

# The Governance Of Arzew Port: Between The Pressure Of An Economic Challenge And The Creation Of Public Value

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## Abstract

Algeria is oriented towards the promotion of non-hydrocarbon exports. The value of this enterprise is due to reach five billion dollars in 2021. This new economic policy should rely on the dynamic of ports platforms. The port is a complex organisation similar to a network company, it is an implantation location for companies concerned with optimizing their import/export operations. The port of Arzew is a main gateway for Algerian exports. For non-hydrocarbons, Customs notes that five products exported to western Algeria totaled more than 75% of non-hydrocarbon exports. These are mineral or chemical nitrogen fertilizers (urea), anhydrous ammonia oils, finished products from the steel industry, cement and others. Today, ports must be exemplary in terms of governance policy, installation, infrastructure and logistical tools. Certainly, a new role is taking shape and imposing itself on the port authority, its new functions are described as "new governance agenda". This concerns its role, which is called upon to contribute with other actors in all areas (environmental, economic, social, territorial, etc.). Increasingly, ports have become creators of public value. This concept is closely linked to the establishment of collaborative governance because of the importance of stakeholders. Public value is the result of the coordination of different actors-networks, with this in mind, authors insist on making the link between public action and the stakeholders by clarifying the objectives and purposes of the public products and services that must include the production of value not only for the individuals directly affected but also for the communities concerned. Nowadays, ports must be exemplary in terms of governance policy, installation, infrastructure and logistical tools. The objective of our research is to examine the governance in place in supporting non-hydrocarbon exports in a Algeria west region. The approach pursued in this work is based on the applicability of a model of the creation of public value or "network governance". The results obtained have made it possible to highlight the positive impact of port facilities on exports, while the governance in place is of capital importance.

**Keywords:** public value, port, public action, export, network governance.

**JEL Classification:** L90, R58, R42.

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## Introduction

The development of international trade from port and maritime perspectives is a new conception. Developing nations have come to realize the important role the sea can play and that their future inevitably depends on it. A

good number of countries have made this commercial boom a factor, even an argument for economic and social development. Studies have shown the influence of port efficiency on the economic growth of states (Behrens et al, 2006) and on the reduction of transport costs in general (Limao et al., 2001), (Clark X., 2004) and (Haddad et al, 2006). Others have justified the difficulty of developed countries in adapting to globalization as a result of poor port performance (Ducruet, 2008).

As part of the diversification of the country's resources and leaving the sphere of exporting a single product, Algeria has turned to encouraging non-hydrocarbon exports. The latter represented 11.30% of the total exports between January and March 2021 achieved by 714 export companies whose value reached \$870 million composed mainly of construction materials, food products and fertilizers namely urea and ammonia (Ministry of Commerce, 2021). According to public authorities forecasts, the value of this item is expected to reach five (05) billion dollars by the end of the year 2021.

This new economic transformation planned by the country will have to rely on its ports platforms. It is around this idea that our problematic arises. These ports must achieve a level of performance that allows them to respond effectively to economic changes and support operators with export potential, and it is around this subject that our ambition revolves.

A dynamic, controlled and efficient port platform relies heavily on a good infrastructure that ensures domestic and international commercial operations to which a good governance is added. The latter is the result of the coordination of different stakeholders which is part of an alternative governance model to the traditional bureaucracy. Patrick Le Galès (Le Galès Patrick, 2003) addresses the question of goals, defining governance as "a process of coordinating actors, social groups and institutions to achieve the goals collectively discussed and defined". It would rely on democratic processes to define the meaning of public action and fight against failures of the public sector (Bozeman, 2007b). Other authors call it "network governance", they insist on clarifying the objectives and purposes of public products and services which must include the production of value not only for the individuals directly affected, but also for the communities concerned, which involves making the link between public action and stakeholders (Moore, 1995).

It should be noted that British researchers have taken an interest in the network governance approach. This is particularly the case with John Benington, Professor Emeritus in Governance and Public Management at Warwick Business School, who has partnered with Frank H. Moore in a more recent work (Benington and Moore, 2011). Benington and Moore have examined the case of communications, arts, museums, health and local organizations, but network governance in the port sector has never been highlighted.

With regard to Algeria, the obligation to design an alternative governance model to bureaucracy and to upgrade the port companies is imperative. Its ports must be exemplary in terms of governance policy, installation, infrastructure and logistical tools. In this context, and among the authors who were interested in the question of port infrastructures we could quote Mohamed-Chérif FZ who considers that the Algerian ports are of the first generation and that there are dysfunctions emanating from logistical constraints harmful to competitiveness. She !! Adds that Algerian ports must meet the challenges of globalization thanks to recent and ongoing investment efforts (Mohamed-Chérif, 2007). It is clear that port platforms are continually the subject of quantitative studies but rarely qualitative ones. In this article, we try to cross out that limit.

Lung of the Algerian economy, reputed to be the best accompanist for economic operators with non-hydrocarbon product export programs, the port of Arzew Algeria called (EPA) spread over a maritime fringe of 22km. It is the main outlet for hydrocarbons exportations and where 39.7 million tons have been processed in 2019(source EPA ). With an ideal positioned site, the port of Arzew has been ranked first among national ports for several years with 52% of overall national hydrocarbon traffic (source: Port of Arzew).

This port platform is on the verge of exploiting heavy investments and initiating others in order to respond effectively to the needs of the industrial transformation that is experiencing in the west Algerian region, and to develop quick access to international markets, with competitive cost.

In order to achieve a model of good governance for Algerian ports, we will verify and justify this main

hypothesis The next governance challenge for Algerian ports is based on investment in infrastructure to which is added a reflection in terms of the port community in order to create public value.

## Literature Review

Network governance can be defined “as outward-oriented to solve problems in the public sector by mobilizing the resources and creativity of citizen networks, networks of private and social economy organizations in order to expand and improve the speed of innovations and thus the scale and quality of results or solutions ” (Nambisan, 2008). Here, Patrick Le Galès takes up in his article the quotation from Kooiman (1993) who sees the issue of governance as “the interaction between the State and society and the modes of coordination to make public action possible” (Le Gales Patrick, 1995). The state thus becomes an actor among others, particularly in development processes and the creation of public values.

Public value is first, but not only, "whatever the 'public' values". Its premise is the importance of dialogue and collaboration between providers and users. In fact, the process of bringing partners back to “creating public value” (Moore, 1995). The author considers it to be more of a priority the production processes of the public good and not the efficiency and effectiveness of the finality. It does not focus on the 'who' but on the 'how', on the decision-making process which must have a strong dimension of community integration and which would help generate a feeling of trust and justice (O’Flynn J, 2005). For Blauge (Blauge et al, 2006), public value constitutes an alternative paradigm contesting competitiveness by proposing the strategy of leading public action based on collaborative networks, here, De Vries (Vries J, 2010) speaks of “society network” which corresponds to a mode of governance.

## Methodology and research methods

The methodology chosen to carry out this study is based on documentary research and field surveys. This work made it possible to obtain quantitative and qualitative data. The surveys were focused on observations, interviews and introduction of questionnaires. These tools were intended for the port authority and the main economic players. The survey sample reached the majority of senior executives of Arzew port authority and a few executives of port users. The choice was made on the basis of direct relations with the port.

The survey sample was divided into two groups. one group concerned port stakeholders. We chose 52 people to interview, among them 22 top managers (CEO, Central Directors, Heads of Department and Heads of Service) and 30 civil servant . The second group was made up of economic agents, and we interviewed 4.

The individuals surveyed were questioned in order to know their perceptions on the state of port infrastructure, public actions, prospects and for which governance model port platforms should be transferred.

The investigation took place over a period of one year. After data collection, processing was carried out using Sphinx Plus2 and Iramuteq software.

The first part of this article presents the characteristics and recent evolutions of the port infrastructures of the maritime frontage of the Arzew region in an evolving economic context. The second identified the governance model by identifying the respective roles of the different actors (port, municipal, regional, private, etc.). Finally, the repercussions and the impact of this public action on port and territorial development will be considered later in this study.

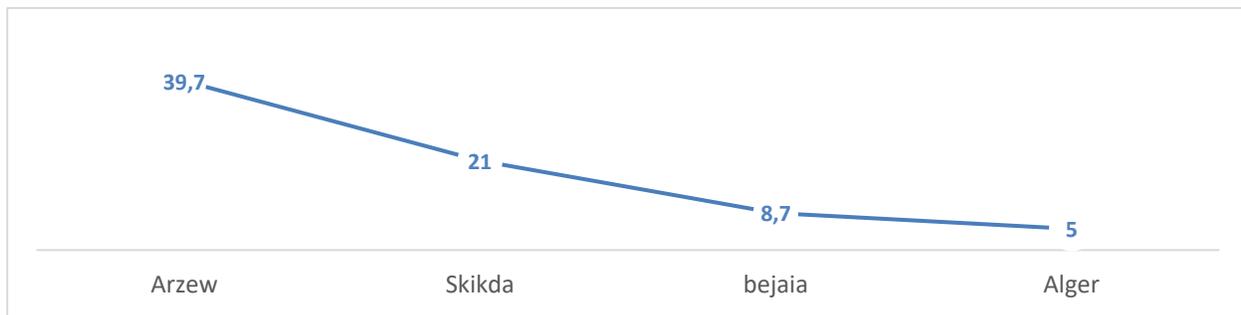
**The economic context, of the West region is changing.** The port of Arzew faces an important territorial economy issue. Initiatives which can help to start the diversification of algerian exports are displayed. Algerian customs notes that five products exported from west Algeria totaled more than 75% of non-hydrocarbon exports. These are mineral or chemical nitrogenous fertilizers (urea), anhydrous ammonia oils, finished products of the steel industry, cement and others.

With regard to the geographic proximity to industrial plants: Sonatrach, Step, Sorfert, AOA, Tosyali, Lafarge and others are all considered to be EPA stakeholders. With these operators a possibility of easily passing the equivalent of more than six (6) million tons per year of various non-hydrocarbon products, is expected.

On the other hand, Algeria recently exploited a deposit of Gara-Djebilet in the wilaya of Tindouf which contains some 2 to 3 billion tons of iron ore reserves and intends in the medium term to export annually around 2 million tons of this raw material through the west coast where the EPA has already prepared the adequate infrastructure (source: public authorities).

Potential, challenges, ambitions, pressure, change ... A new role is certainly emerging and imposed on the Arzew port authority.

**The port of Arzew, a strategic platform.** The Arzew port company ‘EPA’ is a public economic enterprise, which is a subsidiary of the “SERPORT” port services group, responsible for the management, operation and development of two (2) ports Arzew and Bethioua. On a maritime fringe of 22 km west of the bay of Arzew, these ports constitute the main outlet for hydrocarbons exported from Algeria, of which it was able to process 39.7 million tons in 2019. being ideal positioned sites, the ports of Arzew and Bethioua have been ranked first among the national ports for several years with 52% of overall national hydrocarbon traffic, as shown in Graph 1.



Source: EPA data, 2021.

**Graph 1. National hydrocarbon traffic (million tonnes)**

## Results and discussion

**Port infrastructure out of phase with expected traffic.** The EPA has become the favored destination for neighboring industries, yet the current infrastructure will pose a serious problem to territorial economic change, it has the old first generation docks which do not allow the support of industries with potential for export. The old installations are presented in Table 1.

Table 1. Infrastructures assigned to current traffic

Dock	Post	length (m)	Drafts (m)	Affectation	Allowable tonnage	Connection to the hinterland
Mole 3	N1	280	7	non-hydrocarbon	15.000t	Road
	N2	150	8.5	non-hydrocarbon	20.000t	Road
	N3	240	7	non-hydrocarbon	15.000t	Road
Mole 4	N8	110	6	various non-hydrocarbon	15.000t	Road
	P0	160	10.5	Urea	30.000t	Road

Source: EPA data, author survey, 2021.

On the managerial level, the port service (public service port) dominates the governance of the EPA where the port fully controls its strategy and port services such as: piloting, towing and mooring.

In addition, the volumes of non-hydrocarbon goods remain limited (table n ° 02) because of the old cramped basins which allow access to medium-sized first generation vessels only (between 15,000 and 30,000 tons) and drafts not exceeding 10 meters (table 01), notwithstanding the waiting time for ships in the harbor and the costs incurred.

Table 2. Non-hydrocarbon traffic processed by the EPA during fiscal years 2019 and 2020

Traffic	Unit	2019	2020
Import	Ton	357.000	120.000
Export	Ton	2.523.000	2.700.000
Import	TEU(*)	42.945	3.341
Export	TEU	10.620	1.032

Note: (\*)twenty-foot equivalent unit.

Source: EPA data, author survey, 2021.

**Port of Arzew, the era of new governance is coming.** The proliferation of non-hydrocarbon industries in the region has forced the EPA to seize the opportunity to deploy on other markets by concluding major efforts in investments through modernization, transformation and renewal of structures at the level of the ports of Arzew and Béthioua.

Indeed, the existing port capacities cannot absorb the arrival of new traffic such as 1.2 million tons of bulk urea, 3 million tons of steel products, exports of bulk cement, a traffic of more than 150,000 containers. In addition, the existing very small areas limit the development of trucks and handling equipment, thus disrupting port productivity as shown in Photo 1.



Photo 1. Congestion at the port of Arzew by trucks transporting urea

Source: Photo taken by author, 2021.

**The new managerial orientation.** Figure 01 traces the managerial orientation and their concern for the key success factors of good governance. This analysis of the similarity of the speeches comes from the statements of the leaderships of this entity, namely: *“Thanks to the managerial control and the involvement of executives and workers in the company's development strategy, that the ports of Arzew and Béthioua adapt to new national economic requirements ... From now on, non-hydrocarbon traffic is taking root in the port of Arzew ”* Ex. Chairman and Chief Executive Officer

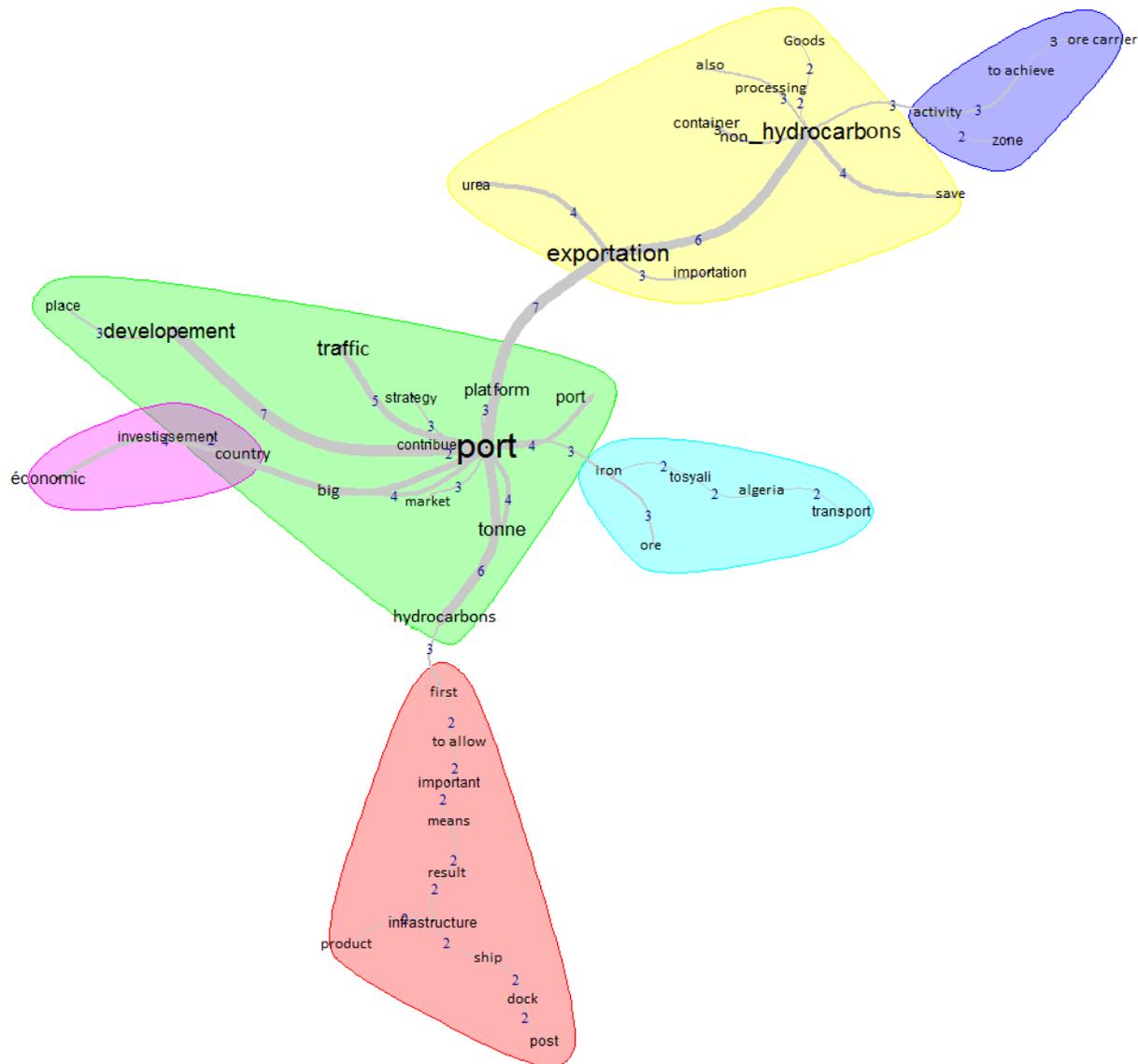
*“While remaining the leading platform for the export of hydrocarbons, the port of Arzew is on the way to establishing itself as the leading port for non-hydrocarbon exports”* Director manager of EPA.

*“The ports of Arzew and Bethioua having demonstrated in the hydrocarbon traffic, through world-class performance, are thus engaging in another traffic which is just as strategic, ..... We are delighted that this is the first hydrocarbon traffic port which sets an example and sets itself up as a leading platform for exports of non-hydrocarbon products. ”* General manager of EPA.

Using the IRaMuTeQ software, the result of the similarity analysis of interviews with EPA managers is organized around the keyword “Port” as shown in figure 01. Relations between lexical forms in textual corpora highlight the priority missions of concern to EPA managers.

The group in green where the word “Port” which is repeated strongly in the corpus creates strong relationships with the concepts (development, traffic, strategy, platform, hydrocarbons, contribution). The port’s ambitions, namely export operations, especially those outside of hydrocarbons, have become the major concerns of its managers and are a topical issue, as shown by the group in yellow.

Port investment will certainly have economic spinoffs for the country, EPA managers confirm this and the field in purple which shares the word "Country" with the 1st Group shows the strong relationship between port development and the economy of the country.



**Figure 1. Presentation of speech similarities**

Source: author survey, 2021.

Figure 1 represents each lemma of the text as a point, and connects two points if and only the two corresponding lemmas are co-occurring (Véronis J, 2004). Each link and each node are assigned a greater weight as the corresponding lemma where the co-occurrence in question is more frequent. In this analysis, we see the birth of

"idea" communities rooted in a central theme of "port". This word has links with other central words such as "traffic, development, country, hydrocarbons, export, non-hydrocarbons".

It is noted that the analysis of our corpus revealed that there are links between the central theme "port" and the words "development, export", this index of co-occurrence represents 19% of the corpus; 16% with the word "hydrocarbons" and 14% with the words "country, traffic"; for its part, the word "export" creates a 16% co-occurrence index with the word "non-hydrocarbons".

Through this lexicometric analysis of the speeches of the various leaders of the port of Arzew, we could detect their strategic orientation. It seems their concerns revolve around a goal-based strategy, which is why we find the word "port" strongly related to the word "development" on the one hand, on the other hand the EPA seeks to move towards a traffic of non-hydrocarbon exports. This is demonstrated through the co-occurrence index linked to this segment, ie 19%, which is higher than that linked to hydrocarbon export.

The accompanying economic policies of the country took its part in the corpus with a relatively high co-occurrence index estimated at 14%. Faced with this lexicometric analysis, it is clear that the port community remains a missing element in this strategic orientation although an inescapable user of the port

**Network governance in the port domain, Analytical essay.** Mark Moore (Moore, 1995) underlined that public managers operate in contexts defined by three characteristics: First, the definition of public action: The actions of executives are determined by the organizational framework in which they find themselves. Second, public managers need to listen to various stakeholders (politicians, citizens, industry groups, universities, associations etc.) and respond to them when making decisions. Third, the building blocks of this model include the operational capacities of the organization itself and the enabling environment (politicians, elected officials, community group, etc.) which all have a range of interest

### Definition of public action by the EPA

**Mineral terminal:** In the first place, the public action of EPA is reflected on the ground by the construction in the industrial zone of Béthioua of an ore terminal, shown on photo n 02 and n 03, which is the most important in the west region (14 meters) with a 703.2m shore jetty and a 360m berthing structure. The ore terminal is equipped with an 11km long two-way conveyor (photo n 04), used in the medium term to supply TOSYALI SPA with iron ore while awaiting the entry into operation of the Gara Djebilet deposit.



Photo 2. Ore terminal



Photo 3. Docking dock with 02 gantries

Source: Photo taken by author, 2021.



Photo 4. Conveyor connecting the ore terminal and TOSYALI

Source: photo taken by author, 2021.

**Commercial mole n° 05:** Second, a future project called (mole 5) with an area of approximately 52 hectares which will offer berths of more than 1,200 meters with very favorable drafts of -14 meters to accommodate PANAMAX type vessels (photo n 05).

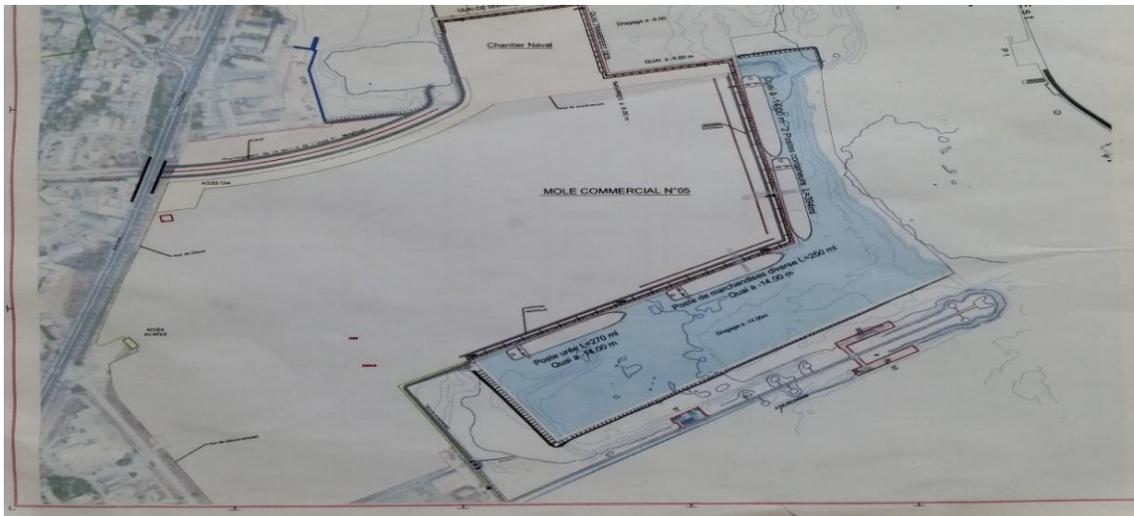


Photo 5. Plan of the future mole number 5

Source: EPA, 2021.

In addition, the characteristics of the ships expected at the future mole 5 are shown in Table 3.

Table 3. Characteristics of expected vessels

Ships	Tonnage (T)	Length (m)	Width (m)	Draft (m)
Bulk carrier	50.000	230	32,30	12,50
Container carrier 1000TEU		190	30	10,5
Container carrier 2500TEU		250	35	12,3
General cargo	40.000	220	32	11,5

Source: EPA data, 2021.

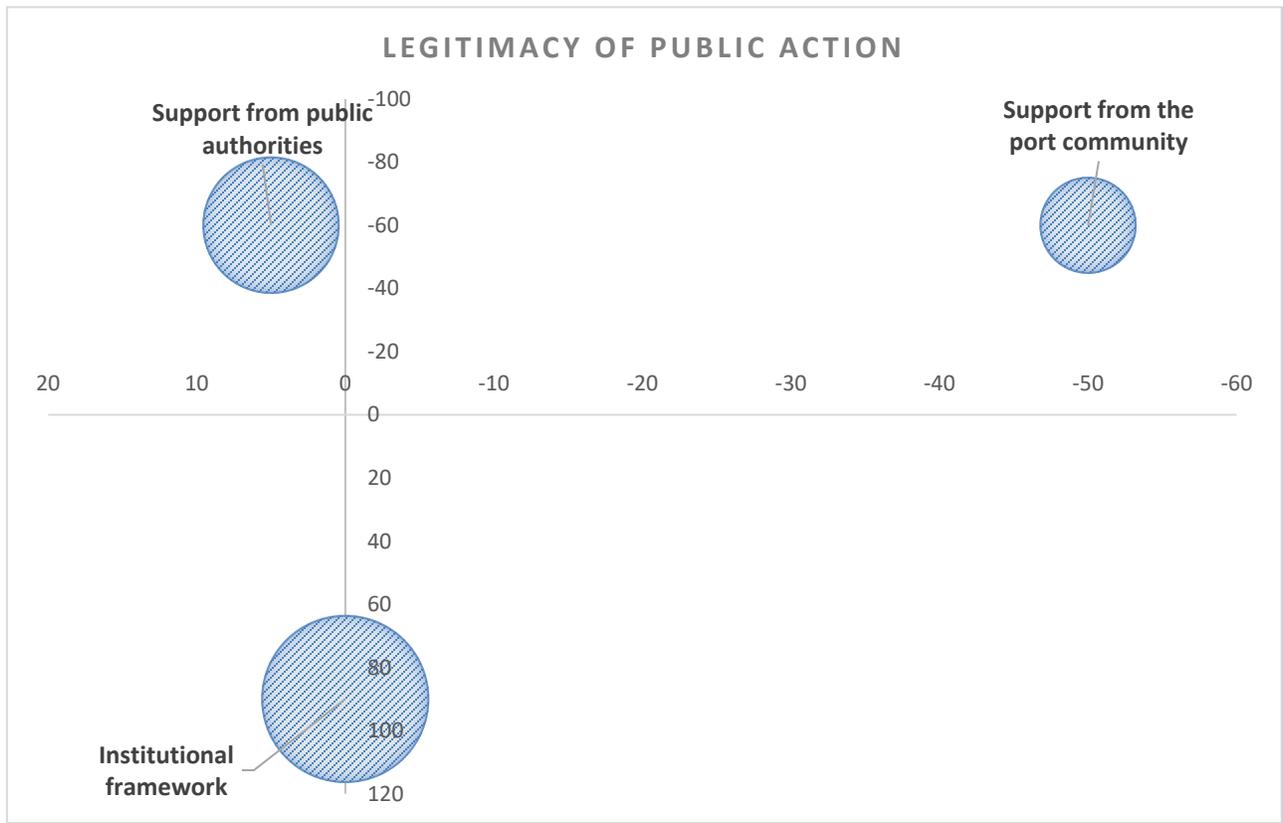
**Legitimacy of Public Action.** The constitution of an enabling and legitimate environment, that is to say an institutional framework favoring the creation of a coalition between the different stakeholders through a formal and informal political link, credible and accepted by all. This is where the legitimacy of the EPA’s public policy spreads from. The port is placed under the direct supervision of the SERPORT group and the ministry of transport. reason why, its public actions are part of the national port development plan.

Moreover, at the present time, no port in the west algerian region can effectively support the territorial economic transformation and ensure the transit of around 4 million tons / year of future exports of products (steels, urea,

polymers and others) notwithstanding the 2 million tons / year of iron ore from the future Gara Djebilet deposit. Marck Moore considers this "proven know-how" to be a source of legitimacy for public action (Moore, 1995).

The development prospects being reduced in the inner harbor due to the small size of the basins which do not allow the evolution of medium-sized ships (between 15,000 and 25,000 tons) and the depths not exceeding 10 meters in the aforementioned zone, the EPA studied the capacity extension project which focused on pier 5 and the ore terminal.

Figure 02 shows the analysis of our survey where the question about the sources of legitimacy of the EPA’s public action rises. Port authority stakeholders estimate with a rate of 93.3% that this legitimacy is mainly based on an institutional framework and the support of public authorities (political). However, it is very disturbing to note that the legitimacy built by a port network remains a concept incomprehensible to the organization.

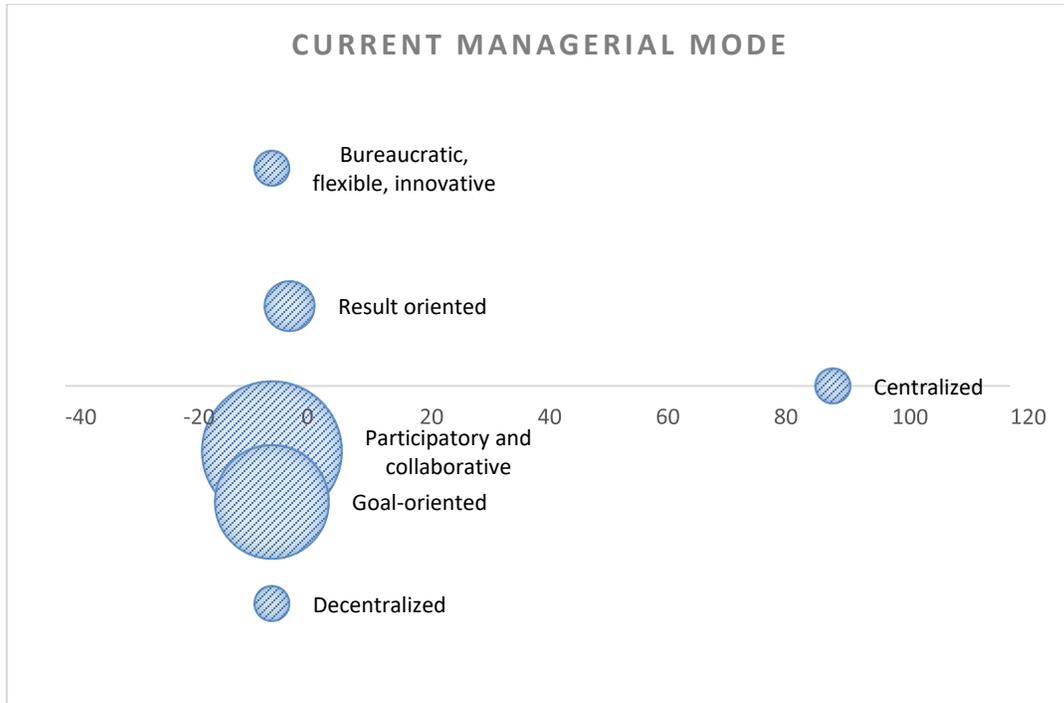


**Figure 2. Result of the legitimacy of public action**

Source: author survey, author 2021.

From another point of view, legitimacy translates into the strategic directions that are defined by the entity itself. According to the results of our survey, the EPA enjoys decentralized management autonomy based on objectives (Figure 3).

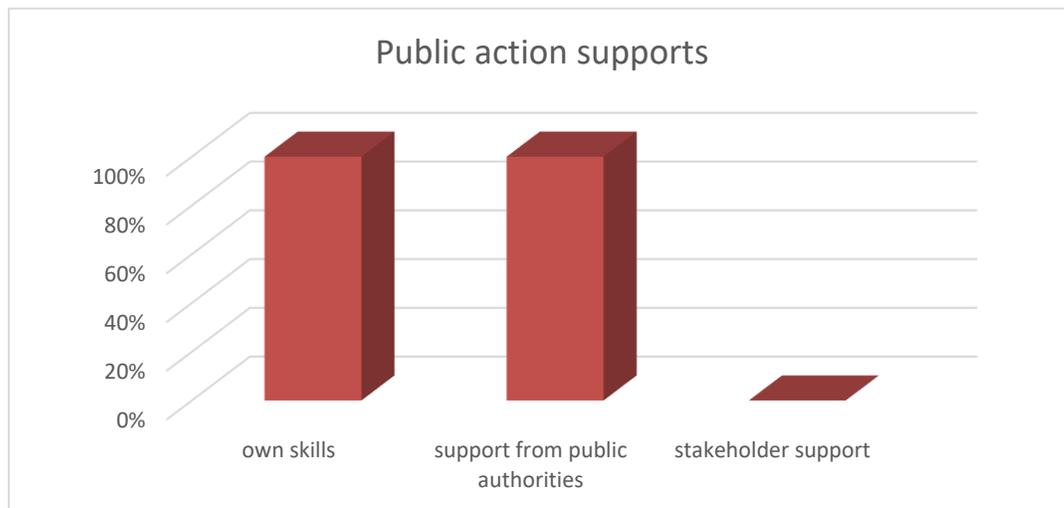
The majority of port managers questioned share the same opinion as that of Mark Moore who considers network governance as a structuring element for public organizations. 72% of those interviewed consider that the governance of the port of Arzew is decentralized and far from bureaucratic. This rate is subdivided into three (03) groups: the first sees that the port is focused on participatory governance and the second considers it as decentralized governance while the third considers that the port is results-oriented. This finding could be explained by the current trend towards the establishment of new managerial practices within public organizations while our expectations are aimed at recognizing a so-called "network" organization and the transition to an organization open to the outside world.



**Figure 3. Current managerial mode**

Source: author survey, 2021.

**Operational capacity.** Operational capacities are easily identifiable and quantifiable. It must be set up to control operational resources (finances, human resources, skills and technologies). EPA now has recognized and useful skills for the development of the country's port sector and supporting the economic transformation that is geared towards export. The port today displays a good level of technical and commercial performance. The state considers the operator to be the most financially sound state enterprise. Our interviews and surveys reveal the results presented in (Figure 4).



**Figure 4. Public action supports**

Source : author survey, author, 2021.

100% of those interviewed believe that with the support of public authorities the port has its own human and material capacities necessary to carry out public action.

**Outputs (services) and Outcomes (results) of public action.** According to Bozeman in "Public Values and Public Interest" (Bozeman, 2007b), the approach to the outputs and outcomes of public action resembles that of Moore. Both approaches (Moore's and Bozeman's) locate (or situate) value in user preferences, for example : Both insists on the production of outputs and outcomes as a lever for generating public value. At some points, Bozeman emphasizes the "failure" of public value, when neither the market nor the public sector produces the goods and services that correspond to public values. Moore emphasizes the positive production of outcomes that reinforces public value.

Public action produces, products and services which must include the production of value not only for the individuals directly affected but also for the communities concerned (Moore, 1995). With regard to the EPA, mole 5 is intended to accommodate PANAMAX type vessels from 50,000 to 80,000 tons in spaces outside those reserved for hydrocarbon traffic, this will allow more than 4 million tons to be transported at low cost a year through 4 berths detailed as follows:

- 1.2 million tons of urea;
- 450,000 tonnes of polyethylene in granules (i.e. 50,000 containers);
- 2 million tons of steel products;
- 0.5 million tons of general cargo;
- 150,000 TEU containers.

On the other hand, thanks to vessels with a capacity of 180,000 tons, it is expected in the medium term from the ore quay to ensure the unloading of 6 million tons / year of iron ore intended for the TOSYALI steelworks, it would allow also to prepare the configurations of exports of 2 million tons / year of minerals from Gara Djebilet in the wilaya of Tindouf, using the double direction of the conveyor.

**Link between public action and stakeholders.** An institutional framework allowing public action is needed. Public value cannot be achieved without this concern since it requires both the support of public authorities and the construction of a coalition of stakeholders (the state, users, university, communities, private sector, public sector, associations, local communities, etc.) with diverse interests (Moore, 1995).

Since multitudes of actors will animate the port network, this leads us to prejudge that the involvement of all stakeholders is essential. For this, the managerial policy of the EPA considers the actors represented in Table 04 as stakeholders. They are positioned in 4 zones. Zone 1 shows the less important players with little relationship, and zone 4 shows the most important players with a strong relationship.

Table 4. EPA partners

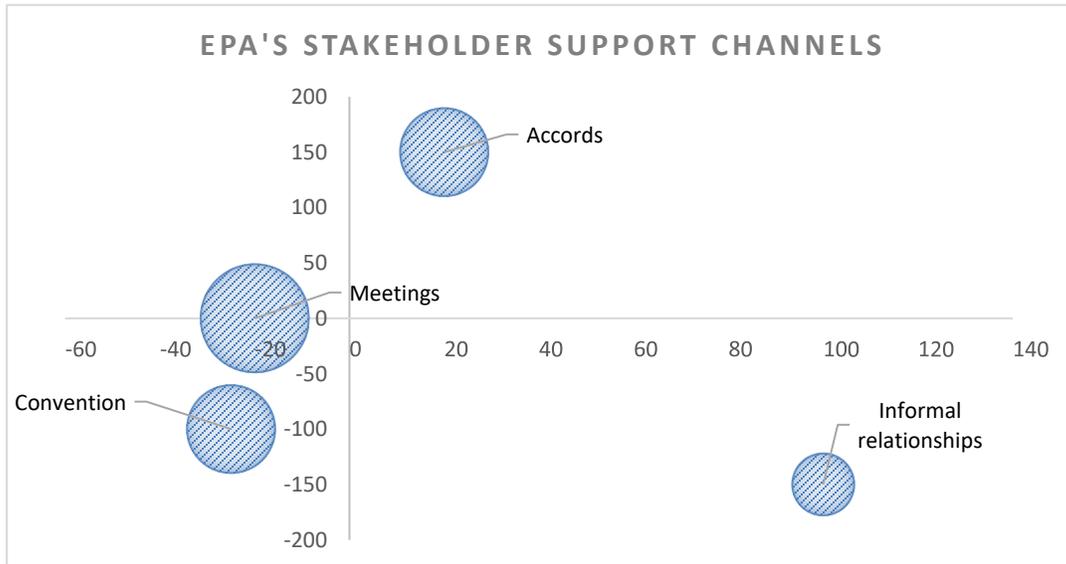
	Partners
Zone 1	SERPORT, customers, employees, ministry of transport
Zone 2	banks, Sonatrach, Dir. entreprises, work inspection, customs
Zone 3	Wilaya, insurances, security company, suppliers
Zone 4	APC, dir of the environment, Citizens, customs

Source: EPA data, author survey, 2021.

According to Moore, public value cannot be envisioned without building a network of actors that constitute the stakeholders of the organization. In this wake, the EPA recognizes its stakeholders and classifies them according to its specific relational degree, but the absence of initiatives aimed at boosting this port network is noticed through our various interviews with the port and its stakeholders.

**Coordination process between stakeholders and the EPA (port community).** In this context, Debie and Gouvernal have defined port governance as “a process of coordination of private and public actors leading the various port functions at all scales of this port game” (Debie J et E. Gouvernal, 2008). The result of this component shows the absence of a coordination policy between the port and its community, and the existing

relationship remains within a framework (client-supplier) organized only through meetings and conventions (Figure 5).

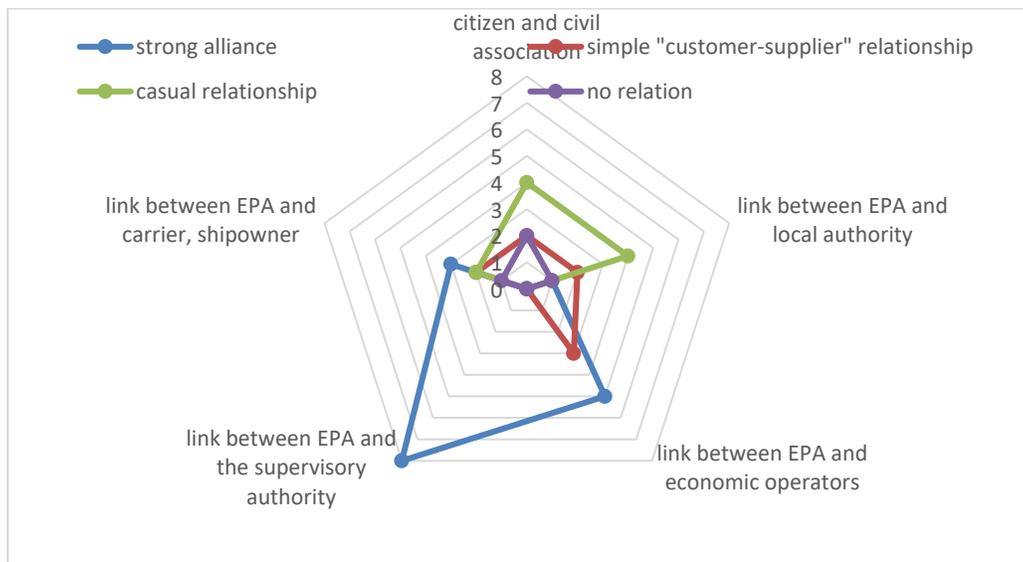


**Figure 5. The coordination process between EPA and its partners**

Source: author survey, author, 2021.

The port services remarks that with a rate of 70.6%, the formal link dominates relations with the outside. This rate confirms the absence of a dynamic and coordinated port network

Through the result of the survey represented in (figure 06), the port's foreign policy emerges. There is a very strong relational degree with the public authorities, hence the legitimacy of public action, but the link is degraded with the rest of the community or even becomes non-existent with one of the port actors such as the citizen, associations, civilians and others.



**Figure 6. Relational degree between the EPA and its partners**

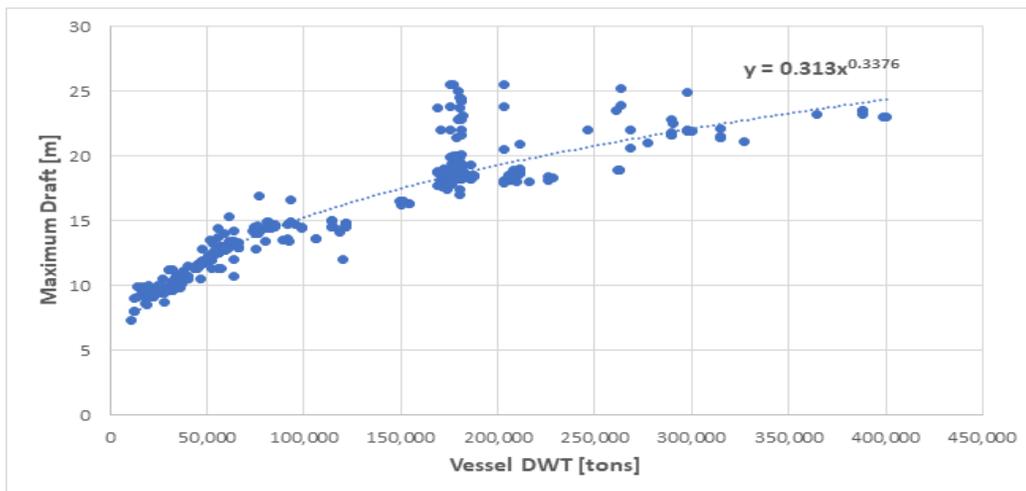
Source : author survey, author, 2021.

On the question of the nature of the relationship between the port and its community, all respondents agree in qualifying the relationship between the port and its supervision as very important with rates of 100%. The relationship with port users is qualified as important with a rate of 62%. but, the absence of a strong relationship with the rest of the network (local communities, citizens and civil associations ...) is clear to see. A question was addressed to the various actors in whether they are regularly consulted regarding the implementation of the various port projects. The question was asked to target the involvement of a particular actor, and formulated as follows: "Are you regularly consulted by the port services regarding their various projects? ". Most actors confirm the absence of initiatives aimed at consultative governance. This could justify that rooting the fundamentals of network governance is an issue of great importance.

**Discussion of the impact of the EPA's public action.** We recall that in order to achieve a model of good governance for algerian ports, we have undertaken the hypothesis of port investments which must respond effectively to the pressure of the new territorial economic transformation and public actions must be based on the concepts of good governance, namely networked governance.

The fallout from the EPA's public action seems to support our hypothesis, including:

- Financial spinoffs: EPA estimates that the new Pier 5 and the ore quay will initially generate over \$ 4 million annually, while the current infrastructure generates around \$ 1 million. In addition, it is shown that the improvement of a port infrastructure favorably supports industries with export potential and contributes to the entry of foreign currency into Algeria.
- Social impact: Socioeconomic status is not neglected. The public action of the EPA will participate in the absorption of 1,500 direct employment positions and some 2,000 indirect employment positions in the future pier 5. While, the mineral quay has made it possible to create a joint venture called Béthioua Port Minéralier (BPM) responsible for operating this infrastructure, the latter has already hired around twenty persons.
- Strategic and economic benefits: Bougheas, S., Demetriades, PO and Morgenroth, E argued that differences in the level of infrastructure from one country to another could explain the differences in trade competitiveness and export volumes (Bougheas et al, 1999). The capacity to accommodate large ships plays a strategic role in capturing national and international flows. Fig. 07 shows the relationship of a port's drafts and the possible tonnage to be handled. This advantage is demonstrated by the project of the Gara Djebilet deposit which will be connected with the port of Arzew because the latter has the adequate infrastructure and the adequate draft, on the one hand, and on the other hand, this depth (-18m) will allow TOSYALI to source a cargo of iron ore 4 times greater than that unloaded at the port of Oran.



**Figure 7. Relationship between draft level and admissible tonnage**

Source: Tomasz Abramowski in Determination of Regression Formulas for Key Design Characteristics of Container Ships at Preliminary Design Stage, Octobre 2018.

Figure 07 shows that with 10 meters of draft, the case of the old EPA infrastructure, the port can only accommodate low tonnage ships (max 30,000 tons), or for 14 meters of draft, water, case of the new mole 5, the port could accommodate ships of 80,000 tons and it is here that the economy of scale begins.

In addition, the old installations limit the volume of non-hydrocarbon exports to between 2.5 to 3 million tons per year with an average stay of ships of between 5 to 10 days. However, the new mole 5 could easily handle 4 million tons per year notwithstanding the containerized volumes and possibly the Ro-Ro (ro-ro ship: Roll on / Roll off) with an average stay of ships of between 3 to 5 days.

Similarly, the ore terminal will in the medium term allow increase the production capacity of Tosyali at low cost and boost the export of steel mills at competitive prices. At this stage, Algeria will move from an importing country to an exporter of steel products such as reinforcing bars, iron billets, spiral tubes and others.

- Ecological spinoffs: The environment suffered too much before operating the ore quay.

The 40,000-ton cargo passed through the port of Oran where means of protection against pollution are non-existent. The port is the window to the city of Oran, which has suffered the consequences and is protected from iron ore particles, especially in windy weather. This notwithstanding the situation of the wharf which has become unusable for other products (photo 06). In the near future, the operation of the conveyor could be of great help to the environment.



**Photo 6. Pollution produced during the unloading of iron ore (port of Oran)**

Source: photo taken by author, 2021.

Urea activity also has its negative impact on the environment and society. On each shipment, around 200 trucks pass through the town of Arzew carrying urea to the port. This conventional logistics pollutes the environment on a daily basis through the loss of urea on the main road, which sometimes generates slippery roads, notwithstanding the nuisance emanating from the passage of trucks in urban areas. It is expected that everything will return to order with the construction of a conveyor connecting the urea industry and the future Mole 5 and the 1.2 million tons / year will go unnoticed and without adverse effects on the environment.

## **Conclusion**

The western region of Algeria has achieved a remarkable economic growth. Today, industries are driving the international market scene and aiming to export approximately 4 million tons of various commodities and 2 million iron ores annually. The Port of Arzew was able to anticipate the possible need for infrastructure by investing in 02 gigantic projects.

On the one hand, the reception of the ore terminal prepared to receive ships of 180,000 tons of iron ore whether for import or export, thus using 02 gantry cranes with an individual productivity of 2000 tons per hour. This installation frees the ship in 5 days maximum instead of 22 days as at the port of Oran. On the other hand, this terminal has a medium-term objective of exporting around 02 million tons per year of iron ore from the Gara Gebilet deposit.

On the other hand, and in response to pressure from economic actors in the region, the construction of a major port work has been launched on a 52 ha area. This is Mole 5 dedicated to non-hydrocarbon traffic, and has 4 stations with a linear distance of 960 meters. Ready to receive container ships of 1,200TEU and vessels with a capacity of 80,000 tons per shift. This commercial pier will have a large capacity container terminal, Ro-Ro, export space for steel and other products for petrochemicals (urea and polypropylene). However, to reach international markets, it is necessary to consider the loading of large tonages. At this level, the gain in loading time becomes an efficiency parameter, both in terms of cost and in terms of customer loyalty. In this regard, the EPA partners are banking on this port infrastructure.

In terms of governance, each port has its own policy. Therefore, there is no typical model (Verhoeven. P, 2011). The case of our study shows that the EPA is located in the service port model. However, the port has undergone significant reforms in recent years and the general trend favors the landlord port model in which public-private partnership has become essential. In this wake, new private public relations are emerging and a new port governance based on the separation between sovereign functions and operating functions has emerged. This is the example of BPM (Bethioua Port Minéralier), considered as a joint venture between the port of Arzew and SPA TOSYALI and which is responsible for the management of the exploitation operations of the ore quay and the conveyor, on the one hand, on the other hand, it could grant a part as a concession, to the operating operations of the future Mole 5, in particular the container terminal.

At the same time, this article examines good port governance and the applicability of network governance while creating public value. Our results seem to enhance the public action of the EPA and the role of its stakeholders. The interviewees affirm that the success of governance and port investments depends on the establishment of a process of coordination between its actors. However, three main results emerge. First, under certain conditions, notably port investments which are most often masked and oriented towards financial objectives, the organization prevents the establishment of network governance and the creation of public value. Second, based on the concepts of the aforementioned authors, if the port organization focuses on a small circle of directly concerned actors, it would destroy the fundamentals of participatory governance and remains focused on private objectives. Here, we cite the example of the algerian customs, which was not an actor in the public action of the mineral quay, thus causing costly delays in its commissioning. This confirms to us what Moore underlined by insisting that the clarification of the objectives and purposes of public products and services must include the production of value not only for the individuals directly affected but also for the communities concerned, which implies making the connection. Between public action and stakeholders (Moore, 1995). This link should be the subject of an action plan for organizational reform within the EPA. Third, and according to our analysis, network governance appears compatible with the port sector, in particular the EPA, even favorable to the emergence of a democratic and deliberative process of public action according to the recommendations of its promoters. Given that their governance logic remains subject to institutional and managerial restrictions, the data of our study reveal that certain actors remain absent in the port community, namely local communities. This can cause divergences and block any initiative for the establishment of a development that creates public value.

It seems that the port of Arzew has been able to respond to the territorial economic transformation by offering the necessary infrastructures, but the next challenge rests on a reflection in terms of good governance of the port community, for which we recommend intensive work on the reconfiguration of the port community, port organization and integrate the relationship with the outside into its organization chart.

This work could be deepened with a reflection on how to design a model for evaluating port investments in terms of (cost, time and availability), it could integrate the dynamic simulation of the port using AnyLogic software.

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