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Solène Juteau

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# Netflix : disrupting the entertainment market with digital technologies, time and again

## **Abstract**

This case study focuses on Netflix's technological journey, emphasizing its role as a startup that revolutionized a sector through tech-savvy approaches. Up until 2023, Netflix continues to innovate. This exploration delves into how Netflix has evolved as a platform organization, leveraging advanced technologies to enhance user experience and business models. The case discusses Netflix's use of Cloud Computing and proposes elaboration on Artificial Intelligence and Blockchain technologies.

This case will be particularly useful for graduate and post-graduate students or MBA students in courses on digital technologies and business perspectives.

## **Keywords**

Disruptive innovation ;; Digital platforms and ecosystems ; Teaching cases ; Long Tail ; Artificial intelligence ; Blockchain

## **Learning Objectives:**

To guide students in thinking about the applications of new technologies in businesses and their integration.

To lead students to reflect on the impact of new technologies (Cloud, platforms) on innovation and value creation, as well as in the positioning and differentiation of an organization.

To evaluate and discuss the business challenges of Artificial Intelligence and its characteristics.

To assess opportunities for blockchain development

## **Netflix Concept**

Netflix, established in 1997 by Reed Hastings and Marc Randolph, initially emerged as an online DVD rental service. This innovative approach shifted from the use of VHS tapes to DVDs, a more advanced and long-lasting technology, facilitating DVD delivery by mail and obviating the need to physically visit rental stores. Early on, Netflix distinguished itself by employing recommendation algorithms, using customers' past preferences, ratings, and interactions to suggest movies and shows, a practice that began with its DVD rental service and still persists.

The company's foresight in recognizing the potential of the internet for content distribution led to a significant pivot in 2007, with the launch of its streaming service. This move revolutionized how subscribers accessed movies and series, transitioning from physical DVDs to online streaming.

## **Competitive landscape**

Contending with both traditional media companies and emerging streaming services, Netflix operates in a highly competitive streaming market. Conversely to what may seem, entering the streaming market is a long-standing venture. It implies high costs of content creation and/or acquisition, the need for robust technological infrastructure, the challenge of building brand recognition against established giants like Amazon Prime, and Disney+, navigating regulatory hurdles, and overcoming market saturation. These factors make it difficult for new companies to enter and compete effectively. Its key competitors include Amazon Prime Video, renowned for its extensive content range and perks for Prime members, and Disney+, distinguished by its classic and exclusive content from Disney, Pixar, Marvel, and Star Wars. HBO Max also stands out with high-quality original content and a strong brand in premium television. Traditional media players like NBCUniversal's Peacock and CBS's Paramount+ are also significant competitors, offering a blend of new and legacy content and leveraging their existing libraries to create original productions. Currently, the market is shifting towards fragmentation, with consumers often subscribing to multiple services.

## **Technology adoption: Data Centers and AWS**

In 2008, a database issue that halted DVD shipments for three days prompted Netflix to accelerate its transition to cloud services, culminating in a full migration to Amazon

Web Services (AWS) by 2015, with the closure of its last data center<sup>12</sup>. This included transferring its recommendation system and billing services to AWS. Despite being a competitor in the streaming market, Netflix embraced AWS for its server hosting, highlighting a strategic shift in its operational infrastructure.

At the same time, Netflix has chosen to continue operating its own content delivery network (CDN), which is essential to its business, especially considering that its video streams can account for up to 30% of peak-time Internet traffic in the USA. These critical infrastructures remain outside AWS, and are strategically positioned close to Internet service providers and major international data exchange nodes.

The two services, streaming and DVD, have coexisted for many years. Netflix had announced that it will end its DVD-by-mail rental service on September 29, 2023. This decision marks the end of an era, as the DVD-by-mail rental service had been one of Netflix's historical activities since its founding in 1997. Netflix CEO Ted Sarandos made the announcement in a blog post in April 2023, bringing to an end 25 years and 52 billion DVD-by-mail deliveries.

Throughout these years of migration, Netflix has developed its own adaptive streaming solutions, which automatically adjust video quality according to the speed of the user's Internet connection. This ensures a smooth viewing experience, even under variable network conditions.

### **Recommending how?**

As part of developing its recommendation algorithm, the company offered a \$1 million prize in 2009 as part of the "Netflix Prize", a machine learning competition to improve its recommendation algorithms. The aim was to increase the accuracy of their recommendation systems by 10%.

The "Netflix Prize" attracted teams of researchers from all over the world, and was won in 2009 by BellKor's Pragmatic Chaos team. The competition has helped stimulate research into machine learning and recommender systems. To this day, Netflix invests heavily in machine aiming to consistently enhance the overall

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<sup>1</sup> <https://netflixtechblog.com/netflix-at-aws-re-invent-2015-2bc50551dead>

<sup>2</sup> <https://www.silicon.fr/netflix-dit-adieu-au-datacenter-et-vive-aws-138875.html>

experience for its members and to refine every aspect of its service. This involves a broad scope of activities, including the development of prototypes, design and implementation of systems, as well as the rigorous evaluation of models and algorithms. These processes are thoroughly tested and validated using both offline experimental methods and online A/B testing strategies<sup>3</sup>.

## **Machine Learning**

Machine learning at Netflix serves various critical functions. It plays a key role in shaping the catalog of movies and TV shows by identifying characteristics that contribute to the success of content. Additionally, it optimizes the production processes in Netflix's own studio for both movies and TV shows. Machine learning further enhances the technical quality of streaming, including optimizing video and audio encoding, as well as adaptive bitrate selection. This optimization extends to Netflix's in-house Content Delivery Network, which is a significant component of internet traffic in North America. Moreover, machine learning is instrumental in strategizing advertising expenditures, determining the mix of channels, and crafting advertising content to effectively attract new members who are likely to enjoy what Netflix offers.

## **The figures to prove it**

Netflix's recommendation system is integral to its success, influencing around 80% of what its users watch. With millions of subscribers worldwide, Netflix harnesses a vast amount of data for analysis and to gain valuable insights. The company's AI-enhanced content tagging system has boosted metadata tagging accuracy by 20%, leading to more precise content recommendations. As reported by Ampere Analysis, in 2020, Netflix invested \$17.3 billion in content, a significant expenditure informed by data-driven insights and predictive analytics. Demonstrating the power of AI in content strategy, in 2021, Netflix released over 440 original titles, reflecting its adept use of AI to make informed content creation decisions<sup>4</sup>.

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<sup>3</sup> <https://research.netflix.com/research-area/machine-learning>

<sup>4</sup> <https://medium.com/@EclipseAI/netflix-and-the-power-of-ai-unleashing-customer-insights-for-unparalleled-personalisation-dabe43bcdea0>

## **Facilitating global expansion**

AWS' migration also fostered global expansion: Netflix rapidly extended its presence worldwide, becoming a major player in content streaming in many countries by 2010. And, at the same time, Netflix invested heavily in producing original series, films and documentaries, creating a vast catalog of exclusive content.

The platform experienced rapid growth in its subscriber base between 2010 and 2020, becoming the global leader in subscription video-on-demand (SVOD).

Netflix's evolution continued with adopting sophisticated machine learning and AI algorithms, enhancing its recommendation system to provide more tailored content suggestions. This has been integral in fostering subscriber loyalty and expanding content discovery.

## **Diversification and expansion : analyzing customers behaviors to offer them what they like**

Starting in the 2020s, Netflix expanded its offering to include different genres of content, including children's series, documentaries, reality shows and more. Netflix uses cutting-edge technologies to produce original series and films. This includes using high-resolution cameras, digital special effects, and sometimes even artificial intelligence to optimize scripting and casting.

Netflix constantly collects and analyzes data on its users' behavior. This data is used to make strategic decisions, such as which original content to produce, where to invest in international expansion, and how to improve subscriber retention.

Netflix's business strategy diversified into movie and series production. Netflix's relationship with content suppliers evolved from heavy reliance on external content to a greater focus on producing its own original content. This strategic shift, driven by increasing licensing costs and the desire for unique offerings, has reduced its dependency on external content providers, although it still maintains significant relationships for international content and specific genres. Netflix's venture into original content has given it considerable bargaining power in attracting top talent, and these high-profile individuals also possess significant bargaining power due to their influence on a project's success. This transition allowed Netflix to not only control the narrative and quality of its content but also reduce reliance on external production studios. This strategic shift has also enabled Netflix to be a major player in the

entertainment industry, competing with traditional film studios. Netflix's original productions have gained critical acclaim and popular success, further solidifying its position as a cultural and creative powerhouse. This move into content creation is not just about expanding the range of offerings but also about shaping the future landscape of digital entertainment.

### **Fighting account sharing**

Netflix has recently taken steps to combat abusive account sharing, including limiting the number of devices that can be simultaneously connected to an account and introducing verification methods to ensure that users share their accounts with people in their household.

Netflix has introduced limits on the number of devices that can be simultaneously connected to an account. For example, a standard subscription allows up to two devices to be connected at the same time, while the premium subscription offers up to four simultaneous connections. This is intended to discourage excessive account sharing.

Netflix has introduced verification mechanisms to ensure that users share their account with people in their household. For example, when a new device attempts to connect to an account, Netflix can send a verification code to the e-mail address associated with the account.

Netflix monitors account activity for abusive sharing patterns. If suspicious activity is detected, this may result in account suspension or closure.

In July 2023, Netflix recorded an increase of 2.6 million subscribers in the United States. A large proportion of these subscribers had opted for an ad-supported offer.

### **New services and diversification : Cloud gaming**

Mobile and Cloud gaming Netflix began to expand its cloud gaming service trials after first launching pilot tests in Canada and the UK<sup>5</sup>. The company had initially begun its mobile gaming efforts in 2021, where it offered 35 games on its mobile app including Oxenfree and Love is blind. The platform had quietly acquired several small to medium-sized studios, including Boss Fight Entertainment, Next Games, and Night

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<sup>5</sup> <https://techcrunch.com/2023/10/16/netflixs-cloud-gaming-service-begins-tests-in-u-s/>

School, a Californian studio whose one of its creations, Oxenfree, gradually proved to be a multiplatform success<sup>6</sup>.

But it has since expanded its range of services to include this new cloud gaming offering. Already last autumn, Netflix had expressed its intention to enter the cloud gaming market. Netflix's entry into the cloud gaming sector is seen as a major development in the gaming industry, underlining the importance of the US market, which holds a substantial share of the global gaming market. With its broad subscriber base, Netflix could become a strong competitor to established cloud gaming players as it develops its platform.

### QUESTIONS:

1. Assess Netflix's strategic positioning and competitive advantage using Porter's five forces.
2. Is Netflix a platform? What is its value proposition? What are the sides of the platform and the value proposition for each side? How does it unify the market?
3. Discuss how the use of new technologies and the long tail have been key success factors for Netflix.
4. What type of cloud does Netflix use? Explain the different types of cloud and their advantages, and why Netflix chose AWS.
5. Evaluate and discuss Netflix's use of AI.
6. Based on your knowledge of the technology, recommend uses of blockchain for Netflix.
7. What future would you foresee for Netflix ?

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<sup>6</sup><https://www.courrierinternational.com/article/analyse-pour-se-faire-un-nom-dans-le-jeu-video-netflix-mise-sur-le-mobile>