research projects, involving large numbers of participants. Smaller projects also benefit from multidisciplinary expertise and such collaborations appear to be particularly necessary where practical applications are involved, and are increasingly important in obtaining research funding.

What is an urban morphologist? As one begins to explore behind this question, a large field for discussion and collaboration opens up.

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Urban morphology in planning practice

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The development of sound linkages between morphological explanation and planning prescription needs to be grounded in an assessment of current practice. Three issues in particular need assessment. First, what morphological aspects are already integrated? Secondly, what is the 'demand' for new morphological support? And, thirdly, what can urban morphology in fact offer to planning practice and development control (Oliveira, 2011) – what is the 'supply'? Although it might be expected that there would be contributions on this subject in the literature, systematic surveys of planning practice from the standpoint of urban morphology are actually quite rare (Hall, 2008).

A recent survey of Portuguese planning practice provides the basis for a discussion of the first of the three issues identified above. This survey involved an assessment of the municipal plans – the so-called *Planos Directores Municipais* (PDM) – of the main cities of the eighteen districts of the mainland of Portugal. These cities are: Aveiro, Beja, Braga, Bragança, Castelo Branco, Coimbra, Évora, Faro, Guarda, Leiria, Lisboa, Portalegre, Porto, Santarém, Setúbal, Viana do Castelo, Vila Real and Viseu. The PDM is the main instrument of the Portuguese planning system. It establishes the model for the spatial structure of the municipal territory and defines the strategy for local development, including all the relevant national and regional policy guidance and investment commitments. This plan is composed of a regulatory code, a number of maps defining the different land uses, urban systems, and priority areas for operational planning and management, and another map with local rights of way and planning restrictions.

The assessment of the plans in force in these eighteen Portuguese cities (summarized in Table 1) reveals the incorporation of morphological aspects in most of these planning documents. Nevertheless, five cases were identified (Braga, Castelo Branco, Évora, Guarda, and Vila Real) in which the morphological dimension did not exist at all. However, the plans for Lisboa and Porto (particularly the latter) do exhibit a solid integration of morphological aspects.

The analysis of the different parts of each plan revealed that this process of incorporation is more difficult in some parts than in others. Indeed, it proved quite difficult to find concern for the physical form and structure of these cities in the goals and objectives of plans. Certain morphological criteria seem to be more readily integrated: for example, guidance on street width, plot width, depth and degree of land permeability, building coverage, building height, width, depth and type, and certain architectural elements. Nevertheless, this does not mean that these criteria were used in the definition of planning zones and their boundaries – a crucial theme recently explored by Larkham and Morton (2011) and Whitehand (2009) in this journal. Nor does it mean that widely applicable morphological methods and techniques have been used in the delimitation or regulation of these zones.

The results from this survey do not seem to have a straightforward rationale. While the year of preparation of plans (the sample includes PDMs prepared and concluded between 1994 and 2010 under the framework of three different decrees) does not seem to influence the presence of a morphological dimension, three other factors seem to affect (but not determine) it. The first factor is the geographical location of cities. Cities along the Portuguese coastline seem to have better plans (in

Table 1. Presence of morphological elements in Portugal's *Planos Directores Municipais*

City	Assessment	Different aspects of the PDM			
		Goals and objectives	Territorial model: planning zones		Plan implementation mechanisms
			Definition of the planning zones	Criteria for the regulation of planning zones	
Aveiro	○	—	—	○	○
Beja	○	—	○	+	—
Braga	—	—	—	○	—
Bragança	○	—	—	○	○
Castelo Branco	—	—	—	○	—
Coimbra	○	—	—	○	○
Évora	—	—	—	○	—
Faro	○	—	—	○	○
Guarda	—	—	—	○	—
Leiria	○	—	—	+	○
Lisboa	+	—	○	+	○
Portalegre	○	—	○	○	○
Porto	+	+	+	+	+
Santarém	○	—	—	○	○
Setúbal	○	—	○	○	—
Viana do Castelo	○	—	—	○	+
Vila Real	—	—	—	○	—
Viseu	○	○	—	+	—

+ strong presence ○ presence — absence

morphological terms) than cities located in the interior of the country. The second factor is the size of cities expressed by their resident population (the sample includes cities with from 25 000 to 545 000 inhabitants): larger cities tend to have better plans than smaller ones. The last factor is the composition of the planning teams. Planning teams co-ordinated by external consultants tend to produce better plans than planning teams exclusively composed of members of local authority departments.

The PDM for Porto proved to have the best results within the selected sample of plans. The excellence of this plan in the Portuguese context was considered by Oliveira (2006). Indeed, the Porto PDM adopted a typological approach to zoning that started with the identification of ten types of tissue covering the whole municipal territory in a quite rigorous and comprehensive way. In accord with the main goal of maintaining the character of the city, the zone boundaries and regulations correspond, for the most part, to the tissues identified in analysis. The plan considers the existing forms of each type of tissue as potential solutions for accommodating the human needs in that specific part of the city. Accordingly, the bases for the forms prescribed for each particular application for a building permit are the buildings within the same street or plot series. The Porto PDM allows both mixture within zones and control of uses, establishing a range of potential uses for each new built form and a number of restrictions to avoid the least acceptable ones.

The analysis of this sample of Portuguese municipal plans showed that urban morphology does affect planning practice, but the way this happens does not necessarily conform to the priorities of urban morphologists. The process of

diffusion of morphological knowledge is unsystematic and slow. While this is a problem that should be carefully considered, it does not differ much from the situation in other social sciences or even from the relationship between theory and practice within planning itself. Urban morphologists should continue to make efforts to bridge the gap between research and practice, developing systematic surveys in various planning contexts, trying to understand planning practitioners' needs and aspirations, and testing the relevance and diffusion potential of their research.

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Typomorphological ideas and the development of public places: the case of China's Jiangnan watertowns

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China is a country with a long and rich urban history but today's rapid urbanization process is posing major problems for decision-makers seeking to retain the unique character of historical cities. A particularly challenging area is the Yangtze River Delta. With its dense network of rivers and canals, it has been home to the distinctive Jiangnan watertowns for several thousand years. Unfortunately, recent urban growth in these towns has occurred with little consideration having been given to the traditional characteristics of public space. On the contrary, overseas models have been imitated that have little relevance to Chinese urban planning. We should like to offer here a few observations on how the problem can be tackled by using a typomorphological approach.

According to Chen and Gu (2009) the typomorphological method employs an integrated framework for understanding urban physical structure and its formative process. Although exploration of the Jiangnan watertowns using this method is only just beginning, some preliminary work is already providing valuable experience about spatial typologies. The spatial typologies referred to here are derived from several field studies of traditional watertowns over the past 3 years, and provide valuable cultural elements to consider in the design of public places within urban developments taking place both in and around traditional watertowns and more widely.

Songjiang, a watertown with more than 2000 years of history, is currently developing in accord with the 'One city and nine towns' urbanization plan for Shanghai (*Shanghaishi renmin zhengfu gongbao*, 2002). The plan accommodates the rapid growth of Shanghai by developing the surrounding towns into one much larger city, and attempts to introduce Western design ideas, but reflecting Shanghai's history, in each of the nine towns. Songjiang has many important watertown features even after industrialization during the middle of the twentieth century, but unfortunately recent development includes overly large public spaces, such as People's Square, and parks with little or no relationship to the waterways. The large parks of the new Green Belt are forbidding after dark, have raised concerns about public safety, and have taken up valuable farmland. The Western contribution to Songjiang is a 'Thames town' with replicas of English architecture along the main lakefront, limiting public access to the water. Such public places fail to engender consciousness of identity, and play a lesser role in the cultural aspects of urban life than the traditional watertown spaces. Development of this type risks losing the watertown's soul by importing clusters of eccentric architectural buildings from overseas and creating oversized urban spaces.