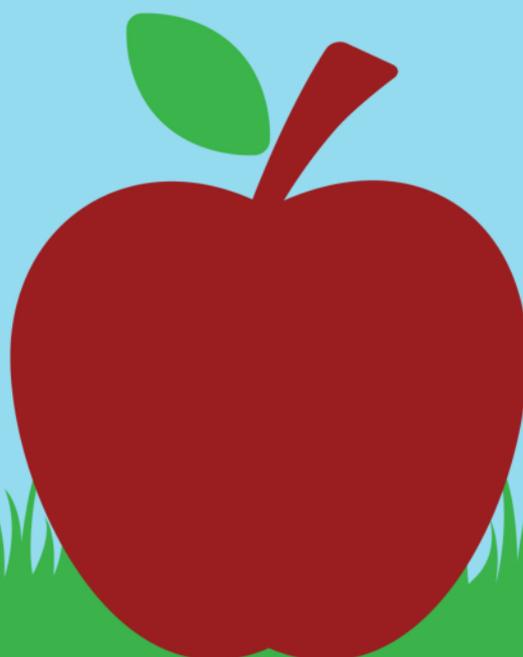


ORGANIC FOODS, GMOS AND THE SUPPLY CHAIN

Consumers' Need for Greater Transparency and Traceability

PART 2



A Guide By



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Organic Foods GMOs and the Supply Chain

Part 2: How Food Industry Supply Chain & Logistics are Being Transformed by Consumer Trends

In today's changing world, how consumers view, purchase and consume food is altering the supply chain and logistics landscape. Along with new regulatory changes such as the [Food Safety Modernization Act \(FSMA\)](#), the packaging, handling, storage and delivery of food products is being dramatically affected by consumer trends.



Current Consumer Trends Affecting the Food Supply Chain

1. Consumers are more actively engaged with, interested in and vocal about food than ever before. Social media and the trend towards real time information and mobile technology has impacted consumer behavior.
2. Consumers have come to expect more from their food and the companies providing it and are more focused on quality and food safety than ever before.
3. The culture is shifting to be more health conscious and is oriented towards a higher quality of life. Consumers tend to consider eating “good food” to indicate fresh, organic and non-GMO food products. As a correlation, the growth of premium and fresh-focused retailers as well as a growth in fresh, organic, “natural” and non-GMO products is significant. These products tend to be more fragile and require more specialized handling and storage conditions.

4. Consumers now tend to expect that food companies along the value chain are responsible corporate citizens and environmental stewards. More aware than ever before of the social and environmental impact, consumers are concerned about animal treatment, carbon footprint as well as growing and processing methods.
5. Consumers have become increasingly more interested in and are willing to pay for products that are locally raised or grown. The perception is that these foods tend to be fresher and of higher quality. 25-28% of consumers surveyed by The Hartman Group were looking for minimally processed foods with easy to recognize ingredients and locally grown or produced ingredients have increased.

Demand side changes on food industry logistics are impacting the food industry. As consumers apply pressure for faster, accurate order fulfillment, new logistics solutions and technology are being used to meet those critical needs. Dining habits, demographics and focus on convenience are driving change. This will necessitate that operations and logistics structures are changed to help keep service levels at lower costs as well as to help to maintain market share.

Because of the demand for freshness and quality, there has been substantial growth in home delivery from online channels, urban retail locations, on-demand deliveries and a change in distribution channels.



Here are some of the challenges that these trends create for today's food supply chain:

- **Seasonal supply and demand issues:** Weather conditions, disruptions to the supply chain from civil unrest, wars, etc. can impact supply.
- **Food safety and product quality issues:** Proper food handling, storage and sanitation begins with the food growers and producers and continues through the supply chain.
- **Food security issues:** Product traceability is key when dealing with food products from other countries to prevent counterfeit, fraud and other problems. Country of origin labeling is of especially high concern.
- **Water resource issues:** Severe water shortages in various geographic areas are severely limiting sourcing options throughout the fresh chain. This potentially impacts handling and transportation practices.
- **Food perishability issues:** Fresh food products tend to require specialized handling, packaging and storage as well as transportation concerns. Shelf life tends to be shorter for fresh, organic and non-GMO products.

Current supply chains are primarily designed to meet the needs of consumer dining and purchasing habits and are undergoing transformation. Consumers had previously focused primarily on cost and convenience. In order to meet these consumer needs, one-stop shopping, drive-thru service and value-added prepared food businesses as well as a wide variety of consumer packaged food products have taken hold. Heavily processed foods tend to have longer shelf lives. Manufacturing facilities and distribution centers focus on bulk shipments and large businesses have relied on predictable demand instead of responding to consumer on-the-go needs.

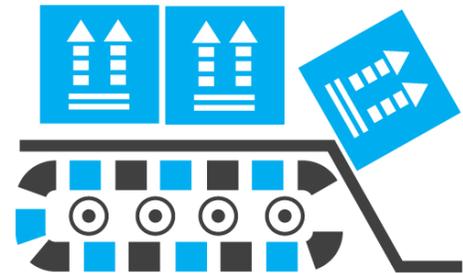


Changing Food Industry Logistics

Logistics network design needs to be transformed in order to meet the new consumer demand trends.

Facilities

- **Locations:** Because of the drive towards convenience, freshness, organics and non-GMO products, facilities need to be closer to customers.
- **Innovative Tools:** Use of automation, material handling and advanced technologies can help to accelerate food product cycle time.



Transportation

- **Frequency and mode of transportation:** A combination of innovative technologies, transportation methods and unconventional transportation channels is emerging. Using technology to better manage and deploy idle labor and vehicle assets as well as drones and driverless vehicles for delivery can be key. The push for immediate delivery to end users is shortening the cycle and delivery times. Longer hours for transportation service, more vehicles making short distance deliveries and other factors have led to some increased urban congestion and potential environmental issues.
- **Labor shortages:** Currently the median over-the-road age of drivers is 56. The demand for qualified drivers continues to exceed the supply.

How Technology Can Help Resolve Supply Chain/Logistics Challenges

1. Provide a seamless flow of real time information throughout the supply chain and enable users to access it on demand
2. Enable businesses across the food supply chain to communicate and collaborate
3. Provide full supply chain traceability of food products, critical for regulatory compliance, food recalls and other purposes
4. Empower businesses with data that can be used to make better decisions, manage their operations more effectively and maintain their competitive advantage
5. Facilitate better management of supply chain labor to help maximize productivity and minimize the effect of labor shortages.
6. Utilize more innovative technological solutions for warehouse automation, material handling as well as for transportation and delivery.



Conclusion

Recent consumer trends towards convenience, freshness and nutrition, sustainability and food quality and safety are driving major changes in food industry supply chain and logistics. Facilities and transportation logistics need to be adjusted in order to ensure that consumer demands are met effectively.

Technology can play a vital role in helping to ensure that businesses across the supply chain can communicate, collaborate and make more informed decisions using real time accurate information. Food product traceability is key to ensuring food safety as well as the security of food products. Innovative new technologies and methods including driverless cars, drones, warehouse automation, materials handling solutions and “Uber-like” delivery can help to improve product cycle times, optimize inventory, order fulfillment rates and speedy delivery.

About Datex

Datex provides flexible, reliable supply chain technology solutions to help make businesses more profitable, including supply chain software, mobility solutions, professional services and mobile device management. In business for over 35 years, Datex has a wealth of experience in helping companies across the world meet these critical business challenges.

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