

The role of technology startups in economic growth: A case study of the United States.

دور الشركات التكنولوجية الناشئة في النمو الاقتصادي دراسة تجربة الولايات المتحدة الأمريكية

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Abstract:

This study aims to highlight the rapid and steady growth of technology startups around the world by analyzing their role in economic growth, focusing on the experience of the United States, which has the largest number of startups. Using a descriptive analytical approach, the study concluded that technology startups play an important role in economic growth, as evidenced by the experience of the United States in this field.

Keywords: Technology Startups, Economic Growth, Innovation, United States,

ملخص:

تهدف هذه الدراسة إلى تسليط الضوء على الشركات التكنولوجية الناشئة التي تشهد نمو مطرد وسريع في العالم من خلال محاولة تحليل دورها في النمو الاقتصادي وهذا بالتركيز على تجربة الولايات المتحدة الأمريكية في هذا المجال، حيث تعد أكبر دولة من ناحية عدد الشركات الناشئة التي تعمل فيها.

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وقد توصلت الدراسة باستخدام المنهج الوصفي التحليلي إلى أن الشركات التكنولوجية الناشئة تلعب دور مهم في النمو الاقتصادي وهذا ما تبين من خلال تجربة الولايات المتحدة الأمريكية في هذا المجال.

الكلمات المفتاحية: الشركات الناشئة التكنولوجية، النمو الاقتصادي، الابتكار، الولايات المتحدة الأمريكية

Introduction

Startups worldwide, particularly technology startups, are experiencing steady and rapid growth, serving as a key driver of the global economy. By 2025, their number is projected to exceed 150 million globally, with the United States leading the way with 1.14 million startups.

The "Global Startup Ecosystem Report 2022," published by Startup Genome and the Global Entrepreneurship Network, revealed that the value added in the global startup economy reached \$6.4 trillion. This underscores the growing importance of startups as engines of economic growth worldwide.

In this context, this study will focus on startups in general, and technology startups in particular. It will analyze the factors driving their emergence and growth, as well as their role in economic growth, with a particular emphasis on the United States' experience in this field.

- Research Problem and Aims

This study aims to shed light on startups in general and tech startups in particular, and to analyze the factors that stimulate their emergence and prosperity on the one hand, and to analyze the role of tech startups in economic growth on the other hand. This will be done by focusing on the experience of the United States, which is the largest country in terms of the number of startups in the world. Accordingly, we pose the following key research question:

To what extent do technology startups contribute to economic growth in the United States?

- Research Questions:

To analyze the specific problem, we posed the following sub-questions:

. What is the concept of startups and how does it relate to the concept of economic growth?

. What is the reality of technology startups in the United States?

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. How do technology startups contribute to economic growth in the United States?

- Methodology

In this study, we used a descriptive analytical approach to examine technology startups and their role in economic growth in the United States by collecting, organizing, and interpreting data on the subject and drawing conclusions.

Research Outline

To analyze the problem and answer the above questions, the study was divided into three main sections:

- Section One: A conceptual introduction to technology startups and economic growth: What is the relationship?
- Section Two: The reality of technology startups in the United States of America
- Section Three: Evaluating the role of technology startups in economic growth in the United States of America .

First: Conceptual Introduction – What is the Relationship Between Technology Start-ups and Economic Growth?

This study is based on two main concepts, namely "technology start-ups" and "economic growth." We will discuss these in detail and then determine the nature of the relationship between them.

1. The Concept of Start-ups

The term "start-up" consists of two parts: "start," which refers to the idea of launching, and "up," which refers to the idea of strong growth (مریم، 2022، صفحة 80). The term "start-up" is used to describe a new business venture that is in its early stages of growth (عابدي، 2022، صفحة 692).

Eric Ries' definition: "A human endeavor designed to create a new product or service under conditions of uncertainty" (جقریف و بو غریط، 2023، صفحة 212).

Definition by Valbona Mehmeti and Erisa Musabelli: A new venture of the startup type is generally considered to be a temporary organization or institution that seeks to find a profitable, scalable, and expandable business model (Valbona & Erisa, Start-Ups: Importance and Role in the Economy, 2024, p. 61).

Marat Ressin's definition: A startup is understood to be an organization created specifically to produce and sell innovative goods and services, in addition to experimenting with an innovative business model; the date of registration of the organization is determined according to the regulations of the country in which it is registered (Ressin, Start-ups as drivers of economic growth, 2022, p. 346).

The definition of technology startups was defined by Tony Bailetti as "an investment in a project that brings together and employs specialized individuals and diverse assets closely related to developments in scientific and technological knowledge, with the aim of creating and realizing value for the company" (Bailetti, 2012, p. 9)

Dae Soo Choi and his colleagues define them as "start-ups classified according to the intensity of research and development and the value of intangible assets" (Dae Soo, Soo Sung, & Y. Park, 2020, p. 2).

The Organization for Economic Cooperation and Development (OECD) also defines technology-based industries as those with a high ratio of research and development expenditure to sales (i.e., R&D intensity) (Wu & D. Atkinson, 2017, p. 6).

The US Bureau of Labor Statistics also classifies companies as technology-based if the proportion of their employees in science, technology, engineering, and mathematics (STEM) fields is twice the national average. In this sense, there are 10 STEM-driven industries that include the largest number of startups in the United States, namely (Blankenship, Saladino, & E. Brown, How Technology-Based Start-Ups Support U.S. Economic Growth, 2020, p. 1):

- . Pharmaceutical manufacturing companies
- . Medical device manufacturing companies
- . Computer and electronics manufacturing companies
- . Semiconductor manufacturing companies
- . Semiconductor component manufacturing companies
- . Aerospace manufacturing companies
- . Data processing services
- . Computer systems design services
- . Software publishing services
- . General research and development services

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In light of the above definitions, it can be said that the definition of technology startups revolves around several meanings and dimensions:

- Organizations and institutions that work to produce new and innovative products and services
- Technology startups are characterized by intensive research and development
- They aim to create value and profit

2. Factors Contributing to the Emergence and Prosperity of Startups

Startups have experienced remarkable growth in recent years around the world, driven by several factors and circumstances that have contributed to their emergence and prosperity (Khuan, Rohim, Rukmana, Kurniawan, & Pian, 2023, p. 329):

- The global shift towards a digital economy
- The freelance economy and the knowledge economy
- The service economy
- The creative and innovative economy
- The sharing economy

The prosperity of startups is due to several factors (Kumar & Kumar, 2024, p. 697):

- Ease of access to financing
- Use of advanced technology
- Use of high-quality materials in manufacturing
- In addition to the existence of laws that facilitate the launch of technology startups

The success and prosperity of startups should not obscure the fact that these companies face losses and failures, with an average of 137,000 startups launched every day. However, most of them fail before reaching the incorporation stage (Kumar N. , 2026). This is due to the large investments made by startups in research and development and the development of product prototypes, which is not usually the case in other sectors that do not invest in research and development.

To be successful, technology-based startups need to (Blankenship & Saladino, E. Brown, William, p. 9):

- Grow before securing sustainable revenue

- Face intense global competition
- Develop and protect their intellectual property
- Attract talent from the fields of science, technology, engineering, and mathematics

3. Defining Economic Growth

There are several definitions of the term economic growth:

- Manuela Raisová and Júlia Čurpová define economic growth as an increase in the economy's capacity to produce goods and services compared to another period of time (Raisová & Čurpová, 2014, p. 184).
- Mladen M. Ivic's definition: In his opinion, the concept of economic growth refers to an annual increase in material production, expressed in value, or in terms of the growth rate of gross domestic product or national income (M. Ivic, 2015, p. 55).
- Definition by Doina Dragoi: Economic growth is defined as an increase in the goods and services produced during a specific period of time within a country's economy. The increase in the production of goods and services, or maintaining it at a constant level in the country's economy, can be determined by improving the quality of education and technology, or by the added value of goods and services produced in the economic sectors (DRĂGOI, 2020, p. 55).

Burda Wyplosz states that four main factors explain economic growth in a country (Raisová & Čurpová, 2014, p. 184):

- . The savings rate in banks
- . Population growth, which leads to an increase in the number of workers
- . Technological and technical progress
- . Increased productivity

In light of the above definitions, it can be said that the definition of economic growth revolves around several meanings and dimensions:

- Economic growth means an increase in material production (goods, services, etc.)
- Economic growth means an increase in the economy's production capacity
- Economic growth is measured by the increase in production over a period of time

4. The Role of Start-ups in Economic Growth

Studies and research on start-ups and economic growth indicate that research in this field is still weak and insufficient (Ressin, Start-ups as drivers of economic growth, 2022, p. 347). However, this fact should not obscure the significant role that startups have come to play in the modern economies of countries, largely due to their ability to innovate and bring new technologies, products, and services to market. Their potential impact on economic development has been well documented, with startups contributing to several critical economic factors (Benhah, 2024, pp. 15-16):

Innovation and technological progress:

Startups are prominent in sectors that are susceptible to radical change, such as technology, renewable energy, and digital services. By introducing new products and innovative processes, startups can revolutionize industries and stimulate broader economic growth.

Job creation:

Startups are an important source of new employment opportunities. They help reduce unemployment, especially in emerging economies around the world. By encouraging entrepreneurship, startups create new job opportunities, especially for young people.

Economic competitiveness and productivity:

Startups boost productivity by introducing new and innovative technologies and business models that compete with existing companies. This competitive pressure increases productivity and drives efficiency improvements across various sectors, thereby increasing overall economic competitiveness.

In short, as Hendri Khuan and his colleagues argue, startups have experienced a significant boom in recent years worldwide as a result of the global shift toward new economic concepts, the emergence of startup incubators, and support for digital technologies and innovative business models. Together, these factors have enabled startups to innovate new products, services, and goods, rapidly expand their businesses, and contribute to overall economic growth. Tech startups have come to play an important role in promoting economic growth after the COVID-19 pandemic by driving innovation, creating jobs, and contributing to overall economic development (Khuan, Rohim, Rukmana, Kurniawan, & Pian, 2023, p. 330).

Second: The Reality of Tech Startups in the United States

According to 2025 statistics, there are 1,311,331 startups in the United States. Most of these startups in the United States are active in Silicon Valley, which is ranked first globally in the startup ecosystem. This makes the United States the country with the largest number of startups in the world, followed by India with 621,448 startups (Kumar N. , 2026). Table 01 below shows the number of startups in the United States compared to nine countries around the world with the highest number of active startups.

Table 1: Number of startups in the United States compared to nine other countries around the world

Number	Country	Number of Startups
1	United States	1,164,203
2	United Kingdom	1,164,203
3	India	621,448
4	Germany	607,789
5	Canada	198,548
6	China	117,776
7	France	86,685
8	Italy	66,297
9	Netherlands	62,598
10	Brazil	54,110
11	New Zealand	35,838

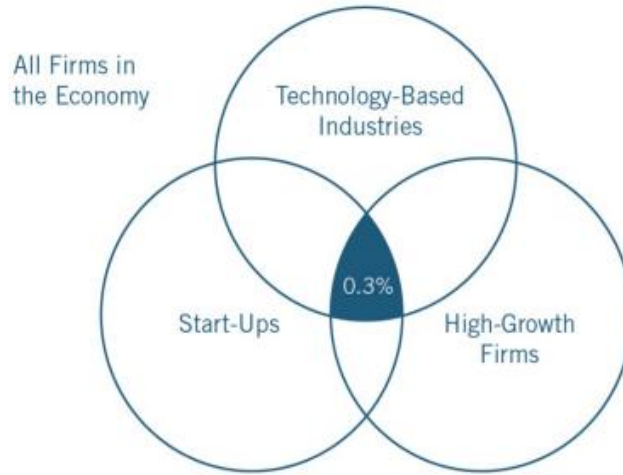
Source: (Kumar N. , 2026)

Successful tech startups are located at the intersection of three circles representing high-growth tech-based startups in the US economy: startups-tech startups-high-growth companies; these are companies that typically grow into larger, more successful companies or are acquired by other companies to accelerate their growth. These companies

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currently make up approximately 0.3% of startups in the US (Wu & D. Atkinson, 2017, p. 8).

Figure 1: High-growth technology-based startups in the US economy



Source: (Wu & D. Atkinson, 2017, p. 8)

In 2016, it was found that tech startups less than 10 years old in the United States comprised approximately 171,000 companies, employed 1.5 million workers, and paid US\$150 billion in wages. As a share of the US economy, these companies represent 2.8% of all companies, employ 1.2% of the workforce, and pay 2.7% of gross domestic product. Twenty technology companies are launched annually in the United States, generating revenues of up to \$100 million (Kumar N. , 2026).

This significant number of startups in the United States is mainly due to the fact that it has the best ecosystem for startups in the world. Silicon Valley and New York top the global rankings. This means that the ecosystem, which represents the factors related to the creation of startups and is considered essential for their growth and development, including applied scientific research, business incubators, and venture capital, is available in the United States (بن خيرة & عبد الهادي , 2025, p. 6). According to global consulting firm ResearchFDI, the entrepreneurial and innovation climate is conducive and conducive to the emergence of start-ups (ResearchFDI, 2023):

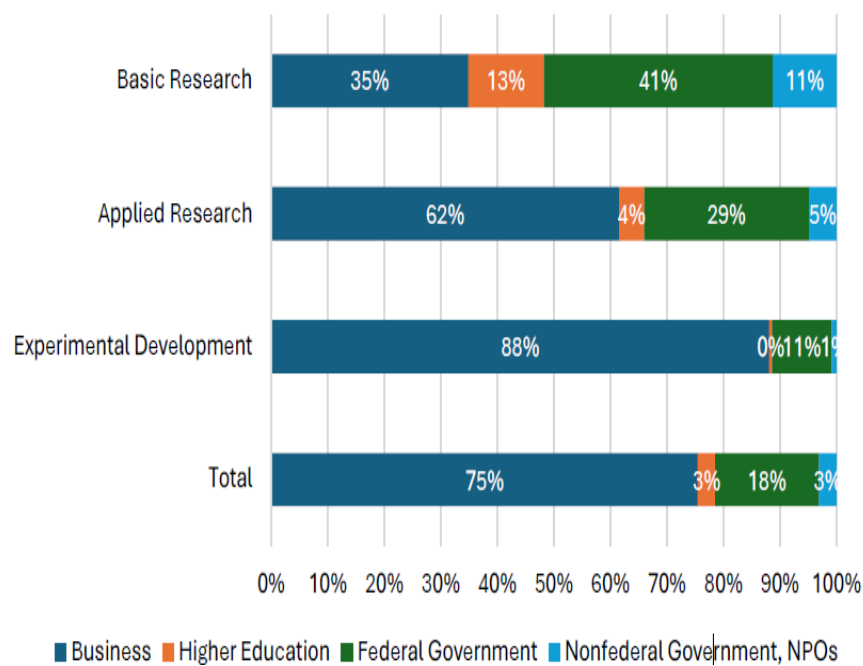
- Strong Economy and Financial Support

Access to capital and financing is essential for entrepreneurs to turn their ideas into innovative projects. In this context, the United States provides a solid financial infrastructure, including venture capital firms,

angel investors, and developed capital markets. Entrepreneurs in this field benefit from a variety of financial funding options, which help them obtain the necessary financial funding to start and develop their projects. In 2021, startups in the United States raised a total of \$345 billion in venture capital funding, which is more than half of global venture capital investments.

The United States also spends directly on research and development. In 2023, the public, private, and non-profit sectors spent \$138.2 billion in this area. The federal government contributed 41% to basic research compared to other groups, and in 2023, the US federal government provided an additional \$19.8 billion in tax incentives to stimulate private spending on research and development (Pardue, 2025). As shown in Figure 2 regarding the federal government's contribution to direct spending on basic research compared to other institutions

Figure 02 Funding for research and development in 2023 in the United States of America



Source: Luke Pardue, op cit, p 3.

2. Diverse and Skilled Workforce

The United States has a highly skilled and qualified workforce, with 36.6% of the population holding advanced degrees in 2020. This skilled workforce provides a strong talent base for startups, especially technology companies, enabling them to grow and compete globally.

3. Supportive Infrastructure and Resources

The United States has a robust infrastructure that supports the growth and development of startups, especially technology startups. This includes world-renowned academic and research institutions, such as the Massachusetts Institute of Technology (MIT), Stanford University, and Harvard University, which not only produce groundbreaking research and innovations, but also graduate large numbers of talented individuals who go on to become successful entrepreneurs.

4. Government Policies and Regulations

The US Small Business Administration (SBA) and other government agencies offer a range of programs and services to support small businesses, including loans, grants, and mentoring. In addition, the US has a relatively low corporate tax rate of 21%, making it an attractive destination for entrepreneurs looking to start their own businesses.

5. Culture of Innovation and Risk-taking

Entrepreneurship and innovation are deeply rooted in the United States, fostering a culture that values innovation, risk-taking, and helping to radically transform traditional industries. This has helped give rise to major entrepreneurs such as Steve Jobs and Elon Musk.

6. Global Influence and Market Access

The US entrepreneurial ecosystem benefits from the country's significant global influence and easy access to global markets. Strong economic and political relationships with countries around the world enable US startups to expand their businesses internationally and access new markets with relative ease. Furthermore, the US is home to some of the most influential and successful companies in the world, providing valuable partnership opportunities for active startups, particularly tech startups.

7. Technological Developments and Intellectual Property Protection

Innovation and technology play a pivotal role in the entrepreneurial environment in the United States. As mentioned earlier, the country attaches great importance to research and development, which contributes to pioneering and innovative achievements in various sectors and fields. In this context, the United States has a strong intellectual property protection system that encourages innovation by protecting the rights of inventors and entrepreneurs from theft and plagiarism of their ideas and projects.

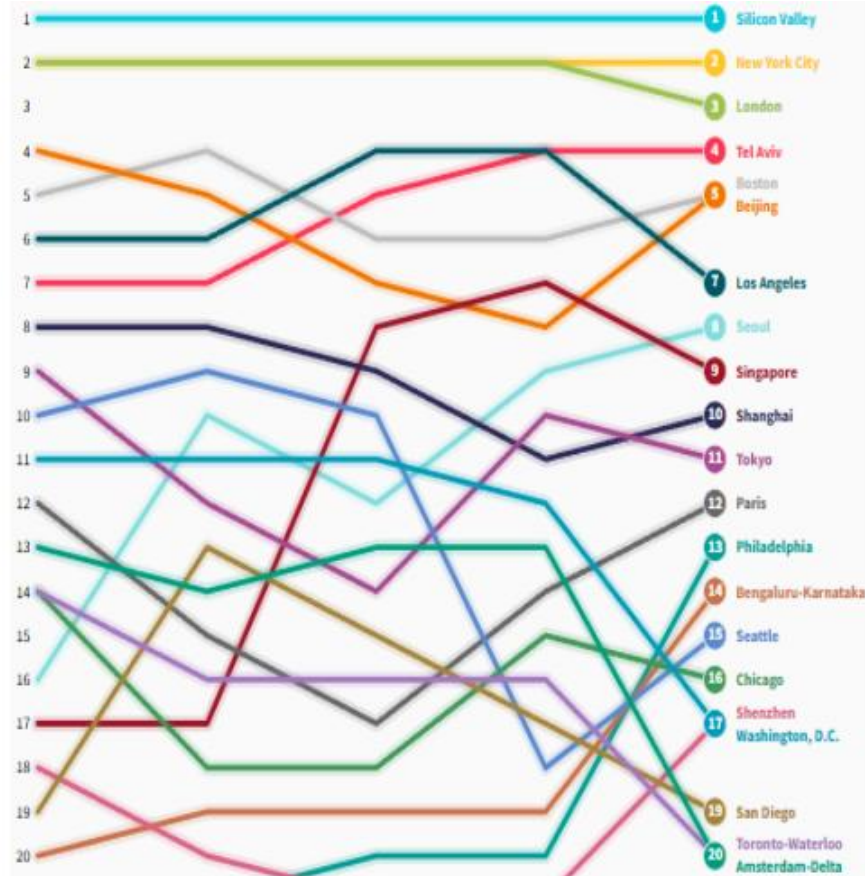
8. Educational and Networking Opportunities in Entrepreneurship

The United States attaches great importance to entrepreneurship education, with many universities and institutions offering specialized programs and courses in this field.

In short, the entrepreneurial ecosystem in the United States is characterized by its dynamism and unique support for entrepreneurs. The country's strong economy, diverse and skilled workforce, supportive infrastructure, favorable government policies, culture of innovation, global influence, technological advancement, intellectual property protection, and entrepreneurial education all contribute to making the United States the most dynamic ecosystem for entrepreneurship in the world.

These factors have created a stimulating and robust ecosystem for startups, placing the United States at the top of the global ranking of the best ecosystems for startups in the world for 2021-2025.

Figure 3: Global ranking of the best ecosystems for startups in the world 2021-2025



Source:(عبد الهادي و بن خيرة، 2025، صفحة 12)

Third: The Role of Technology Startups in Economic Growth in the United States

Technology startups have always been an important driver of economic growth and competitiveness in America, contributing significantly to employment, innovation, and productivity growth (Wu & D. Atkinson, 2017, p. 9).

1. Employment

As mentioned above, technology startups account for 3.8% of all companies in the United States, employ 3.6% of the workforce,

contribute 27.2% of US exports, and pay 8.1% of total wages. They provide higher-paying jobs and create jobs in sectors outside their scope. A single technology-based job can create five other jobs in other industries (Blankenship & Saladino, E. Brown, William, p. 1).

Tech startups also contribute more to employment than other startups in the US. Ian Hathaway, from the Kauffman Foundation, highlighted the employment growth rates of startups in 14 technology-based sectors compared to other new companies during the period from 1990 to 2011. He found that startups in the economy as a whole increased employment by 6% annually, while technology-based startups increased employment by 12% (Wu & D. Atkinson, 2017, p. 11).

2. Gross Domestic Product (GDP)

Tech startups contribute to economic output year after year in the United States. In 1980, technology-based industries accounted for 10% of US GDP, and this figure rose to just over 14% by 2016.

3. Research and Development

Technology-based startups invest in research and development (R&D) to create new products and implement better production processes. In contrast, less than 5% of US companies invest in research and development, and this figure varies by less than half a percentage point when looking only at companies less than two years old. Jorge Guzman and Scott Stern arrived at a similar figure: from 1988 to 2014, only 5% of US startups were technology-based and had high growth potential.

Furthermore, startups in technology-based sectors tend to be more intensive in their R&D spending (as a percentage of sales) than older companies in their sectors. For example, in the biotechnology sector, the average R&D intensity is around 20%, but a survey of startups in this sector revealed that the average R&D intensity was 62%, while more than a third of the startups surveyed exceeded 75%. This is partly because, at this stage in their life cycle, these companies are investing in product innovation and improvement and have lower sales than more established companies (Wu & D. Atkinson, 2017, p. 11).

4. Competitiveness

Technology startups enhance competitiveness through the continuous production and export of high value-added technological innovations. This is what technology startups do, investing in R&D to produce technologically advanced goods and services, usually for global markets.

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In fact, a study reviewing 38 economic analyses of internationally oriented startups found that investment in research and development is a critical factor in success in international markets. Companies competing in international markets invest more in research and development than companies with only domestic ambitions. In an analysis of the behavior of American companies, Foster, Grimm, and Zulas found that approximately 50 to 60 percent of companies conducting research and development activities conduct at least one international transaction per year (Wu & D. Atkinson, 2017, p. 12).

Conclusion

In this study on the role of technology startups in economic growth, a case study of the United States, I have reached several conclusions, the most important of which are:

- . Startups around the world, led by technology startups, are experiencing steady and rapid growth.
- Startups in general, and technology startups in particular, contribute significantly to economic growth in countries such as the United States.
- The United States has the largest number of startups in the world, with tech startups accounting for 3 % of all active startups.
- The business environment in the United States is conducive to the emergence and prosperity of startups (strong legal system, financing/investment, infrastructure, innovation, global appeal).
- Startups in general, and tech startups in particular, in the United States stimulate innovation, create new jobs, develop new technologies in various sectors, and contribute to GDP.
- Algeria is working through universities to create an environment conducive to the creation of startups, which is important but not sufficient, as an integrated ecosystem for startups is needed.
- It is necessary to learn from the American experience, particularly in terms of legal aspects and the provision of financing (owner investment), infrastructure, and entrepreneurial culture.

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