Full Value
Traceability
A strategic imperative for consumer product companies to empower and protect their brands
IBM Institute for Business Value

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Executive Summary
The recent escalation of food and product contaminations and recalls originating from China as well as confusion over marketing claims has eroded trust in Consumer Product (CP) manufacturers. In order to restore domestic and international consumer confidence and re-establish brand image, CP companies operating in China must deliver credible product information through a transparent system. We believe that Full Value Traceability (FVT) is the way to collect and communicate transparent and trustworthy information about a product from farm to fork and ensure food and product safety and reliability. We envision a traceability system that provides CP companies with the ability to trace the ownership and characteristics of ingredients or source components, packaging and products through all stages of production, processing and distribution. It is only through the utilization and implementation of a transparent and efficient system that CP companies can display their commitment to consumer safety.

In China, three central drivers are accelerating the pace of change in the Consumer Product (CP) industry and reinforcing the need for a transparent system that creditably delivers product information with breadth, depth and precision:
1. The emergence of the “Omni Consumer” – over the next decade the Chinese middle class is expected to grow by a CAGR of roughly 10%. This new generation of consumer is enlightened and empowered, and altering consumer decision making behavior.

2. Credence driven product innovation – CP company’s inability to drive growth via traditional approaches to product innovation has led to explosive growth in the sales of products with “credence attributes” (e.g., organic or all natural). As credence attributes are not readily verifiable by consumers, trust of the manufacturer and retailer plays an enormous role in the purchasing decisions of consumers.

3. Managing increasingly complex supply chains – globalization has “flattened” the world and allowed companies to outsource and globally source. As a result, it is increasingly difficult to establish transparency across the complex global supply chain. Companies are now faced with the enormous challenge of effectively managing critical data and information so as to establish visibility and enhance decision making.

While the aforementioned drivers are reshaping the marketplace, it is vital for CP companies to view these changes as opportunities. This is why we believe CP companies that take action against the following imperatives can maximize FVT to their advantage:

1. Leverage traceability to empower and protect the brand – FVT addresses both protection and empowerment of the brand. Traceability improves a company’s ability to deliver creditable information, which contributes to overall brand trust.

2. Integrate the physical and informational supply chain – CP companies that can capture, store, analyze, and communicate information about product sourcing, processing and movement across their supply chain will have a strategic advantage in the marketplace.

3. Proactively engage the stakeholders – reaching beyond direct supply chain participants to engage a broad set of stakeholders will move CP companies away from the traditional defensive posture toward a whole value chain perspective that is opportunistic and expansive.

CP companies operating in China must move beyond the current system and work to establish FVT. Companies that move in this direction will protect their brand against contaminations and recalls, differentiate their products from domestic and foreign competition as well as increase supply chain efficiency and establish a sound system for risk mitigation and regulatory/industry compliance. At the same time, companies can accomplish the broader objective of restoring domestic and international consumer confidence in the “Made-in-China” logo and aggressively enter new, high-value markets. FVT goes beyond current approaches in two important ways:

1. While food/product safety is critically important, FVT adopts a more strategic view of transparency and leverages the availability of information to empower products and brands to more credibly market functionality and responsibility claims.

2. It requires a more integrated approach to transparency that addresses the dynamics of today’s complex physical and informational chains.
Full Value Traceability

*A strategic imperative for consumer product companies to empower and protect their brands*

**What is Full Value Traceability? – Breadth, Depth and Precision**

Traceability systems provide companies with the ability to track necessary input and processing information. A system that tracks all sourcing, processing, manufacturing and product movement data would be costly and difficult to manage. Therefore, each company must develop the breadth, depth and precision of their system to fit the strategic and operational needs of their production process, specific product needs and traceability objectives.1

**Breadth** describes the type and amount of information collected. A recordkeeping system cataloging all of a product’s attributes would be enormous, unnecessary, and expensive. Take, for example, a cup of coffee. The beans could come from any number of countries; be grown with numerous pesticides or just a few; be grown on huge corporate organic farms or small family-run conventional farms; be harvested by farmers or by machines; be stored in hygienic or pest-infested facilities; and be decaffeinated using a chemical solvent or hot water. Few, if any, producers or consumers would be interested in all this information. Therefore, apart from the information necessary to validate regulatory compliance, the breadth of a traceability system should aim at collecting all relevant information which addresses the principal concerns of the CP company’s target customers and stakeholders; for example, potential health hazards, environmental impact, or animal welfare.

**Depth** is how far back or forward the system tracks the relevant information. For example, a traceability system for decaffeinated coffee would extend back only to the processing stage. A traceability system for fair-trade coffee would extend only to information on price and terms of trade between coffee growers and processors. A traceability system for shade grown would extend to cultivation, and for non-genetically engineered, to the bean or seed. For food safety, the depth of the traceability system depends on where hazards and remedies can enter the food production chain.

**Precision** reflects the degree of assurance with which the traceability system can pinpoint a particular food product’s movement or characteristics. In some cases, the objectives of the system will dictate a precise system; while for others, a less precise system will suffice. For example, in the case of grain, flour, sugar and other bulk commodities, a silo/tank usually hold more than one lot number of product, meaning products are layered within one silo. The site will need to know the feed rates from the bulk silo, how much material was loaded into the silo, the time and day that the product was loaded into the silo. This data allows for the calculation of the amount of product metered out and estimate, with a very high degree of accuracy, the time that a specific lot was activated and the time
that it was fully used as well as the start time for the next lot in the bin. In order to maintain traceability of bulk materials, it is important that the facility’s batch and lot code tracking system includes the silo and tank where materials come from, as well as the time and date the production empties the silo and tank and begins drawing material from the next vessel.²

 Ingredients for Change
The recent escalation of product contaminations and recalls originating in China has driven international and domestic concern about product safety and the lack of transparency. The heightened concern is constructive pressure that is forcing CP companies to act accordingly to ensure their products are safe for consumption. We have identified three ingredients for change that are driving CP companies toward FVT: consumer pressure for a higher degree of information transparency, which validate the consumers purchasing decision and defends the brand image; the need to proactively communicate and confirm “credence” claims; and the need to overcome the barriers associated with establishing information transparency across increasingly complex supply chains.

1. The emergence of the concerned and empowered consumer
Economic growth is fostering the development of the “Omni Consumer”. This new generation of consumer is both enlightened and empowered. They are incredibly informed, aware and concerned about all aspects of the products they purchase. Furthermore, they are increasingly able to actively or passively tune out product claims or messages, buy from a wider range of product lines, and leverage tools like the internet to gather product information prior to purchase (which differs from the past, when consumers tended to make purchasing decisions based on the trusted advice of direct vendors).

The “Omni Consumer” seeks products that deliver more, such as functional foods that provide incremental health and wellness benefits and cares more about the impact of these products on society and the environment. Purchasing decisions are determined on quality, functionality, and responsibility. The “Omni Consumer” wants trusted information about the source, ingredients and process involved in the creation of the products they purchase and consume.

China’s middle-class is not only expanding in total volume, but also being awarded increased amounts of disposable income through prosperous economic growth. This development is altering consumer behavior; notably, Chinese consumers, compared to their Western counterparts, have yet to establish brand loyalty as they search for new sophisticated, trendy, higher-value products and services. The combination of increased purchasing freedom and choice is empowering consumers, and they are demanding safety and quality. According to a consumer survey conducted by the Institute for Business Value (IBV), when asked about their primary concern when making a purchasing decision Chinese consumers overwhelmingly answered safety and quality (Figure 1).³ Furthermore, they are increasingly willing to pay more for safer and environmentally sustainable products (Figure 2). ⁴
Figure 1: **Safety and quality are the primary decision making drivers for Chinese consumers**

*What is your primary concern when purchasing the following consumer products: personal care, medications, electronics, toys, fresh meat & fish, fresh produce, and packaged goods?*

![Safety and quality are the primary decision making drivers for Chinese consumers](image)

Source: “2008 Chinese Consumer Survey”, Institute for Business Value, China
n: 300 (60 from Beijing, Shanghai, Guangzhou, Wuhan, Chongqing)

Figure 2: **Consumers are ready to pay more**

*For each of the following statements, please tell us how you think each has changed over the last two years.*

![Consumers are ready to pay more](image)

Source: 2008 Chinese Consumer Survey”, Institute for Business Value, China
n: 300 (60 from Beijing, Shanghai, Guangzhou, Wuhan, Chongqing)
Concern over food safety has drastically increased over the last two years and is beginning to carry over to consumer mistrust of manufacturers as well as retailers:

- 84% of respondents claim that their level of concern about the safety of food has increased over the last two years.\(^5\)

- 65% of respondents said that in the event that a food product is found to be contaminated and needs to be recalled, they do not trust that the food manufacturer has the consumer’s best interest in mind when handling the recall. And in the event of a recall, 59% do not trust the store where the product was purchased.\(^6\)

Recalls and contaminations have eroded consumer confidence in product safety as well as the companies that manufacture, distribute and sell these products. However, companies can take advantage of traceability systems to reduce contaminations, minimize risk along the supply chain, fill a void, and win the market by providing safer food.

The establishment of transparent and credible traceability systems allows CP companies to share information with consumers, who are acutely aware of food/product safety and quality issues and increasingly seeking more information about products, especially in terms of ingredients and processes the product has been subject to (Figure 3).\(^7\)

![Figure 3: Providing consumers with desired information is an opportunity](image)

*Please indicate your level of agreement with each of the statements about:*

- I would like more information about the ingredients of the food products I buy
- I would like more information about the source of the food products I buy
- I would like more information about how the food is processed and manufactured

Source: “2008 Chinese Consumer Survey”, Institute for Business Value, China

n: 300 (60 from Beijing, Shanghai, Guangzhou, Wuhan, Chongqing),

The chart shows the sum percentage of people who selected “strongly agree” and “very strongly agree”.
Full Value Traceability is about seizing opportunity, responsibility and establishing trust. CP companies that manage to leverage traceability systems to gain deeper control over the supply chain can market their achievements and be seen by consumers as having trustworthy product claims.

2. Credence driven product innovation
In today's competitive CP industry, where shelves are full of similar looking products, CP companies are leveraging credence-driven attributes to differentiate from competitors and drive top-line growth. These new credence-driven product offerings also meet the needs of the concerned and empowered consumer. Credence innovation anticipates consumer needs, establishes trust, leverages customer value and may even deliver incremental benefits that matter to the “Omni Consumer”, even though currently credence attributes are not readily verifiable by consumers. For example, process attributes do not affect the final product content but refer to characteristics of the production process. In general, process attributes such as, country of origin, organic, or all natural can neither be detected by consumers or specialized equipment.

Traceability is an indispensable component to the market for process credence attributes that are difficult or costly to measure. The only way to verify the existence of these attributes is through accurate and credible recordkeeping that is visible to the consumer and third parties (especially in the event of a contamination). FVT provides CP companies with the evidence needed to authenticate credence claims, leading to increased consumer trust and brand value.

3. Complex supply chains
The combination of globalization and CP companies' continual effort to drive down costs as well as increase responsiveness has created complex supply chains. The result is that companies now engage numerous supply chain partners in several geographical locations (both domestic and international), which make CP companies increasingly exposed to new sources of supply that are out of their control. As a result, the burden on CP companies to affirm product quality and safety is enhanced.

Agricultural and food products, as well as the ingredients used in them, are being shipped greater distances than ever before; for example a well known food brand sources ingredients from over 10 different countries for the manufacturing of bread. The net result is that both upstream tracing and downstream tracking are more difficult and more critical than ever. In fact, global supply chain executives state “lack of critical supply chain process visibility” as a leading concern. We have identified three categories of cross supply chain pains, all of which can be addressed through enhanced traceability systems: product delivery issues, product and raw material tracing issues, technological constraints to data collection and management

1) Product delivery issues
- Inability to secure containers to protect against theft and guarantee content integrity and product authenticity
- Limited ability to monitor and affect conditions during shipment and storage – or to have knowledge of the contents of individual containers
- Internal container environment fluctuations go unnoticed shortening product life and damaging cargo
2) **Product and raw material tracing issues**
- Difficulty in locating products and isolating risk in the event of contaminations
- Ineffective supplier management – difficulty in identifying suppliers of adequate raw materials

3) **Technological constraints to data collection and management**
- Limited adoption of enabling technologies, such as second-generation barcodes and radio frequency identification (RFID), makes data collection inefficient
- Limited implementation of an open technological infrastructure or standards, such as global data synchronization (GDS) and electronic product code (EPC), hinders data sharing among suppliers, service providers, and retailers. The result is massive inefficiencies in managing data and documents leading to the need to “hunt” for information in the result of a contamination
- Poor data quality does not fully address information need of consumers, while lack of standardization prevents effective data sharing among supply chain partners and effective communication with consumers
- Storage of relevant data in disparate systems complicates development of an end-to-end supply chain picture
- Difficulty in assigning fault for claims due to limited information on supply chain occurrences

Data collection and management is imperative
At the heart of any effective traceability system is information; product, customer, vendor and transactional data must be collected, stored, analyzed as well as moved across the supply chain. Information management is critical to a traceability system because it allows firms to isolate the source and extent of safety or quality control problems. This reduces the production and distribution of unsafe or low-quality products, which in turn reduces the potential for bad publicity, liability and recalls. The better and more precise the information management system, the faster a producer or retailer can identify and resolve food safety or quality problems.

As the three aforementioned categories highlight, CP companies in China are struggling to establish data integration with supply chain partners and are thus experiencing several critical pain points associated with inadequate data. In order for CP companies to move forward with integrating transparency across the supply chain they must build up data recognition capabilities and the necessary technological infrastructure needed to manage data, as well as strengthen collaboration among supply chain partners, especially in terms of data sharing.

According to the “2007 Retailer and FMCG (Fast Moving Consumer Goods) Manufacture Collaboration Study”, China retailers and manufacturers’ initiative to build a consumer driven supply chain network is hindered by both “insufficient data” and “IT constraints”.

1) **Insufficient Data**
- Unable to capture criteria data in their day-to-day operations
- Unwilling to share information due to either confidentiality concern or interest conflicts
- Unable to extract insights out of the data collected

2) **Technological constraints**
- Supply chain IT platforms of both retailers and manufacturers are not standardized which makes it difficult to integrate data/information collected
- Supply chain IT systems of global retailers and manufacturers are far more advanced than local players, especially the large number of regional players, making supply chain collaboration in China even more difficult
Imperatives for CP Companies to Maximize Full Value Traceability

Full Value Traceability creates transparency and builds consumer trust, which in turn protects and empowers the brand. Many CP companies today have a defensive posture, meaning that traceability is driven by food and product safety issues. The focal point is brand protection and risk mitigation. Safety is critically important, but FVT adopts a more strategic view on transparency and enables companies to leverage information to empower products and the brand as well as make credence claims credible. Furthermore, FVT requires IT solution maturity; which enables a deeper integration between the physical and informational supply chain. It recognizes the need for integrated enabling solutions and the value of engaging a broad set of stakeholders. Figure 4 illustrates the two key dimensions where CP companies should strive to improve in order to attain FVT.

Figure 4: The challenge is for CP companies to move from a defensive posture and discrete solution toward an opportunistic posture and an integrated solution

Most CP Companies Today

Full Value Traceability

- Product safety as primary focus, Limited & scattered data, Not IT enabled, No common standard
- Some Support of Credence Positioning
- Discrete Solution Maturity, Integrate physical & informational supply chain

Defensive Posture → Empower the brand

Opportunistic

Functional/Supply Chain Integration

Integrated
For most CP companies today:

- Food safety is the primary focal point
- Mandates and regulations drive investments
- Information is in disparate IT systems
- Adopt defensive posture on collaboration and sharing
- Many supply chain processes are not IT enabled
- Credence driven product claims are not effectively supported

**Full Value Traceability**

- Food safety is the foundation
- Opportunities and vision drive investments
- Have one version of the truth for key data
- Stakeholders and supply chain partners are proactively engaged
- Necessary supply chain processes are automated
- Credence driven product claims are supported and enabled

CP companies that take action against the three imperatives (leveraging traceability to protect and empower the brand, integrate the physical and informational supply chain, and proactively engage stakeholders) can position themselves as trusted brands in the marketplace and win long term growth in China. The required action against each of the imperatives will vary based on market and strategic considerations as well as current maturity levels.

1. **Leverage traceability to empower and protect the brand**

CP companies can leverage Full Value Traceability to address both consumer protection and brand empowerment, both of which have suffered due to the recent escalation in product contaminations and recalls originating in China. Consumers want trusted information about the products they use and consume, so empowerment and protection must begin by attaining a deep understanding of what the consumer’s wants, needs and preferences are. Empowerment derives from the ability to credibly support new functionality and credence based marketing claims. Brand protection is the ability to prevent, identify and isolate product contamination and counterfeiting issues.

The ability to address food/product safety issues in an efficient and trustworthy manner is clearly a needed reassurance for consumers, as already noted by the increased consumer concern over the safety of the food/product supply and lack of trust in the event of a recall. Traceability systems, especially whole chain traceability that spans across the food supply chain and its components from “farm to fork”, enable CP companies to quickly and accurately detect early warnings associated with product contaminations. Traceability aims at identifying and containing the damage once food safety has been breached. However, in a more positive sense, traceability across the food chain can also play an important role in certifying the authenticity of a product and thus reduce the risk of counterfeiting. Furthermore, traceability is of absolute importance in proving any credence claims.
Metro, a major food wholesale company, entered the Chinese market committed to upholding the company’s meticulous quality standards. Metro’s market differentiation is their dedication to HACCP—a global standard that aims to ensure quality control. Top management is dedicated to and makes investment in establishing quality controls that transcend the entire organization. The result of this commitment is that in every outlet there is a food handling/safety/quality control team led by the store manager and every employee is trained in quality systems and HACCP so that on a daily basis employees are engaged in standardized processes that ensure quality. Metro is the first retailer in China to have a HACCP certificate for every store. The result of this effort is that Metro was named a Quality Food Distributor by the Chinese Government and is seen as the industry leader in Best Practice hygiene, safety and quality system.

Building traceability one Star Farm at a time

As part of Metro’s strategy to expand in China, in December 2007 Metro founded a foreign sole ownership enterprise, Star Farm Consulting in Hefei, Anhui province. Star Farm has created a standardized and comprehensive traceability framework that enhances enterprises and farmers’ production, processing, packaging, logistics and marketing operations; the traceability system is the deepest in China’s food supply. The Star Farm quality security system, combined with other international agricultural production quality standards, such as HACCP and GlobalGap, enhances production safety and product quality, strengthens brand image and provides the end consumer with safe and traceable food products. Star Farm’s methodology is to collect and record specific points of information along the supply chain so as to ensure safety and quality, because once these two attributes are ensured risk is reduced and traceability becomes easier. For example, with chickens the system will record place and date of birth, vaccination records, type of feed used, date of slaughter, cooking and packaging processes as well as logistical information.

Prior to Star Farm, product defaults or contaminations found in Metro stores led to large scale recalls due to a lack of information linkage in the supply chain. Now, with information and process standardization, the company can quickly and effectively target the specific source of the contamination and thus limit the scale of the recall. For example one Star Farm product has needed to be recalled due to a quality related issue. The day after the report, Star Farm was able to locate the individual farm responsible for the product and the process error which created the issue.

Star Farm also utilizes savvy marketing techniques to fulfill consumer demand for information about the products they buy and consume. Star Farm has in-store marketing promotions that explain how the traceability system works and will soon have in-store computers where consumers can scan the product barcode and be provided with traceability information. After-sale services include the ability for the consumer to login to Star Farm’s web site and search for product information by date, farmer number or product code (all of which are provided on product packaging).

This ground-to-market initiative is an innovative and first-of-kind approach in the Chinese market. Star Farm’s success can be seen in the expanding product portfolio, the fact that products now sell in all Metro stores across China and are quickly expanding into Carrefour stores, and that are now in partnership with local and provincial government departments as well as clients across China. CEO Hans Peter’s vision is to duplicate the model in foreign markets, such as Vietnam, India or Russia, by the end of the decade.
Traceability is not just a supply chain or compliance issue, but also a marketing issue. To successfully market consumer products requires a high degree of consumer trust, especially with regard to credence claims. CP companies can substantiate these claims and empower their brands in the large and fast growing credence product market by effectively communicating information the consumer is seeking (e.g., country of origin, ingredients, process involved in manufacturing, sustainability/environmental friendliness).

2. Integrate the physical and information supply chain

A successful traceability system must integrate the physical and information supply chains. This ensures a CP company can capture, store and analyze the relevant data on product sourcing, processing and movement as well as communicate information across the supply chain.

To provide full internal traceability, several IT solutions must work together. Shop-floor solutions and factory databases usually provide only raw data in great numbers. Often data, if captured, is isolated in systems rather than integrated together. This means data is not being used actively and is most likely captured only to comply with legal requirements or for other reasons unrelated to traceability.

To give structure and meaning to the collected and recorded data, CP companies can integrate three kinds of solutions (Figure 5):

1. Solutions that can save and organize product traceability data (components, ingredients, delivered by, sold to, stored where)

![Diagram: FVT requires a combination of different technology solutions to integrate the information and physical supply chains](image)
2. Solutions that can manage stored data related to risks, quality and processing conditions (in particular, events and conditions such as temperature, cleaning, possible cross contamination etc.)

3. Solutions that are able to combine data, make it searchable, and make data available to external partners across the supply chain

In order to create an efficient and transparent system, CP companies need ongoing investments in critical technology and processes; for example, technology that efficiently captures data and keeps the virtual ecosystem connected, ensures standardization and compliance, and moves beyond the basic store and managing data system toward one that allows for communication across the supply chain.

1. Innovative technologies, such as RFID and other bar coding technologies, now enable each product, ingredient, and location to have a unique identification code. Critical information can and should be moved along the supply chain as the physical end product is manufactured, processed, transported, stored and sold.

2. As an initial action to move toward traceability, CP companies and their supply chain partners, where feasible and appropriate, should adopt and comply with HACCP. Standardization of processes, as well as an environment that enables the monitoring and recording of information at critical points, helps protect against contaminations and recalls. Leveraging HACCP to improve quality and safety will dramatically contribute to a reduction in risk along the supply chain, especially with food products.

3. CP companies can make investments in technologies, such as devices and automatic data monitoring systems, which can sense deviations in processing standards and can automatically trigger remedial action. CP companies already spend a lot of resources and time on testing, monitoring and adjusting conditions and so, a one time investment in an IT system will increase efficiency and reduce long term cost. Additionally, IT systems eliminate the paper trail of record documents and establish a network that helps maintain documentation that demonstrates compliance with regulations and standards.

4. Given the challenges of creating centralized networks, we recommend the creation of a virtual traceability system which connects different parties’ systems. CP companies that implement the traceability system outlined in Figure 6 can effectively move toward FVT and reduce the financial losses associated with product contaminations and recalls. Recognizing the critical importance of information, we believe that each company should maintain its own master data and record of operating transactions in a distributed, open system and make the information available on a permission basis to other stakeholders or government agencies. For CP companies, especially manufacturers of food products, supply related activities such as movement, storage, and control of products across the supply chain is increasingly critical. Therefore, CP companies that move toward full implementation of integrated traceability solutions that span across the supply chain can both safeguard food and product safety as well as enable the trust and transparency necessary to instill consumer confidence.
The virtual traceability system can identify the links and the process flow in the chain (in this example there is only one step back from the retailer, but there could be many links – raw material suppliers, additives suppliers, processing and packing factories, distributors, and transportation service providers).

The quality system can identify the cause of a problem in the traceability chain. This means, that with the traceability system alone, without the quality system, companies could track and trace up and down the whole-chain without ever stopping, with the result that all products in question have to be recalled.

With a quality system a CP company can stop the backwards tracking as soon as the cause is identified. Furthermore the quality system can identify products from other (parallel) product flows that might have been cross-contaminated. If for instance the original product was unsafe due to a temperature failure in a cool room, the quality system can provide the data to show which other products might have been exposed to the same risky temperature and thereby establish a fast recall and avoid new complaints from customers – or even the emergence of a scandal.

The quality system is able to reduce the amount of incriminated products to a smaller amount than the batch detail level. If the out-of-bounds temperature had not occurred for the whole batch, then the quality system will show this, and in that way identify time stamped products as safe.
3. **Proactively engage the stakeholders**

End-to-end traceability, while effective in dealing with specific concerns related to food safety, can be more accurately described as a strategy to make the agricultural sector more innovative, productive and competitive in an increasingly challenging global marketplace. Therefore, in order to realize the transformative potential of FVT CP companies should proactively engage with a set of stakeholders that reach well beyond direct supply chain participants; such as governments, insurers, trade associations, advertising agencies, etc. There is a compelling business value proposition for each stakeholder to participate in a robust end-to-end food traceability network. However, it is important to note that the value proposition differs significantly for each stakeholder in the supply chain (Figure 7). Nevertheless, at the same time, the majority of infrastructure, business processes and policy framework requirements that support traceability are the same. So, a single infrastructure can support distinct business value propositions across the entire supply chain. Figure 7 depicts this at the highest level.

CP companies should take the lead to communicate the benefits of a reliable and transparent traceability system, which might include:

- Increased competitiveness and innovation
- Increased and secure access to international markets
- Improved risk management
- Lower prices from increased innovation and productivity across the supply chain
- A greater availability of products and services due to more sophisticated inventory management
- Improved public safety
- Increased consumer confidence in the food supply

![Figure 7: FVT benefits stakeholders across the supply chain](image-url)

* QC/QA: Quality Control / Quality Assurance
The form and extent of engagement will vary with each stakeholder, but CP companies, as the brand owner, need to initiate and define the required actions. These actions can be directed in an upstream direction (e.g., support the adoption of data standards, engage with suppliers, logistics service providers and regulators to define requirements and expedite approvals), downstream direction (e.g., support the adoption of data standards, conduct mock product recalls, or support automated collection of product movements), and/or directed at the entire business ecosystem (e.g., work with NGO/3rd parties to certify product claims, engage with retailers on in-store communications, or use agencies to help identify consumer decision drivers and effectively communicate relevant information). CP companies must recognize that collectively agreeing with key stakeholders on the source of their stake and their potential benefit areas establishes an “ecosystem” ready to facilitate the realization of FVT opportunities.

**The Benefits of Full Value Traceability**
A wide range of factors will continue to shape the traceability landscape, including the “Omni Consumer”, regulations, retailer mandates, and competitive considerations. In the next five to 10 years, traceability will evolve past the current defensive system of risk mitigation and a focus on only tracking and/or tracing one step back or one step forward in the supply chain toward a traceability system that delivers comprehensive supply chain visibility. Furthermore, CP companies will increasingly adopt technologies such as RFID, electronic coding and work to build a comprehensive IT infrastructure that allows manufacturers and retailers to collect, process, report and analyze increased amounts of data so as to protect the brand and improve efficiency.

The principle benefit of Full Value Traceability is risk mitigation. Full Value Traceability can decrease the likelihood and mitigate the impact of product contaminations and recalls, reduce product liability insurance premiums, avoid costs associated with contamination related litigation, and protect products against the growing problem of consumer product counterfeiting. Just as beneficial is the ability of CP companies with FVT system to communicate more effectively with today’s “Omni Consumer”. Brand empowerment can be achieved by increasing consumer trust by providing information that reinforces brand quality and safety. Through this, CP companies build credibility with consumers and are thus able to capture sales in the markets for responsible and functional products.

**Develop a Full Value Traceability Roadmap**
The path toward Full Value Traceability is complex; it requires collaboration and engagement across the whole supply chain as well as internal departments and the creation of a long-term developmental roadmap. A detailed understanding of the current state will facilitate proper planning and helps prioritize initiatives. CP companies must outline a vision that encompasses breadth (the amount of information a system records), depth (how far upstream or downstream in the supply chain the system will track), and precision (the degree of assurance with which the system can pinpoint a particular product’s movement or characteristics).
Market forces will inevitably drive CP companies toward implementing traceability systems. The Consumer Product companies that expand beyond the bare essentials and create Full Value Traceability will not only have better protected their brand against contaminations and recalls, but more importantly lead the market as a trusted brand. This will contribute to restoring consumer confidence. Therefore, we suggest CP companies must ask themselves the following questions:

1. Do you understand what drives your target consumer’s purchasing decisions?
2. What is your strategy for protecting your brand in the local and global marketplace?
3. How do you or can you engage your supply chain partners to deliver deeper transparency and traceability?
4. How are you planning to integrate traceability into your corporate strategy?

These questions can help CP companies assess their current state as well as provide guidance on areas they should be focusing.

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Credence-driven attributes are product characteristics that require trust, i.e. those that state product responsibility (organic, cage free, environmentally friendly, all natural) or enhanced functionality (products ingredients deliver incremental health and/or wellness benefits).


“Global Supply Chain Benchmark Report,” Aberdeen Group, 2006

2007 Retailer and FMCG Manufacturer Collaboration Study; IBV Analysis

Hazard Analysis and Critical Control Point Procedures (HACCP) is a systematic preventative approach to food safety and pharmaceutical safety that addresses physical, chemical, and biological hazards as a means of prevention rather than finished product inspection. HACCP is used in the food industry to identify potential food safety hazards, so that key actions, known as Critical Control Points (CCP's) can be taken to reduce or eliminate the risk of the hazards being realized. The system is used at all stages of food production and preparation processes including packaging, distribution, etc.

GLOBALGAP is a private sector body that sets voluntary standards for the certification of agricultural products around the globe. The GLOBALGAP standard is primarily designed to reassure consumers about how food is produced on the farm by minimizing detrimental environmental impacts of farming operations, reducing the use of chemical inputs and ensuring a responsible approach to worker health and safety as well as animal welfare. GLOBALGAP serves as a practical manual for Good Agricultural Practice (G.A.P.) anywhere in the world. The basis is an equal partnership of agricultural producers and retailers who wish to establish efficient certification standards and procedures.