Research Article

Educational
Administration
Theory and Practice

Amazon and Netflix: IT strategies and the challenges they faced in implementing them

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ARTICLE INFO	ABSTRACT
	In the current digital era, technologies have become a fundamental part of business growth and innovation. The objective of this research is to analyze the information technology strategies implemented by Amazon and Netflix, as well as the main challenges they faced during their implementation, in order to understand their impact and the business success of both companies. The methodology used consisted in the review of bibliographic sources, followed by a detailed analysis of the information, due to the fact that the article is of a documentary type with a descriptive level, which allowed understanding the object of study. One of the main findings is that both Amazon and Netflix managed to align their IT strategies with their business objectives through the implementation of innovative technologies, such as cloud computing, artificial intelligence, among others. However, they faced significant challenges, such as global regulations, technological problems, among others. **Keywords:** Amazon, challenges, implementation, information technologies, Netflix.

1. Introduction

Nowadays, companies are competing in globalized markets to be leaders in their sector and one way to achieve this is by implementing Information Technology (IT) to obtain competitive advantages and this can be achieved by implementing tools in business processes to make decisions quickly and easily.

IT refers to the set of knowledge, tools, and technological solutions that allow ordering, optimizing, and enhancing information and communication processes, including the development of *hardware*, *software*, telecommunications, and the equipment involved in data exchange (Jaraba, 2023).
Therefore, IT is very important in the digital transformation of organizations, allowing greater efficiency, flexibility and competitiveness in a globalized world.

On the other hand, according to the Mexican Institute of Finance Executives (IMEF), the competitiveness of companies is an important factor that contributes to the socioeconomic growth of a country. This means ensuring that the country has the resources to become self-sufficient, avoiding foreign investment or the failure of local Small and Medium-sized Enterprises (SMEs) (IMEF, 2022).

In this context, the inability to incorporate innovative technologies into business processes can significantly limit an organization's potential and increase the risk of failure, a clear example is the companies such as BlackBerry and Blockbuster that demonstrate that a lack of technological adaptation can lead to failure. On the contrary, companies that implement technologies effectively manage to consolidate themselves in dynamic and constantly changing markets, a clear example are companies such as Amazon and Netflix, which owe part of their success to the strategic use of IT.

In such a way, all companies, regardless of their type, can use IT to make the most of the data that is generated daily. However, to achieve this, it is necessary for organizations to implement changes or adjustments at the enterprise level, such as having qualified personnel and improving their facilities, which will allow them to optimize the use and benefits of these tools.

2. Literature review

A review of the literature related to the topics of this project was carried out, thus providing a knowledge base as a basis for the realization of the research.

This research will explore various dimensions of the Amazon and Netflix companies, addressing key aspects of their operation and strategies:

☐ History and evolution.
☐ Identification of key technologies implemented.
☐ Alignment of IT strategies with business strategies.
☐ The customer experience.
☐ Main challenges they faced in the implementation of their IT.

Amazon

Amazon is an e-commerce and cloud services company founded by Jeff Bezos in 1994. It is known for its wide range of products and services, from selling articles, books, and electronics to streaming music and movies. Amazon has become one of the largest and most successful companies in the world, revolutionizing the way people buy and consume goods (García, n.d.).

Table 1 shows some of the important dates in the evolution of the Amazon company.

Table 1.History of Amazon.

Year	Description
1994	Jeff Bezos founded Amazon.
1995	The company begins selling books online, becoming one of the first major online retailers.
1996	Expands into music, video, and other products, launching its first *website*.
1999	Listed on the stock exchange
2000	It expands into new product categories, such as toys and electronics, and launches its *website* in other languages.
2003	It introduces its Prime affiliate program, which offers unlimited free two-day shipping on millions of products, plus other exclusive perks.
2006	It continues to expand and launches its Kindle e-reader and opens a physical store in Seattle.
2008	It launches its cloud computing platform, Amazon Web Services (AWS), and begins offering the streaming service to customers around the world.
2011	The company continues to grow its presence in new markets, acquiring online footwear retailer Zappos and launching Amazon Music and opening Amazon Spain.
2017	It continues to be a leader in the e-commerce space, introducing Amazon Prime Now same-day delivery and Amazon Go physical stores. As one of the most valuable companies in the world, it continues to invest heavily in new technologies and services for its customers
2021	The Covid pandemic makes Amazon one of the main beneficiaries at the business level, with sales of 470,000 million.

Note: Own elaboration based on (Arimetrics, 2024).

According to the table above, it is evident that Amazon has been innovating over the years, as it is currently using advanced technologies such as Artificial Intelligence (AI), machine learning, data analysis, Enterprise Resource Planning (ERP), Customer Relationship Management (CRM), the Internet of Things (IoT), among other technologies. This allows Amazon to deliver products faster, increase workplace safety, and improve the efficiency of the entire logistics network. In addition, it uses Amazon Web Services (AWS), which provides a reliable and highly scalable infrastructure that supports key technologies throughout the delivery process, including Amazon Monitron which uses data analytics and machine learning to predict equipment failures and reduce downtime, and Amazon SageMaker being a scalable platform that allows data scientists to create and deploy AI and machine learning models (Amazon, 2024).

In addition to the above, it can be said that Amazon has managed to specialize in the technologies that generate the greatest benefits, by aligning IT with the company's operations. One of them is its platform called AWS, because it not only plays a crucial role in its internal operations, but also acts as an engine of innovation, efficiency and growth for various industries, benefiting and offering them innovative solutions.

In Amazon's case, the strategic alignment between corporate governance and IT governance is reflected in the close collaboration between the technology and business teams, who work together to implement solutions that support the company's overall strategy. A clear example of this is the adoption of AI technologies to optimize product recommendations to their customers. This strategic integration has allowed Amazon to not only stay at the forefront of the industry, but also diversify its operations in key areas such as AWS, Amazon Prime, and its fast delivery service. In addition, thanks to technological integration, the company efficiently manages its global supply chain and responds with agility to market demands, thus consolidating its leadership in the e-commerce sector (Jaimes, 2024).

In addition, it focuses on offering an efficient, personalized and comfortable service, prioritizing customer satisfaction at each stage of the purchase process and this is done in two aspects, the first is the digital service experience through the management of the application and the second is the product experience where quality comes in, delivery service, order options and returns (Mendoza, 2023).

In summary, Amazon employs personalization strategies in its product recommendation, offer, and pricing engine, while improving the shopping experience through personalized and intuitive interfaces, this is done by implementing the aforementioned emerging technologies such as AI, AWS, CRM, ERP, among others.

But it hasn't all been easy for Amazon, as it has faced technological and regulatory hurdles in expanding its IT infrastructure, especially as it grew from an online store to a global enterprise in areas such as e-commerce, cloud, and services. Some cases are:

☐ Amazon could face an investigation under the European Union's technological rules (Forbes, 2024).
☐ Mexico's Federal Economic Competition Commission (Cofece) conducted an investigation into Amazon, noting that the company had established barriers that affect competition in the e-commerce sector. In its conclusions, Cofece determined that Amazon has a dominant position in the market, in addition to offering complementary services, such as *streaming* platforms. He also highlighted that these companies operate with a non-transparent bidding system and restrict logistics options, which could limit competitiveness in the sector (Vaquero, 2024).
☐ Lengyel (n.d.) mentions that Amazon has faced certain challenges in IT implementation, some of which are the scalability and capacity of servers, internal systems to implement services quickly, and technological competence and integration.

Overall, Amazon has had to overcome technological and regulatory barriers through continuous innovation, adaptation to local and international regulatory frameworks, as well as heavy investments in advanced information technologies.

Netflix

Netflix is a subscription-based *streaming* service that allows its members to watch series and movies on a device with an internet connection. Depending on the plan you have, you can also download series and movies on smartphones or tablets with Android, iOS and Google Chromebook devices, to watch them without an Internet connection (Netflix, 2024).

Table 2 shows some of the important dates in the history of the Netflix company.

Table 2.History of Netflix.

Year	Description
1997	Reed Hastings and Marc Rudolph, two *software* engineers, found Netflix.
1999	Adopt a monthly subscription model: unlimited rentals for a single monthly fee.
2000	The company introduces a personalized movie recommendation system, which uses user ratings of previous titles to predict future choices.
2005	It reaches 5 million subscribers.
2007	Start *streaming*. By then, subscriptions were increasing by leaps and bounds. Three years later, the service had surpassed 20 million subscribers.
2008	The company makes alliances with various companies to reach more audiences. With this, Netflix comes to Xbox 360, Blu-ray players, and set-top boxes.
2010	Netflix's *streaming* service is coming to mobile devices.

2011	It begins with its incursion into Latin America and the Caribbean. The service is also so popular that the first "Netflix" buttons appear on remote controls.
2012	Netflix's first original content debuts. In addition, this year Netflix reaches 25 million subscribers.
2014	In addition to reaching the milestone of 50 million subscribers, Netflix expands its coverage: it reaches Austria, Belgium, France, Germany, Luxembourg and Switzerland.
2016	It is expanding massively: it reaches 130 new countries, bringing it to more than 190 countries and 21 languages. Also in 2016, the company added the popular "Downloads" feature to watch content without the need for the internet.
2021	The Covid pandemic is a major blow to the economy, but *streaming* services such as Netflix are benefiting, because more people are sheltering in their homes. Therefore, the platform exceeds 200 million subscriptions.

Note: Own elaboration based on (Pallotta & Goodkind, 2022).

According to the table above, it is evident that Netflix has established itself as a clear revolutionary in the way of consuming film content, offering thousands of movies and series within reach of a single click. However, what many are unaware of is how the company has pioneered numerous aspects of *software* engineering. Its impact in this field has significantly transformed the world of technological development and innovation on digital platforms (Torres, 2023).

Similarly, Torres (2023) mentions some of the technologies implemented by Netflix:

☐ Cloud computing: they decide to do without their servers to avoid failures and for AWS to be in charge of this performance.
☐ Microservices allowed it to separate its platform into small, independent services so that they could be developed, tested, and deployed independently.
☐ Automation: They use infrastructure as code, including AWS, Jenkins, and Docker tools.
☐ Monitoring: via ElasticSearch.
☐ Scalability: Amazon Route 53 for managing the different regions.
☐ Big Data: collects and analyzes large volumes of user information, such as viewing patterns, searches, preferences, among other functions.
☐ Open Connect CDN: Store content close to users to reduce network load and improve latency.
☐ AI: to personalize each user's experience and improve the efficiency of their operations.

These technologies allow Netflix to focus primarily on content personalization, offering personalized movie and series recommendations, based on massive data.

Netflix's business culture is characterized by its strong commitment to innovation, autonomy and experimentation, values that have been essential to consolidate its success in the entertainment industry and maintain its leadership in the *streaming* sector. By promoting a work environment that values creativity and freedom of decision, Netflix has managed to create an ideal space for the development of innovative ideas and the production of high-quality original content, standing out as a benchmark in the global market, aligning the company's objectives with IT strategies (Rodríguez, 2023).

This has led Netflix to have a strong impact on the customer experience, offering personalized recommendations and optimizing *streaming*.

But not everything has been relatively easy for Netflix, as it has faced challenges in capacity and global expansion, some of them are:

The transformation of its business model, moving from renting DVDs by mail to becoming a *streaming* platform. This change required considerable investment in technological infrastructure. In its process of international expansion, Netflix also had to overcome regulatory barriers in certain markets, such as China, where strict government policies restricted its access. Additionally, it faced increasing competition from emerging platforms such as Amazon Prime Video (Tuñon & Gambari, 2021).

The need to adapt to the demands of visual quality, such as the implementation of HDR and 4K technology, which required upgrades in playback devices and more expensive subscriptions for consumers (Neira, 2016).

Overall, Netflix has been able to grow globally while maintaining a high quality of service and optimizing bandwidth usage, which is critical to its success in many markets and with different infrastructure capabilities.

3. Methodology

According to Arias (2012), documentary research is a process that focuses on the search, retrieval, analysis, critique, and interpretation of secondary data, that is, those previously collected and recorded by other researchers in documentary sources, whether printed, audiovisual, or electronic. As in any research, its main objective is to contribute to knowledge, and can be developed at exploratory, descriptive or explanatory levels.

The procedure used for the preparation of this article was the review of bibliographic sources and then an analysis of the information.

Therefore, in this research we worked with bibliographies of various digital repositories and Internet pages, addressing the level of descriptive study, since two cases of well-known companies worldwide (Amazon and Netflix) are described, which are currently leaders in the sector they operate, competing day by day with companies in the same field.

4. Results and discussion

Amazon was founded in 1994 and in 1995 it started as an online bookstore and evolved into an e-commerce giant, diversifying into various services. For its part, Netflix began in 1997 as a DVD rental service by mail and became a leading *streaming* platform.

Over time, both companies had to innovate technologically to grow in these changing markets, allowing them to position themselves and be leaders in their sector, where each company implemented certain technologies that would help them achieve their business objectives and goals by allying with IT strategies:

- Amazon: developed a microservices and AWS architecture, allowing scalability and efficient management of large volumes of data.
- Netflix: Implemented Open Connect, its content delivery network, along with streaming technologies to ensure smooth *streaming*.

These technologies were the beginning to be able to focus on the customer experience, since, in the current digital era with AI, Big data and emerging technologies allowed them to know more about customers, in the case of Amazon it focused on personalization, reduced delivery times and a fluid shopping experience and Netflix prioritized the quality of *streaming* and the personalization of content through recommendation algorithms, providing an experience adapted to the tastes of users.

Therefore, Amazon and Netflix have effectively managed the customer experience, leveraging various technologies that have allowed them to attract more users and continuously expand their presence in the market.

But, to become the business giants they are today, they had to face several challenges over time, especially with international regulations, in implementing IT technologies and how to align them in their operations and business objectives.

- Amazon: Faced scalability, data security, and compliance challenges with local regulations related to privacy and technology standards.
- Netflix: had to solve problems of latency, bandwidth and comply with regulations on privacy and content quotas in international markets.

Both companies have managed to overcome these key obstacles through the use of innovative technologies and adaptation to local regulations, consolidating themselves as global leaders in their sectors. Although they operate in different industries, Amazon and Netflix share similarities in the technological challenges they have faced and in their strategies for growth and international expansion. These coincidences highlight how both companies have used innovation to position themselves as benchmarks in their respective areas.

5. Conclusions

According to what has been analyzed in the different research sources for the realization of this document, it can be concluded that both Amazon and Netflix have achieved effective coordination between IT strategies and business objectives, which has allowed them to constantly innovate, optimize operations and be able to lead their respective industries. On the one hand, Amazon has integrated technology at the center of its business strategy since its inception and Netflix has transformed the entertainment industry over the years.

Another important point is that both companies have managed to correctly and effectively manage the user experience, using different technologies and techniques to be able to customize the services and products to the needs of the customer. On the one hand, Netflix focuses mainly on the personalization of content, offering recommendations for series and movies based on massive data and personalizing; on the other hand, Amazon employs personalization strategies in its product and offer recommendation engine.

Finally, each company had its own challenges when implementing emerging technologies to grow over the years, where both managed to correctly and effectively handle problems in the IT implementation. One of the emerging technologies they leveraged was shifting infrastructure to the cloud, so they could scale their operations and improve efficiency, which has allowed them to handle massive user and transaction growth. In addition, technological innovation has been a key driver in their success, allowing them to not only solve operational problems, but also set standards in their industries. An important factor in these companies was that they did not hesitate to invest in new technology, or what has been a key factor in the success of Amazon and Netflix, allowing them to continuously improve, whether through new user features, improvements in the quality of service, or the creation of original content, maintaining themselves as leaders in their sector and competing in an environment that is constantly evolving.

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