



## Digital Transformation In Industry

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### Abstract

The research paper on Digital Transformation in Industry focuses on the study of the latest technologies and trends in industry. The research methodology used is a combination of primary and secondary research. Employees of different organizations provided insights on the recent trends in their respective industry. This helped to gather real, accurate, and meaningful data for data analysis. The research paper helps to understand the shifts in digital transformation in different industries like service industry, manufacturing, transport, construction, insurance & government, etc. The study has included how companies like Netflix, Tata Motors, Amazon, etc. have successfully undergone digital transformation to elevate customer experience. In order to measure the success of digital transformation efforts, organizations need to develop digital transformation success metrics. This has also been covered. The digital transformation technologies embraced by organizations are Machine Learning, Artificial Intelligence, Big Data, Internet of Things, Cloud Computing, Augmented Reality, Robotics and Robotic Process Automation etc. Customers, employees, technology, and a culture of change are the pillars of today's digital revolution. While embracing digitization, companies face various barriers like resistance to change, scarcity of funds, lack of technical expertise, lack of co-ordination and communication among departments, absence of a leader to handle the transition, etc. Companies need to overcome these hurdles to be successful in data driven transformation. Finally, the research paper delves on the recommendations for a thriving digitalization strategy. These include hiring competitive talent to drive the change, improving cyber security and enhancing data protection, leveraging efficient technology which is effective, developing simple, easy to use systems, encouraging people of the organization to embrace the digital initiatives as usually company culture resists new initiatives. While introducing digital initiatives, companies need to align their business objectives with the current trends and use only those technologies which are relevant for one's business. Else, the costs of digitization may pile up leading to unnecessary cost escalation.

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**Keywords:** *Digital Transformation, Technology, Artificial Intelligence, Customer Experience, Machine Learning.*

## INTRODUCTION

Digital transformation is the adoption, integration, and use of technology in existing processes, products, and strategies to meet and fulfill evolving market expectations. Digital transformation helps in delivering value to customers. Companies can integrate technology in all areas of business so as to change the way they operate fundamentally.

Digital transformation can prove to be beneficial to companies and customers in many ways. It helps to increase productivity by continuous improvement in processes and introduction of new technology. In the long run, it will help in cost savings by eliminating manual processes. By leveraging technology, organizations can streamline their operations. Implementation of technology will also help to solve problems related to business operations by modernizing processes. It will result in increased agility as businesses embracing digital transformation can adapt quickly to market changes. Data driven analytics can help in faster decision making. Also, companies who have undergone digital transformation need to incorporate security measures to safeguard data, thereby protecting companies from cyber threats.

For the customers, it can provide them with a different kind of experience altogether. Tech-savvy customers are largely interested in a seamless and straight forward process. Digital transformation can enable customers to have an unparalleled experience. A company which is undergoing digital transformation ahead of its competitors in the industry will be the innovator. It will provide them with a competitive advantage.

Thus, embracing digital transformation helps companies to stay competitive in this digital centric world.

## OBJECTIVE OF THE STUDY

- i) To determine the benefits of digital transformation projects
- ii) To explore real-world examples of digital transformation
- iii) To understand the technology being used currently by organizations to kick-start digital transformation in their respective industry
- iv) To get an overview of how digital transformation impacts organizations

## LITERATURE REVIEW

The technologically driven trend Industry 4.0 sees digital technologies driving many changes. Technology is intrinsically related to the nature of our world, our human society, and its most fundamental issues. It has redefined our lives, and changed how work is done by taking the place of many manual tasks. Technology has even assumed certain biological functions by replacing certain malfunctioning organs. In other words, technologies are part of the very self of human beings. Technologies are the most known or understood objects of human lives, as they are the results of human designs and inventions. [1]

The results of this research reveal that the field of digital transformation is still developing, with growing interest from researchers since 2014. Results show a need for research in developing countries and for more collaboration between researchers and practitioners. The review highlights that the field is fragmented among disruptive technologies, shared platforms and ecosystems, and new enabling technologies. We conclude that digital transformation has impacted value creation, delivery, and capture in almost every industry. [2]

Increased digitalization has influenced various business activities including companies' business models (BMs) by enabling various new forms of cooperation between companies and leading to new product and service offerings as well as new forms of company relationships with customers and employees. [3]

Digital transformation is the process of adoption and implementation of digital technology by an organization in order to create new or modify existing products, services and operations by the means of translating business processes into a digital format. [4]

Prior to the COVID-19 pandemic, digital transformation largely focused on customer experience. Then, everything changed—and accelerated. Now, digital transformation is the centerpiece of operational efficiency and innovation across the organization. [5]

Digitalisation isn't about changing how you do business or creating new types of businesses. It's about working faster and better now that your data is instantly accessible and not trapped in a file cabinet. [6]

## SCOPE OF THE STUDY

- i) The scope of the study will focus on the different technologies used by organizations in the era of digital transformation.
- ii) The study has been conducted using a mix of quantitative and qualitative analysis.
- iii) The scope of the research is limited to 100+ employees of different organizations who have discussed about the digital transformation in their respective industry.

## RESEARCH METHODOLOGY

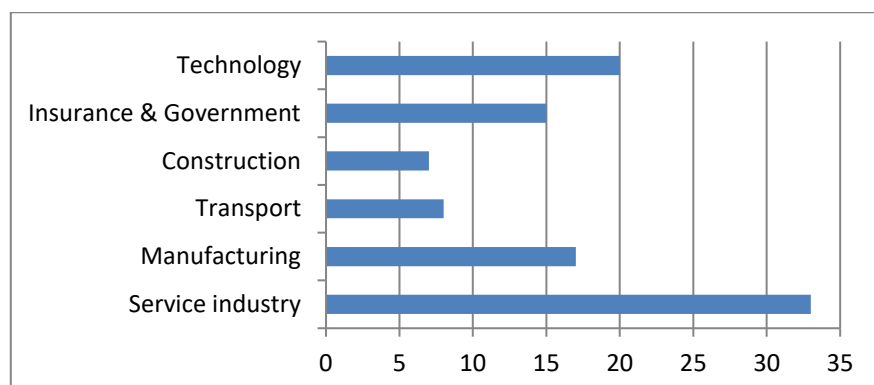
The research is a descriptive research to understand the current trends related to digital transformation in the industry. For this purpose, insights from employees of few organizations have been used. It helped to understand the latest technology used in their industries. More than 100 employees helped in giving responses for the study.

## DATA ANALYSIS

The employees from different corporates gave their opinions and rejoinder on the myriad questions asked to them. The questions have been enlisted below:

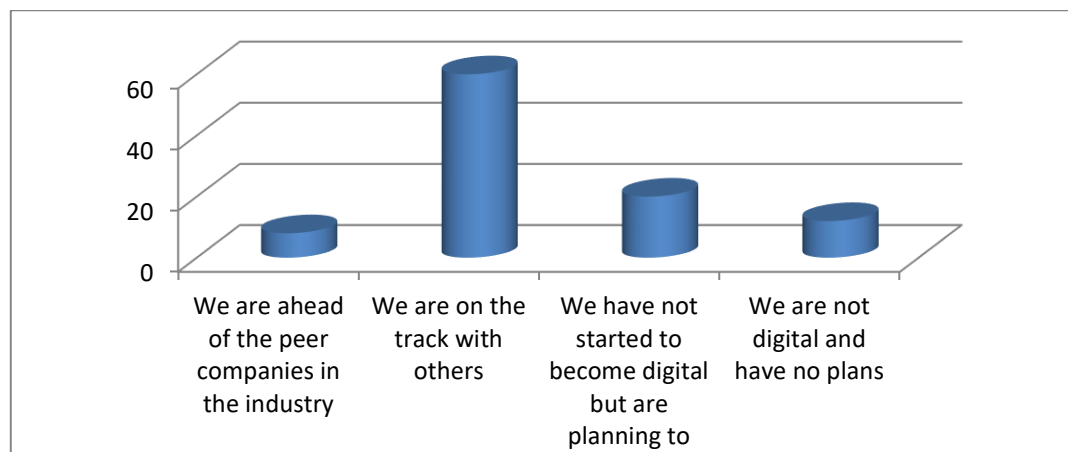
### 1. Which business sector do you work in?

Response: The employees from the sample population belonged mainly to the service industry, followed by manufacturing, technology, construction, transport, insurance & government, etc.



### 2. Has your organization been a frontrunner in the field of digital technology?

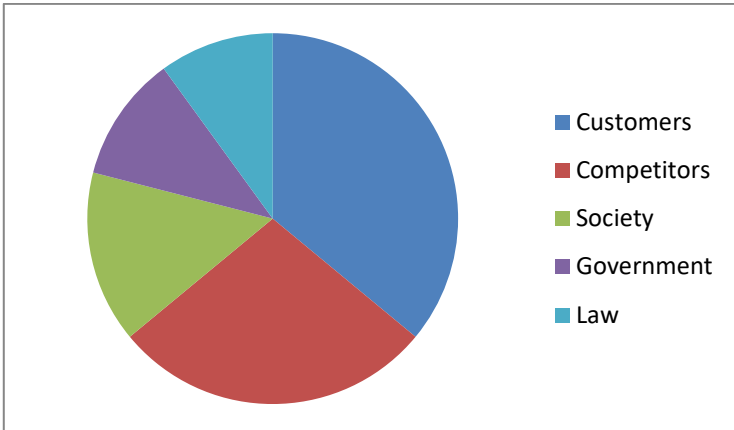
Response: Organizations that adopt and integrate disruptive technologies tend to be the pacesetter in the field of digital transformation. Few employees reported that their respective organizations are laggards when it comes to adoption of digital initiatives while few have described their employers to be innovators in the field of technology.



**3. Who do you think is the main driving force in leading digital transformation in your company?**

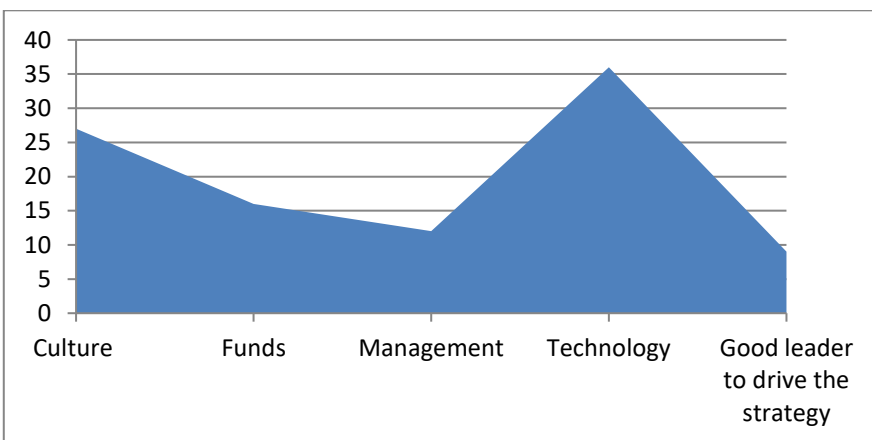
Response: According to employees, the driving force to initiate digital transformation projects in organizations is the customer, around 36%.

It is followed by competitors, 28%. The other forces that drive digital transformation in industries are society, government, and law.

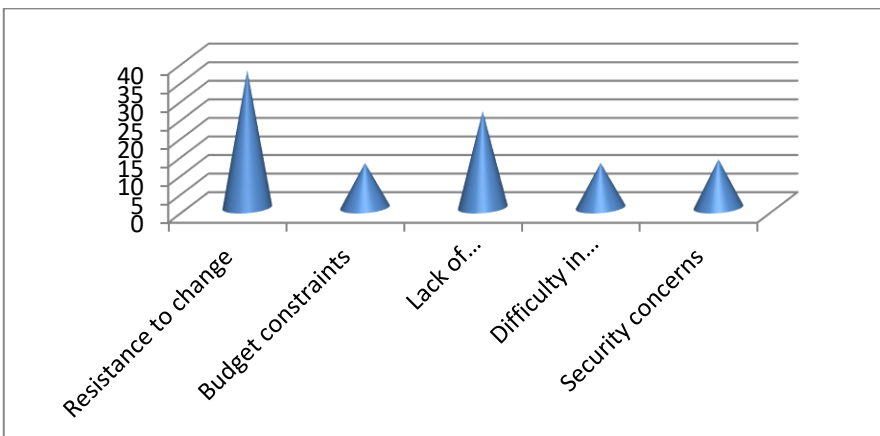


**4. What do you think is the most important factor to keep in mind when formulating a digital transformation strategy?**

Response: Employees of various organizations are of the view that the most important factor to keep in mind when formulating a digital transformation strategy is the use of appropriate technology for one’s business. It is easy to be influenced by the latest technology trends. However, implementing that technology which does not position with one’s business needs can lead to wastage of efforts and cost.



**5. What are the barriers that companies face when undergoing digital transformation?**

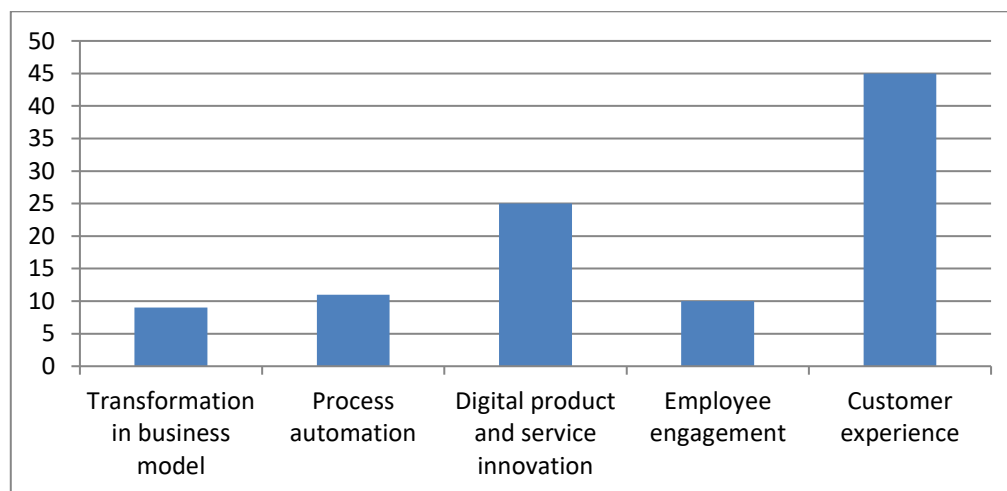


Most of the employees were of the opinion that resistance to change hinders fast adoption of data driven transformation. Many employees working in the organization fear digital initiatives as they think it may affect their workflow. They fear to adapt or have low confidence in themselves to be able to learn new technology. Further, many also fear that digital transformation may lead to downsizing as robots or automated technology may replace them.

Other barrier is the lack of talent or expertise to deliver the plan and implement it. Technological experts need to kick-start the journey towards the transformation but their scarcity can be an issue.

Other issues are lack of funds and difficulty in communicating and collaborating with the team to drive digital transformation.

#### 6. Investment in which domain is being done by your company?



Investment by organizations is mainly done in improving the customer satisfaction and elevating customer experience. This is later followed by innovation in the product/service. Companies also invest in automating the operational processes and transforming their entire business model.

#### 7. Which digital transformation technologies are being used by your organization currently? Name them.

Response: According to the respondents, organizations are embracing many digital transformation technologies. They are mobile technology, AI (Artificial Intelligence), ML (Machine Learning), Robotics, Big Data, Augmented Reality, Cloud Based Technology, API-based integration, RPA (Robotic Process Automation), etc.

Mobile technology in simple words is technology that is mobile or portable. It is two-way communication device which goes where user goes. Organizations should focus on creating portals, applications, etc. which can be operated on mobile devices. Mobile payments and mobile technology has helped in the evolution of financial market.

Artificial Intelligence or AI is the ability of a computer to think and act as humans. Through AI, machines simulate human intelligence processes. AI is extremely important in this ongoing digital age as AI processes vast amount of data at an unbelievable speed. This saves time, money, and enables in faster decision making.

Machine Learning or ML is a part of AI. It is the ability of a computer to imitate intelligent human behavior. It uses algorithms to perform a variety of tasks like analyzing data, predicting results, etc. ML helps organizations to make predictions, extract data, and learn complex patterns without human assistance. Logistics companies use ML, AI, and IoT to track vehicles and for predictive maintenance of vehicles.

Robotics is the use of robots to perform tasks without much human intervention. Robotics in business performs complex tasks with precision for many hours without being affected by fatigue. Robotics in health care helps to perform patient operations and enable patient care through automated diagnostics.

Big data is a digital technology where massive data is decoded to analyze it in real-time for making informed decisions. Big data is very much essential for businesses as they can understand customers' needs, interests, behavioral pattern for customization, personalization, and enhance their offerings to retain the customers.

Augmented Reality (AR) is the virtual augmentation of physical world. Businesses can use augmented reality

for 3D modeling during the design process of products. As a result, there is no need to develop a prototype. AR has the ability to elevate customer as well as brand experience and enthrall the potential buyers.

Cloud Based Technology enables users to access photos, files, and information through their devices which have been connected over the internet. Cloud computing enables businesses to have flexibility. It removes the hassles of downloading files manually, storing them, and reduces the time for retrieval. It minimizes the need for physical storage and saves hardware costs.

RPA or Robotic Process Automation is the use of bots for automating tasks that are repetitive. It helps to boost business efficiency. It helps in reduction of errors and precise operations.

## FINDINGS

The data reveals that a majority of the companies world-wide as well as in India are engaged in some or the other kind of digital initiative. It is extremely essential for companies to undergo digital transformation to stay competitive, to evolve, to strengthen work flow, accelerate innovation, and increase profitability.

Now, let us understand how different industries have undergone digital transformation.

**Digital transformation in Manufacturing** – Manufacturing industry is on track of digital adoption. The major driving force for manufacturing is customer satisfaction. Good management and funds remains strength for the transformation but lack of qualified workforce will pose a challenge in upcoming days. Manufacturing industries have adopted Industry 4.0 in machine communication to a great extent but focus has now shifted to creation of digital twins across locations. Current digitization is currently focusing on made to order as per customer requirements from a fixed set of product.

**Digital transformation in Transportation** – Transportation sector is yet to adopt digital transformation but they are planning adoption soon. Society and competition are the major forces which will drive this transformation as logistic industry is getting more and more tech savvy. Budget remains the major challenge due to thin operating margin of the industry.

**Digital transformation in Construction** – Construction sector can be stated as laggard in digital adoption. Primary respondents were from India. This sector is mostly controlled by the small business and is not highly organized. This has led to lack of uniform technology in the sector which has brought non uniformity. Lack of communication in the value chain and resistance to change may act as a barrier for future transformation of the industry.

**Digital transformation in Insurance and Government Sector** – Majority of the government respondents feel that they are on track of the digital transformation. The trigger for this industry comes from the government itself. Funds are the strength for this sector. The scale and nature of work has also generated the need for digitization. Security is the major concern for this industry. Data is highly sensitive in these companies. High risk in data management can pose certain challenges in adoption but the industry is moving faster towards digitization

**Digital transformation in Service Industry** – Respondents were from multi industries like banking, consultants, business processing outsourcing industry etc. These industry respondents feel they are pioneers in digital transformation. Availability of talent, funds, managements and culture all favor digital adoption in this service industry. Major concern raised by respondents during quantitative survey was the pace in change of technology. Though these industries are leading the digital change across industry, probability of latent challenges like complete shift of business modus operandi are at peak. The best example is block chain technology which can completely shift the nature of banking in the near future and may pose a big challenge to the existing banking giants.

**Some real world examples where companies have implemented digital strategies and have hugely succeeded have been studied.**

**1. Netflix** – Netflix provides its viewers with the latest content that everyone loves watching. It focuses on content creation, rather than acquiring content. It produces original content that has helped it to differentiate among its competitors. It also moved to cloud which improved customer satisfaction and increased brand loyalty.

2. **Amazon** – Amazon started with books but today it is a global marketplace where customers can shop any desired item. It uses robots and algorithms in its warehouse for quick deliveries. Customers can also opt for same day delivery. Amazon has used machine learning to learn more about customers' preferences. This not only improves shopping experience but also fosters loyalty of buyers.
3. **Tata Motors** – Tata Motors introduced customer configurator called as imaginator in car. Customers can now add or delete features according to their preference in the car. Just by visiting a kiosk in the showroom, they can select the feature they desire and customize their own car. Online purchase of cars during Covid-19 has accelerated this transformation for the organization.
4. **Dominos' Pizza** – Dominos' Pizza has transformed itself from a one store pizza outlet to an e-commerce company selling pizzas. It has used ML and AI to improve product quality and increase its operations through online and store selling. In some nations, Dominos has made use of drones and robotic cars to ensure timely delivery of pizzas.
5. **Coursera** – Coursera provides courses to many learners online. It uses mobile technology so that learners can access courses at anytime, anywhere. It also uses cloud computing, ML and big data to know about learners' preferences.

## CONCLUSION

Digital transformation is imperative for all industries to thrive, survive, evolve, and prosper. However, organizations should also focus on some key aspects. They need to understand the rationale behind undergoing the transformation. Is it just to upgrade the technology, or enhance customer experience, or to shift to an agile business model? Understanding the purpose will help in a smoother transition.

Organizations also need to develop digital transformation success metrics. Companies undergo digital transformation so that their employees can work more efficiently, customers have an elevated experience, and they can scale their revenue and generate profitability. The metrics should examine whether employee productivity has improved, whether company has been able to generate ROI (return on investment) post digital transformation, whether more customers are being reached and retained. Only then organizations will be able to measure the success of digital transformation efforts.

Further, corporates need to formulate effective digitization strategies for a successful transition. These include hiring competitive talent to drive the change, improving cyber security measures to avoid a data breach, developing user-friendly digital systems, driving digitalization efficiently so as to decrease the resistance to change.

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