

## A comparative study of urban form

### Abstract

The diversity and complexity of cities is somehow mirrored by the diversity of morphological approaches to describe and explain them. Against this background, many authors have argued on the need to develop comparative studies in urban morphology (Kropf, 2009; Whitehand, 2012). This project addresses that challenge comparing four different approaches to urban morphology: historico-geographical (largely developed by the Conzenian school), process typological (mainly promoted by the Muratorian school), space syntax and spatial analytical. In particular, the project explores the use of four fundamental concepts, proposed by these approaches to the study of urban landscapes: morphological regions, typological processes, configuration, and cell. These four concepts will be applied into one case study in the city of Porto – the *Rua Costa Cabral* and the twelve street blocks fronting it. This study area, a traditional gateway of the city leading to the north of Portugal, includes a fair amount of morphological variety: from areas of continuous building frontages to single-family housing areas and areas of isolated buildings. The city as a whole will be considered to frame the morphological description and explanation of the study area. The project benefits from previous research on Porto using two of these four morphological approaches (Pinho and Oliveira, 2009). The project is expected to offer both ‘strategic’ and ‘operational’ benefits. It should contribute to demonstrating that urban morphology can offer an objective understanding of the dynamics of urban form based on evidence. It should provide academics and professionals with a morphological toolkit, including different concepts and methods. The main purpose of the project is not to select between these four different approaches but to understand how to combine and coordinate them to better describe, explain and prescribe the physical forms of cities.

### References

- Kropf, K. (2009) ‘Aspects of urban form’, *Urban Morphology* 13, 105-20.  
 Pinho, P. and Oliveira, V. (2009) ‘Different approaches in the study of urban form’, *Journal of Urbanism* 2, 103-25.  
 Whitehand, J. W. R. (2012) ‘Issues in urban morphology’, *Urban Morphology* 16, 55-65.

### Methodology

This project will be developed over six months, between 1st January and 30th June 2014 (see Table 1).

The project consists of seven fundamental tasks:

*Task 1. Focused literature review (1/2 month).* This task will be developed along with the first half of Task 2. It consists of a review of the principal books and papers on the four morphological approaches that will be applied over the research project.

*Task 2. Data collection (1 month).* Most cartographical and statistical data on Porto have already been gathered as this project benefits from previous research on the city. Nevertheless, some complementary data should be gathered. For example, the historico-geographical approach will require complementary data on building heights and uses; the process typological approach will need information (from the local authority and the historical archive of the city) on building plans, façades and sections; and the spatial analysis will require data on population and employment (as the drivers of change). No complementary data are needed for the space syntax work.

*Task 3. Application of the historico-geographical approach (1 month).* The application of this approach will focus on the concept of the morphological region.

*Task 4. Application of the process typological approach (1 month).* A typological analysis of existing buildings in *Rua Costa Cabral*, in relation to existing data for Porto, should enable the identification of the main building typological developments in this area.

*Task 5. Application of space syntax (1/2 month).* Benefiting from previous research, on the city as a whole, the application of space syntax will be undertaken in the first fortnight of April. Axial analysis and segment analysis will be developed to explore the configurational characteristics of the streets included in the case study.

*Task 6. Application of spatial analysis (1 month).* This will focus on the concept of cell using a cellular automata model to analyse this area of the city.

*Task 7. Comparison of results (1,5 months).* This is the most important task of the project. The application of the four morphological approaches to *one* area will help us to understand the main strengths and limitations of each approach and the most effective ways to combine them to better explain and prescribe the physical forms of cities.

Table 1. Timeline (January-June 2014)

Description	January	February	March	April	May	June
Task 1. Focused literature review						
Task 2. Data collection						
Task 3. Application of historico-geographical						
Task 4. Application of process typological						
Task 5. Application of space syntax						
Task 6. Application of spatial analysis						
Task 7. Comparison of results						



Figure 1. The case study area, *Rua Costa Cabral*

### Research team

Vítor Oliveira

Cláudia Monteiro

Jeremy Whitehand (Adviser)

### Expected outputs

A report will be prepared and submitted to the ISUF Council in July 2014. Drawing on the comments of the Council a paper will be submitted to *Urban Morphology*.