The role of big data in digital transformation

Paria Samadi-Parviznejad

1 Research Expert of Academic Center for Education, Culture and Research, Tabriz, Iran; Emil Address; psamadi@aut.ac.ir

ABSTRACT

Received: 13 March 2022
Reviewed: 09 May 2022
Revised: 13 May 2022
Accepted: 20 May 2022

Keywords:
big data, digital transformations, transformative technologies, data mining

Today, we are creating and collecting more information than ever before. All of this data comes from a variety of sources, including social media platforms, our phones and computers, health gadgets and wearable technologies, scientific tools, financial institutions, and more. When combined with big data, it gives businesses the opportunity to understand consumers better than ever before. Businesses are now using specific information as well as insights about customers and their behavior from the data they collect to transform themselves while simultaneously changing their sales and marketing strategies. Big data is at the center of all this. Digital transformation is an inevitable necessity and no organization or business will be safe. In the next few years, many existing businesses will be removed and new businesses based on digital technologies will be formed, and the digital economy will show off its true and complete meaning. Paying attention to human factors and their impact on the success of a digital transformation program is also very important. Correct leadership of the digital journey and change management and the culture governing a business are among the most important factors in the success of a digital transformation program. Undoubtedly, big data and its strategic management is one of the vital capabilities in achieving the success of a digital transformation program. Because the success of a business will be highly dependent on the level of intelligence regarding everything (from customers to competitors and the market situation, etc.). In this research, the dimensions and roles of big data management in digital transformations are investigated and the place of this technology among transformational technologies is examined and analyzed.
1. Introduction

Digital transformation is a dramatic change in the performance of an organization or a country centered on transformative technologies. Internet of things, cloud computing, mobile applications, social media, virtual and augmented reality, data analysis, artificial intelligence and blockchain are among the most important types of transformative technologies. Organizational digital transformation means building an organization at the level of the digital age (Nozari et al., 2021). In other words, organizational digital transformation means creating new organizational capabilities that can guarantee the success of the organization in the digital age. In a digital business, we need to have a digital transformation strategy in order to create a pleasant experience for stakeholders, especially creating a digital customer experience.

In the current digital economy, the effects of digital transformation cannot be achieved without digital transformation, which means transformation based on digital technology (Nahr et al., 2021). Big data is one of the loud words that has appeared in the past few years and has become a cliché in certain circles. This can be a scary concept for companies that don't understand it and don't know how to use the power of big data analytics for their organization's digital transformation. Big data is a large amount of data collected by organizations every day (Nozari & Szmelter, 2018). Big data is characterized by its huge volume, variety and complexity, which makes processing using traditional data management methods difficult. For this reason, big data requires new and innovative methods of data processing, and this is where data analysis begins. Analytics, big data and its processing help organizations extract useful information from them – information that organizations can use to make marketing and business decisions while undergoing a complete digital transformation (Nozari et al., 2022). Digital transformation has helped companies embrace change and remain competitive in an increasingly digital world.

Big data analytics also allow businesses to have detailed information about specific or different customer groups. This can be informed about what they do on your website, what they buy, how often they buy it, and whether they buy similar products in the future (Ghahremani Nahr & Nozari, 2021). Using all this information, businesses can make changes to meet the future needs of their customers while setting goals for how to meet these needs. Therefore, to complete their digital transformation, businesses must use big data and data analytics. In this study, after examining the dimensions, components, and tools of digital change, the role of major data in digital developments is discussed.

2. Digital Transformations

Digital transformation is the integration of digital technology into all areas of a business, leading to fundamental changes in the way a business operates. 90% of companies do business in the cloud. As companies move data to the cloud, much of what is being done is duplicating existing services in digital form. But true digital transformation is much more than that, and can actually be transformative across the organization, creating a technology framework to transform these services and data into actionable insights that can improve almost every aspect of an organization (Aliahmadi et al., 2016). This transformation affects all levels of the organization and brings together data from all areas to work together more effectively (Nozari et al., 2016). For many companies, the driver of digital transformation comes down to cost. Moving data to a public, private or hybrid cloud environment reduces operational costs, including hardware and software costs, while freeing up team members to work on other projects. Some of the most important benefits of digital transformations are:

- **Advanced data collection**: Most businesses collect mountains of customer data, but the real benefit is optimizing this data for analytics that can drive the business forward. Digital transformation creates a system to collect the right data and perfectly combine it with business
intelligence at a higher level. This method enables different functional units of the organization to transform raw data into insights at different touch points. By doing so, a single view of customer background, operations, production, finance, and business opportunities is created. It is important to evaluate how you collect, store, analyze and share customer data as part of this process. When you're reviewing your technical support, you should ensure that sensitive data going in and out of your customer relationship management (CRM) software and other platforms is protected with a layer of SaaS data encryption (Aliahmadi et al., 2015).

- **Stronger resource management**: Digital transformation integrates information and resources with a set of tools for business. It integrates company resources instead of fragmented software and databases. The average number of applications used in enterprise businesses in 2020 is 900. Digital transformation can integrate applications, databases and software into a central repository for business intelligence. Digital transformation is not a department or functional unit, but includes all areas of a business and can lead to innovation and process efficiency across units. From sales and marketing to finance, etc., every department uses sensitive data. Optimizing and securing data wherever it flows is important, while equipping teams with easy-to-use tools to do their jobs (Aliahmadi et al., 2013).

- **Data-driven customer insights**: Data can be the key to finding customer insights. By better understanding your customers and their needs, you can create a customer-centric business strategy. Data enables strategies to deliver more relevant, personalized, and agile content.

- **Better customer experience**: Consider how digital transformation can not only improve the efficiency of your teams, but also bring more seamless and intuitive experiences to your customers. These communications range from email to user portals, digital products, and even the speed at which you reach new potential customers. Customers have high expectations for the digital experience. Consumers are used to having endless choices, low prices and fast delivery. Customer experience is the new battleground for brands. According to Gartner, more than two-thirds of companies say they compete mostly on customer experience.

- **Encourage a digital culture**: Digital transformation encourages a digital culture by providing team members with the right tools – tailored to their environment. While these tools provide a unique way to collaborate, they also contribute to the digital movement of the entire organization. This digital culture change is crucial for businesses to remain sustainable. Upskilling and digital learning enable team members to take advantage of digital transformation.

- **Increasing agility**: Digital transformation makes organizations more agile. Using the world of software development, businesses can increase their agility with digital transformation to improve speed to market and adopt continuous improvement strategies. This enables faster innovation and adaptation while providing a path for improvement.

- **Improving productivity**: Having the right technological tools that work together can simplify workflow and improve productivity. Automating many manual tasks and integrating data across the organization enables team members to work more efficiently. Obviously, in addition to these, there are other benefits to applying digital transformation in business, but the mentioned items are the most basic benefits that a wide range of businesses can benefit from.

### 3. The relationship between big data and digital transformation

One of the biggest challenges of using big data and data analytics in your business is the data itself. Many businesses collect far more data than they need. In some cases, they also collect the required types of data. As the volume and type of data that a business collects increase, so does the complexity of analyzing this data. So, businesses should limit the types of data that are most useful to them and can help reduce the amount of data collected in the process. Before collecting data, a business must identify the biggest challenges it faces in the short and long term. Using this list of challenges, a business can gather its data to gather useful insights that can drive decision-making and success (Sadeghi et al., 2021).
As more businesses realize the value of following this formula, the demand for employees with data analytics skills is growing. This is one of the reasons why data science and data analytics skills are in high demand. For other reasons why these skills are in high demand, you can visit this website which provides more information and insight. Goals like "improve the bottom line" are not specific enough. Instead, a business should focus on how and what. For example, it can set specific goals such as reducing operating costs and customer retention, both of which help improve the bottom line (Fallah & Nozari, 2020). Once you've identified your goals, you should focus on gathering data sets that will help you achieve those goals. For example, if you want to acquire new customers, you can focus on the data that comes from your social media platform and sales channels because this is the data that is likely to tell you the effectiveness of customer acquisition strategies. Big data and data analytics can hinder digital transformation in some cases. This often happens in organizations where data is not properly managed. Access to more data If an organization cannot organize and manage this data, it means that it is easily exploited. To see the value of advanced analytics and machine learning models, the data fed into these systems must be reliable. For this reason, it is very important not only to collect the right data but also to manage it in such a way that it is not contaminated by data from unrelated sources. By ensuring that the data can be trusted first, organizations can get the most out of using this data (Nozari et al., 2022).

4. The difficulties of digital transformation

Businesses today are facing digital transformation and will become irrelevant until they succeed in digital transformation. But digital transformation is expensive and difficult and requires an investment that may be urgently needed elsewhere in the short term. Many organizations are digitizing—converting something into a computer-useable digital format—or even digitizing and using digital data and technology to improve business operations. For example, automating the purchasing process and using algorithms to make purchasing decisions and analytics software to provide insights is one example of digitizing processes and using data and digital technologies to improve business operations. Of course, this type of digitalization affects only the purchase process and is not a digital transformation. To succeed in digital transformation, the entire business must be involved. To take full advantage of the opportunities that digital technologies can offer, there is a need to fundamentally redesign, then deploy, business models, activities, processes, and competencies (Aliahmadi et al., 2022).

Digital transformation is very slow, and it is 5 times more likely to fail than to succeed, and there are complex reasons for this. This shows how many organizations have branched out over the last 20 years. The so-called "eight separate organizations" refer to the barriers to change in old business models. The distinct areas include processes, technology, data, culture, strategy, structures, skill sets and management attitudes. With digital transformation, an organization with three or four separate areas is seriously in trouble from the start. Digital transformation has another side. Studies in the field of digital management show that successful organizations in digital transformation are from sectors and regions around the world and are not limited to American and Chinese high-tech companies. Organizations' investment in digital talent differentiates successful organizations from other organizations. These organizations create a technology platform, an integrated combination of digital capabilities, which enables agility, speed in these organizations and makes them leaders in other business opportunities. These organizations can innovate when it comes to digital products and new business models, and through learning and integration, they are able to create new digital capabilities and businesses (Nozari et al., 2022).

5. Conclusion

While businesses need to hire a data analyst to make sense of the vast amount of data collected, small businesses that collect small amounts of data or those that cannot afford to hire a data analyst do not
have to go this route. There are many tools and platforms that allow business owners to collect data, segment it, manipulate it, and organize it in a way that their teams can evaluate and understand. Additionally, these tools can help small business owners see the impact of decisions they make using this data, as well as current trends and forecasts. When a business has the tools to analyze large or small sets of data, either through tools or by hiring a digital analyst, the company can take great strides in its digital transformation. This digital transformation can be used to gain a competitive advantage in a given market.

References


This work is licensed under a Creative Commons Attribution 4.0 International License.