15 From Legacy to Leader: Evolution, Pillars, and Lessons in Digital Transformation

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Abstract

Digital transformation is a priority for companies, governments and communities today. It is more than using digital tools; it is about changing how businesses work, their culture and how they create value. This chapter explains transformation by looking at what it means its history, reasons for it problems it faces and how to measure it. The chapter also talks about why digital transformation's needed due to globalization changing customer needs, more competition, new technologies and the need for businesses to be flexible and strong. However digital transformation projects face challenges. Some of these challenges include people not wanting to change not having the digital skills, cyber security risks not having enough money, complicated regulations, old systems and not having enough skilled workers. To know if digital transformation is working the chapter also looks at ways to measure it. These ways include looking at technology organization, operations, customer needs, finances and sustainability. By combining theory and real-life examples this chapter helps people understand transformation. It gives advice for researchers, business leaders, policymakers and students who want to make digital transformation work in today's digital world, where digital transformation is key. Digital transformation helps businesses stay competitive and understanding transformation is crucial, for success.

Keywords: Digital Transformation, Digitization, Digitalization, Business Transformation, Organizational Change.

Introduction

Digital transformation is when a company uses technology in every part of the business. The company is going to work and it is going to help its customers in a different way. This is also a change in the way the company does things. The company needs to be okay with trying things and learning from what it does wrong. Digital transformation is something that every business needs to do no matter how big or small the business is. You can hear people talking about this in every talk, meeting or article about how businesses can stay in a world that is getting more digital all the time.

However many people who run businesses do not really understand what digital transformation means. Is it, about putting the companys information on the internet? What do we need to do to make digital transformation happen? Do we need to create jobs to help us plan for digital transformation or should we hire someone to help us with digital transformation? The company needs to figure out how to make transformation work for it. Digital transformation is a deal and the company needs to take it seriously.

What parts of our business plan need to change? Is it really worth all the effort? When a company starts with transformation it should begin with a problem that needs to be solved a good opportunity or a big goal. There are reasons why a company might want to do digital transformation. The main reason is that they have to do it to survive. After the pandemic companies had to adapt to many changes. These changes included problems, with getting supplies pressure to get products to market quickly and changing customer needs. Digital transformation helps companies deal with these changes.

What is a Digital Transformation Framework?

While every digital transformation process varies depending on the challenges an organization faces, there are a few constants and some common factors from digital transformation case studies and frameworks that every business leader must take note of when embarking on digital transformation. Here are some key factors associated with digital transformation:

- Customer Experience
- Operational agility
- Culture and Leadership
- Workforce enablement
- Integration of Digital Technology

History of Digital Transformation

How Companies Have Integrated Digital Technologies in the Past

Digital transformation has gone through five unique eras in history where companies have been compelled to evolve their business models and operations to survive and thrive. Companies that failed to adapt went extinct.

Pre-Internet Era

- **1950-1989**

Here lies the birthplace of digital technologies and digital transformation era. Microchips and semiconductors made manual processes into digital processes.

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This marked the first major digital transformation era where companies worked towards the digitization of outdated processes. The world was in desperate need of transformation.

- 1958 Invention of the microchip and semiconductor

Post-Internet Era

- **1990 – 2006**

The next digital era was the era that brought about significant change and development of digital technologies. The internet heralded the beginning of transition from the siloed world into a globalized one. Connection, exchange, and accessing the public information on the internet has made the playing field more ubiquitous. Personal computers flourished during this era, where people got terminals to the World Wide Web in their homes, and the first social networks came into being.

This era brought about changes to the existing processes and operations of businesses with the advent of the Internet and access to customer data. Most importantly, it forced businesses to change their way of interacting with the customers since the internet changed everything related to interaction, search, and buying.

- 1990 Internet became publicly available
- 1998 Google was founded
- 2000 Half of US households had a personal computer
- 2004 Facebook was founded
- 2005 There were 1 billion internet users worldwide
- 2006 AWS was developed

Mobile Era

- **2007 – 2019**

Just when businesses were getting accustomed to the new internet and its effect on their business, yet another foundation shift occurred with the release of the iPhone and the move to mobile.

This resulted in a whole new world of possibilities, new business models and the launch of new social/mobile channels, resulting in another spike in digital transformation.

The visionary writing of Marc Andreesen, “Why Software is Eating the World,” clearly described the future that would consist of software disrupting every industry across the globe and the advantage that would be enjoyed by software centric companies.

Ironically, this was also the time period when the phrase “Digital Transformation” was coined. It gave an official term for the cycle of changes that were required for businesses to survive in the changing environment.

- 2007 – iPhone released ushering in the age of mobile
- 2011 - Why Software is Eating the World
- 2013 – The phrase “Digital Transformation” coined

Post-Pandemic Era

- **2020 – 2022**

The final era was the post-pandemic era. The pandemic pushed companies to think differently about their customer engagement as they moved to a touchless, remote environment.

This brought about changes in business strategies and forced businesses to move the digital transformation efforts from board rooms to ground level. This is what many businesses needed to help them improve the customer experience.

- 2020 Global Pandemic
- 2022 Digital Transformation spending at $1.6 trillion

Generative AI Era

- **2022 - Present**

This is the current era that we are living in and this is called the era of Generative Artificial Intelligence or Gen AI. The global pandemic fast-tracked digital innovation as companies were forced to rethink their business strategies to serve their customers in an environment where non-contact transactions were a must. In addition to that, the banking sector has adopted various digital technologies such as artificial intelligence powered chatbots and advanced fraud detection software to improve customer service delivery and increase security.

New technology and the developments in AI and machine learning have a crucial role to play in digital transformation efforts. While the development of AI could warrant a timeline all on its own, improvements in machine learning and tools such as ChatGPT definitely will cause a lot more change. This brought about changes in the business models where firms had to shift their digital transformation efforts from the board room to the front line. The speed was all that was required to drive companies into implementing an improved customer experience.

- **November 2022** OpenAI launches ChatGPT, a smart AI chatbot that can talk like a person. This is a deal because it shows how far we have come with making computers understand what people are saying.
- **December 2022** ChatGPT gets one million users in five days. This is the fastest any app has ever grown.

- **2023 Generative AI** becomes very important in industries. It is used for creating content and for business analysis. This year people also start talking about how we should use AI in a way.
- **March 2023** Meta's LLaMA model gets out to the public. People start arguing about whether AI should be open to everyone.
- **April 2023** Amazon says it has made a language model called Bedrock that can generate and understand code.
- **May 2023** OpenAI makes an iPhone app for ChatGPT. This app lets you see your conversations and talk to it using your voice.
- **November 2023** OpenAI has its developer day. It says it will make custom GPT models for uses.
- **December 2023** Midjourney, a tool that makes pictures using AI becomes very popular.
- **December 2023** Google introduces Gemini, its most powerful AI model yet.
- **2024** People think this will be the year that generative AI becomes more established. It should help people be more productive and innovative.
- **February 2024** OpenAI releases Sora, an AI assistant that can have conversations and help, with tasks.
- **April 2024** Meta launches LLaMA 3 an improved open-source large language model that Meta made.

Digitization, Digitalization, Digital Transformation

The world is changing fast with new technology. We hear a lot about digitization, digitalization and digital transformation.

What is Digitization?

Digitization is when we take things and turn them into digital things. For example digitization is like taking a piece of paper and scanning it into the computer so it becomes a document like a PDF file that we can store in the computer. Digitization is basically the process of converting objects in their physical form to a digital form such as the case of document scanning whereby information in its physical form in the paper is converted to a digital form.

Digitization involves organizing information in forms of data units known as bits. Analog information is encoded in zeroes and ones that can be processed, stored and transmitted by computers. Digitization process forms the basis of data recording and thus it is a vital element in digital technologies.

What is Digitalization?

In digitization process, physical objects or information are stored in computers, however, the process whereby this information will be used remains unchanged and this is what makes it different from digitization. In digitalization process, digital technologies and digitized data is used to facilitate certain processes.

Whereas digitization entails conversion and data recording, digitalization is concerned with development of processes and change of workflows in order to improve manual systems. For instance, digitized data about the customers from different sources can be used to automatically analyze their behavior.

What is Digital Transformation?

Closely related to digitization and digitalization, digital transformation's primary aim is to integrate technology to most, if not all, business operations. In businesses use transformation digital technology in all areas to make workflows more efficient and create value for customers. This means making changes to how the company works and thinks by using tools. Digital transformation helps businesses keep up with changes in their industry.

Digitization vs. Digitalization vs. Digital Transformation

Some people get confused about digitization, digitalization and digital transformation.

- Digitization is about turning things into form.
- Digitalization uses tech to improve things.
- Digital transformation is, about using tech to change how a business works.

Nevertheless, there are differences between these three concepts, and these differences relate to certain aspects such as their aims and results. First of all, let us consider these aspects:

- The aim of digitization is to record the information in computers by translating from an analog to a digital format. It implies the process of data encoding, which will be later used in digital technologies.
- Digitalization implies information processing and how it can be improved by using digitized data and automating the existing processes.
- Digital transformation is related to the usage of knowledge and its integration in all organizational processes to enhance customer interaction and create value.

Although digitization and digitalization are not linear stages in digital transformation process, they are the stages of this process, which lead to digital transformation. The highest stage of the process, digital transformation, starts with data encoding into the system (digitization), and then computer uses this information to improve the process (digitalization). With the usage of digital technologies and their integration in the whole company workflow, digital transformation happens.

The three concepts above are very important when considering the changes in the business environment for companies. In the following section, the possible benefits of each of the processes to your company will be discussed.

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Digitalization in Business

From what was previously defined, digitalization uses digital technology to enhance process flows. Digitalization in business can be applied to achieve various objectives like increasing efficiency, cutting down costs, reducing human error, and analyzing data. Companies can generate additional revenue streams using digitalization.

One good example of digitalization can be seen in the banking sector where, from being able to transfer money through branch transactions to other receivers, banks have managed to develop systems where customers can make real-time transfers without having to visit the bank. The data of one’s application forms are digitized and used to make account transfers. This makes work easier for both the company and its customers in the business.

Digital Transformation in Business

The trend of digital transformation has significantly impacted the operations of businesses. Digital transformation involves the integration of digital technology in all aspects of the business to add or create new value to their customers. Sometimes, businesses are created from digital transformation. For instance, Spotify has made it so we do not need to collect CDs to have a music library. Now we can stream our music anytime anywhere with just a few clicks on Spotify.

An important thing about transformation is that it is different, for each organization. Businesses must know what technology works for them. They have to choose areas to improve with technology to make their business grow using transformation.

Digitization in Business

Digitization can be viewed as a basis for digitalization and digital transformation. Digitization methods have been employed by companies to increase effectiveness in data usage and processing. For example, by digitizing data using scanning of hard copies of customer applications, the company will be able to store the data in computer systems and further process it to gather demographic details of customers. Digitization makes it possible to transform data into a tool for improving company's performance and earnings.

Pillars of Digital Transformation

- **Customer experience**

In today’s organizations, there is an emphasis on the "voice of the customer" and the importance of taking the projects from the customer's viewpoint. The "voice of the customer" entails knowing customer preferences and improving upon products and services based on them. Customers in the era of digital disruption have access to information that increases their awareness and raises their standards regarding products and services. Incorporation of the voice of the customer in business activities needs an understanding of customer preferences and how to surpass them.

- **Business Model**

An organization needs to know what it wants to do and how it will make money in the world we live in today. The company also has to think about how it will use computers and the internet to achieve its goals. This helps the organizations products and services be as good, as those of the companies and it makes sure that customers are really happy. To make this happen the organization has to change the way it is run how things are done and what it spends its time, energy and money on. The organization has to focus on the things that're really important like time, effort and budget so it can make the best use of these things and achieve its vision and business model.

- **Cultural and Operational Transformation**

To make sure a companys goals and digital plans work well we need to create a culture of trust, openness and teamwork. We have to make a workplace where everyone and all partners are always learning, working together getting better and coming up with ideas. Companies should give people in charge of plans many chances to learn new skills and improve old ones. Leadership is key, to making sure everyone understands whats expected of them. The whole company can change and improve. The digital strategy and company goals must. Everyone must work together to achieve them. Leadership must set goals for all employees to ensure they are working towards the same objectives.

- **Digital Technologies**

The most uncertain aspect of digital transformation is the technology that it needs because it witnesses maximum disruptions and requires a lot of attention, proper planning and monitoring. The technology needs to be state-of-the-art in three main aspects: internet, cloud and mobile. It is the breathtaking developments in networking, storage and computing that fuel this.

Digital Transformation Challenges

Organizations all over the world have embraced Digital Transformation, and the remarkable success that it has enjoyed should not be underestimated. However, any organization which is interested in adopting a digitalized approach will need to be aware of the challenges posed by Digital Transformation. Digital transformation jobs help in overcoming these challenges because of the need for expertise in the same.

The main challenges in Digital Transformation are:

- **Cultural Resistance:** One of the biggest challenges of Digital Transformation in organisations is the cultural resistance that may arise within the working environment. This resistance to change may come from the employees themselves. They might not like the change in how they work.

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The organisation may also resist change. Businesses often have ways of doing things that are hard to change.

- **Systems:** Another big challenge of Digital Transformation is dealing with outdated systems. Many organisations have systems that do not work well with new technology. This makes it hard for organisations to fully go digital. For example most banks have systems that're decades old. Upgrading these systems through Digital Transformation in the Banking sector is especially difficult. Additionally upgrading these systems will cost a lot of money. Take a lot of time. It may require changes to the operational budget.
- **Cyber security:** Because organisations use a lot of technology they are more at risk of cyber threats. Cyber security is a problem, with Digital Transformation. Cyber-attacks can cause data breaches, financial losses and damage to an organisations reputation. Organisations need to invest in cyber security measures. They must make sure employees understand how to protect data. Organisations should train their employees on cyber security practices to prevent data breaches. Organisations must make cyber security a priority. Organisations need to take care of their cyber security.
- **Management of data:** Digital Transformation needs a significant amount of data to be collected and analyzed. But data management is quite difficult for most companies. It comprises of controlling data quality, data security, and governance. Industries with regulations face difficulty managing data.In these industries data privacy and security are critical. Digital Transformation requires data management. Organisations must handle data properly to succeed in Digital Transformation.
- **Talent acquisition:** When a business decides to use computers and technology to do things it needs people with different skills. These skills include making software looking at data and designing things that're easy to use. But it is really hard to find people with these skills so companies have a tough time finding and keeping the people they need to make their Digital Transformation plans work.
- **Customer experience:** Digital Transformation can make a difference in how customers feel about a brand. To do this companies need to really understand what their customers want and like. They need to buy tools and technology that help them learn about their customers and make things that customers will like.

Steps to Overcome Digital Transformation Challenges

The Digital Transformation Challenges we talked about can seem like big problems. But learning how to find get ready for and overcome these problems is very important. These seven steps that a company can take to overcome these challenges:

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- **Define your strategy:** The first step to make digitalisation easier is to have a clear plan for what you want to do with computers and technology. This means you need to know what you want to achieve and what tools and processes you will use to get.
- **See if you are ready:** You need to check if your company is ready for Digital Transformation. This means looking at the technology you have the skills of your workers and the way your company works. This helps you find things that need to be improved before you start the process.
- **Make a plan:** After you have a strategy and know if you are ready you need to make a good plan for how you will do things. This means knowing what projects you will do what you need to do them and when you will do them.
- **Build a team with skills:** Digital Transformation needs a team with people from many different parts of the company. This team should have people from technology, operations, money, marketing and more. This team needs to be able to work to make the transformation happen and make sure everyone knows what is going on.
- **Talk to the people who care:** It is very important to talk to the people who will be affected by Digital Transformation. These people include customers, workers and partners. You need to tell them what is happening and keep them up, to date on your progress.
- **Help people think in ways:** Digital Transformation needs a company culture that likes new ideas. This means you need to help your workers feel safe to try things take risks and think differently. If they fail they should see it as a chance to learn and get better.
- **Always check and adjust:** Digital Transformation is a process that needs to be checked and changed all the time. This means you need to look at how you're doing find things that need to be improved and change your plan if you need to. You need to keep doing this to make sure your Digital Transformation plan works.

Examples of how to resolve Digital Transformation Challenges

Here are some real Digital Transformation examples where organizations like Walmart, Domino’s Pizza and Ford Motor Company have been able to resolve Digital Transformation Challenges:

- **Walmart:** One of the largest retailers that initiated the concept of Digital Transformation. In order to resolve the issues related to digitalization, Walmart implemented the use of cloud-based platforms where all the systems were integrated and inventory could be tracked in real time and analyzed to make smart decisions. This process of Digital Transformation

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solved not only the operational challenges but also enabled the company to realize many benefits of digital transformation in retail.

- **Domino's Pizza:** Domino's Pizza started a Digital Transformation plan to make the customer experience better. They made an app that let customers track their pizza from making to delivery. The company also used Artificial Intelligence technology to find the delivery routes and reduce delivery time.
- **Ford Motor Company:** Ford started a plan to make its manufacturing process better using technology. The company used Internet of Things sensors to collect data, on how well their production facility was doing. This helped them reduce the time their machines were not working and made their production process more efficient. Ford also created a dashboard to keep an eye on the production line in real time. They used these tools to make sure their factory was running smoothly and making cars efficiently. The digital dashboard helped the company make decisions on how to improve their production process. Fords use of technology helped them stay competitive in the car manufacturing industry.
- **Maersk:** Maersk, a shipping company started a Digital Transformation plan to make its operations more efficient and transparent. They used blockchain technology to make an decentralized shipping data database, which allowed faster and more accurate cargo tracking.
- **General Electric:** General Electric implemented a Digital Transformation strategy related to the industrial Internet of Things. The company used sensors and data analysis to optimize its production processes and minimize downtime. An IoT platform was also developed by the firm to track the status of its machinery.
- **Nordstrom:** Nordstrom, a high-end department store started a plan to change the way it uses technology to make shopping for its customers. They made an app that lets customers look at products buy things and get product suggestions that are just for them. The store also used a kind of software that helps them keep track of how many items they have in stock.
- **Sephora:** Sephora, a retailer that sells beauty products also started a plan to change the way it uses technology. The goal was to make shopping for its customers. They made an app that lets customers try on makeup virtually. The app also gives recommendations based on what type of skin the customer has and what they like. Sephora also used Artificial Intelligence technology to suggest products to customers. This made the shopping experience more personal, for them.
- **Burberry:** Burberry, a luxury fashion brand started a Digital Transformation plan to make an experience for its customers. They used data analysis to get

customer information and make marketing campaigns. Burberry also invested in an app that let customers shop online and in-store.

- **McDonald's:** McDonald's developed a Digital Transformation strategy which was aimed at improving the ordering and delivery system of the company. The firm developed an application allowing customers to order meals in advance and pay for them. Also, McDonald's invested in fast delivery technology.
- **Royal Caribbean:** Royal Caribbean, a cruise line came up with a plan to make things better for people who take their cruises. They wanted to make the experience more fun for their customers. So they made an app for people to use. This app lets customers book things to do on land make reservations for dinner and even track where their suitcases are. Royal Caribbean also spent money on something called Radio Frequency Identification technology. This technology helps people get on and, off the ship faster. It also reduces the time people have to wait in line. Royal Caribbean did this to make the customer experience better.

Conclusion

To sum it up Digital Transformation is a process that needs careful planning, execution and management. The biggest Digital Transformation Challenges are related to people and culture. All the people, in a company must be willing to change and invest in the resources to succeed in this digital age. Also new technologies are coming out fast which can make it hard for companies to keep up. Companies must be flexible and able to adapt to technologies as they come out. Overall Digital Transformation gives businesses opportunities and challenges. By understanding and solving the challenges companies can use Digital Transformation to make their operations more efficient improve customer experiences and drive innovation in the Digital Transformation process of the company which's the main goal of Digital Transformation.

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