Resilience Reporting for Sustainable Development in Cities

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Abstract: Recently, a new paradigm has emerged—the resilient city. It is an evolutionary concept rooted in recent—but more consolidated—city visions, such as a smart city or a sustainable city, from which it inherits the interweaving of different dimensions. This paper investigates the factors behind effective resilience reporting, as well as how a city should draw up an urban resilience strategy report to be accountable to its citizens. We first highlighted the main factors to design and implement reporting for the achievement of strategic resilience goals, by combining research on a resilient city and accountability practices. These factors could be organized following two different perspectives: political and sociotechnical. Then, we applied our framework to four pioneering municipalities selected as paradigmatic case studies. A qualitative content analysis applied to the city resilience reports has provided depth to our framework. We found that the “weak factor” is the ability to embed the resilience strategy in rooted connections and transform itself into an ecosystem that crosscuts different sectoral urban processes. Our exploratory research claims could be used for future research in this field, as cities are becoming increasingly complex systems, where the quality of life and well-being of a larger population depends.

Keywords: resilience; reporting; urban sustainability; smart city; accountability

1. Introduction

Sustainability is quickly becoming a crucial issue at the global level [1], involving private, public, third sector, and hybrid actors [2]. Organizations are including sustainability in their missions and strategic plans even more [3,4]; the more committed ones are adopting the Sustainable Development Goals set up by the UN [5,6]. Cities and local governments are now playing a pivotal role in implementing sustainable policies that affect citizens, firms, and territories as a whole [7,8]. In urban areas, sustainability has been pursued using different labels, such as smart city [9], green city [10], sustainable city [11], etc. Even though these concepts are quite different, they share the idea of sustainable development, which translates into preserving the environment and granting citizens a better quality of life in their cities [12].

Recently, a new paradigm has emerged—the resilient city [13]. Resilience is a property derived from physics. It can be defined as the capacity of a material to absorb energy elastically. Concerning ecosystems, it is the capacity to tolerate disturbance without collapsing [14]. It involves the capability to react to external negative events, including shock and stress, not merely preserving the current status, but evolving to reduce the adverse effects, and collecting positive opportunities derived from change.

Regarding cities, a resilient city can be defined as a community that has the capacity to manage unexpected events and face stresses and shocks, preserving and innovating its social, economic, and infrastructural system [11,13]. This definition sheds light on the complexity of an urban resilience strategy, regarding several themes—different from each other, but strictly intertwined—and requiring more than a passive approach. To be resilient means not merely reacting or defending, but preventing, learning, and innovating [15].
In this way, resilience is becoming an interpretative metaphor for urban sustainability management [16,17].

Urban resilience has been fostered by international institutions and city associations, including the OECD [18,19], UN [20], and the Rockefeller Foundation [21]. However, currently, only a few cities worldwide have designed a comprehensive resilience strategy, and even fewer have developed reporting to inform citizens and document the accountability concerning their resilience actions.

Implementing a resilience plan in cities requires a long-range strategy, the capability to invest, and the strong involvement of citizens, firms, and the third sector. A resilience strategy can be successful only if it can cover a large set of topics and problems. Therefore, it requires great effort by the local government and emphasizes the need to document, inform, and report to support decisions and gain consensus. Hence, resilience reporting is a new and promising research stream as the topic is still in its infancy and very few studies have addressed it.

What emerges from an initial exploratory analysis on the SCOPUS citation database, searching for the keywords “resilient city or urban resilience” and “plan or report”, is that scant contributions address this topic, according to very diversified perspectives. There are scholars in the field of environmental sciences who focus on recovery plans following environmental or infrastructural disasters [22–24]. Other scholars are in the field of urban governance and planning [25–28] and, lastly, some researchers deal with sustainable development studies, in particular areas or regions afflicted by economic crises [21,29], climate change risks [30], disasters, and shock events. This evidence allows us to affirm that this topic: (1) is still at its infancy stage for both scholars and professionals; (2) addresses complex problems that, for their resolution, may require interdisciplinary skills.

For our purpose, it is interesting to note that in our preliminary bibliographic analysis, we did not find scientific contributions in the fields of public management and accounting disciplines that address the topic of urban resilient reporting. This is quite surprising. Since the 1990s, new public management (NPM) reforms were paired with reporting practices to communicate to stakeholders/citizens about the value of public administration for society, as well as to develop stakeholder engagement [31–34] as a founding element of democratic governance [35,36]. In particular, in recent years, concerning the accountability of local governments (LGOs), the rise of a holistic form of disclosure (able to incorporate both financial and non-financial information) that is also concise and easy to understand, has fueled the academic and practitioner debates, generating a large number of different reports under different labels [34]. However, their adoption is not free from criticisms. Some authors have highlighted that the experimentation of new forms of accountability in the public sector may hide the purpose to achieve legitimacy through window-dressing strategies [36] or may be a mere managerial fashion [34]; which does not fulfils, de facto, the information need of constituents [37]. Concerning the issues that accounting scholars should address (to “provide food for thought” to professionals and researchers), the following two factors seem relevant to our study: a deeper understanding on how to govern the public value creation process [38,39]; and to address the interrelations among urban resilience and sustainable city accounting [40].

To fill the above-mentioned gaps that have emerged in the accounting literature, we now consider resilience reporting as an instrument devoted to communicating how the resilience strategy of a city is embedded in a larger strategic vision. Hence, our Research Questions are the following: What are the factors behind effective resilience reporting that support the achievement of the strategic resilience goals? How should a city draw up an urban resilience strategy report to be accountable to citizens?

After elaborating a framework analysis of the main factors supporting the design and the implementation of urban resilience reporting, our empirical investigation was addressed, to apply it to case studies of resilience reporting issued by pioneering municipalities. An extensive set of urban documents have been examined to reach this outcome; subsequently, the four best practices that emerged as paradigmatic examples were extracted.
Our study aims to advance reporting research in LGOs, by building on the literature review and our findings, and introducing resilience reporting with a comprehensive approach that embeds the new paradigm of the resilient city. Therefore, our study provides some insight—for local governments, politicians, and public officers—on the disclosure of resilience goals and performance, and on how resilience reports could become strategic instruments that link city governance and accountability to citizens.

The paper is organized as follows. Section 2 describes the background of our study, explaining the evolutionary vision of urban resilience based on resilience reporting, and how city accountability mechanisms are addressed in accounting literature. Section 3 analyzes the concept of urban resilience and the international resilience frameworks suggested by global institutions. Section 4 presents our framework of analysis of the main factors supporting the design and implementation of urban resilience reporting, combining different streams of research. Section 5 defines the research methodology; Section 6 covers the issues emerging from the comparison of some European best practices, in cities implementing resilience reporting in detail. Section 7 discusses the findings and answers the research questions. Section 8 concludes with some suggestions for further investigation.

2. Background: Resilience Definition and Reporting in Cities

2.1. Urban Resilience Definition: An Evolutionary Vision

The definition of urban resilience has evolved, from a defensive approach, aiming to protect the city, its inhabitants, and infrastructures, to extreme shocks and proactive behavior—that is, a comprehensive urban strategy covering all dimensions of urban life and a long-term resilience life cycle. In this way, resilience is becoming an interpretative metaphor for urban sustainability management [16,17]. However, the translation of resilience thinking in real resilience policies is limited by inadequate interpretation and understanding of its theoretical underpinnings [41,42].

Throughout its evolution, urban resilience has expanded, from an engineering focus, addressing recovery, efficiency, and speed, to return to a steady state [43], or an ecological view on equilibrium, and governance of complex and integrated social and natural systems [44], up to an evolutionary approach, considering adaptive capacity, transformability, learning, and innovation, referring to urban socioecological ecosystems [45]. Managing resilience means managing cyclical patterns and non-linear processes related to multiple stakeholders, with different and dynamic expectations [46].

In this sense, urban resilience implies change and an evolutionary path, considering multiple disciplines and urban features in an integrated way, and a comprehensive policy aimed to improve the quality of life in urban areas [47]. Masik and Grabkowska [48] suggest a multidimensional hierarchical resilience strategy, based on four components: institutional, economic, social, and environmental resilience, with emphasis on economic resilience. Indeed, economic resilience is an important issue in modern, fluctuating economies, in which cities should face adequately [29,49].

As a result, a resilience framework is also rooted in several frameworks regarding digital cities, smart cities, sustainable cities, and a better life in cities [9].

The smart city emerged as an urban strategy at the beginning of the millennium. It has evolved from the digital city paradigm, including digitalization, but has extended its scope to use the most innovative technologies in city planning, management and infrastructure, pursuing, in the meantime, environmental preservation and a better quality of life for citizens [12]. The smart city focuses on technology, whereas the sustainable city focuses on the environmental impact of cities [9].

A smart city and sustainable city could be conceived as the fertile ground in which a resilient city bases its strategic vision [47,50,51]. However, in moving from a digital city to a resilient city, the scope and key elements of the urban strategy continue to expand. The digital city aims to use ICT to digitalize society; the smart city aims to incorporate innovative technologies in urban processes; and the sustainable city aims to use technologies to reduce the urban environmental impact. With respect to the previous urban strategies, the
resilient city merges all of these aspects, with a comprehensive vision including people, their well-being, and their involvement in urban governance [52] (see Figure 1).

![Figure 1. Evolution of resilient city definition from digital city and upward.](image)

All of these city paradigms share multidimensionality. The most-known smart city framework, the Giffinger’s [53,54], clearly shows that, to build a smart city, it is necessary to implement different strategies regarding a broad spectrum of topics, including the physical, infrastructural aspects of the city—such as a smart environment, smart mobility, smart economy—and the intangible, human, and social ones—smart people, smart living, and smart governance. The tangible city, the economic processes, and the individual and social activities should be taken into consideration, and be well-governed and balanced to create the best conditions for urban life [55].

In the same vein, quality of life is also a multidimensional feature, as it depends not only on the material conditions of living, but also on a well-being status derived from multiple situations [56]. The OECD, in its Better Life Index, synthesizes the different components of a good quality of life, considering a mix of material and social situations [18]. As it emerges, a city that aims to pursue a better quality of life and prosperity in the long term should address and manage several aspects from a multidimensional perspective, as all of these aspects are intertwined with each other.

The resilient city inherits this multidimensionality and, therefore, requires a large scope to be effectively implemented. However, we found that few resilience frameworks of those suggested in both academic literature and professional practice can support the socioecological, multidimensional features of urban resilience that have evolved throughout the latest few years [57]. Indeed, several urban resilience frameworks only address specific shocks (for example, floods or earthquakes) and focus on recovering, merely considering the infrastructural aspects. Several of these frameworks are designed to respond to well-identified urban risks and problems regarding cities located in specific geographical areas; therefore, they lack universality [58].

Moreover, almost all resilience frameworks are conceived statically: they are not designed to implement a strategic planning activity, including problem identification, action design, operationalization, and performance measurement, addressed to reporting and proactive feedback.

Finally, almost no existing resilience frameworks embody the multidimensional idea of resilience, and neglect the need for a strong political commitment and substantial citizen engagement.
Therefore, implementing a resilience strategy in a city is a difficult challenge for LGOs. It requires politicians and public administrators to draw up a long-range strategy and invest financial and other resources, and the strong involvement of citizens, firms, and the third sector. In light of new public management [31–34], it also requires governing of the urban resilience strategy to satisfy the needs and expectations of a large set of heterogeneous stakeholders and, consequently, to document, inform, and report performance and reached goals.

Performance measurement, reporting, and accountability to citizens are needed to close the strategic cycle of urban resilience: accountability mechanisms ensure democratic control of public institutions and improve public confidence in governance arrangement [59,60]. We should note that resilience reporting is rooted in previous experience of LGO accounting, performance measurement, and reporting, especially regarding non-financial disclosure and sustainability reporting. In the following, we will picture the evolution of local government accountability practices and mechanisms will be presented as part of our background.

2.2. A Journey into Local Government Accountability Practices

Since the 1990s, new public management (NPM) reforms have been paired with financial reporting practices to communicate to stakeholders/citizens the value that public administration creates for society, as well as to develop stakeholder engagement [31–33].

However, as already addressed by scholars, stakeholders have made rather limited use of the information embedded in public financial reporting [61]. One of the reasons often adopted to explain the consequent failure of financial reporting, to meet public accountability requirements, is in the use of language, which is difficult to understand for people without specific accounting expertise [62,63]. Therefore, scholars and professionals have been trying to improve the accountability of public sector organizations, especially in countries where NPM reforms have called for a more participative role of citizens in the decision-making process of public entities [38,39,64].

In parallel, as a general trend, the growing attention of a local government to integrate sustainability into strategic planning processes [65] and reporting [66–68], has emerged, especially in the last decade. In fact, local governments (LGOs) play a key role in sustainable development, having a high faculty to directly impact society and communities [69,70].

Due to the lack of generally accepted standards for LGOs to account for their commitment to sustainability, these trends have given rise to the experimentation, by some pioneering administrations, of new forms of communication [71] and accountability practices [72–75]. Accordingly, the debate has been polarized in two main directions. On the one hand, some authors have discussed strategic planning processes that should embed sustainability themes [76,77] and indicators [78], and be effective at spurring local sustainability actions [79]. On the other hand, other authors have tackled the issue of new holistic forms of local government reporting [80].

The rise of a holistic form of disclosure, able to incorporate both financial and non-financial information, which is concise and easy to understand, has fueled the academic–practitioner debate, generating a large number of different reports under three different labels, namely: sustainability reporting (SR) [81–83], which may also include information focusing on intangibles [84,85], popular financial reporting (PFR) [37–86], and more recently, integrated reporting (IR) [87,88]. These tools, of a voluntary nature, aim to provide information to citizens about the LGO actions and projects, in line with the democratic principles that have inspired the NPM reform [35]. However, their adoption is not free from criticism. Some authors have highlighted that the experimentation of new forms of accountability in the public sector may hide the purpose of achieving legitimacy through window-dressing strategies [36] or may be a managerial fashion [34], which does not fulfill, de facto, the information needs of constituents [37]. Thus, their implementation does not guarantee their effectiveness regarding the communication of the (expected and realized) LGO goals, actions, and performances.
More recently, the advent of the internet has facilitated access to this wide variety of information by different users and, nowadays, almost all public administrations provide a plethora of data, information, and reports on their websites [89]. However, in this case, a possible negative counter effect must also be highlighted. The risk is that growing pressure for more transparency and accountability by LGOs may overload with information, which may turn into lower stakeholder engagement because they are more confused than informed [90].

Hence, in line with previous studies, we assume that the success of LGO communication depends on: (i) the consistency between what is communicated and what is translated into local government practices, and (ii) the outreach and engagement of citizens and stakeholders within this process.

These two statements have led us to some further considerations. The LGO communication should be an expression of the strategic vision that politicians and city managers have elaborated. Therefore, the challenge of good practice of public accountability should start with the communication to citizens and stakeholders about the city vision, strategy, and governance, with a view towards sustainable development. Then, the latter should be accompanied by a coherent plan that allows citizens and stakeholders to evaluate how this vision is articulated in objectives and actions. Finally, results must then be reported through appropriate accounting practices, accountability mechanisms, and information technology and media.

The existing literature in the field of sustainability in LGOs does not address this issue from the perspective of processes integrated into the sequence: strategic vision, planning, control, and reporting. Instead, it focuses on either planning processes or reporting practices; in the latter case, they explore models borrowed from the private sector [91] that are not explicitly elaborated for the public sector [38].

We believe that public accountability must start with the city’s strategic vision. Therefore, in line with the call for research in this field by Grossi et al. [40] (p. 643), “There is still much to learn about the roles played by accounting practices [and] accountability mechanisms”; this paper aims to investigate new forms of effective public accountability, with particular reference to cities.

We agree that the “prevailing idea of public accountability changes over time as a consequence of changes in the social, cultural, political context” [61] (p. 331). Hence, in line with the new times of uncertainty and emergence unveiled by the pandemic crisis, we propose, in the following section, to focus on the concept of urban resilience reporting. The latter must not only be a buzzword, but must be translated into concrete ways of carrying out city governance based on adequate frameworks, mechanisms, and practices useful for systemic risk analysis and management. This exercise does not only regard the decision-making processes of LGOs, but must be accompanied and nurtured by innovative and consistent accounting practices and accountability mechanisms.

3. Urban Resilience Reporting: The State of the Art and Problems to Be Faced

Despite the topic gaining more global attention, urban resilience is still in its infancy; therefore, reporting frameworks are not very widespread, and no standard has been universally adopted [92–94].

To measure and report urban resilience means defining what urban resilience is and which aspects make a city resilient. As seen in Section 2.1, the idea of resilience has evolved from a sectorial practice to a comprehensive urban strategy. However, this evolution is still in progress and has not been embodied in resilience frameworks yet.

On the other hand, municipalities aiming to implement a resilience strategy need to plan and issue a resilience report that is able to account for their commitment and performance to citizens. This need faces reporting problems and difficulties, as we have seen in Section 2.2, arising from the lack of standards, the need to insert reporting into a larger strategic cycle, and the urgency of defining a language that is able to communicate to citizens, non-experts in accounting.
Pioneer cities aiming to issue a resilience report need to build their practices on resilience frameworks, reporting tools, and strategic management, first considering the comprehensive vision of resilience. Examining the international literature and professional implementations, few examples arise that respond to this need. The most important urban resilience frameworks that present a comprehensive vision, including all the features—socioecological approaches, multidimensionality, and universality—are those issued by the UN, the OECD, and ARUP [95].

The UN urban resilience framework is based on disaster risk reduction and aims to accelerate the implementation of adequate policies for risk reduction at the local level [96]. It is based on a multidimensional approach—especially strategic actions aimed at organizing, planning, strengthening, and recovering. The approach is both reactive and proactive and regards infrastructures, financial resources, the environment, and the institutional and societal capacity to face shocks. It provides an excellent manual to identify priorities and plan crucial areas of intervention and key goals to reach. However, it is still based on the traditional physical idea of the urban system [20].

The OECD resilience framework primarily aims to measure resilience, to implement strategies for better resilient cities further [19]. The framework identifies four dimensions for a resilient city: economy, society, governance, and environment. Each dimension can be assessed using indicators. This framework is built by adopting a socioecological perspective. A resilient city is seen as an ecosystem where the four dimensions interact with each other; the indicators show that resilience is not merely a physical attribute, but the result of a comprehensive urban attitude towards people and the living conditions at the core. Measurement is seen as the first step in an integrated process, including the relations between the resilience assessment and the local and national policies to support the realization of more resilient cities.

The most complete and exhaustive urban resilience framework is designed by ARUP, a consulting company that suggests a comprehensive model to assess urban resilience and, consequently, take action [97]. With respect to the other frameworks, the ARUP model specifically addresses a socioeconomic–ecological ecosystem, conceiving the different dimensions of life in cities (e.g., a synergic system). The multidimensional perspective is at the true basis of this model. Multiple stakeholders are considered as the focus of the resilient city and are involved in tailoring the resilience model in each city [98].

The ARUP model for resilience assessment and reporting includes four dimensions of analysis: health and well-being, economy and society, infrastructure and environment, and leadership and strategy. Each dimension consists of three goals, for a total of 12 goals measured by 52 indicators. Indicators better describe the goals, identify critical factors, and assess the seven qualities of resilient systems that should be integrated, inclusive, resourceful, flexible, redundant, robust, and reflective.

Comparing the numerous partial resilience frameworks available in the literature and the three best practices described here, shows that a resilience model is necessary to realize a resilient city, and the model is the instrument that should be adopted to measure and report resilience. Measurement is crucial to identify priorities and define goals and strategies. It is not, per se, a means to activate the organization; instead, measurements support issues that are already important to the organization [99].

Reporting is necessary to involve stakeholders and improve the success of the resilience programs, as it legitimates the city manager actions, and in turn, pushes the latter toward the achievement of results [100].

However, the more comprehensive the model, the harder it is to be implemented; this perhaps explains why urban resilience reporting is still so neglected [25,94]. Cities face two opposite needs: on the one hand, they should apply a well-defined, complete framework able to consider the eco-systemic nature of a resilient city. On the other hand, they often develop their own, simplified, and tailored models that are easier to implement with respect to a comprehensive international standard.
At the end of this analysis, we found that pioneer cities aiming to implement an urban resilience strategy face several obstacles, from the incompleteness of the resilience framework to the lack of a resilience-reporting standard. Therefore, the research questions that support the present work are the following:

*RQs:* What are the factors behind effective resilience reporting that support the achievement of the strategic resilience goals? How should a city draw up an urban resilience strategy report to be accountable to citizens?

4. A Framework of Analysis of the Main Factors Supporting the Design and the Implementation of Urban Resilience Reporting

To answer the above-mentioned research questions, we first attempted to detect the main factors supporting the design and the implementation of effective urban resilience reporting.

The crucial point regards the factors to be taken into account to design and implement an urban resilience reporting system, combining strategic planning with accountability. Since city resilience is a recent stream of research and policy, there are very few conceptualizations in the literature and empirical implementations able to support both the strategic planning of urban resilience and accountability practices. Moreover, the more innovative instruments of city reporting and accountability are generally focused on ex-post measurements and the lack of integration, both with the ex-ante processes of planning and citizen involvement in political decisions [82].

Our background analysis on the concept of resilience in cities, the LGO accountability practices, and the state-of-the-art resilience reporting, highlight what factors and elements are crucial for producing an effective urban resilience report that is able to both support strategy implementation and account for performance to citizens.

Table 1 summarizes the main factors arising from the literature analysis.

| Background                                                                 | Factors                                  |
|----------------------------------------------------------------------------|------------------------------------------|
| Resilience as a multidimensional urban strategy addressing an urban socio-ecological ecosystem (Chelleri, 2012; Kotilainen et al., 2015; Bush and Doyon, 2019) | Width of scope                           |
| Resilience as an urban strategy requiring a political strategic planning cycle (Dameri and Ricciardi, 2015; Leitner et al., 2018; Hernantes et al., 2019) | Political commitment                     |
| Resilience as a behavior involving people (Collier et al., 2013; Stark and Taylor, 2014; Bush and Doyon, 2019) | Citizen participation and engagement     |
| Multidimensional, financial and non-financial, integrated reporting in public administration (Biondi and Bracci, 2018; Manes-Rossi and Orelli, 2019; Manes-Rossi et al., 2020) | Integrated reporting processes           |
| Affordable and effective disclosure (Mussari and Monfardini, 2010; Biondi and Bracci, 2018; Yusuf et al., 2013; Niemann and Hoppe, 2018) | Communication effectiveness             |
| Citizen-oriented reporting (Curtin and Meijer, 2006; Jordan et al., 2016; Grossi et al., 2020) | Citizen-oriented tools, language, and KPI |

These factors can be organized following two different perspectives: political [101] and sociotechnical [102].

The political perspective refers to the ability of a municipality or LGO to implement a resilience plan tailored to the needs and expectations of citizens. As we discovered in the literature, resilience is now conceived as a comprehensive urban strategy, requiring a large vision, a policy, and the involvement of citizens and stakeholders. In this vein, the resilience
framework should be able to support a comprehensive and effective implementation to reach this goal. The critical success factors are the following (see Figures 2 and 3):

1. The width of scope should include not only the infrastructural issues, but especially the human and social aspects of well-being in the city, giving the resilience plan a comprehensive vision [9,47];

2. The political commitment; that is, the real engagement of all the municipal councillors and officers in the strategic plan for resilience, overcoming the sectoral vision—resilience limited to infrastructure safety and security—and pursuing a multidimensional range of goals [88];

3. Citizen engagement, considered an open discourse with people and their point of view, to be included in the resilience framework since an “open city cannot merely be designed, but it needs to be enacted by its citizens” [40] (p. 640).

![Figure 2. Drivers of successful city resilience governance—the political and relational perspective.](image1)

![Figure 3. Drivers of successful city resilience governance—the sociotechnical perspective.](image2)

The sociotechnical perspective regards the choice of a resilient city framework along with adequate reporting tools. They should be useful for both the municipal councillors and public officials who are appointed for the implementation of the resilience plan and the citizens as targets of the administrative action called to evaluate the effectiveness of the city resilience plan/reporting to meet their needs and expectations. It concerns (Figure 3):
4. The internal coherence/integration of processes. Resilience reporting cannot be considered a mere information tool for politicians and public officials to gain visibility and legitimacy, it must be based on a set of integrated processes, and endorsed by the public administration. Those processes arise from planning, translate into an action plan monitored over time, and are coherent with both internal reporting to support decision-making and external reporting to account for citizens and stakeholders;

5. The pursuing of effective communication, including the choice and adherence to a standard, which is useful both to give authoritativeness and concreteness to the framework adopted and effectiveness to the reporting and communication processes;

6. The adequacy of tools, including a set of indicators that are simple to understand and easy to measure, which form an integrated system of accountability, not a mere list of KPI not linked to the action plan. It should also include adequate language to communicate with citizens.

Figures 2 and 3 clearly show that these elements should be balanced: both at a single level—political and sociotechnical—and together. Indeed, to consider or give primacy only to one or a few factors creates imbalances and prevents the realization of harmonized and effective resilience reporting.

5. Methodology

From the research, supported by the interpretivist theoretical paradigm [103], the need to verify, with an empirical case analysis, the evolution of the resilience concept in both the framework and reporting methods, has emerged. The research focuses on the relationship between the adopted resilience framework and the (published) urban resilience reporting, considered both a measurement tool for the political commitment and a communication document aimed at the citizen engagement. After the first selection of frameworks, the research methodology uses a sociological paradigm; this means that there is not one “unconditional truth” [104] (p. 4), but many different possibilities of interpretation that can be generated depending on the perspective adopted to read the facts (ontological dimension). In addition, the process of understanding derives from a deductive–inductive development (epistemological dimension) [105] (p. 34).

Hence, analogies and differences between theoretical models adopted, resilience strategies disclosed voluntarily, choices in reporting practices, and mechanisms of accountability will be analyzed. The qualitative content analysis [106] is the method we followed; it allows us to compare the approaches adopted by the municipalities, as depicted for citizens in the public city resilient reports. Furthermore, qualitative content analysis is defined as a subjective understanding of “patterns, themes, and categories important to a social reality” [107] (p. 322). The analyzed “content” may include all appropriate data sources, moving beyond text to consider images, graphics, symbols, video, and audio [108].

5.1. Case Study Selection

The empirical investigation aims to analyze both the resilience framework, intended as a synthetic and visual application of the resilience strategy, and resilience reporting, as a communication tool, aimed at technicians, politicians, and citizens. The criteria used for the case study selection are the following:

1. The availability of a city resilient report that can be downloaded from the municipality website as an official document issued by the civic administration, to allow for the dissemination and good communication of the urban resilience purposes. The aim of this document is to provide a clear and simplified vision of the whole resilience process and emphasize the consistency between objectives and achievement.

Some limits of this criterion need to be acknowledged:

- The city resilience report is a public document. Hence, its analysis focuses on the quality and quantity of information disclosed to citizens, in contrast to the resilience framework, which is drawn up as a managerial tool, and may contain indicators, metrics, and more detailed parameters.
- The city resilience report summarizes and simplifies the complexity of a city strategic plan. It implies an ex-ante monitoring perspective, but does not embed ex-post reporting. Hence, it is out of the scope of our current analysis to consider the monitoring of the resilience strategy impact on the city’s development.

- The comparability of the data in a context with common features and unique elements that allow us to identify the European condition as a paradigm. European cities are often characterized by:
  a. Similar climate conditions: mild winters and summers, without extreme phenomena, such as hurricanes or typhoons.
  b. Similar geomorphological conditions and defined horizons, marked by a continuity of the rural landscape modified and governed by men, and a common urban landscape framework, with the prevalence of small- and medium-sized cities, few metropolises, and almost no megacities.
  c. A historical–cultural belonging to a common and ancient cultural ground; hence, today it is still possible to appreciate a cultural background and similar principles of space transformations defining the dense European landscape.
  d. In Europe, the city’s growth is an older and slower phenomenon than in any other part of the world; cities are characterized by a historical texture with a dense historic center expanding at defined and similar times.
  e. A common legal ground in the matter of resilience strategies, belonging to the European Union strategy.
  f. In addition to these common features, European cities are also characterized by a marked uniqueness and specializations in geomorphological, cultural, functional, social, or economic terms.

According to these criteria, after having created a list of all European cities with a city resilient report, and after a preliminary investigation into its contents and goals, the selection focused on 16 European cities. These cities are characterized by a broad public resilience report that takes into account the political commitment, citizen participation, and engagement, the adherence to a standard, and the definition of a resilience framework able to support resilience reporting in the context of a wide vision of urban resilience.

A specificity of this research is that all 16 cities belong to the program “100 resilient cities” in congruence with the resilience framework proposed by the consulting company Arup. This aspect can be explained with the consulting strategy proposed by Arup, which requires, as a part of the model application, the writing of a structured report focused on the main goals and axis. In the subsequent selection, the analysis focused on large-scale cities: capital cities or, as in the case of Barcelona, the chief town of the Catalan community in Spain. They have strong analogies concerning their large dimensions, the governance models, and financial resources. The city of London is considered a “champion” for the vast resources used in the resilience strategy analytical phases, the framework construction, and the process of its dissemination. The choice of the other three case studies fell on Athens, Barcelona, and Lisbon, as paradigmatic case studies belonging to the Southern and Mediterranean Europe context, ensuring good comparability as far as the criteria mentioned above are concerned.

Concerning the objective of applying our framework of analysis, we applied purposeful sampling [109], identifying case studies that, on the one hand, were comparable and, on the other hand, were considered by professionals to be best practices.

5.2. Data Analysis

The gathering and analysis of the documents were carried out from July to November 2020.

The research aims to interpret resilience as a process focused on different components of a good quality of life, considering a mix of material and social aspects [18]. At first, it identifies and compares the visual representation of the city framework, and then it dissects the city resilience report, highlighting elements of commonality and differences emerging
from the comparative analysis. Each report was split into main topics, and in each part, a graphic and/or textual evaluation was carried out.

In the graphic and text analysis, a critical transformation must take place as we attempt to move from a collection of characters and signs to extracting the information that they convey. In our study, the researcher was the data gathering actor and the “instrument” by which information in the document was collected and analyzed [104].

In line with the research objectives, the purpose of this analysis is to evaluate the accountability of the city resilience strategy from two perspectives.

The first perspective offers an interpretative perspective, based on the researchers’ evaluation of the commitment of the public officers and city managers, the level of integration of the resilience strategy with other city policies, and the level of citizen involvement and engagement in the process.

The second perspective emphasizes accountability as a sequence of actions, concerning strategic goals and the design of resilience frameworks; risk analysis, mitigation strategy, and action plans; the analysis of the main tools for the resilience reporting activation and implementation and, lastly, how it is communicated to stakeholders and citizens.

A Likert scale (1932) was used for the evaluation of the items to ensure a transparent comparison. The division of the continuum characterizes this measurement method into a few grades (classically, 5), which do not evaluate the width of the intervals (as occurs in other methods), but are limited to establish order and underline the gradualness of consent or dissent with short expressions. The gradual scale is as follows: 1, very low; 2, low; 3, neutral; 4, high; 5, very high. The item evaluation is based on several features/attributes for each category, which is summarized in Appendix A.

To ensure higher reliability results, the three researchers worked together, using the same data and selections simultaneously during the evaluation process. If the researchers did not agree on the evaluation, they discussed it to reach an agreement.

One further step in the data processing was a graphical visualization of the evaluation results to help the researchers find “a unifying ‘red thread’ running through several categories” [110] (p. 32).

6. Findings

Our analysis first focused on the identification and comparison of the city resilience framework visualization. Figure 4 is a synoptic view of the visual representations proposed by the four analyzed cities. It allows readers to quickly understand how, in some cases, the resilience strategy focuses on the framework as a “manifesto” (i.e., London and Athens), or a concept map [88], able to summarize the main elements and their links, where the resilient city strategy is based. It is not odd that the symbol used in communication is commonly a circle. In fact, the circle is seen as a universal symbol with extensive meaning, representing the notions of wholeness. In other cases, such as in Lisbon, the city managers show a picture with the key indicators set as a part of a more expansive and dynamic resilience process. In the rather complex case study of Barcelona, both approaches prevail: the framework is only a part of the city resilience development process, based on a spiral model of risk management, analysis, and mitigation, followed by a self-learning phase.
The first comparative analysis examines the level of penetration of the resilience strategy into the urban development and generally into the city’s culture. According to this perspective, three factors were analyzed and compared:

1. **Width of Scope.** It refers to the multidimensionality of resilience as a strategy extended to many aspects of the city that is capable of interacting with other strategies already active in the field of risk mitigation, sustainability, smartness, and regeneration, and capable of creating ecosystems of smartness, sustainability, and resilience goals.

2. **Political commitment considers resilience as an urban strategy requiring a long-term vision and broad governance, covering everything from the planning to the action plan, which is capable of involving many different sectors of the city administration.**

3. **Citizen engagement is the ability of the resilience strategy to involve active citizens in the strategy development.** This parameter may measure both the ability of policies to account for their commitment and performance to citizens, involving them in the strategic process of planning and actions, as well as to test the interaction between the society, the city planning processes, and the action strategies, in terms of resilience.

In all the analyzed cities, the political commitment is quite broad. It is an indicator showing the strategic will to include many aspects of the urban governance in the resilience planning and the action plan, thanks to the interactions with other local actors and, in some cases, with the regional and national government. A further parameter concerns the width of scope of the resilience strategy. As we can see in Figure 5, even in London’s excellent case, which has a high capacity of citizen involvement, and a high administration engagement, the strategy struggles to find rooted connections and transform itself into an ecosystem that involves urban processes as a whole.

As we can see in Figure 6, citizen engagement is a rather delicate process, which reports low or medium levels in three of the four case studies. It depends both on the effective willingness to design and implement a participative governance process and the ability to communicate the decision-making process, opening it up to citizen participation. It also depends on the maturity of citizens and their habits of participating consciously and actively in the decision-making processes.

**Figure 4.** London, Athens, Barcelona, and Lisbon. A comparison between frameworks of resilience (the Lisbon visualization is a reconstruction by the authors to improve the graphic readability).
communication effectiveness. The researchers evaluated these themes (see Appendix A) and how the urban resilience strategy is communicated and reported, with regard to the themes:

- Accountability
- Engagement
- Transparency

Figure 5. The level of penetration of the urban strategy.

Figure 6. The level of penetration of the urban strategy. A graphic radar of the city analysis.

6.2. The Accountability of a City Resilience Strategy

The second point of the empirical research concerns the ability of a resilience report to be a reliable and transparent tool that is easy to understand for the receivers: technicians, politicians, or citizens. As far as accountability is concerned, it is useful to examine how the urban resilience strategy is communicated and reported, with regard to the themes: the preliminary risk analysis; the theoretical framework adopted; the coherence between risk analyses, strategy, and action plan; the stakeholders’ engagement and communication effectiveness. The researchers evaluated these themes (see Appendix A) and the results are summarized under the categories identified in Figures 3 and 4. It is worth noting that all of the examined cities adopted the Arup resilience framework, even if adapting to it differently.

With this premise, three parameters have been taken into consideration:

1. The internal coherence/integration of processes. The report has the ability to give uniformity to the different aspects of the process: the risk analysis; the resilience strategy and the framework adopted; finally, the action plan, where the strategy takes form with a set of pilot actions within the city.
2. Communication effectiveness. The report is intended as a communication and dissemination tool for the resilience strategy. We consider the ability to summarize the aims and objectives of the resilience strategy, the clarity of communication, and the visual synthesis of the different phases of the process, with special attention to the three steps: risk analysis, resilience framework, and action plan.

3. Tool adequacy. Reporting is seen as a static or dynamic facility, in which the set of resilience goals may merge into a summary indicator, or they aim for a self-implementation and interoperability dashboard, useful for processes of comparison on several dimensional scales.

The research demonstrates (as we can see in Figures 7 and 8) that the excellence in city resilience reporting is best in a situation where, as in London’s excellent case study, the internal coherence and integration of processes, the tool adequacy and dynamicity, and the effectiveness of the communication, are in substantial equilibrium. The analysis also confirms—by comparing the citizen engagement and communication effectiveness—that adequate communication can play an important role to involve citizens.

![Figure 7. The accountability of a city resilience strategy.](image1)

![Figure 8. Accountability of the resilience strategy.](image2)

In all of the analyzed city reports, communication begins with a very articulated risk analysis. It was intended as a wide picture of all the possible risks for the city: shocks or stresses, and in some cases, as in London and Athens, social needs, aimed to place the community at the heart of the strategic resilience process. After the risk analysis, the
process configures, in some cases (Athens and London), a theoretical framework as a scientific guideline for the action plan. In other cases (mainly Lisbon), it configures some pilot actions aiming to respond to the concrete needs of the city, identified by the risk analysis, and a strategic and targeted vision is derived from these actions.

The adequacy of the tool is also a strength in the effectiveness of the resilience strategy. The good performance of the model, its self-implementing ability, scalability, and the ease of activating comparisons with other areas can be a good point in the implementation of the strategy and the action plan. The data emerges when we compare cities with the highest evaluations in tool characteristics, such as London and Barcelona.

7. Discussion

To answer our first research question: what are the factors behind effective resilience reporting that support the achievement of the resilience strategic goals? We analyzed and combined different streams of research and highlighted the main factors supporting the design and implementation of urban resilience reporting. In our framework, these factors can be organized following two different perspectives: political and sociotechnical. These dimensions are closely related to each other.

Without a political and relational dimension that involves the main actors of an urban resilience strategy (i.e., politicians, technicians, stakeholders, communities) and raises citizen awareness on relevant issues, it is not possible to draft a solid, coherent, and effective resilient reporting. Only in this way would it be possible to overcome the criticisms that the experimentation of new forms of accountability in the public sector may stem from the purpose to achieve legitimacy through window-dressing strategies [36].

The sociotechnical dimension, on the other hand, concerns the reporting process, the content, and the characteristics of the information conveyed through the document itself. The structuring of the processes underlying the development of strategic resilience reporting, as well as the definition of the contents, articulated in clear and measurable objectives, allow us to both direct the action of technicians and involve stakeholders and citizens in the process.

Our analysis of the four best practices, in light of the developed framework, while not exhaustive of the variety of evidence that can be collected from the field, allows us to express some thoughts to answer the second research question: How should a city draw up an urban resilience strategy report to be accountable to citizens?

The first issue is that the visualization of the city resilience framework is a very important aspect of accountability, in particular, regarding public administrations, and this has not been sufficiently analyzed by the accounting literature. In recent years, some reflections on the subject have emerged, especially from accounting scholars who have dealt with how communication could become a tool to mobilize/invoke human resources concerning the achievement of specific organizational objectives [111,112]. Hence, communication through images, as well as communication through narrative and storytelling help others understand the concepts that we want to convey and emotionally involve people [113,114].

The second issue concerns our evaluation of the level of penetration of the resilience strategy into the urban development and the city’s culture. From our analysis, we found that the weak factor, even in London’s excellent case, which has a high capacity of citizen involvement, and high administration engagement, is the ability to embed the resilience strategy in rooted connections and transform itself into an ecosystem that crosses different sectoral urban processes. It is worthwhile to note that this difficulty to embrace a holistic and integrated view was already highlighted in previous literature by Guthrie et al. [88], and it opens up to future research avenues on integrated thinking within local government administrations.

Unsurprisingly, from our analysis, we found that the political commitment is quite broad. This is in line with previous research showing that, for sustainability reporting, politicians and managers were keen on strengthening city credentials by using terms such as ‘green’ and ‘smart’ to gain visibility [115] and, consequently, get legitimacy [73].
However, we recommend that the success of resilience reporting should be evaluated considering a balance of all the different factors highlighted in our framework. In fact, sustainability reporting started with enthusiasm in some cities, but later stopped following what practitioners describe as ‘reporting fatigue.’ This, in our opinion, was due to the fact that these cities lacked a framework suited to assess their usefulness and effective impacts [82] (p. 215).

The latter statement brings up the third issue that emerged from our findings, regarding the sociotechnical perspective, which considers the analysis of the accountability of a city strategy. The Arup model applied in the four investigated cities allowed for high comparability between cities, and it allowed municipalities to produce a structured resilience report.

This finding led us to assume that the above-mentioned model, not yet a standard for resilient city reporting, is a reference point for practitioners and a tailored operational guide for city resilience framework construction and strategy disclosure. The emergence of reference standards in the field of voluntary reporting by LGOs is a topic that has been the subject of debate among accounting scholars. Previous literature highlighted that, despite a growing number of municipalities engaged in SR, the lack of legislation that makes it mandatory ensured that different accountability practices emerged, often borrowing them from the private sector where the GRI standards seem to be the ones that professionals refer to the most. However, the GRI’s publicly accessible registry currently lists only about 25 cities [43], which confirms Niemann and Hopper’s statement that GRI’s guidelines “have failed to catch on among local governments” [82] (p. 205). For this reason, we deem that the presence of a tailored model and guidelines for accountability to citizens will simplify, on the one hand, the journey that a municipality must make to draw up its own resilience reporting. However, the cost–benefit assessment and the benefits that the recipients can draw from it cannot be ignored.

Finally, we deem that effective and coherent communication can play an important role in the outreach and engagement of citizens. Citizen engagement is a rather delicate process. As already outlined in our analysis, it depends both on the effective willingness to design and implement a participative governance process and the ability to communicate the decision-making process. It also depends on the maturity of citizens and their habits of participating consciously and actively in the decision-making processes. For citizen engagement, consistent and transparent communication plays a central role. Pure rhetoric is often used as the expression of power of politicians and technicians, which has the opposite effect of fueling disaffection and a sense of frustration [116]. It is clear that civic participation involves multifaceted social processes that show complex dynamics. Furthermore, participation is not only complex, but also dynamic, and unfolds over time [117]. For this reason, we deem that a resilience reporting system must be based on a set of integrated processes, from planning to the action plan monitored and revised over time to be aligned with the rapid transformation of our society and the emerging needs of citizens.

8. Conclusions

Our aim is for this research on the city resilience framework and reporting to contribute to the existing literature on sustainability reporting and accountability in local governments [40], and contribute to public officers, city managers, and practitioners. Our research focuses on urban resilience reporting, given the emergence of this topic during the last few years, and the underdeveloped research on resilience reporting and accountability in municipalities [24].

Theoretical contributions of this study are manifold. For the first time in accounting literature, our investigation shows that the concept of urban resilience has expanded over time, from the simple idea of responding to external shocks to a complex capacity of cities to endure, adapt, and transform. Urban resilience is an evolutionary strategy rooted in recent, but more consolidated city visions, such as the smart city and sustainable city, from which it inherits the multidimensionality and the interweaving of different
dimensions [94]. Secondly, leveraging on two different lines of research (i.e., resilient city and LGO’s accountability), we contributed to previous literature by identifying the main elements that must be balanced in order to draw up a city resilient reporting. The third innovative aspect consists of an exploratory survey that highlights the main critical issues in the implementation of an urban resilience strategy, i.e., the lack of integrated thinking that prevents the grounding of a plan of action, crosscutting different sectoral urban processes.

Managerial implications arise for public officers, city managers, and practitioners involved in supporting municipalities in designing and implementing new forms of resilience reporting, combining two complementary dimensions: political and sociotechnical.

To reach the political quality of a resilience framework, first, we must design the framework, taking into utmost consideration the broadest definition of resilience as it has evolved until today; it consequently works towards the widest involvement of all the political and managerial actors in the municipality, citizen involvement, and the width of scope [9].

The empirical investigation on resilience reporting issued by pioneer cities in Europe allowed us to discuss how to formulate effective resilience frameworks that are able to integrate within the city governance processes: a strategic vision and citizen involvement, planning, measurement, and reporting. The most interesting and complete implementations of a resilience framework issued by the city of Athens, Barcelona, Lisbon, and London were the basis to build on and outline some recommendations to support municipalities in resilience planning and reporting, in light of pursuing sustainability in cities.

To increase the effectiveness and usefulness of resilience reporting, we must encourage the use of a wide and integrated set of measurement tools able to dialogue with both the decision-makers and the stakeholders and implement the framework, integrating ex-ante and ex-post processes. In defining resilience reporting and the accountability system, LGOs can refer to the recent advancement in non-financial urban reporting, adopting the multidimensionality, qualitative, and non-financial indicators from them, including the colloquial style. However, it is necessary to avoid producing a trivial document. Individuating adequate indicators for decision-making and accountability purposes can help prevent this mistake, realizing a more effective governance instrument for resilience and sustainability in cities.

Future Research and Limits of the Study

Our inquiry focused on the analysis of resilient reporting as a tool for accountability towards citizens. In future research, it will be interesting to deepen the analysis of contextual factors (external and internal to the organization) that affect the design and implementation of urban resilience reporting from the point of view of public officers and technicians, to study the variables that can hinder or facilitate the drafting of resilience reporting.

Moreover, the city resilience report summarizes and simplifies the complexity of a city’s strategic plan. It implies an ex-ante monitoring perspective, but does not embed ex-post reporting. Hence, it was out of the scope of our current analysis to consider the monitoring of the resilience strategy impact on the city’s development. This is a relevant aspect and a gap that deserves further inquiry. Resilience reporting should not be considered a mere information tool for politicians and public officials to gain visibility and legitimacy; it must be endorsed by the public administration and based on a set of integrated processes, which arise from planning, translate into an action plan, and are monitored over time.

As we remarked in our discussion, we are living in a time of uncertainty, and our society is transforming. Environmental and social issues have become the subject of attention by NGOs and supranational and national governments, and have given rise to specific objectives for people, the planet, and prosperity (think, for example, of the UNESCO SDGs and the EU Green Deal strategy). These trends translate into calls to actions for
public and private organizations and civil society [70]. All of this should be considered and operationalized from local politicians and city managers, who are responsible for the quality of city life and, ultimately, the well-being of people (such as the recent initiative that the new European Bauhaus is trying to do, by connecting the EU Green Deal to the living spaces) [118]. Consequently, a dynamic resilience strategy should be reflected and translated in a dynamic resilience reporting conveyed/co-designed/co-implemented with citizens. For these reasons, to catch these emerging complex phenomena, future research in resilience reporting would require a multidisciplinary perspective and an action research approach, involving scholars and professionals, to be more effective and impactful.

Finally, our inquiry is exploratory, and its limit should be highlighted. In our methodology, we selected a purposeful sample of resilience reporting. Moreover, coherent with the research questions and the epistemological approach, we ran a qualitative content analysis. However, it should not be forgotten that QCA is based on a researcher’s subjective selection of constructs and understanding. In fact, the QCA method is defined as the systematic reduction of content, analyzed with special attention to the context in which it was created, to identify themes and extract meaningful interpretations of the data [89]. However, words may have many meanings [104]; thus, other constructs could be chosen and lead to different interpretations.

Author Contributions: Section 1, all the Authors; Sections 2.1, 3 and 4: R.P.D.; Sections 2.2, 7 and 8: P.D.; Sections 5 and 6: M.B. All authors have read and agreed to the published version of the manuscript.

Funding: This research received no external funding.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Conflicts of Interest: The authors declare no conflict of interest.

Appendix A

Table A1. Attitude scale, Likert (1932).

|   | = | Very Low |
|---|---|----------|
| 1 | low |
| 2 | neutral |
| 3 | high |
| 5 | very high |

Table A2. Comparative analysis–attributes for item evaluation.

| WIDTH OF SCOPE (Limited to the Project or Even External) | Creation of a Resilience Office or a Resilience Working Team | Integration with Visions, Policies and Strategies of the City Development Plans | Integration with Regional or National Resilience Management Guidelines |
|---------------------------------------------------------|---------------------------------------------------------------|------------------------------------------------------------------|------------------------------------------------------------------|
| POLITICAL COMMITMENT (engagement level of the administration) | City management (local) and emergency services | Cooperation with public and private companies | Cooperation with regional-national government |
| CITIZEN’S PARTICIPATION AND ENGAGEMENT (people involvement) | Community involvement in the design process | Community involvement in the communication strategy | Community involvement in the resilience strategy-action plan |
Table A3. The case study comparative analysis.

| City             | London | Athens | Barcelona | Lisbon |
|------------------|--------|--------|-----------|--------|
| WIDTH OF SCOPE   | 3      | 1      | 3         | 2      |
| (limited to the  |         |        |           |        |
| project or even  |         |        |           |        |
| external)        |         |        |           |        |
| POLITICAL        | 5      | 5      | 4         | 2      |
| COMMITMENT       |         |        |           |        |
| (engagement level |         |        |           |        |
| of the          |         |        |           |        |
| administration)  |         |        |           |        |
| CITIZEN’S        | 4      | 3      | 2         | 1      |
| PARTICIPATION    |         |        |           |        |
| AND ENGAGEMENT   |         |        |           |        |
| (people          |         |        |           |        |
| involvement)     |         |        |           |        |

Table A4. Comparative analysis–attributes for item evaluation.

| Coherence/Risk Analysis/Strategy/Action | Deepening of the Risks Analysis/SWOT | Clarity of the Strategy Communication | Coherence between Strategic Goals and Action Plan |
|----------------------------------------|--------------------------------------|--------------------------------------|-----------------------------------------------|
| COMMUNICATION EFFECTIVENESS            | Completeness, articulation            | Simplicity, clarity, organization    | Graphic quality                               |
| TOOLS (synthesis indicator dashboard)  | Synthesis description/single resilience indicator | Static framework with topic and items | Dynamic dashboard with system of indicator     |

Table A5. The case study comparative analysis.

| City             | London | Athens | Barcelona | Lisbon |
|------------------|--------|--------|-----------|--------|
| COHERENCE/RISK   | 5      | 5      | 5         | 4      |
| ANALYSIS/STRATEGY/ACTION |        |        |           |        |
| COMMUNICATION    | 5      | 4      | 2         | 2      |
| EFFECTIVENESS    |         |        |           |        |
| TOOLS (synthesis indicator dashboard) | 5      | 3      | 5         | 3      |

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