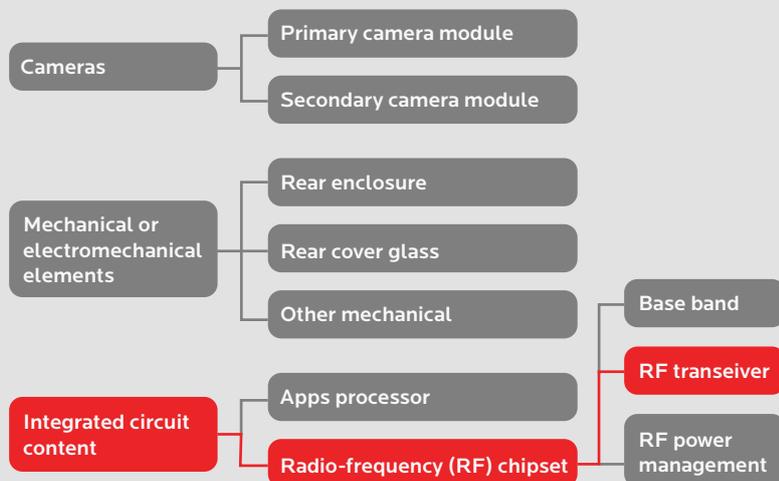
## In-depth mapping of supply-chain structures shows vulnerability and exposure across tiers



Large, centralized suppliers have many small sub-tiers

Identify bottlenecks and risk factors in supply chain

Cell-phone example



Quantify risk factors

Risk factors

Product technology



Transport



Supplier landscape



Relevance to safety



Source: McKinsey & Company

# Lean Logistics

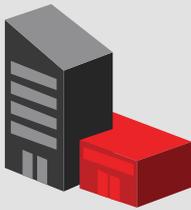
*"Lean logistics is a highly reactive management philosophy that empowers workers and optimizes processes. Leaders regularly engage with workers and warehouse floor operations to encourage constant, open dialogue about reducing waste and boosting efficiency (Minghini, 2020)."*

Lean logistics is an efficient and effective movement of goods throughout the supply chain.

The goal of lean logistics is to minimize waste and maximize efficiency by reducing or eliminating activities that do not add value to the final product.

Lean logistics also focuses on streamlining the flow of goods through the supply chain, from supplier to customer. It also leads to lower costs, improved customer satisfaction, and shorter lead times for businesses.

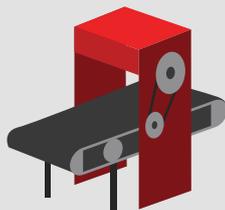
## Creating a Leaner Supply Chain



### Procurement

Avoid duplicate procedures in different departments.

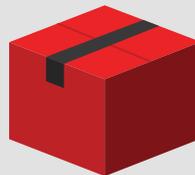
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### Manufacturing

Improving quality and precision prevents defects and returned goods.

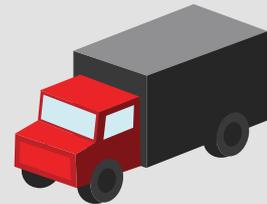
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### Warehousing

Keep inventory levels as low as is reasonable.

+



### Transportation

Consolidate multiple products into a single shipment.



# Optimizing Logistics and Supply Chain for 2023 and beyond

As digital transformations bring innovations and new technologies in logistics and supply chain management, it simplifies processes and increases the stability of business operations across the industry. Along with striving for sustainability, the logistics industry is set to spearhead customer-centric business model revolutions in 2023 and in years to come. It remains essential to balance logistics with nature while maintaining the profitability of operations.

As the logistics industries face significant disruption caused by digitization and environmental changes, enterprises that adopt new technologies will be successful and emerge as industry leaders in 2023 and beyond.

If you are looking for greater agility, resilience, and streamlined logistics operations for your business, along with cutting-edge supply chain management solutions, you can check innovative smart solutions from Birlasoft - a globally trusted IT service provider based in India.



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