

Digital Transformation: A New Industrial Revolution

¹Eesha Sahota and ²Shwetank Patel,

^{1,2}Instrumentation & Control Engineering Department, Bharati Vidhyapeeth's College of Engineering, New Delhi, India

Abstract: In this financial actuality where industrial remodeling is happening, innovation is the key. Areas like erudition, data, control processes, technology need the digital transformation to improve and expand. Digital transformation reinforces the same principles but with better efficiency that increases the productivity. The idea is to reconstruct the technology and turn it into something more efficient and useful.

I. INTRODUCTION

A. Manufacturing Industry

Industrial Revolution has had an impact in the shaping of the manufacturing sector, now digital transformation is rapidly changing the industry. The digitization of manufacturing industry is being driven by consumer expectations and connected devices and platforms. The majority of manufacturing industry acknowledges the importance of digital transformation.

- **IoT:** - IoT continues to give companies the required competitive edge by streamlining and simplifying manufacturing processes with concerned technology. IoT is the hub of industrial transformation, accounting for more than \$178 billion as per 2016 and is crucial for companies. IoT provides real-time feedback and identifies the defects. This has allowed manufacturers to more efficiently react to customer demand. Customers expect the products to be interaction friendly with instant connectedness. This can be possible through IoT.
- **AI and Machine Learning:** - A machine's ability to learn and adopt intelligent human behavior is an advancement. Using these advanced algorithms, the manufacturing industry is transforming. Collection of information, performing skilled labor, and prediction of consumer behavior, everything is possible through AI and machine learning. Smart factories with integrated IT systems provide relevant data to both sides of the supply chain more easily, increasing production capacity. Quality is no longer sacrificed for efficiency, as machine learning algorithms determine which factors impact services and production quality. The industry cutting cost of production, having quicker turnarounds and more efficiently meeting customer demand is the result of digital transformation.
- **Data and Analytics:** - The digital content will increase significantly as compared to today. Big data analysis is becoming increasingly difficult and time consuming as the digitized manufacturer struggles to manage, update and analyze product and consumer information. Today, the data is being streamlined. Because production teams and consumers alike have grown accustomed to immediacy and intuitiveness of IoT, now new and innovative products are demanded. To keep up with these expectations, digital transformation changes the way business manage and share product information enterprise, increasing

production and transparency and decreasing cost and down time

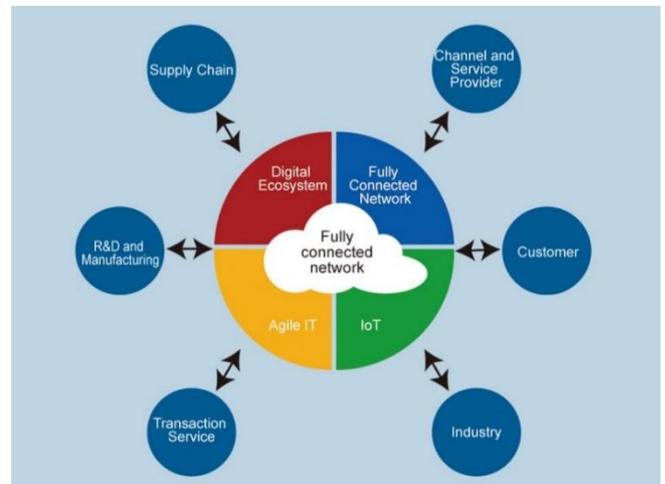


Figure 1. Enterprise digital platform model. Carrier Enabling Enterprise Digital Transformation. Zhang Haibo. Huawei Enterprise. 7 April, 2017. Image downloaded from: https://e.huawei.com/za/publications/global/ict_insights/201704071055/answering/201704071418

B. Entertainment Industry

One of the most common uses of digital transformation within an industry is the media sector. Media ranks as first amongst industries that are most affected by digitization. After the new digital transformations taking place, certain changes are observed in the media and entertainment industry.

Multi-Channel Experience: - Today, people are not just solely watching a movie or Television show. While watching a movie, they are tweeting at the same time. Marketing has now become an event of multi-channels.

Curated Content Is More In Demand: - The audience is continuously changing and so are their demands. Curated content is more in demand. And the trend isn't dying any soon. It has been observed that media giants like Netflix and Amazon have already been effectively using the curated content for years. Curated content is where the platform suggests what the audience would like to watch. When used effectively, it can create newer and larger audiences instantly.



[Figure 2. Digital Disruption and TV Ad Buying. The Boston Group. 27 June, 2018. Image downloaded from: <https://bostongroup.com/digital-disruption-and-tv-ad-buying/>]

- **SMARTER ADVERTISEMENTS IS THE FUTURE:** -Making advertisements has become much smarter today. Technological advancements have opened doors for combination of AI and reality. Experts mentioned that marketing agencies with the help of big data, will be soon able to switch out specific product placement to the one the viewer will most likely buy. Soon, the advertisements are going to be an alternative to entertainment.

C. Automotive Industry

The demands from the customers have put immense pressure on the manufacturers to completely change the way they accomplish their plans and manage their companies, the digital transformation of this industry makes the advanced reassembly of customer and company resources, in order to rise in value, income and productivity. Digital has also strongly affected other segments such as assembly, parts-services, procurement, R&D and marketing. Around 15% of income will be generated online, in the part segment by the year 2025.

- **Connected Vehicles:** -Technology connected vehicles are not new, however the potential for growth is huge for this sector. This segment has capacity to represent a \$45 billion market, the industry is expected to grow further as automobiles integrate smart data, telematics and other technologies. This segment has the potential to shine by offering the ability to connect with computers, smartphones and other products. By the year 2020, around 90% of cars that will be sold will be connected.
- **Autonomous Driving:** - One of the most advancements in the automotive industry are the autonomous vehicles. This will lead to the emergence of sub-industries with products or services offerings, in order to fulfill the demands of self-driving cars. These vehicles are comprising cameras, GPS technology, ultrasonic sensors and vehicle to vehicle connectivity working in sync to make the entire driving task a joyful experience.



[Figure 3. True Augmented Reality. Automotive Chipsets-Applications. Texas Instruments.2018. Image downloaded form: <http://www.ti.com/dlp-chip/automotive/applications/applications.html>]

- **Effective Supply Chain Management:** -Digitization will definitely bring significant improvements to the value chain through innovation, reduced costs and increased efficiencies. Data analytics will bring down the defects and increases the process of component design. This process will be eased through cloud, where all the party in the chain will be looking at the same data, hence creating better stability and flexibility. Artificial Intelligence,

Robotics and IoT are all now a part of the automotive industry. The intelligent machines will increase the operations, create more flexibility in customization and improve performance by reducing defect rates.

D. Retail Sector

A study in 2015 calculated that more than \$196.6bn of retail sales are now influenced by digital, and that retailers whose services don't meet customers' demands could lose more than \$15.69bn a year. The digital customer has changed the face of retail, putting more pressure on brands to attune to this transformation. Retailers recognize there has been a great power switch to the consumer and the need to deliver extraordinary customer experience has become most important.

- **Get Interactive:** - In February 2017 a survey claimed that 41 percent of shoppers said they were interested in interactive shelves that provide product information. By 2020, more than half of them expect stores to give them the access to virtually see how home furnishings and accessories will fit into their homes before making a purchase. Many shoppers are no longer content to scan shelves, pick from what appears to be available and make a best guess as to whether items will be a good fit. They want more information, and they want stores to present it to them in an interactive manner.



[Figure 4. New Research: Cisco Reveals the Current state of Digital Transformation in Retail. The Americas Network. 17 January 2017. Image downloaded from:

<https://americas.thecisconetwork.com/site/content/lang/en/id/6909>]

- **Empower Shoppers:** - Some customers crave a personal touch in retail, others want to simply get in and out of the store as quickly as possible and they are happy to manage on their own. By 2020, 62% of the shoppers expect that they'll be able to find out if products or sizes are in stock without asking a salesperson and 54% expect that they'll be able to input a shopping list of items on a store app and receive a map to easily locate products within seconds after entering the store.

CONCLUSION

Progressing through the phases of digital experience maturity is a key priority for brands looking to increase their market share and improve their bottom line online today. Digital transformation isn't just about digitization, replacing existing paper-based processes with online ones. To truly transform and get the most value from the move to digital, organizations must reevaluate processes with a customer-first approach, working

backwards from the customer to invent new, more efficient ways of working while applying a digital-first mentality.

References

- [1] iscoop.edu. (2018). Digital transformation in the manufacturing industry: challenges and accelerators. URL: <https://www.iscoop.eu/digital-transformation/digital-transformation-manufacturing/>
- [2] forbes.com (2018). TOP 5 Digital Transformation Trends in Manufacturing. URL: <https://www.forbes.com/sites/danielnewman/2017/08/08/top-5-digital-transformation-trends-in-manufacturing/>
- [3] E consultancy. (2016). Digital Transformation in the Retail Sector: challenges & opportunities. URL: <https://econsultancy.com/digital-transformation-in-the-retail-sector-challenges-opportunities/>
- [4] Insight Success. (2018) Media Industry and its' Digital Transformation. URL: <https://www.insightssuccess.com/media-industry-and-its-digital-transformation/>
- [5] Docu Sign. (2018) What is digital transformation? URL: <https://www.docusign.com/learn/what-digital-transformation>