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A Proposed Metropolitan Governance Model for Strengthening the Emerging Metropolis of Port-Said in Egypt

Marwa Tharwat Elmoazamy*, Randa Ali, Mona Abdel-Fatah Abdel-Moneim, Walid Bayoumi

Regional Urban Development Department, Faculty of Urban and Regional Planning, Cairo University, Giza 12613, Egypt

Corresponding Author Email: marwa_tharwat33@cu.edu.eg

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ABSTRACT

Egypt's national urban system has experienced a significant urban shift, with the development of 14 metropolises in 2018, expected to reach 17 in 2030, according to the UN World Urbanization Prospects (WUP). Given the diversities in the spatial structure, urbanization level, population, and economic size of the Egyptian metropolises, no urban governance model has been envisaged to fit the metropolises' urban dynamics. Based on the fact that no metropolitan governance model fits all, the research aims to determine the most appropriate metropolitan governance model for addressing the complexity of Port-Said Emerging Metropolis (PSEM) current issues, as one of Egypt's emerging and promising metropolises. The research methodology included a comparative study of the different theoretical conceptions and the metropolitan governance models. Next, it established the analytical framework to assess the appropriateness of every model. Then, a partially closed-ended questionnaire was conducted to assess the appropriateness of the different governance models for the PSEM. The research's findings and recommendations emphasize the importance of the Council of Governments model as an effective metropolitan governance model for managing the challenges of the emerging metropolis of Port-Said and enhancing efficient and sustainable development to achieve its development objectives.

1. INTRODUCTION

The development of metropolitan areas presents the chance to achieve economies of scale and agglomeration benefits. Still, it also necessitates substantial investments in infrastructure to meet the increasing need for essential social, health, environmental, and economic services. Additionally, the provision of these services requires the presence of efficient institutions to oversee their management. As metropolises expand beyond their traditional and political boundaries, their governance becomes increasingly intricate, involving many levels of government, local authorities, and organizations not well-equipped to handle challenges of this scale. As a result, metropolitan governance models have emerged for managing the metro level, with no single model suitable for all.

The definition of metropolitan territories varies across countries, and researchers employ various terms and criteria to describe and define this spatial level, including 'metropolitan area,' 'metropolitan statistical area,' 'metropolitan region,' 'functional urban area,' 'metropolis,' and 'urban agglomeration,' among others. The terminology varies depending on the cultural, political, administrative, economic, and legal background of different countries [1]. Therefore, six prominent international organizations, specifically the European Commission (EU), UN-Habitat, the World Bank, the Food and Agriculture Organization (FAO), the Organization for Economic Cooperation and Development (OECD), and the International Labor Organization (ILO), collaborated to promote uniformity and consistency in the terminologies and delineation methodologies used for metropolises [2].

Accordingly, a territory is deemed metropolitan, particularly the emerging ones (functional urban region), when over 50% of its population lives within a functional urban area (FUA) with a minimum of 250,000 inhabitants; territories not meeting these criteria are categorized as non-metropolitan [3]. Based on this definition, the OECD classifies four levels of FUAs and Metropolitan Regions by size as follows [4, 5]:

- Small FUAs: Population estimated from 50,000 to 100,000 inhabitants.
- Medium-sized FUAs: Population estimated from 100,000 to 250,000 inhabitants.
- Metropolitan FUAs (Metropolitan Regions or Metropolitan Areas): Populations ranging from 250,000 to 1.5 million inhabitants.
- Large metropolitan FUAs (Large Metropolitan Regions or Large Metropolitan Areas): Populations exceeding 1.5 million inhabitants. The OECD employed this classification to enhance global comparability and address the constraints of relying on administrative methods.

In this context, an emerging metropolis or emerging metropolitan FUA is a city that is transforming into a major urban centre, attracting investments, and becoming a hub for

various activities; these cities are typically witnessing a dynamic urbanization process from being smaller urban centres to becoming more influential and larger metropolises within their regional or national context, they are characterized by insufficient urban-economic infrastructure, fragmented urban-regional planning, and governance structures this, in turn, exaggerates the importance of envisaging a proper governance model to enhance their urbanization process [6, 7].

In the Arabian context, metropolitan governance arrangements remain relatively uncommon, whereas most metropolises lack a well-established governance system for coordination and financing at that level [8]. In addition, the political dimension is a significant challenge in Africa and the Middle East in accordance with metropolitan governance, as the centralized nature of most of them limits the ability of local authorities to make independent decisions related to urban development, which makes it challenging to achieve an effective model of metropolitan governance in their metropolitan cities [9]. Therefore, any attempt to design metropolitan policies cannot be complete unless it considers the existing political structure and administrative organization, including institutional overlap and potential conflicts between different levels of governance.

In Egypt, Port-Said is one of Egypt's emerging metropolises. It has one of the main maritime ports (national hub port) located in the northern part of the Suez Canal, linking the Red Sea with the Mediterranean Sea. The seaport of Port-Said is ranked 10th globally out of 348 ports according to the Container Port Performance Index 2022 (CPPI) [10]. Approximately 12% of world traffic flows through the metropolis via the Suez Canal [11]. In addition, it holds 76% of Egypt's total natural gas reserves [12]. Recently, based on the key national projects, a new economic hub has been established on its eastern side called East Port-Said New City and a new global container maritime hub; therefore, the new and old cities, alongside their two global maritime ports, are physically agglomerated, constituting a new dominant urban agglomeration with a population size exceeding 789 thousand in 2023 [13] expected to reach nearly 2.5 million people by 2050 [14].

Thus, this study addresses the problem that the emerging metropolis of Port-Said needs an appropriate metropolitan governance model to face the current and potential challenges of urbanization and metropolitanization. Therefore, the primary objective of this research is to evaluate the metropolitan governance models and determine the most suitable model for the Port-Said Emerging Metropolis (PSEM). A set of sub-objectives emanates from it, including analysis of the current situation of Port-Said, focusing on political and institutional perspectives, comparing the international metropolitan governance models, developing an evaluation framework based on scientific criteria, using this framework to determine the optimum model, and discussing the opportunities and challenges of its implementation.

2. METROPOLITAN GOVERNANCE MODELS CONCEPTUAL FRAMEWORK

According to Andersson [15], *metropolitan governance* can be defined as "a set of institutions, rules, and actions that delineate policies and conditions for the life and economy of a metropolitan region". It involves political, technical, and administrative arrangements beyond traditional municipal boundaries to address sustainable development challenges in a metro territory [16].

2.1 The theoretical approaches of metropolitan governance

The main models of metropolitan governance are based on four theoretical metropolitan governance approaches as follows:

The Reform School (1900 - 1960): It is assumed that the amalgamation of local municipalities and the creation of metropolitan governments will guarantee the sharing of wealth in services and public goods [17, 18].

The Public Choice School (1950 - 1990): It advocates for decentralization and municipal autonomy, defends the fragmentation of territorial units, and allows competition among them, resulting in an efficient way to deliver public goods and services [18].

New Regionalism (1990 - Present): This approach underscores the pivotal involvement of local governments within metropolitan areas in fostering regional development. This paradigm shifts from inter-administrative competition towards fostering collaboration among them. It contends that governance structures can be formed through public institutions and diverse non-public entities within metropolitan regions. The objective is to stimulate local economic resources and accentuate the significance of metropolitan areas in economic competition [18].

Post-New Regionalism or Rescaling and Reterritorialization (2000 - Present): The various variants of the recent decades led to local state restructuring involving the realignment of boundaries, roles, functions, and resources. Thus, this phase sees the transfer of metropolitan governance beyond the traditional concept of cooperation between local units. It recommends broad participation from various stakeholders (civil society organizations, the private sector, and regional organizations). It tends to build flexible governance structures that respond well to dynamic social, economic, and environmental changes, leading to competitiveness and sustainable development [17].

2.2 Characteristics of metropolitan governance models

Interaction between theoretical approaches and practical applications on a metropolitan scale was developed and adopted in four principal metropolitan governance models, as indicated below and represented visually in Figure 1:

Inter-municipal Cooperation Mechanisms: It is the most flexible, fragmented, and soft governance model, allowing local units within a metropolitan territory to make decisions on public services and funding. It is based on voluntary cooperation and initiatives among local units. This strategy keeps the government close to residents, bolstering local administrative structures. This fragmentation model can be applied using committees, commissions, working groups, consultative platforms, permanent city networks, alliances, and consortiums [15, 19, 20].

Metropolitan Authorities: This is also known as functional fragmentation and refers to the situation where a council or special-purpose district controls a single function or a set of functions. This model exhibits more technical efficiency due to its specialized character, which enables it to take advantage of economies of scale. Additionally, it mitigates coordination issues and facilitates the establishment

of specific sources of income [21]. Nevertheless, it needs strong institutional capability and resources for success [15].

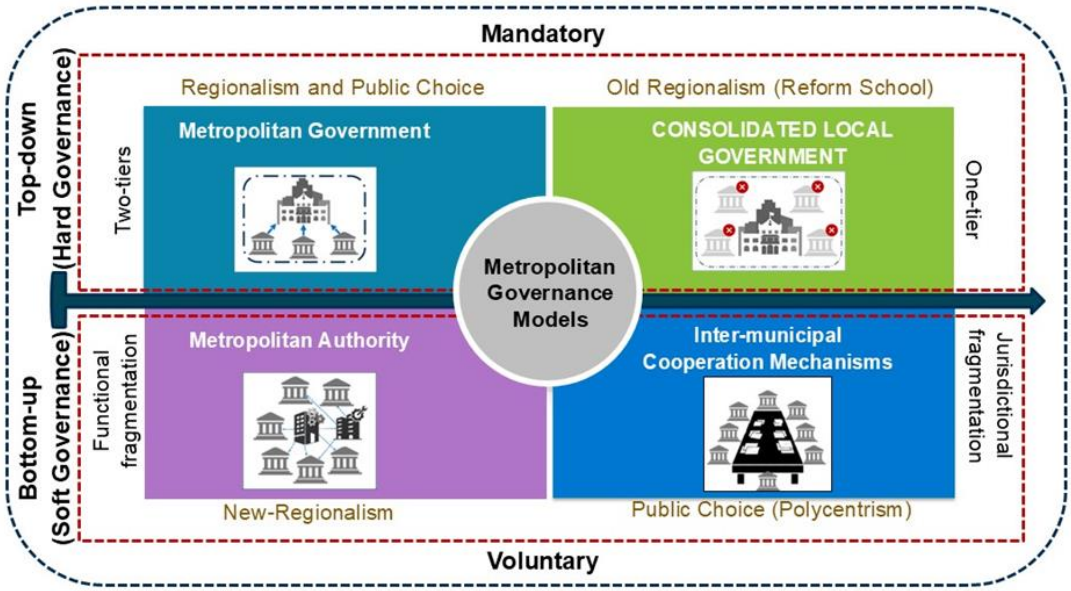


Figure 1. The main characteristics of the metropolitan governance models

Metropolitan Government: The metropolitan area is governed by a two-tier local government system. The higher-level administration has authority and duties over the entire area, while smaller administrative entities inside its boundaries have specific responsibilities [18]. The model's efficacy is commonly assessed based on two key factors: the extent of its jurisdiction over local governments and whether it primarily concentrates on strategic planning or encompasses operational service delivery responsibilities [15]. It is considered an optimum model for balancing local accountability and strategic capability [22] and improving the distribution of resources [21]. Nonetheless, the limited financial resources lead to increased expenses due to inefficiency and duplication in service delivery [22, 23].

Consolidated Local Government: A governmental entity that offers services to the metropolitan area, resulting in improved financial efficiency and leveraging economies of scale. Typically, this entity is formed by combining municipal governments or designating a metropolitan city with a higher level of authority [20]. Yet, this model results in no responsibilities and competition within local units, posing a challenge in determining the appropriate boundary for the metropolitan government [22, 23].

By reviewing practical examples of metropolitan governance [8, 18, 24-28]. It became apparent that the application of these models varies considerably between the Global North and the Global South. In Western Europe, for instance, there is a clear emphasis on inter-local cooperation, multi-level coordination, and decentralization in metropolitan governance. In contrast, many Arab and African countries often adopt models characterized by extreme centralization and institutional fragmentation.

2.3 The comparative analysis of metropolitan governance models

Metropolitan governance models can be classified in different ways based on institutional arrangements, institutional form, level of collaboration, and degree of integration, as represented in the comparison of models in Table 1. Certain advantages and disadvantages are associated with each governance model, as depicted in Table 2. The comparison is a result of a review of fourteen literature sources [15, 18, 21, 22, 29-38]. In a metropolis, many governance models can coexist to achieve competitiveness and sustainable development. For instance, there might be a secondary tier of metropolitan governance, with several specialized agencies overseeing aspects such as transportation and water services. At the same time, some local governments may collaborate on certain shared concerns [15]. It should also be noted that metropolitan governance models are implemented by countries and that specific characteristics of the same model may vary from one metropolis to another, aligning with the nature and culture of these metropolises.

Metropolitan governance literature identifies various key pillars that shape the efficiency and success of urban governance systems. These include: vertical and horizontal governance, decentralization, legislation enactment, inter-municipal and global competitiveness, sustainability, amalgamation, financial efficiency, service efficiency, and flexibility [16, 39, 40]. In this sense, models vary in their ability to attain the fundamental pillars of metropolitan governance [41]. Certain models excel in implementing vertical governance, which denotes the hierarchical relationship between the central government and local units. Some of these models prioritize horizontal governance, including the interactions between the local government, civil society, and the private sector. Additionally, certain models require a greater degree of decentralization compared to others. Furthermore, some of them promote intra-metropolis competition among local units to foster development through competitive means. Others believe that the most crucial aspect is to get together as a group, consolidate their objectives, and concentrate on international competitiveness. Some models require the enactment of legislation and laws, while others are founded on informal volunteering. Some of them support flexibility [40]. Conversely, others are fixed and difficult to change. These pillars are deemed vital in assessing models and their appropriateness for implementation, based on the particular characteristics of each metropolis.

Table 1. The characteristics of metropolitan governance models with city cases

Models	Level of Collaboration[1]	Institutional Arrangement[1]	Institutional Form	Degree of Integration	City E. G[1]
1- Inter-Municipal Cooperation Mechanisms (Horizontal Coordination[1]- Fragmented Governance[1]- Jurisdictional Fragmentation[3]- One Tier[10]- Soft Coordination[11])					
(M1) Committee, Consortium, Association…	Temporary or permanent	Formal or informal	Committee, association, ...	A certain purpose or wide-ranging collaboration [1]	Turin and Milan, Italy
(M2) Case-by-case Arrangements	Temporary	Informal	Non-institutional	A certain purpose or joint ventures [1]	
(M3) Contracting between Local Authorities	Temporary or permanent	Formal	Non-institutional	A local authority collaborates with another for one or more local service delivery[1]	Los Angeles County, USA
2- Metropolitan Authorities (Special Purpose District[1], Bottom-Up Voluntary Organization[4], Optional Administration Model[2], Functional Fragmentation[3], Inter-Municipal Authorities[11], The Core Power Model[13])					
(M4) Council of Governments (COG)	Permanent	Formal	Voluntary regional councils[7]	Wide-ranging collaboration[6]	Montreal, Canada; Bologna, Italy
(M5) Planning Authority	Permanent	Formal	Multiple cases of advisory institutions exist	Create regional strategies and/or apply planning and policy development power	Portland, US
(M6) Service Delivery Authority	Temporary or permanent	Formal	Public service agency	Delivery of one or more service[1]	Greater Vancouver Regional Service、District (GVRSD), Canada
(M7) Planning & Service Delivery Authority	Temporary or permanent	Formal	Development agencies, public entities, utility companies	Planning and delivery of one or more service[1]	Lyon and Marseille, France
3- Metropolitan Governments (Two-Tiers Government [1]- Supra Municipal Authorities [11]- Comprehensive Regional Authority [12])					
(M8) A Higher-level Metropolitan Local Government	Permanent	Formal	Metropolitan local government	A metropolitan local government for coordination or selective functions[8]	Budapest, Hungary; Stuttgart, Germany
(M9) A Regional Government	Permanent	Formal	A government established by a higher-level government for a metropolitan area	Metropolitan-wide government[3]	Manila, Philippines.
4- Consolidated Local Government (One-Tier Government [1]- The Single-Tier Metropolitan Government [5] - Metropolitan City [10]- The Comprehensive Model [10]- Unicity [9])					
(M10) Consolidated Local Government	Permanent	Formal	Jurisdiction of metropolitan area [14]	Metropolitan-wide government [3]	Brisbane, Australia [14]; Auckland, New Zealand [14]

Source: The authors based on [1] [15] [2] [18] [3] [21] [4] [22] [5] [29] [6] [30] [7] [31] [8] [32] [9] [33] [10] [34] [11] [35] [12] [36] [13] [37] [14] [38]

Table 2. The pros and cons of metropolitan governance models

Models	Pros	Cons
1- Inter-Municipal Cooperation Mechanisms (Horizontal Coordination[1]- Fragmented Governance[1]- Jurisdictional Fragmentation[3]- One Tier[10]- Soft Coordination[11])		
(M1) Committee, Consortium, Association…	• Flexible approach[1].	• Frequently limited to providing recommendations[1].
(M2) Case-by-case Arrangements	• It could be the first step in gaining expertise and developing confidence for cooperative efforts between local units[1]. • Beneficial in places where local units have few relationships[1]. • A potential course of action when formal, longer-term agreements are restricted by political will or outlawed by legislation[1].	• Absence of long-term commitment to addressing sustainability[1]. • Typically confined in scope (e.g., an event or pressing issue). • Missing economics of scale[3]. • Results in significant fiscal gaps between local governments in the metropolitan area[3].
(M3) Contracting between Local Authorities	• Local authorities are more accessible and reactive to local citizens[10]. • A local authority can specialize in service to benefit all metropolitan local units[1]. • It is useful when one local authority	• The contracting local government has to control service quality and coverage, as outsourcing does not transfer responsibility for the service or function[1]. • Residents may have limited access to service providers, and responsibility may be unclear[1].

	dominates in population and financial capabilities[1].	
2- Metropolitan Authorities (Special Purpose District[1], Bottom-Up Voluntary Organization[4], Optional Administration Model[2], Functional Fragmentation[3], Inter-Municipal Authorities[11], The Core Power Model[13])		
(M4) Council of Governments (COG)	• An opportunity for local governments to discuss regional interests while retaining decisions made by local authorities[1]. • Supports flexibility by allowing easy joining and exiting[1]. • Functions optimally when all collaborating municipalities have matching goals[6].	• The impact is determined by the financial and human resources committed to the COG and the level of cohesion among member local governments[1].
(M5) Planning Authority	• Permanent metropolitan planning coordinator[1]. • Offers a metropolitan scale analytical approach to identify issues, economies of scale, and inequalities[1].	• Advisory roles may have little influence[1]. • Needs strong institutional capability and resources for success[1].
(M6) Service Delivery Authority	• Improving efficiency through economies of scale for certain services[1]. • Local units are owners of the authority[1]. • Specialized agencies can utilize a designated source of income[3].	• Potential risks include impacted resident access to the service provider and unclear accountability to residents[1]. • A system's effectiveness depends on its ability to impose user charges and collect contributions from local governments or tax authorities[1].
(M7) Planning & Service Delivery Authority	• Having many stockholders[4]. • Combine the benefits for regional planning authorities and service delivery authorities above[4].	• Combine risks for regional planning authorities and services delivery authorities above[1].
3- Metropolitan Governments (Two-Tiers Government[1]- Supra Municipal Authorities[11]- Comprehensive Regional Authority[12])		
(M8) A Higher-level Metropolitan Local Government	• An optimal equilibrium between local responsibility and strategic capacity[4]. • Specialized resources at the metropolitan level[1]. • Enhance allocation of resources[3].	• The effectiveness of a government entity is typically determined by two factors: the level of authority it has over local governments at lower levels and whether it primarily focuses on planning or also includes service delivery functions[1].
(M9) A Regional Government	• Robust and practical ability to organize and monitor spatial and economic expansion administration[4]. • Usually resources directly from the higher-tier government[1]. • Specialized resources at the metropolitan level[1].	• Constrains the ability and financial resources of local governments[4]. • The costs will increase due to inefficiencies and duplication in service delivery[10]. • Causes frequent disagreement between localities and regions[10].
4- Consolidated Local Government (One-Tier Government [1]- The Single-Tier Metropolitan Government [5] - Metropolitan City [10]- The Comprehensive Model [10]- Unicity [9])		
(M10) Consolidated Local Government	• Achieve economies of scale in the provision of services[4]. • Establish a greater tax base for the government[4]. • Financially efficient[4]. • Clear leadership[4]. • Powerful strategic vision and approach[4]. • Long-term planning[4]. • More competitive in the global economy[10]. • Increased potential for achieving equality[3].	• Weak accountability regarding local communities[4]. • Cancels competition among municipalities and creates a challenge in determining the appropriate boundary for the metropolitan government[10].

Source: The authors based on [1] [15] [2] [18] [3] [21] [4] [22] [5] [29] [6] [30] [7] [31] [8] [32] [9] [33] [10] [34] [11] [35] [12] [36] [13] [37]

3. PORT-SAID GOVERNORATE (PSG) URBANIZATION AND EXISTING GOVERNANCE OVERVIEW

Port-Said Governorate's placement on Egypt's coastal zone plain makes it strategically significant. It is bounded by the North Sinai Governorate to the east, the Mediterranean Sea to the north, and Manzala Lake to the west, and it is the northern portal of the Suez Canal. Since the 1980s, the population in PSG has been experiencing significant growth [42]. The governorate was ranked second in competitiveness according to the Egyptian Governorates Competitiveness Index (EGCI) in 2023, out of 27 governorates [11]. The real growth rate of the governorate is about 8.8% in 2023, and the governorate contributes about 3% of the National Gross Domestic Product (GDP) [11]. The Port-Said Governorate is one of the governorates within the Suez Canal Economic Region. The urban governorate was founded as a single city, Port-Said, in

1859. In 2010, Port-Fouad was transformed from a district to a city according to Resolution No. 651, resulting in the governorate consisting of two cities, Port-Said and Port-Fouad.

Aligned with its dedication to Egypt's Vision 2030, the Port-Said governorate aims to transform into a smart, green, economically sustainable, iconic, prosperous, and pioneering at the local, regional, and international levels. Port Said's mission is to enhance the quality of life and welfare in the governorate by providing development services that cater to the needs of its citizens without any form of inequity and by creating sustainable job opportunities that strengthen the governorate's competitiveness [11].

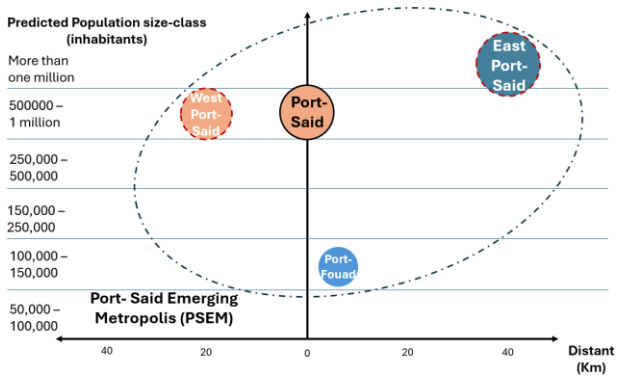


Figure 2. A schematic representation of the proposed urban pattern of Port-Said Emerging Metropolis

In 2023, the governorate's population reached 789,241 inhabitants, with a density exceeding 30,000 inhabitants/km^2 in the urban center. Aquatic surfaces surrounded the geographical area of the governorate, and the cities' urbanization has extended towards the hinterland areas adjacent to the ports, resulting in a diminished opportunity for the extension of both the cities and the ports [43]. Nonetheless, the governorate will be expanded by adding two new cities by 2030, specifically the new city of East Port-Said (Salam) by Resolution No. 589 of 2019, planned to achieve a population of 1,250,000 inhabitants when it is well established, and the new city called West Port-Said by Resolution No.550 of 2019. So, the population is expected to exceed 2,500,000 inhabitants once the two new cities are fully developed by 2050 [14], as illustrated in Figure 2.

Consequently, the governorate is highly vulnerable to risks of rapid urbanization in the near future and requires immediate implementation of a suitable metropolitan governance framework for this emerging metro area.

3.1 The existing urban structure of Port-Said Emerging Metropolis

Port-Said has unique economic and environmental characteristics in addition to the limited area available for urban development, as indicated in Table 3 using urban, environmental, economic, and administrative indicators. The Port-Said Governorate is classified as an urban governorate with a relatively small number of local administrative units compared to other governorates in Egypt. The available land area for future urban development is limited (4.7% of the entire governorate's area) compared to the current urban area and the projected population growth [14]. Since the governorate is characterized by extensive water bodies, natural reserves, and economic zones, most of its population is concentrated in a high-density area in the north center. In addition, the Port-Said Governorate is distinguished by a diversity of economic activities and land uses, as illustrated in Figure 3.

Plus, the governorate is vulnerable to the impacts of climate change and human pressures [44], exacerbating the dual dilemma of economic growth and environmental sustainability. So, the proposed governance system must consider the environmental and economic elements by enhancing and concentrating on the following pillars: sustainability, global competitiveness, flexibility, law enactment, decentralization, and financial efficiency.

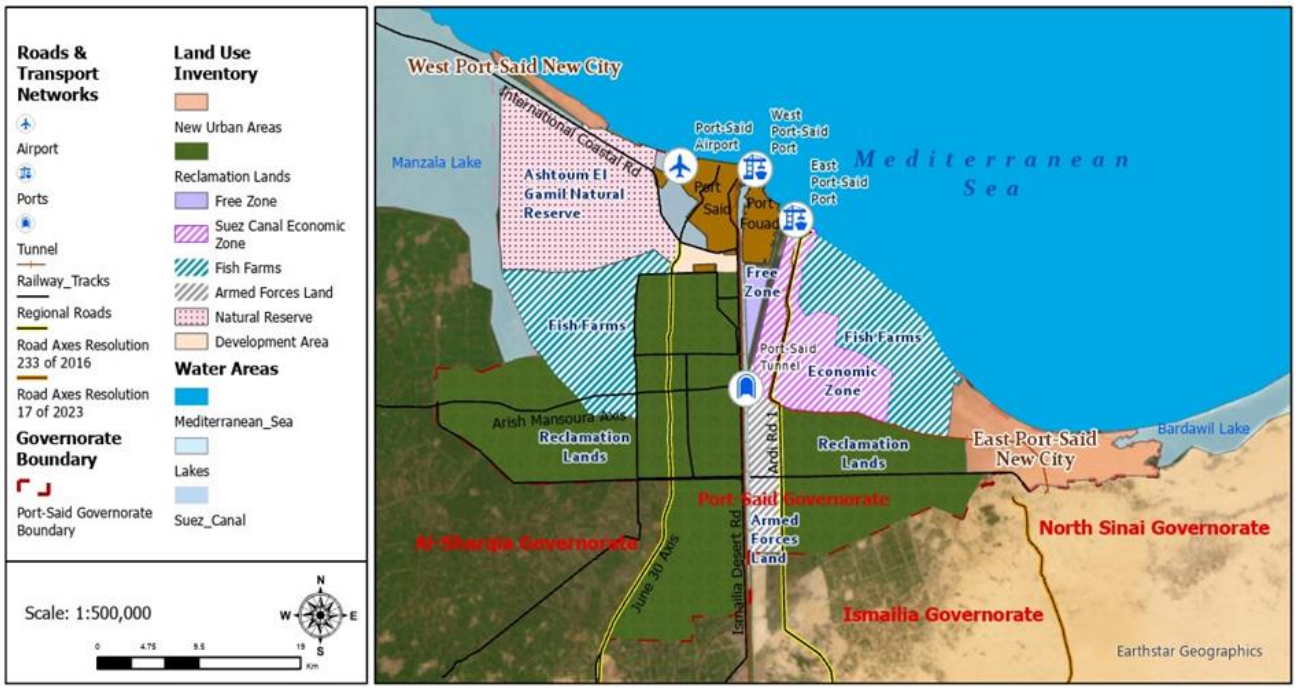


Figure 3. The diversity of land use in Port-Said Emerging Metropolis

Table 3. The assessment of Port-Said Emerging Metropolis's current situation

Category	Indicator	PSEM Current Situation
Administrative Indicators	Number of administration units	4 Cities, 7 Districts, 11 Police wards
	No. of population (2023)(1)	789,241 inhabitants
	Expected population (2050)(2)	2,500,000 inhabitants
Urban Indicators	Proportion of existing urban areas(1)	3.6%
	Proportion of available area for urban development(2)	4.7%
	Urban center density (2023)(1)	30,810 inhabitant/km^2
	Unemployment rate (2023)(1)	26.5%
	Workforce population proportion (2023)(1)	67.7%
Economic Indicators	The real growth rate (2022/2023)(1)	8.8%
	Gross Domestic Product (GDP) (2023)(2)	3%
	Proportion of land allocated to economic activities(2)	62.82%
	Erosion rate of shoreline (1998-2021)(3)	5 km^2
Environmental Indicators	Accretion rate of shoreline (1998-2021)(3)	2.8 km^2
	Proportion of the natural reserve area (2)	12.04%

Source: The authors based on (1) [13] (2) [14] (3) [44]

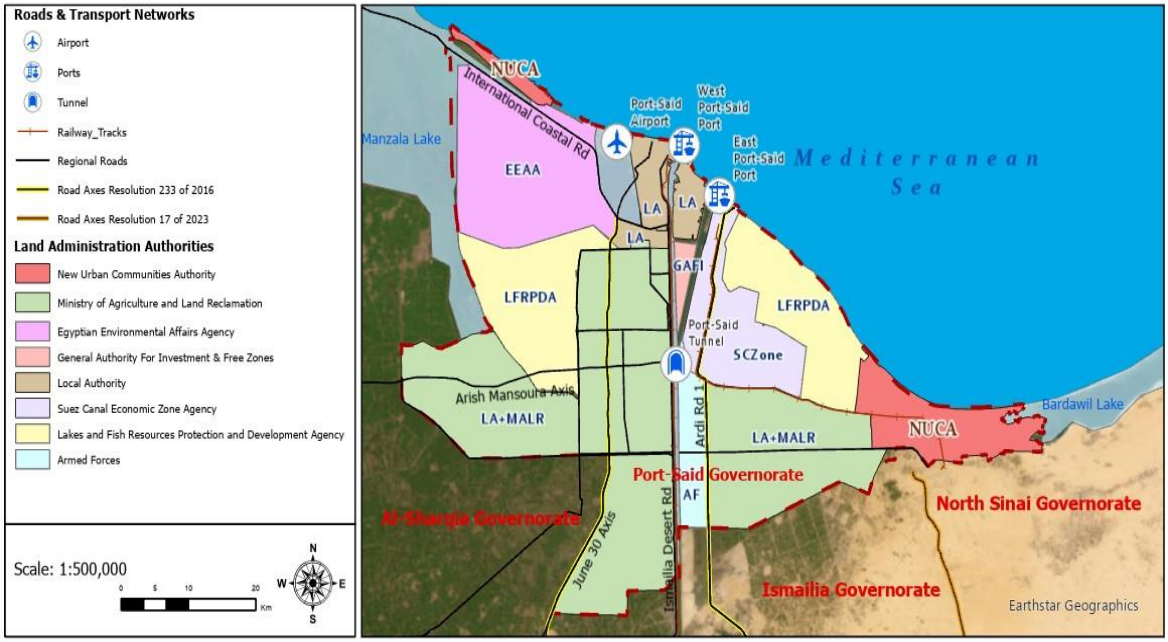


Figure 4. The land administration authorities in Port-Said Emerging Metropolis

The current Egyptian administrative system takes a hierarchical form, and the number of local levels in Egypt ranges between two and four, depending on the nature of the governorates. In urban governorates such as Cairo, Port-Said, and Suez, there are two levels: the governorate and the districts, and in some governorates, in rural areas where there are districts such as Gharbia and Dakahlia, there are four levels: the governorate, neighborhoods (markaz), cities, villages, and districts. The other governorates with no districts, like New Valley, Red Sea, and Aswan, have three levels: the governorate and the neighborhoods, cities, and villages [45, 46].

Port-Said has various land Administration authorities, as depicted in Figure 4, due to the diverse range of land uses and economic activities. The local authority (LA), which is connected to the central system, oversees the existing urban areas in compliance with the rules and regulations. On the other hand, the New Urban Communities Authority (NUCA) is responsible for managing new cities.

Regarding economic activity, several defined entities exist. For instance, the Suez Canal Economic Zone Agency (SCZone) oversees the management of the economic zone. At the same time, the Egyptian Environmental Affairs Agency (EEAA) is responsible for managing natural reserves, the General Authority for Investment and Free Zones (GAFI) is accountable for the free zone, and the Lakes and Fish Resources Protection and Development Agency (LFRPDA) is responsible for fish farms, which leads to heightened fragmentation of governance, causing it to forfeit the benefits of economics of scale.

3.2 The strategic priorities, opportunities, emerging problems, and incentives (SOEI) analysis of PSEM

Following the prior description of the PSEM case and the factors influencing urban and governance reality, it is essential to transition to a more comprehensive analytical phase that uncovers the fundamental dynamics of change within the local context. The SOEI approach is a valuable instrument for comprehending the landscape, facilitating the identification of strategic priorities that direct the development process, uncovering enhancement opportunities, recognizing emerging problems that could impede implementation, and emphasizing incentives that may expedite adaptation and transformation, as presented in Figure 5.

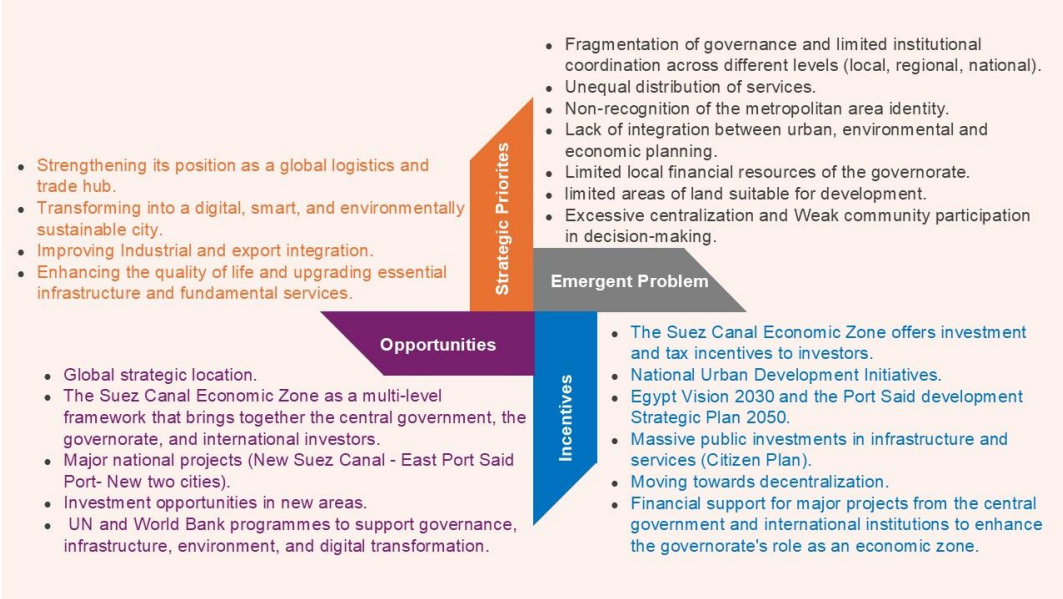


Figure 5. The SOEI matrix of the Port-Said Emerging Metropolis

4. MATERIALS AND METHODS

The research consists of three phases, each analyzing inputs and outputs that ultimately lead to the results. The first phase begins with a literature review of metropolitan governance models. A comparative analysis method was employed to assess the characteristics and pros and cons of each model. On the other hand, the second phase discussed the current situation in the PSEM by employing spatial, quantitative, and qualitative analysis methods to identify the challenges confronting the metropolis in both urbanization and governance perspectives. A SOEI matrix was used to diagnose the strategic situation of Port-Said through four main axes: strategic priorities, emergent problems, opportunities, and incentives.

In the third stage, the paper adopted qualitative and quantitative techniques to assess the appropriateness of the different governance models by conducting a partially closed-ended questionnaire using purposive sampling with key governance experts, including academics, practitioners, and urban planners from Egypt and worldwide. Experts were selected based on the following criteria: • a minimum of 10 years of professional experience in urban planning and development or governance; • affiliation with governmental, academic, or planning institutions, since the academic group is 44.4% then the Governmental experts with around 33.3% and the private sector experts represented 22.3%; • a minimum master's degree. In light of the unique Egyptian context, significant emphasis was placed on the involvement of local experts, including about 72% of the overall sample, to guarantee that the findings accurately represent the institutional, legal, and social situation in Egypt. In contrast, around 28% of the sample was allocated to international specialists, intending to utilize the best global practices. This distribution facilitates a systematic equilibrium between local perspectives and global aspects, thereby enhancing the validity and reliability of the study's outcomes and recommendations.

To determine an appropriate sample size, the questionnaire was initially distributed to fifteen experts; thirteen valid responses were received. Subsequently, it was forwarded to eight additional experts, who provided five further valid responses. Eighteen experts participated in the survey, representing approximately 80% of the overall expert population. This number was considered sufficient to ensure stability in expert responses.

The questionnaire's primary purpose was to assess and rate the appropriateness of different governance models for governing the emerging metropolis, based on evaluating key pillars of each model, including flexibility, vertical and horizontal governance, and the ability to achieve sustainability, among others. Respondents were asked to rate each governance model's pillar on a scale of zero to three, where zero represents the least appropriateness and vice versa. They were then requested to allocate a relative weight to each pillar, signifying its significance to the challenges confronting PSEM. Subsequently, the participants identified the most suitable metropolitan governance models to address each of Port Said's urban challenges as a further step in nominating an accurate governance model.

The survey data were entered and analyzed using IBM SPSS Statistics 26 and Microsoft Excel. The data analysis consisted of a sequence of steps, starting with the application of descriptive analysis to determine the most effective models. Next, reliability testing using Cronbach's Alpha was done to verify internal consistency, and Kendall's W test was applied to assess inter-rater agreement among the experts. Then, Sensitivity analysis was subsequently performed to examine the stability of the weighted scoring, which was used to incorporate the relative importance of governance pillars in models' evaluation. Moreover, Cross-tabulation analysis was conducted to identify the best governance models for specific issues in PSEM. Finally, the models were ranked according to the results of the statistical analysis, and recommendations were drawn regarding the most suitable metropolitan governance model for the PSEM context.

A primary methodological limitation of this study is the delineation of Port-Said's metropolitan boundary. We used the administrative boundaries of Port-Said Governorate instead of the OECD functional urban area framework [2], which is based on high-density urban cores and their surrounding commuting zones, given the difficulty of obtaining detailed and up-to-date daily commuting data for Egyptian cities. This

limitation prevented the functional urban area from being fully delineated according to established criteria. Although the administrative boundary of Port-Said Governorate may not perfectly reflect the city's FUA, it represents a scientifically and practically justified proxy under current data and institutional conditions. The city's compact morphology and high internal density indicate that most economic and social activities are within the governorate. From a governance standpoint, the administrative boundary also corresponds to the actual jurisdictional and decision-making framework, making it the most relevant scale for this study's institutional analysis.

5. RESULTS AND DISCUSSION

Literature has established various criteria for assessing governing models in a metropolitan area. Several of these factors indicate that a fragmented system of small local governments would be most effective, while others suggest that consolidated metropolitan administrations would be preferable. The selection of a governance model ultimately depends on identifying the most significant factors in each metropolis.

5.1 Evaluating the appropriate metropolitan governance model for PSEM

According to the analysis of PSEM's current situation, the significant factors that affect the development of the metropolis are economic and environmental ones, which are represented in the evaluation of key pillars of competitiveness globally, sustainability, flexibility, enactment legislation, decentralization, and financial efficiency. In this sense, analysis of the relative weights of the governance pillars through the survey showed that competitiveness globally, sustainability, decentralization, and enactment legislation were considered the most critical pillars influencing the assessment of governance models, which these four dimensions collectively accounted for more than 45% of the total weight of the eleven key pillars, as shown in Table 4.

The score for each model was calculated according to the result of descriptive analysis of the questionnaire; the results presented the average rate derived from the answers provided by all respondents. Based on the evaluation results, the total score of the Council of Governments (COG) and the Planning Authority models has the highest score of 26 and 25 (respectively). In a similar vein, the total score by relative weights for each governance model was determined by summing the outcomes of each pillar's expert score and its relative weight. Consequently, more significant pillars exert a greater influence on the ultimate score, as represented in Eq. (1). The total score by relative weights of the COG model was the highest, with a total score of 245. In contrast, the Case-by-case arrangements model has the lowest score, with a relative weight of 190. A sensitivity analysis was conducted by varying the pillar weights by ± 10%. The ranking of alternative governance models remained stable, confirming the robustness of the results.

$$\mathrm{T} = \sum_{i=1}^{n} (S_i \times w_i) \quad (1)$$

where,

T = the total score by relative weight
S_i = the score assigned to pillar i
w_i = the relative weight of pillar i
n = the total number of evaluated pillars

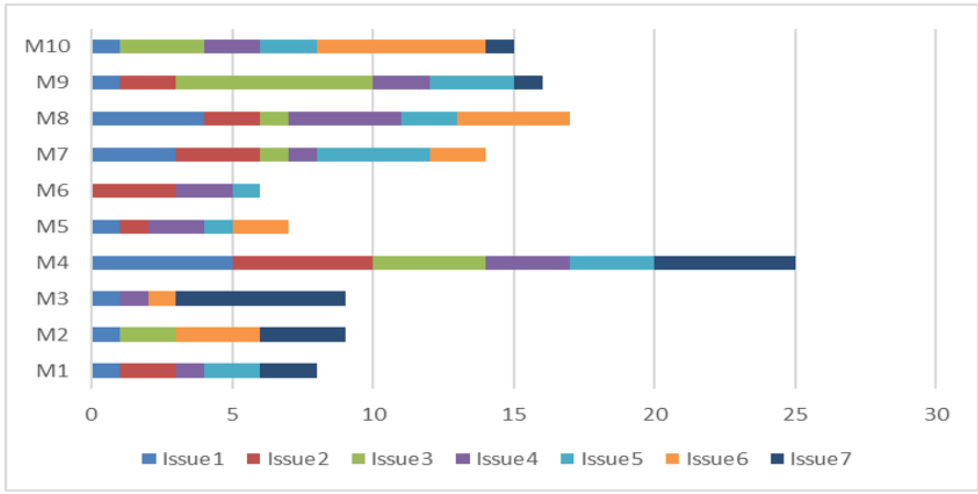
The reliability analysis conducted with Cronbach's Alpha produced a value of 0.83, signifying consistency of the responses. Also, Kendall's W test was utilized to evaluate inter-rater agreement among the experts. The outcome ($W = 0.71$, $p < 0.05$) signifies considerable concordance among respondents.

According to the cross-tabulation analysis between the metropolitan governance models and the emergent problems of PSEM. The Council of Governments Model (M4) was the most frequently selected for addressing issues. Nonetheless, experts have identified certain models as more effective in tackling specific issues, as indicated below and represented in Figure 6. For instance, the Consolidated Local Government Model (M10) was preferred in solving the problem of limited areas of land suitable for development in PSEM. As such, the Contracting between Local Authorities Model was favored for enhancing community participation in decision-making. Also, A Regional Government (M9) was chosen as the most suitable in solving the problem of non-recognition of the metropolitan area identity.

Table 4. Evaluating the Appropriate Metropolitan Governance Model for PESM

Key Pillars	M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	Relative Weights %
(P1) Vertical governance	1	1	1	2	3	2	3	3	3	3	7.5
(P2) Horizontal governance	3	3	3	2	3	2	3	3	2	2	8.3
(P3) Decentralization	2	2	2	3	2	2	2	3	2	1	10.8
(P4) Enactment legislation	1	2	2	3	2	1	2	2	3	3	10.8
(P5) Competitive in local units	2	2	2	2	2	1	2	2	2	1	6.9
(P6) Competitive globally	3	2	2	2	3	2	3	2	3	2	12.2
(P7) Sustainability	2	1	2	3	3	2	2	3	3	2	11.4
(P8) Amalgamation	2	1	2	1	1	1	1	2	1	2	5.6
(P9) Financial efficiency	1	2	2	2	2	3	2	2	3	2	9.4
(P10) Efficiency of services	2	2	3	3	2	3	2	2	2	2	7.8
(P11) Flexibility	2	3	2	2	2	2	2	2	2	2	9.2
Total score	21	21	23	26	25	21	24	24	24	22	100%
Total score by relative weights	195	190	213	245	236	197	226	221	230	205	

M1=	Committee, Consortium, Association, platforms	M2=	Case-by-case arrangements
M3=	Contracting between Local Authorities	M4=	Council of Governments (COG)
M5=	Planning Authority	M6=	Service Delivery Authority
M7=	Planning & Service Delivery Authority	M8=	A Higher-Level Metropolitan Local Government
M9=	A Regional Government	M10=	Consolidated Local Government



Issue1	Fragmentation and limited institutional coordination across different levels
Issue2	Unequal distribution of services
Issue3	Non-recognition of the metropolitan area identity
Issue4	Lack of integration between urban, environmental, and economic planning
Issue5	Limited local financial resources of the governorate
Issue6	limited areas of land suitable for development
Issue7	Excessive centralization and Weak community participation in decision-making.

Figure 6. The cross-tabulation analysis between the metropolitan governance models and the emergent issues of PSEM

So, according to the previous statistical analysis, the findings suggested that the COG model is the most appropriate metropolitan governance model for the PSEM, which is considered one of the forms of metropolitan authorities.

5.2 The proposed model's administrative and institutional arrangements

The proposed Port-Said Emerging Metropolis Council of Governments (PSEMCOG) is a voluntary membership organization that combines the local administrative units, government-related organizations, the private sector, NGOs, and other stakeholders in the PSEM. It must represent the interests of the metropolis at the national level of government and regularly brings decision-makers together to develop solutions to the metropolis's significant challenges.

It is a multi-level governance system that combines horizontal and vertical governance, leading to competitiveness and sustainable development in PSEM. It plays a critical convening role, bringing together local authorities to develop policies and a shared vision and direction for the metropolis, as depicted in Figure 7. The responsibilities of COG typically include overseeing the overall policies of the metropolis, coordinating physical and environmental planning, developing metro economic policy, and providing members with research and data to inform decision-making and local coordination.

It is considered an opportunity for local governments to discuss regional interests while retaining decisions made by local authorities. It supports flexibility by allowing easy joining and exiting, stimulates local economic resources, accentuates the significance of metropolitan areas in economic competition, and functions optimally when all collaborating units have matching goals. The impact is determined by the financial and human resources committed to the COG, as well as the level of cohesion among member local units.

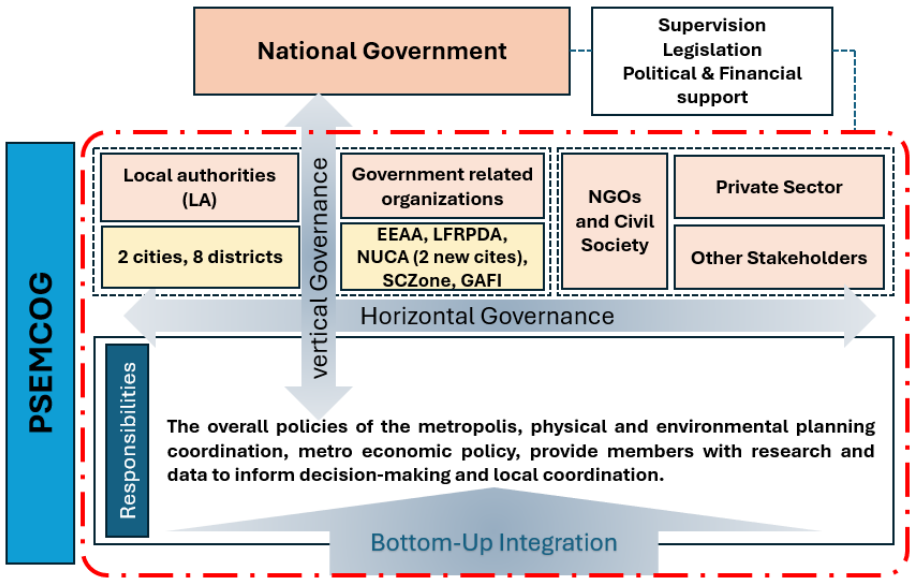


Figure 7. The proposed model's administrative and institutional arrangements

Bologna, Italy, showcased how the COG model can address fragmentation and enhance institutional integration. Following the enactment of Law No. 56/2014, Bologna became recognized as an official Metropolitan City comprising 55 municipalities administered under a unified framework [47].

The Bologna model is focused on collaborative planning. The council combined the Sustainable Urban Mobility Plan (SUMP) and the Sustainable Urban Logistics Plan (SULP) into a coherent metropolitan strategy. This integration has facilitated collaboration among urban, environmental, and economic planning across sectors. The EU-funded SULPiTER Project established the Freight Board (Tavolo Merci), a collaborative platform uniting municipalities, logistics firms, and business associations to enhance governance. This Freight Quality Partnership (FQP) concept has made it easier for municipalities to share information, accept policies, and conduct their logistics more successfully [48].

Bologna's experience illustrates that flexible and participatory systems can successfully institutionalize the principles of (COG), such as multi-level coordination, stakeholder involvement, and integrated planning. This approach provides valuable insights into metropolitan governance in PSEM.

5.3 The proposed model's implementation requirements

For the successful implementation of this model, several requirements must be met. The foremost requirement is to provide political support to the council and enact legislation that supports and regulates its work. Additionally, a certain level of decentralization, particularly in terms of finances, should be established. Furthermore, it is crucial to enhance cooperation among local units within the council and align their objectives to foster economic growth and preserve the natural environment.

Table 5. Mechanisms to enhance the implementation of the COG governance model in PSEM

Key Egypt Governance Characteristics	Implementation Requirements
Centralization of decision-making	Establish an Inter-Governmental Coordination Council under the COG framework, integrating representatives from local, regional, and national planning bodies to harmonize strategies and data-sharing.
Weak horizontal coordination	Formation of joint planning committees between Port-Said and Port-Fouad municipalities and the two new cities.
Ambiguous legal framework	Revision and clarification of Law No. 43 of 1979 and alignment with the Metropolitan Governance requirements.
Low local institutional capacity	Capacity-building programs for local administrators.
Weak accountability and transparency	Development of the Metropolitan Performance Dashboard and an annual public reporting system.
Non-recognition of the metropolitan area identity	Formally recognize PSEM within the national planning hierarchy, with the COG acting as an institutional platform to articulate a unified metropolitan vision and branding.

To enhance the practical applicability of the proposed model, Table 5 aligns key governance characteristics observed within the Egyptian context to COG mechanisms that are crucial to enhance metropolitan governance in Port-Said.

6. CONCLUSION AND RECOMMENDATIONS

This research has responded to the relative gap in understanding the importance of determining a suitable multi-level metropolitan governance model for the emerging metropolis. It has been one of the first attempts to thoroughly assess an appropriate metropolitan governance model for one of the emerging metropolises in Egypt.

The results of this study support the idea that no unique, efficient model fits all because metropolises have different characteristics. So, the proposed model of PSEM may need to be developed to suit other emerging metropolises in Egypt and around the world. Further studies could assess other metropolitan models in other metropolises.

The research suggested that the COG is the appropriate metropolitan governance model for PSEM. That metropolitan governance model necessitates political power and guidance within institutions, acknowledgement of the regional physical extent of metropolitan areas, and coordinated endeavors to foster collaboration through established and acknowledged authorities.

The study recommends that the local administrative units of Port-Said have to rearrange their boundaries to optimize the utilization of local economic resources, leverage each administrative unit's unique characteristics and expertise, and promote better collaboration and coordination among them to strengthen the implementation of the proposed governance model. Additionally, the study suggests that the functional method for delineating metropolitan boundaries in Egypt is generally limited to producing an official population grid to accurately delineate functional urban areas and emerging metropolises in Egypt, and to provide official data on commuting workers in major cities in Egypt.

The research suggests conducting a study to classify Egypt's metropolises based on their level. Nonetheless, the classification method should be aligned with the specific characteristics of Egyptian metropolises to facilitate comparison with other metropolises around the world.

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