Review Article

The Web 2.0 in Mexico and its homonyms, influence in sectors: Relevant aspects.

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Abstract

Social media in the 21st century has grown and diversified, creating varied digital cultures. Web 2.0, focused on interaction and content creation, has transformed sectors globally, including in Mexico, where it faces challenges such as the digital divide. There is a lack of comparative analyses revealing differences in adoption and effects. The general objective of this study is to conduct a comparative literature review on the influence of Web 2.0 in key sectors in Mexico and other comparable countries, identifying the most relevant aspects and challenges that have arisen in each context. The methodology employed involves a bibliographic review of the impact of Web 2.0 in Mexico within the Latin American context. Data sources, such as AMIPCI and INEGI, are detailed, along with the analysis procedures used, which include data cleaning, descriptive and comparative analysis, data visualization, and contextual interpretation. The validity of the results was ensured through source triangulation. The results suggest that Web 2.0, emerging in the mid-2000s, transformed static websites into dynamic platforms, allowing users to become active content creators. In Mexico, this evolution was reflected in the rise of social networks and blogs, driving user engagement. Additionally, internet access significantly increased, reaching 78.6% of the population in 2023.

Keywords: Social Media, Web 2.0, Interactivity, Technological Innovation

Resumen

Las redes sociales en el siglo XXI han experimentado un crecimiento y diversificación significativos, dando lugar a diversas culturas digitales. La Web 2.0, centrada en la interacción y la creación de contenido, ha transformado sectores a nivel global, incluyendo México, donde enfrenta desafíos como la brecha digital. Existe una carencia de análisis comparativos que evidencien las diferencias en su adopción y efectos. El objetivo general de este estudio es realizar una revisión comparativa de la literatura sobre la influencia de la Web 2.0 en sectores clave en México y en otros países comparables, identificando los aspectos más relevantes y los desafíos surgidos en cada contexto. La metodología empleada consiste en una revisión bibliográfica del impacto de la Web 2.0 en México dentro del contexto latinoamericano. Se detallan fuentes de datos como AMIPCI e INEGI, así como los procedimientos de análisis utilizados, que incluyen limpieza de datos, análisis descriptivo y comparativo, visualización de datos e interpretación contextual. La validez de los resultados se aseguró mediante la triangulación de fuentes. Los resultados sugieren que la Web 2.0, surgida a mediados de la década de 2000, transformó los sitios web estáticos en plataformas dinámicas, permitiendo a los usuarios convertirse en creadores activos de contenido. En México, esta evolución se reflejó en el auge de redes sociales y blogs, impulsando la participación de los usuarios. Además, el acceso a internet aumentó significativamente, alcanzando el 78,6 % de la población en 2023.

Palabras clave: Redes sociales, Web 2.0, Interactividad, Innovación tecnológica.

1. INTRODUCTION

Social networks, which emerged in the early 21st century, have experienced exponential growth, diversifying in terms of functionalities and communities. Despite their common technological foundations, these platforms have given rise to a rich variety of digital cultures, reflecting the complexity and diversity of online social interactions. The Web 2.0, characterized by user interactivity and content creation, profoundly impacts various sectors, transforming how individuals, businesses, and governments communicate and interact. In Mexico, as in many other countries, the adoption of Web 2.0 has led to significant changes in sectors such as education, economy, politics, and culture. The ease of accessing information, democratization of communication, and emergence of new forms of social organization are just a few transformations driven by these technologies. However, the degree of impact and the results of Web 2.0 adoption vary depending on each country's social, economic, and technological context, making comparative analysis essential for a better understanding of these differences.

Globally, Web 2.0 has been extensively studied in various contexts, revealing how cultural, economic, and political factors influence its adoption and use. For example, in countries with high levels of technological development, Web 2.0 has been crucial for driving innovation and digital entrepreneurship, while in developing countries, it has served as a tool for education and social mobilization. In Mexico, the penetration of these technologies has been accompanied by unique challenges, such as the digital divide and socioeconomic inequality. Despite numerous studies on Web 2.0, there is a lack of comparative analysis highlighting how its adoption and effects in Mexico align with or differ from those observed in other countries with similar characteristics. Boyd (2007) notes that social networks have transformed the way

people communicate and interact, with platforms like Facebook and MySpace giving way to numerous options, each with unique features and diverse communities.

Various studies have examined the impact of Web 2.0 in different sectors and countries. García and Ramírez (2017) investigated the use of social networks in higher education in Mexico, concluding that these platforms have improved collaboration between students and teachers, though challenges related to accessibility and proper use of technologies persist. Toussaint (2015) examined the impact of Web 2.0 on Brazil's digital economy, highlighting its role in promoting e-commerce and technology startups. In Mexico, Pérez (2011) revealed how Web 2.0 has facilitated political participation and social mobilization, while Manrique (2015) explored its influence as a tool in the 21st-century educational environment.

Other studies have addressed Web 2.0's influence on different aspects. Mera et al. (2022) explore how social networks have revolutionized digital marketing in Mexico, allowing small and medium enterprises (SMEs) to access new markets. In education, Revelo et al. (2023) discuss how Web 2.0 technologies offer new opportunities for higher education learning. However, to fully leverage this potential, educational institutions must adapt to these changes and adopt more flexible, student-centered pedagogical models, highlighting the potential to improve distance education quality in developing countries. International studies, such as Karkin (2013), have examined how Web 2.0 has transformed political participation in European countries, facilitating greater citizen involvement in democratic processes. However, an exhaustive comparative analysis contrasting these effects in Mexico with those observed in countries with similar socioeconomic and technological contexts has yet to be conducted.

The research problem lies in the lack of a comparative analysis exploring how Web 2.0 has influenced key sectors in Mexico compared to other analogous countries, and how different sociocultural and economic contexts have shaped these effects. Without a deep understanding of these dynamics, it is challenging to design effective strategies that maximize the benefits of Web 2.0 in Mexico.

The general objective of this study is to conduct a comparative bibliographic review of the influence of Web 2.0 on key sectors in Mexico and other analogous countries, identifying the most relevant aspects and challenges that have emerged in each context.

This study provides a comparative perspective that has been scarcely explored in the literature. By comparing the influence of Web 2.0 in Mexico with that in other countries with similar socioeconomic characteristics, this work not only offers a detailed analysis of specific achievements and challenges in each context but also identifies common patterns and significant divergences. These findings can be useful for designing policies and strategies that optimize the use of Web 2.0 in Mexico, based on lessons learned from other countries.

To guide the research, we will address the following question: How has Web 2.0 influenced key sectors in Mexico compared to other analogous countries, and what are the most relevant aspects and challenges that have emerged in each context?

Definition of Web 2.0

Web 2.0 emerges as a significant evolution from the first generation of internet services. Unlike Web 1.0, which is characterized by static content and a one-way communication model, Web 2.0 is based on interactivity, active user participation, and collaborative content creation. This transformation empowers users, who move from being mere recipients of information to becoming active content creators. The main features of Web 2.0, according to O'Reilly (2007), include:

Interactivity: Users interact not only with the content but also with each other, thus fostering the creation of online communities and social networks.

Collaboration: Tools like wikis and forums enable real-time collaboration among users.

Personalization: Users have the ability to personalize their web experience through profile creation, news feed subscriptions, and selecting personalized content.

Content Sharing: Platforms such as YouTube and Flickr simplify the process for users to publish and share videos and photos.

Importance of Web 2.0 in the Global Context and in Mexico

Anderson (2007) notes that Web 2.0 has brought about a profound change in how people communicate, interact, and conduct business globally. Tools such as Facebook, Twitter, YouTube, and Wikipedia have dramatically altered the fields of communication, entertainment, education, and commerce. In Mexico, the adoption of Web 2.0 has played a crucial role in the country's economic and social development. Becerril et al. (2012) state that this technology has facilitated digital inclusion, allowing a greater number of people to access information, services, and learning opportunities. Additionally, it has driven innovation across various sectors, including education, business, and government.

2. METODOLOGÍA

In this section, the methodological approach adopted to conduct the literature review on the impact and use of Web 2.0 in Mexico, within the regional framework of Latin America, was described. The selected data sources, inclusion criteria, and the analysis procedures applied to extract, synthesize, and compare the relevant information were detailed.

Selection and Description of Data Sources

The review was based on the collection of data from highly reliable and recognized national sources. The selected sources were:

Mexican Internet Association (AMIPCI): Annual reports published by AMIPCI were analyzed, providing a comprehensive view of internet penetration and usage in Mexico, as well as

emerging trends in the use of Web 2.0 platforms. These reports offered specific data on user demographics, usage frequency, and predominant online activities, allowing a detailed understanding of the digital landscape in the country.

National Institute of Statistics and Geography (INEGI): Data from national surveys conducted by INEGI were used, including the National Survey on the Availability and Use of Information Technologies in Households (ENDUTIH) and the National Survey of Income and Expenditure of Households (ENIGH). These surveys provided detailed information on the availability of information and communication technologies (ICT) in households, as well as the socioeconomic profile of users. Combining these data allowed for an accurate assessment of the socioeconomic impact of Web 2.0 in Mexico.

Data Analysis Procedures

The analysis of the collected data followed a rigorous methodological approach, divided into the following stages:

Data Cleaning and Preparation: Data extracted from reports and surveys were cleaned to eliminate inconsistencies and ensure integrity. Interest variables were standardized to facilitate interannual comparisons and comparisons with data from other sources.

Descriptive Analysis: Descriptive statistical analyses were conducted to identify key trends in the adoption and use of Web 2.0 in Mexico. This included the creation of frequencies, means, and distributions for key variables, such as internet penetration, types of devices used, and predominant activities on Web 2.0 platforms.

Comparative Analysis: To contextualize the findings within a regional framework, Mexican data were compared with those from other Latin American countries, using regional reports and available databases. Hypothesis testing was employed to determine the significance of observed differences between Mexico and other countries.

Data Visualization: Tools such as Microsoft Excel and advanced statistical software (e.g., SPSS, R) were used to create charts and tables illustrating the identified trends and patterns. Clarity in presenting results was prioritized to facilitate interpretation and subsequent analysis.

Contextual Interpretation: Results were interpreted in light of Mexico's socioeconomic context, considering factors such as the digital divide, economic inequality, and public policies aimed at expanding ICT. This allowed for a critical evaluation of the impact of Web 2.0 on different sectors of Mexican society.

Validation and Cross-checking

To ensure the validity of the results, data obtained from AMIPCI and INEGI were compared with previous studies and secondary sources, such as reports from international organizations (e.g., ITU, ECLAC) and relevant academic articles. This data triangulation ensured that the derived conclusions were robust and well-founded.

3. RESULTADOS

Results highlighted the significant evolution of Web 2.0. Below are the findings:

Evolution of Web 2.0

Web 2.0 began in the mid-2000s, marking a transition from static websites to dynamic and collaborative platforms. This evolution allowed users to shift from being mere consumers of content to active creators. In Mexico, this change was reflected in the growth of social networks, blogs, and wikis, which enabled greater user participation. Platforms like Facebook, YouTube, and Twitter became extremely popular, fostering user-generated content and online social interaction.

Table 1. Evolution of Web 2.0 in Mexico.

| Year	Significant Event
2004	Launch of Facebook and its popularization in Mexico
2005	Emergence of YouTube and growth of multimedia content
2006	Creation of Twitter and massive adoption by Mexican users
2010	Expansion of smartphones and mobile access to Web 2.0 platforms
2015	Growth of Instagram and other visual social networks
2020	Popularity of TikTok and increase in short video content

Internet Penetration in Mexico

Access to the internet was fundamental for the adoption of Web 2.0. According to INEGI, "internet penetration in Mexico increased significantly in recent years. In 2023, 78.6% of the Mexican population were internet users, representing a steady growth since 2018" (AMIPCI, 2023).

Table 2. Internet Penetration in Mexico (2018-2023)

Year	Internet Users (%)
2018	65.8%
2019	70.1%
2020	72.0%
2021	74.3%

2022	76.5%
2023	78.6%

Figure 1 on Internet Penetration in Mexico (2018-2023)
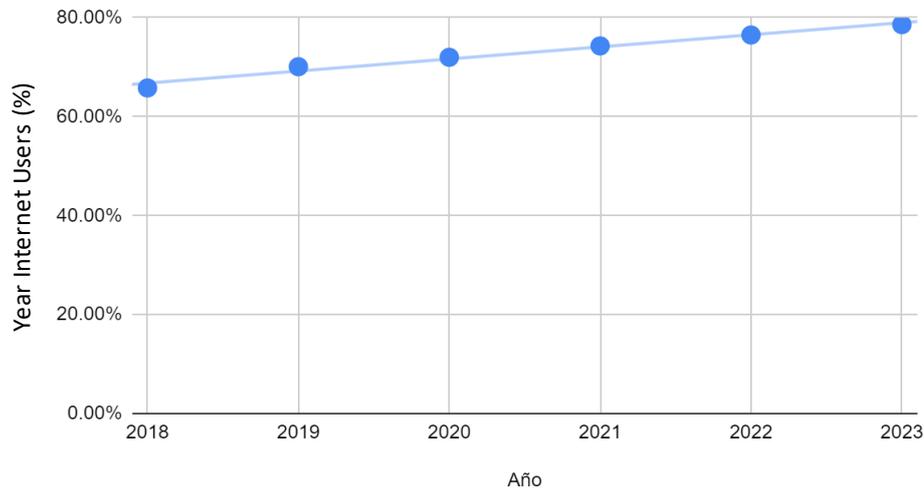
## Use of Web 2.0 Platforms in Mexico

Social media

Social media represents one of the main features of Web 2.0. In Mexico, platforms like Facebook, WhatsApp, Instagram, and TikTok dominate the market, with millions of active users each month (AMIPCI, 2023).

Table 3. Monthly Active Users of Social Media in Mexico (2023)

Platform	Active Users (millions)
Facebook	90
WhatsApp	85
Instagram	60
TikTok	50
Twitter	35

Figure 2. Monthly Active Users of Social Media in Mexico (2023)
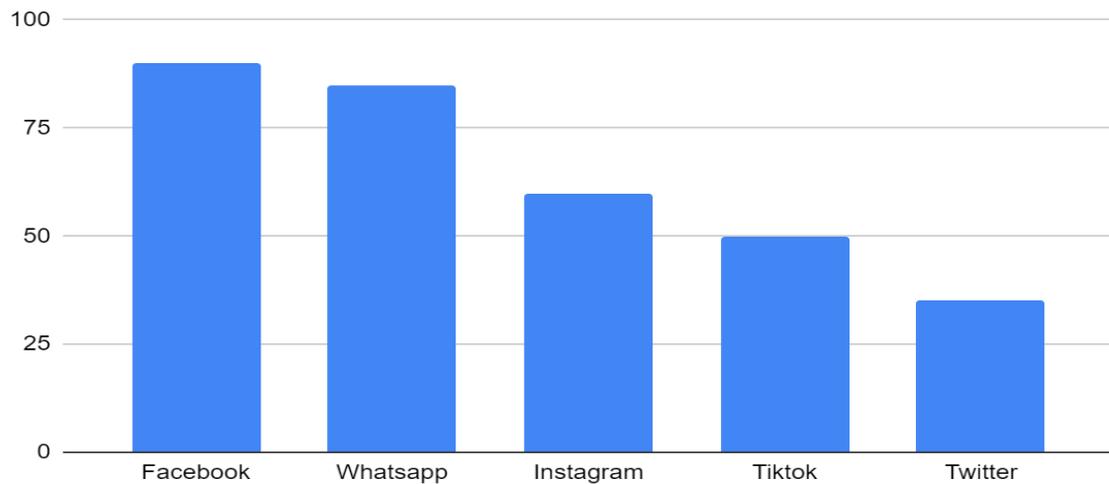
Blogs

Blogs remain an important tool for creating and disseminating content. In Mexico, both individuals and businesses use blogs to share information, opinions, and news. Platforms such as WordPress and Blogger are popular among Mexican bloggers.

Wikis

Wikis, such as Wikipedia, represent another manifestation of Web 2.0 that enables open collaboration in content creation. Spanish-language Wikipedia is widely used in Mexico, contributing to the dissemination of knowledge and education.

Impact of Web 2.0 on Different Sectors

Education

Web 2.0 revolutionizes education by facilitating access to educational resources and promoting collaborative learning. Platforms like Moodle, Google Classroom, and Edmodo are used in numerous Mexican educational institutions to enhance teaching and learning. The availability of online educational content, such as videos, articles, and free courses, democratizes education, allowing more people to access high-quality resources.

Advantages and Challenges in the Educational Environment

Web 2.0 offers significant advantages for education:

Access to Organized Information: Through social participation, online information is better organized and accessible.

Interaction and Collaboration: Students interact with their peers and teachers in real-time, fostering collaboration.

Content Creation: Platforms such as blogs and wikis enable students to create and share their own materials.

However, challenges also arise, such as the need to teach critical digital skills and ensure online privacy and security.

Table 4. Use of Web 2.0 Educational Platforms in Mexican Institutions (2023)

Platform	Institutions Using It (%)
Google Classroom	70
Moodle	50
Edmodo	30
Blackboard	20
Canvas	10

Figure 3. Use of Web 2.0 Educational Platforms in Mexican Institutions (2023

Uso de Plataformas Educativas Web 2.0 en Instituciones Mexicanas (2023)
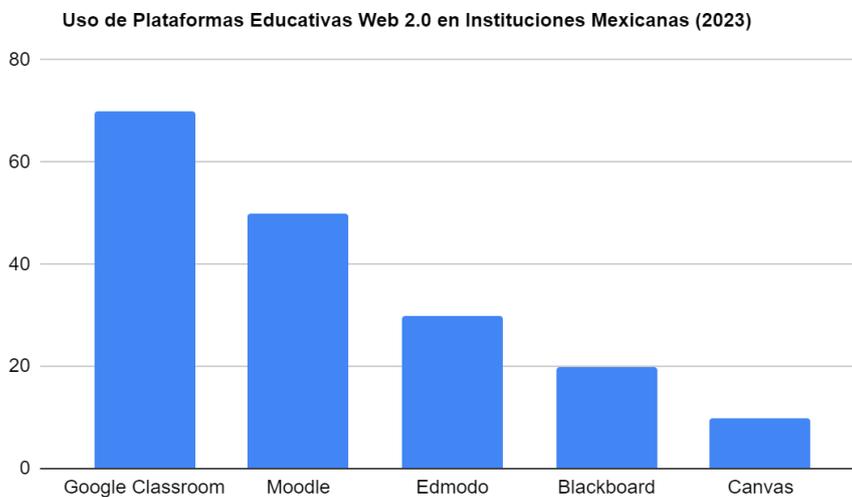
Business

Mexican companies adopt Web 2.0 tools to enhance internal communication, marketing, and e-commerce. "Platforms such as Mercado Libre and Amazon experience significant growth, facilitating online commerce and offering new opportunities to entrepreneurs" (INEGI, 2023). Furthermore, social media has become an essential tool for digital marketing, enabling companies to reach a broader and more targeted audience.

Table 5. Growth of E-Commerce in Mexico (2018-2023)

Year	E-Commerce Revenue
2018	15,000
2019	18,000
2020	23,000
2021	28,000
2022	34,000
2023	40,000

**Figure 4. Growth of E-Commerce in Mexico (2018-2023)**
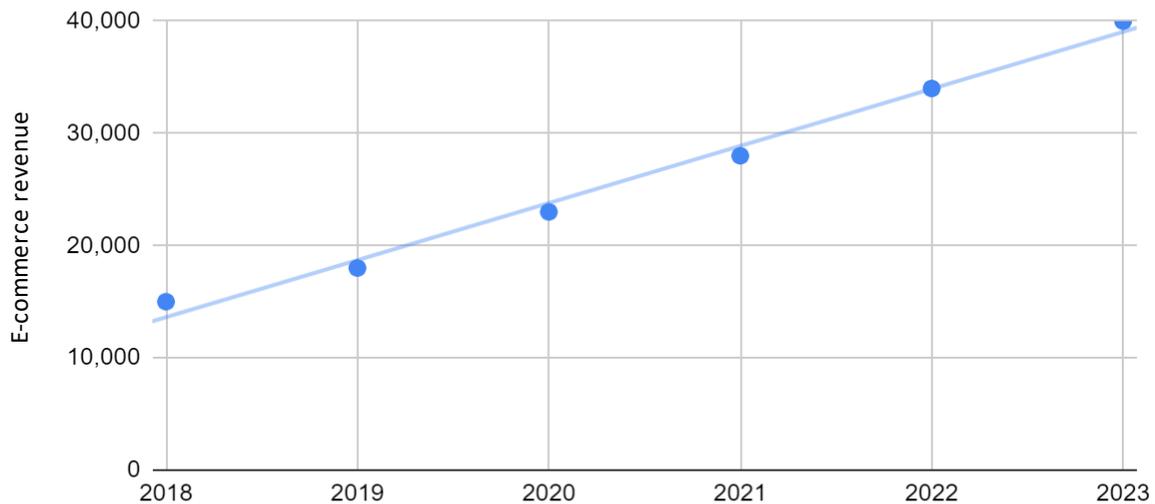
Government

The Mexican government implements e-government strategies using Web 2.0 tools to enhance transparency, efficiency, and citizen participation. Initiatives like Gob.mx and the use of official social networks are examples of these efforts. These platforms allow citizens to access information and government services, complete online transactions, and participate in public consultations (SCT, 2023).

Table 6. Use of E-Government Platforms in Mexico (2023)

Platform	Active Users (millions)
Gob.mx	25
Social Networks	20
State Portals	15
Mobile Applications	10

Figure 5. Use of E-Government Platforms in Mexico (2023)
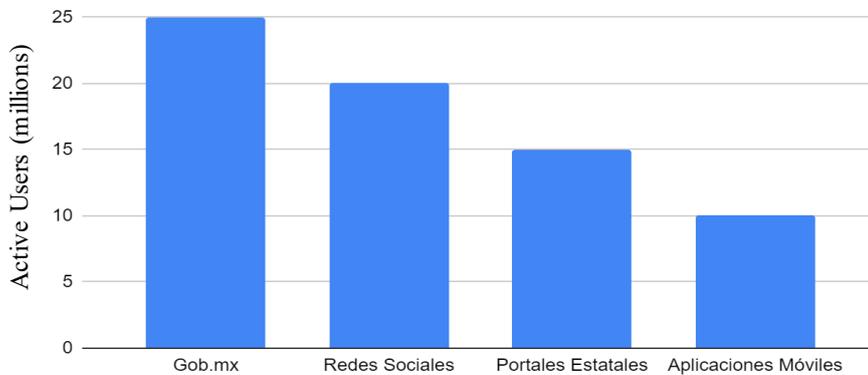
Statistics and Data Analysis

The data analysis reveals a sustained growth in the use of the internet and Web 2.0 platforms in Mexico. The adoption of these technologies is driven by the increasing availability of mobile devices and the decreasing costs of internet access. Additionally, there is a trend towards the use of video platforms and visual social networks, such as TikTok and Instagram.

Comparison with Other Countries

Compared to other Latin American countries, "Mexico shows high internet penetration and intensive use of Web 2.0 platforms. However, it still faces challenges in terms of infrastructure and digital literacy, particularly in rural areas. Countries like Brazil and Argentina have similar penetration rates but with different approaches and digital development policies" (World Bank, 2023).

Table 7. Comparison of Internet Penetration in Latin America (2023)

Country	Internet Penetration (%)
Mexico	78.6
Brazil	82.3
Argentina	75.4
Chile	85.7
Colombia	73.2

Figure 7. Comparison of Internet Penetration in Latin America (2023)
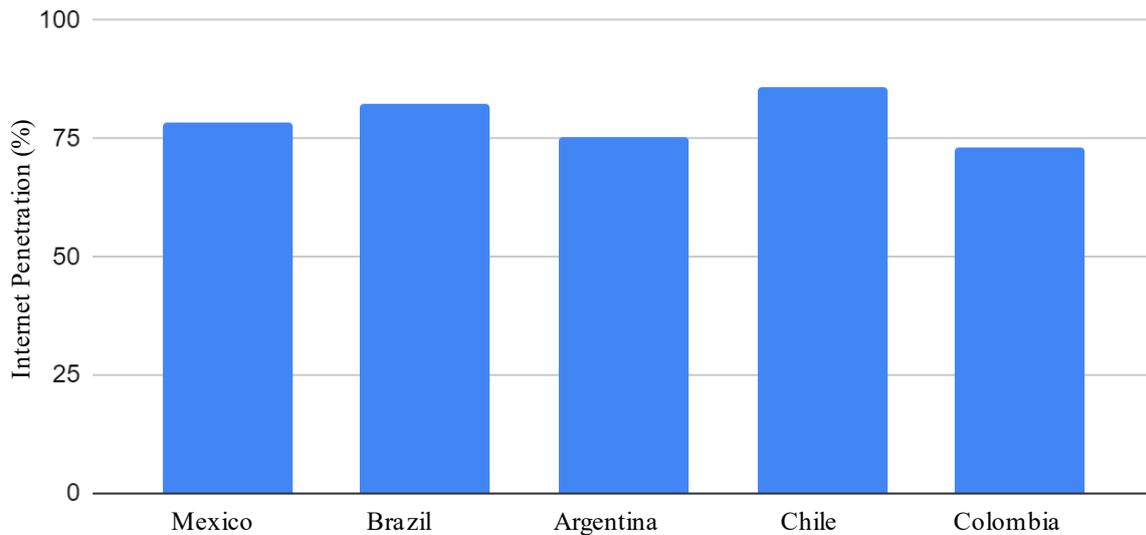
4. DISCUSSION

Opportunities

The Web 2.0 offers multiple opportunities for economic and social development in Mexico. The digitalization of services and the increasing penetration of the internet can enhance education, commerce, and citizen engagement. Additionally, the adoption of emerging technologies like artificial intelligence and the Internet of Things (IoT) can further drive innovation and competitiveness.

Challenges

Despite the progress, Mexico faces significant challenges such as the digital divide, the lack of infrastructure in rural areas, and the need for public policies that promote access to and use of information technologies. It is crucial to address these challenges through investments in infrastructure, digital literacy programs, and inclusive policies that ensure all citizens can benefit from the digital age.

5. CONCLUSION

The Web 2.0 has had a profound impact on Mexican society, transforming the way people communicate, learn, and conduct business. Although Mexico has made considerable strides in adopting these technologies, it is crucial to continue working to overcome challenges and fully capitalize on the opportunities offered by the digital era. Collaboration between the government, private sector, and civil society will be essential to achieving inclusive and sustainable digital development.

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