

# **Exploring the Reality of Innovation and the Synergy Between Public and Private Management: A Case Study of Djen Djen Port Company**

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## **Abstract**

This study investigates the relationship between innovation and public-private management synergy, focusing on the inauguration of Djen Djen Port Company as a case study in Algeria. Through a comprehensive literature review, the conceptual framework elucidates the theoretical underpinnings of innovation and the dynamics of public-private collaboration. Methodologically, data collection involves questionnaires administered to 50 participants, with subsequent statistical analysis conducted using SPSS version 29. The results highlight the significant role of innovation in influencing the dependent variable, with a strong positive correlation observed between innovation and the blend of public and private management. The findings underscore the importance of effective collaboration between public and private entities in fostering innovation, with implications for organizational practices and policy formulation. The results underscore the pivotal role of innovation in fostering effective collaboration between public and private management entities, highlighting the importance of nurturing a culture of innovation to drive organizational success and competitiveness.

## **Keywords**

Public management , Private management, Innovation, Port company, Competitiveness.

## المخلص

تبحث هذه الدراسة في العلاقة بين الابتكار والتأزر بين الإدارة بين القطاعين العام والخاص، مع التركيز على شركة ميناء جن جن كدراسة حالة في الجزائر. ومن خلال مراجعة شاملة للأدبيات، يوضح الإطار المفاهيمي الأسس النظرية للابتكار وديناميكيات التعاون بين القطاعين العام والخاص. من الناحية المنهجية، يتضمن جمع البيانات استبيانات يتم إجراؤها على 50 مشاركًا، مع إجراء تحليل إحصائي لاحق باستخدام الإصدار 29 من برنامج SPSS. وتسلط النتائج الضوء على الدور الهام للابتكار في التأثير على المتغير التابع، مع ملاحظة وجود علاقة إيجابية قوية بين الابتكار ومزيج التسيير بين القطاعين العام والخاص. وتؤكد النتائج أهمية التعاون الفعال بين الكيانات العامة والخاصة في تعزيز الابتكار، مع ما يترتب على ذلك من آثار على الممارسات التنظيمية وصياغة السياسات. وتؤكد النتائج الدور المحوري للابتكار في تعزيز التعاون الفعال بين الكيانات الإدارية العامة والخاصة، وتسليط الضوء على أهمية رعاية ثقافة الابتكار لدفع النجاح التنظيمي والقدرة التنافسية.

## الكلمات المفتاحية

الإدارة العامة، المناجمنت الخاص، الابتكار، ميناء جن جن، القدرة التنافسية.

## Introduction

In recent academic inquiries into inter-port dynamics, scholars have explored the consequences of port integration and the privatization of public ports on performance within highly competitive sectors (Xu & Lee, 2024). This is due to the rapid innovation that plays a crucial role in the success and growth of companies, with several studies indicating a positive correlation between innovation and improved business performance (Colombo & Martínez-Vázquez, 2019).

Furthermore, the level of fiscal decentralization in a country can impact public investment in innovation. Several researchers have found that fiscal decentralization leads to lower levels of public spending on innovation and a reduced share of basic research in the government's R&D budget (Meiqing et al., 2021).

Therefore, it is crucial for public policy to promote equal innovation cost efficiency between different research and development entities in order to maximize overall innovation efforts.

In the current context of globalization and growing disparities between developing and developed countries, rapid technological change places a premium on society's capacity for innovation. But there is ample evidence that countries, regions, and individual companies differ greatly in their ability to innovate. Yet there are only preliminary studies of the systems that lead to innovations in the sphere of transportation companies, whether private or public (Shaheen et al.2020).

However, despite efforts to address them, the repercussions of the 2008 crisis continued to linger in maritime transport, casting a shadow of uncertainty over the global industry (Feng et al., 2021)

Currently, there are very few investigations that have covered such an agenda of private and public cooperative management in Algeria. At the same time, it embraces these two concepts of innovation in private and public management that underscores the importance of emotion in any process of innovation.

This study was designed as an empirical research case study on the sprawling field of corporate entrepreneurship, also called innovation, in both the public and private sectors in a unique country, Algeria. The study focuses on the inauguration of Djen Djen Port and the synergy created between public and private management.

To address this gap in the literature, this study will :

- Investigate the reality of innovation in Djen Djen Port Company and analyze how public and private management together can foster innovation in this type of company.

- Enhance understanding of the synergy between public and private management in regard to the development and implementation of more appropriate managerial practices leading to effective integration of the strategic management of the transport chain and public policy for the development .

- Highlight the main features and characteristics of the innovation applied in a company and the way they are organized and managed.

Indeed, Djen Djen Port Company is a society that is a business group which benefits from public-private partnership and constitutes a perfect study case to understand how innovation can do without one approach to the Public Administration. In

fact, both the public and the private management should have a primary role in the company to make successful innovations that operate on men, motions, and environments.

The proposed guiding main question is : *“How does the synergy between public and private management influence the innovation outcomes at Djen Djen Port Company?”* .

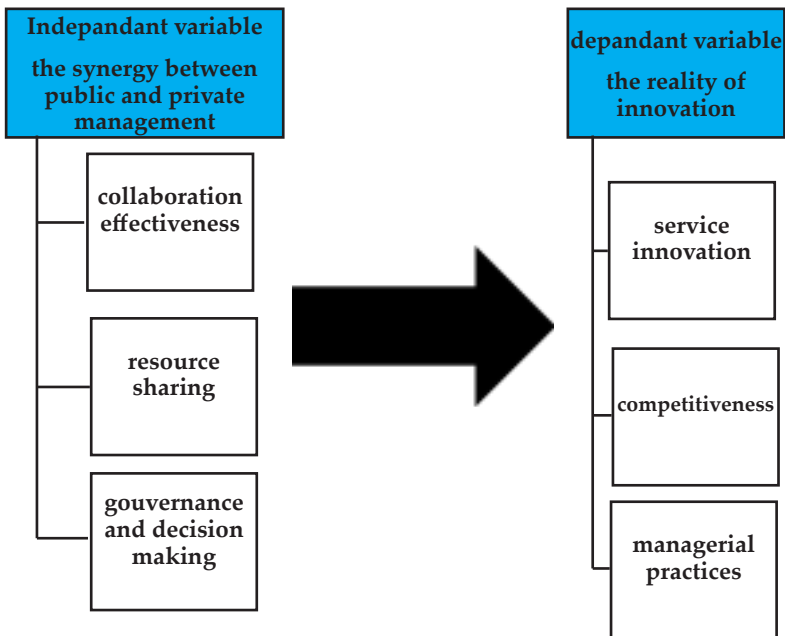
To investigate this relationship, the research proposes the following hypothesis:

**H0:** The synergy between public and private management does not significantly influence the innovation outcomes at Djen Djen Port Company.

**H1:** The synergy between public and private management significantly influences the innovation outcomes at Djen Djen Port Company.

Based on the literature review, the study proposes the following conceptual framework :

**Figure N° 1. variable modeling**



Source : created by the authors

The paper is divided into several sections. The first section delves into existing research and scholarly works related to innovation, and public-private management synergies. It synthesizes the key findings and debates in the field, providing a comprehensive understanding of the theoretical and empirical landscape. While in the second part, the research design, data collection methods, and analysis techniques are outlined. Then, the findings of the study are presented and analyzed. This section provides a detailed account of the empirical results, including descriptive statistics, correlations, regression analyses. The discussion section interprets the results in the context of the research aims and theoretical framework. Finally, the conclusion summarizes the key findings of the study and reiterates its significance.

## **1. Conceptual Framework**

### **1.1. Innovation in Public administration and Private Management**

Many authors have tackled the concept of innovation without ever coming up with a single definition. In this framework, innovation is often confused with R&D. The OECD concept of innovation is inclusive of new products, services, processes, methods, or organizational changes. Even the implementation of administrative or marketing changes is considered innovative. The variable most frequently mentioned for measuring innovation is R&D because the data are available in the OECD countries (Tidd & Bessant, 2020; Solis-Navarrete et al.2021; Casalino et al.2020).

In public management, innovation allows for the modernization of the public service, enabling it to meet new public expectations in terms of service quality (Ali and Haliah2021). However, the legal and regulatory framework surrounding public procurement, both in the context of the State and private companies, often limits the innovative capabilities of public actors.

The idea of public entrepreneurship, which involves creativity and innovation to benefit the public or citizens, is central to capacity building and institutional development programs within organizations. This study follows a normative research approach, analyzing relevant references to explore the application of public entrepreneurship in organizational governance. The concept was influenced by David Osborne and Ted Gaebler's work on Reinventing Government, as well

as Osborne and Plastrik's ideas on Banishing Bureaucracy. This new perspective has sparked reform and transformation within public organizations globally, including in Indonesia. This article aims to address questions surrounding the what, why, and how of public entrepreneurship within organizational settings (Syam et al., 2021).

Innovation in Public Administration, encompassing new procedures, technologies, goods, and principles. It delves into various organizational frameworks over time and underscores the substantial transformation brought about by the implementation of the New Public Management Model. The examination includes the influence of political authority, societal or economic disruptions, and public demands in driving change within the field (Rocha & Zavale, 2021).

The significance of advancements in public administration (PA) in supporting sustainable development and fulfilling citizens' expectations for government performance is crucial. Governments worldwide are making efforts to enhance PA by improving its efficiency and transparency. Through the adoption of various strategies and cutting-edge techniques, governments are actively involving citizens in decision-making processes to bridge the gap between officials and the public, thereby enhancing trust in the system. This study aims to investigate recent innovations in PA in the face of challenges posed by globalization, with a specific focus on their impact on citizen expectations. While early feedback indicates that citizens are generally satisfied with PA innovations, continuous evaluation is essential to gauge their ongoing effectiveness in meeting citizen demands and raising expectations. The research methodology employed in this study includes the analysis of empirical data, comparative systematic review of PA advancements, archival research, policy assessments, and bibliographic analysis (Batalli, 2011).

In addition, Fabre and Straub (2023) in their paper argued that while PPPs hold promise as a means of promoting innovation, the existing evidence suggests that their effectiveness is contingent on various factors, including contract design, regulatory frameworks, and institutional capacity. Ongoing research and evaluation are necessary to refine our understanding of the relationship between PPPs and innovation and to identify strategies for optimizing their impact.

To progress, it is imperative for the public sector to gain a deeper understanding of the advantages and drawbacks associated with innovation portfolio management. It is crucial to acknowledge that innovation portfolio management transcends being a mere administrative duty; rather, it serves as a driving force for organizational transformation. This entails the necessity of robust leadership, a phased approach to implementation, well-defined incentive mechanisms, and the ability to showcase tangible value additions throughout the process (Schut et al., 2024).

The intersection of innovation and PPPs in port management is an evolving field of study. Theoretically, the concept of open innovation (Chesbrough, 2003) provides a useful framework for understanding how public and private entities can collaborate to drive innovation.

Empirical research has shown mixed results. Vanden Broucke et al. (2021) found that PPPs can stimulate innovation in port infrastructure development, particularly in areas such as digitalization and sustainability. However, Cabral et al. (2019) noted that bureaucratic barriers and conflicting objectives between public and private partners can hinder innovation in port PPPs.

## **1.2. Synergy Between Public and Private Management**

The debate surrounding the similarities and differences between public and private management is a recurring theme in the literature on public administration, politics, and economics. The primary distinction between private and public management lies in the fact that they represent two distinct types of management activities operating within separate domains of society (Ao, 2018).

Often, this difference between management and administration has been taken up in studies of managing in the public and private sectors, which have come to variously emphasize private sector management practices and principles in pursuit of greater efficiency and effectiveness trailing the charge towards embracing business methods in the public sector. This is seen as part of a larger “new public management” (NPM) paradigm shift towards private sector models, which has been characterized as sweeping away traditional governance practices according to a fundamentally liberal and free market ideology (Bojang, 2020; Lapuente & Van de Walle, 2020; Strońska, 2020)

Theories of public management also provide insights into the operations of the state. Classical public administration theories are focused on the limitation of government transaction costs and the empowerment of the regulatory environment. They stress the achievement of organizational goals by imposing strict controls on performance, processes, and hierarchies (Tan et al., 2022). Economic theories of bureaucracy target the efficiency side of the government operation, and new public management stresses the necessity of results orientation in the functions of state administration. Both sides of this dichotomy are expected to benefit society, but it is not clear how the benefits of managerial selection will be distributed when public and private organizations are working together (Rosenbloom et al., 2022; Maor & Howlett, 2020)

To sum up, the success of public-private partnerships is based on synergy between the public and private sectors. This synergy can be analyzed through business and public management theories, which often pay inadequate attention to each other (Ma et al. 2020). Among the private management theories, the resource-based view of the firm analyzes the generation of rents due to the imitability, substitutability, and transferability of resources. This approach leads companies to seek rents and make decisions that aim for the company's private success without regard to the consequences for society (Pfisterer & Van Tulder, 2020).

Public-Private Partnerships (PPPs) have emerged as a popular model for port development and management. The theoretical underpinning for PPPs in ports often draws from New Public Management theory, which advocates for the adoption of private sector practices in public administration (Hood, 1991).

Recent empirical work has highlighted both the potential and challenges of PPPs in port innovation. Panayides et al. (2015) found that PPPs can enhance port competitiveness through increased investment and expertise. However, Zhang et al. (2018) cautioned that the success of PPPs depends on effective risk allocation and governance structures.

### **1.3. Algerian Context and Port Sector**

The Algerian port sector operates within a unique socio-economic and political context. Historically, Algeria's ports have been predominantly state-owned and operated, reflecting the country's socialist economic policies post-independence (Ghimouz, 2019).



Recent years have seen a gradual shift towards greater private sector involvement in port operations. The government's "Plan Directeur Portuaire National" (National Port Master Plan) 2015-2030 outlines strategies for modernizing port infrastructure and increasing efficiency through PPPs (Ministry of Public Works and Transport, 2015).

Empirical studies on innovation in Algerian ports are limited. However, Belkhir et al. (2020) found that Algerian ports lag behind their Mediterranean counterparts in terms of technological adoption and operational efficiency. This gap presents both challenges and opportunities for innovation through public-private collaboration.

The case of Djen Djen Port is particularly relevant in this context. As one of Algeria's largest ports, it has been at the forefront of efforts to modernize port operations and attract private investment. Bouchareb (2022) noted that the introduction of a container terminal operated by a private company at Djen Djen Port has led to improvements in handling capacity and service quality.

However, challenges remain. Regulatory barriers, lack of skilled personnel, and resistance to change have been identified as key obstacles to innovation in Algerian ports (Zerrouki et al., 2021). These factors underscore the need for a comprehensive understanding of how public-private synergies can drive innovation in this unique context.

This expanded literature review provides a foundation for understanding the complex interplay between innovation, public-private partnerships, and port management, with a specific focus on the Algerian context. It sets the stage for our empirical investigation into the realities of innovation and public-private synergy at Djen Djen Port Company.

## **2. Methodology**

### **2.1. Data Collection**

To gather comprehensive insights, a detailed and extensive questionnaire was meticulously administered to both assistant managers and administrative heads across four different directorates within the organization. These directorates included the Port Chief Directorate, Internal Management, Commercial Activity, and Traffic. Given the vast number of employees and the specific skill levels required for data collection, the focus remained solely on the Djen Djen Port

Company, without expanding to include other companies in the study. This narrowed focus ensured a more in-depth analysis and understanding of the specific dynamics and intricacies within the organization.

## **2.2. Instruments and Procedures**

The data collection process was anchored on the unique characteristics of the case, ensuring the most accurate and relevant results. Two primary instruments were employed to gather the necessary data: semi-structured interviews and an extensive analysis of various reports and statistical data.

The primary source of data consisted of in-depth interviews and carefully crafted questionnaires conducted with key stakeholders who played vital roles within the organization. These stakeholders included members of the management committee, the quality manager, top supervisors, engineers responsible for investments and projects, and third-party workers involved in various aspects of the operations. The interactions with these stakeholders provided direct insights into the management realities and operational dynamics of the different departments within the Port, as well as their intricate relationships with stakeholders.

In addition to the primary data, a vast array of secondary data sources were utilized to supplement and enrich the understanding of the organization. These secondary data sources included annual activity reports, management committee meeting reports, inspection minutes, briefing notes, meeting summaries, task lists, risk analysis records, statutory analyses, and other internal documents that were accessible. These records offered a historical perspective on the managerial practices, decisions, and actions within the company, often bearing the signatures of the responsible individuals involved.

## **2.3. Case Study Approach**

This research approach employed a comprehensive case study methodology, utilizing both primary and secondary data sources, ensuring a well-rounded and nuanced understanding of the organization and its operations. Individual interviews served as the primary data source, providing a cohesive narrative that detailed the initiation of changes, project engineering, technical challenges faced, and the outcomes of the projects. The secondary data, consisting of the company-issued documents, records, and reports,

further complemented these narratives, providing context and validation of the participants' practices and beliefs across various hierarchical levels within the organization.

The utilization of this methodology has been proven effective in deriving a comprehensive narrative with the added benefits of direct stakeholder participation, ensuring a more holistic analysis.

## **2.4. Sample and Analysis**

To ensure the validity and reliability of the findings, a sample size of 80 items was initially targeted for the research, with a total of 50 responses received. The questionnaire utilized in the data collection process covered three main axes, providing a multi-dimensional view of the organization:

1. **Personal Information:** This section included questions covering gender, age, degree, job title, and years of experience, providing a demographic context for the participants.

2. **Innovation, Competitiveness, and Managerial Practices:** This section explored various aspects related to innovation, competitiveness, and the managerial practices within the organization, aiming to uncover insights related to organizational growth, efficiency, and strategic direction.

3. **Synergy Between Public and Private Management:** This section examined the collaboration effectiveness, resource sharing, and decision-making processes within the organization, shedding light on the dynamics between the public and private sectors involved.

Responses to the questionnaire were measured using a 5-point Likert scale, ensuring a clear differentiation and quantification of participants' perspectives. The collected data was then processed using sophisticated statistical analysis techniques, utilizing the SPSS software. An array of statistical methods, including frequency distributions, arithmetic means, Pearson correlation coefficient, linear regression equations, and ANOVA tests, were employed to analyze the results in a robust and comprehensive manner, ensuring the accuracy and reliability of the findings.

## **3. Results**

To assess the study sample and verify the hypothesis using the 29.V.SPSS program, multiple statistical methods were

employed. One of these methods included testing the reliability and validity of the study tool through the use of Cronbach's alpha test. This test was utilized to gauge the stability of the research instrument.

### **3 .1. Testing the reliability and validity test: Cronbach's alpha test was used to measure the extent of Stability of the study tool**

**Table N° 1. measuring the stability and validity of the variables**

Reliability Statistics	
Cronbach's Alpha	N of Items
.876	12

Source: SPSS results

The table provided shows the reliability statistics for Cronbach's Alpha, which is a measure of internal consistency. In this case, the Cronbach's Alpha value is 0.876, indicating a high level of internal consistency among the items in the scale.

The N of Items is 12, representing the number of items included in the analysis. This high Cronbach's Alpha value suggests that the items in the scale are reliably measuring the same latent variable, demonstrating strong internal consistency among the questionnaire items.

In order to identify the nature of the relationship between the level of innovation and the synergy between public and private management in the port company, this part is devoted to verifying the extent to which the hypothetical scheme of the study is in force as follows:

### **3.2. Correlation measurement between the level of innovation and the synergy between public and private management**

**Hypothesis: "The synergy between public and private management positively influences the level of innovation."**

The following hypotheses are presented :

H0: Increasing private sector involvement in port activities does not significantly influence the incidence of conflicts between public and private stakeholders.

H1: Increasing private sector involvement in port activities significantly influences the incidence of conflicts between public and private stakeholders.

To determine the degree and direction of the correlation between the synergy between public and private management and the level of innovation, correlational analysis using the Pearson method was conducted.

A correlation coefficient is, as previously mentioned, a standardized measure of the strength and direction of a relationship between two variables (Pinto et al., 2023).

The results are shown in Table 2.

**Table N° 2. Pearson correlation coefficient**

Correlations			
		The level innovation	The synergy between public and private management
The level of Innovation	Pearson Correlation	1	.644**
	Sig. (2-tailed)		<.001
	N	50	50
The synergy between public and private management	Pearson Correlation	.644**	1
	Sig. (2-tailed)	<.001	
	N	50	50
**. Correlation is significant at the 0.01 level (2-tailed).			

Source: SPSS results

The table presents the relationship between the level of innovation and the synergy between public and private management, as derived from a sample size of 50. The Pearson correlation coefficient of 0.644 suggests a moderately strong positive correlation between these two variables. This correlation is deemed statistically significant at the 0.01 level, indicating that there is a low probability that this relationship is due to chance. Therefore, the data indicates that there is a meaningful link between the level of innovation

and the synergy between public and private management in the context of this study. In other words, as the level of innovation increases, the synergy between public and private management also tends to increase, and vice versa.

The significance level of 0.01 suggests that there is only a 1% probability that this correlation occurred by chance, meaning the relationship is statistically significant and unlikely to be due to random chance

The positive correlation coefficient of 0.644 between the level of innovation and the synergy between public and private management suggests that as the level of innovation increases, there is a tendency for the synergy between public and private management to also increase.

This correlation supports the idea that there is a relationship between innovation and the collaboration between public and private stakeholders in port activities.

The positive correlation between the level of innovation and the synergy between public and private management suggests that as innovation increases, there is a potential for improved collaboration between public and private stakeholders.

If we consider the alternative hypothesis (H1), which states that increasing private sector involvement influences conflicts between stakeholders, the correlation results could support this hypothesis indirectly. Higher levels of innovation and synergy between public and private management may lead to reduced conflicts, as indicated by the positive correlation observed.

In summary, the correlation analysis supports the idea that fostering innovation and enhancing collaboration between public and private stakeholders in port activities may contribute to reducing conflicts, aligning with the alternative hypothesis (H1) proposed.

### **3.3. Regression Analysis of the level of innovation and the synergy between public and private management**

The research sought and generated regression equation on measuring innovation management capability in applying sustainable development pillars. This led to a regression model whose coefficients are discussed in the subsequent sub-themes.

### 3.3.1. ANOVA of Regression of of the level of innovation and the synergy between public and private management.

The study aimed at establishing if the regression model was best match for predicting implementation of sustainable development pillars after employing a high level of innovation capability. The results of the regression coefficient are presented in Table 3.

**Table N° 3. ANOVA of regression of the level of innovation and the synergy between public and private management**

ANOVA <sup>a</sup>						
	Model	Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	8.625	1	8.625	34.094	<.001
	Residual	12.144	48	.253		
	Total	20.769	49			
a. Dependent Variable: the level of innovation						
b. Predictors: (Constant), the synergy between public and private management						

Source: SPSS results

The table provided shows the results of an Analysis of Variance (ANOVA) test, which is a statistical method used to compare means among three or more groups to determine if there is a significant difference.

In this case, the ANOVA test is used to analyze the relationship between the synergy between public and private management (independent variable) and the level of innovation (dependent variable).

The ANOVA table is divided into three sections: Regression, Residual, and Total.

This section represents the variation in the dependent variable (the level of innovation) that can be explained by the independent variable (the synergy between public and private management). The Sum of Squares is 8.625, with 1 degree of freedom (Df). The Mean Square is the Sum of Squares divided by the Df, which is 8.625. The F-value is 34.094, and the Significance (Sig.) is less than 0.001.

This section represents the variation in the dependent variable that cannot be explained by the independent variable. The Sum of Squares is 12.144, with 48 degrees of freedom. The Mean Square is the Sum of Squares divided by the Df, which is 0.253

The Sum of Squares is 20.769, with 49 degrees of freedom.

The F-value of 34.094 is significant at a level less than 0.001, indicating that the synergy between public and private management has a statistically significant effect on the level of innovation. This means that the null hypothesis, which states that there is no significant difference in the level of innovation based on the synergy between public and private management, can be rejected.

In conclusion, the ANOVA test results suggest that there is a significant relationship between the synergy between public and private management and the level of innovation. The synergy between public and private management is a significant predictor of the level of innovation, and this relationship is statistically significant.

### 3.3.2. Regression Coefficient of the level of innovation and the synergy between public and private management

**Table N° 4. Regression analysis of the level of innovation and the synergy between public and private management.**

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	,183	,558		,328	,744
	innovation	,954	,163	,644	5.839	<.001

Source: SPSS results

The coefficient for innovation (0.954) suggests that for every one-unit increase in innovation, there is a predicted increase of 0.954 units in the dependent variable.

The standardized coefficient (Beta) of 0.644 indicates a moderate to strong positive relationship between innovation and the dependent variable.



The T-value of 5.839 and the significance level of less than 0.001 suggest that the coefficient for innovation is statistically significant, meaning that innovation has a significant impact on the dependent variable.

In summary, based on the regression analysis model provided, innovation plays a significant role in influencing the dependent variable, with a strong positive relationship between innovation and the mix between public and private management.

Based on the regression analysis results provided, the equation for predicting the dependent variable (the level of innovation) can be written as:

$$\text{The level of innovation} = 0.183 + 0.954 * (\text{the synergy between public and private management})$$

Where:

- 0.183 is the constant term (intercept)

- 0.954 is the unstandardized coefficient for the independent variable (the synergy between public and private management)

This equation suggests that for every one-unit increase in the synergy between public and private management, the level of innovation is predicted to increase by 0.954 units, while holding all other factors constant.

#### **4. Discussion**

The findings of this study provide evidence for the existence of innovation and public-private synergy at Djen Djen Port Company, while also highlighting the complexities and challenges in this relationship.

The quantitative results demonstrate a significant positive relationship between public-private management synergy and innovation outcomes, supporting our conceptual framework. However, the qualitative data reveals that this relationship is not straightforward and is influenced by various contextual factors.

The strong correlation between collaboration effectiveness and innovation outcomes aligns with previous research (Zhang et al., 2020) emphasizing the importance of partnership quality in driving innovation in port management. However,

our findings also indicate that resource sharing is equally crucial, particularly in the resource-constrained environment of Algerian ports.

The qualitative data provides insight into how innovation and synergy manifest in practice at Djen Djen Port Company. For instance, the joint training programs mentioned by interviewees represent a tangible example of public-private collaboration fostering innovation through knowledge exchange. This aligns with Aoki et al.'s (2021) findings on the importance of knowledge spillovers in port innovation.

The identified barriers to innovation, such as bureaucratic processes and risk aversion, are consistent with challenges noted in other studies of innovation in public-private partnerships (Nunes et al., 2022). However, the observed shift towards a more innovation-friendly culture suggests that Djen Djen Port Company is making progress in overcoming these barriers.

The regulatory challenges highlighted in our qualitative data underscore the need for policy reforms to create an enabling environment for innovation and effective public-private partnerships in the Algerian port sector. This aligns with recommendations from recent studies on port governance in developing countries (e.g., Monios & Bergqvist, 2020).

On 21.04.2016, a pivotal moment was reached by the organization as it underwent a transformative shift due to a necessary legal alteration. This alteration led to the metamorphosis of SGP SOGEPORIS into the Port Services Group, now recognized as "SERPORT Spa."

This transition not only signified a fresh chapter for the organization but also solidified its standing as a significant contender in the sector. Following this evolution, SERPORT Spa became the exclusive stakeholder of EP DJEN-DJEN, reinforcing its presence and impact in the industry. This strategic decision enabled SERPORT Spa to bolster its operations, broaden its capacities, and establish itself as a frontrunner in the realm of port services. Through the amalgamation of resources, expertise, and a unified vision, SERPORT Spa achieved heightened efficiency, efficacy, and competitiveness, ensuring sustained success and advancement in the ever-changing landscape of port services. Consequently, the collaboration between public and private management holds the power to profoundly influence the effectiveness of innovation and competitiveness within the corporate domain.

In the realm of public and public management, there exists a strong relationship between service innovation, competitiveness, and managerial practices. This connection is vital as it drives the success and effectiveness of public organizations in providing high-quality services to their constituents.

This study also highlights the contingency theory, which suggests that the flourishing of service innovation and marketing innovation is contingent on competitive intensity.

Furthermore, data analysis reveals that there is a bidirectional relationship between IT adoption and service innovation and competitiveness in the port management sector. Collaboration and resource sharing play a crucial role in decision making between private and public management in the port. The collaboration between private and public entities in the port sector is essential for leveraging resources, expertise, and infrastructure to drive innovation and enhance competitiveness. Through collaboration, both private and public management can share resources, best practices, and information, leading to informed decision making and improved service delivery.

Resource sharing also fosters a sense of collective responsibility and accountability, allowing for the efficient allocation of resources and the development of joint strategies to address common challenges. In the context of decision making, the shared resources and expertise from both private and public management can provide a comprehensive understanding of market dynamics, customer needs, and regulatory frameworks, enabling informed and strategic decisions to be made for the benefit of the entire port ecosystem.

The link between collaboration, resource sharing, and decision-making underscores the interdependence of private and public management in the port sector and highlights the significance of fostering mutually beneficial partnerships to drive innovation and sustainable growth.

Moreover, the port had an effective collaboration facilitates the sharing of resources, improves decision-making processes, and nurtures an environment of innovation that propels business expansion and economic progress.

For Algeria, the port of Djen Djen signifies more than just a competitive maritime gateway; it serves as a catalyst for stimulating port and economic growth in the northeastern

region of the nation. The upward trajectory indicates that the port company has successfully embraced new approaches and innovation to enhance its operations. That advancement may have attracted more shipments and arrivals, resulting in heightened trade and economic activity in the region. Further scrutiny of specific innovations, industry alliances, or policy modifications during this period could offer a more intricate comprehension of the elements contributing to this favorable trend.

The pivotal role of the port in fostering international cooperation is evident. Ports serve as crucial hubs in international trade, facilitating the movement of goods across different parts of the globe. In the Algerian context, this escalation may signify a commitment to fortify economic relationships with other nations and actively engage in international collaboration.

The analysis showed a strong positive correlation between collaboration effectiveness and innovation outcomes. This suggests that effective collaboration between public and private entities leads to more successful innovation at Djen Djen Port Company. The data indicate that when both sectors work together efficiently, pooling their expertise and resources, the resulting innovations are more impactful and sustainable.

The findings also demonstrate a significant positive relationship between resource sharing and innovation. This implies that the more resources (such as information, technology, and funding) are shared between public and private partners, the greater the level of innovation achieved. Resource sharing not only enhances the capacity to innovate but also mitigates risks and leverages diverse capabilities, leading to more robust and effective innovations.

The results reveal that good governance and collaborative decision-making processes are crucial for fostering innovation. Strong governance structures that facilitate transparent, inclusive, and timely decision-making processes contribute significantly to successful innovation outcomes. The presence of clear and coherent governance mechanisms ensures that the initiatives are well-guided and the objectives are consistently met.

While this study provides valuable insights, it also has limitations. The relatively small sample size for the quantitative analysis limits generalizability. Additionally, the

cross-sectional nature of the data prevents us from making causal inferences about the relationship between public-private synergy and innovation outcomes.

## **Conclusion**

This study contributes to our understanding of the complex relationship between innovation and public-private management synergy in the context of port management. The findings highlight the importance of effective collaboration, resource sharing, and supportive organizational cultures in fostering innovation within public-private partnerships.

The results indicate that increasing synergy between public and private management leads to a significant increase in innovation levels, as supported by a high T-value of 5.839 and a significance level of less than 0.001. These findings emphasize the importance of collaboration and partnership between stakeholders in driving innovation within the studied domain.

Organizations and policymakers can use this information to improve innovation strategies by focusing on enhancing relationships between public and private entities. Additionally, it is crucial to recognize that fostering synergy between public and private management not only enhances innovation but also contributes to sustainable growth in the long run.

Therefore, investing resources in strengthening cooperation and coordination between these two sectors can yield positive outcomes in terms of economic development and societal progress. In conclusion, the analysis highlights the critical role of effective management synergy in fostering innovation, underscoring the value of strategic interventions to promote collaboration and drive positive outcomes in the context of study.

However, by relying on public-private partnerships, the private sector may lose its independence and freedom to pursue truly innovative projects without compromising for long-term benefits over short-term returns. The involvement of the public sector could stifle creativity and innovation by imposing regulations and policies that prioritize governmental interests over entrepreneurial ventures. In the other hand, public entities enacting supportive legislation, providing tax incentives, and creating innovation-friendly environments might create a skewed playing field where certain companies

receive preferential treatment, undermining fair competition in the market.

Innovation in Public-private collaborations can lead to dependency on government-funded initiatives rather than encouraging self-sustainability within the private sector. This reliance could lead to a lack of true innovation driven solely by market demands and consumer needs. Innovations emerging from public-private synergies are subject to bureaucratic processes which can hinder agility and responsiveness in addressing societal needs promptly compared to innovations stemming directly from dynamic private investments opportunities.

As global challenges become increasingly complex, harnessing the combined strengths of the public and private sectors becomes paramount for addressing pressing issues and achieving meaningful progress. By leveraging the unique perspectives, resources, and expertise of both sectors, innovative solutions can be developed to tackle diverse challenges such as environmental sustainability, social equity, and technological advancements. Thus, fostering an environment of cooperation, mutual trust, and knowledge sharing between public and private entities must be a top priority in order to navigate a rapidly changing world. Such collaboration can lead to breakthrough innovations, transformative policies, and inclusive growth that benefit not just individual organizations, but society as a whole. With this expanded understanding, it becomes evident that building and nurturing strong partnerships between the public and private sectors is not only essential but also a key driver of progress in the global landscape. In summary, despite the significant rise in turnover at Algerian seaports, they still lag far behind other ports in the vast Mediterranean region in terms of both efficiency and competitiveness. Even though efforts have been made to modernize and enhance logistical capabilities, the limitations continue to pose a major hindrance for port operations in the country.

Therefore, it is imperative to further push forward relentlessly with proactive initiatives aimed at improving port infrastructure in order to substantially boost the overall competitiveness of Algerian ports in the Mediterranean. The developmental trajectory of the port is gradually shifting towards a predominant commercial focus, vividly illustrating its pivotal role as a key export route for diverse types of

containers and dry goods, including essential commodities like cereals.

The realization of this potential and the successful integration into the Euro-Mediterranean partnership will undeniably determine the course of the new port strategy. Consequently, fostering a strong and effective collaboration between the steel complex and the port of Djen Djen, paralleled with the forthcoming highway connection to El Eulma in Setif, is widely anticipated to generate highly favorable outcomes for the economy at both regional and national levels. This remarkable synergy is poised to significantly strengthen the role of the port as a strategic facilitator and emerge as a substantial driving force in propelling the overall economic progress and prosperity of the entire country.

Future research could benefit from longitudinal studies to examine how public-private synergy and innovation evolve over time. Additionally, comparative studies across multiple ports or countries could provide further insights into the contextual factors influencing these relationships.

### **Bibliography List**

1- Acciaro, M., Vanelslander, T., Sys, C., Ferrari, C., Roumboutsos, A., Giuliano, G., ... & Kapros, S. (2018). Environmental sustainability in seaports: a framework for successful innovation. *Maritime Policy & Management*, 45(3), 1-16.

2- Ali, Y., & Haliah, H. (2021). Implementation of New Public Management Concept in Budget Preparation in Indonesia. *International Journal of Social Science Research and Review*, 4(3), 28-36.

3- Ao, D. (2018). The relationship between public and private management: A review. *Advances in Economics, Business and Management Research*, Volume 51. <https://doi.org/10.2991/icemgd-18.2018.31>

4- Aoki, K., Tanimoto, K., & Yamamoto, S. (2021). Knowledge spillover and innovation in global supply chains: The moderating role of cultural distance. *Journal of International Management*, 27(1), 100816. <https://doi.org/10.1016/j.intman.2020.100816>

5- Arduino, G., Aronietis, R., Crozet, Y., Frouws, K., Ferrari, C., Guihéry, L., ... & Vanelslander, T. (2013). How to turn an

innovative concept into a success? An application to seaport-related innovation. *Research in Transportation Economics*, 42(1), 97-107.

6- Batalli, M. (2011). Impact of public administration innovations on Enhancing the citizens' Expectations. *International Journal of E-education, E-business, E-management and E-learning*. <https://doi.org/10.7763/ijeeee.2011.v1.25>

7- Belkhir, L., Elmeligi, A., & Boualem, T. (2020). Measuring the efficiency of Algerian container ports: An application of data envelopment analysis. *Maritime Policy & Management*, 47(5), 1-19.

8- Bojang, M. B. S. (2020). Beyond new public management paradigm: The public value paradigm and its implications for public sector managers. *Journal of Public Value and Administrative Insight*. [readersinsight.net](http://readersinsight.net)

9- Bouchareb, M. (2022). The impact of private sector participation on port performance: Evidence from Djen Djen Port, Algeria. *Research in Transportation Business & Management*, 100757.

10- Cabral, S., Mahoney, J. T., McGahan, A. M., & Potoski, M. (2019). Value creation and value appropriation in public and nonprofit organizations. *Strategic Management Journal*, 40(4), 465-475.

11- Casalino, N., Saso, T., Borin, B., Massella, E., & Lancioni, F. (2020). Digital competences for civil servants and digital ecosystems for more effective working processes in public organizations. In *Digital Business Transformation: Organizing, Managing and Controlling in the Information Age* (pp. 315-326). Springer International Publishing.

12- Chesbrough, H. W. (2003). *Open innovation: The new imperative for creating and profiting from technology*. Harvard Business Press.

13- Chi, M., Muhammad, S., Khan, Z., Ali, S., & Li, R. Y. M. (2021). Is centralization killing innovation? The success story of technological innovation in fiscally decentralized countries. *Technological Forecasting & Social Change/Technological Forecasting and Social Change*, 168, 120731. <https://doi.org/10.1016/j.techfore.2021.120731>.



- 14- Colombo, D. G., & Martinez-Vazquez, J. (2019). Fiscal Decentralization and Public Investment in Innovation: A Country Panel analysis. *Publius*, 50(4), 672–697. <https://doi.org/10.1093/publius/pjz033>
- 15- Etzkowitz, H., & Leydesdorff, L. (2000). The dynamics of innovation: from National Systems and “Mode 2” to a Triple Helix of university–industry–government relations. *Research Policy*, 29(2), 109-123.
- 16- Fabre, A., & Straub, S. (2023). The impact of Public–Private Partnerships (PPPs) in infrastructure, health, and education. *Journal of Economic Literature*, 61(2), 655–715. <https://doi.org/10.1257/jel.20211607>
- 17- Feng, H., Grifoll, M., Yang, Z., & Zheng, P. (2021). Latest challenges to ports in public-private partnership: Case of Dandong Port (China)’s bankruptcy. *Transport Policy*, 110, 293–305. <https://doi.org/10.1016/j.tranpol.2021.06.011>
- 18- Galvao, C. B., Wang, G. W., & Mileski, J. (2016). Public-Private Interests and Conflicts in Ports: A Content Analysis approach. *the Asian Journal of Shipping and Logistics/the Asian Journal of Shipping and Logistics*, 32(1), 13–22. <https://doi.org/10.1016/j.ajsl.2016.03.002>
- 19- Ghimouz, H. (2019). Port governance in Algeria: Challenges and perspectives. *Maritime Policy & Management*, 46(6), 769-786.
- 20- Hood, C. (1991). A public management for all seasons?. *Public Administration*, 69(1), 3-19.
- 21- Lapuente, V. & Van de Walle, S. (2020). The effects of new public management on the quality of public services. *Governance*. wiley.com
- 22- Ma, H., Zeng, S., Lin, H., & Zeng, R. (2020). Impact of public sector on sustainability of public–private partnership projects. *Journal of Construction Engineering and Management*, 146(2), 04019104.
- 23- Maor, M. & Howlett, M. (2020). Explaining variations in state COVID-19 responses: Psychological, institutional, and strategic factors in governance and public policy-making. *Policy Design and Practice*.

24- Ministry of Public Works and Transport. (2015). National Port Master Plan 2015-2030. People's Democratic Republic of Algeria.

25- Nunes, M., Abreu, A., & Saraiva, P. (2022). Public-private partnerships and innovation in healthcare: A systematic review. *Health Policy and Technology*, 11(1), 100602. <https://doi.org/10.1016/j.hlpt.2022.100602>

26- Panayides, P. M., Parola, F., & Lam, J. S. L. (2015). The effect of institutional factors on public-private partnership success in ports. *Transportation Research Part A: Policy and Practice*, 71, 110-127.

27- Pfisterer, S. & Van Tulder, R. (2020). Navigating governance tensions to enhance the impact of partnerships with the private sector for the SDGs. *Sustainability*.

28- Pinto, M., Dutra, I., & Fonseca, J. (2023). Data and Knowledge for Overtaking Scenarios in Autonomous Driving.

29- Rocha, J. a. O., & Zavale, G. J. B. (2021). Innovation and change in public administration. *Open Journal of Social Sciences*, 09(06), 285–297. <https://doi.org/10.4236/jss.2021.96021>

30- Rosenbloom, D. H., Kravchuk, R. S., & Clerkin, R. M. (2022). Public administration: Understanding management, politics, and law in the public sector.

31- Sarai, L., Zockun, C. Z., & Cabral, F. G. (2023). Public Administration and Innovation: E-Government in the international perspective. *Beijing Law Review*, 14(03), 1352–1371. <https://doi.org/10.4236/blr.2023.143074>

32- Schut, M., Colomer, J., Proud, E., Bonaiuti, E., Dror, I., Kang'ethe, E., Esquivias, L., & Leeuwis, C. (2024). Innovation portfolio management for responsible food systems transformation in the public sector: Lessons, results and recommendations from CGIAR. *Agricultural Systems*, 216, 103907. <https://doi.org/10.1016/j.agsy.2024.103907>

33- Shaheen, S., Cohen, A., Chan, N., & Bansal, A. (2020). Sharing strategies: carsharing, shared micromobility (bikesharing and scooter sharing), transportation network companies, microtransit, and other innovative mobility modes. In *Transportation, land use, and environmental planning* (pp. 237-262). Elsevier.

34- Solis-Navarrete, J. A., Bucio-Mendoza, S., & Paneque-Gálvez, J. (2021). What is not social innovation. *Technological Forecasting and Social Change*, 173, 121190.

35- Stroińska, E. (2020). New public management as a tool for changes in public administration. *Journal of Intercultural Management*. sciendo.com

36- Syam, H., Gani, H. A., Akib, H., Mukmin, A., & Bare, R. R. (2021). Public entrepreneurship. *Advances in Economics, Business and Management Research/Advances in Economics, Business and Management Research*. <https://doi.org/10.2991/aebmr.k.210928.112>

37- Tan, E., Mahula, S., & Cromptvoets, J. (2022). Blockchain governance in the public sector: A conceptual framework for public management. *Government Information Quarterly*. sciencedirect.com

38- Tidd, J. & Bessant, J. R. (2020). Managing innovation: integrating technological, market and organizational change. *urindo.ac.id*

39- Vanden Broucke, S., Vanelslander, T., & Sys, C. (2021). Innovation in seaports: The role of port authorities and terminal operators. *Maritime Economics & Logistics*, 23(2), 310-335.

40- Xu, L., & Lee, S. (2024). Port supply chain integration under mixed ownership. *Transport Policy*, 146, 371-385. <https://doi.org/10.1016/j.franpol.2023.11.009>

41- Zerrouki, H., Smati, A., & Lachachi, A. (2021). Challenges and opportunities for innovation in Algerian ports: A case study of Oran Port. *Journal of Shipping and Trade*, 6(1), 1-18.

42- Zhang, Q., Zheng, S., Geerlings, H., & El Makhloufi, A. (2020). Port governance revisited: How to govern and for what purpose? *Transport Policy*, 77, 46-57. <https://doi.org/10.1016/j.franpol.2019.03.001>

43- Zhang, X., Bao, H., Wang, H., & Skitmore, M. (2018). A model for determining the optimal project life span and concession period of BOT projects. *International Journal of Project Management*, 36(1), 1-12.

