

The Administrative-Territorial Boundaries Available for a Multiscalar Analysis of EU Port Cities

o abordare metodologică bazată pe rețele
politici urbane și spațiale
politica port-oraș
politica portuară
politica de transport
**a network methodological approach
urban and spatial policies
port-city policy
port policy
transport policy**

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Folosind diversele limite administrativ-teritoriale, locuitorii, și firmele ca noduri, orașele portuare din UE ar putea fi analizate multiscalar printr-o metodologie ce utilizează rețeaua ca instrument de analiză și cele mai importante criterii (transportul, populația, și economia) pentru măsurarea funcțiilor urbane și portuare. Beneficiarii unei astfel de metodologii ar putea fi elaboratorii de politici care pot ajuta municipalitățile să rezolve problemele cu care se confruntă orașele portuare. Astfel că, acest studiu a avut ca scop identificarea politicilor orașelor portuare ce pot fi afectate de o astfel de abordare metodologică și formularea unor recomandări corespunzătoare. Politicile identificate în majoritatea orașelor portuare (politicile portuare, orașului-port, și de transport) au fost consultate și corelate cu cele trei criterii stabilite de metodologie. Concluziile acestui studiu indică faptul că abordarea metodologică propusă poate să aibă un impact asupra configurației interne și externe a politicilor urbane și spațiale. În plus, poate să aibă un impact asupra instrumentelor aferente politicilor, deoarece acestea ar trebui stabilite pe baza stării actuale a orașului portuar analizat.

Using various administrative-territorial boundaries, inhabitants, and businesses as nodes, port cities in the European Union (EU) could be analysed on multiple scales using a network method that takes into account the most important criteria (transport, population, and economy) for measuring the urban and port functions. The possible beneficiaries of such a methodology are policymakers who can aid municipalities in resolving problems in port cities. Thus, this study aimed to pinpoint existing port city policy domains that can be impacted by such a methodology and make corresponding recommendations. The policy domains identified in most port cities (port, port-city, and transportation policies) were matched with the three criteria established by the methodology. Study findings indicate that the proposed network methodological approach can impact upon the internal and external configuration urban and spatial policies. Also, it can impact their related policy instruments because they should be selected in light of the port city's current state.

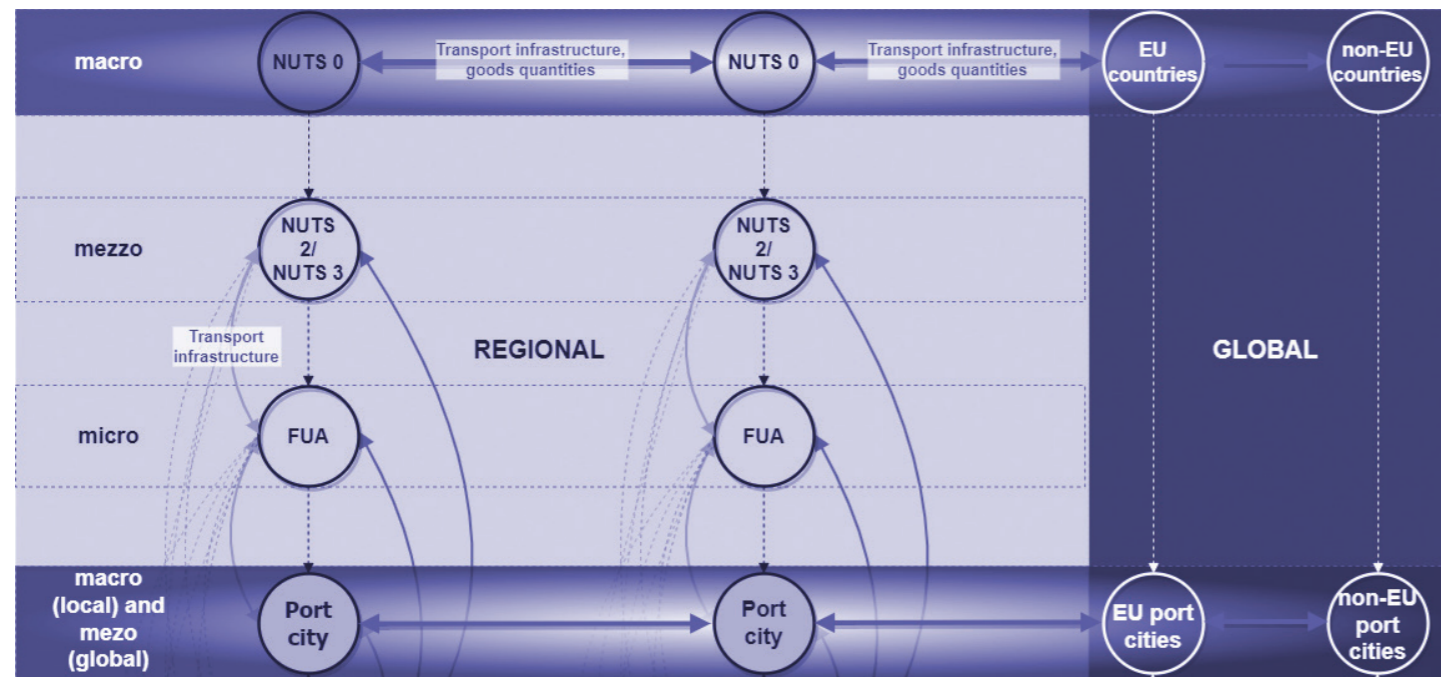


Fig.1. - A multiscalar EU port city analysis model through urban networks - at least two EU port cities (Source: own elaboration).

INTRODUCTION

A proposed network methodological approach for analyzing the EU port cities

This paper contributes to the theme of the current issue because it explores the borders in urbanism, specifically the borders of European port cities. Port cities are very complex, and for a better understanding of them it is necessary to analyse several territorial scales, because port functions exceed city limits. Specifically, this paper explores how European port cities can be analysed with the resources we have, i.e., the administrative-territorial boundaries established at the level of the European Union and their relevant available data (e.g., Eurostat population, firms, and ports data). The conceptual analysis model presented in this article has the potential to be operationalised, not only because of the boundaries and data used but also because of the mathematical tool it uses: the network. Thus, this model can be used in a network analysis software where the nodes and their connections must be precisely defined.

This paper does not indicate how the model can be applied but only presents it at a conceptual level. It also argues why it would be good for the analysis of European port cities and what effects it would have on urban and spatial policies. The operationalisation of the model is carried out using a methodology of multiscalar analysis of European port cities that the author develops in her doctoral thesis. This methodology has the potential to be a common framework for a multiscalar analysis of European port cities.

Because the port city is both intermediary and central, researchers should examine it on multiple scales. First, it is intermediary because its port is a communication node in the global maritime transport network (Pearson, 1998, cited in Ducruet, 2011, 32-48) and connects far-flung regions (Fleming, Hayuth, 1994, 3-18). Second, it is central because it outranks all the urban centres in the region. These respective centres contribute to the port city's economy and rely on it because it serves them through various transport infrastructure and logistics services (Haynes, 2010, Sassen, 2010, cited in Krośnicka and others, 2021, 27-42).

Unfortunately, no spatial model can determine the precise boundaries of the port city region (how far does the

port city's centrality extend across the territory?). This region should probably be delimited based on morphological criteria that would better integrate the city's economic influence, unlike other types of criteria (Savy, 1991, cited in Ducruet and others, 2018, 340-355). Nevertheless, researchers should compare and test various port region delineation methods until they select the optimal one.

For a multiscale analysis of the port city, we can use the current administrative and territorial boundaries, especially those set at the European Union (EU) level (local administrative unit (LAU), functional urban area (FUA), and nomenclature of territorial units for statistics (NUTS)). With Eurostat data, the EU has the most stable regional classification worldwide (EU, 2020). A multiscalar analysis methodology for EU port cities should employ an existing method that involves the operational definition of the urban network's nodes and connections at three levels (micro, mezzo, and macro) and three analysis scales (local, regional, and global) (Rozenblat, Neal, 2021, 2-15) (Figs. 1 and 2). Furthermore, the nodes and connections should be defined in such a way that they can measure both the centrality (a measure of the urban function) (Ducruet, Lee, 2006, 107-122) (Fig.3) and the intermediacy (a measure of

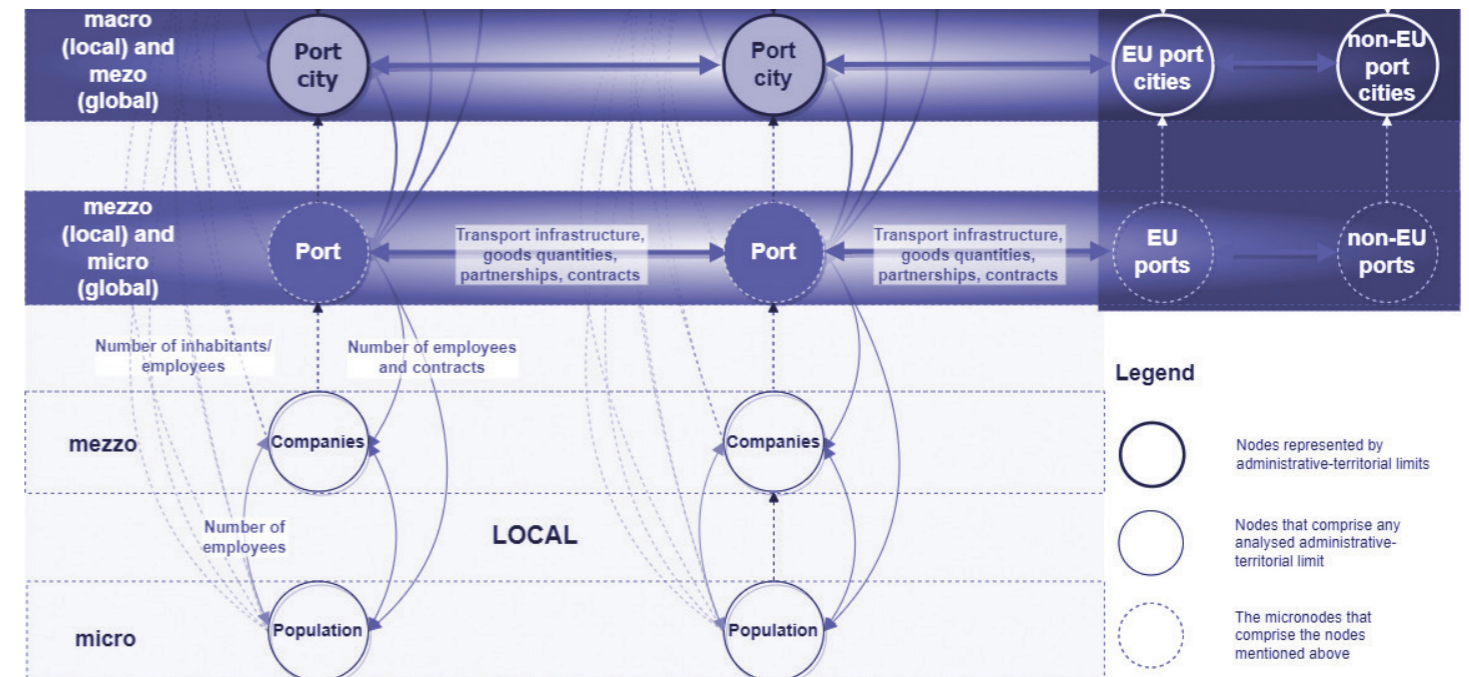


Fig.2. - A multiscalar EU port city analysis model through urban networks: a continuation of Fig.1 (Source: own elaboration).

the port function) (Ducruet, Lee, 2006, 107-122) (Fig.4), utilising the most relevant criteria for port city analysis, namely:

- transport;
- population;
- economy.

This study takes these three criteria into account because most studies that examined port cities calculated indicators related to the

number of inhabitants (Pinho and others, 2002, 567-575; Ducruet, Jeong, 2005, n.p.; Ducruet and others, 2013, 607-627; Veenboer, 2014; Chen, 2015, n.p.; Ducruet and others, 2018, 340-355; Roberts and others, 2021, 530-542), gross domestic product (Ducruet, 2009, 41-54; Luan and others, 2010, 398-405; Ducruet and others, 2013, 607-627; Veenboer, 2014; Chen, 2015, n.p.; Chen, 2017, 216-237), and the number of goods handled

by ports (Pinho and others, 2002, 567-575; Ducruet, Jeong, 2005, n.p.; Ducruet, 2009, 41-54; Ducruet and others, 2013, 607-627; Veenboer, 2014; Chen, 2017, 216-237; Chen, Lam, 2018, 944-961; Roberts and others, 2021, 530-542). The three criteria should, in turn, analyse various sub-criteria in addition to those previously mentioned (i.e., the number of inhabitants, the GDP, and the number of goods handled by ports) (Figs. 3 and 4).

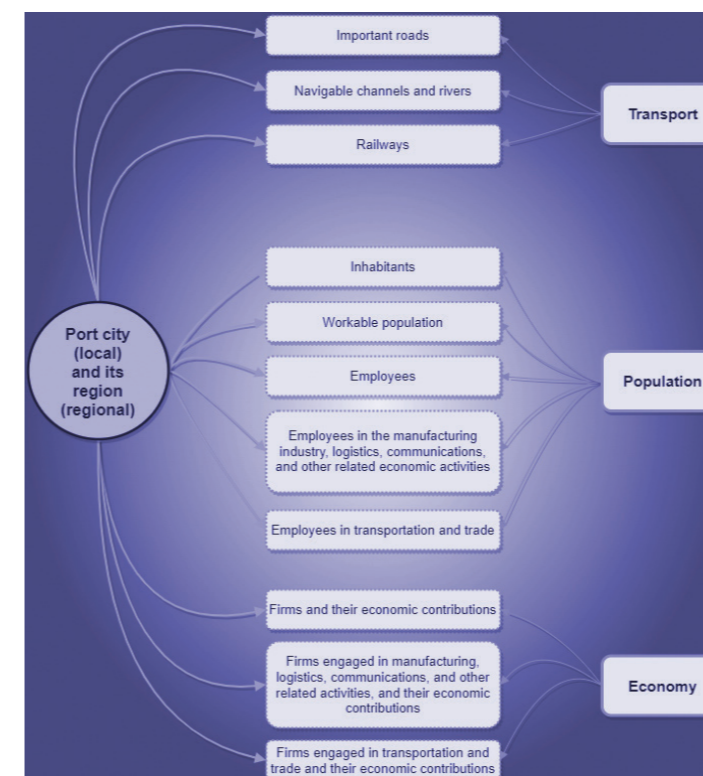


Fig.3. - Relevant sub-criteria for measuring the centrality of port cities: only the local and regional connections between the previously defined nodes (Source: own elaboration).

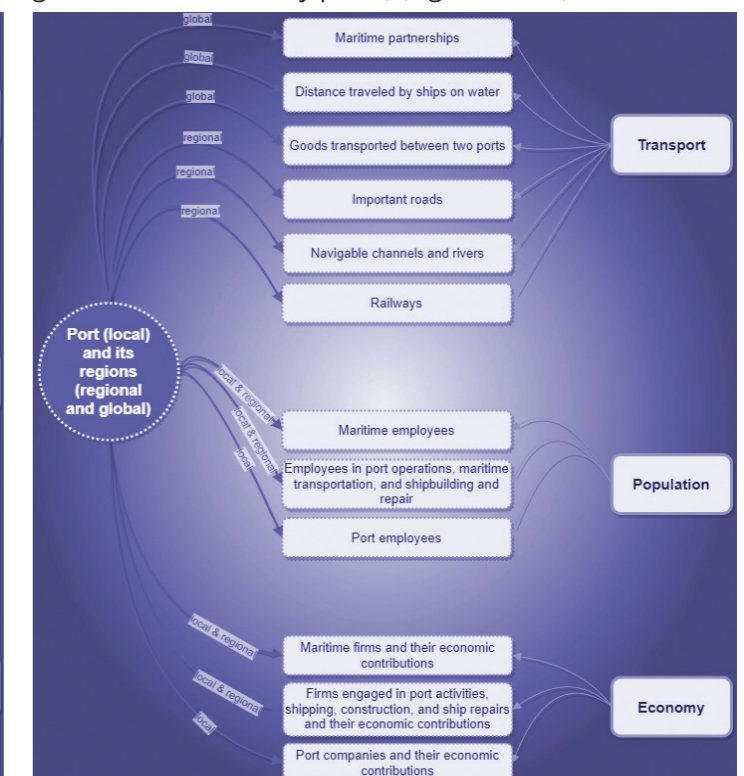


Fig.4. Relevant sub-criteria for measuring the intermediacy of port cities: - the local, regional, and global connections between the port and other ports and its region (Source: own elaboration).

The two figures show the sub-criteria that were chosen from the studies that looked at the port cities. Most of the sub-criteria, especially those that were used moderately in the studies consulted, are described in the paragraphs that follow and can be found on Eurostat. This study recommends the inclusion of several sub-criteria (especially those used rarely in the consulted studies) if a more detailed analysis of a specific port city is desired.

So, the indicators that were used moderately to measure port function were those that were related to the port economy, like the *gross added value (GVA) of port activity* (Luan and others, 2010, 398-405; Pinho and others, 2002, 567-575; Veenboer, 2014; Chen, 2015, n.p.). Also of interest were the labour force and the companies with a direct or indirect connection with the port (Ducruet, Jeong, 2005, n.p.; Pinho and others, 2002, 567-575; Veenboer, 2014; Chen, 2015, n.p.). In general, these indicators were related to the general indicators of the urban function, such as the GVA of economic activities, especially of industrial and logistics activities (Luan and others, 2010, 398-405; Pinho and others, 2002, 567-575; Chen, 2015, n.p.; Chen, 2017, 216-237), number of companies (Ducruet, 2009, 41-54; Luan and others, 2010, 398-405; Pinho and others, 2002, 567-575), the labour force, more specifically the qualified population, or the workable population, aged between 25-64 (Pinho and others, 2002, 567-575; Veenboer, 2014; Chen, Lam, 2018,), the employed (Ducruet and others, 2013; Veenboer, 2014; Chen, 2015; Chen, Lam, 2018, 944-961), and the unemployed (Ducruet, 2009, 41-54; Ducruet and others, 2013, 607-627; Chen, Lam, 2018, 944-961).

These indicators (less the ones referring to the port function) are easily available on Eurostat for various territorial units.

Lastly, the rarely used indicators in the consulted studies were those that, in principle, required the collection of data (including qualitative data) from less accessible

sources, such as local, regional, or national strategic statistics and documentation, interviews, questionnaires, observations, and requests for data from various institutions.

For the port function, the indices and indicators concerned are quality, functionality, hierarchy, type, commercial profile, facilities (Veenboer, 2014), *the number of goods handled by the port depending on the export and import destination* (national, European, and intercontinental market), and port specialisation by commodity type (Ducruet, Jeong, 2005, n.p.; Luan and others, 2010, 398-405; Pinho and others, 2002, 567-575; Ducruet and others, 2013, 607-627; Veenboer, 2014; Chen, 2015, n.p.; Chen, Lam, 2018, 944-961).

Also, the indicators related to the city-port interface were rarely analysed, such as the *regional/national transport infrastructure connecting the port to the territory* (the density of highways/ railways/ canals/ navigable rivers in the region) (Ducruet, Jeong, 2005, n.p.; Pinho and others, 2002, 567-575; Veenboer, 2014), the production capacity of the city (Pinho and others, 2002, 567-575; Chen, 2015, n.p.; Chen, 2017, 216-237), the number of researchers and research patents in the maritime field (Veenboer, 2014; Chen, 2015, n.p.), the vision of the city and the contribution of local public administrations to the development of the port (the vision of local strategies regarding the role of the port in the city / existing programs and projects aimed at the port/ the attitude of public administrations regarding the integration of the port into the city, and investments) (Luan and others, 2010, 398-405; Pinho and others, 2002, 567-575; Chen, 2015, n.p.; Chen, 2017, 216-237).

The scope of the study and its research question

Because, on the one hand, the methodology could represent a common framework due to the availability of common data at the

EU level, and, on the other hand, the methodological approach is sufficiently flexible to permit the incorporation of locally available data, the methodology has the potential to attract a variety of beneficiaries, including:

- Academics in the fields of urban and spatial planning or geography who are interested in studying port cities;

- EU platforms like Eurostat can build live maps of European port cities based on relevant data;

- Municipalities in port cities that want to handle different issues that define the city's present condition, as well as comprehend the sources of the problems and how they will develop if no action is taken to fix them;

- *Policymakers (at the EU, regional, and local scales) who can assist municipalities in solving port city issues.*

The scope of the current study, geared toward policymakers, is to identify current port city policies that can be influenced by such a methodological approach and to propose a series of recommendations for the organisation of these policies. Consequently, this study addresses the following research question: *How might this methodological approach impact spatial and urban policies?*

This article continues the introduction with a section dedicated to the background regarding other similar methodological approaches. In brief, until now, the author of this study has identified only one such methodological approach, tested for Ghent and Amsterdam by Van den Berghe and Daamen (2020, 89-108). Their approach takes only the administrative limits of the port cities and the limits of the port areas into account. In the case of the two authors, the nodes are represented by economic actors in the steel manufacturing sector, between which there are various types of economic relationships that exceed the administrative limits of

the cities where they are located, so the authors also took into account the limits of other nearby cities. Interestingly, the authors believe their methodological approach can be beneficial in policy-making, especially for port, city, and port-city policies. The section continues briefly, presenting the port-city interface concept that has influenced spatial policies over time. Also, within the same section, a problem is identified with most spatial policies that were developed more to solve various symptoms of port cities but did not solve the fundamental causes, so the need for a new approach is clear.

BACKGROUND

Developing a methodology for comprehending port cities through nodes and connections is not novel. Van den Berghe and Daamen (2020, 89-108), for instance, utilised the network because, from their perspective, *three aspects that the network entails are ideally suited for comprehending port cities*, namely:

- the limits of the networks - a

combination of two concepts, on the one hand, *the thematic limits* (e.g., logistic network), and on the other hand, the spatial limits (i.e., the geographical isolation of the networks analysed by other similar networks located in different parts of the world);

- the structure and hierarchy of the analysed network components (i.e., some nodes are more important than others);

- the diversity of the analysed network components (i.e., nodes and connections).

Their methodological network approach serves as *an instrument for understanding and directing or redirecting port policies, city policies, and port city policies*. The authors began with the thought that a researcher who intends to comprehend a port city, particularly its city-port interface, should also *comprehend the city from the standpoint of a policymaker, in addition to that of a researcher*. This premise is highly relevant for studying port cities, especially given that the port area has expanded

significantly over the past three decades due to the bidirectional relationship between local and regional policies and global market preferences (Van den Berghe, Daamen, 2020, 89-108).

In particular, the city-port interface is a concept that has influenced policy decisions over the past 30 years. The main goal is to build long-term relationships between the city and the port. To do this, different international organisations have made policy documents with suggestions and best practices. Thus, port actors are almost forced to follow a double standard set by the international organisations that make global policies, like the OECD (Organisation for Economic Co-operation and Development), the IMO (International Maritime Organization), and the EU. On the one hand, port actors want to improve the efficiency of port logistics operations so they can stay in the global logistics chain and help the economy. On the other hand, port actors must also consider the sustainability paradigm, which imposes a normative objective,

Topics of interest	Port	City	Port-city interface
Economy	Port capacities	Contribution and diversity	Smart development strategies Clusters in the maritime industry
Environment	Limit impacts	Quality of life	Sustainable development
Labor	Efficiency	Employment	Port-related jobs with high value added
Land use	Transportation, manufacturing, and cargo handling	Housing possibilities along the urban waterfront	Mixed development with a place for port-related activities
Structural logic	An enclosed manufacturing hub	Free-flowing systems exhibiting only agglomeration effects	Mixed
Transportation	Freight	Passengers	Reserved freight routes or smart freight-passenger coexistence

Table 1. - Typical port and city policy goals (Source: OECD, 2014, cited in Pape, 2017).

particularly from an environmental standpoint focused on minimising negative externalities. The sustainability paradigm has impacted European, national, and local governance policies and laws (Sánchez, 2019).

There are several spatial policies associated with port cities. For instance, transport, environmental and port relocation policies reduced negative effects like pollution and congestion. It is unclear which policies have worked and to what extent because monitoring of port city-specific policies and instruments is performed infrequently (Merk, 2013, 25-27). In addition, the effects of concrete policies are conditional on the specifics of the location. As a result, to have a successful policy mix, careful balancing is required, as well as building on existing strengths and developing new capacities and assets.

The policy mix that is selected ought to be consistent. However, in the current climate of global shipping, which is driven by the market, there needs to be more wiggle room for public policy. Typically, the objectives that port authorities and municipalities have and their perspectives on the difficulties they face differ. Port authorities concentrate on factors that contribute to the port's competitiveness, such as connections to other ports, the efficiency of port operations, the quality of inputs (labor, machinery, and land), the effectiveness of the organisation, and robust connections to the hinterland (Pape, 2017).

Overall, the problem with all policies is that they tend to treat symptoms instead of diseases. They have focused more on reducing the negative externalities generated by ports than on the role of urban actors who can help make city-port relationships more stable. Thus, *researchers have begun to query the city-port relationship's long-term sustainability and are debating the possibility of a new approach* (Sánchez, 2019).

MATERIALS AND

METHODS

Because the urban and spatial policies targeting port cities can be varied, covering various topics, and because the analysis criteria of the methodology proposed by the present author are only three, this study first looked for the policy domains dedicated to port cities identified and analysed by the OECD (Merk, Dang, 2013) in various port cities. *OECD assessed the effectiveness of port city policies* by comparing policy outcomes with policy instruments for five different policy domains, namely:

- *port*;
- *port-city*;
- *transport*;
- *environment*;
- a final category that includes research and development, spatial development, and communication.

Since the proposed methodology does not cover the last two categories, *the author selected only the port, port city, and transport policy domains*. Second, the study looked for ESPO (2019) recommendations dedicated to the EU that target the three selected policy domains. The author then matched parts of the methodology with parts of the selected policy domains that could be impacted by the methodological approach proposed by the present author.

In the last part of this paper, the author makes a list of recommendations based on what the study found about the relationship between the methodology components and the policy domains. In addition, the recommendations consider another document made at the EU level, developed by ESPON (2019). This document was chosen because it has three key policy recommendations, namely:

- do a pre-planning analysis of the port city;
- use a suitable planning approach;

- use appropriate governance and funding models.

The first recommendation of the document is indispensable in the process of creating a shared vision. In addition, it helps to emphasise the gaps between the vision and the current situation (ESPO, 2019). Therefore, the first policy recommendation may be met by using the proposed methodological approach.

Port, port-city, and transport policies. OECD port city policies study

This section concisely presents the findings from the OECD-led research on port, port-city, and transport policies discovered at the level of global port cities. These results are correlated with elements of the methodology proposed by the current author in Table 2 in the following ways, respectively:

- for *the port policy*, the parts related to the port function are compatible; more specifically, the indicators related to transport and economy;
- for *the port-city policy*, the parts related to both the port function and the urban one are compatible; more precisely, the indicators related to population and economy;
- for *the transport policy*, the parts related to the urban and port function are compatible; more precisely, the indicators related only to transportation.

As expected, at the global level, port policies were present in most seaports analysed by the OECD (Merk, Dang, 2013). As we see in Table 2 (outcome indicators), increases in traffic, the value added by the port, and the effectiveness of operations are some examples of indicators of a busy port. Here it is possible to assess seaports' centrality, diversity, and clustering through connectivity indicators.

Most of these indicators are also suggested by the

Centrality and intermediacy (as shown in Figs. 3 and 4)	Criteria (as shown in Figs. 3 and 4)	Policy domains (Merk, Dang, 2013)	Outcome Indicators (Merk, Dang, 2013)	Sub-criteria (as shown in Figs. 3 and 4)	Policy instruments (Merk, Dang, 2013)	ESPO's vision (2019)
Intermediacy	Transport	Port policies	Port traffic Containers passing through ports Grow port throughput Growth port traffic TEUs Maritime connections (degree of centrality) Maritime connections (clustering coefficient) Diverse marine links Efficiency score	Maritime partnerships Distance traveled by ships Goods transported between two ports	Long-term port strategy Port modernization Port IT Creation of new port functions Labor ties in ports Training port workers	European ports are strategic assets. They are developing autonomous port economies. Ports stimulate economic growth.
	Economy		Value-added port	Maritime firms and their economic contributions Firms engaged in port activities, shipping, construction, and ship repairs and their economic contributions Port companies and their economic contributions		
Centrality	Economy	Port-city policies	GDP per head in metropolitan areas GDP per head growth in metropolitan areas	Firms and their economic contributions Firms engaged in manufacturing, logistics, communications, and other related activities, and their economic contributions Firms engaged in transportation and trade and their economic contributions	Maritime cluster formation Attracting port-related headquarters functions Economic diversity Synergizing port and other clusters Coordinating ports Partnership with neighboring port-cities	Port authorities should show transparency by interacting with local youth and institutions and involving the community to minimize bad effects and enhance environmental performance.
	Population		Metropolitan inhabitants Increases in the populations of metropolitan areas Unemployment	Inhabitants Workable population Employees Employees in the manufacturing		
Intermediacy	Transport	Port policies	Port traffic Containers passing through ports Grow port throughput Growth port traffic TEUs Maritime connections (degree of centrality) Maritime connections (clustering coefficient) Diverse marine links Efficiency score	Maritime partnerships Distance traveled by ships Goods transported between two ports	Long-term port strategy Port modernization Port IT Creation of new port functions Labor ties in ports Training port workers	European ports are strategic assets. They are developing autonomous port economies. Ports stimulate economic growth.
	Economy		Value-added port	Maritime firms and their economic contributions Firms engaged in port activities, shipping, construction, and ship repairs and their economic contributions Port companies and their economic contributions		
Centrality	Economy	Port-city policies	GDP per head in metropolitan areas GDP per head growth in metropolitan areas	Firms and their economic contributions Firms engaged in manufacturing, logistics, communications, and other related activities, and their economic contributions Firms engaged in transportation and trade and their economic contributions	Maritime cluster formation Attracting port-related headquarters functions Economic diversity Synergizing port and other clusters Coordinating ports Partnership with neighboring port-cities	Port authorities should show transparency by interacting with local youth and institutions and involving the community to minimize bad effects and enhance environmental performance.
	Population		Metropolitan inhabitants Increases in the populations of metropolitan areas Unemployment percentage	Inhabitants Workable population Employees Employees in the manufacturing industry, logistics, communications, and other related economic activities Employees in transportation and trade		
Intermediacy	Economy	Port-city policies	Port efficiency (ratio of port-related employment and value-added port)	Maritime firms and their economic contributions Firms engaged in port activities, shipping, construction, and ship repairs and their economic contributions Port companies and their economic contributions	Long-term port strategy Port modernization Port IT Creation of new port functions Labor ties in ports Training port workers	European ports are strategic assets. They are developing autonomous port economies. Ports stimulate economic growth.
	Population		Port-related jobs (direct and indirect port-related employment)	Maritime employees Employees in port operations, maritime transportation, and shipbuilding and repair Port employees		
Centrality	Transport	Transport policies	Highway density Railroad density	Important roads Railways Navigable channels and rivers	Hinterland intermodal access Hinterland traffic shifts Freight lanes/corridors	The main goal of European policy should be to make ports better intermodal transportation hubs. Improved collaboration between the port, its rail network, and the national rail network is needed.
Intermediacy			Important roads that connect the port to the region Railways inside the port area that connect to the region Navigable channels and rivers that connect the port to the region			

Table 2. - Policy domains and corresponding instruments, analysis criteria, and sub-criteria whose data are available for measuring urban function (centrality) and port function (intermediacy) of EU port cities (Source: own elaboration, based on Merk and Dang (2013) and ESPO (2019)).

methodology proposed in the study's introduction, except for the efficiency index. With regard to the appropriate instruments for port policy, these instruments aimed to increase traffic volumes and allow for substantial freight throughput increases.

Among these were improvements to labour relations and skill sets, the planning and execution of long-term strategic development of port sites, and the introduction of new port functions.

Furthermore, most port-city policies focused on enhancing synergies between port activity and the city. Among these were coordinating ports and cooperating with neighbouring port cities, establishing maritime clusters and synergies between port clusters and other clusters, and attracting port-related executive functions. As shown in Table 2 (outcome indicators), when evaluating the city's performance, the unemployment rate, the number of direct and indirect jobs at the port, and the port's labour productivity were relevant indicators considered by the OECD (Merk, Dang, 2013).

In terms of the third policy, improving access to the hinterland, modal shifts, and freight corridors were at the top of the list of port-related transport policies. However, transport policies were more successful in maintaining port activity performance, regardless of the density of transport networks. Still, if traffic congestions are not fixed, infrastructure problems could make it hard for the port to grow (Merk, Dang, 2013).

ESPO's vision of European port city policies

At the EU level, ESPO (2019) says that transport policy needs to be consistent with and coordinated with other policies, such as those for the environment, customs, competition, energy, maritime affairs, and research.

This policy will be more coherent

and effective if its goals and measures are better coordinated. European transport policy should continue to improve ports' position as intermodal hubs in the transport chain, as ports are at the intersection of rail, road, inland rivers, and marine. Furthermore, improved *collaboration between the port, its rail network, and the national rail network* is required. Regarding European rail policy, policymakers should recognize that the rail network in the port frequently serves different requirements than the national rail network and, as a result, can sometimes be handled differently.

Specific to *port policy*, since European ports are composites that continue to blend corporate and public interests, ESPO (2019) has urged European policymakers to take a hard look at *European ports as strategic assets*. European policymakers should also take notice of *the trend toward increasingly autonomous port economies*. Since ports bring in significant revenue, they can continue to expand and stimulate economic growth.

About the *port-city interface*, ESPO (2019) mentioned only that because 91% of European ports are in or near urban areas, the people who live there see ports as the maritime industry's representation of the city. To keep negative effects to a minimum and improve environmental performance, port authorities should be open and talk to local youth and institutions and get the community involved.

DISCUSSION AND CONCLUSIONS

This study matched parts of a proposed methodology for analysing port cities in the EU with parts of the policy domains found in most port cities by the OECD (Merk, Dang, 2013). First, the methodology proposed by the present author started from the idea that port cities are both intermediary, due to the port, and central, due to the city. Secondly, the methodology addresses only EU port cities

because the EU has the a noticeably stable regional classification and good available data.

Thus, the methodology can be used as a common framework for port city analysis because it uses various limits grouped according to three scales and three levels of analysis, according to an existing method of defining urban networks. Van den Berghe and Daamen (2020, 89-108) consider the network a very suitable tool for the multiscale understanding of port cities because it establishes multiple relevant spatial limits, structures and ranks the components of the networks (i.e., their nodes and connections) delimited in the first step, and allows a varied classification of these components.

The limits proposed by the methodology are diverse, such as the spatial ones composed of local micro and mezzo nodes (i.e., population, firms, ports) and those exclusively administratively territorial (i.e., LAU, FUA, NUTS). Thirdly, the methodology uses the data related to these limits, relevant for the multiscale analysis of these types of cities (i.e., transport, population, and economy datasets), most of which are available on Eurostat. On the one hand, some data can be used to measure the port function (i.e., intermediacy); on the other hand, some data can be used to measure the urban function (i.e., centrality).

The criteria selected as the most relevant by the proposed methodology could help direct and redirect port city policies. Therefore, following the literature review, parts of the proposed methodology were found in the port, port-city, and transport policy domains identified by the OECD (Merk, Dang, 2013). Above all, according to the recommendation of ESPO (2019) for the EU, the transport policy should be coherent with and coordinated with other policies to improve ports' position as intermodal hubs in the transport chain, ports being an essential source for stimulating economic growth.

EU port cities can have a range of spatial and urban policies made

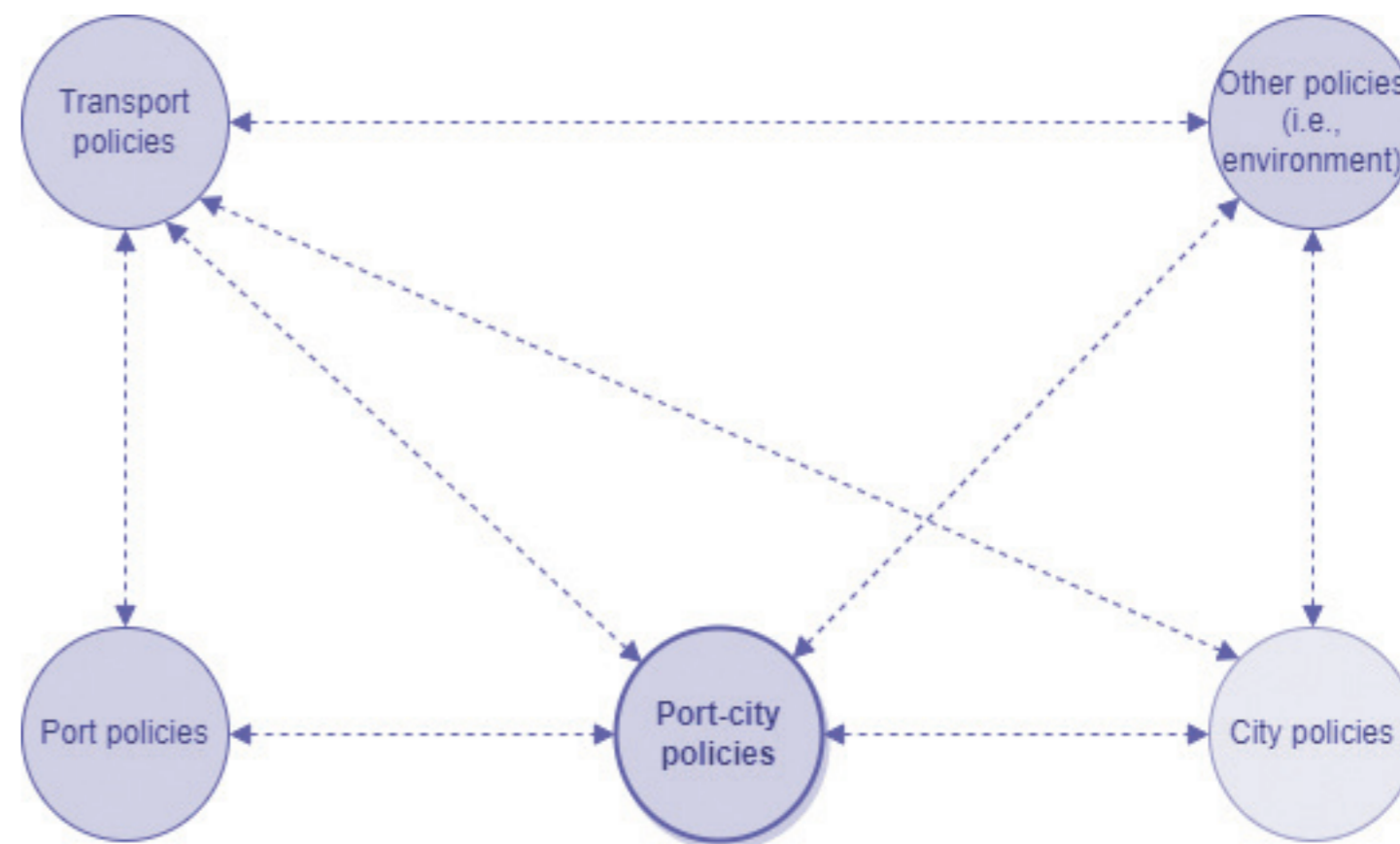


Fig.5. - A simple diagram of the bidirectional relationships that should exist between policies developed at various spatial scales and city policies developed at a local scale (Source: own elaboration)

for them, some of which are closely related to the port and some of which are less so.

However, a methodological approach like the one suggested by this study needs a network of policies that are clearly structured and interconnected. In this context, port city policies should be created as broadly as possible (i.e., global and regional scales) while remaining particular to the port-city interface (i.e., local scales) because the port is an important node at all three spatial scales (local, regional, and global). It can have a beneficial impact not only on its city, which is usually more important at the regional scale (including national, NUTS 0, as shown in Fig.1), but also on the entire European economy (Fig.5).

The methodology can be used as a common framework, and it is also flexible enough to include several important indicators for analysing port cities within the limits of the data that are available at the local level.

Therefore, the study concludes

that the proposed methodological approach can impact the configuration of urban and spatial policies, both in the configuration of a single policy and in the configuration of relations between several complementary policies.

The methodological approach can have an impact on these policies in the sense that, following the multiscale analysis, the intermediacy of the port city might be high and the centrality low, so maybe the proposed policies should focus more on the revitalisation of the city and balance the urban and port functions.

For example, Amsterdam, one of the cities mentioned in the introduction of this paper, is an example of a port city where a large part of the industrial and port area is wanted by the municipality to be converted into a residential area.

However, even if the improvement of the city is desired through this project, this project led to a conflict between the port and city, because Amsterdam's port works well; it is

not an economic activity in decline (Pliakis, 2019, cited in Van den Berghe, Daamen, 2020, 91).

As a result, another conclusion is that the proposed methodological approach can also have an impact on policy instruments. More concretely, policy instruments should be chosen according to the analysis results, that is, according to the current state of the port city, which presents various specific problems that must be solved from case to case.

In this context, the proposed methodology in this study can be applied in the first key policy recommendation proposed by ESPON (2019) (do a pre-planning analysis of the port city), within the following recommended sub-actions:

- assess the current and projected trajectory of the port and city and their relationship;

- examine how the port city is handling identified challenges and opportunities;

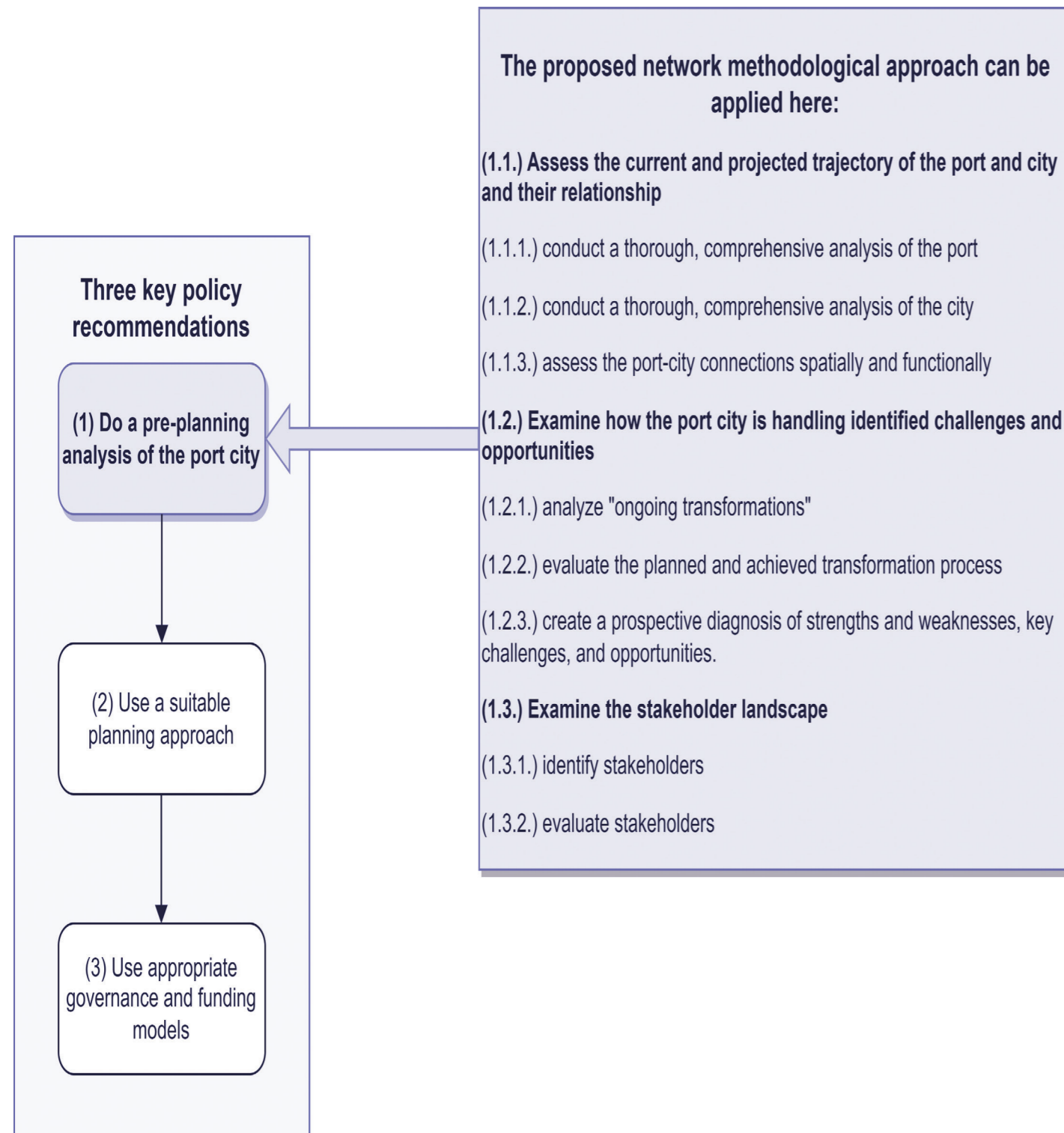


Fig.6. - The application of the proposed methodology within the first key port city policy recommendation (Source: own elaboration, based on ESPON (2019))

- examine the stakeholder landscape (Fig.6).

Following the first sub-action, on the one hand, the current socio-economic function of the port in relation to port operations, growth patterns, and local, regional (including national), and supranational/ global governance settings should be known.

On the other hand, the port city's challenges and opportunities must be outlined. When it comes to the second sub-action, it is important to assess completed or ongoing plans and projects that address challenges and capitalize on opportunities to develop an efficient planning approach that maximizes the utility of possible resources.

Last, in the third sub-action, it is critical to identify and investigate the relevant stakeholders because these individuals either directly participate in the plan or policy or indirectly influence it through their position or the specific resources they possess (ESPON, 2019).

It is highly likely that for the last two sub-actions, it will be necessary to include sub-criteria that are not available on Eurostat, exceeding the nature of the methodology to be a common analysis framework since they will be concentrating on the local scale of the city.

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