

	<p>Science, Education and Innovations in the Context of Modern Problems Issue 2, Vol. 9, 2026</p> <p>RESEARCH ARTICLE </p> <p><b>The role of partnership between the public sector and the private sector in the efficient management of public utilities: A field study from the point of view of the contracting bodies in the Wilaya of Touggourt -Algeria</b></p>	
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<b>Keywords</b>	<p>private sector partnership; General facility management; management efficiency; Partnership projects; General facility services.</p>	
<p><b>Abstract</b> The study dealt with the role played by the partnership between the public and private sectors in the efficiency of running public utilities, by addressing the definition of the variables of the study, and the study aimed to know the relationship of partnership between the public and private sectors to the efficiency of running the public utility through analyzing the paragraphs of the questionnaire, The study was conducted during the years 2021/2022.and conducting several tests on the study samples The study concluded that the partnership between the public and private sector contributes effectively to increasing the efficiency of the management of the public facility and positively affects the improvement of services provided by the latter. A strong relationship between the partnership between the public and private sector and the quality of public utility management, and this is confirmed by the value of the correlation coefficient in the study sample, which amounted to: 87%.</p> <p><b>JEL Classification Codes:</b> XN2-XN1.</p>		
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## 1. Introduction

One of the greatest duties that countries must undertake is to achieve and develop economic development by all available means, as it contributes to the development of all other sectors, especially the social aspect, where the state seeks to achieve well-being and a decent life for its citizens. No country, including Algeria, can achieve development without providing services and meeting the public needs of its citizens. This is what the public sector used to do, relying on taxation and oil revenues for its funding and being directly affected by the price of the latter, rising and falling. This, in turn, affects the quality of public service provision. In light of the development that countries are witnessing and the excessive

acceleration in the demands of life, the public sector has become unable to finance the public facilities that provide the required public services. This has prompted countries to search diligently for economic alternatives that enable the state to continue providing public services at the required quality that keeps pace with modernization. One of the most important alternatives proposed is the partnership between the public and private sectors, and benefiting from the resources and expertise of the latter in the field of financing public facilities that provide public service.

#### 1.1 Significance of the Study:

The significance of this study lies in the importance of the trend towards building public-private partnerships in infrastructure projects and the management of public utilities, and the attempt to generalize this approach to all sectors and all countries.

#### 1.2 Objective of the Study:

This study aims to identify public-private partnerships and to determine the extent to which partnership contracts contribute to increasing the efficiency of public utility management from the perspective of the contracting bodies.

#### 1.3 Methodology of the Study:

The research adopted a descriptive approach in the theoretical section to define public-private partnerships and public utilities, and an analytical approach through the use of a questionnaire to ascertain the opinions of the contracting bodies on the research topic.

#### 1.4 Research Problem:

From this perspective, we posed the following research problem: To what extent do public-private partnership contracts contribute to increasing the efficiency of public utility management in Algeria?

To answer this problem, we posed the following sub-questions:

- How does public-private partnership contribute to the management of public utilities?
- What is the impact of public-private partnerships (PPPs) on improving the management of public services?
- What is the role of government oversight bodies in the efficiency of public service management?

#### 1.5 Study Hypotheses:

- PPPs contribute effectively to improving public service performance.
- PPPs have a significant impact on improving the management of public services.
- Government oversight within the framework of PPPs plays an effective role in the efficiency of public service management.

#### 1.6 Study Structure:

To answer the main research question and sub-questions, and to test the hypotheses, we have divided this research paper into the following sections:

First: The concept of PPPs.

Second: The concept of public services.

Third: The role of PPPs in the efficiency of public service management.

#### 1.7 Previous Studies:

This study was launched based on a number of previous studies that addressed the same topic and touched upon it from some of its aspects, most notably:

- The doctoral dissertation of Professor Senoussi Ben Omar entitled: The Effectiveness of Foreign Direct Investment in Algeria - Evaluating the Public-Private Partnership Experience at Abou Bekr Belkaid University, Tlemcen 2. This study aimed to demonstrate the unique characteristics of Algerian public-private partnerships compared to international partnerships, which have opted for economic liberalization and thus expressed approval of partnerships within the framework of foreign investment. The researcher in this dissertation also focused on the partnership between the public sector, represented by the National Water Company, and the private sector, represented by the Spanish private water company Agbar GRUPO. The study concluded that the public-private partnership was effective in providing the vital public service of water.
- An article by Dr. Saoud Wassila and Dr. Farhat Abbas entitled: Public-Private Partnerships in Infrastructure Projects in Turkey. At Mohamed Boudiaf University in M'Sila, this study stemmed from the question: How successful has the Turkish experience been in relying on public-private partnerships (PPPs) for infrastructure projects?

To answer this question, the study was divided into three sections. The first two sections addressed the theoretical aspects of infrastructure concepts and the nature of PPPs. The third section provided an analytical study of PPP projects in Turkey, highlighting the most significant ones. The study was characterized by its general approach in the

theoretical section and its specific focus in the practical section. This article begins with the general concepts presented in this study and attempts to apply them to the Algerian context.

- An article by Professor Samir Bouaissa, titled "The Problematic Nature of Public-Private Partnerships in the Management of Public Utilities," published at the University of Algiers 3, explores the question: Why do public-private partnerships for managing public utilities in Algeria remain stalled? He answered these questions by outlining the evolution of public services in Algeria and the motivations behind resorting to contracting. He then examined public-private partnerships as a modern contracting method, concluding that improving public services necessitates modernizing public service management and involving the private sector in services not related to national sovereignty. Our article builds upon the general concepts presented in these studies and adds a focus on the concept of partnership in public service management from the perspective of contracting bodies, as they are one of the parties to this contract.

### 8.1 Study Location:

This study was conducted at the level of contracting bodies in the Wilaya of Touggourt.

#### 9.1 Target Group:

This study targets a group of members of contracting bodies, represented by the Wilaya's procurement committees, as well as the Wilaya's financial control staff.

#### 2. The Concept of Public-Private Partnerships:

Governments strive to improve and develop services provided to their citizens, reduce their financing costs, and seek additional sources of funding for their projects. Therefore, it has become necessary for them to adopt public-private partnerships to implement these projects. From this perspective, we will learn about partnerships through their definition, forms, and reasons for adopting them.

**2.1 Definition of Public-Private Partnerships:** There are several interpretations of public-private partnerships, including, but not limited to, the following:

- It is an agreement between a government entity and a private partner to share risks and opportunities in joint business ventures involving the provision of public services. (Mohamed & Marai, 2017)
- Arrangements made by the private sector to provide assets and services that are usually provided by the government. (Ketuby, Hemming, and Schwartz, 2007)

- The World Bank defined it as: a long-term contract between a private institution and a government agency for the purpose of providing public services and tasks, where the private sector bears all or most of the financial responsibilities and risks for the project. (Ponty, 2007) From the above, we can conclude that the public-private partnership (PPP) is defined as: an agreement between the two parties whose primary objective is to achieve development, and whose secondary objective is to generate profits for the private sector. This is achieved by sharing the burdens and risks resulting from this partnership between the public and private sectors, according to the nature and percentage of each sector's contribution to the completion of the development projects under partnership.

#### 2.3 Methods of Implementing the Public-Private Partnership Contract:

The public-private partnership contract can be implemented in a number of ways, the most important of which are:

**a. Cooperative Partnership:** In this type of partnership, both the public and private sectors operate at the same level, and there is no oversight of one party over the other. Decisions are made unanimously. Tasks and responsibilities are distributed among the partners, and no single party has sole supervisory authority (Mohammed & Marai, 2017, p. 33).

This partnership is characterized by cooperation between the two parties and is prevalent in capitalist economic climates.

**B. Contractual Partnership:** This partnership is based on a contract between the public and private sectors. The contract terms specify a single entity responsible for the contract, as well as for oversight and monitoring. These contracts take several forms, the most important of which are: service contracts, management contracts, lease contracts, concession contracts, etc.

This method is common in developing countries due to the prevailing socialist mindset in their economies, as well as the long-standing reliance on the public sector and the weakness of the private sector, which is often prevented from developing through the adoption of public projects.

#### C. Consultative Partnership:

This type of partnership between the public and private sectors is one of the most common, especially in service provision. The private sector's role is limited to providing opinions and advice to those responsible for delivering public services in public facilities.

#### 2.4 Sources of Funding for Public-Private Partnership Projects:

Public-private partnerships open up broad opportunities to benefit from the management expertise and financial resources of the private sector. These resources are added to the public sector according to the partnership agreement between the two parties. These sources include:

a. **Funding Sources within the Framework of Partnership Agreements:** Funding sources within the framework of public-private partnership agreements are divided into:

- **Public Funding:** This means the state finances projects by granting low-interest loans, compared to loans granted by private entities.

- **Funding from Private Institutions:** This means financing partnership projects by the private sector, in addition to management and implementation. The public sector's role is limited to project identification and contract preparation.

- **Direct Project Financing:** This means financing projects by the private sector using loans and bonds granted to them by banks. This type of financing is very similar to financing from private institutions but offers greater financial sustainability.

b. **Government financing of infrastructure and public utilities:** One of the most important duties of governments is to ensure the provision of infrastructure and public utility services and to secure funding for these projects from the development budget and with the assistance of public institutions dedicated to this purpose, without resorting to financial markets due to the significant risks involved. These risks lie in investing at a fixed interest rate for a long period, which is the construction and operation phase of the infrastructure. (Al-Rashid, 2007, p. 69) Government financing of infrastructure and public utilities takes the following forms:

- **Conditional financial support:** The state has the right to provide conditional financial support for projects, where it assumes responsibility for some potential problems, including: (Lakhal & Ali, 2017, p. 26)

The government, as the public partner, provides guarantees primarily related to bank loans, fluctuations in interest rates and exchange rates, and ensures the level of demand for public services.

Compensation is provided in the event of a decrease or decline in profits or if costs exceed the level expected at the start of the study.

Conditional loans are provided, where the government commits to providing loans at a known interest rate, usually agreed upon in advance, and for a defined term.

**Direct financing:** This involves direct government intervention in financing projects according to the following methods:

**Direct support** through the provision of direct cash assistance.

Full or partial exemption from certain financial obligations, such as taxes.

Lending to the project manager in the event of temporary financial unavailability.

Direct support for the prices of products resulting from the partnership project or exemption of consumers from value-added tax to encourage increased consumption. • **State Financial Intermediation:** The state can intervene by enacting local laws that facilitate financial transactions for private individuals, encouraging and favoring them over foreign investors, and protecting them in situations of high risk that the financial market cannot bear.

**Project Study Funds:** These are government commitments to prepare preliminary studies for infrastructure and public utility projects, funding these studies separately from project costs.

#### 2.5 Risks Facing the Implementation of Public-Private Partnership (PPP) Projects:

Implementation of PPP projects faces several risks. These risks can be shared between the public and private sectors according to the signed contract. The most important of these risks include:

a. **Regulatory and Legal Risks:** One of the most significant risks facing PPP projects is the risk of weak, ambiguous, and open-ended legislation, particularly regarding the methods of granting licenses for PPP projects, monitoring and implementation, the relationship between workers and employers, and the regulatory relationship with the tax authority, among others.

b. **Political Risks:** Given that the government, represented by the public sector, is a party to this partnership, the risk of changes in government and regimes, coups, wars, and other emergencies is no less significant than the risk of bureaucracy and artificially created administrative obstacles hindering projects. There is also the risk of expropriation, which international law grants states the right to confiscate property within their sovereignty for the public good, in exchange for compensation that does not usually reflect the project's scale. (Prownlie, 1990)

**C. Risks of Delays:** This risk is particularly impactful in long-term projects, leading to increased project costs, price fluctuations, and delays, ultimately causing the project to fail to achieve its intended goals. 6.2 Foundations and Principles for Successful Public-Private Partnerships:

For a successful public-private partnership (PPP), according to the OECD and based on the 2012 Governance Committee's recommendations, a set of foundations and principles must be in place. These include:

- The government entity must ensure public awareness of the costs, benefits, and relative risks of PPPs compared to traditional procurement practices. Active consultation and participation of stakeholders and end-users are essential in project development, including monitoring and quality assurance.
- The powers and responsibilities of the central budget authority, the supreme audit institution, and sectoral oversight bodies must be clearly defined to ensure sound procurement practices and clear accountability mechanisms.
- Key regulations affecting PPP operations must be clear, transparent, and implemented effectively. New regulations must be carefully and thoroughly evaluated.
- All investment projects must be prioritized at the highest political level. Investment decisions must be based on a comprehensive governmental perspective, independent of project procurement and financing methods, and must be free from institutional, procedural, or accounting bias in favor of or against either partner. • Carefully and thoroughly examine the investment method that will achieve the greatest value for money. The government should pre-test the purchase option to make an informed decision regarding entering into a public-private partnership (PPP) contract.
- Risk management and transfer must be improved. Risks should be identified, measured, and allocated to the party with the lowest cost to minimize them.
- Government authorities must prepare for the operational phase of the PPP. Securing value for money requires appropriate vigilance, effort, and caution during the transition from the pre-operational to the operational phase.
- Clear, transparent, and predictable rules must be established to resolve potential disputes, address possible changes during the implementation of the PPP contract, and protect the private sector from unforeseen contingencies. This will ensure the preservation of value for money through negotiation.
- The government must ensure a continuous job market to guarantee competition and equal opportunities in the bidding process, attracting more operators and market entry.
- The government must ensure that the project is cost-effective and that the public investment is sustainable. • Transparency and clarity are essential in the public-private partnership budget, as well as in the documentation related to contingency costs. Care must be taken to ensure that the entire public sector is covered by this partnership.
- The necessary skills and authority in procurement must be provided to the relevant authorities, and care must be taken to avoid wasting money and effort.

### 3. The Concept of Public Utilities:

The concept of public utilities is clearly evident under the socialist system adopted by most Third World countries. This system entails state control over all sectors and the imposition of absolute sovereignty over all utilities, especially those related to providing public services.

#### 3.1 Definition of Public Utilities:

There are several definitions of public utilities, varying according to the perspective from which they are viewed. Some of these definitions are listed below:

- Any activity undertaken by a public entity with the intention of fulfilling a public interest. (Laubadère)
- A structure, institution, or organization comprised of a group of people or funds that is established to accomplish a specific public task, such as a university, hospital, and administrative units and agencies in general. (Baali, 2013, p. 235)
- Activities that are guaranteed, regulated, and monitored by the government due to their nature and which can be achieved through state intervention. (De Corial, 1997) From the above, public utilities can be defined as any activity provided by the public administration or one of its representatives for the purpose of providing public services and meeting the public needs of citizens.

#### 3.2 Definition of Public Service:

The concept of public service lacks a universally agreed-upon definition. Therefore, we present a number of definitions, the most important of which are:

- Any human effort related to the planning, organization, management, and control of human and material resources to achieve specific objectives efficiently and effectively.

- Services provided by public institutions, which differ from those provided by private institutions, as public service aims to satisfy collective needs for the public good.
- Services provided by a public utility, which is a facility managed by the state or another public legal entity, whether regional or institutional. (Moulay Lahcen, 2011)

From the above, public service can be defined as: all efforts made by the state or one of its bodies within the framework of fulfilling its duties and providing the necessities of life for members of society and achieving their well-being on a regular and continuous basis. This includes all essential services such as security, health, education, etc.

### 3.3 The Legal Relationship of the Public Utility to the Provision of Public Services:

The existence of any public utility cannot be justified without the provision of a public service, as the latter is the justification for the existence of the public utility. This makes their relationship obligatory and inseparable. Several regulations and texts have been given great importance by the Algerian legislator due to their direct relation to the management of the public utility and the regulation of its relationship with the services provided. The most important of these are:

- The Municipal Law of 2001, particularly Articles 151 to 156, which stipulate the methods of managing the public utility in the provision of public services, namely: direct management, concession, and delegation.
- Executive Decree No. 88/131 dated July 4, 1988, regulating the relationship between the administration and the citizen, particularly Articles 6 and 21.
- Executive Decree No. 90/188 dated June 23, 1990, which defines the structures and bodies of the central administration within ministries. The central administration within each ministry is responsible for improving the quality of public services and enhancing the relationship between the administration and the citizen.
- The law regulating public procurement, as defined by Presidential Decree No. 15/247 dated September 16, 2015, concerning the organization of public procurement and public service delegations.

### 3.4 Obstacles Facing Public Utilities in Providing Public Services:

Given the predominantly social nature of public utilities and the nature of the services they provide, they face numerous and recurring obstacles, including:

- Delays in providing public services on time due to various reasons related to the public utilities themselves, the laws governing their operation, insufficient resources, or other factors.
- The absence of clear policies and plans for developing public service delivery, due to shortcomings in the policies adopted by the state.
- Inadequate monitoring and oversight of service delivery and ensuring accessibility for those entitled to them, due to a lack of legislation governing public utilities and regulating their service provision.
- The prevalence of bribery and administrative corruption in public utilities, resulting in poor public service and a failure to keep pace with developments.
- Negligence, apathy, and a lack of responsibility among some public utility employees, leading to the misuse and waste of financial resources.
- The inability to maintain a good level of public service, due to the absence of standards for monitoring the quality of these services. (Adman, 2015, pp. 20-22)

Therefore, and based on the aforementioned obstacles and problems facing the public sector in providing public services, it was imperative for governments and countries, including Algeria, to seek a way to upgrade the public sector and improve the services it provides. One of the most important justifications for resorting to the private sector and establishing partnerships between it and the public sector was to improve and upgrade the management of public facilities and increase the quality of public services provided to the public.

## 4. The Role of Public-Private Partnerships in the Efficiency of Public Utilities Management

To answer the study hypotheses and demonstrate the role of public-private partnerships in the efficiency of public utility management, 75 questionnaires were distributed to employees of contracting bodies in the Wilaya of Touggourt. 66 questionnaires were returned, and 6 were excluded for not being relevant to the topic. Therefore, 60 questionnaires were used, representing the study sample.

### 4.1 Educational Qualification Variable:

Table (01) shows the study sample according to the educational qualification variable. The majority of the sample held Bachelor's and Master's degrees, at 28.3% and 25.0% respectively, representing 17 and 15 individuals of the total sample. This was followed by those holding a State Engineer's degree at 21.7% (13 individuals), and other qualifications at 15% (9 individuals). The smallest group, at 10% (6 individuals), held a Diploma of Applied University Studies.

### 4.2 Occupational Variable:

We observe that the third and second ranks had the highest frequency rates, at 43.3% and 40.0% respectively. The first rank had the lowest frequency at 16.7%, indicating that the sample under study includes employees with reasonably acceptable professional experience, enabling them to have a good understanding of work procedures and conditions, as well as solutions to some work difficulties and obstacles.

#### 4.3 Years of Experience Variable:

The third rank (over 10 years) had the highest frequency, reaching 55.0%, representing 33 individuals out of the total sample. The second rank, between 5 and 10 years, had a frequency of 30.5%, representing 18 individuals. The first rank, less than 5 years, had the lowest frequency at 15%, representing 9 individuals out of the total sample. 4.4

#### Questionnaire Reliability Test:

Questionnaire reliability means that if the questionnaire is redistributed under the same conditions and circumstances multiple times within a specific timeframe to the same sample members, the same result will be obtained, indicating a degree of stability in the results. To test the reliability of the measurement instrument in this study, Cronbach's Alpha coefficient was used. The validity coefficient is equal to the square root of the reliability coefficient. The results can be summarized in the following table:

Table 1: Distribution of Cronbach's Alpha Coefficient

Number of phrases	Validity coefficient	Cronbach's Alpha stability coefficient
17	0.979	0.959

Source: Prepared by the researchers using SPSS version 22.

Since the reliability coefficient is between zero and one, if there is absolute reliability, Cronbach's alpha will be equal to one, and vice versa. However, in this study, as shown in the table above, we found the coefficient to be 95.9%, which is higher than the acceptable minimum of 60%. This percentage can be considered very good and statistically acceptable, approaching absolute reliability. The accuracy of the questionnaire items ranged between 95% and 96%. Therefore, the results of this questionnaire can be relied upon, and we can be confident in the reliability of the measurement instrument and its ability to achieve the study's objectives.

Meanwhile, the validity coefficient was estimated at 97.9%, which is very high. Therefore, the questionnaire items successfully achieved the study's objective. 5.4 Analysis and Interpretation of Questionnaire Items:

In this section, we will analyze the questionnaire items using the mean and standard deviation.

•Public-Private Partnerships: The ten items in the first section were phrased in the present tense and offered five response options: strongly disagree, disagree, neutral, agree, and strongly agree. These are summarized in the following table:

Table 2: Results of the Study Sample on Public-Private Partnerships

First Axis: Public-Private Partnerships	Result	deviation	average
Providing guarantees by contracting bodies	Agreed	0,624	3,82
Strengthening state oversight through	Agreed	0,610	3,97
Providing laws and regulations governing the process	Agreed	0,789	3,77
Prioritizing policies	Agreed	0,706	4,10
Contracting bodies studying project characteristics	Agreed	0,685	3,85
Private sector assuming potential risks in the partnership	Strongly agree	0,547	4,65
Providing a stable and predictable legal and regulatory environment	Agreed	0,804	3,62
Contracting bodies ensuring a sufficient number of competitors	Agreed	0,645	4,08
The project award process involves steps that benefit public bodies and other parties	Agreed	0,681	4,10
Results of the first axis	Agreed	0,622	4,05
First Axis: Public-Private Partnerships	Agreed	0,529	4,00

Source: Prepared by the researchers using SPSS V22 output.

The table shows that the average sample's participation in the Public-Private Partnership (PPP) axis was in agreement, with a mean score of 4.00 and a standard deviation of 0.529. This indicates that most items in this axis agree that PPPs contribute to improving public service performance. Response levels for the items ranged from a mean of 3.62 to 4.65, with standard deviations between 0.547 and 0.804, confirming the high degree of consistency in the participants' responses.

•Public Service Efficiency: The seven items in the second axis were phrased in the present tense and offered five response options: strongly disagree, disagree, neutral, agree, and strongly agree. These are summarized in the following table:

Table 3: Results of the Study Sample on Public Service Efficiency.

Second Axis: Public Service Efficiency	Result	deviation	average
Achieving shared public services across sectors	Agreed	0,73	3,9
Providing low-cost services or goods	Agreed	0,88	3,85
Effectiveness of shared public services across sectors	Agreed	0,73	3,93
Managing shared public services across sectors	Agreed	0,78	3,78
Ensuring shared public services across sectors	Agreed	0,63	3,90
Providing public services by public facilities	Strongly agree	0,68	3,97
Generalizing shared public services across the public sector	Agreed	0,66	4,00
Results of the Second Axis	Agreed	0,60	3,90

Source: Prepared by the researchers using SPSS V22 output.

The table shows that the average sample's performance on the Public Service Efficiency axis was in agreement, with a mean score of 3.90 and a standard deviation of 0.60. This indicates that most respondents agreed that public services are provided at acceptable levels in public facilities. The response levels for the items ranged from a mean of 3.78 to 4.00, with standard deviations ranging from 0.63 to 0.88, confirming the consistency among the responses of the survey participants.

•Model Assessment and Testing:

Table 4: Model Assessment and Testing

teacher	Teacher's value	Corrected coefficient of determination R-2	Correlation coefficient R	Coefficient of determination R2	Error associated with the T-sig(T-test) test
A	0.097-	0.752	0.870	0.756	0.30
$\alpha$	0.001				0.075

Source: Prepared by the researchers using SPSS version 22.

The following analyses can be presented from the table:

□ Coefficient of Determination (R<sup>2</sup>): 0.756, meaning that the independent variables together explain 75.6% of the variance in public-private partnerships (from the variance of the dependent variable), with the remaining 24.4% attributed to other random factors.

□ Correlation Coefficient R: 0.870, resulting from the relationship between the independent and dependent variables. This means that the independent variables are 87.0% correlated with the dependent variable, "public-private partnerships in managing the efficiency of public services," with the remaining 13.0% attributed to other random factors, at a 95% confidence level. • Adjusted Value (Coefficient of Determination Corrected R-2): The reason for the adjustment is that the regression equation is based on a sample, not a population. Therefore, the R-2 value is somewhat inflated, which is adjusted to be closer to reality. In this study, the adjusted R-2 value is estimated at 0.752, or 75.2%. This means that the independent variable (public-private partnership) explained 75.2% of the variation in the dependent variable (public facility management efficiency), with the remainder attributed to other factors.

□ T-test: We observe that all independent variables (public-private partnership) were statistically significant according to the t-test (at a significance level of  $p \leq 0.05$ ). Therefore, we reject hypothesis H2 and accept the alternative hypothesis H1: There is a statistically significant relationship at the 95% confidence level between public-private partnership and public utility management, which can be formulated as a multiple regression model. Furthermore, the model used, based on the output of SPSS V22, is estimated as follows:

$$Y = a + \alpha_1 B_1 + \varepsilon$$

$$Y = -0.097 + 1.001 B_1 + \varepsilon$$

- Model testing: To test the model, we perform an analysis of variance (ANOVA)

**Table 5: ANOVA Test: Public-Private Partnership - Public Utility**

The attached error is F-sig(F-test)	Value of the analysis of variance test for the regression line F	Average of squares	Degrees of freedom of regression	sum of squares of regression	The model
0.000	180.062	16.537	1	16.537	decline
		0.092	58	5.327	residual
			59	21.864	the total

Source: Prepared by the researchers using SPSS V22 output.

According to this table, which is used to examine the statistical acceptability of the regression model, the F-test error ( $P = 0.00$ , the significance level of the test) is less than the significance level of  $\alpha = 0.05$ . This confirms the overall acceptability of the model and the high explanatory power of the multiple linear regression model. Therefore, we reject the second hypothesis, H2, which posits no statistically significant relationship between public-private partnerships and the management of public utilities.

### **5. Conclusion:**

Public-private partnerships play a crucial and effective role in the efficient management of public utilities and the provision of public services. This is achieved through the interaction between financing and management expertise, as well as monitoring and oversight mechanisms, which are reflected in the quality of services provided and their timeliness. Among the most important findings of the study are:

Results and Hypothesis Testing:

Public-private partnerships contribute effectively to the performance of public services by adding value to the management of public utilities and the quality of services provided.

Contracting bodies partner with the private sector in joint projects to contribute to defining the project parameters.

This confirms the validity of the first hypothesis.

Public-private partnerships (PPPs) significantly improve the management of public utilities by combining the regulatory and support laws governing public utility operations with the financing and expertise of the private sector.

This confirms the validity of the second hypothesis.

Contracting bodies ensure a sufficient number of competitors in PPP tenders and guarantee equal opportunities for all bidders.

The process of awarding PPP projects involves clear, transparent, and unambiguous steps.

Government oversight bodies are among the most important mechanisms for ensuring the efficient management of public utilities, as they monitor and support their operation at all stages.

This confirms the validity of the third hypothesis.

### **6. Recommendations:**

Adherence to the principles of PPPs in the management of public utilities is essential.

Leveraging private sector financing and expertise in public utility management is crucial for achieving high-quality public services.

Increasing private sector participation in defining the parameters of joint projects is vital.

Benefiting from the private sector's role is essential. From the experiences of countries that have preceded us in the field of public-private partnerships.

Expanding the scope of private investment in joint public-private projects, in order to generalize and disseminate public services in all areas.

Activating the laws and regulations governing public-private partnerships, through their practical implementation and utilization.

### **Ethical Considerations**

This study was conducted in full compliance with internationally recognized ethical standards for social science research. Participation in the survey was entirely voluntary, and all respondents were informed of the academic purpose of the study prior to data collection. Informed consent was obtained from all participants, and they were assured of the confidentiality and anonymity of their responses. No personal identifiers were collected, and the data were used exclusively for scientific research purposes. The study did not involve vulnerable populations, sensitive personal data, or any procedures that could cause physical, psychological, or professional harm to participants. Ethical principles of integrity, transparency, and respect for participants were strictly observed throughout all stages of the research.

### **Author Contributions**

Dr. Debbache Mohammed contributed to the conceptualization of the study, research design, literature review, data collection, and initial drafting of the manuscript.

Dr. Hamza Dhouifi contributed to the methodological framework, statistical analysis, interpretation of results, and critical revision of the manuscript.

Both authors jointly reviewed and approved the final version of the manuscript and take full responsibility for the accuracy, integrity, and originality of the work.

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### **Conflict of Interest**

The authors declare that there are no financial, institutional, or personal conflicts of interest that could have influenced the research outcomes or the interpretation of the results.

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