Introduction: Between authored architecture and the non-authored city

To distinguish the other cities’ qualities, I must speak of a first city that remains implicit. For me it is Venice.

Italo Calvino, Invisible Cities

Three artefacts

In 1972 the Italian writer Italo Calvino published his most acclaimed work of fiction, a novel about cities that made a seminal impression on architects and the architectural imagination (Figure 0.1a). Written as a prose poem about cities, Invisible Cities recounts how Marco Polo describes to Kublai Khan, the emperor of Mongolia, the cities of the great Khan’s own empire. These are not cities Polo has visited, but places he invents in his mind. Kublai soon realises that every time Polo speaks of a city he is saying something about Venice, and that all the cities he describes are merely variations, achieved by an interchange of elements from his native city. Calvino wrote this fictional tale at a time of urban crisis, when architects, urban thinkers and planners were envisioning bold alternatives, drawing attention to imaginative projection as a key resource in constructing better places for social habitation. The significance of Venice in this fiction lies less with Marco Polo as a Venetian explorer, and more with Venice as an archetypal model for the creative imagination (Figure 0.1b). Having evolved from a conglomeration of islands, Venice opened up to classical architecture in the Renaissance, acting as an interface between the conscious creativity of artists and architects and the unconscious collective creativity that combined to produce an extraordinary urban setting. Centuries later, it would again challenge its own orthodoxy by inviting Le Corbusier, in
Figure 0.1  (a) The Invisible Cities Project, an illustration project inspired by Italo Calvino’s *Invisible Cities*. Illustration by Karina Puente

Figure 0.1  (b) Aerial view of Venice. Image by Robert Simmon, NASA’s Earth Observatory (public domain), via Wikimedia Commons
the post-war period, to propose a design for a modern hospital. Inspired by Venice – and in striking contrast to his early-twentieth-century visions of a clean slate approach – the archetypical Modernist proposed a radical design, re-thinking architecture and the city as adaptable urban environments (Figure 0.1c).

Not only have urban conditions changed since Calvino’s text and Le Corbusier’s projects, but so too have the forces shaping cities and architecture. The upsurge in urbanisation and globalisation, the effects of climate change and the rise in social inequality call into question where we live and how we build, demanding new models for urban development. Yet, our confidence in addressing these questions through conventional design is increasingly waning. With the aid of digital technology new approaches have emerged, adopting direct analogies with natural systems through scientific theories of complexity. Trapped between Modernistic utopias of the twentieth century and twenty-first-century technocratic utopias, our everyday urban realities languish, in pressing need of imagination and innovation. More importantly, they require models that link the creative ideas of designers and experimental scientists with the richly woven tapestry of collective human creations,
conventions, customs, culture, social relationships, behaviour, artefacts and artistry that produced our urban environments in the past and has the potential to enhance them in the future. However promising the new technologies may be, they will be more effective in improving wellbeing if they engage with the imagination of architects, the rich cultural evolution of urban societies and the lived lives of people.

Rather than providing a new manifesto for the age-old concept of utopia, *The Venice Variations* sees in the three artefacts – Venice the city, *Invisible Cities* and the Venice Hospital – an opportunity to explore architecture and cities as a matter of authorship, asking how they are generated, how they function, who makes them and for what purpose. By contrasting the creative authorship of a work of architecture and a work of literature, both drawing on Venice as their inspirational source, the book explores the creative potential existing in this city, and the deeper insights it holds for other cities and architecture. This subject requires looking deeper, beyond conventional, superficial impressions, at Venice itself and the two other artefacts. What is it, apparently implicit in Venice, that has the generative power to inspire such a wide range of imaginative variations? If Venice provided inspiration for two of the twentieth century’s most creative minds, what are the mechanisms by which this was accomplished, and how do *Invisible Cities* and the Hospital inspire the imagination? Beyond its being a unique city in an unimaginable setting, and over and above having an extraordinary outward appearance, what in this city so powerfully stimulates creative invention?

### Why Venice?

It may be that the creative potency of Venice emanates from its exceptional capacity to contain a multiplicity of visions and systems of reality, provoking imaginative engagement. This idea invokes the concepts of actual, imaginary and alternative possible worlds, extensively explored by Calvino in his literary text and Le Corbusier in his Hospital building. Calvino described *Invisible Cities* as ‘a many-faceted structure in which every brief text is close to the others’, as in ‘a network in which one can follow multiple routes and draw multiple, ramified conclusions’. There are many instances of mesh-like images and branching routes in his cities, expressing the reality of Venice’s urban networks as a model for the fiction. However, Venice is mentioned only once in the text, while the role that the city plays in *Invisible Cities* remains curiously enigmatic.
Venice is a non-typical yet paradigmatic city. Its urban development is a story of the conquering of space where once there were only mud flats and shifting sands. In contrast to the instability of its boundaries and its foundations, as a human institution it has a long and stable history. It is a self-made city on the margins of territorial borders and a fragile ecosystem (Figure 0.2). In the annals of the evolution of urban creativity, in the fourteenth and fifteenth centuries it is Florence rather than Venice that is considered as one of the world’s most creative places.4 The fifteenth century was the time when Venice began to fall into decline, and it thereafter continued to diminish in power, relegated to serving Romantic fantasy in
the industrial revolution and mass tourism at the time of intense globalisation. To many people, today’s Venice is about a maze of alleys, spaces crowded with people, cruise ships dwarfing dilapidated palaces, looming environmental threats, an egregious lack of modern conveniences and inhabitants in defence against tourist invasion.

Yet, Venice in its heyday had formed a network of trading contacts halfway across the world and remained inviolate for a thousand years as the ‘richest, safest, best-ordered and most beautiful city’. Just as Venice defied its geographic location by flourishing in the precarious conditions of the lagoon, so it has commanded astonishment disproportionate to its faded significance and multiplicity of problems. As John Julius Norwich explains, it has unchanging qualities, retaining ‘the same appearance it had not only in the days of Canaletto, but even in those of Carpaccio and Gentile Bellini’ For Norwich, this triumph over time is an extraordinary phenomenon for any city, and in the context of the most beautiful city in the world, a miracle. Despite the enduring uncertainty about its physical survival and the challenges in regenerating itself, Venice has never ceased to inspire architects, artists and writers. Five hundred years after its zenith, it still contains lessons for other cities as a resilient urban environment. Scholars, artists and practitioners alike identify something within Venice that is capable of nurturing human ingenuity. Lewis Mumford saw its urban structure as involving a series of bold adaptations, which had universal application. Le Corbusier admired its functional efficiency in intersecting and separating the aquatic realm and terrestrial routes and attributed the inspiration for his Venice Hospital to the Venetian typologies of calle (street) and campiello (square). Kevin Lynch described Venice as the ‘imageable’ city par excellence. For Calvino, Venice was a prototype for the future. Having bypassed the phase in human history where most people believed the future belonged to the car, Venice was for him in a better position to overcome the urban crisis and form a model for new developments out of its own experience.

It is not only the questionable future of Venice that affects us, but also the timeless contribution it makes to architecture and cities, two of the leading expressions of culture in modern society. Venice belongs to a historical period of intense cultural creativity that still influences our own contemporary culture and its attitude towards innovation. If the civilisation of the Renaissance, as Jacob Burckhardt wrote, ‘is the mother of our own, and [its] influence is still at work with us’, Venice is an unprecedented example of urban innovation and collective imagination. Like the ancient artefacts of epic and myth, it sustains its universal relevance over and above its transient conditions. The Venice Variations neither idealises this city nor seeks to provide solutions to its contemporary
problems. It rather sets out from a different premise. If, as humans, we are wired to instinctively seek out ideal places and patterns through architecture, literature, art, science, technology and mythology, Venice is one of those artefacts, which even when we remain in relative ignorance about how they evolved and where they come from, provide us with models and constructs, paradigms of experience and terms of comparison, revitalising the imagination. Taken in its totality, as an artefact across space and time, Venice is like great architecture and great literature, locally communal and eternally global. It belongs to everyone and affects us all. We can begin to address the question of how Venice stimulates invention by looking at the ways in which architects in the past responded to the creative potency of the city in the quest for developing new thinking.

**Organic, Classical, Modern**

Just as the contemporary explosion of digital technologies has changed the ways in which architecture is produced, the invention of architectural notation in the fifteenth century brought about major cultural shifts and architectural innovations. If today’s architects – aided by computational tools – create infinite varieties of forms and workflows of seamless integration, architects in the Renaissance were rediscovering a treasure trove of ancient structures and antique ruins, including the work of Vitruvius, the Roman author whose *Ten Books on Architecture (De architectura)* were the only comprehensive treatise from ancient times to survive. The need to record and re-imagine classical fragments through drawings and language led to a clear distinction between the practice of design and the craft of building. Ultimately, this brought about the emergence of architectural design distinct from the artisanal building traditions. The new architecture appeared in the traditional context of the medieval cities and landscapes of Italy. As with the advent of the printed books that started to replace manuscripts, architectural drawings and texts began replacing the formerly integrated process of design and building. This process continued uninterrupted until the arrival of computer aided design (CAD) and digital technology. At that time, Venice and the Veneto were home to more than 450 printers, publishers and booksellers, who fuelled with books, woodcuts and engravings the interest in the ancient world shown by architects and scholars. Before the Renaissance it is rarely possible to identify the creative personalities of individual architects in Venice. As Deborah Howard explains, ‘the fact that the title *architectus* was not used in Venice until as late as the 1470s, apart from one known
isolated example in 1455, is symbolic of the change in attitude that came about at this time’.

But it was Venice and not the ancient capital of Rome or the creative city of Florence that became in the Renaissance the centre of Vitruvian studies. Vitruvius’s *Ten Books* was first printed in Venice. Two distinguished architects, Sebastiano Serlio (1475–1553) and Andrea Palladio (1508–1580), who developed the most important of the architectural theories based on Vitruvius in the sixteenth century, lived in Venice for a time, and had their books on architecture printed there. However, it took Venice longer than other Italian cities to accept the new architectural style, as the city was strongly mindful of its inherited building traditions. But the innovations eventually took root, from Tullio Lombardo’s miniature of a temple front in the Basilica of San Marco to the public buildings of Mauro Codussi, Jacopo Sansovino and Palladio, including the last’s villas for the Venetian elite in the Veneto, the agricultural hinterland of Venice. It is from Venice and the Veneto that Palladio’s architecture spread throughout the world, resulting in what is now known as Palladianism, or Palladio-inspired Classicism.

Venice has never ceased to be a centre of attention, with its colourful mix of buildings and diverse architectural styles. But nowhere does the city express the contradictory trends between the vernacular and innovation more powerfully than in the striking contrast of Baldassare Longhena’s and Andrea Palladio’s white churches in Dorsoduro and the islands of San Giorgio Maggiore and the Giudecca with the medieval urban fabric. No other city can more characteristically exhibit the break that architecture made with the past and its capacity to imagine bold alternatives. Clearly recognising this contrast and Palladio’s place in architectural history, Le Corbusier inscribed his project for the Venice Hospital on a map together with Palladio’s church of San Giorgio Maggiore, showing that he was measuring himself against a lineage that stretched from Vitruvius to the classical architect. Le Corbusier’s map documents three significant instances in the history of the urban formation of Venice: first, Venice’s organic collection of islands and buildings embedded in the medieval fabric; second, Palladian Classicism framed by the lagoon, pointing through subtle alignments of monuments and their frontages to a coordinated scenography of the major civic spaces of the city; and third, his post-war concern with evolutionary urban growth, through his Hospital project, which, unlike early Modernism, saw the city as a single project of continuous adaptation.

Through this map, Le Corbusier offered a condensation of three major paradigms that influenced not just Venice, but also the canon of Western cities and architecture in general: the Organic (Venice’s...
Figure 0.3  Baldassare Longhena’s Santa Maria della Salute with Giuseppe Benoni’s Punta della Dogana (the Sea Customs House) in the foreground and Andrea Palladio’s Redentore in the background. Image by Supechilum, CC BY-SA 4.0 via Wikimedia Commons

Figure 0.4  Le Corbusier. Site map of the Venice Hospital project. © FLC/ADAGP, Paris and DACS, London 2017
urban fabric), the Classical (Palladio’s San Giorgio Maggiore) and the Modern (the Venice Hospital). Venice combines these three key practices through which architecture as a liberal art meets the evolutionary processes of the medieval urban fabric.17 Is there something in the physical structure of Venice that inspires new models, unconsciously through the city’s pattern of urban growth, and consciously through urban design and architecture? The following sections trace how Venice stimulates creative invention by looking at Invisible Cities and Le Corbusier’s Hospital.

The city and the imagination as networks

This question of the architectural imagination is at the core of all inquiry about cities and architecture, from ideal cities in the past to contemporary ideas about sustainable buildings and settlements. It presupposes models of the city as dynamic configurations. This is because cities like Venice are transformed gradually from within, by the collective actions of people, rather than being generated by a single mind, or centralised as a single representation. If ideal cities were demonstrations of an ideal geometry, Venice’s creativity flourished in its everyday spaces and irregular urban fabric.18 Fundamental to this conception of the city are its urban networks, establishing systems of connectivity and performance as the products of many hands over an extended period. The idea of approaching buildings and cities as networks is increasingly relevant with the rise of digital technology, which strengthens communication, interactivity, variability of form and a public participatory approach to design. But rather than being a new concept, the notion of networks has been many years in the making. Ever since writer and activist Jane Jacobs studied the city as organised complexity, many architects, urban designers, critics and scientists have described it as a network – or a system of networks – and studied its properties of self-organisation.19 Issuing an attack on contemporary urban policy, Jacobs in her seminal book The Death and Life of Great American Cities presented the term ‘organised complexity’ as an answer to the question posed by the chapter ‘The Kind of Problem a City Is’. She argued that cities present situations where many parameters vary simultaneously in interconnected ways, a stance that draws influences from complexity theory, cybernetics and systems thinking.

It was this perception of the city that influenced Calvino in Invisible Cities. Calvino wrote this fiction during a period in which
architects were experimenting with networks, addressing the absence of imaginative models in the speculative processes of urbanisation. He had also absorbed influences from the Oulipo literary group (*Ouvroir de Littérature Potentielle*), which used mathematical constraints to invent new poems and fiction. Calvino discussed the combinatorial algorithmic potential of *Invisible Cities* in *Six Memos for the Next Millennium* and in *Cybernetics and Ghosts*. The imagination, he wrote, ‘is a kind of electronic machine that takes account of all possible combinations and chooses the ones that are appropriate to a particular purpose’. Calvino’s interest in the visionary charge as combinatorial network included ‘a repertory of what is potential, and what is hypothetical, of what does not exist and has never existed, and perhaps will never exist but might have existed’. Inspired as much by folk tales as by canonical literary texts, he situated the imagination within three frameworks: first, a conceptual system of interconnections among elements capable of imaginative stimulation; second, a project that includes actual and possible works; and third, works that are authored or collectively produced by word of mouth. His understanding of literature as a combinatorial game meant that he saw it as an open system, echoing with sounds and words from all of history, culture and experience.

Calvino’s definition of the imagination calls attention to the fact that while artists, critics and writers have widely engaged the relationship between high art and everyday culture, from the outset architectural design has been – with few exceptions – distinct from the anonymous processes by which buildings and cities are produced at a large scale. In spite of the significant influence of modern architectural practices on ordinary dwellings, contemporary cities and vice versa, there is a clear separation between commonplace, vernacular, speculative buildings and architecture as the outcome of conscious design intention. Although architecture depends upon the imaginative charge, the source of which is both high architecture and the everyday, we know precious little about the relationship between ordinary spaces in human settlement and the spaces of architectural invention. How can we theorise the relationship between the authored architectural work and the non-authored production of cities and buildings? Before looking at *Venice, Invisible Cities* and the Venice Hospital, I will explore the diverse ways in which Venice has been described and imagined. This is not intended to provide a comprehensive overview of these perspectives, but to help place Venice and the imagination within an expanded form of understanding.
Material and immaterial: Venice and its representations

In fact, which Venice? The official one, of ‘myth’ and apologies, satisfied with the fullness of her own representations, or the Venice increasingly shaken by internal conflicts, marked by anxieties that obliquely cut across classes and groups?

Manfredo Tafuri, *Venice and the Renaissance*

Every time Venice is described, it is described differently according to viewpoint or purpose. The casual visitor finds in Venice a fantastic array of alleys, canals and palaces. Historiographers discover an empire of coasts and islands, ‘of fishermen who grew rich in trade […] and enriched the West with a splendid cultural heritage’. Economists describe a mercantile city-state, which turned to maritime adventures far from its native islands. Archaeologists see Venice as a place of ingenuity, rooted in wooden pile foundations. For architectural historians, it encompasses a heterogeneous fabric of Byzantine, Gothic and Renaissance architecture. For artists and writers, Venice reveals itself as a water-city of mirroring and inversions. Charles Dickens entered Venice in a dream, and found a ‘ghostly city’ floating in the ‘exotic, fabled lonely sea’. John Ruskin came to it replete with English notions of the Romantic, to produce not art history but fiction. Marcel Proust was taken to Venice, where he received impressions analogous to those he had felt at Combray. Thomas Mann charged Venice with Friedrich Nietzsche’s impulse of ‘Dionysos’ overwhelming rational explication. Canaletto distorted Venice to his own ideal perspectival conception. William Turner came to Venice to paint not Venice, but an atmospheric city of light effects reflected on water. Light, surface and atmosphere epitomised Henry James’s Venetian visions through the aesthetic epiphany of ‘the sun on the stirred sea-water, flickering up through open windows, played over the painted “subjects” in the splendid ceilings’ of Tiepolo in the Palazzo Leporelli.

Aside from externally imposed representations, Venice has also engaged in inventing its own mythology. Often called ‘the Myth of Venice’, a republican ideology was created within historical discourse in the Renaissance by the Venetians themselves regarding their social and political world. Tracing the civic rituals in late medieval and Renaissance Venice, Edward Muir reveals an intense community life wherein lies a clue to the emergence of this ideology, Venice’s lasting contribution to the political ideals of the Western world. The Venetians increasingly saw
the city as ‘the site of realised utopia’.\(^{34}\) Going through successive political and urban transformations in that period, they reached back to redefine ‘a perfect origin’ for their city.\(^{35}\) This idea is powerfully expressed in works of art such as Gentile Bellini’s *Procession* and Jacopo de’ Barbari’s bird’s eye view of Venice, and had significant effects on the urban renovations that took place in St Mark’s Basin and the Piazza San Marco in the fifteenth and sixteenth centuries (Figures 0.5, 0.6).

Venice projected itself as the most stable republic in the world for a thousand years, a quality often attributed to its enduring independence from foreign powers. At the trading crossroads between the Middle East and Western Europe, it played a key role in the development of Western political values, until Napoleon put an end to the Most Serene Republic, or *La Serenissima*, as often described by its political elite (1797).\(^{36}\) As it happens, at the very moment of the end of this era a second cycle of intense influences began as the railway brought the artists and writers of the Grand Tour to Italy, reviving the ancient and Renaissance worlds and interest in them. Tony Tanner describes Venice as

spectacle – the beautiful city *par excellence*, the city of art, the city as art – and as spectacular example, as the greatest and richest and most splendid republic in the history of the world, now declined and fallen, Venice became an important, I would say central site […] for the European imagination.\(^{37}\)
Figure 0.6  Jacopo de' Barbari. *Venetie MD*. Bird’s eye view of Venice, c. 1500. The superimposed lines (by the author) reveal the geometrical coordination of the Rialto, Piazza San Marco and the mythical figures. Museo Correr, Venice
The early-nineteenth-century Romantic travellers were aware of the Venetian Republic and its end. Venice for them was not only a beautiful city, but also a symbol of loss and labyrinthine decay, central to the taste for the picturesque. Though somewhat obscured behind the distressed image of decadence and decrepitude, the Myth of Venice continued to exercise influence over urban design and politics. It was this myth that supported Ruskin’s theories in the nineteenth century and his critique of the social and environmental conditions in the industrialising world.

The proliferation of myths about the aquatic city demonstrates the difficulties in disentangling Venice from its representations. Any effort to describe Venice runs the risk of confusing the city ‘with the words and the images that describe it’. At the same time, attempting to avoid Venice’s mise-en-scène runs the danger of removing the perceptual and representational realms it has generated. Separating Venice the space, with its disposition of urban elements, from Venice the place and from how it features in human understanding can impoverish both the physical space it occupies and Venice as perception and imagination. The multiple representations of Venice seem to suggest that cities have many modes of existence. They are lived spaces of everyday life with an innate configurational and functional order. But they also provide places where values and meanings are created and celebrated. As Tanner explains, ‘Venice was Ruskinised’, and that provided a crucial space and place for Proust’s imagination. Cities consist of collective ‘imaginaries’, which are often ceremonially enacted in rituals, festivals and commemorations. For Lefebvre cities are produced by and consist of representations, symbols and spatial practice. The designed, written and pictured city influences the lived city and vice versa. Through a gradual process of accretion, cities become as much the world of streets and social actions from the inside as the perception of minds from the outside. They are at once material and immaterial, shaped by a few as well as many minds, by manifold instances of activity, memory and desire.

Author and authorless – actual and possible

I have by now disentangled two pairs of crucial ideas: first, the city as a physical entity of everyday life and a conceptual entity formed in the mind; and second, Venice in the architectural imagination and Venice in the collective imagination. Often expressed as dualities, both pairs of ideas relate to one key question: what is the relationship between architecture as the authored product of design, and cities and buildings as the
authorless collaborative products of society? Architecture has always been present in human settlement, but the conscious engagement with it is one of the pivotal practices of modernity. It developed during the Renaissance from the separation of design from building craft, through which architects were able to converse with learned men, scholars, philosophers, poets and literati.\textsuperscript{46} This transformation is well documented as part of the processes that drove the architectural and urban development of early capitalism.\textsuperscript{47} What is less discussed is the process by which architecture broke away not only from building craft, but also from city-craft, the evolutionary processes through which buildings and cities were produced, where previously these three were unified. The faculty of architecture as liberal humanist art came about by removing itself from this continuum, manifesting the design of objects as its main ontological purpose.

The fact that architecture is intellectually defined through intentional design, while cities usually come into being out of multiple actions over long periods of time, positions us between aesthetically authored objects and the view of the city as an authorless socio-economic process. As a consequence, architecture is confined in exceptional cases to the status of iconic buildings, or more generally to the status of buildings as instruments of economic production. Currently, buildings and cities are being appropriated by digital technology as a way of managing the city's assets.\textsuperscript{48} There is a strong call for collective governance based on social media and mobile devices, where technology is – often naively – cast as the democratic medium able to side-step institutional control in urban and building management. This is largely part of contemporary economic restructuring, promulgating buildings and urban areas as entities that are technologically defined. A characteristic of this regime is the reconstitution of professions and human subjects to serve the knowledge economy and competitive market economies.\textsuperscript{49} At the same time, new methods of computational design are taking on the semblance of the self-organising processes which underpin the adaptive growth of natural organisms. These designs are often somewhat presumptuously compared with the evolution of cities and human systems. Buildings and settlements are social artefacts resulting from the interaction of human laws, ideologies, statutory rights, systems of control and political structures. The consequence of these digital cultures is that they take place without adequate governance frameworks or in-depth understanding of those systems involving human factors. Traditionally engaged with the design of objects rather than networks or systems of regulation and control, architecture
is left dispossessed of relevance in shaping social capital, politically and intellectually sidelined – almost to irrelevance.

If in *The Death and Life of Great American Cities* Jane Jacobs engaged with how cities satisfy the test of common sense, in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion. If in *Delirious New York*, published at the end of the 1970s, Rem Koolhaas rejoiced in the pragmatic effects of real estate on the skyscraper island, with its particular goals that influenced the metropolitan lifestyle of ‘Manhattanism’ and its irrational culture of congestion.

Koolhaas’s intellectual embrace of market forces paved the way for other architects, such as Greg Lynn and Zaha Hadid, to engage with the analogy of complex models in their architecture. From the mid-1990s these architects ascribed to architecture the role ‘of producing endlessly flexible environments for infinitely adaptable subjects’. Lately, Koolhaas’s *Elements of Architecture* (in the 2014 Venice Biennale exhibition) turned to commercial processes using prefabricated building elements and standard methods of construction for assembling buildings, shifting attention away from individual authored projects towards the speculative neo-vernacular and authorless mass production.

While adopting the structures of deregulation, implying the absence of the architect-author, these architects are meanwhile themselves producing individual signature buildings. In this way, they manifest the contradictions in the division between architecture’s autonomy and editing out the creative authorship of the designer. A separate, countervailing viewpoint is provided by socially engaged architecture, an intellectual trend recognising the multiple actors participating in the production of everyday spaces, as opposed to singly authored architecture by famous architects or dominant ideologies in architectural design. This viewpoint emphasises the need to redefine the figure of the architect, debunking the myth of the necessity of architectural authorship or expanding it to include the agency of the user. Yet, the ways in which the authored architectural project interacts with the authorless buildings and cities still elude us. Any attempt to reclaim social agency for architecture should proceed beyond the individual episodes of socially engaged projects into a more principled understanding.

This debate exposes a key question deep at the heart of architectural practice. Tasked with conceiving a building or urban plan, should architects think of the aspects that systemically condition design, such as social rules, function, economics and ideology, or give expression to
their individual intuitive impulses regarding form and space? Are inspiration and creativity self-contained, or do they largely emanate from the physical world? Is architecture (and the city) immaterial, envisioned by designers and populated by human minds, or is it about material things?

Known as the ‘autonomous–contingent’ question, this division manifests itself along two conceptual axes, which underlie the discussion of the imagination in this book as a broader conception of knowledge. On the opposite ends of one axis lie the authored architectural work and the unconscious processes that drive authorless buildings and cities; on either pole of the other axis, one finds the actual world of built forms as opposed to forms confined to the domain of the imaginary, the probable, the thought-of or the potential-but-not-yet-realised. Analysing Venice and the two other artefacts, I will argue that if we think of the autonomous–contingent question as a diametrical opposition we are led to accept only one of the two sides in a way which precludes us from logically entertaining the other. In order to surmount the paradox and gain new insights we need to reframe the autonomous–contingent question. This is possible by revisiting the historical moment at which the split between architecture and artisanal traditions achieved its early-modern state of realisation. This is also the moment when Venice achieved its state of dense urbanisation, also shifting in ideology from the community values of the fourteenth century towards hierarchical social structures. Revisiting the beginnings of the emergence of architecture as a distinct discipline can reveal the origin and lineage of our ideas about architectural authorship: if the notion of self-organisation is refashioning architectural thinking, which tradition is being revolutionised? How can one resolve the paradox between intentional design and the authorless city, reclaiming agency for the discipline?

Method

Fundamental as these questions are, they are rarely addressed within a single theoretical and analytical framework. Instead, they are fragmented into separate paradigms. Descriptions of cities as collective creations, for example, often have their roots in planning, urban history, political economy or anthropology. As a result, within these disciplines rarely have the architectural, social, economic and political dimensions of the city been understood as spatial phenomena. Descriptions within the history and theory of architecture, on the other hand, have traditionally tended – with a few exceptions – to privilege the products and discourse of architectural
design. In contrast to these two frameworks, the field of spatial morphology (for example, space syntax and typo-morphology) focuses on cities as authorless places of the everyday. Focusing on individual projects, periods or styles, approaches within the history and theory of architecture eschew the opportunity for more systemic modes of understanding. On the other hand, spatial morphologists often reveal, through mapping and analysis, generic properties, recognising shared patterns across a large sample. What they leave out of consideration are the processes by which the conscious imagination combines precedents and invents new designs.

Typological and morphological studies enhance our understanding, but often treat the built environment as though it were free of individual agency. They frequently trace the ways in which historical changes, not directly physical in nature, affect physical structures. Not every social event has spatial correlates in forms that are retrievable in the absence of historical information. Yet, social, economic or technological shifts often bring about radical changes and discontinuities in the physical fabric. Examples are the social and economic innovations that led to the revival of Classicism in the Renaissance and the invention of architectural design; the rise of the mercantile class, the industrial revolution and the advent of large-scale mechanical reproduction in the last two centuries, changing life in cities and altering their physical fabric. Such changes are not detectable by simply studying spatial morphology over successive periods without having a historical-contextual understanding of the processes involved. In addition, buildings and areas can be occupied by diverse uses responding to a restructuring of the urban economy, when, for example, we have large nineteenth-century industrial warehouses re-inhabited by digital start-up companies. The physical fabric of buildings and cities outlives its original intended purpose. At the same time, old types disappear or are replaced by new designs. The sudden breaks that architecture and cities make with their past, or the adaptability of physical structures to different socio-economic conditions, cannot be always understood by simple analysis of their physical design. Without the historical processes that bring about new configurations, new living patterns or adaptations, morphological analysis alone fails to capture the dynamic interrelationship between space and society over time.

In terms of conceptual foundations, the two different routes to knowledge – history/theory and spatial morphology – are both affected by the autonomous-contingent question. If we define artefacts simply as objects of autonomous morphological study, we can learn about their form, but we cannot reawaken events of the past or explain how historical change affected their shape and function. Similarly, if we explore artefacts as entities
that are solely contingent upon historical facts, we cannot gain access to properties that can be autonomously understood through their morphological study. By focusing on historical trajectories in architecture, history and theory have been providing conceptual support to design-oriented approaches in academia and practice. In contrast, spatial morphology is conceptually empowered by the ‘scientific’ paradigm of knowledge: describing the world as it ‘exists’ rather than changing the world through creative design. Among the proponents of the design-oriented pathway to knowledge, there is the conviction that the analytical pathway deprives architecture of its creative charge, including a critical, imaginative and ethical stance towards the forces enjoying power. Supporters of the morphological paradigm, on the other hand, maintain that, in contrast to conceiving the built environment as a systemic outcome of society, the designed products of architecture are unique examples, subject to individual intuition, associative thinking and artistry. Seen together, these approaches split the city and architecture into analytical-empirical and experimental-design practice. They also divorce the histories of cities and buildings from morphological description, and spatial morphologies from historical understanding.

Rather than speculating without proper verification through design or alternatively generating empirical evidence without making new propositions for a better environment through analytical knowledge, *The Venice Variations* uses historical and morphological analysis (spatial network analysis and Geographical Information Systems) to access the intersection of history with the properties of the physical world and its materiality. It overcomes the autonomous–contingent question, raising queries about how cities like Venice are formed and how they interface the collective production that led to their urban form with the individual production of creative designs. Instead of describing Venice as an autonomous physical entity, the investigation in this book focuses on the practices that create cities, as people congregate to exchange ideas, products and trade. These processes materialise through the network of streets, including both everyday activities and socio-economic and political interactions over time. There is an additional thread, which this study posits as a seminal factor in the shaping of cities and ideology: their representation in myth and fictional creation, addressing the city in the individual and collective imagination. This approach does not involve discarding the existing ways in which the creativity of the city is understood through works of art and architecture, but instead explores the manifold definitions of creativity in both individual works and the spatial processes that make up the city and architecture.
The structure of *The Venice Variations*

**Chapter 1** concerns the evolutionary processes of *city-craft* (the Organic paradigm) manifested in the spatial structure of urban form, which stem from the accumulation of human actions over long periods. In this chapter, I investigate Venice together with its major buildings and spaces as systems of urban networks. The purpose is to understand the forces behind the development of the metropolis prior to the split between authored architecture and the authorless city in the fourteenth, fifteenth and sixteenth centuries. This period has particular significance in the book as the time of socio-economic and intellectual changes that led to the physical reconfigurations of cities, buildings and works of art in Western Europe. It is also the period during which Venice reached its mature phase of urbanisation, through both organic operations and deliberate urban interventions. Furthermore, during these centuries there was an ideological shift as the communitarian values of the fourteenth century gave way to a new emphasis on social hierarchy, associating the emergence of architecture as a discipline with the emergence of elite spheres of society.

In **Chapter 2** I discuss Venice in the Renaissance, a significant moment when architects and their influential patrons sought, through elaborate processes of *statecraft*, to redefine the city as a representation of enduring stability for which purpose they used the classical style of building (the Classical paradigm). This chapter explores the reconfiguration of the Piazza San Marco and the San Marco Basin in the sixteenth century, a development concurrent with the processes of centralising governance and the aggrandisement of the Venetian Republic. The transformations that took place in the Piazza should be understood in the context of the intellectual and socio-technical changes that had begun a century earlier. The advent of the printing press in the Renaissance encouraged and facilitated encounters between architecture, the liberal arts – literature, philosophy, poetry, art, geometry, mathematics – and nascent scientific thought. Using the newly developed technology of printing, humanist scholars formalised a series of traditional rituals strongly related to the city’s spatial and social geography, and crystallised its popular myths into a formal Republican ideology.\(^59\) This chapter is the ideal place to explore the intersection of authorial intent in the design of the Piazza with city-craft and collective mythology, a body of work by builders, priests, rulers and artisans embodying associations between the oral traditions of the city and its building fabric.
This is also the context in which the book articulates the transition to Chapter 3, from the creative imagination in the city to the individual imagination of a creative writer. This third chapter explores the relationship between architecture and story-craft in Invisible Cities, as Calvino does in the tradition of humanism in his fiction. It considers this subject through the interdisciplinary perspective of generative architecture and generative literature. The discussion goes beyond the acknowledged poetic strength of Calvino’s work, attempting to reveal the work’s power in its analogic relationship with Venice’s urban networks and combinatorial structure of urban elements. It falls within the mnemonic traditions in the Renaissance teatrum mundi, and the rotating discs of Raymond Lull, a thirteenth-century Majorcan philosopher, which aimed at achieving universal knowledge, and the reading machines of medieval practice.60

Calvino’s Invisible Cities and Le Corbusier’s Hospital were influenced by the post-war explorations of architects, formulated as critiques of early-modern visions, which, employing zoning and geometry, transformed the city into a designed object. Architects in the 1960s defined architecture in urban terms, seeking open-ended processes in architectural form that involved the uncertainty implicit in human interactions. By questioning the disciplinary boundaries of architecture and cities in the context of dominant institutional structures, the visionary projects of the post-war period emphasised performance over appearance and dynamic processes versus static outcomes. Seeking to connect with the anonymous collective production of human settlement, they reformulated architecture and the city as evolutionary networks. Chapter 4 analyses the Venice Hospital in the broader context of Palladio, Le Corbusier and a selection of works by contemporary architects (the Modern paradigm). Without aspiring to being all-inclusive, the chapter seeks to encompass wider horizons than those restricted to the specific cases of a city, a building or a literary text, with the aim of expanding our understanding of the three paradigms and the threads that bind together architecture, cities and design.

Finally, Chapter 5 attempts to restructure the questions raised in the book to provide a synthesis of its main ideas and arguments.

Contributions and significance

It is with these theoretical and methodological considerations that the book begins, seeking to understand first the analogic relationship between Venice and the other two artefacts, and second what factors in
Venice contributed to urban creativity and still continue to motivate the body, excite the mind and inspire the imagination. The first and main ambition is to challenge the definition of architecture as entirely distinct from the evolutionary processes of the city, and the city as distinct from the spatial craftsmanship of the kind we see in architecture. Although strong differences exist, the relationship between these two fields needs to be re-assessed, reframed and theorised. The second intention of the book is to question the generally accepted distinction between authored and non-authored artefacts – the former residing in the imagination of the individual, the latter in the collective imagination – which ignores the interwoven nature of these two spheres.

The first contribution of the book is in highlighting the importance of the connection between architecture and the city, making the link between the spatial, the social and the politically possible; in occupying the void between spatial practices and their representations; and in releasing the creative potential that inherently exists in their paradoxical difference and association. The second contribution is in placing these ideas in the context of the three key paradigms that influenced Western architecture as a way to bring the current, fourth paradigm – the Digital – into the historical tradition. Although it may be a little early to provide a critical assessment, the paradigm of the Digital is briefly discussed in Chapter 4. If architecture parted ways from the artisanal traditions of city-craft in the Renaissance, today’s digital technologies integrate informational models of buildings with digital mapping of cities, combining designing with making in continuous seamless process. The Digital paradigm seeks through computation to unite architecture and the city – form generation and evolutionary adaptation – into a single category, described as generative design, evolutionary design or autopoiesis, a total system capable of producing, reproducing and sustaining itself. The conjunction of the digital and the rapid processes of urbanisation means that evolutionary practices of designing and making are becoming not only relevant once more but also necessary. Students of architecture will increasingly find it important to pursue an investigation of both emergent and traditional design processes that also include realised and imagined alternatives. They should try to discover where design thinking and popular thought meet, integrating architecture of the unconscious mind with spatial manifestations of the conscious, while also acknowledging the independence and life of each.

The book also makes a number of important contributions in its individual sections. While the first two chapters approach the imagination and creativity by looking at Venice, the third and fourth chapters examine these notions from the perspective of literature and architecture.
The significance of the former is in revealing the organisation of space and power in Venice, as a self-governing city-state, so that other cities can avoid becoming historical ruins of once proud civic democracies.\textsuperscript{53} The last chapter provides an opportunity to study the analogy between the algorithmic potential in the network structure of Venice, and that in \textit{Invisible Cities} and the Venice Hospital. By understanding the combinatorial memory remaining encoded in Venice, the Hospital and other works of architecture, the work can yield the parameters comprising the generative potential in the analytic retrieval of information. The larger benefit of this task lies in finding a bridge between analytical explanation and experimental generation in design.

Every work of research should be conceived without reference to the limitations of its author, bringing to light that which has not yet been discovered or uttered. Yet, no work can easily escape from the viewfinder of its writer. The constraints of the thought system and the rules generated by the author should, rather than being seen as a constraint to interpretation, form a stimulus to exploring other disciplines and points of view in order to spur further discovery. \textit{The Venice Variations} is a work framed by an architect-scholar, not an analyst accustomed to modelling networks and assuming their transferability into architectural knowledge, ahistorically or apolitically, in a single logical leap. This means that, although the work is enriched by the science of networks, as well as historical and sociological understanding, it cannot be divorced from the discipline of architecture and the history and modes of thought that have structured architectural knowledge.

In addition, the book is not concerned with the hyper-determinisin of data and computational processes of self-organisation in cities or simulated environments. As Phil Steadman explains, when these processes are used in attempts to make the design process ‘scientific’, they are problematic, deriving from the technological paradigms and ideological dogmas of the early twentieth century.\textsuperscript{64} On the other hand, my focus on the imagination in this book has no relation with contemporary currents of anti-scientific prejudice either. More than at any other time, we need to transcend conventionally conceived barriers between the artistic dimensions of design and rational analysis. In contrast to the traditional idea that the imagination is some inexplicable brainstorm caused by a random meeting of circumstances, introducing into architecture a fuzzy and deeply private experience of the world, this work sees the imagination as the ‘possibility space’ of permutations, the output of definable processes and relationships. On the one hand, it draws on the early Renaissance idea of \textit{ars combinatoria} – the art of combination.\textsuperscript{65} On
the other, it is associated with late-twentieth- and early-twenty-first-century developments in the area of information systems and computers. By re-theorising architecture and the city within the canonical narratives that influence their development, the work aims to reclaim the city and architecture from the non-reflexive application of analytical models, or the mindless forces of urbanisation, and describe them ‘architecturally’. *The Venice Variations* is an effort to reframe architecture and the city as imaginative and ethical agencies of social capital and make the latter widely available to others.
**Figure 1.0** Venice. View of the city and San Marco Basin (Bacino) from the southeast. Drawing by Athina Lazaridou