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INTRODUCTION

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The integration of land use and transport planning is one of the most important topics in urban and regional planning. Accessibility is believed to provide a useful framework for the design of integrated land use and transport policies. The consideration of a myriad of concepts and tools to address these topics are increasingly common in academic research, a result of the last decades of development of fast and cheaper computation, along with the development of database technology and the emergence of new, larger and more reliable datasets. However, the effective use of these concepts and tools in the professional planning practice did not follow the same pace of development, and there is today a significant gap between the advances in knowledge on accessibility and its effective application in the professional practice. The literature on Planning Support Systems (PSS) identifies the dichotomy between supply and demand of PSS, such as accessibility instruments, as the main reason for this gap of underutilisation. On the one hand, planning practitioners (the potential users) are, to a great extent, unaware of the very existence of instruments or, if familiarised with them, are quite inexperienced with their use. The value and potential of the instruments are not recognised, resulting in low intention to use them. On the other hand, developers of PSS frequently have little awareness of the demand requirements. The effective use of PSS is currently suffering from a "rigour-relevance dilemma", with developers mainly concerned with rigour while users are mainly concerned with relevance. The increasing complexity of planning (in addition to current technological developments, especially in computer sciences) has motivated the development of more capable (but also more complex) PSS.

This book presents the main processes and findings of research that addressed on the one hand accessibility instruments and, on the other hand, their use in planning practice, using a wide range of theoretical, practical and geographical backgrounds.

One of the main goals of the book is to contribute to the understanding of accessibility instruments, its multiple concepts, measures and features, and its use as a key tool in the broader context of urban and regional planning.

The other main goal of the book, arguably the most innovative and ground-breaking one, is to explore the use and usefulness of accessibility instruments (in all its scope) as a means to address urban and regional planning (also within a broad range of conceptual frameworks).

To achieve these two goals, the book explores the analysis of the development and application of a wide set of accessibility instruments in a wide set of different geographical and institutional

contexts, using a complex methodology that can be mainly characterised by an intense level of engagement between researchers and practitioners, between the promoters of the use of these accessibility instruments and their end users.

The book analyses and discusses the main outcomes of the research project "Accessibility Instruments for Planning Practice", aimed to gain insight into the usability of accessibility instruments in planning practice, which was developed under the COST funding framework. This research involved more than 150 researchers and local planning practitioners from 22 countries in a wide debate on the implementation gap of accessibility instruments in planning practice.

A New Perspective on the Use of Accessibility Instruments

The book draws from a cohesive mixed-methods methodology that results in an evaluation package that has a great potential of transferability, as it is perceived by the presentation of six different case studies (out of many more that could not be included in the book because of editorial reasons) representing a variety of institutional and technical contexts, including several different geographical contexts in European countries and Australia.

A complex mix of research methods is considered into an ambitious research plan to provide a derivable package of data collection, analysis and assessment of a very different set of accessibility instruments. The methodology has the main aim of focusing on the engagement with professional practitioners of different technical backgrounds in order to capture their perspective of end users of these accessibility instruments. By focusing on the users without reducing the importance of the theoretical frameworks that are relevant to study accessibility and its use, the book relies on a robust proposal that is clearly in the edge between theory and practice, covering an area that was until now notoriously underdeveloped in the current literature.

The level of engagement with practitioners that is illustrated in the different chapters of the book, from the more theoretical ones to the case studies, is also a major strength that reinforces the positioning of the book as a new key reference to those who are interested in accessibility as one of the main drivers for the majority of relevant spatial and socioeconomic phenomena in urban and regional planning.

The book illustrates the methodology by providing a complete framework of analysis in the varied and complex set of institutional, technical and geographical contexts, something that emerges from a large international research team, working closely together with practitioners in different institutions of local and regional administrations, with different levels of technical and institutional capacities, facing the challenge of engaging with these practitioners in a consistent way to ensure scientific validity to the methodology, something that is more rare than common especially in the realm of the social sciences.

The book is therefore a new instrumental document that adds a significant and validated knowledge to the study of accessibility and its application, from pure research – in urban studies and the social sciences but also in mathematics and physics among other areas of science – to applied research – in the incorporation of those concepts in the development and testing of accessibility instruments – to the final delivery of usable tools to the professional practice, fulfilling one of the biggest aims of science, the creation of useful knowledge that is used to create progressive and inclusive global societies.

Finally, the book is expected to act as a seed for the development of more research that aims to explore the frontiers of research and practice in urban and regional planning by presenting a methodology that is clearly transferable to other pertinent areas such as the design and test of public policies, the growing application of neighbourhood planning and urban design approaches, or the consideration of new theoretical frameworks such as the consideration of complexity theory

in planning. And this will happen because of the expected capacity of the book to attract both researchers and practitioners, supporting the claim for a closer engagement that can be identified on both sides of the trench.

The Book

The book provides deep critical analyses on both the main findings of the research and on the mix-methods methodology that was designed to respond to the two main goals of addressing accessibility and its use in practice. The book also provides a detailed structured narrative and reflexions on parts of a larger research project, which then fuel the debate developed in the chapters of the last and concluding part of the book. The scientific background for this debate is laid out by a special set of introductory chapters has closely followed the research. The book is structured into five parts outlined below.

Part One, "A Comprehensive Overview of Accessibility in Planning", delivers a theoretical and professional analysis of the main concepts behind the definition, use and measurement of accessibility indicators and the correspondent accessibility instruments that have been designed to calculate, estimate, represent and communicate these parameters. Chapter 2 provides a theoretical background to the use of accessibility as a major driver of land use and transport planning and dynamics. Chapter 3 focus on an overview of the professional practice perspective to the use of accessibility, and its implications on the discussion about their validity as a method in urban and regional planning. Chapter 4 has a critical discussion on the necessity of measuring accessibility, supporting the use of measures as a robust mean to support the definition of accessibility goals in planning processes.

Part Two, "Accessibility Instruments for Planning Practice", includes a comprehensive and critical analysis of accessibility instruments, illustrating the extent to which there is a significant gap that works as an effective bottleneck in the transposition of this already vast body of knowledge on accessibility in the day-by-day professional practice of urban and regional planning. Chapter 5 provides insights on a number of accessibility instruments and explores their general characteristics and usability, offering an objective and comparable structured overview and a clear categorisation of the accessibility instruments. Chapter 6 provides a critical analysis of a variety of existing accessibility-based PSS.

Part Three, "The Usefulness of Accessibility Instruments in the Planning Practice", focuses on the innovative and robust methodology of assessment of the use and usefulness of the accessibility instruments that has been developed, tested and applied to a large number of case study workshops involving a large number of local planning practitioners. Chapter 7 details and analyses the methodology developed and applied to test the usefulness of accessibility instruments in a wide range of international case study workshops. Chapter 8 provides an analysis of the results from these workshops.

Part Four, "Illustrative Case Studies", presents six illustrative case studies that represent a very good sample of how accessibility instruments are considered and accepted in a very interesting range of countries with different institutional settings and levels of penetration of urban and regional planning as one of the main social drivers. Chapters 9 to 14 describe the local workshops developed in Italy, Germany, Australia, Spain, Poland and Sweden, ranging from contexts in which planning is an old and acknowledged component of public policy to ones in which more or less recent changes in political and institutional regimes led to significant revolutions in their planning systems. They also range from more centralised contexts to more regionalised ones, from more institutional settings characterised by stronger hierarchical structures that somehow reduce the importance of more technical approaches to the ones that rely more on bottom-up, technically

driven administrations. This variety is very important to illustrate how robust the methodology is, opening the possibilities for its application to other important issues in urban and regional planning.

Part Five, "Improving Accessibility Instruments for Planning Practice", is a comprehensive presentation of the relevant findings, from which it is possible to understand the extent to which this new approach will fill in an important gap in the literature on accessibility. Chapter 15 discusses what accessibility instrument developers have learned from the workshop process (the learning cycle) and how they have improved their instrument/s based on that learning, what we could call their perception of the improvements needed to the usability of their instruments. Chapter 16 explores the reasons for the lack of use of accessibility instruments in planning practice, comparing developer's perception on usability and users' perception on usefulness of accessibility instruments. It then concludes and points out new research avenues and new directions towards the reduction of the gap that has been identified and stressed throughout the book.

Finally, the book is supported by a companion website – www.accesssibilityplanning.eu – that extrapolates its content to a broader scope and, at the same time, keeps its content updated and valid with new iterations of the methodologies and further advances and findings on the initial and new case studies. The website provides an interactive search engine for accessibility instruments, selecting the most adequate instruments among those available in its repository in accordance to a number of key features to be defined by the user, such as geographical scale, transport mode, travel purposes, among many others. Summary sheets and short reports (presenting the instrument and the result of the local workshop(s)) are readily available for each accessibility instrument in the repository. The repository follows a peer-reviewed selection process and is open to the submission of new accessibility instruments offering an up-to-date and dynamic companion to the book.

A Word of Appreciation