A triplet under focus

Innovation, design and the city

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Chapter 2
A Triplet Under Focus: Innovation, Design and the City

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2.1 The Context of Our Investigation

The role of design in innovation processes is a trendy topic in current debates on business development and competitiveness. Design activities and methods are to be adopted by firms and companies in order to fully exploit their potential and survive in a highly competitive globalized market. There is a great focus on the capability of design processes to integrate business and societal goals in the definition of new products, services, and instruments in response to the great challenges facing the contemporary world. Design has grown in appeal by identifying itself with a series of tools and codified processes and approaches, which manage to face complexity while cultivating an action/solution oriented approach (Scholl 1995). Nevertheless, design and innovation are multifaceted/manifold concepts that need to be explored and understood in their full spectrum: What do we consider innovation? How do innovation processes work? What design approaches better contribute to innovation

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pathways? What is the specific role of design? A disambiguating effort is clearly needed.

A key argument of this book is that, on one hand, a new attitude/approach towards innovation is needed. Innovation (technical, societal, institutional, etc.) is essential to tackling today's global crises (climate change, social exclusion, inequality, food distribution, mass migrations…) generated by the persistence of some systemic problems. The growing social awareness of these issues creates "windows of opportunity" (Grin et al. 2010) to bend the "Market" towards sustainable solutions creating a virtuous synergy between business (firms, capital, …) and societal goals. Firms can learn that there is space for new value propositions (potentially generating revenues) that respond to new demands (values) related to sustainability, environmental awareness, access to resources, etc. On the other hand, the book elaborates on the role of cities as key incubators and laboratories where this kind of innovation can be developed and stress-tested. Design can then be considered the tool which enables us to embed this particular kind of innovation processes into situated production, institutional and social practices and attitudes.

It is therefore relevant and decisive, in order to define a sound interpretative framework, to reason about the urban as the context for adopting Design Enabled Innovation as cities are simultaneously the context where problems are often generated, mostly visible and stratified, while also being the location where opportunities arise from problems when finding their long-term solutions.

The aim of this chapter is therefore to take a position in this debate by defining the three key concepts (innovation, design and the urban dimension) referring to these research domains and theses which best provide a compass with which to navigate towards an operational approach to Design Enabled Innovation in urban environments.

2.2 Positioning Concepts and Definitions

In this section, three main concepts and their components are explored and examined: innovation, design, and cities. Through these concepts, it is further explored in the following chapters how they interact and contribute in a synergic manner to the process of change. The aim of this exploration is to define this book's stance in relation to the debate concerning innovation, its pathways and the manifold factors influencing it. Particularly, as already mentioned, it is important to sharpen our focus on the definitions and interpretations of the three concepts, which can be found in the literature and in common discourse, demonstrating significant differences. The review cannot expect to be thorough, but operates using a selection of such elements, which will highlight the connections between the three concept-domains and their mutual interdependence, hopefully in a fruitful manner.

2.2.1 Innovation

A variety of definitions for innovation have been introduced, debated and criticized in both academic literature and popular press (e.g., in design research by authors such as: Hobday et al. 2011; Wylant 2008; Malins 2011; Storvang et al. 2014):

> Innovation is a process of turning opportunity into new ideas and of putting these into widely used practice (Tidd et al. 2005: 66).

> Innovation is the embodiment, combination, or synthesis of knowledge in original, relevant, valued new products, processes, or services (Luecke and Katz 2003: 2).

> All innovation begins with creative ideas. We define innovation as the successful implementation of creative ideas within an organisation. In this view, creativity by individuals and teams is a starting point for innovation; the first is a necessary but not sufficient condition for the second (Amabile et al. 1996: 1155).

> An important distinction, attributed to the innovation theorist Joseph Schumpeter, is normally made between invention and innovation. Invention is the first occurrence of an idea for a new product or process, while innovation is the first attempt to carry it out in practice (Fagerberg et al. 2013: 6).

Several categories of innovations have been identified and labelled with different purposes: e.g. Design-driven innovation, Innovation of meanings, Innovation of technology, Business Model Innovation, Economic Innovation, Scientific Innovation, Social Innovation, Technological Innovation, Data and Value Innovation etc. Each type of innovation has its own definition—e.g. Data innovation is defined as "data creates value of data for social and economic benefit" (Soto, Urbact II capitalisation 2013), the Value innovation is defined as "a change in parameters customers use to give value to products" (Verganti 2016a, b) and Social innovations are described as "innovations are social in both their ends and their means. Specifically, […] social innovations [are] new ideas (products, services and models) that simultaneously meet social needs (more effectively than alternatives) and create new social relationships or collaborations. They are innovations that are not only good for society but also enhance society's capacity to act." (European Commission Bureau of European Policy Advisors, BEPA, 2011, p. 9)

Innovation is therefore not limited to creativity or novel ideas or inventions, but also to market and value creation for individuals as well as for enterprises:

> Innovation is the successful creation and delivery of a new or improved product or service in the market …innovation is the process that turns an idea into value for the customer and results in sustainable profit for the enterprise (Carlson and Wilmot 2006: 3–4).

> Innovation is the multi-stage process whereby organisations transform ideas into new/improved products, service or processes, in order to advance, compete and differentiate themselves successfully in their marketplace (Baregheh et al. 2009: 1334).

All these definitions contain terms such as practice, implementation, valued products, processes or services that clearly indicate an orientation towards supporting practical outcomes that have a tangible impact. The approach we decided to adopt is precisely oriented toward igniting and sustaining innovation processes and

projects that can have an impact in terms of proposing and creating value in a context of transitioning global values.

In his most influential writings, Verganti (2009), Verganti and Dell'Era (2014) presents innovation strategies, mostly focusing on what he calls design-driven innovation. He discusses two types of innovation in a design-driven context: (a) technology/solution innovation and (b) meaning innovation. Verganti's work emphasizes that innovation through solution and technological development lies in solving the established need, problem, or challenge in an incremental or radical way. However, when innovation springs from a novel vision of the user problem/need it can generate value by leveraging on individual and social meanings (values). Verganti describes meaning as follows:

> Meaning reflects the psychological and cultural dimensions of being human. The way we give meaning to things depends strongly on our values, beliefs, norms and traditions (Verganti and Dell'Era 2014: 52).

This means that technologies and solutions may be changing incrementally or radically, but the problem and meaning keep changing as well. Verganti elaborated further on this point of value innovation:

> Value innovation is a change in parameters customers use to give value to products (Verganti 2016a, b: 23).

A core idea of Verganti's reasoning is the assumption that design can play a crucial role in the process of generating and exploiting the innovation area related to meanings. His thesis is that design by creatively working on the social and emotional product attribution of value can be strategically used by firms in order to expand their market or even create new market areas by influencing new individual and societal needs. In this conceptualization great emphasis is given to creativity and "genius" as the key skills of the designer enabling her/his capacity to envision new possibilities:

> We understand creativity as the capacity to create, which is to produce a new knowledge or new meaning. This newness must be considered against the stock of scientific and cultural products existing in a given society. Innovation is the process by which, on the basis of creativity, new value is added to a product (good or service) or to the process of its production/distribution. Value can be exchange value (e.g. money) or use value (something useful for society, for some institutions, for some organization, for the individual, or for a collective of individuals) (Castells et al. 2017: 16).

Creativity has been and is largely considered relevant for innovation. Although creativity goes hand in hand with innovation, it is not innovation. While creativity is the ability to produce new and unique ideas, innovation is the implementation of that creativity—that is the introduction of that "new" (idea, solution, process, product, service…) into the real world (Gutzmer 2016).

Creativity is the driving force behind innovation and this is why some authors are considering creative jobs (Dvir and Shamir 2003) and creative classes (Florida 2002) relevant to the innovation ability of more or less complex organization. Usually this creativity is associated with specific people, individuals, operators,

professionals, still some authors consider creativity as a relevant capacity of plural and multiple environments where creativity is considered a sort of phenomenon of the multitude, embedded in its diversity and interactive behaviours.

Open innovation represents the main output of an important transformation for innovation processes and activities; according to Gutzmer, it "essentially means opening up the laboratories of a company to forces from the real world—to other companies, to users […], to universities. All this is called "outside-in innovation" to be distinguished from "inside-out innovation" (p. 50), essentially the external exploitation of knowledge developed internally. The idea of open innovation demolishes any boundary between inside and outside in terms of value creation and moves it into the complexity of the open network where innovation takes place. Openness is a condition that can produce innovation but is not a guarantee for it to occur. Open innovation means that the link to the outside world has the capacity to allow for the imagination and creation of new values.

Although creativity and the attitude to merge and combine different areas of meaning and practice (bricolage, Grin et al. 2010) can definitively be considered central in the innovation process, it must be remembered that innovation is a non-linear process where causality is multidimensional and not easy to be established:

> Actors move back and forth between domains such as science, market, regulation and production. This undermined the idea of a neat and linear sequence of stages. Instead, technology and context were co-constructed in a messy process. Socio-technical innovation appeared to be a more systemic process of creating linkages and building heterogeneous networks. (…) Creativity and bricolage are important in these processes (Grin et al. 2010: 31).

The perspective introduced by Geels (2002) and Grin et al. (2010) provides an interesting framework to interpret innovation processes. The authors consider innovation as a multi-phase transition process. They hence identify four alternating phases:

(i) The pre-development phase from dynamic state of equilibrium in which the status quo of the system changes in the background, but these changes are not visible;
(ii) The take-off phase, the actual point of ignition after which the process of structural change picks up momentum;
(iii) The acceleration phase in which structural changes become visible;
(iv) The stabilisation phase where a new dynamic state of equilibrium is achieved (Grin et al. 2010: 4–5).

They consider innovation not only as a multi-phase, but also as a multi-level process: namely as *interference of processes at three levels: innovative practices (niche experiments), structure (the regime), and long-term, exogenous trends (the landscape)* (Schot 1998; Rip et al. 1998; Geels 2005, as in Grin et al. 2010: 4–5).

The three levels present different features (size, stability, practices, networks…) and contribute differently to the innovation process.

Niches are characterized by small and precarious networks. They hold onto widespread rules; activities are not structured or characterized by a high level of uncertainty (Grin et al. 2010). Nevertheless, niches are the incubators of innovation; they build up on local networks but can connect to global ones and provide the right conditions in terms of freedom and space for creative ideas to grow into innovations.

Socio-technical regimes present a more stable condition. They involve long-range networks and three types of stable rules (ibid.): cognitive (belief systems, guiding principles, goals, innovation agendas, problem definitions and search heuristics), regulative (regulations, standards and laws) and normative (role relationships, values and behavioural norms) (ibid 2010: 20–21 and Geels 2004 in Grin et al. 2010).

> The rules of socio-technical regimes account for the stability and lock-in of socio-technical systems.
>
> (…)
>
> As a result of these lock-in mechanisms, existing socio-technical systems are dynamically stable: innovation still occurs but it is of an incremental nature, leading to cumulative technical trajectories. Such predictable trajectories occur not just for technology, but also for policy, science, industry, culture and markets.
>
> (…)
>
> At times, however, changes in trajectories are so powerful that they result in mal-adjustments, tensions, and lack of synchronicities. These tensions create windows of opportunity for transitions (Grin et al. 2010: 20–21).

Conflict is a key element of transition; it is always present even when there is agreement on rules and practices. It becomes a key trigger of the transition process when actors start questioning basic rules and behavioural norms leading to structural regime crises (ibid. 2010).

Socio-technical landscapes are the most stable level and are identified as follows:

> (1) factors that do not change or that change only slowly, such as climate;
> (2) long-term changes (…);
> (3) rapid external shocks, such as wars or fluctuations in the price of oil.
>
> This varied set of factors can be combined in a single "landscape" category, because they form an external context that actors cannot influence in the short run. This does not mean that landscape developments occur without human agency. Urbanization, globalization, environmental problems and macro-cultural changes obviously come about through aggregations of multitudes of actions (Driel and Schot 2005 in Grin et al. 2010: 24).

External landscape changes are the key factor creating pressure on existing regimes and unlocking them (Grin et al. 2010). This opens up different possibilities for niche-innovations to break through. Particularly Geels (2004 and in Grin et al. 2010) defines four transition pathways (Fig. 2.1):

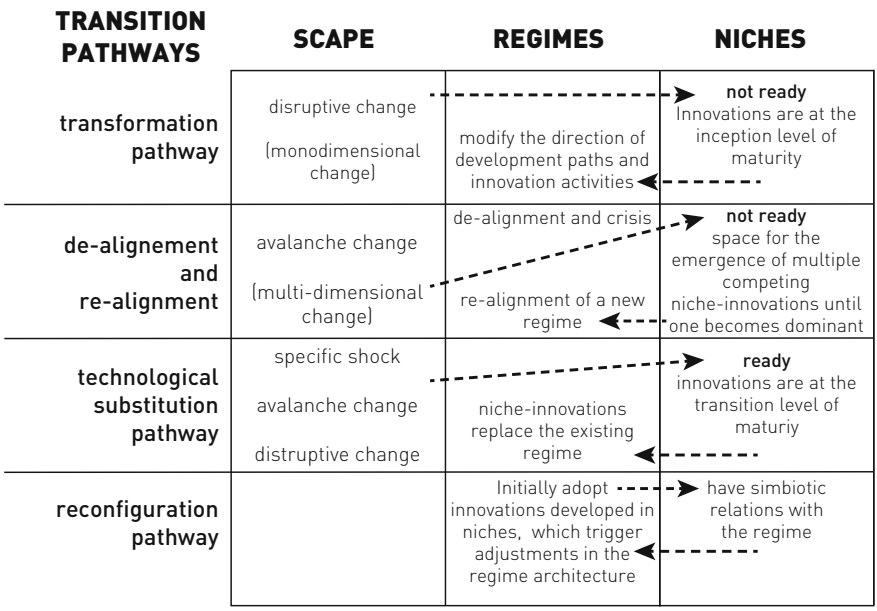

Fig. 2.1 Transition pathways (adapted from Geels 2005)

- Transformation
- De-alignment and re-alignment
- Technological substitution
- Reconfiguration.

Landscape pressure changes the actors' perceptions, negotiations and agenda setting and lead to particular windows of opportunity enabling innovation to scale-up:

- Users may change their preferences: (…) This leads to regime tensions when established technologies have difficulties to meet the new market demands.
- Continued expansion of regimes may lead to increasing negative externalities. (…)
- If regimes cause problems that are perceived to threaten society, policymakers may introduce new regulations that introduce performance standards that cannot be met by the existing technology.
- Continuing problems can undermine the trust in existing technologies and alter expectations in new technologies.
- Strategic games in industrial populations may also open up the regime (Grin et al. 2010: 25).

Landscape changes trigger the transition process, but it is the destabilization of existing regimes that constitutes the key to transitions (ibid. 2010: 79). When change alters the regime or a process of substitution is ignited, it means the amplitude of the transition is systemic and affecting several dimensions.

The three levels align through processes that have ***evolutionary*** characteristics:

> Niches provide the locus for the generation of radical novelties (variation), but the selection and broader diffusion of these novelties depends on alignments with regime and landscape levels (ibid. 2010: 18).

> Norgaard (1994) and more recently Harvey (2011) propose a co-evolutionary mode of change whereby different spheres of activity interact and change one another in a mutually constitutive manner. (…) Evolution means that epoch change, scape change, become evident with the passing of time; they are not perceptible as they happen. Within cultural dominant conditions, these spheres are interlocked and hard to change, giving the impression of an immutable system. (…) This hides the variation and the diversity that always exists or is being activated in each sphere. Such diversity is constantly renewed through pure novelty (mutation in biology), intentional or unintentional. Those variants of one sphere that best fit (as for complementarity, possible synergy, similarities, alignment….) the dominant ones of another are the ones more likely to survive and expand. Minoritarian interlocked sub-systems often co-exist "within the shell of the old" (…) developing in niches and expanding/outbursting when the surrounding conditions change (at landscape or regime level). Spatial separation facilitates niche differentiation and evolution. As new life forms have evolved in distant islands, new social and cultural forms may emerge in distant geographies or by groups that manage to spatially isolate and autonomise their territory, while networking to transfer its innovation (Castells 2017: 42).

> Changes in administrative and institutional arrangements (regime change) cannot emerge alone and in the vacuum, without mutually constitutive changes in other spheres. The emergence of new alternative economic practices is the proof of new variants in some relevant spheres (Castells 2017: 50).

The latter may include labour, cultural systems, which are seeds for larger scale changes. There is evidences which supports a synergic combination and (even) an initial scaling up of such practices can activate important positive impacts on global challenges: Hlebik (in Castells 2017) shows for example the relevant impacts on macroeconomic features, on entrepreneurships, and even on climate and the environment of the adoption of complementary currency systems.

The conceptual framework defined by the aforementioned references enables us to position our reasoning on a sound basis. Aiming this book at an operational and praxis oriented approach, the proposed review is to be considered as a starting point for defining the key attributes of the innovation processes we aim at supporting.

It is therefore necessary to answer the question: What kind of innovation are we aiming at?

We chose to focus our definition selecting a few key concepts.

First, a starting point is to look at how far innovations are, to use Heidegger's term, 'de-worlded' from everyday life. Feenberg (1991, 1995) offers a powerful conceptual and analytical framework to assess the extent to which innovations are coupled or de-coupled from the continuum of everyday life. The essence of the framework is Feenberg's definition of 'technique'—which can be defined as the interplay between two forces: primary and secondary instrumentalisation. Primary instrumentalisation characterises technical relations in every society. It can be summarised in terms of four 'reifying moments' of practice:

- De-contextualisation—the 'de-worlding' of innovations. The extent to which innovations are separated from their context (e.g. the gentrification and 'disneyfication' of an old industrial district).
- Reductionism—the process in which the de-worlded things are simplified, stripped of 'technically useless qualities', and reduced to those aspects through which they can be enrolled in a technical network (e.g. automating a tram system).
- Autonomisation—dissipating or deferring feedback from the object of action to the actor (e.g. getting rid of or tokenising tenants consultation committees in housing regeneration).
- Positioning—the ways in which innovations turn the properties of an object to the laws and agendas of 'technicisation'—(e.g. using social media to create a network of surveillance systems in a city).

Secondary instrumentalisation can be seen as the oppositional dynamic to primary instrumentation. It also operates in a dialogue with primary instrumentalisation in four 'moments':

- Systematisation—the process of making combinations and connections between innovations and the natural environment. This leaves room for social interests and values to intervene in the innovation process.
- Mediation—ethical and aesthetic mediations supply the 'simplified technical object' (innovation) with new secondary qualities that reinsert it into its new social context.
- Vocation—'autonomisation' of the innovation is mediated through the acquisition of 'craft'. Acquiring vocational identity and skills engages people in a community which can then involve people in the lifecycle of innovations.
- Initiative—corresponds to 'positioning' but focuses on voluntary cooperation in the coordination of innovation effort. It has the potential for reducing alienation through substituting self-organisation for control from above.

In our view, the two dynamics need to act with synergy. While today's dominant idea of innovation tends to favour dynamics belonging to the primary instrumentalisation framework, since our reasoning is focused on tackling key societal and environmental problems, we find it crucial to shift the focus to features pertaining to the secondary instrumentalisation conceptual framework.

Second, although scholarly literature provides a wide variety of conceptualizations for the phases of innovation processes (e.g., technology push, market pull, linear model, simultaneous coupling, interactive model, architectural model, network model, open innovation S-shaped logistic function model, and many others; for a review of some of the models and some historical notes see: Tidd et al. (2005), Meissner and Kotsemir (2016), Godin (2017), we decided to adopt the idea of innovation as an heterogeneous multidimensional process as described by the multilevel concept by Grin et al. (2010) and look at innovation in terms of its stages of maturity in relation to different processes of transition.

Here we identify three stages of maturity:

- *Inception*: Experimental research; marginal practices; identification of market/societal needs; embryonic ideas;
- *Development*: from an idea to a product, service, project solution, consolidated practice, etc. Structured process of added value creation;
- *Transition*: scaling up, diffusion of the innovation in the native context and beyond; augmented adaptiveness of the solution and/or capability to substitute pre-existing socio-technical regimes.

Systemic change (scape change) is a fourth possible stage. It evolves from the intensive adoption of one or (more likely) several innovations, which can provoke simultaneous changes in the system (behavioural, cognitive, institutional, etc.) resulting, in the long-term, in a new scape configuration. This process cannot be designed as an act of intention, but just observed in its development. Nevertheless, it can be fuelled by several niche-innovations (Grin et al. 2010) aiming at changing practices and behaviours in the direction of the desired -scape change.

The maturity stages fit Geels' multi-level innovation model. As it is possible to map them in the three different levels (see Fig. 2.2) and identify the areas of transition between levels. We agree with Geels' assumption that the interface with regimes (in crisis or well-established) is the key factor for scaling up innovation, therefore niche-innovations, in order to dialogue with the regime, need to be at the stage of development: They need to be ready to be adopted through a conceivable process of translation into the regime rules or to constitute a new regime (Fig. 2.3).

Third, in this perspective there is no use in opposing radical and incremental innovation. In the document "Defining innovation in the context of the UIA Initiative, March 2017", two types of innovations are presented:

- Revolutionary innovations, which can be achieved by experimenting with new technologies or products or designing services to tackle new challenges or finding new ways to face old but unsolved ones
- Evolutionary innovations, which build up on past experiences trying to go beyond everything that has already been tested before.

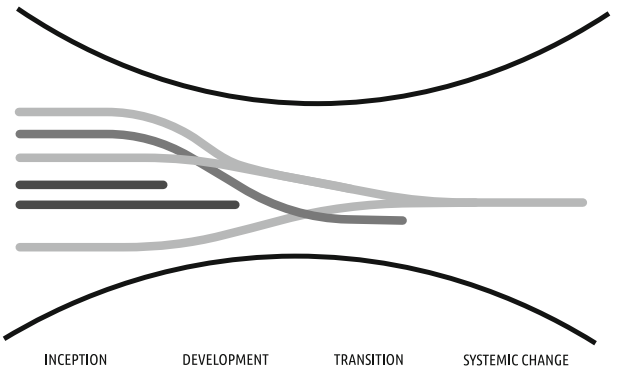

Fig. 2.2 Innovation maturity stages

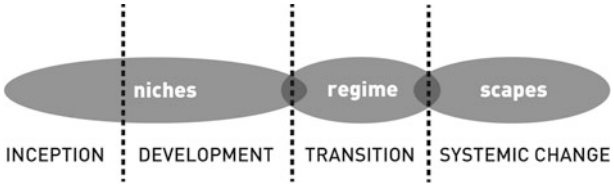

Fig. 2.3 Innovation maturity stages mapped onto Geels' multi-level model (adapted from Geels 2005)

Different types of innovation processes need to act at the same time in order to allow for a successful change to occur (Cruickshank 2014a, b). Radical innovation is often received positively, but that does not necessarily mean either economic or social success:

> Novelties may remain in niches for a long time. One possible reason is that technological development and trouble-shooting may last long (often decades). Another possible reason is that radical novelties face a mismatch with the existing regime, e.g. infrastructure requirements, user practices or policies that do not yet exist. At third possible reason is that existing regime actors actively oppose niche-innovations. Regimes may thus pose barriers for diffusion of niche-innovations. As long as existing regimes are stable, novelties have little chance to break through (Grin et al. 2010: 25).

> The term "radical" refers to the scope of change, not to its speed. Radical innovations may be sudden and lead to creative destruction, but they can also be slow or proceed in a step-wise fashion (Grin et al. 2010: 11).

This is relevant when designing innovation policies, which do not have to focus only on disruptive solutions, but also create the conditions for the creation of a favourable environment for a multitude of niche-innovations to emerge and grow into their various stages.

2.2.2 Design

> Design is a creative, analytical and problem-solving activity through which objectives and constraints are weighed and balanced, the problem and possible solutions explored and optimal solutions derived. The process of design should also add value to the individual component parts, so that the resulting whole is greater than the sum of the parts (Carmona and Tiesdell 2007).

> Good designers recognise pattern, construct ideas, add emotional feeling, including essence of operation, sensible, coherent, affordances, good design is an act of communication between the designers and the users. The good design must explain itself (Norman 2013).

> A process through which we consciously create possibilities (Metcalf 2014: vii).

> Design as a third culture (along with science and humanities). (…) A necessary human capacity (Banath, Cross in Metcalf 2014: vii).

Today's complex challenges also change the world with regards to design. The concept of design is changing rapidly. The traditional focus on products has moved to service design and to the design of product-service systems, combining both tangible and intangible elements. The focus on designing things nowadays includes designing complex networks of interactions as well. The design discipline is gaining wider attention, moving out of the workplace and embracing complex challenges. For many years, there have been several attempts at defining design, distinguishing the object of design and design as an activity, thus the design process and its outcome, as well as the role and skills of the designer. Traditionally, design has been conceived as a drawing, blue print, plan, model, layout, schematic, diagram, aesthetic, prototype and/or specifications produced to show the appearance, details of an object, product or thing before it is created/made/developed:

> Design is a broadly-defined activity that focuses on people in the process of defining new products and services; as a sector in its own right of specialised, professional economic activity, by trained and qualified practitioners and as a tool for business and organisational growth at the highest strategic level. In addition to its economic benefits, design also encompasses sustainable and responsible behaviour contributing positively to an innovative society and improved quality of life.[1]

In recent years a lot of attention has been focused on design as a potential contributor to business and public policy performance and consequently policies and actions have been promoted at the micro and global level in order to sponsor the adoption of design methods and tools by firms and organizations. Therefore, it is interesting to take a look into this trend, to understand in which way the concept proposed by this book complements and expands the design field of action.

The notion of design economy is particularly interesting when it comes to understanding the way design is commonly interpreted as a factor impacting on economic performance and indicators. The concept has been popularised by a 2015 publication[2] of the UK Design Council in an attempt to determine the economic value of design for Great Britain's GVA (Gross Value Added), exports, workforce, and productivity (GVA per worker). Before revealing its findings, the report tackled the issue of defining which industries held the highest intensity of design activities, measured by the share of people employed who could be considered to be involved in design-related occupations. The Eurostat database of the Specialised Design sub-sector summarises the EU28 Design Industries economic performance as follows: a little less than 180,000 enterprises (mostly SMEs) in 2015, up from 143,000 in 2012; about €26.5 billion turnover in the same year (compared with €19.5 in 2012) and more than 286,000 employees in 2016, growing from 210,000 in 2012[3].

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[1]European Design Leadership Board, 2012, Design for Growth & Prosperity. https://publications.europa.eu/en/publication-detail/-/publication/a207fc64-d4ef-4923-a8d1-4878d4d04520 (accessed: December 2017).

[2]See https://www.designcouncil.org.uk/sites/default/files/asset/document/Design_Economy_report_web_Final_-_140217_Yea_1.pdf (accessed November 2017).

[3]https://www.econdb.com/dataset/SBS_NA_1A_SE_R2/annual-detailed-enterprise-statistics-for-services-nace-rev-2-h-n-and-s95/ (accessed November 2017).

While there can be mild disagreements on whether this sub-sector reflects the "true" perimeter of Design Industries—considering that it excludes, for instance, Architectural and Engineering design as mentioned above—a bigger challenge is to identify the sub-sector(s) fulfilling the definition of Design Intensive Industries. Good candidates in that direction are not only some other Divisions belonging to Section M—such as the already mentioned Divisions 71 "Architectural, engineering and technical consultancy services" or 72 "Scientific research and development"—but also some manufacturing industries or other service sub-sectors where the take-up of design can be considered very relevant, if not essential for the business performance of involved enterprises.

In addition, the relative heterogeneity of national definitions of occupations across Member States does not favour the comparability of findings, as highlighted by a 2012 survey of the United Nations[4]. However, even after a standard classification has been adopted, deciding if a certain occupation can be considered as design related proves to be another challenging matter. To some extent, a suggestion may derive from the subset of industries one has in mind to track, which however introduces a clear element of circularity: for instance, if we brought "Scientific Research and Development" (Division 72) to the forefront, then it would be quite obvious that an occupation such as "Research Project Manager" should be taken into consideration.

To exemplify the possible outputs of this endeavour, the following—certainly non-exhaustive—set of design-related occupations can be retrieved from the ISCO-08 database.

The list looks non-exhaustive, at least for not including skilled work or artisan occupations, which would add dozens of relevant items and make it even less manageable than it is now.

Whatever the adopted standard, using job- or task-related aspects as metrics implies establishing a many-to-many correspondence between Design Intensive, or even Non-Intensive industrial sectors and the various Design-related occupations. We see this endeavour as an iterative process, leading to solutions that may be locally satisfactory, but remain hardly comparable to each other, particularly across countries—not to mention diachronically, due to the evolving nature of the respective populations over time.

A last, but by no means least important, approach to collecting data on the use of design by enterprises is the execution of periodic or occasional surveys. Among the former, the Community Innovation Survey (CIS[5]) stands out since 1992 as a prominent example of systematic collection of information across all the EU Member States, plus some EFTA and some EU candidate countries, now being carried out every 3rd year (the most recent results are available as CIS 2014). Among the latter, several studies have been produced at national (single country)

[4]https://unstats.un.org/unsd/cr/ctryreg/ctrylist2.asp?rg=7 (accessed November 2017).

[5]http://ec.europa.eu/eurostat/statistics-explained/index.php?title=Glossary:Community_innovation_survey_(CIS) (accessed November 2017).

level, including: National Agency for Enterprise and Housing, 2003; Designium, 2004; Danish Government, 2007; Northern and Western Regional Assembly, 2015; CM International & PDR, 2015; see also the detailed list reported in BEDA, 2006. However, the Innobarometer surveys for 2015[6] and 2016[7] carried out for the European Commission by TNS Political & Social Network are noteworthy for two reasons: first, they include evidence from all EU28 countries, plus Switzerland and the US; second, the presented results show a decent consistency across the two years.

A common trait to all surveys, irrespective of their nature, is the tight connection between design and innovation activities. This connection has gradually received more and more emphasis across time. For instance, in CIS, 2010 design became, for the first time, part of the questions on expenditure for goods or services innovation ("*Activities to design, improve or change the shape or appearance of new or significantly improved goods or services*"), while 'aesthetic design' was still kept as example of marketing innovation. In CIS 2012 the question was modified again ("*Activities to design or alter the shape or appearance of goods or services*") but still included in the area of innovation as question #5.1, while question #9.1 on aesthetic design was still identical to that of CIS, 2008. In CIS, 2014 the question #5.1 still covered the design of goods and services, but the co-presence of the parallel question #9.1 as part of marketing innovation was acknowledged within the Methodological Notes as a likely source of uncertainty for the respondents:

> However, it may be difficult for respondents to distinguish between the concept of design in question 5.1 and aesthetic or stylistic changes for marketing purposes only. In general, updating an object or a space is a simple aesthetic change, for instance redecorating a hotel or changing the shape of the fenders on an automobile so that the automobile has a new style. Design, as covered in question 5.1, is more extensive, and involves either designing the appearance or shape of an object or service that is new to the enterprise, or changes to the shape or appearance of an existing object in a way that also improves ergonomic, ease of use or readability, or mass production characteristics. Many changes to packaging are only aesthetic. However, changes to the design of packaging to improve ergonomic, ease of use, or mass production characteristics fit under the concept of design covered in question 5.1 (CIS 2014a, b Methodological Notes: 7–8).

Against this background, worth noting is the emergence of a powerful scheme, which has become known as the Design Ladder. This was popularized in 2001 by the Danish Design Centre as an intuitive way of illustrating the growing engagement of enterprises in the use of design within their internal processes[8]. Basically, it is a maturity model, consisting of four steps, which are represented in the following picture.

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[6]http://ec.europa.eu/COMMFrontOffice/PublicOpinion/index.cfm/ResultDoc/download/DocumentKy/67409 (accessed December 2017).

[7]http://ec.europa.eu/commfrontoffice/publicopinion/index.cfm/ResultDoc/download/DocumentKy/73869 (accessed December 2017).

[8]See https://danskdesigncenter.dk/en/design-ladder-four-steps-design-use (accessed December 2017).

Fig. 2.4 The Design Ladder (from an idea of the Danish Design Centre)

1. **No-Design**. Design is invisible, if used at all. Product or service innovation are not handled by professional experts. The user perspective plays little or no role;
2. **Design as Styling**. Design is seen exclusively as the final form-giving stage, be it in relation to product/service development or graphic design. Trained experts may or not be part of it;
3. **Design as Process**. Design is integrated since the early stages of product/service innovation. The solution is problem driven and/or user driven. Multiple skills and technical capacities are demanded and involved;
4. **Design as Strategy**. Design is adopted to rethink the business concept, vision, positioning in the value chain etc.—completely or in part (Fig. 2.4).

This scheme has contributed to complementing—and according to many, challenging—the CIS definition of design, in at least three respects:

- It has decidedly broadened the scope of design, from visual communication and aesthetic changes to existing products and services to the "creative problem solving" activity already mentioned in the first chapter of this Book;
- It has reinforced the connection between the use of design and the process of goods/services innovation, as distinct from marketing, process and organizational innovation;
- It has explicitly introduced the user driven perspective into the more "mature" levels (3 and 4) of design use.

Interestingly enough, the Innobarometer surveys (2015, 2016[9]) have adopted the Design Ladder as a guideline for some of the design- and innovation-related questions. The definition of design used has been: "A range of applications within companies, providing a means to integrate functionality, appearance and user experience, for goods or services. Design can also provide a means to build corporate identity and brand recognition" (Innobarometer 2016: 94). The results are displayed for EU28 in the following adaptation of the previous figure.

[9]http://ec.europa.eu/growth/industry/innovation/facts-figures/innobarometer_en.

Of course, the distribution of responses across the Member States is far more heterogeneous than the above, but it is encouraging to note that the corresponding figures in the US benchmark (not shown in the picture) do not differ much from the EU28 average at each of the four steps (Fig. 2.5).

Another piece of evidence emerging from the surveys is the positive correlation (confirmed in both years) between a company's propensity to invest in design and the reported rate/frequency/speed of introduction of innovations in goods and/or services. While correlation is obviously not equivalent to causation, this is a strong argument in favour of the so-called non-R&D related innovation, which includes among other components (as implied by the CIS mentioned above) the implementation of design at a more mature level than the aesthetic one.

However, additional stylised facts can be inferred from the two surveys, notably that:

- Firms making a strategic use of design or which report using it regularly are much more likely to have introduced all types of innovation (including process, organizational and marketing design);
- However, companies that have introduced innovative goods or services are more likely than those who have introduced other innovations to say that design is a central element in the company strategy;
- The older the company, the more likely it is that design is not used;
- Smaller sized (micro) companies are more likely to say they do not use design than bigger (small to medium sized) enterprises;
- Firms from the industrial sector are more likely to report that design is not used internally than firms from other sectors;
- Companies with a falling turnover are more likely to say they do not use design than the firms with a growing turnover.

The data presented still reflects a view of design as an activity mainly (in some cases, exclusively) focused on products. Recently design became a holistic approach which allows for a range of considerations beyond aesthetics to be taken into account, including functionality, ergonomics, usability, accessibility, availability, product safety, sustainability, cost and intangibles such as brand and culture

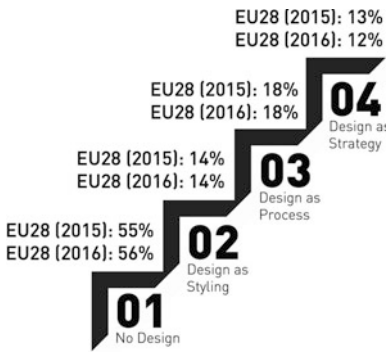

Fig. 2.5 Distribution of EU enterprises along the Design Ladder (*Source* Innobarometer)

[…]. A service designer may for example look at how a patient experiences the emergency service in a hospital or a visit to the bank. Similarly, urban designers look at how elderly or disabled people experience a visit to the town centre from an accessibility standpoint; business model designers are actively involved in organisational innovation; graphic designers work on visual communication of organisations, particularly in the creation and reinforcement of identities and brands, whether at the level of the organisation itself (cf. corporate identity) or at the level of its products, services or environments; an interface designer creates the visual language, the 'look and feel', of computer interfaces, whether for a website, software or a mobile device.[10]

Coherently design is increasingly recognised as a key discipline and activity for bringing ideas to the market, transforming them into user-friendly, appealing, high quality products or services. Although still often associated with aesthetics only, the application of design is much broader. It involves thinking from a number of disciplines, marketing and management among others, to strengthen the strategic perspective, as well as the social sciences and humanities, to understand the user. As such, design as a discipline is considered as the bridge between, for example, creativity and innovation, technology and the user, scientific and commercial disciplines. Design activities in general have user needs, aspirations and abilities as their starting point and focus and involve users in the process of co-design, co-creation and become important agents in innovation processes.[11]

Some relevant concepts, which demonstrate how much design is becoming pervasive and relevant at the same time, are shown in Table 2.1.

The previous definitions of, and references to, design from different documents and organisations within EC include some key aspects, that will be used to summarise a "working definition" of design and Design Enabled Innovation in this book (Table 2.2).

The most relevant features emerging from the above definitions are:

- *to be a human-centred activity,* which often implies the inclusion of users into the research and design phases of each innovation process.
- *to make use of specific operational tools* for researching, contextualising, modelling, testing and re-designing
- *to bridge the knowledge from different disciplines,* such as scientific, commercial and humanistic disciplines
- *to propose a holistic approach that links different aspects,* including functionality, ergonomics, usability, accessibility, product safety, sustainability, cost and intangibles, such as brand and culture.

[10]EC Staff Working Document, 2009, Design a driver of user-centered innovation. http://ec.europa.eu/DocsRoom/documents/2583/attachments/1/translations/en/renditions/native (accessed: December 2017).

[11]1st Action Plan of the European Design Innovation Initiative, 2011, https://ec.europa.eu/docsroom/documents/846/attachments/1/translations/en/renditions/native (accessed: December 2017)

Table 2.1 Detailed breakdown of design-related occupations

ISCO-08 code	English title
2141	Engineer, manufacturing
2142	Engineer, building structure
2143	Engineer, environmental
2144	Architect, marine/naval Designer, aircraft/engine/motor Engineer, aeronautical/aerospace/automotive/mechanical
2145	Technologist
2146	Engineer, mining/extractive
2149	Designer, non-computing systems Engineer, biomedical/nuclear/robotics
2151	Designer, engine/motor Engineer, electrical
2152	Engineer, electronics
2153	Engineer, telecommunications
2161	Architect, building/interior
2161	Architect, landscape
2163	Designer, industrial/product Designer, fashion/furniture/jewellery Designer, costume/dress/clothing/garment/textile
2164	Planner, land/town/traffic/urban
2165	Cartographer, Geodesist, Map Maker, Surveyor
2166	Artist, commercial/digital Author Designer, animation/computer games/graphic/multimedia/website Designer, poster/publication Illustrator
2511	Architect, business solutions/analysis Designer, IT/computer systems
2512	Designer, computer software
2513	Architect, information/computing/website
2521	Architect, database
3341	Planner, workforce
3432	Designer, interior/decoration/display/exhibition Designer, stage/set/scenery

Various design thinking and developing processes have been proposed, trying to operationalise the design creative process.

Brown (2009) proposes the three-step process, which covers inspiration, ideation, and implementation. Inspiration is defined as "the problem or opportunity that motivates the search for solution"; ideation is defined as "the process of generating, developing, and testing ideas" and implementation is defined as "the path that leads from perfect room to the market" An example of Nintendo Wii was given for the

Table 2.2 Concepts contributing to define "design"

Design capabilities	The ability of a subject to do something (Sen 2009). The design capabilities needed to carry out design activities. Competencies are recognized in three macro areas: Design Leadership, Design Management, Design Execution. Each of these is divided into one or more specific skills to explain the focus of the area • **Design Leadership** (holistic view, how people give meaning to things) is encountered when design participates in the strategic choices of the firm/organization, so that a design-driven innovation strategy is the core activity carried out through a people-centred approach • **Design Management** (visualising/materialising, managing the process) is the ability of managing design resources, in terms of human resources, design process and creativity, economic resources • **Design Execution** (applying new technologies) involves the presence of human resources with technical skills, design technologies and infrastructures, investments in the NPD process[a]
Design thinking	In the past few years, design thinking has become a mainstream idea in innovation and management, as demonstrated by the many articles that appear in newspapers and magazines such as Forbes[b], Fortune[c], or Fast Company[d], by dedicated special issues of Harvard Business Review[e] and by documentaries[f]. Design thinking has been widely promoted by authors such as Brown (2009), Roberto Verganti and Roger Martin (Martin 2009) among others. Brown, CEO of the design consultancy, IDEO, defines design thinking as "a discipline that uses the designer's sensibility and methods to match people's needs with what is technologically feasible and what a viable business strategy can convert into customer value and market opportunity" (Brown 2008, 86). Some commentators expressed concern over the way in which design thinking is presented in such outlets (Badke-Schaub et al. 2010; Deserti and Rizzo 2014; Johansson-Sköldberg et al. 2013; Nussbaum 2011). Design thinking is often seen as a practical toolkit that can be easily applied to radically transform business models and organisations. To use Ulla Johansson-Sköldberg and colleagues' words, the popular press tends to look at design imagining it as "a panacea for the economy" (Johansson-Sköldberg et al. 2013, 121), as something that could be rapidly deployed, for example, using freely downloadable PDF toolkits like the ones provided by the design consultancy IDEO[g]
Participatory design	Participatory design was developed in Scandinavian countries in the 1960 and 1970s as a method for working with trade unions[h]. It presents a set of tools to the assessment, design, and development of technological systems and organisations which support the active involvement of potential or current users (e.g. employees, partners, customers, citizens, end users) in the decision-making processes. The approach applies to various disciplines e.g. software design, urban design, architecture, landscape architecture, product design, sustainability, graphic design, planning. It aims at creating environments responsive and appropriate to the stakeholders' needs and values (cultural, emotional, spiritual, etc.)
Co-design	Co-design is an approach rooted in participatory design techniques. It presents a fundamental change in the traditional designer-client relationship (Chisholm, s.d.[i]). It aims at allowing the creative contribution of all affected stakeholders in the formulation and solution of a problem

(continued)

Table 2.2 (continued)

	Designers usually undertake the role of facilitators creating the conditions for people to interact, be creative, share insights and test new ideas (Chisholm, s.d.[j]) Different tools and techniques are available to support co-design processes (Tassi 2009 [k]): personas, storyboards, user journeys etc. Potential solutions can be tested through prototyping and scenario generation techniques (Chisholm, s.d.[l])
Open design	Open design is the development of physical products, machines and systems through use of publicly shared design information. Cruickshank (2014a, b: 51) identifies four different types of open design initiatives: 1. Customization: giving consumers the ability to modify objects that are produced in a central facility and shipped to the consumer 2. Distributed design: having systems of design where creative contributions after the point of sale are essential to complete the product 3. Open structures: the design of platforms, tools or methods that help non-professional designers create their own products (and potentially services), independent of professional designers who help create the system 4. Open access: (…) based on the premises that all that is required for open design is to make the means of production accessible to a wide variety of people

[a]DeEP—Design in European Policies, 2013, Glossary—http://www.deepinitiative.eu/ (accessed: December 2017)
[b]http://www.forbes.com/sites/reuvencohen/2014/03/31/design-thinking-a-unified-framework-for-innovation/#5bea94c056fc (accessed: December 2017)
[c]http://fortune.com/2015/11/16/ibm-discovers-design-thinking/ (accessed: December 2017)
[d]http://www.fastcompany.com/919258/design-thinking-what (accessed: December 2017)
[e]https://hbr.org/archive-toc/BR1509 (accessed: December 2017)
[f]http://designthinkingmovie.com/ (accessed: December 2017)
[g]https://www.ideo.com/post/design-kit (accessed: December 2017)
[h]http://cpsr.org/issues/pd/ (accessed: December 2017)
[i]http://designforeurope.eu/what-co-design (accessed: December 2017)
[j]Ibid
[k]http://www.servicedesigntools.org/taxonomy/term/1 (accessed: December 2017)
[l]http://designforeurope.eu/what-co-design (accessed: December 2017)

constraint and evaluation purpose involving desirability, feasibility (functional and technical details) and viability (cost/benefit analysis).

Another process proposed by Stanford University, which is known as the "design thinking model" includes the steps Empathy, Define, Ideate, Prototype, and Testing. Empathy is to understand user/market need, Define is the expectation and desire or specifications from the end user, Ideation is the capability for generating, developing, brainstorming, communicating, actualising ideas, Prototype is building the blueprint or 1st realisation of the products, tools or services and Testing covers the Acceptance Test, regulatory aspects, feedback, validation, evaluation, usability, functionality, quality check etc. The other design processes which are commonly used by architects, engineers, scientists and other thinkers to solve a variety of problems and come up with solutions include products, tools or software which meets certain specifications or criteria; the steps may include: defining the problem,

collecting the relevant information and specifications, brainstorming and analysing the ideas, developing the ideas, getting feedback and improving the design. Another famous design process is known as "double diamond" from the Design Council UK[12]; its steps include Discover, Define, Develop and Deliver, a further detailed description of which is below:

- Discover includes initiating an idea, developing the concept, conducting market research, identifying the problem, or user needs;
- Define covers preparing the brief based on market research, requirements from the users, trends, focus group discussion and in-depth interviews, capturing every essential aspect of the design problem and writing initial specifications;
- Develop includes detailed designing, developing methods, processes, scheduling, producing the list of materials, logistics, tools, and time-to-market, building the products, measuring and performance testing, including self-test.
- Deliver includes delivering to user/customer and getting feedback, Acceptance from the customer/user, delivering, evaluating, further feedback and learning.

The concept of Design Enabled Innovation will consider such definitions in order to qualify existing or potential innovation processes (see Chap. 5).

2.2.3 Cities

Cities, as sophisticated artefacts, constructs or systems, have demonstrated that they are a very successful social organisation formula with an increasing attractiveness even in the worst situations (despite the fact that they also bring about all the hurdles and threats of the future). The world is, therefore, increasingly an urban world to the point that social, environmental and urban problems tend to be mixed together. Even a seemingly global issue, such as sustainability, could find its logical realm of resolution in cities. Cities, urban areas, and conurbations—diffused urban regions or megalopolises—are the indisputable protagonists of the 21st century. This seems to justify a great deal of efforts to understand the urban phenomenon in all its complexity and to move towards transversal knowledge of the city with a multidisciplinary approach.

The city cannot be seen as a simple geographical scape. Cities are in eternal becoming, never entering a stable state of being due to the rich, intense, open and evolving networks they are producers of, immersed in, and nodes of. Understanding cities involves considering a set of complex economic, social and cultural dimensions embedded in a certain spatial unit. As a consequence, the city as a concept and a living inhabited entity can be understood at least from a multidimensional perspective.

[12]https://www.designcouncil.org.uk/news-opinion/design-process-what-double-diamond.

First, the city is a spatial concept. Many scholars state that cities are, geologically, the settlement of inhabitants at a certain scale, which can be delimited by a range of criteria such as population size and density, urban function and policy, or historical traditions (Dijkstra and Poelman 2012; Parr 2007). For example, the updated definition adopted by the European Commission (EC) indicates the city and its related geographical area based exclusively on a population size and density (Eurostat 2016); in China cities are defined as a municipality directly under the Central Government, or a city or town established as one of the administrative divisions of the state according to its City Planning Law; in the United Kingdom, however, there are no clear criteria for identifying cities and the city status is conferred by Royal Charter. Furthermore, the spatial scale of a city is usually dynamic. On the one hand, it shows that the definition of a city changes over time in order to tackle emerging problems generated by the demographic dynamism of a population in flux (Otlensmann 1996). A recent example can be seen in the attempt of the European Commission and the Organisation for Economic Cooperation and Development (OECD) to develop a shared new definition of city in 2011, so as to achieve the feasibility and credibility of a cross-country comparison of cities within the OECD countries (Dijkstra and Poelman 2012).On the other hand, most cities originate from small historical urban centres and, then, connected, absorbed and merged their surrounding villages with the arrival of the industrial revolution and the growth in population. It was only during the 19th and the first half of the 20th centuries that many European cities reached anything near their current size.[13] Since then, both European and World cities have witnessed a constant increase in both urban and metropolitan areas. According to the United Nation, the world's cities with 500,000 inhabitants or more grew at an average annual rate of 2.4% between 2000 and 2016. In Spain, urban areas grew on average by 17.5% between 2000 and 2010 while French metropolitan areas grew on average by 4% between 1999 and 2007 (Duranton and Puga 2004). The urban has conquered any other inhabited space (Amin and Thrift 2002).

Second, the city is an economic concept. Cities are well distinguished from firms and corporate organisations as for their open nature, for the chaotic dynamics of their transformations, for the their tremendously vaguer value proposition and for the more fluid networking of their operators. Nevertheless, cities and companies are in strict relation: companies contribute to the creative capital of the city (Florida 2000), at the same time cities change companies as they allow the latter access to the wide, rich and intense networks they are active in (Gutzmer 2016).

Cities are, historically and globally, seen as an economic phenomenon. In Chinese the city itself, literally [chéng shì], is a compound word of the town [chéng] and the market [shì]. Such thinking is also widely involved in the rich Western literature. The classic sociologist Max Weber (1921–1969), for instance, argued

[13]See http://ec.europa.eu/eurostat/statistics-explained/index.php/Urban_Europe_%E2%80%94_statistics_on_cities,_towns_and_suburbs_%E2%80%94_patterns_of_urban_and_city_developments (accessed: December 2017).

that "cities originate in the trade and commerce consolidated in the hands of an urban aristocracy" and therefore, a city can be defined as "a settlement the inhabitants of which live primarily of trade and commerce rather than agriculture" (Weber in Sennett 1969). In his discourse, a city is a "market settlement" where inhabitants are frequently engaged in production and consumption activities based on regular rather than an occasional exchange of goods. Similarly, another prestigious urban scholar Jane Jacobs (1969) also suggested that a city—any city from ancient to modern—grew first through the production and import of goods for its own needs and thereafter for export to other cities, thus placing emphasis on economic attributes of city. From a more holistic perspective, the economic attribute of city is embedded in three dimensions of consumption, employment and workforce (Parr 2007). As far as consumption is concerned, most consumption takes place in the city. Cities have enough purchase power, more than that in rural areas, to create and support a supply of goods and services, thus cities become a consumption place for both urban and non-urban households. Regarding employment, cities provide most job opportunities and are a dominant source of employment for urban residents as well as residents in surrounding areas. With regards to the workforce, cities are also a major labour supply area for employment within and beyond city boundaries. Today, the above three dimensions of the city have been strengthened more than ever before thanks to convenient commuting due to the development of public transportation infrastructures; as a consequence, contemporary cities are playing a more and more important role in the regional economic development.

Third, the city is a social concept. Cities represent a way of life different from the countryside's. As the leading figure in the Chicago School of Sociology Wirth (1938) stated that it was the impacts of population features and their consequences, rather than urban population itself, that determined a city's characteristics as different from rural areas and among urban areas. Specifically, increasing population leads to individual variability, the relative absence of intimate personal acquaintanceship, and the segmentation of human relations; high-density of population diversified activities and increased the complexity of the social structure; heterogeneous populations heightened social mobility and ramified and differentiated the social stratification. Nowadays the "urban" as a pervading dimension and a way of life has conquered most of human settlements: *The city is everywhere and in everything* (Amin and Thrift 2002: 1). The city as a dense and single entity is still definable and the key place for looking at societal and economical change, and due to technological and social development, with local differences, a sense of the city is present in most of human interactions. Cities are hence closely linked to people. Humans are the subject of all economic, social and cultural activities and human practices on the city shape corresponding economic, social and cultural relations which ultimately define the function, symbol and character of a city; in this sense, people are the master of the city. In other words, cities should not be understood as a materialised object; instead, they are people-centred spaces.

Fourth, cities are a cultural concept. A city is a mapping of the relations between space and culture and different cities or different districts within a city may have

different cultural features because of their space attributes. The American social scientist Borer (2006) summarised such relations of space and culture in six domains under an urban culturalist perspective. The first, images and representations of the city. The objects, images and symbolic expression of the city help people to identify the city and provide a means for personal and collective identification through connecting a city with specific cultural symbols, e.g. the Eiffel Tower for Paris, black taxis for London, La Sagrada Familia for Barcelona, and so on. The second, urban community and civic culture. Civic culture originates from urban communities and is rooted in the necessary interdependency and interaction of neighbours in the community. The third, place-based myths, narratives, and collective memories. Collective memory as a product of myth and narratives available publicly is stored and transmitted in and through places (e.g. city) and shared and diffused by and among local people (e.g. citizens), and ultimately helps to shape the sense of place and cultural identity among their inhabitants. The fourth, sentiment and meaning of and for places. In a broad sense, cities, like people, have certain ascribed statuses or levels of prestige by localizing themselves in some regional, national or global positions, such as the competition for capital of innovation or culture, or the ranking for global liveability. The fifth, urban identities and lifestyles. Only cities can provide *diverse* identities and lifestyles and allow for new subcultures because of a variety of population and their relations. The last, interaction places and practices. Cities provide a large amount of "third places" to host the regular, voluntary, informed and individual interaction of citizens beyond their "home" and "work" places. In one word, cities are places rich with meaning and value for those who live, work, and play in and near them (Borer 2006).

All in all, a city is a complicated economic, social and cultural phenomenon based on a relatively large and dense space where humans settle down for work and life. Considering the objective that this book wants to achieve, we tend to use the word city in its broad sense and stress its innovative implication of city in spatial, economic, social and cultural dimensions. The heterogeneity of cities is, in fact, the main indicator of the extent to which they are able to foster new lifestyles, new ways of seeing and living, new modes of coming together. From this perspective, cities represent the best places for innovation, as they integrate diversity through interaction and networks.

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