

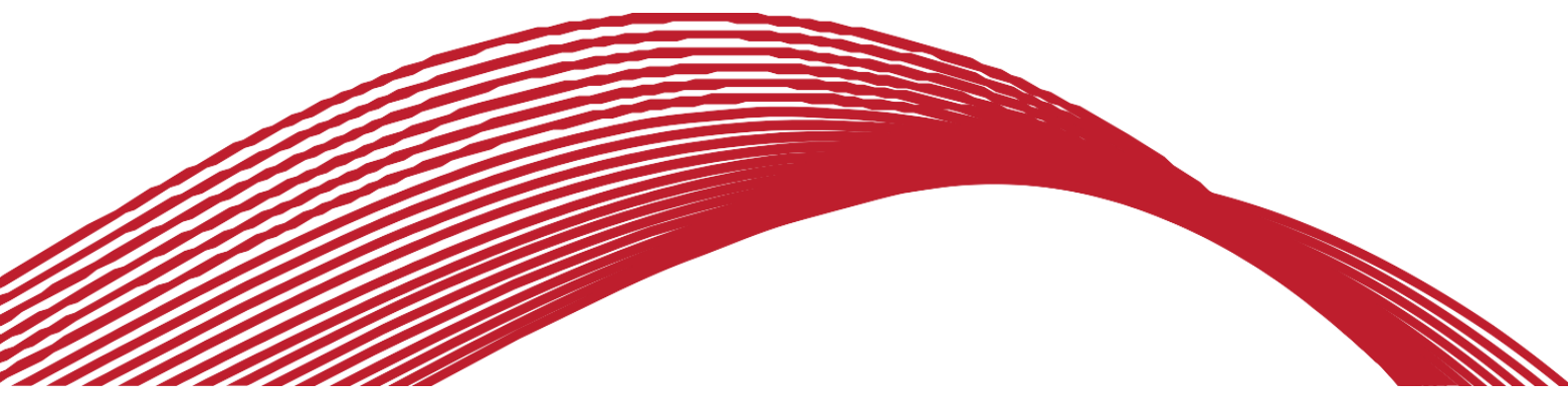


PUBLIC EXPENDITURE EVALUATION 2019

STUDY

TRANSPORT INFRASTRUCTURES

EXECUTIVE SUMMARY





Independent Authority
for Fiscal Responsibility

The Independent Authority for Fiscal Responsibility (AIReF by its Spanish acronym) was created with the mission of ensuring strict compliance with the budgetary stability and financial sustainability principles set out in Article 135 of the Spanish Constitution.

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1. Investments in transport infrastructures (1985-2020)

After joining the European Union in the mid-1980s, Spain began making huge investments in all transport infrastructures, with the aim of converging and connecting its networks with those of the rest of Europe. This period of heavy investment culminated in 2009. That year spending began to decline gradually until 2018, the year in which the ratio of investment in transport infrastructure to GDP recorded its lowest figure since 1985.

Over recent decades, Spain has been, by far, the country that has invested most in transport infrastructure compared with the four other large European States. In terms of gross value added (GVA), its investment was 42% higher than that of France, twice that of Germany and 60% higher than that of Italy.

Infrastructure has also accounted for a much higher percentage of total investment than the average for the European Union and many percentage points above France, Germany or Italy. Since 2012, the distribution of investment has converged with all the countries under analysis, although Spain remains above the European average in transport equipment.

The Central Government has been responsible for the largest part (36%), followed by the regional governments (20%) and local authorities (8%). The remainder was performed by other public State agents - *Administrador de Infraestructuras Ferroviarias* (ADIF) and *Aeropuertos Españoles y Navegación Aérea* (AENA) - among others.

European funds have contributed significantly to the growth in investment, particularly in the early stages. Spain received 57.64 billion euros in the period 2000-2020 for transport infrastructure through the Cohesion Fund and the ERDF, which accounted for 22% of total investment over these years. 76% of the support received by Spain through these funds has been allocated to transport equipment.

From a territorial analysis of the investment, it may be concluded that the autonomous regions of Catalonia, Andalusia and Madrid are those which received the largest part of the investment in the period 1985-2018 (accounting for 41% of the spending) followed by the autonomous regions of Castile and Leon, Galicia and Valencia.

The priority given to investment in infrastructure has led to an increase in the net capital infrastructure that is relatively much higher than the increase in total net capital in Spain, although the trend has changed since the financial crisis. Inter-

regional inequalities, however, have remained virtually constant over time. This is not the case with inter-provincial inequalities, which have increased, both in terms of population and by product unit, although not by km².

It is important to note that **the sharp fall in investment since 2010 has meant that gross annual investment has not covered the depreciation of assets in recent years. Their value and their potential travel services are therefore falling**, giving rise to the ageing of infrastructure stocks.

The historic gap in transport infrastructure between Spain and the main European countries has clearly narrowed in a short period of time. Allocations in relation to GDP are higher than those of France and Germany in ports and airports and above those of Germany in railways. The allocation in Spain is lower in road infrastructures than in France and Germany due to the higher density of secondary roads in those countries. In contrast, Spain **has the largest network of motorways and high-speed railways in Europe.**

2. Infrastructure governance

Having an adequate decision-making framework is essential for strengthening the ability to build efficient infrastructures and achieve better transport services, which is particularly important in times of budgetary constraints and high opportunity costs in the use of public funds.

Coordination and cooperation

Firstly, the Ministry of Transport, Mobility and Urban Agenda (Spanish acronym: MITMA), which has been responsible for infrastructure planning and management for over a century, has a complex structure in which each means of transport has a different organisational chart that is conditioned by its own idiosyncrasies and the level of its liberalisation. This requires all public entities, bodies and management centres of the ministry to make a particular effort in terms of coordination and cooperation.

The evaluation demonstrates that coordination is not being given the necessary level of priority: there is a delay of six years in the approval of the operating contract or agreement between ADIF and MITMA and the deadlines required by law for the drafting of the sector planning documents for railway, road and port infrastructures have not been met.

Infrastructure planning

A necessary, but insufficient, condition for a successful infrastructure programme is adequate strategic planning. **Spain has a long tradition of comprehensive**

planning of transport equipment (four plans have been approved since 1994) with clear continuity and stability in their objectives and lines of action, which have been key to plugging the gap in infrastructure provision with respect to Europe.

However, **there has been and there still is no regulatory framework governing the method**, timescales or content of the plans, which have depended on the ministerial teams responsible for each document.

The latest approved infrastructure plans (*Strategic infrastructures and Transport Plan 2005-2020 - PEIT* - and the *Infrastructure, Transport and Housing Plan 2012-2024 - PITVI*) **propose an extremely extensive list of projects to be built, accompanied by maps identifying ambitious new networks for each means of transport.** They include a list of projects that are implausible due to their size and deadlines that are impossible to fulfil. The plans generate unattainable expectations and the **regional governments build up a discourse of grievance based on the list of projects that have not been undertaken or which have been delayed.**

None of the latest infrastructure plans includes a prioritisation of investments or the criteria for preparing said prioritisation, which is one of the major transport infrastructure governance problems in Spain. The prioritisation of investments has become the result of the annual negotiation of the General State Budget between the Ministry of Transport, Mobility and Urban Agenda (Spanish acronym: MITMA), political groups and the regional governments, often ignoring the priorities of the mobility system.

The analysis of the plans has revealed the absence of the necessary link between the plans and the budget process and the economic context. **The strategic planning, available sources and economic forecasts are completely disconnected. Neither is the project selection process linked to the annual availability of funds.**

Widespread optimism has also been identified among planners, who tend to underestimate investment costs and overestimate the demand for journeys using the planned infrastructure. The analysis of the main high-speed corridors leads to the conclusion that this is not exceptional, but, on the contrary, costs are underestimated in all of them by at least 30%.

Furthermore, the transparency of planning processes is insufficient and **there is ample room for improvement in the public debate and participation process in decision-making.**

Project management

Even the most important investment projects are not subject to a real ex ante evaluation to assess their socio-economic impact. Firstly, because most of the time, the major decisions have already been made before feasibility studies begin. Secondly, the planning is not always performed by identifying mobility problems and focusing interest on possible alternatives for solving them (for example, modernising a conventional railway line instead of building a new high-speed line). The aim becomes to carry out one or another project and not to solve an accessibility deficit. Finally, on many occasions, the results of the feasibility studies, however strong they may be, do not determine the alternative chosen by the government.

The international comparison has confirmed that the problems identified in the infrastructure governance in Spain are shared, albeit with logical specific features, by most of the countries analysed. The unique feature of Spain is the delay in adopting measures to deal with them. There are many initiatives that have been implemented internationally for many years to reduce planner's optimism and to better estimate the costs of projects, identify transport needs, specify ex ante and ex post evaluation methods for infrastructure investments and establish mechanisms that improve transparency, participation and accountability.

3. High-speed rail

Spain has the second largest high-speed rail network in the world with 3,086 km, ahead of any other European country and only behind that of China. If this length is weighted by population, Spain has by far the densest network. **However, it has the lowest utilisation rate of all countries with a significant high-speed rail network.**

Deploying this network has required an investment of over 55.89 billion (2018) euros, of which 14.09 billion (25.2%) has been financed by European funding.

A further 15.86 billion euros has become debt of ADIF Alta Velocidad (ADIF AV), the State-owned business created to finance investments and whose deficit and debt levels are not included in the national accounts.

Spain has built its high-speed network at costs well below the European and international average. Completing new high-speed lines requires very high investments to create a railway platform with a very small gradient and wide curve radius. **The average construction cost of high-speed lines in Spain is 14.7 million euros per kilometre and 15.3 million if stations are also included,** although

there is great variability in the figure depending on the technical characteristics of the lines (mainly tunnels and viaducts).

The **overall operation of high-speed rail lines is profitable in Spain**, although there are significant differences between the four corridors. Operation of the Northern Corridor is currently in deficit, but overall, both RENFE and ADIF record profits that have continued to improve year on year due to the increase in passenger numbers.

The current Infrastructure, Transport and Housing Plan (Spanish acronym: PITVI) planned a high-speed network of 8,740 km, which **leaves 5,654 km yet to be built, which implies a minimum investment of 73 billion euros in addition** to the 55.89 billion euros already invested.

Evaluation of the high-speed network

The main objective of mobility policies is to improve accessibility, which is defined as the ease of access to the desired places through a given transport system. **In Spain, moreover, the high-speed rail network has been built with another objective: to improve territorial cohesion.**

The new high-speed lines have led to an average saving of 151 minutes, i.e., a 27% reduction in the link of each province with all the others. The AVE high-speed line has especially reduced the travel times of the main corridors, thus reducing the importance of geographical location for moving around the mainland.

The start-up of the different lines has also led to a clear improvement in the generalised cost of travel in all provinces. Specifically, the average reduction in travel costs is 208 euros, a fall of 13.7%.

However, the high-speed network has failed to improve territorial cohesion. The results of all the analyses performed indicate that the AVE has contributed to increasing provincial disparities in both time and overall travel costs. High-speed rail has provided more benefits to the provinces that had a more advantageous situation prior to the AVE, and, therefore, the building of high-speed rail has increased territorial disparities, albeit moderately.

An *ex-post* evaluation of high-speed rail corridors has also been conducted using cost-benefit analysis (CBA) methodology. The detail and wealth of data used, not available to date, has made it possible to study the costs and benefits of each corridor in a much more thorough and precise manner than in any other CBA carried out to date.

The overall results of the CBA show between zero and minimum levels of socio-

economic returns in all high-speed corridors, far from the minimum required for the implementation of infrastructure projects. The business profits do not offset the fixed construction costs, and they offer no security in scenarios that are subject to uncertainty and in which the opportunity cost of public funds is high.

The **north-eastern and southern corridors record results that are close to the current minimum return** (which is lower than that in place when the decision to build them was made), due to reasonably high demand. **The northern and eastern corridors, on the other hand, have significantly worse results because they serve much lower demand.** Neither of the two corridors is finished, but taking into account the outstanding investment, the large amount of territory they cover and their low population, it is highly likely that a future evaluation with all the lines built will yield even more unfavourable results.

Finally, a number **of sensitivity analyses** have been performed with the aim of clearing up uncertainty regarding the future evolution of variables that affect the socio-economic return of the lines. **The likely increase in demand as a result of the liberalisation of the rail market or a hypothetical and unlikely ban on mainland flights would improve the results, but only slightly.** This would be the case with a higher valuation of passenger time, a higher pollution penalty or a reduction in the operating costs of the rail operator. Demand would need to grow at a very high rate for results to improve significantly, even though the rate applied in the base scenario (+2.5% year-on-year) may already be considered optimistic. While a 30-year evaluation would significantly worsen the results, it is true that the experience of the southern corridor suggests that the evaluation periods should not be so short.

4. Cercanías Suburban Rail

The *cercanías* suburban railway allows up to 40,000 passengers per hour and direction, with commercial speeds of 25-70 km/h. It is therefore a very efficient means of transport for the commuter travel of the metropolitan population.

Cercanías is by far the most widely used rail service in Spain, as it carried 562.2 million passengers in 2018, accounting for 89% of all rail users. The service is divided into 12 hubs that are very heterogeneous in terms of length, number of lines and users. Madrid and Barcelona account for 86% of travellers and 34% of the network.

Despite the significant number of users, total investment in Cercanías in the period 1990-2018 has been limited to 3.6 billion euros. This figure contrasts with the 55.89 billion euros invested in high-speed rail over the same period, despite the fact that it only recorded 30 million passengers in 2018, 4.8% of the total

number of rail passengers.

The number of *Cercanías* journeys has almost doubled since 1990 despite low investment in the system. The economic crisis reduced demand, which did not begin to rise again until 2014, driven by the increase in passengers in Madrid and Barcelona, as most of the other hubs continued to lose passengers in the period 2013-2018.

One of the specific features of the governance of *Cercanías* is its lack of full integration into public transport consortiums or authorities, which therefore lack powers in managing the frequencies and running times of rail services, fares and investment in infrastructure. This is an abnormal situation compared with other means of transport, which have transferred their powers to the consortiums in order to achieve coordinated and more efficient management.

The weaknesses of overall infrastructure planning, described above, are fully applicable to *Cercanías*. In this case, however, in addition to the absence of evaluation, the ambitious and non-prioritised nature of the investments and the lack of a budgetary link, we must add the almost total failure to comply with its forecasts. Analysis of the plans of the three main *Cercanías* hubs (Barcelona, Madrid and Valencia) drawn up between 2007 and 2009 revealed that they planned a combined investment of 12.4 billion euros, of which only 701 million euros, or 5.5%, has been spent.

5. Air transport subsidies for residents in non-mainland territories

The main aim of the subsidy programme under evaluation is to reduce the differences between the cost of travel for residents in non-mainland territory and that for the rest of the Spanish population. The study of the generalised cost of transport for each province in relation to all the other provinces concludes that, **once the 75% subsidy has been applied to the ticket price, an island resident has a lower cost to travel to the mainland than the cost for a resident in the rest of Spain to travel to another province.**

The evaluation of the impact of the increase from 50% to 75% in subsidies for mobility in non-mainland regions leads to the following conclusions:

- **There has been a notable increase in public spending** (overall, by 125%), from 324 million euros in 2016 to 730 million in 2019.
- **The cost of tickets for residents has fallen significantly (47% on average), but the full increase in the subsidy has not been passed on to them due to changes in ticket prices.**

- Following the change in the subsidy, **there has been a price rise on tickets for journeys with the mainland (12% for mainland - Canary Islands and 15% for mainland - Balearic Islands)**. The price increase breaks the downward trend that had been recorded for ten years.
- **A very significant part of the price rise on journeys with the mainland is a result of the increase in the subsidy** (81% and 69% on flights between the mainland and the Canary Islands and the Balearic Islands, respectively).
- **The price increase is more significant for those flights with a higher percentage of residents.**
- The average percentage of residents rose on flights in all segments as a result of an increase in resident demand and a slowdown in the growth of non-resident passengers.
- **In contrast with the price reduction for residents (47%), the cost of tickets for non-residents rose by 14% for flights between the islands and the mainland**, which is particularly relevant in regions with such a high level of tourism.
- **Prices in the inter-island market in the Canary Islands continue to show the same stability as they have over the last ten years**, while prices on the other routes under analysis fell by between 30% and 35% over the same period. In the case of the inter-island market in the Balearic Islands, prices have fallen over the last decade, but the rise to a 75% subsidy has not increased the cost of the tickets.

Furthermore, the distribution analysis leads to the conclusion that this is a subsidy with a very uneven distribution. In every territory, half or more of the population do not fly. The 1% of residents in the Canary Islands and Balearic Islands who flew the most accounted for 19% and 17% of the subsidy, respectively. 10% of the residents received 63% of all the subsidies in the case of the Canary Islands and 59% in the case of the Balearic Islands.

Secondly, an analysis of residents' behaviour patterns by income level reveals two trends: **on average, those on higher incomes fly more and buy more expensive tickets. The subsidy is therefore concentrated on those on the highest incomes.**

In the case of mainland-Canary Islands journeys, the 20% of residents on the highest income account for 50% of the total subsidy, the 10% on the highest income account for 35% and the 1% on the highest income account for 6.3%, i.e. 13.2 million euros. In contrast, the 40% of the population on the lowest income

receive 17% of all subsidies. **The mainland-Balearic Islands routes** have a somewhat more equitable distribution. However, **it remains inequitable**, with the 40% of the population on the lowest income receiving only 21% of the subsidies. Finally, **the inter-island routes also show a very inequitable distribution of subsidies**, with the 20% of people on the highest incomes accounting for 42% and 43% in the Canary Islands and Balearic Islands, respectively.

6. Proposals

I. DEVELOP A NEW REGULATORY FRAMEWORK

1. Develop a cross-cutting mobility law

It is proposed that new comprehensive mobility and transport infrastructure legislation be approved that defines common criteria and objectives for all means of transport and which aligns planning and management with international commitments made with regard to sustainable mobility.

II. DEVELOP THE BUDGETARY LINK FOR INFRASTRUCTURE INVESTMENTS

2. Develop budgetary coordination and planning mechanisms for the short and medium term

It is proposed that the budgetary planning mechanisms of infrastructure plans and projects be strengthened, with greater involvement from the Ministry of Finance.

It is proposed that an objective path be established for investment in transport infrastructure in the medium term which is based on the minimum necessary expenditure for proper maintenance of the current infrastructure.

III. PLANNING OF TRANSPORT INFRASTRUCTURE

3. Develop a mobility and transport infrastructure strategy or plan

It is proposed that a new comprehensive transport infrastructure and services plan based on international best practices be implemented.

4. Draw up sector transport plans and link them to the national plan

It is proposed that sector planning instruments be approved as quickly as possible and to do so ensuring methodologies that focus on proposals based on evidence, transparency and public participation.

It is proposed that permanent monitoring of execution of the plans be implemented. This will include a scoreboard reflecting the extent to which the economic, social and environmental targets proposed are achieved over time.

5. Approve the regulatory documents of the railway sector

It is proposed that ADIF's programme of activities be defined urgently and an operating contract or agreement be signed between the ministry and the infrastructure manager, with the aim of complying with the legal obligation and ensuring appropriate planning of its activities and autonomy in its management.

IV. CREATE A NEW FRAMEWORK FOR EVALUATING AND PRIORITISING PROJECTS

6. Creation of an independent administrative authority for project evaluation

It is proposed that an independent body be created to evaluate infrastructure projects. This body should have sufficient technical and economic capacity for effective oversight and to offer the necessary evidence for the decision-making process, including at a regional and local level.

7. Definition of a new framework for project evaluation

7.1. Definition of the content of informative studies

It is proposed that a clear regulatory framework be defined that is based on best international practices on the content of informative studies, which should incorporate standardised and comparable feasibility studies for all means of transport.

7.2. Obligation to evaluate projects' socio-economic return (cost-benefit analysis).

It is proposed that infrastructure projects undergo an evaluation of their socio-economic return with the aim of providing evidence to the decision-making process.

It is proposed that a single technical manual establishing a contingent assessment framework be drafted as a matter of urgency, building on that developed by AIRcF.

It is proposed that a public database be set up to include the costs of the different types of investment and the evolution of real demand following execution of the different types of project.

7.3. Assess territorial convergence and the ex post effects of infrastructure.

It is proposed that a programme of ex-post evaluations of the main types of infrastructure be established with the aim of further increasing knowledge of their economic and territorial effects.

7.4. Create unique evaluation mechanisms for major projects.

It is proposed that projects with a high investment threshold should undergo a second independent and impartial evaluation to predict their costs, risk management and governance.

V. PRIORITISE PLANNED INFRASTRUCTURE PROJECTS

8. Evaluate pending high-speed rail activities.

It is proposed that an overall assessment be performed of the high-speed network yet to be completed, bearing in mind the costs already incurred and expected demand on the basis of actual data on journeys on the lines in operation and investment alternatives for solving mobility problems.

It is proposed that a legislative and regulatory framework be established to increase the intensity of use of the high-speed network, which is the only way to increase the social return on the investments made.

9. Prioritise the projects to be implemented

It is proposed that the huge number of informative studies, both approved and currently being drawn up, on the different means of transport be compiled and, on the basis of transparent and objective criteria, a proposal of investment priorities be made.

VI. STRENGTHEN CIVIL SOCIETY CONSULTATION, TRANSPARENCY AND ACCOUNTABILITY

10. Strengthen public participation

It is proposed that mechanisms be created to facilitate the genuine involvement of stakeholders in decision-making before decisions have been made.

It is proposed that the provision of information and proactive measures be guaranteed in order to enable ongoing and open broad-based dialogue that involves the relevant stakeholders in the planning, selection and prioritisation of projects.

11. Implement an open data policy

It is proposed that all available data or information be made public unless there is a powerful reason not to do so. Publication of all the accumulated information, beginning with the most recent information, should be a core objective of MITMA, ADIF and RENFE.

12. Application of comply or explain principle

It is proposed that political bodies should follow the comply or explain principle so that in the event that they do not apply the technical recommendations, the reasons are made public.

VII. IMPROVE COORDINATION AND COOPERATION BETWEEN THE DIFFERENT ADMINISTRATIONS

13. Create mechanisms for coordination and cooperation between administrations and reform the Sector Conference on Infrastructure

It is proposed that mechanisms for coordination and cooperation between the different administrations in relation to infrastructure be improved.

It is proposed that the recommendations for the improvement of territorial governance of the Spending Review 2018: Evaluation of Subsidy Strategy and Procedure, performed by AIRcF, be applied to transport infrastructure.

14. Create mechanisms of co-responsibility in the spending of territorial administrations

It is proposed that options for involving regional governments in co-financing the projects that affect them be explored.

15. Agree on a framework for planning and evaluating major infrastructure projects with regional governments and local councils

It is proposed that a common framework be agreed for planning and evaluating major infrastructure projects developed by regional governments and local councils.

VIII. CERCANÍAS SUBURBAN RAIL

16. Effectively integrate the management and planning of the Cercanías service and its infrastructures into public transport consortiums or authorities

It is proposed that Cercanías should be fully integrated, both the responsibilities of ADIF and those of RENFE, in each of the public transport authorities of the metropolitan areas.

It is proposed that a process of reflection be undertaken in relation to the best distribution of responsibilities in metropolitan transport and in relation to the operability and efficiency of maintaining independent railway systems in the same metropolitan areas.

17. Redefine the financing of metropolitan transport

It is proposed that the financing system be modified by following the recommendations of the aforementioned Spending Review 18: Evaluation of Subsidy Strategy and Procedure and creating a mechanism with equitable allocation criteria for all Spanish metropolitan areas.

18. Strengthen the Cercanías service in accordance with the new Project Evaluation and Prioritisation Framework

It is proposed that the Cercanías service be strengthened in the coming years on the basis of plans and projects undertaken in accordance with a new evaluation and prioritisation framework.

IX. AIR TRANSPORT SUBSIDIES FOR RESIDENTS IN NON-MAINLAND TERRITORIES

19. Replace the current subsidy of 75% of the journey price (*ad valorem*) with a lump-sum subsidy for each of the routes

It is proposed that the current *ad valorem* subsidy be replaced by a lump sum per route.

20. Study mechanisms to achieve a more equitable distribution of the subsidy by income level

It is proposed that mechanisms be studied for achieving more equitable distribution by income level of public support for mobility in non-mainland territories.

21. Analysis of competition in the Canary Islands inter-island air market and promotion of policies to increase it.

It is proposed, firstly, that competition in these markets be maximised (by encouraging the entry of new companies, removing barriers to entry, etc.). Secondly, the National Markets and Competition Commission (Spanish acronym: CNMC) should analyse the inter-island market in the Canary Islands with the aim of determining its efficiency and whether there is scope for prices to fall in line with the other markets analysed under suitable competition arrangements.



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