

# Digital Supply Chain Management is Changing Digital Economy in India

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**Abstract:** As India moves towards a digital and cashless economy and today's economy operates at a fast pace, and organizations must rapidly adapt and integrate emerging technologies. This requires infrastructure and solutions with greater flexibility and agility than ever before. As technology expands and the Internet of things becomes increasingly prevalent, a digitized supply chain strategy is moving into the core of business operations. Today's high-tech companies must adapt – speed and accuracy are crucial, and collaboration is more important than ever. The right digital tools are the key to developing an extended, fast supply chain process. The Digital Supply Chains will not only give a boost to cashless transactions in Business Models – B2B, B2C, C2C, B2B2C, Hyper Local etc., but will particularly bring the poor, lower middle class and small businesses into the digital payment fold, and new way of life. This paper concentrates on the goods and services that customers depend on each day don't just appear out of the blue. They reach end users through increasingly intricate channels, involving people and processes all over the country and supported by continually advancing technology. Business leaders are implementing the newest big data tools, investing in advanced analytics applications, and purchasing the latest data visualization software. Digitalization of information and material flows enables real-time analysis of the company. E-market places and collaboration platforms offer new opportunities in B2B relationships with minimal administrative and a high cost-saving potential

The main objective of this paper is to review the increasing development of the cloud computing usage in the present market scenario which is in lined with the digitation process of India as a whole.

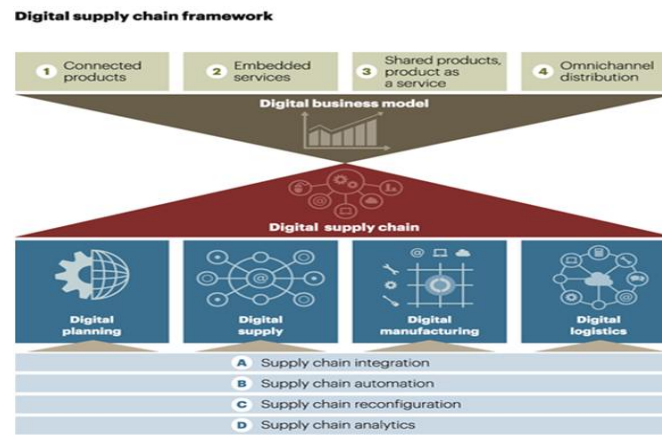
**Keywords:** Digital Supply Chains, Networks, technology, digital transformation, business strategy, cashless Purchasing, digital economy

## Introduction

A digital supply chain is a supply chain whose foundation is built on Web-enabled capabilities. Many supply chains use a mix of paper-based and IT-enabled processes. A true digital supply chain goes far beyond this hybrid model to fully capitalize on connectivity, system integration and the information-producing capabilities of "smart" components. The ultimate goal of the digital supply chain is to enable insights for increased efficiencies, doing away with waste and facilitating greater profits. Companies with a digital supply chain are better able to move resources, assets, people and inventory to where they are needed at any given time in order to reduce costs by responding proactively to transportation and manufacturing risks. The potential payoffs of a fully realized digital supply chain include savings in every area, from resources, time, and money to a reduced environmental footprint. Ideally, a digital supply chain has processes that monitor real-time inventory levels, customer interactions with products, carrier locations, and equipment and uses this information to help plan and execute at increased levels of performance. Technologies such as GPS tracking, radio frequency identification (RFID), barcodes, smart labels, location-based data and wireless sensor networks all play a part in a digital supply chain. In addition, cloud technologies integrated with Web services can unify information and processes to create trading-partner visibility and more efficient collaboration. Building a digital supply chain requires a comprehensive strategy that is a fundamental part of the business plan and that weaves in organizational structure, operations, systems, physical assets and processes such as procurement and payment. Tacked-on efforts, in comparison, can result in silos, data duplication and inefficiencies.

## SCM Will Be Central to Wider Digital Transformation

Supply chain managers who want to lead the transformation of their SCM into the digitalized age not only will identify the opportunities and challenges facing their own function, but will also consider the digital transformation of the entire company, its products and services, and the way suppliers, customers, and other market partners interact with their company. How SCM can contribute to the digitalization of the business model is as important as defining the digital transformation agenda of SCM itself (see figure 1).



### Digital Economy

The digital economy is the new productivity platform that some experts regard as the third industrial revolution. Digital revolution, also known as ‘The Internet Economy’ or Internet of Everything (IoE), is expected to generate new market growth opportunities, jobs and become the biggest business opportunity of mankind in the next 30 to 40 years.

Goldman Sachs predicts that India - comprising 15% of the world population, with a growth rate of 7 to 8%, could be the second largest economy by 2030. India’s new leadership considers the digital economy as a major growth enabler. When Prime Minister Narendra Modi strategically listed “Digital India” among the top priorities for the new central government, he delivered a resounding nod to the digital economy’s opportunities.

The Department of Electronics & Information Technology of India published Internet of Things policy estimating IoT industry in India grow up to INR 940 billion, by 2020. Focus areas include agriculture, health, water quality, natural disasters, transportation, security, automobile, supply chain management, smart cities, automated metering and monitoring of utilities, waste management, oil and gas. Cisco estimates that all IoE pillars - Internet of things, Internet of people, Internet of data, and Internet of Process for India have a value at stake (VAS) of INR 31.880 trillion (about half a trillion U.S. dollars) for the next ten years. From that INR 7.263 trillion is in the public sector and INR 24.616 trillion is in the private sector during the next decade.

### Need and Scope of the Study

A supply chain is a network of facilities and distribution options that performs the functions of procurement of materials, transformation of these materials into intermediate and finished products, and the distribution of these finished products to customers. In other words, supply chain encompasses all of the activities associated with moving goods from raw-materials stage through to the end user. The information systems needed to monitor all of these activities are a critical part of the mix. Successful supply chain management (SCM), then, coordinates and integrates all of these activities into a seamless process. It embraces and links all of the partners in the chain. In addition to the key functional areas within the organization, these partners include vendors, carriers, third-party logistics companies, and information systems providers. Monitoring and controlling the activities right from supplier's supplier to customer's customer and covers the ten future digital supply chain scenarios developed by the Institute for Manufacturing. These scenarios were designed with insight from a range of multinational companies concerning their latest experiences of the impact of digitisation on global manufacturing and supply networks.

A supply chain is only as strong as its weakest link, asserts Accenture. For supply chain partners who have yet to take advantage of the digital supply chain network, the weakest link is actually every single process, communication, connection, and point in the supply chain. True, some process automation is beneficial, but this information lacks value if not compared against the information from across geographical, physical, or digital boundaries. When a supply chain partner embraces the scope and possibilities of the DSN, some real benefits are realized.

### Become More Forward-Looking.

Supply chain entities have created bad habits when it comes to maintaining a backward-looking approach. In fact, 40.1 percent of supply chain entities work almost exclusively in this manner.

### Connect and Relate Data Sources

The Internet of Things (IoT) has become a fundamental aspect of a successful, modern supply chain. The IOT is responsible for many improvements in processes, preventive maintenance, and identification of better ways to move products. However, the IOT relies on the sharing of data, and the DSN can catalyze the current limitations of the IOT exponentially.

### Generate Data-Driven Plans Through Data Visualization.

As data becomes more available, this data will be applied to advanced analytics opportunities. Additionally, the use of data visualization capabilities will make applying data simpler.

### Improve Collaboration

Since data visualization tools help make changes in both the digital and physical aspects of the supply chain, collaboration will be improved.

## Objectives

1. To understand the correlation between forces of change and business strategy
2. To understand market drivers of digital supply chain management
3. To understand the digital transactions in business models – b2b, b2c, c2c, b2b2c, hyper local etc.,
4. To understand customers experience with online and offline

## Methodology

To achieve the objectives of the research all possible information relevant collected from primary and secondary data methods. Making research has a choice of two main research instruments in collecting primary data through questionnaire. Percentage (%) method is used in making comparison between two or more series of data. The correlation method is used to describe relationship between the variables under study. Bar charts diagram is frequently used type of graph. It is appropriate for displaying marketing research results in a different of solutions.

## Literature Review

Literature portrays logistics and SCM practices from a variety of different perspectives with a common goal of ultimately improving performance and competitiveness. Based on literature, we find that the important supply chain practices concerns are mainly related to:

1. Supply Chain Collaboration and Partnership with various stakeholders such as the product developers, suppliers, channel partners and end-users.
2. Supply Chain Structure including facilities network design taking into account related transportation and logistics.
3. Forecasting and Demand Management to cope with supply chain complexity in a cost-effective and delivery-efficient way.
4. Use of Information and Communication Technologies (ICT) to facilitate the above.

While there is plenty of published literature that explains or espouses SCM, there is a dearth of empirical studies examining logistics and SCM practices. Galt and Dale (1991) study ten organizations in the UK and find that they are working to reduce their supplier base and to improve their communications with the suppliers. Fernie (1995) carries out an international comparison of SCM in the grocery retailing industry. He finds significant differences in inventory held in the supply chain by the US and European grocery retailers, which could be explained by difference in degrees of their SCM adoption. Tan and Wisner (2000) compare SCM in the US and Europe. Tan (2002) relates SCM practices and concerns to firm's performance based on data from US companies. He lists nine important supply chain concerns such as lack of sophisticated ICT infra-structure, insufficient integration due to lack of trust and collaboration among the supply chain stakeholders and thereby lack of supply chain effectiveness and efficiencies. Basnet et al. (2003) report the current status of SCM in New Zealand, while Sahay et al. (2003) discuss supply chain strategies and structures in India. These surveys rank the perceived importance of some SCM activities, types of hindrances and management tools on the success of SCM using representative samples mostly from manufacturing. Quayle (2003) surveys supply chain management practice in UK industrial SMEs (Small Manufacturing Enterprises) while Kemppainen and Vepsalainen (2003) probe current SCM practices in Finnish industrial supply chains through interviews of managers in six supply chains. They analyze the change of SCM both in terms of operational practices and organizational capabilities. Chin et al. (2004) conduct a survey that examines the success factors in developing and implementing supply chain management strategies for Hong Kong manufacturers. Moberg et al. (2002) state that there is little literature on information exchange. Feldmann and Muller (2003) examine the problem of how to establish an incentive scheme to furnish reliable and truthful information in supply chains.

## Digital Economy

The term 'Digital Economy' was coined in Don Tapscott's 1995 book *The Digital Economy: Promise and Peril in the Age of Networked Intelligence*. The Digital Economy was among the first books to consider how the Internet would change the way we did business. According to Thomas esenbourg three main components of the 'Digital Economy' concept can be identified: e-business infrastructure (hardware, software, telecoms, networks, human capital, etc.), e-business (how business is conducted, any process that an organization conducts over computer-mediated networks), e-commerce (transfer of goods, for example when a book is sold online). But, as Bill Imlah[4] comments, new applications are blurring these boundaries and adding complexity – for example, social media, and Internet search. In the last decade of the 20th century. Nicholas Negroponte (1995) used a metaphor of shifting from processing atoms to processing bits. He discussed the disadvantages of the former (e.g., mass, materials, transport) and advantages of the latter (e.g., weightlessness, virtual, instant global movement). In this new economy, digital networking and communication infrastructures provide a global platform over which people and organizations devise strategies, interact, communicate, collaborate and search for information. More recently,[6] Digital Economy has been defined as the branch of economics studying zero marginal cost intangible goods over the Net. It is widely accepted that the growth of the digital economy has widespread impact on the whole economy. Various attempts at categorizing the size of the impact on traditional sectors have been made. The Boston Consulting Group discussed “four waves of change sweeping over consumer goods and retail”, for instance. In 2012, Deloitte ranked six industry sectors as having a “short fuse” and to experience a “big bang” as a result of the digital economy. Telstra, a leading Australian telecommunications provider, describes how competition will become more global and more intense as a result of the digital economy

## 1. Influences of the External Forces of Change

The values in these correlation tables represent the degree to which the importance given to one item is related to the importance given to another item. Values range from -1 to 1, where 1 means managers would rate both items similarly (i.e., both high or both

low), and -1 means managers would rate the items completely opposite (i.e., one high and one low). An asterisk next to a value indicates that that value represents a significant or statistically meaningful correlation.

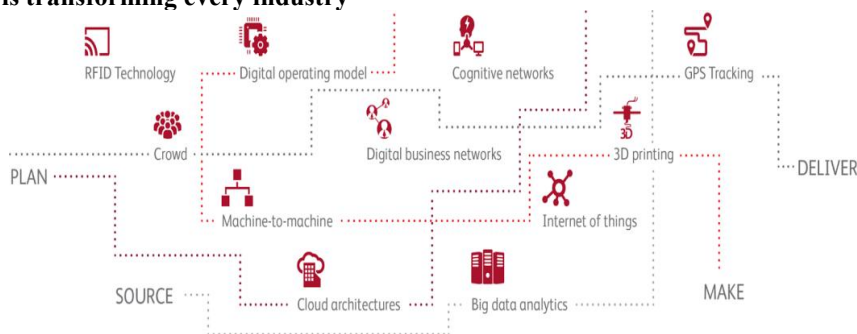
| Correlation between forces of change and business strategy |                              |                                |                        |                                    |  |
|--|------------------------------|--------------------------------|------------------------|------------------------------------|--|
| External forces of change                                  | Achieve high service quality | Reduce cost of purchased goods | Reduced internal costs | Realize synergies across divisions | Improve flexibility and customer responsiveness demand |
| Changing customer requirements                             | 0.215                        | 0.069                          | 0.044                  | 0.059                              | 0.237  |
| Government regulatory changes                              | 0.086                        | 0.122                          | 0.111                  | 0.177                              | 0.037  |
| Technology advancements' in the supply base                | 0.146                        | 0.09                           | 0.186                  | 0.114                              | -0.184   |
| Changing prices  | -0.169                       | 0.212                          | 0.082                  | 0.186                              | -0.137   |
| Increased emphasis on supply chain security                | 0.155                        | 0.234                          | 0.214                  | 0.265                              | 0.19   |

Regarding the correlation between forces of change and business strategy, as one would expect, “changing customer requirements” is significantly correlated with “achieve high service quality” and “improve flexibility and responsiveness to customer demand.” These correlations confirm our earlier observation that organizations are increasingly becoming customer-oriented. “Changing prices,” “supply base technology advancements” and “increased emphasis on supply chain security” have significant correlations with business strategies for “reducing costs” and “realizing synergies across divisions/SBUs.” These trends imply that organizations are taking advantage of the recent decreases in oil/raw materials prices to reduce costs while increasing cross-functional efforts to increase security and innovation. Interestingly, “government regulatory changes” do not show any significant correlations with the top five business strategies. As we discuss below, it seems that government regulatory changes are penetrating directly to the supply management function, without significantly influencing overall business strategies. This point becomes clearer as we consider correlations between external forces of change and supply mission.

**2. Market Drivers**

Digitalization is disrupting the way business is done across all industries and its market will exceed the growth of the overall economy

**Digitalization’s impact is transforming every industry**



- 36% of the Indian population has internet access
- 40% of the Indian population uses social media
- People spend 120minutes online
- 33% of companies use sophisticated big data analytics

**2.1 Digitalization**

- Nine out of ten internet users buy online
- Estimated annual growth of 8% of the internet economy
- Digitalization has a major transforming effect across all industries to generate value and network

**2.2 Trends in Supply Chain Management**

- Business leaders are implementing the newest big data tools, investing in advanced analytics applications, and purchasing the latest data visualization software
- Digitalization of information and material flows enables real-time analysis of the company

- E-market places and collaboration platforms offer new opportunities in B2B relationships with minimal administrative effort and a high cost-saving potential

### 3. Digital transactions in business models – b2b, b2c, c2c, b2b2c, hyper local etc.,

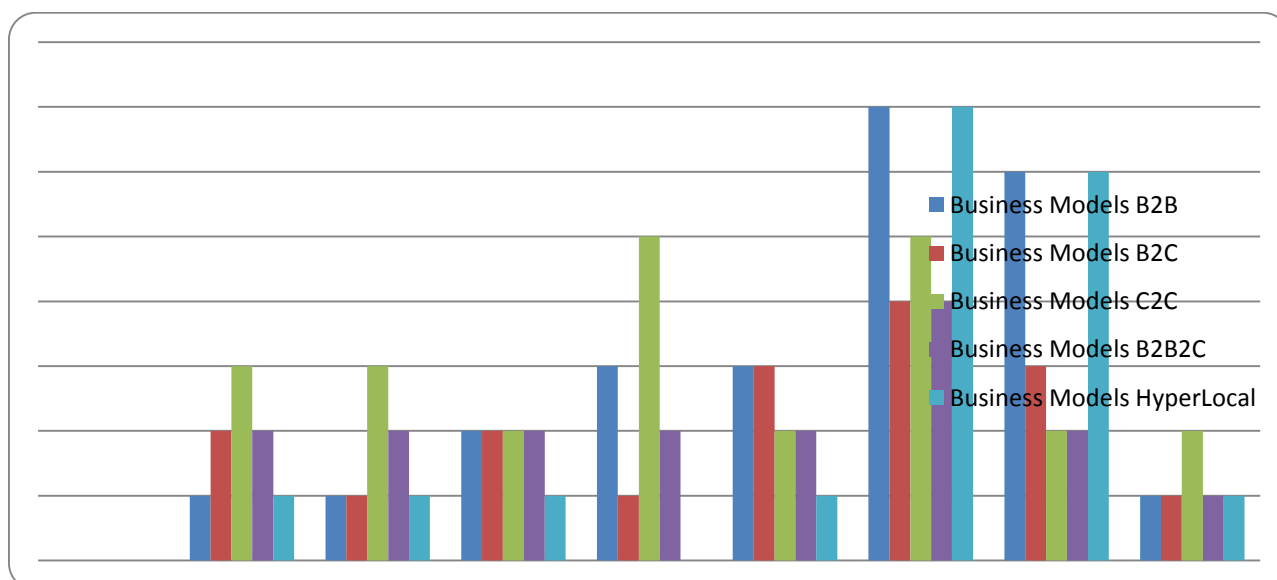
After the demonetization announced by the central government on 8th November, the number and volume of digital payments have seen a remarkable increase. Cashless Digital Payments have also become a necessity for day to day spends in the days of cash crunch after demonetization.

Indian government, after demonetization, has been encouraging people (Both consumers and merchants) to use cashless digital payment methods for any kind of payment against any kind of sale/purchase. The government has started several initiatives for making the country cashless, such as Jan Dhan to Digidhan and Mera Mobile – Mera Wallet and Cashless India.

#### Different Types of Digital Payments:

However, there are several ways one can pay for daily expenses like fuel, grocery, utility bills and purchase of any household item or any other kind of bill/purchase. Below are the 10 most common digital payment methods Banking Cards (Debit / Credit / Cash / Travel / Others)

| digital transactions                 | Business Models |     |     |       |            | total |
|--------------------------------------|-----------------|-----|-----|-------|------------|-------|
|                                      | B2B             | B2C | C2C | B2B2C | HyperLocal |       |
| AADHAR Enabled Payment System (AEPS) | 1               | 2   | 3   | 2     | 1          | 9     |
| Unified Payment Interface (UPI)      | 1               | 1   | 3   | 2     | 1          | 8     |
| Mobile Wallets                       | 2               | 2   | 2   | 2     | 1          | 9     |
| Banks Pre-Paid Cards                 | 3               | 1   | 5   | 2     | 0          | 11    |
| Point of Sale Machines               | 3               | 3   | 2   | 2     | 1          | 11    |
| Internet Banking                     | 7               | 4   | 5   | 4     | 7          | 27    |
| Mobile Banking                       | 6               | 3   | 2   | 2     | 6          | 19    |
| Micro ATM's                          | 1               | 1   | 2   | 1     | 1          | 6     |
| total                                | 24              | 17  | 24  | 17    | 18         | 100   |



### 4. Online and offline

Most people assume that the decision to go online or offline is largely dependent on whether you want to do a small, local retailing business offline or whether you want to build a scalable, large, multi-city enterprise. However, the 'scale up' factor shouldn't be really the basis of your decision on whether to go online or offline. Because, it is possible to scale both, offline and online, as the demand for your product grows (think of Café Coffee Day, Barista, Vijay Stores, Croma, etc.). You must first understand and explore the dynamics of both physical and e-stores, which considerably differ from each other. And, then decide which option works in the favour of your business. Let's take a look at the two options.



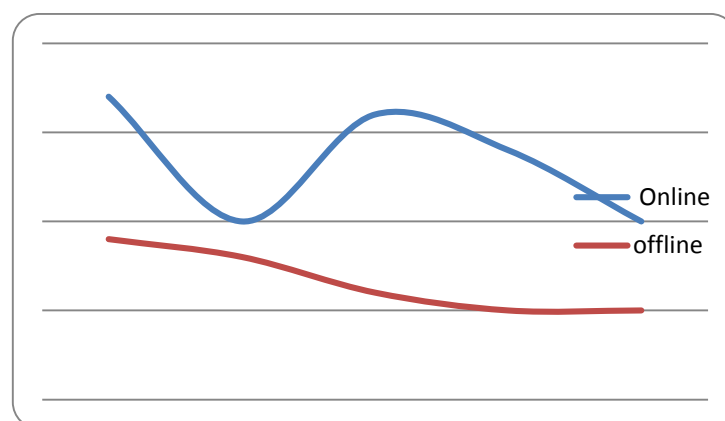
### Offline

Customers can walk-in to the store to experience the ‘look and feel’ of the product, hence may be more suited for products where the consumer decision is likely to be based on touch & feel (e.g. fashion, groceries, organic foods). However, many online ventures in the recent past have demonstrated that consumers are also willing to buy online products that were traditionally considered needing consumers to touch and feel the product before buying. There is a human touch we can offer ‘face-to-face’, ‘feel good’ and ‘personalized’ customer service. The physical presence develops a sense of trust among the customers and goes a long way in building a loyal customer base. (E.g. may be relevant for categories like financial services & products). The cost of setting up a physical store is substantial - buying / renting the space, furniture and interiors, electricity and other overheads, staff salaries, etc. On the other hand, online stores do not involve the infrastructure building costs involved in physical stores. Of course, there are a number of retail businesses that just cannot be done online.

### Online

we can reach out to customers beyond your geographical boundaries. we can sell a wide range or a variety of products, 24/7 - you don't need to shut down your store after business hours or on holidays. we can automate your business processes and focus more on product development or customer service. The cost of setting up a digital store is less expensive than a physical store. It's challenging to drive customers to your digital store. Given the competition, it is getting harder for new online stores to get ‘discovered’ by the consumers. So, unless you have a way of reaching consumers and making them aware of your online presence, the cost of acquiring customers online is quite huge. Both online and offline stores are equally viable, lucrative and challenging options. But as you can see from the above comparison, the dynamics of each model are different and you need to take a call on the basis of your own concept, circumstances, vision and aspirations. Of course, it is possible to have an offline store with an online presence too... but usually that is more as a support to the offline store. So, let the nature of your product and type of customers you want to serve be the key determinants. At the end of the day, no two businesses are alike. You still need a USP to sell your product. You still need to make your customers happy. As long as you can offer an exclusive or a competitive product backed with an excellent customer service, there will be a business to be created... whether offline or online.

| ADVANTAGES                         | Online    | offline   | TOTAL |
|------------------------------------|-----------|-----------|-------|
| <b>Convenience and time saving</b> | <b>17</b> | <b>9</b>  | 26    |
| <b>Low price</b>                   | <b>10</b> | <b>8</b>  | 18    |
| <b>Products variety</b>            | <b>16</b> | <b>6</b>  | 22    |
| <b>Speed of delivery</b>           | <b>14</b> | <b>5</b>  | 19    |
| <b>Quality product and service</b> | <b>10</b> | <b>5</b>  | 15    |
| <b>TOTAL</b>                       | <b>67</b> | <b>33</b> | 100   |



Both worlds have their advantages. Of course. But more and more customers around the india appreciate the online experience with a much bigger product range and a comfortable way of comparing products. Great personalized product recommendations like “Customers who bought this also bought” can be a very helpful way for customers browsing through large product catalogues and also for shop owners to offer the right and matching products. Or even upsell other products compared to a selected product.

### Findings

This Point of View highlights how digital technology is changing the supply chain and digital economy . Explaining why digital supply networks have a distinct advantage over traditional supply chains when companies embed it into their operations. Here are some of the key findings:

- Digital technology can engender organizational change; alter the nature of the company’s control points; change the role and value of data; shift the level of value creation at each stage of the value chain; create or destroy businesses and/or operating models. In essence, digital can render traditional supply chain models obsolete.

- Four of our era's most disruptive technologies—social media, mobile communications, analytics and cloud computing—set the stage for the emergence of the digital supply network. And reap billions of dollars in new revenue and savings.
- The digital supply network is more connected, intelligent, scalable and rapid. Companies that realize more of these advantages have a better market and finance performance.
- customers around the india appreciate the online experience with a much bigger product range and a comfortable way of comparing products.
- maximum advantage with digital supply chain management and also customers are getting advantage from digital transaction in online products
- Here are five simple benefits of having an online ordering1.Cost2.Efficiency3.Search Engines4.Sales Analysis5.Linking

### Suggestions

- The modern customer is very aware, very connected and uses the latest digital technologies. Companies must consider transforming their supply chains to cater to such customers and be ready to serve the growing list of such customers. If they do not do it, they risk losing their market leading position.
- Moreover, the modern supply chain—the digital supply network—is built with digital DNA. Companies may choose to adopt a proven digital technology directly, which may be useful, but its ability to unleash the full value potential of the organization's supply chain is questionable.
- It is essential to follow a systematic process to transform a traditional supply chain into a digital supply network. Organizations need to:
  - Determine the digital supply network vision for the organization. This becomes the holy grail which will drive the transformation.
  - Convert the vision into the actual business outcomes which need to be realized.

### Conclusion

Supply chain leaders must take advantage of the opportunities that come with digital operations. They should embrace digitization, reconfigure the supply chain, and overcome traditional geographic or functional silos. Highly automated end-to-end processes, flexible bundling of activities and improved visibility are the hallmarks of a fully digital supply chain. Being digitized need not necessarily mean applying the latest digital technologies. It is more about aligning digital initiatives with supply chain goals and adopting a Digital Operating Model to realize the untapped potential of existing resources and capabilities resulting in a higher level of performance.

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