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<tr><th>N°</th><th>Comment</th><th>Revision</th></tr>
<tr><td>1</td><td>It is recommended that the author revise the title. In the current title, the two contents do not seem to be closely related, causing trouble for readers to obtain the information of this manuscript in the first time.</td><td>

Modified (red)

Critical Infrastructures Resilience: A guide for Building Indicators Systems
Based on a Multi-Criteria Framework with a Focus on Optimising Actions

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<tr><td>2</td><td>The structure of the manuscript is extremely unreasonable. Some sections have the same title, the content is lengthy, the focus is not highlighted, and the structure is not conducive to reading. It is recommended that the author make a complete restructuring of the manuscript.</td><td>

Added and modified (red)

2 Research Methodology and Structure

In pursuit of the study's objective, the current inquiry arises: how to develop a framework that enables CIs stakeholders to build a specific indicators system for assessing the resilience of studied CIs. Practical guides should include guidance on practical steps, resources, and tools. Therefore, the steps, as well as the information and advice for building indicators systems, are anticipated to be developed in the objective guide. One fundamental query necessitates deliberation: what achieves should the steps assist the user in accomplishing? For building an indicators system, the identification of criteria, indicators, and data is considered basic, as they are the indispensable contents of an indicators system. Many studies, such as those carried out by Van Bueren and Blom (1997), Prabhu et al. (1999), and Mendoza et al. (2000), consider that the usable criteria and indicators adapted to the specific needs of stakeholders are the key to applying indicator systems to practical management. Moreover, several studies believe that data analysis should not be missed during the indicators-based assessment (Vogel, 1997; 1996; Prabhu et al. 1999; Cutter, 2016; CORDIS-Smart Resilience Indicators for Smart Critical Infrastructures, 2018; Balaei et al., 2018). Therefore, the first part of this research should be to provide an interpretation of the three basic key factors in conjunction with relevant research materials: criteria, indicators, and data. The steps needed to set these factors could be therefore identified (Fig.2).

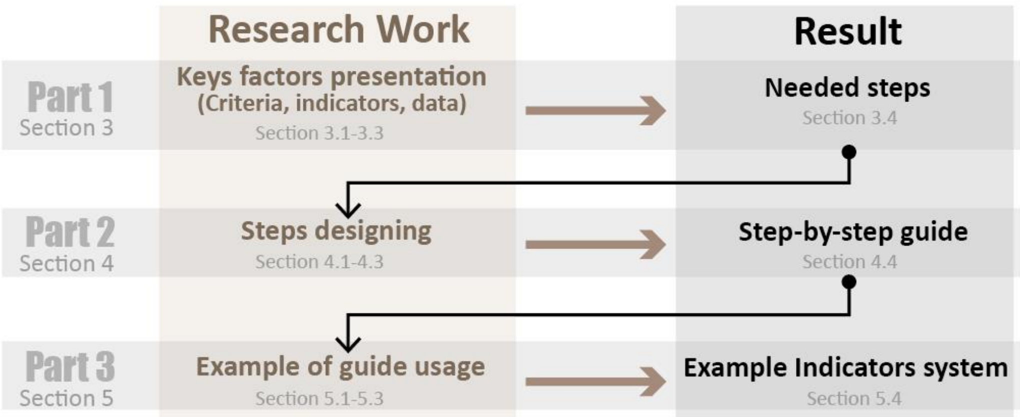

Fig. 2. Methodology and structure of the present study.

The second research part concerns designing the needed steps, which are identified in the first part as vital. Thus, this part will discuss some existing frameworks or theories about Moreover, for these steps to be better applied in practice, the steps designed in this guide should be clearly described and preferably accompanied by schematic diagrams. The designing steps are combined in the objective guide, which should provide detailed assistance to users in C&I setting and data collection.

After designing steps, this study applies them to a French critical infrastructure to build an indicators system that can assess resilience during urban flooding. The example relies on the Nantes Ring Road (NRR) system with the participation of a local management

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		organisation-Direction interdépartementale des routes Ouest (DIRO) in charge of the road networks of Nantes City in France. This application example involves 62 676 data for traffic flow from DIRO and more than 15 000 data of road infrastructures from BDTOPO of National Geographic Institute (IGN). Therefore, this study is divided into several sections for implementing the parts (Fig. 2). Section 3 will discuss the three indispensable key factors for building an indicators system: Criteria, Indicator, and Dada. Section 4 designs a step-by-step guide that helps users build an indicators system based on their particular situations. Section 5 will illustrate how to use this developed guide to build an indicators system through an example. Section 6 discusses the practical use, and the limitation of this guide, and shows a comprehensive assessment process (including resilience and indicator assessment phases in Fig.1) in using the built indicators systems in Section 5. **3 Part 1: Keys Factors Presentation** 3.1 Criteria 3.2 Indicators 3.3 Data 3.4 Result of part 1: needed steps **4. Part 2: Steps Designing** 4.1 Specific criteria setting 4.2 Possible indicator setting and reference definition 4.3 Indicators selection through the availability of data 4.4 Result of part 2: Step-by-step guide **5 Example of Guide Usage** 5.1 Criteria setting 5.2 Possible Indicators setting 5.3 Available data analysis 5.4 Result of part 3: Indicators system for studied CI
3	The discussion part is weak, does not grasp the focus of this manuscript's work, and does not incorporate enough previous work. The current Discussion section could not provide valuable information to readers.	**Added (red)** **6. Discussion** 6.1 A practical and operational guide Multi-criteria and numerous indicators increase the complexity of practice to a certain extent. Nevertheless, there is no doubt that the resilience of modern infrastructure is a complex object, but not a complicated one. A complicated object, i.e. one with a certain amount of disorder, can be simplified, whereas a complex object should not be simplified. "Complexity varies according to a number of parameters, including the multiple uses to which it is put, the number of participants involved, its geographical dispersion, and the spatial and temporal scales considered" (Barroca et al., 2016). Consequently, a complex indicators system accompanied by multi-criteria seems inevitable for CIs resilience assessment. The more complex an indicators system, the more it requires detailed knowledge of local condition. At the same time, the higher the need to increase the autonomy of local managers, which the developed guide in this study provides.

Many existing theories or models for CIs resilience assessment are valuable, although they differ in the disciplines and perspectives of this study. Nevertheless, the present study insists that, for resilience theory to become operational, it is necessary to consider the cost-effectiveness and negative effects of the operation. Moreover, another key of resilience operationalisation is the uniqueness of each case that could be realised by specific sub-criteria and indicators. Just as teaching a man to fish, rather than simply giving him fish. Rather than predefining sub-criteria or indicators for all potential resilience scenarios of CIs resilience, the guide for indicators creation in this study provides enables users to design specific sub-criteria and indicators based on concrete situations. The design guide, therefore, provides a wide margin of autonomy for managers and policymakers who have the responsibility for building CIs resilience and need support and guidance to operationalise the resilience-building process. The autonomy also brings the possibility of continuous updating or optimising of the indicator system. Changes in the external environment may lead to changes in the setting and weighting of criteria, indicators. For example, the sub-criteria of "Environmental damage" and the indicator of "Additional CO_2 emission" have become important in recent years because of the development of environmental concern.

Meanwhile, the autonomy of this guide can also be interpreted as a weakness. Managers' experience or knowledge may be so limited that they overlook invisible factors. From a holistic perspective, a collaborative exchange between different stakeholders can reduce this shortcoming. The examples in this study demonstrate exactly the kind of co-operation between local operators, university scientists and local researchers. Whereas a significant investment of human resources at the same time may reduce the cost-benefit of collaborative management. Research in the field of management is therefore needed for a better application of designed indicators systems.

In addition, the designed guide promotes the practical use of resilience indicators and further contributes to the operationalisation of CIs resilience assessment. Operationalising the concept of "resilience" is considered a major milestone that contributes to the risks management for CIs, even for cities, and the interactions required to build and sustain it. The current studies of the CIs resilience aim to develop more effective and sustainable infrastructure management strategies for CIs through the concept of "resilience". In other words, one of the desired developments in resilience research is to put resilience-based theories, tools, and models into practice and make them useful and operational in risks management. However, despite existing efforts, the obstacle to operationalising the CIs resilience concerns two major limitations: 1) the absence of applied tools; 2) the lack of an organisational aspect (Weichselgartner and Kelman, 2015; Hernantes et al., 2019 ;Heinzlef et al., 2022; Rød et al., 2020; Yang et al., 2023a). The guide designed in this study is firstly a tool that can be applied for concrete scenarios, as demonstrated by the case studies presented. The fact that the guide helps setting criteria based on operational perspectives is also emphasised several times. Operationalisation through this developed guide consists of giving CIs resilience a practical and operational meaning, transforming it into an object of practical value, in the broader sense of 'use'.

6.2 Assessment demonstration

6.2.1 Criteria & Indicators weighting

6.2.2 Assessment methods and results

6.3 Limitation