Blockchain and Corporates
Transparency is the New Marketing
#PositiveImpact
Trust is like the air we breathe—when it’s present, nobody really notices. When it’s absent, everyone notices.

Warren Buffett
Abstract

Like the Internet in the 1990s, distributed ledger technology (DLT) and blockchain are set to transform the economy. Yet, two-thirds of senior executives still don’t know what DLT is, and those who do tend to ignore its uses outside of some simple financial applications.

While 90 percent of key advanced-country banks are experimenting with or investing in the technology, the non-financial blockchain uses also have enormous potential, in part because blockchain can be used by a wide array of businesses. Indeed, blockchain will provide new ways of managing information, open opportunities for businesses to build trust with customers, and help organisations improve transparency and become more decentralised. In fact, blockchain could lead to a revolution in corporate structure.

For this report, we interviewed senior executives of major consumer goods businesses, emerging start-ups, and new blockchain companies. We explain how DLTs are being used, and how the public and private sectors can overcome knowledge gaps and other challenges related to DLTs. We include a case study about Nestlé to show how the company is using blockchain to share local sourcing information. The final section offers recommendations for how corporations should implement DLTs.

While customer “trust” can be a subjective topic, the data show that less than a quarter of Americans trust big companies. By comparison, over two-thirds trust small companies. Consumers, particularly younger demographics, increasingly value authenticity, local roots, quality, and customised products. These consumer trends frequently exist in tension with the massive and obscure supply chains used by large corporations. Here, DLTs will help. We show in the report how DLTs can enable large corporations to improve relations with consumers. This is particularly the case for industrial, packaged goods, consumer electronics, and retail corporations.

Corporate supply chains can most benefit from DLTs. Globally, some companies have already started using blockchain in their supply chains. These include Airbus, Carrefour, De Beers, Ford, Nestlé, SAP, Subway, Tyson, Unilever, and Walmart. Merck, a major pharmaceutical company, is also piloting a blockchain project. In a time when a Covid-19 vaccine could be released soon, the demand will quickly outweigh the supply. That unfortunate situation could tempt nefarious agents to fabricate counterfeit vaccines. Knowing that, legitimate pharmaceutical companies could use a DLT to track their vaccines so as to avoid counterfeit products. In the same way, companies that implement DLTs can increase transparency about their products and supply chains, and improve quality control which, in turn, builds trust with consumers.
Summary on a Page

Consumer Behaviour

− Consumers increasingly value authenticity, local roots, higher quality, and customised products. These consumer desires exist in tension with the massive and obscure supply chains used by large corporations.

− In a survey, 94 percent of customers said it is important for brands and manufacturers to be transparent about what is in their food and how it is made.

− Furthermore, 37 percent of consumers say they will switch to companies that provide more detailed product information, and those people are nearly twice as likely to access this information through digital labels.

− Consumers are open to using digital channels (digital labels, free mobile apps, QR codes) to find the information they need—this is key for corporate distributed ledger technology (DLT) adoption.

Company Adoption

− Large corporations still struggle to establish trust with consumers, in part because consumers do not perceive them to be transparent. Product development, manufacturing, supply chains, and distribution practices typically remain hidden from consumers. Corporates can use DLTs, and specifically blockchain, to connect with customers and help large organisations increase transparency and improve the quality control of their products. As a result, large corporates can begin to bridge the “trust deficit” they have with customers, and reduce the risk of product failures and scandals.

− Globally, many companies are already using blockchain in their supply chains. These include Airbus, Carrefour, De Beers, Ford, Nestlé, SAP, Subway, Tyson, Unilever, and Walmart.

− The three main properties of DLT—transparency, immutability, decentralisation—make it an ideal tool for improving process efficiencies across the supply chain. Blockchain enables B2B agreements between parties by using digital smart contracts. This increases transparency in the system, improves the speed of payment processing, and reduces intermediary expenses. Any record—purchases, warranties, ownership status, etc.—can be safely verified and transferred on a blockchain network, thus improving supply chain transparency.

− The benefits of using blockchain for decentralised supply chain management are manifold: (a) a transparent ledger system that can trace every product movement; (b) real-time tracking and quality control of any material within the system; (c) faster transactions; (d) improved trust among manufacturers and vendors via use of smart contracts; (e) product certifications that ensure everything is certified on the blockchain, eliminating human error and fraudulent activities; (f) greater security as immutability ensures protection and improves accuracy; and (g) reduced costs as it removes middlemen, offers greater accuracy, and eliminates counterfeit products.

− For a successful implementation, corporates must: (a) target the right business problem; (b) include users in the design stage; (c) pilot before scaling up; (d) carefully consider the design of DLTs. Tracing the whole supply chain requires the collaboration of suppliers, producers, distributors, and retailers.

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Introduction: The Devastating Impact of Distrust on Corporations

Like the Internet in the 1990s, distributed ledger technology (DLT) and blockchain are set to transform the economy. The technology provides new ways of managing information, rebuilding trust, and helping organisations become more transparent. This could lead to the decentralisation of corporate structure in the public and private sectors.

Today, 90 percent of large European, North American, and Australian banks are experimenting with or investing in DLT and blockchain solutions to solve many problems. Yet, blockchain and other DLTs are typically discussed only in the context of digital currencies, such as bitcoin.

This report explains how DLTs can help large corporations improve relations with consumers. This is particularly the case for large corporations, packaged goods, consumer electronics, and retail corporations.

Corporate supply chains can most benefit from DLTs. Globally, some companies have already started using blockchain in their supply chains. These include Airbus, Carrefour, De Beers, Ford, Nestlé, SAP, Subway, Tyson, Unilever, and Walmart. Merck, a major pharmaceutical company, is also piloting a blockchain project. In a time when a Covid-19 vaccine could be released soon, the demand will quickly outweigh the supply. That unfortunate situation could tempt nefarious agents to fabricate counterfeit vaccines. Knowing that, legitimate pharmaceutical companies could use a DLT to track their vaccines so as to avoid counterfeit products. In the same way, companies that implement DLTs can increase transparency about their products and supply chains, and improve quality control which, in turn, builds trust with consumers.

For this report, we interviewed senior executives of major consumer goods businesses, emerging start-ups, and new blockchain companies. We explain how DLT is being used, and how the public and private sectors can overcome knowledge gaps and other challenges related to DLTs. The final section outlines recommendations for how corporations should prepare to implement DLT.

All successful businesses rely on consumer trust. However, larger corporations have lower rates of consumer trust—in part because they lack transparency. This lack of transparency often becomes a critical problem when a company faces a major product failure or, worse, a scandal.

A key problem for large companies is that product development, manufacturing, supply chains, and distribution practices typically remain hidden from consumers. DLTs, and specifically blockchain, can help large organisations increase transparency and improve the quality control of their products. Customers can use smartphones to interact more with companies and thereby help the company build trust.

There is a long precedent of corporate scandals and product failures. Just a few include the spread of mad cow disease in the 1980s and 1990s, fire-prone cellphones, counterfeit goods, the horsemeat revelation of 2013, and more recently, falsified car emissions technology. These types of scandals cause widespread distrust among consumers. They change public opinion and buying habits. News spreads virally through social networks causing considerable damage to company stock prices whether a firm is guilty or not. Over the long term, scandals and product failures tarnish company reputations, hinder the capacity to launch new products, and suppress the ability to regain market traction.

Scandals can have particularly acute effects for food manufacturers. Inner Mongolia Yili Industrial Group Co. was one of the twenty-two Chinese firms implicated in the 2008 scandal involving milk, infant formula, and other food products that had been adulterated with melamine. It took more than a year for the company to recover the same share price that it had before the scandal. Likewise, in 2013, the reputation of the British UK retailer Tesco was significantly tarnished due to the European horse meat scandal. The scandal had a discernible, long-term impact on the company. In December 2013, the US retail giant Target reported that hackers stole data from up to forty million shoppers. Share price volatility was limited, but it took nearly a year for the company to recover.

1 In this report, the terms ‘blockchain technology’ and ‘distributed ledger technology’ are commonly used interchangeably. For more details, please see ‘Decrypting Blockchain and DLTs: A Revolution in Data Management’ p8.
Another example of how a scandals can decrease customer trust is the Deepwater Horizon oil spill in 2010. Considered to be the largest marine oil spill in history, it has taken years for BP to recover from the episode. In share price terms, it took over six years for BP’s total return to rise back above its pre-spill level.

As mentioned, consumers tend to distrust large corporations more than small businesses. This is true regardless of geographic location and regardless of product category (food, beverages, cosmetics, cleaning products, etc.). Three decades of research show that consumer confidence in small companies has constantly ranked higher than large companies. In 2019, only 23 percent of Americans trusted big companies, while 68 percent trusted small companies.

How Americans trust small and big businesses

Source: Gallup. Note: percentage of citizens who have a great deal/quite a lot of confidence in large vs. small businesses.
In addition, over the last decade, consumer perceptions (among other things) have impacted buying habits, which has a bottom-line impact on revenues and profits. Small-cap stocks have outperformed large-cap stocks at both the composite and industry levels, and the market share of the larger corporations in the US has tended to decrease.\(^2\)

Small companies benefit from brand likeability. Consumers perceive them as being local, honest, trustworthy, decent, sustainable, ethical, and healthy. This trend is even more pronounced with millennials who are not committed to big brands, but to authentic companies and products.

Large corporations still struggle to establish trust with consumers, in part because consumers don’t perceive them to be transparent. That transparency extends to several facets of corporate behaviour but, in recent years, there has been a growing awareness and focus on transparency in corporate supply chains.

DLTs, and specifically blockchain, can help large organisations increase transparency and improve the quality control of their products, thereby building trust while reducing the risk of product failures and scandals.

To better understand how blockchain and other DLTs can provide solutions to large corporations, we first need to have a basic understanding of how these technologies work.

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\(^2\) It does not imply total causation, but certainly has contributed to the outperformance of small companies.
Decryptiong Blockchain and DLTs: A Revolution in Data Management

Distributed Ledger Technology: A Shared Database

We can compare DLTs to a collaborative document creation tool, such as Google Docs. In the past, transactions were saved on a centralised database, such as a computer drive. If someone hacked the drive, he or she could steal or alter the information contained therein. Similarly, somebody would have to hold the “master” file and ensure that data within it were always up to date.

With DLTs, many parties can collaborate on a single document. All changes are recorded for all collaborators to see, which theoretically improves security because the information is dispersed rather than centralised.

DLTs promise a more transparent, accountable, efficient, and secure way of exchanging decentralised stores of information that are independently dated, automatically replicated, and immutable. The key components of DLT include shared recordkeeping, multiparty consumers, independent validations, tamper evidence, and tamper validation. DLTs bring most of the improvements to the back-end processes and data management rather than impacting end-user experiences.

DLTs can be “permissioned”—only those with prior authority can make modifications—or “permissionless,” meaning that anyone can make changes or additions. Some DLTs are public—fully and publicly viewable and having hundreds or thousands of nodes. The most famous example of a public DLT is the bitcoin blockchain. They can also be private—available only to certain entities. These DLTs might only have a few nodes. They may also be a combination of public and private. Most commercial DLTs will use private, permissioned architecture to optimise network openness and scalability.

<table>
<thead>
<tr>
<th>Architecture based on permission and ownership</th>
<th>PERMISSIONLESS</th>
<th>PERMISSIONED</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>PERMISSIONLESS</strong></td>
<td>Anyone may join, anyone may validate a transaction</td>
<td>Participants may perform specific roles subject to permissions</td>
</tr>
<tr>
<td><strong>PUBLIC</strong></td>
<td>- Anyone can join, read, write, and commit</td>
<td>- Anyone can join and read</td>
</tr>
<tr>
<td></td>
<td>- Hosted on public servers</td>
<td>- Only authorised and know participants can write and commit</td>
</tr>
<tr>
<td></td>
<td>- Anonymous, highly resilient</td>
<td><strong>Example: ripple</strong></td>
</tr>
<tr>
<td><strong>Low scalability</strong></td>
<td><strong>Example: bitcoin, ethereum</strong></td>
<td><strong>Medium scalability</strong></td>
</tr>
<tr>
<td><strong>PRIVATE</strong></td>
<td>- Only authorised participants can join, read, and write</td>
<td>- Only authorised participants can join and read</td>
</tr>
<tr>
<td></td>
<td>- Hosted on private servers</td>
<td>- Only the network operator can write and commit</td>
</tr>
<tr>
<td><strong>High scalability</strong></td>
<td><strong>Example: Hyperledger Fabric, Enterprise Ethereum Alliances</strong></td>
<td><strong>Very high scalability</strong></td>
</tr>
</tbody>
</table>

The power of DLTs, as described above, is their ability to help large corporations build trust with consumers.
Blockchain: Keeping Chronological Track of Data

The term *blockchain* is widely known and commonly used to define the whole family of DLTs in the public sphere. However, blockchain has features that make it distinct. It is a chain of cryptographically linked data blocks that efficiently and securely time-stamp digital data in distributed systems.

Blockchain consists of a list of records called blocks. These blocks are securely connected using cryptography. Each record has a unique timestamp and transaction date. Blockchain data is difficult to modify because changing one block disrupts all subsequent, connected blocks. Thus, change requires permission from the overall network.

Creating a blockchain transaction

1. **Step 1**
   - When two parties initiate a transaction, blockchain assigns an encryption.

2. **Step 2**
   - Blockchain verifies the transaction and creates a block.

3. **Step 3**
   - The new block is appended to the blockchain.

4. **Step 4**
   - The blockchain transaction is now complete and the ledger is updated.

The primary difference between blockchain and other forms of DLTs is related to data storage. Blockchain data is stored in groups, or blocks, of information. It is impossible to delete or modify information previously stored on the chain because blocks are replicated across multiple ledgers. Blockchain uses a set of shared, secure, and distributed, and independently validated records. By contrast, other distributed ledgers don’t employ a chain of blocks.

The security and efficiency of blockchain makes it an ideal technology for business operations, supply chain systems, and so on. It can register information changes over time, which could be extremely useful for tracking, say, an agricultural product’s journey from farm to fork. Thus, it offers the potential to increase transparency and trust among consumers.
Global sourcing and outsourcing increase the length and complexity of the supply chain. Consumer brands end up aggregating subcomponents (e.g. a screen or a processor) which are themselves an aggregation of subparts (e.g. transistors) from multiple parts of the world. This creates several risks—counterfeiting, procurement, inventory management—and adds complexity and costs.

According to the World Health Organization, over 50% of medicines purchased on illegal websites are counterfeit. The example of pharmaceutical supply chain (below) is sufficient to highlight the complexity. They comprise not only manufacturing the vaccine, but also storage and packaging components, cold-chain transit, domestic and global shipping. The distribution involves many players from pharmacies to hospital to insurance companies to distributors.

Meanwhile, on the consumer side, there is a high demand for local, authentic, quality, and customised products. These consumer desires exist in tension with the massive and obscure supply chains used by large corporations. So, large companies like Carrefour seek to be nimbler with product design and supply chains, and to be more transparent about product quality and origin. But it is very difficult to capture the necessary information and present it to customers in a way that they not only trust, but also find easy.

Serving these consumer demands is exactly what DLT can enable. The three main properties of DLT—transparency, immutability, decentralisation—make it an ideal tool for improving process efficiencies across the supply chain. Blockchain enables B2B agreement between parties by using digital smart contracts. This increases transparency in the system, improves the speed of payment processing, and reduces intermediary expenses. Any record—purchases, warranties, ownership status, etc.—can be safely verified and transferred on a blockchain network, thus improving supply chain transparency.


We have mentioned several companies that already use blockchain in their supply chains. One pertinent example is De Beers which, along with the entire diamond industry, has been pressured to increase the transparency related to the provenance and authenticity of its products.

To safeguard the authenticity of its diamonds, De Beers has piloted the first end-to-end traceability blockchain platform. The DLT system: (a) measures each diamond and generates a unique ID for each gem; (b) records the unique ID on the blockchain; and (c) checks the authenticity of each diamond along the international supply chain. While operating in a market that can contain inauthentic products, De Beers uses blockchain with the aim of proving the authenticity of each gem thereby establishing a foundation for stronger consumer trust.

DLTs can also be implemented within an overall industry, not just within one business. The automotive industry could be a posterchild for blockchain. Incorporating blockchain could improve clarity in the complicated processes of supply chain management, manufacturing, finances, vehicle safety, data security, and telematics. DLTs can also help industries that seek opportunities to decentralise financial operations, legal document verification, insurance, car sharing, theft prevention, and other aspects.

A Case Study: How Nestlé Uses Blockchain to Share Local Sourcing Information

While the food industry has been through many dramatic changes over the decades, 2013 proved to be a particularly pivotal year. This was when the industry shifted away from heavily processed foods. Two factors played a key role: First, the rise of social media led to a high-profile online conversation about what to eat and what to avoid. They focused on concerns about additives in many heavily-processed foods. Second, millennials began forming households after the recession, most led by parents who were better educated and less brand-loyal than earlier generations.

Partly, as a result, consumers are increasingly migrating to smaller, upstart brands that are often perceived as healthier and more authentic. In response, numerous large companies are attempting to be more transparent and credible, with the hope of bringing customers back.

Source: 101blockchains.com
This was the objective of Nestlé when the Swiss food products giant started implementing a permissioned blockchain technology. In its own words, it became the first “major food and beverage company to announce that it [would] pilot open blockchain technology in this way.” It started with its farmers adding the details about varieties of potato batches to the blockchain and ended with customers scanning the QR code on the packaging of the product to obtain all the details along the supply chain, including manufacturing, production, distribution, retailers, and quality control information.

The goal was not only “to reach full supply chain transparency,” but also to remind customers that its products were locally produced, transformed, and packed. Nestlé, working with the French supermarket chain Carrefour, started using blockchain initially in the US and then in Europe to trace an instant mashed potato product in April 2019 from farms and producers to the firm’s factories. In November 2019, the company expanded its use of blockchain to track infant milk.

The expanded programme involved Nestlé first capturing product-level data throughout supply chains using an “Internet of things.” It used sensors to track a product’s location, temperature, exposure to light, chain of custody, and other attributes. Next, Nestlé stored traceability data on a secure decentralised blockchain platform. Workers along the supply chain could then collaborate by contributing data about the product at each stage, thereby forming an end-to-end view. All data were secure and tamper-proof, including all commercially sensitive information.

Next, Nestlé redesigned its product packaging in order to share the data with consumers. For example, the carton for Mousline purée included a QR code. By simply scanning a product with a smartphone, consumers could access information about the supply chain: the varieties of potatoes, the dates and places of manufacture, information about quality control, and the storage dates and locations.

The Carrefour-Nestlé Blockchain: technology for food transparency with Mousline

<table>
<thead>
<tr>
<th>Step 1: Fields Suppliers</th>
<th>Step 2: Production Factory</th>
<th>Step 3: Distribution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potatoes are grown predominantly in the Somme region by 165 farmers affiliated with Nestlé.</td>
<td>The potatoes are transformed and packed in the Mousline production plant, in Rosières-en-Santerre, in France, usually near the place of harvest.</td>
<td>The products are then stored in two Nestlé warehouses located in Fontenay-Trésigny and Saint-Georges-d’Espéranche, before being delivered to the distributors.</td>
</tr>
<tr>
<td>Information available:</td>
<td>Information available</td>
<td>Information available:</td>
</tr>
<tr>
<td>− Varieties of potatoes</td>
<td>− Manufacturing and production</td>
<td>− Storage location and dates</td>
</tr>
<tr>
<td>− Farmer partner</td>
<td>− Quality control</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 4: Retailers</th>
<th>Step 5: Customers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Products arrive at the 25 Carrefour warehouses. They are stored there before being delivered to stores.</td>
<td>By scanning the QR code on the packaging of Mousline, the consumer can seamlessly access an interface and obtain any product or supply chain information.</td>
</tr>
<tr>
<td>Information available:</td>
<td>Information available:</td>
</tr>
<tr>
<td>− Any product or supply chain information</td>
<td></td>
</tr>
</tbody>
</table>

Source: Carrefour, Nestlé, Deutsche Bank.
The importance of this transparency and quality control should not be underestimated. A Label Insight survey found that 71 percent of consumers check the full ingredients list when making food purchase decisions. And more than two-thirds of consumers say they do not trust the accuracy of product information shown on food labels. Another third of consumers say they are sometimes confused about the ingredients, what food labels mean.

What seems apparent is that consumers generally care more about ingredients than the brand. Indeed, brand recognition alone can have a very weak influence on purchase intentions; barely 6 percent of consumers say that a brand name is a primary factor in their purchase decisions. In regard to food products, the primary factor is healthy ingredients: A quarter of consumers rank “healthy and natural ingredients” as the number one reason for their purchases. Price is the second most-important factor.

What is certain is that some scandals and product failures related to supply chains can be avoided with better traceability. DLT, and specifically blockchain, offers improved quality control and a new solution for communicating authenticity to consumers.

### Which of the following statements do you agree with? Please select all that apply.

- I am unaware of where to look for more detailed product information for the food’s I’m eating
- I do not agree with any of the above statements
- I trust that the labels on most food products are complete and accurate
- I am sometimes confused by what the labels on food packages are actually saying
- I would be willing to switch brands if another brand shared more detailed product information with me
- I am concerned about eating products that include information on the label I don’t recognise

Source: Label Insight.

### Which of the following factors most strongly influences your loyalty to a brand? Please rank from 1-9, with 1 being the most important.

<table>
<thead>
<tr>
<th>Factor</th>
<th>1%</th>
<th>2%</th>
<th>3%</th>
<th>4%</th>
<th>5%</th>
<th>6%</th>
<th>7%</th>
<th>8%</th>
<th>9%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brand recognition</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>6%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labeling that clearly states specific dietary restrictions</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sustainable practices (cagefree eggs, grass fed beef, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Labeling that clearly states where products are sourced</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trustworthiness</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>11%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Price</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>22%</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Healthy ingredients (low fat, low sugar, etc.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>24%</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Source: Label Insight.

What is certain is that some scandals and product failures related to supply chains can be avoided with better traceability. DLT, and specifically blockchain, offers improved quality control and a new solution for communicating authenticity to consumers.
Transparency Is the New Marketing

Clearly, consumers want more product information in order to make informed purchase decisions. Nearly all survey respondents (94 percent) say it is important for brands and manufacturers to be transparent about what is in their food and how it is made. Nearly two-fifths of those surveyed are concerned about eating products with unrecognisable information on the label.

Consumers are open to using digital channels, such as digital labels, free mobile apps, and QR codes, to find the information they need. About 37 percent of consumers say they will switch to companies that provide more detailed product information, and those people are nearly twice as likely to access this information through digital labels.

Which of the following do you feel would make the in-store grocery shopping process better? Please select all that apply.

<table>
<thead>
<tr>
<th>Option</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Digital labels that display known allergens, properties within your food and all nutritional information</td>
<td>27%</td>
</tr>
<tr>
<td>Order online, pickup in store</td>
<td>26%</td>
</tr>
<tr>
<td>Free mobile app with fully transparent product information</td>
<td>22%</td>
</tr>
<tr>
<td>Mobile checkout options</td>
<td>20%</td>
</tr>
<tr>
<td>Digital labels that display recipes for specific diets, such as Paleo or gluten free</td>
<td>11%</td>
</tr>
</tbody>
</table>

Source: Label Insight.
Moving Forward: How Corporations Should Prepare for Blockchain/DLT Disruption

It is surprising that two-thirds⁴ of senior executives still do not know what DLT is. And those who do know something tend to ignore how DLT can be used beyond financial applications. Many public discussions focus on hypotheticals: how DLT might be used or its potential advantages. This sustains the hype that surrounds DLT, but offers decision-makers little in the way of evidence.

The benefits of using blockchain for decentralised supply chain management are manifold: (a) transparent ledger system (trace every product movement); (b) real-time tracking and quality control of any material within the system; (c) faster transactions (DLTs can handle thousands of transactions per second); (d) smart contracts create a trustworthy medium among manufacturers and vendors; (e) product certifications as everything is certified on the blockchain, thereby eliminating human error and fraudulent activities; (f) greater security which ensures security and improves accuracy; and (g) reduced costs which removes middlemen, offers greater accuracy, and eliminates counterfeit products.

However, the devil is in the implementation. Too many blockchain projects have been launched by technology departments before corporate leaders have discerned how to make money from DLT. A better approach is to start by studying the commercial challenges and to investigate if DLT can overcome them.

Based on our experience, there are four steps that companies can take to address DLT challenges and to successfully implement the technology.

1) Target the Right Business Problem

Before considering whether DLTs can help solve your business challenges, start by disentangling the issue and identify a problem the technology could tackle. As an example, consider the following case study.

Contaminated produce, which accounts for 46 percent of all foodborne illnesses and 23 percent of foodborne-associated deaths, is a major problem in the food industry. It often takes companies months to find the source of the contamination, which results in significant costs. During the 2018 E. coli outbreak from romaine lettuce, it took investigators three months to track down the contamination source. The delay led to 205 reported illnesses and five deaths. If blockchain had been used to track products in the supply chain, those terrible outcomes could have been avoided or at least ameliorated.

Examples of business issues that a blockchain project could tackle include: identifying the source of disease outbreaks in the supply chain as fast as possible; tracking and displaying the geographical location of main ingredients; improving supply chain speed and collaboration among workers and business leaders.

After you deconstruct the business problem, and after you have searched for solutions, then you can ask whether DLTs might be a solution.

In September 2018, Walmart started to require salad vendors to join a blockchain-based supply chain to better trace foodborne illness. The blockchain technology allowed the company to track and find those involved in the supply chain in record time. Another example, as described above, is Nestlé’s decision to expand its blockchain technology to track infant milk in order to prevent foodborne illnesses.

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⁴ Various surveys mention a range around 60-70%.
2) Include Users in the Design Stage

Once the issues have been identified and the decision has been made that blockchain is a solution, users must be included in the design stage.

Tracing the whole supply chain means that suppliers, producers, distributors, and retailers should collaborate. Consider transparency not only as an outcome, but also as a precondition at the inception of DLT projects. Inform suppliers, manufacturers, retailers, and consumers about the new technology and its implications, and involve them in the design stage.

Inclusiveness directly enhances performance and increases the likelihood of a project’s success. Building DLT for your company requires intensive collaboration with key internal and external stakeholders.

The *Harvard Business Review* found that transformation teams with inclusive leaders are 17 percent more likely to report that they are high performing, 20 percent are more likely to say they make high-quality decisions, and 29 percent are more likely to report collaborative behaviours.\(^5\)

In large-scale DLT projects that involve multiple internal and external parties, companies should set up a project management office to coordinate the effort and ensure that the project delivers on time. This role is often fulfilled by external consultancies.

3) Pilot Before Scaling Up

We recommend that initiatives with emerging technologies be based on evidence, especially when launching DLTs. The decision to use DLTs should be based on detailed analysis. Corporate leaders who have implemented DLTs have done well to start with small-scale experimentation—one simple product—before covering a wider range of products. This allows them to test the approach faster (often before it is perfect) and to quickly identify bottlenecks and roadblocks while they remain manageable. What’s learned during the pilot phase can help leaders redesign the process before a full scale-up.

4) Carefully Consider the Design of DLTs

Finally, the design of DLTs must be carefully considered. Although this may seem obvious, the design will shape the end results much more than the implementation.

In terms of architecture, most corporate leaders we interviewed use private blockchains (available only to a few stakeholders) combined with permissioned blockchains (only those with prior permissions can make modifications) to optimise network openness and scalability.

In terms of resources, corporate leaders should build with in-house resources; that is, to employ supply chain, finance, and procurement departments to work on the initiative. Most of the corporate leaders we interviewed also partnered with an external blockchain initiative, such as IBM Food Trust.

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