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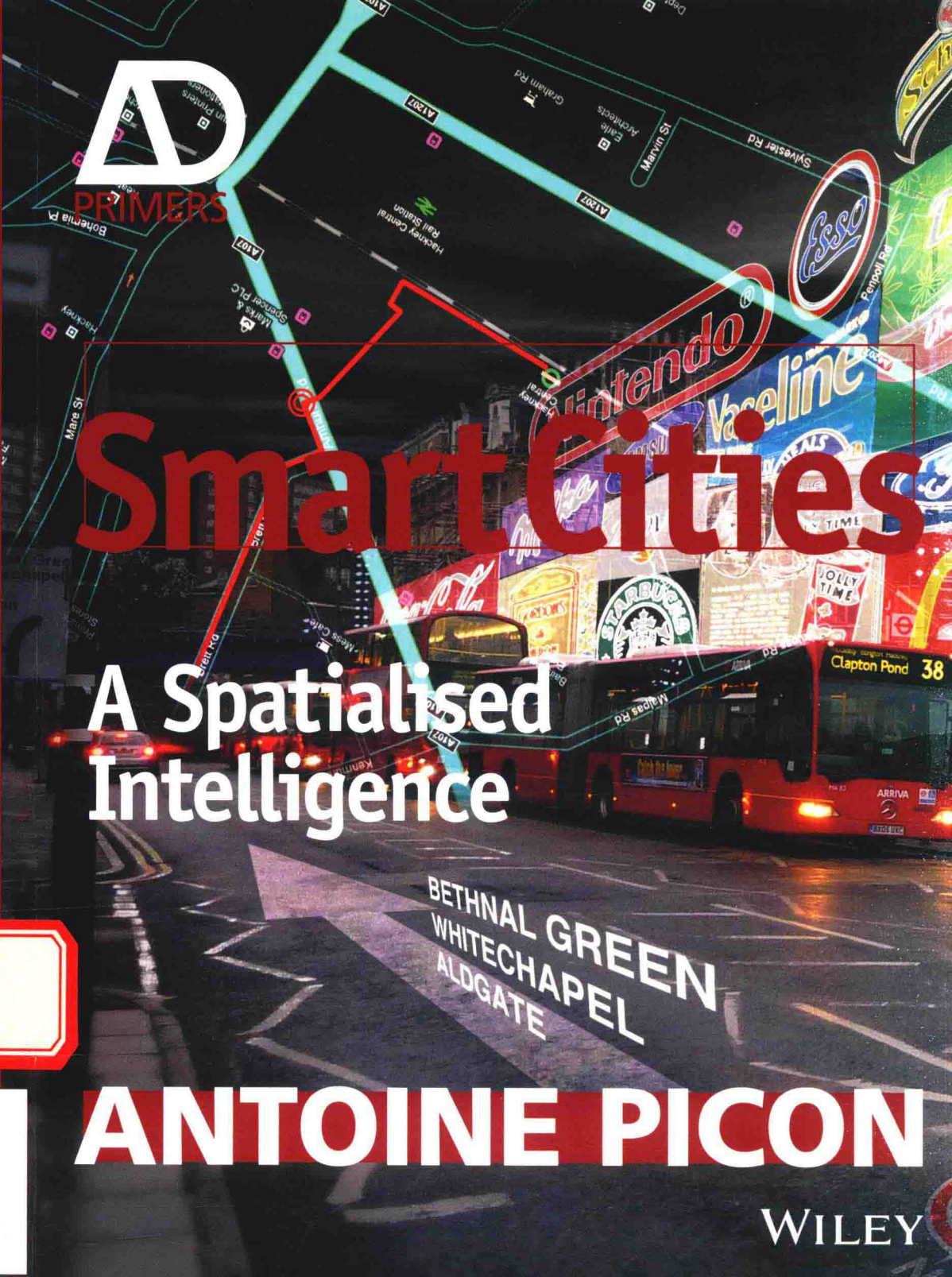

Smart Cities

A Spatialised Intelligence

ANTOINE PICON

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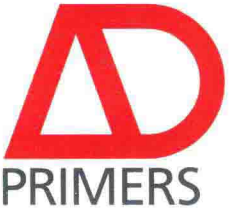

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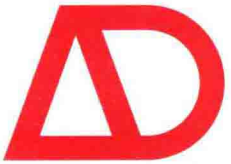

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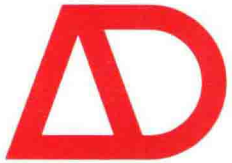

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Building a Smarter City and State

The Commonwealth of Massachusetts, The City of Boston and IBM are working together to transform the region's physical infrastructure, engage citizens, reduce costs and improve efficiency. Do you know where technology is at work where you live?

1 Buildings:

The state of Massachusetts owns 72 million square feet of property. Software helps improve maintenance, space and management across public sector buildings.

2 Traffic:

Approximately 1.9 million commuters travel by car a day in Boston. Officials examine how Big Data technology makes transportation more efficient and reduce pollution.[3]

3 Airport:

Tens of millions of travelers pass through Logan Airport every year. Software helps the Port Authority better manage maintenance operations for equipment such as air conditioning, doors and escalators at Terminal A.[4]

4 Physical Assets:

Boston has more than 60,000 streetlights[5] and 13,000 fire hydrants.[6] Software helps city officials better manage and maintain physical assets.

5 Special Events:

More than half a million people attend events such as the Boston Marathon and July 4th fireworks every year. Software can integrate and visualize critical information across city departments including fire, police and emergency responders to help coordinate and plan special events.[7]

6 Water:

Massachusetts Water Resource Authority (MWRA) serves 2.5 million people in 61 communities.[8] Using software, MWRA decreased corrective maintenance and project work orders by 38 percent.

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IBM, infographic on 'building a smarter city and state', 2013

IBM has played an important role in the rise of the smart city ideal. This infographic was released to illustrate a series of projects launched in partnership with the city of Boston and the state of Massachusetts. It features some key elements of the smart city approach such as a better management of urban infrastructure and the quest for greater environmental efficiency.

Introduction
A New Urban Ideal

Our cities are on the verge of a radical transformation, a revolution in intelligence comparable in scale to the one that, in its time, brought about industrialisation. The smart city, driven by digital technology, is poised to replace the typical networked city of the industrial era, whose success was built on its hard infrastructure, from roads to water supply and sanitation systems, not only as a technological optimum but also as a social and political project. This conviction is shared by many. Coined initially around 2005 to characterise a series of new urban uses of information and communications technology, the expression 'smart city' has spread everywhere, in both mass media and specialist literature, and in the discourse of businesses such as IBM and Cisco as well as out of the mouths of politicians. A new urban ideal is born; and this book is dedicated to it.

Aerial view of the Smart City Campus project, Barcelona, Spain, 2014
The smart city ideal represents an important component of the urban strategy of Barcelona. It entails the revitalisation of a former industrial area through the creation of a campus bringing together businesses, universities and other players involved in urban technology and innovation.

This ideal's increasing power has not prevented the existence of major ambiguities concerning the exact nature of the changes that are afoot. In the following pages, the different definitions of the smart city that are circulating today will be examined. It is worth noting immediately that they are almost all situated between two extremes: on one side, a limited meaning with an emphasis on optimisation of the city's functional aspects, and in particular of its infrastructure, through primarily digital tools; and on the other, a much broader vision that embraces not only the efficient management of facilities and services, but also the promotion of production and the exchange of knowledge – better quality of life through living more intelligently.

Beneath their apparent diversity, and despite the aforementioned opposition, the approaches to the smart city converge on several points. The first concerns the highly strategic character of information and communications technology, which is supposed to improve everyday city management at the same time as helping to make it more economical in terms of materials and energy – in a word, more ecological. On that subject, the need for sustainable development constitutes another point of convergence. Is it possible to speak of smart cities if urban zones continue, as they do today, to contribute to environmental degradation? There is likewise universal agreement on the importance of human factors. Whatever definition of the smart city one

prefers, the phenomenon calls for new types of both individual and collective behaviour. Without people who are capable of modelling their conduct on the information that they supply, the sensors, microchips and display screens of the smart city would have only a limited impact. Contrary to the arguments of its less informed detractors, the looming new urban revolution cannot be reduced, even in its narrowest sense, to a mere plan to equip the city with digital tools. It is inherently linked to questions of anthropology, sociology and, ultimately, politics.

As if echoing the opposition between the managerial vision and the broader interpretation of the notion of the smart city, two types of political projects are emerging today. The first focuses on controlling the urban organism, in an outlook not dissimilar to cybernetic research of the period from 1950 to 1970 into the running of complex systems. Such an orientation carries risks of technocratic drifting, and it is this that the other major project type which features in debate today – cities that call more upon the initiative of and cooperation between individuals than on co-ordination driven from above – seeks to prevent. Neocybernetic inspiration with technocratic overtones, or new perspectives of democratisation linked to the spread of information and communications technology? In the following chapters, this tension will be studied in more detail, and then overcome; because it is possible, under certain conditions that will be outlined, to envisage both of these orientations mutually supporting one another instead of being in conflict. When it has reached maturity, the smart city will be characterised by improved control of some of its key aspects, such as the functioning of its infrastructure, and by an increase in the creative potential of the human individuals and groups that inhabit it.

Looking at smartphones, Kivus, Democratic Republic of Congo, 2012
From highly industrialised to developing countries, smart cities are fundamentally about people. This explains the essential role played by mobile phones and particularly by smartphones in their rise.

Spatialised Intelligence

Among the current proliferation of attempts at theorising, this book possesses two major points of originality. Firstly, it

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