Chapter 12
Spatial and Economic Smart Strategies for the 21st-Century Metropolitan City of Naples

Antonio Caperna, Eleni Tracada, Guglielmo Minervino, Elina Alatalo and Maria Cerreta

Abstract The assumption of Neoliberalism in the economy has multiplied exponentially financing speculation, and produced several "distortions" both in the social system and in the job market: the destruction of a welfare program, the attack to the right of the labor market and workers right, the powerful growing of financial institutions supported by the ICT. This means the need to identify a new epistemological approach, suggesting a conceptual framework for ecological economics based on systemic principles of life and a shift from techno-city to a human city. A model, called the homological smart city, could be a new way, based on direct citizen participation, peer-to-peer community, neuroergonomics, biophilic design, and biourban economics. The operational character of this model is explored by analyzing the most recent Italian experiences in reaction to the diffused crisis conditions. Several villages, towns and cities have seen a slow phenomenon of the revival of local communities, for the merit of grassroots' initiatives of social innovation constituted mostly of young people that, leveraging on their capabilities and a peer-to-peer network supported by the ICT, promote a novel vision for the future of their community, building a more sustainable urban system. Through a change of paradigm, the human being is put at the centre of the system and its

A. Caperna (✉)
International Society of Biourbanism, Rome, Italy
e-mail: antonio.caperna@biourbanism.org

E. Tracada
University of Derby, Derby, UK
e-mail: E.Tracada@derby.ac.uk

G. Minervino
Mediterranea University of Reggio Calabria, Reggio Calabria, Italy
e-mail: guglielmo.minervino@unirc.it

E. Alatalo
University of Tampere, Tampere, Finland
e-mail: elina.alatalo@uta.fi

M. Cerreta
University of Naples "Federico II" Naples, Naples, Italy
e-mail: maria.cerreta@unina.it

T. M. Vinod Kumar (ed.), *Smart Metropolitan Regional Development*,
Advances in 21st Century Human Settlements,
https://doi.org/10.1007/978-981-10-8588-8_12

designing, considering social innovators as the key actors of change and local assets as the key resources for the implementation of Biourbanism principles. In the above perspective, the experience of a new biourban strategy named "mushrooming", implemented in Finland, constitutes a good example of practice-oriented to consider diversification as a principle of life in a city and developed by testing with real-life conditions. The Finnish experience was started to build a network to foster interaction between small self-organized co-working communities, by taking into account spatial and economic processes that emerged due to this. These processes were able to activate connected diversification, recognized as a systemic principle of life that fits the context of urban development especially well. The principle of connected diversification drives the methodological process structured for the case study of the Metropolitan City of Naples, one of the 14 Italian metropolitan cities, with a specific attention for the 16 municipalities of the Coast Area. Starting from vulnerability and resilience concepts, the study dealt according to a multi-methodological approach, based on a GeoDesign process supported by multi-criteria analysis, multi-group analysis, and spatial analysis. The elaboration of Spatial Opportunity Maps (SOMs) is the output of a multidimensional evaluation process that leads to the identification of a biourban strategy, characterized by human smart spatial solutions, place-based and situated actions. The enhancement of the coastal area of the Metropolitan City of Naples can be considered as a prerequisite for the activation of a process-oriented to the identification of "homogeneous zones", conceived not only as areas with similar characteristics but, above all, as territories where it is possible to promote networks of opportunities between the various municipalities and their communities. Cooperation has conceived a source of mutual benefit and involves a mutual convenience, based on the constant construction of bonds and relationships and the interdependence determined by spatial proximity. Economic processes require cooperative-collaborative behaviours between the various components and become increasingly territorialized, and therefore more resilient and, at the same time, less and less associated with the production of negative environmental impact.

Keywords Metropolitan city · Homological smart city · Social innovation Mushrooming · Connected diversification · GeoDesign · NAIADE Naples

12.1 Economy and Capitalism in the 21st-Century City

During the last decade, the economy has been characterized by "neoliberalism" [1].

This is an expression to indicate the recent phase of global capitalism, in which the business model becomes not only the only acceptable one for organizing the economy and the finance, but also the way in which the "system" organizes the social structure and the labor market. Several authors [2–5] who use the neoliberalism concept derogatively, they describe what they distinguish as the regrettable

spread of global capitalism and consumerism, as well as the equally deplorable flattening of the proactive welfare state [1, 4, 6–10].

Neoliberalism was coined at a meeting in Paris in 1938 by Ludwig von Mises and Friedrich Hayek. Neoliberalism was a reaction against social democracy policies, exemplified by Franklin Roosevelt's New Deal and the gradual development of Britain's welfare state; both were considered as indicators of Collectivism which is placed into the same spectrum as Nazism and Communism.

David Harvey provides a definition of neoliberalism as follows: "*Neoliberalism is in the first instance a theory of political economic practices that proposes that human well-being can best be advanced by liberating individual entrepreneurial freedoms and skills within an institutional framework characterized by strong private property rights, free markets and free trade. The role of the state is to create and preserve an institutional framework appropriate to such practices. The state has to guarantee, for example, the quality and integrity of money. It must also set up those military, defence, police and legal structures and functions required to secure private property rights and to guarantee, by force if need be, the proper functioning of markets. Furthermore, if markets do not exist (in areas such as land, water, education, health care, social security, or environmental pollution) then they must be created, by state action if necessary. But beyond these tasks the state should not venture. State interventions in markets (once created) must be kept to a bare minimum because, according to the theory, the state cannot possibly possess enough information to second-guess market signals (prices) and because powerful interest groups will inevitably distort and bias state interventions (particularly in democracies) for their own benefit*" [5].

Neoliberalism policy includes few key points, such as:

(i) Free market, which means liberating "free" enterprise or private enterprise from any bonds imposed by the state, no matter how much social damage this causes. Greater openness to the international trade and investment; no more price controls; total freedom of movement for capital, goods and services;
(ii) Cutting public expenditure for social services, such as education and health care;
(iii) Deregulation, or reducing government regulation of everything that could diminish profits, including protection of the environment and safety of employment;
(iv) Privatization, or selling state-owned enterprises, goods and services to private investors, such as banks, key industries, rail, electricity, schools, hospitals and even fresh water;
(v) Destruction of the concept of "community" and "the public good", replacing it with "individual responsibility".

These policies increased during the 1980s in the 20th century. The neoliberal ideological doctrine was launched in the USA and the UK by the conservative leaders, Ronald Regan and Margaret Thatcher. Therefore, in few years it turned into "the unique global doctrine" in financial policies. It was a reaction against the

1970s' energy crisis. Indeed, although "*from roughly 1950 until the early 1970s there was a period of unprecedented economic growth and egalitarian economic growth*" and "*it was also a period of some limited but real form of benefits for the population*", this changed during the mid-1970s. As emphasized by Noam Chomsky, the structural change of the financial markets initiated a profound transformation: "*Bretton Wood's restrictions on finance were dismantled, finance was freed, speculation boomed, huge amounts of capital started going into speculation against currencies and other paper manipulations, and the entire economy became financialized. The power of the economy shifted to the financial institutions, away from manufacturing*" [11].

After a couple of decades, this ideological approach to the economy has reinforced speculation tremendously [11] and a lot of "distortion", both of them acting in the social system as well as in the labor market. The destruction of the welfare program, the abuse of the rights of the labor market and the workers' rights, the growing power of the financial institutions have created a state of concealed war, in which the workers fight against the immigrants, moving out from their counties destroyed by globalization. Conversely only a minority of people in the world are the main beneficiaries of the neoliberalism policies. For the vast majority of people, this brings even more suffering than before: suffering without the small, hard-won gains of the last 60 years.

This ideology acting as a strategy has been adopted differently by the global north and south. In the north we are witnessing the reduction of the workers' rights, the marginalization of the middle class, and the reduction of the welfare state. In the global south, we are witnessing the rise of a neo-colonialist authorities in the poorest countries of the planet and momentous migration towards the north. The result of this might be considered as a social time bomb which can break definitively any form of reception.

The capitalist system has triggered this systemic crisis; there is no way to resolve it without overcoming capitalism first. The capitalist system catalyses this systemic crisis. However we should always have in mind that we cannot reduce everything to the economy. The internal contradiction of the capital has been amplified by the digital technology and generally by the role of *Technè*.

12.1.1 From Capitalism to Finance-Capitalisms

During recent years we have witnessed the era of transformation of the capitalism. According to Karl Marx, we know that the simplest formula of the circulation of commodities is C-M-C; that means the transformation of commodities into money, and the change of the money back again into commodities.

Nevertheless alongside this form we find another specifically different form: M-C-M, the transformation of money into commodities, and the change of commodities back again into money; or buying in order to sell. Money circulating in this latter way is thereby transformed into capital; it becomes capital, or, in theory, it is already capital [12].

The previous sequence is demonstrated by commercial business activities. What happens today can be exemplified by a new formula: M-C-M_1-M_2- … M_n. The values 1, 2,…, n denote speculation; this shows that growth operates on a capital. After few changes, it becomes an abstract value with no relationship with the reality. The only aim of this financial activity is to generate profit.

When money borrowing or financial speculation occurs, M-C-M is reduced to M-M, a sequence which disrupts the capital realization process [12–14]. This speculative aspect has been emphasized by Karl Marx: "*The simple circulation of commodities—selling in order to buy—is a means of carrying out a purpose unconnected with circulation, namely, the appropriation of use-values, the satisfaction of wants. The circulation of money as capital is, on the contrary, an end in itself, for the expansion of value takes place only within this constantly renewed movement. The circulation of capital has therefore no limits*" [12].

During its race to the top, the capital needs to colonize territories and natural resources, to decrease the cost of human labor, to develop new technologies and promote new financial investment and trade rules which allow capital to get more and more profit. When this process of endless growth comes across limits (i.e. in production) and profits, then it begins to decline. Then, here comes a crisis. This occurred several times during the past two and a half centuries.

What is new now is:

(a) The disproportionate amount of speculative capital in the markets;
(b) The fact that the capital has reached and surpassed the limits of the Earth System.

Research conducted by Andrew Lawrence, a real estate analyst of Barclays Capital, shows a relation between financial speculation and the skyscraper. In his "Skyscraper Index" [15], Andrew Lawrence presents his homonymous theory by suggesting that extremely tall skyscrapers are linked to the economic cycle; the completion of the world's tallest building is either an indicator for a recession or an economic crisis. The rationale is that very tall skyscrapers are the result of an economic boom—real estate demand is up, credit is cheap and the economy is doing well. The higher the skyscraper, the higher the boom. It takes years to build a large skyscraper. Thus, skyscrapers are completed as the economic cycle tops; then, it heads down into a recession or a crisis. Examples of this link are the Singer Building and the Met Life Tower which were completed around the time of the 1907 panic, or the New York Chrysler Building, which began in 1928 and the Empire State Building, completed just as the Great Depression began. In recent years, we can find the Petronas Towers in Malaysia which were completed as the Asian financial crisis began in 1998.

Also Carol Willis's "Form Follow Finance" [16] emphasizes the importance of speculative development and the impact of real-estate phases on the forms of buildings and their spatial distribution. As a matter of fact we may say that some papers, such as "Skyscraper Height and the Business Cycle: Separating Myth from Reality" [17] by Barr, Mizrach and Mundra, Rutgers University, affirm that the drivers for skyscraper heights are not yet well understood. They suggest that

skyscrapers can be used for non-economic purposes, and the tallest skyscrapers are economically "*too tall*"; these non-economic motives become obvious within predictable locations in the business cycle [17]. The conclusion is that they do not deny that psychological and egocentric motives are present in the skyscraper market; these motives do not appear to be a systematic part of it. The fact that heights rise over the business cycle indicates that height is usually a rational response to rising incomes [17].

12.1.2 Capitalism, Financial Market and Digital Technology

After three decades dominated by neoliberalism in 2008 we witnessed one of the worst economic and financial crises in the post-war economic history. After World War II, no other economic downturn has been as severe as the 2008 recession. The current crisis is the deepest, most synchronous across countries, and most global since the 1930s Great Depression. The depth and breadth of the current global financial crisis is unprecedented in the post-war financial history. It has several features in common with similar financial stress-driven crisis episodes. It was preceded by a relatively long period of rapid credit growth, low risk premiums, abundant availability of liquidity, strong leveraging, soaring asset prices and the development of bubbles in the real estate sector. Stretched leveraged positions and maturity mismatches made financial institutions very vulnerable to corrections in asset markets, deteriorating loan performance and disturbances in the wholesale funding markets. Such episodes happened before; the examples are abundant (i.e. Japan and the Nordic countries in the early 1990s, and the Asian crisis in the late1990s). However the key difference between these earlier episodes and the current crisis is its recent global dimension.

From a technical point of view, the current crisis is a product of inconsistencies of the twenty-five-year long neoliberal boom, which started in 1982 [18]. According to Joel Geier [18], the first contradiction to note is the creation of a giant debt bubble in the USA. Over the two decades preceding 2007, credit market debt roughly quadrupled from nearly $11 trillion to $48 trillion, far exceeding growth rates. Then, the deregulation of the banking system and the creation of a "*shadow banking system*" were able to keep all sorts of loans and investments, in spite the fact that these banks did not have to put up adequate capital reserves. As a result, "*they were able, through this unregulated system, to borrow thirty, forty, or fifty times above the value of their capital in order to invest in the stock market and in various new exotic debt products, such as collateralized debt obligations (CDOs), credit-default swaps (CDSs—essentially a form of insurance against debt default), and various other financial swindles, many of which were based on the packaging and repackaging of housing mortgages*" [18].

Finally, the last contradiction underlined by Geiner was the collapse of the American balance of payments that shifted from a surplus in 2000 and 2001 to a

deficit in 2002. This led to a series of changes, such as, for example, United States becoming dependent on foreign capital. Foreign capital, in particular from China, Japan, and the Middle East oil exporting countries, financed the American debt and the dot-com bubble collapsed; lowered interest rates between 1 and 2% for three years generated a massive asset inflation, predominantly in housing prices.

Since the late 1980s we finally encounter the increasing sophistication of financial intermediation and the simultaneous and mutual expansion of ICT infrastructures and finance capital [19]. The result was a fast structural transformation of the economy from a "*real world production*" to a fluid financial market based on speculation and governed by digital technology. One of the new aspects that govern the financial flow is the time transformation. Adam describes ICT-generated time as instantaneous rather than durational, simultaneous rather than sequential, and globally networked rather than globally zoned [20]. It was this kind of time reckoning which underpinned the globalization of financial activity and the financialization of the capitalist economies.

The globalization of the finance capital is strictly interconnected automatically with digital technology. Ongoing advances in telecommunications extended and accelerated informational and monetary transfers between computer terminals. Specific technological advances included high-speed Internet link-ups enabling stockbrokers, institutional traders and personal investors to buy and sell shares in different stock exchanges simultaneously. This international facility became jointly owned by over 1000 banks and reliant on interbank funds transfer [21]. All these advances together created an unprecedented economic environment; multiple currency units and complex financial assets, worth trillions of dollars were traded globally in real time.

This extreme market financialization and out of control speculation generated something which was never seen in the history; the ratio between the combined global Gross Domestic Product of goods and services and the capital market was 1 to 26 in 2010 [22] compared the 1990 ratio which was 1–7. This means that, in 1990 the capital market was seven times more than the global GDP, whereas now it is 25 times bigger than the global GDP. In 20 years, the capital market has grown more than ten times larger, while the real economy only increased by three times. In 1990 the financial derivatives were only $2 trillion. However they reached $601 trillion in 2010, or, 30 times more!

Going back to the global economic crisis, many scholars explain that it is different from the other. Authorslike István Mészáros believe that today's crisis is evident under four main aspects that constitute a newness if compared to the previous crisis. Mészáros [23] explains that the actual crisis has a different character because:

(i) It is not restricted to a particular sphere, such as finance or commercial, or affecting this or that particular branch of production, but it has a universal character;
(ii) As opposed to the past, its scope is truly global rather than confined to a particular set of countries;

(iii) Its time scale is extended, continuous rather than limited and cyclic, as all former crises of the capital happened to be, and the 2007 speculative bubble was the iceberg peak;
(iv) Its mode of unfolding might be called creeping—in contrast with the more spectacular and dramatic eruptions and collapses of the past—while adding the provision that even the most vehement or violent convulsions cannot be excluded as far as the future is concerned; for example, when the complex machinery, now actively engaged in 'crisis-management' and in the more or less temporary 'displacement' of the growing contradictions runs out of steam.

Other authors emphasize that the crisis of global financial-led growth reflects evidence of exhaustion of the current capitalistic model of accumulation, characterized by lower growth rates and decreasing labor shares. A system which so far has only been possible by means of excessive consumerism through increasing indebtedness, accelerated depletion of resources, growing income inequalities and social exclusion and unrest. Since the end of the last century, we can find and connect root signs of a multidimensional systemic crisis, which reveals itself today beyond the destruction of millions of jobs worldwide; it increased disparities both internal as well as international, exacerbated conflicts and violence, and intensified the exploitation of natural resources. All these factors show both an economic downturn and an ecological and socio-political downturn.

According to Cairò-i-Céspeds and Castells Quintana [24]: "*we are experiencing a systemic crisis of multiple dimensions, namely an economic, human, ecological and socio-political one, reflected in global challenges of unprecedented intensity, magnitude and scope, and rooted in the very dynamics of the capitalist economic system, which has now clearly become unsustainable*". Their recent study discusses the nature of the current crisis from a multidisciplinary perspective; they analyze different dimensions of the systemic crisis by working with political, ecological and socio-economic indicators of a wide-ranging perspective. The authors' aim is to show to what extent these crises are interconnected and can be considered as different dimensions of a systemic crisis [24]. By analyzing the main dynamics behind the process of capital accumulation and economic growth, they show how the inner contradictions—social and natural—that drive the process of surplus generation lead to recurrent crisis in the capitalist economies. Finally, their analysis: "*suggests how recent dynamics indeed reflect deeper interconnected systemic disruptions, reinforcing each other and representing dimensions of a major systemic crisis of capitalism as the driving force of current socioeconomic, environmental and socio-political dysfunctions. Increasing inequalities seem to not just play a major role in the evolution of the current economic crisis, but are also behind the evolution of the other systemic dysfunctions and their interconnectivity*" [24].

12.1.3 Global Capitalism and Environmental Crisis

Strictly connected with the economic model is the environmental question. Today's economy generates unstable socio-political and environmental conditions; the gap between the rich and the poor is increasing, the natural resources are ruthlessly exploited, conflicts are growing. The loss of biodiversity and climate change are examples indicating that nature's rhythm and balance are dramatically disturbed.

The Global Risks Report 2016, 11th Edition [25] was published by the World Economic Forum within the framework of the Global Competitiveness and Risks Team. The 11th edition of the Global Risks Report has explored how global risks are becoming increasingly imminent and materializing in new and sometimes unexpected ways. From climate change to the imperative for improved water governance, from large-scale involuntary migration to reviving growth in the Fourth Industrial Revolution, global risks are affecting the lives of citizens and the functioning of institutions and economies. We now need to move beyond mitigation to adaptation and building resilience. Understanding the drivers of the global security landscape, boosting governance and strengthening policy agility are even more important. Building a better understanding of how the new security landscape and technological change will impact countries, economies and peoples' lives is, therefore, essential for building sustainable, resilient growth strategies and stable societies.

Global risks remain beyond the domain of just one actor, highlighting the need for collaborative and multi-stakeholder action; that is the key message that [25] *The Global Risks Report* series has highlighted over the past decade. Recognizing joint interests and aligning stakeholders on key priorities across the different areas of global risks is the first step to create action through collaboration. We hope that the aforementioned report will contribute to the recognition of a need for action; it will create an imperative towards greater resilience, and it will also motivate change and concrete action towards a better future for everyone. As affirmed, we do not get only climate change, but also biodiversity loss, deforestation, pollution, population growth, especially in the megalopolis of the global south, water resource vulnerability. Over-all the destruction of all ecosystems is aggravated by the current economic system.

The 2016 the Living Planet Report [26] estimates that, since 1996, the global demand for natural resources has doubled. It now takes 1.5 years to regenerate the renewable resources used in one year by humans. This means that we are eating into our natural capital, instead of living off its interest, and, therefore we are creating more ecological debt. Humanity's demands are greater than our planet's ability to sustain us.

Unfortunately it is evident that we do not have a policy, let alone adequate instruments to control a capital without nationality; corporations are much more powerful than states. The predatory attack to the natural resources has been intensified in the last few years. For example, in the energy sector we encounter an explosion of extractive projects, land and natural resource grabbing, and mega

projects of infrastructure and energy which are reshaping the ecosystems. Corporations often fuel civil wars in developing countries. All this can fuel migration towards the north, generating social tension and racism.

Our vision is so fragmented and distorted that the green policies are being transformed into business. An example is the issue of Certificates of Emission Reductions (CER). CERs were created for greenhouse gas emission reductions. Well today CER have become a business product; the more a corporation buys them, the more CERs can pollute. The result is the financialization of the "*natural capital*". Note that we use the noun "*capital*" for the environment, as if it was an ordinary thing, measurable by money. This shows how wrong our approach to nature is. We are just able to think in terms of money and calculus. This mental attitude of the Western modernity has pervaded each aspect of our life. The result is that we have lost our capability to understand what beauty is, what is right or wrong, what is sacred or what a community is. We see everything as capital that we can buy, destroy, and sell as an ordinary object. This attitude of the Western thought has been discussed by Heidegger [27].

In his *Introduction to Metaphysics*, Heidegger analyses how the "*technè*" thought has transformed the world in a unique technical corpus. According to Heidegger "*technè*" means neither art nor technology, but a kind of knowledge. According to Heidegger, what is genuinely disturbing is not only that the world becomes a unique technical apparatus, but also dangerous. The fact is that we are not prepared to this radical transformation of the world. Finally Heidegger adds another grade for the *technè*, or, the fact that the most dangerous question is the lack of an alternative thought to the *technè*one. Heidegger says that we only know to "*calculate*" (="*Denkenals Rechnen*" in German), or, as Adorno and Horkheimer write: "*Anything which does not conform to the standard of calculability and utility*" is "*viewed with suspicion*"; it becomes downgraded to a mere myth or superstition [28]. This theme is elaborated in the work of the Frankfurt School, where philosophers like Theodor Adorno, Max Horkheimer, Herbert Marcuse and others viewed the culmination of Western Enlightenment in the early 20th century exactly as technique's domination upon nature, and, where the subject of history is not the humankind but the *technè*.

In Adorno and Horkheimer's words: "*What human beings seek to learn from nature* [physis] *is how to use* [techné] *to dominate wholly both it and human beings. Nothing else counts*" [28]. Because of the Western Enlightenment becoming "*totalitarian*," the world has become intelligible to the human kind when its multiple forms are calculable, hence, "*the control of internal and external nature has been made the absolute purpose of life. Now that self-preservation [of the humankind] has been finally automated, reason is dismissed*" [28]. Then again not only is reason dismissed, but also the reason itself has been subsumed into technical or instrumental causes. As Marcuse writes: "*Rationality is being transformed from a critical force into one of adjustment and compliance. Autonomy of reason loses its meaning in the same measure as the thoughts, feelings and actions of men are shaped by the technical requirements…Reason has found its resting place in the system of standardized control, production, and consumption*" [29].

The subsumption of reason under the technical attitude leads to "*the subordination of thought to pre-given external standards*," in which, thinking becomes routinized, standardized, quantifiable and predictable. According to Heidegger, this way of thinking also changes our idea about how we perceive our environment. Under conditions of *technè*, "*the earth reveals itself as [only] a coal mining district, [its] soil as a mineral deposit*" [27]. The above "*mental*" approach to the economy, society and in general towards the environment, uses new words but this does not change anything in substance. Thus, this has created also what we call "*green economy*." The ideology of totalitarian capitalism is like a fluid that creeps up on our day life in search of new markets and profit. The "*green economy*" is another invention to generate more markets for the capital.

The promise of the "*green economy*" is to decouple growth from environmental deterioration.

Bundeskoordination Internationalismus [30], a German group, has just published a new critical paper with the title "After the Failure of the Green Economy", containing ten theses as an evaluation of the green economy. The report affirms that "*Strategies of the Green Economy will not be able to outweigh the social and ecological contradictions of capitalism*" [30]; it emphasizes the fact that "*the forces responsible for the crisis are identified as the beacon of hope: states and especially markets and capital, as well as the orientation towards growth and competitiveness. With the aid of the Green Economy the driving forces for social and ecological disastrous capitalism are not called into question; on the contrary, they are to be used for a green conversion*" [30].

The "*green economy*" is not the only solution for the environmental and social problems. It works in the same epistemic environment. Unfortunately good management of the environment and the natural resources is not a vital factor for the economic system. Usually we look at it in short term without taking into consideration that, only a sound and long-time management of the natural resources can provide the basis for a really sustainable and inclusive wellbeing, food security and poverty reduction. The natural resources provide livelihoods for hundreds of millions of people. The world's ecosystems regulate the air, water and soil on which we all depend; they form a unique and cost-effective buffer against extreme weather events and climate change. Not only healthy ecosystems are essential for the long-term growth of economic sectors, such as agriculture, forestry, fisheries and tourism, but also they provide hundreds of millions of jobs at present.

Sustainability has been often studied according to the deterministic vision of the world, in which our environment is analyzed as a set of independent "*bodies*" without correlation. Today a reductionist attitude appears again in the study of sustainability. The same term "*sustainable development*" appears as an oxymoron. Serge Latouche considers this association as "*explosive and toxic*", an illusory mystification [31]. According to Latouche, it is a contradiction in terms, because sustainable means that human activity does not have to create a pollution degree which is superior to the capacity in order to regenerate the environment. This applies the principle of "*responsibility*" as stated by the German philosopher Hans Jonas: "*Operate in such a way that the effects of your actions are compatible with*

the permanence of an authentically human life on this earth" [32]. On the other hand, development in daily language means the process in which someone or something grows or changes and becomes more advanced [33].

As a matter of fact we believe that this crisis is only the peak of an iceberg. It is systemic in sense of demanding answers to different questions originating from diverse social and political movements. An inclusive political and socio-economic system should support equity and social justice; it should support the innocent victims of crisis, the schools, hospitals, public transport, social housing and welfare schemes through democratic institutions. Sustainable or smart politics should reduce the emphasis on speculation and should implement democratic control over financial and economic institutions. In the same way the production system should sustain people's lives and the environment. Based on these demands, a long-term political strategy towards the transformation of existing power relations could be built. We believe in a bottom-up process rather than a process led by some elite group of economists and planners; it should be based on a different idea of the world and it should be a different epistemological view able to support a political process. The crisis can offer us an opportunity to shift paradigms, in which development means social and cultural progress, not only profit. As the crisis is systemic, our response should be also systemic. This should be the real implication of a crisis.

12.1.4 The Epistemological Reconfiguration as Necessary First Step Towards a Systemic Ecological Economy

Our main question is: are we able to develop an economy that unites opposites without coming into conflict with nature and society? What can we learn from other civilizations in term of their relationship with nature in order to allow a shift in the current way in which the economy is not only destroying our natural environment, but also our communities and social relations?

Capra and Jakobsen [34] have indicated four principles, deriving from systems' view of life for a real ecological viewpoint in economy. In their paper "A conceptual framework for ecological economics based on systemic principles of life" Capra and Jakobsen illustrate the principles as follow:

(i) "*Nature is superior to economy*";
(ii) Economy must be seen and studied as a network and the relationship is an essential attribute to take into account;
(iii) Economy must be seen as an open system. For a living economy this means that all economic processes need to be circular in three dimensions;
(iv) Economy as cognitive interactions—a sense of ethics according to the systems' view of life; all living systems interact cognitively with their environment in ways that are determined by their own internal organization [34].

The above principles provide us with a new epistemological perspective towards real sustainability. The first principle can be seen as turning upside down the values as derivatives from the industrial revolution.

The contemporary post-industrial society has destroyed the values upon which the Western civilization was built. Alasdair MacIntyre in his *After Virtue* [35] sees our moral crisis as the consequence of the historical rejection of an Aristotelian moral scheme in which the role of the virtues is dominant, reflecting a society of shared goods. MacIntyre focuses directly on the social relations and the historical character of the human life in terms of which merits are defined and understood, by tracing the profound transformation over the time, since classical Greece, the middle ages, and the modern world. The Greek approach to nature and what we call economy was completely different from the modern way. Ancient Greeks look at the world as something where nature was not generated by divine power or by man, but nature is considered as the "*eternal living fire*" which spreads and runs with proper balance [36]. In the same way, the Greek idea of economy was divided into two approaches.

Aristotle's approach to "*economy*" was coherent with the people's approach by the Greeks; he discusses economic and business questions as a subordinate subject within his treatise on Politics [37]. His predominant interest was with what rightfully should be considered economics (=*oikonomia*): the concern for morally adequate individual and public household management [37]. In other words, the very way in which Aristotle deals with economic affairs undercuts the modern separation of economics from ethics and all other concerns of life. In classical Greece, the "*oikos*" included both goods and persons—either free people or slaves—under the authority of the head of the household, what we would call the family and family wealth, a unity of persons and goods [38]. Aristotle distinguishes two different ways to organize economy: "*oikonomia*" and "*chrematistics*". According to Aristotle [37], "*oikonomia*" and "*chrematistics*" do not cover the same semantic meaning: *oikonomia* has to do with the satisfaction of the necessary and useful com-modities [39]. On the other hand, *chrematistics* has to do with what we call as art of money-making. According to Aristotle, when the world of chrematistics is under the government of the oikonomia, this is natural. On the contrary, when chrematistics work as independent body, this degenerates into an unnatural structure that transforms means to an end. So, "*economy*" is a body subordinated to natural laws, and its aim is the satisfaction of the humankind's natural wishes. This way characterized Western Civilization until Medieval era, when Thomas Aquinas in his *Summa Theologica* [40] described the fair price theory as the necessity of ethics in economics, which attempts to set standards of fairness in transactions, and the role of community sequentially considered as something more important than an individual person.

Over the last three centuries the Western approach has changed radically by forgetting the meaning of community and the values linked to it. Renaissance and Enlightenment created a new vision of the world: Hence, liberal individualism with his private desires and objectives is identified as the antithesis and the opponent of the Aristotelian community. A decisive blow arrived with the industrial revolution

and a new ethical way based on individuality, profit, predominance of the economy and technology. In modern times, the meaning of the economy, as related to the family governance of persons and goods has been lost, whereas what originally constituted the "*chrematistics*" (=the acquisition of livelihoods) has been identified in practice with the "*economy*" and as such it is commonly understood today. This semantic change makes it difficult to appreciate the organic relationship that Aristotle established between ethics and economics [41], as the natural and morally permissible chrematistics is subordinated to the oikos and, as a matter of fact, the oikos is subordinated to the "*polis*" (=city) [4], in which the human ideal of social coexistence is appreciated. Strictly speaking, "the ethical" in economics is the cautious administration of the oikos within a fair polis [42].

According to Capra and Jakobsen [34], this approach is weak if we look at it in terms of a life system approach. In fact in life system approach economy is a nested system. It is part of more large sub-systems, such as society, ecosystems and the planet, and it contains the individual sub-system formed by the individual. This system works, if each sub-system works in harmony with the other sub-systems and none dominates the others. This generates equilibrium between macro and micro level characterized by a continuous building and re-building of relations between the sub-systems [34]. This way shifts the actual paradigm. Firstly, the system life is based on relationships of its sub-systems and agents, not single independent agents, but a whole structure which cannot survive as an individual one. As in ecology, analysis and study of this system asks to study all processes as part of the web of life. If economics is studied separately from social and ecological contexts, and knowledge is expressed through narrowly defined mathematical models, it becomes abstract and remote from life, according to Capra and Jakobsen [34]. The above principles suggest to understand economy as part of a whole living system and this relates to the concept of network and flows unified in the concept of metabolism [34].

The concept of a metabolic structure has a deep epistemological meaning: each ecosystem is characterized by a circular flow of energy and matter, and waste production in biological systems becomes a source of life for other sub-systems. In biological systems, all transformation processes are characterized by a low level of waste and a high level of productivity. For this reason, a real ecological economy must be characterized by a circular cycle in three dimensions, where economy, nature and culture are integrated parts within a "*living*" organism [34, 43]. In this way we get a circular economy that works as a biological structure; it is characterized by cooperation and not competition; that means cooperation between manufacturers, distributors and consumers. Cooperation with nature and culture, a real cooperation with nature, regulates input and output of natural resources in the economic value chain, and cooperation with culture is essential to develop a life-enhancing economy. "*On the one hand, knowledge exerts influence on the innovative processes in the economy and on the other hand changes in the economic sector influence cultural development*" [44]. Finally, according to Capra and Jakobsen, ecological economics, by contrast, advocates the urgently needed shift from quantitative growth to qualitative development [34].

12.1.5 From Techno (Smart?)-City to Human City

Nonetheless a real smart economy must work in a real smart city. Unfortunately, a "*smart city*" is an ambiguous expression, because it does not regulate clearly, whether it refers to community or infrastructures, nor states the purpose of its smartness, which fits mostly as a neutral quality of its technological equipment. It does not state this, because it has in fact lost its aim, which is organic to the real nature of the urban body. Many researches have underlined how much fluid is the concept of a smart city [45, 46]. It is still a pretty fuzzy label, and sometimes it is not used in any consistent way. Whilst the list of self-claiming "*smart*" neighborhoods and cities is long, so is the amount of discussion of this topic which has emerged in recent years [47–51]. Almost every scholar refers to a smart city as some kind of positive new urban economic development based on ICT innovation. This implies the use of analogous terms, such as telecommunication [52], informational [53], digital [54], or intelligent city [55]. Therefore computer and city intertwinement is the first point acknowledged by almost everybody in defining smartness. But, what do we mean when we talk about smart city?

Biourbanism teaches us to look at the city as a hyper-complex organism, a dynamic structure composed by several interconnected layers, all influencing each other in a non-linear manner [56]. This is more than a metaphor because it refers to the latest scientific developments in biology, physics, and to more general and complex dynamical systems. Biourbanism supports a human-centred urban life and goes for structural sustainability—a sustainability that overcomes mere standard ecological claims and takes into account all those dimensions that are required to make an environment really human-friendly and enhance the environment's own identity [45, 57]. A wise city should therefore hopefully copy such a model.

In "*Biourbanism as a new framework for smart cities study*" [45] authors show that in order to achieve such an aim, one should first oppose the subsumption process and refocus the urban development on human values. Now subsumption is a term introduced by Karl Marx in the draft Chap. 6 of his book, *Capital* [58], meaning the way the capital utterly activates people to work. It is a fundamental divergence with subsumption because it changes the city from within by removing five fundamental human experiences [45]:

(i) *Body awareness*, as a criterion of what is good and what is bad in the environment;
(ii) *Space as place*;
(iii) *Scales*, cutting away relationships between one dimension and another. This happens in both architecture and urban geometry as well as in social and economic structure;
(iv) *Natural patterns*, substituted by anti-patterns; and
(v) *Real needs*, like the need for rest, for meaning, for physical and emotional connection (substituted or distorted by tension, stress, and artificial desires which are induced by the need for relief).

In the context of the smart city, we know how important the role of Information Technology is. In the contemporary society, dominated by media, point (i) has to do with the medium role of ICT in support of the society of spectacle as illustrated by Guy Debord [59]. When Debord says that "*All that was once directly lived has become mere representation*", he is referring to the dominant importance of the image in contemporary society. Debord says that images have supplanted genuine human interaction [59], and digital technology has become the tool through subsumption process informing people's minds. Thus, Debord's fourth thesis explains that: "*the spectacle is not a collection of images; rather, it is a social relationship between people that is mediated by images*" [59]. In Debord, spectacle includes the transformation and control of the urban environment, such as by substituting the relics of an urban past with fantastic architecture, invading space and silence with screens, and spreading hyper-technological devices of control such as cameras, face scanners, geo-localizers [45].

But the role of digital technology is pervasive and also distorts the relationship between space and place, or the transformation of places into non-places [60]. In this context, there is a transformation of the XIX and XX centuries' physical spaces into virtual spaces. Here the physical highway becomes a flux of dematerialized data, generating a profound transformation both in the physical environment as well as in the social space and the interpersonal relationship, and the labor market. Subsumption distortion encourages gaps between social classes, different areas of the city, economic structure, and the human body and environment [45, 59] through breakdown in scales. Scales refer to the application of a natural law called scaling law; this latter not only is the expression of physical principles in the mathematical language of homogeneous functions [61], but it also refers to a law that describes the scale invariance found in many natural phenomena, such as human or animal bodies' and metabolism [62–64], or, in the way in which some characteristic of a city can evolve over the time [65, 66]. This means that, if we destroy this "*natural rule*", we may destroy part of the relationships in the natural environment and human space [45]. And finally a last element that supports subsumption is the anti-patterns [45]. Anti-patterns encourage disconnection in social and physical environment, because it changes space geometry that gets people in touch with both their built environment as well as in terms of social interrelation [45]. Disconnections created through anti-patterns can be substituted by the Constructal Law of design [45, 67, 68] and patterns of Neuroergonomics [69]. This change creates stress, confusion and disconnection in both our social structure as well as our own body.

A way to contrast subsumption process is the homological city [45]. According to this framework, a homological smart city should be built or enriched by the means of real and direct citizens' participation (what has been called p2p urbanism) [70, 71], Neuroergonomics and Biophilic design, and biourban economics, all based on the human body epistemic. Neuroergonomics becomes a way to establish an epistemological foundation of urban design which is aimed at exalting human well-being [45, 70, 71]. To conclude, homological city means rediscover and reconstruct the idea of the city and the community. These words have characterized

Western Civilisation for hundreds of years; "city" was about its human content, which was synonymous for "*community*" and "*civitas*" as the real essence of human being, and "*communitas*" (a Latin noun) commonly referring either to an unstructured community in which people are equal or to the very spirit of community. Thus, in our heritages, when we talk about "*civitas*" we refer to both the body of citizens who constitute a state, especially a city-state, a commonwealth, or the like as well as the citizenship, especially as imparting shared responsibility, a common purpose, and sense of community, where one could achieve his own human status only by acting and sharing in a society of peers.

12.2 Toward a 21st-Century Italian Socio-Economic Renaissance

Italy, since the early 90s, has found itself in a growing climate of economic stagnation as a result of the national economic model based on low labor costs to boost the economy, which has led the country into a vicious cycle of low wages, low growth in labor productivity, and lack of innovation [72]. When economic globalization [73] hit the economies of the European states, the Italian governance, especially at the local level, found itself unprepared and without any strategy to reshape its development model.

Since June 2004, the Italian unemployment rate has grown by 3.2%, reaching 11.1% in 2017, when more than 35% of people with an age of 15–24 years were unemployed. The situation in the South is even more dramatic as the unemployment rate in June 2017 was 21%, reaching 44.7% for people of 18–29 years old. For the same age group, in the Metropolitan City of Naples, the unemployment rate in 2016 was 46.4% [74]. Furthermore, a substantial portion of youths encounters considerable difficulties in finding employment. Many young people do not actively look for a job, as indicated by the inactivity rate of 26.3% for people aged 25–34 years. Although the employment slowly rose in 2017, the number of temporary employees was 2.69 million in June 2017, the highest number registered since data collection [75]. In 2016 the number of Italian's NEET has made the European record with 19.9% of youths aged 15–24 years that are not in education, employment, or training while the general EU trend dropped to 11.5% [76].

The institutional panorama is also paralyzed by a profound crisis of political delegation. The politic, at any level, is not capable of interpreting the needs of society because it is conditioned by the pressure of neoliberal lobbies, which have gained great power in the wake of financial capitalism [77]. The Italian crisis of political delegation is also due to an electoral system that gives to the parties most of the control on the candidacies, resulting in a growing separation of the governmental institutions from the civic society [78, 79].

Lastly, the whole country is in a permanent state of emergency condition, as evident in the reaction to natural calamities such as earthquakes, flooding, severe snowstorms, and water scarcity [80]. The earthquake that hit central Italy in 2016

had an estimated cost of 5 billion Euros [81]. The peninsula also has a diffused hydrogeological risk [82], intensified by a land use consumption rate that reached a peak of 8 square meters per second during the first decade of the 21st century, to slow down to 3 square meters per second in 2016 [83].

For the economic fabric, made of small and medium enterprises, the pressure from the globalized economy and the presence of national structural issues constitute a suffering climate of development that is harsh to operate in, especially in the absence of a clear and long-term national economic development strategy. Businesses need to innovate quickly or move their production abroad if not just shut down because of the impossibility of restructuring and maintaining competitiveness. Major issues for young entrepreneurs are difficulties in accessing funds, high bureaucracy, high tax wedge and complex job market regulations, obsolete technological infrastructures, labor force competences mismatching the market demand, little protection against low-cost foreign products and labor force.

12.2.1 The Revival of Local Communities

The harsh climate of crises also brings opportunities, opening the creativity of people to find solutions through innovative activities [84]. Around the world, a large number of young people have been committed to collaborate in an effort of challenging complex issues by activating innovative processes [85]. These people gather together in grassroots *initiatives of social innovation* that challenge social and environmental issues, often by empowering local communities [86]. In Italy, particularly in the South, there is an emergent phenomenon of community revival led by innovative social initiatives [87, 88].

Those grassroots' initiatives are based on social innovation, which is referred to as the participation process and relative outcomes that support social progress, leading to systemic improvements in the dynamic of the urban system [89]. Outcomes of the process are products, services, and models that simultaneously meet social needs and create new collaborative relationships [90, 91]. Solutions produced from that process are seen to be better than existing ones regarding effectiveness, efficiency, and sustainability, for which the value created impacts society as a whole [92].

In Italy, social innovation has roots in a long-time tradition of active citizenship. This term refers to the set of self-organization forms that involve the exercise of powers and responsibilities in public policy to make effective rights, protect common goods, and support vulnerable people [93]. The principle underlying active citizenship is contained in the Italian Constitution, which declares that "The state, regions, provinces, and metropolitan cities promote the autonomous initiatives of citizens, individually and associated, in performing activities of general interest, by subsidiarity" [94]. The first and most common type of formal organization of active citizenship in Italy is the *Pro Loco* associations, which have been present in most Italian municipalities since 1881 [95].

Active Italian citizens have always dealt with a broad set of issues, such as social assistance, environmental hazards, culture and heritage preservation, promotion of local resources and products, education, and sport. The dimension of active citizenship can be appreciated by looking at the third sector, as most of these citizens decide to self-organize into the form of nonprofit associations.

The last Italian census reported that in 2011 there were 301,191 active nonprofit institutions, included the associations, a growth of 28% in 10 years. The nonprofit sector represents 6.4% of all Italian economic activities with 4.7 million voluntary workers, which is 83.3% of the total of human resources involved the sector. In Italy, the third sector is the first productive reality in the industries of social assistance, cultural activities, sport, entertainment, and leisure [96].

The initiatives of social innovation considered in that chapter differentiate from other third sector institutions for their underlying goal of improving the quality of life at the level of community. They do not only want to solve one issue but instead, they aim to have a positive impact on the whole city system, economically, socially, and environmentally. The OECD recognizes precisely that point, affirming that social well-being is a goal, not a consequence of social innovation, which exists "wherever new mechanisms and norms consolidate and improve the well-being of individuals, communities, and territories regarding social inclusion, creation of employment, quality of life" [97].

Members of those initiatives use their creativity to find new solutions by relying on local assets, including natural resources [98]. Young innovators are more aware and concerned about negative externalities the society can produce on the environment. Because of this, it is not surprising that it is easy to find several initiatives that deal with ecological topics such as the reuse of waste to make recycled products, tourism and the promotion of natural resources, the recovery and reuse of the abandoned heritage, the education and sensitizing activities that focus on the recovery and promotion of their local territories.

Local Italian communities are being revived by these initiatives that self-organize with internal roles and regulations, following a bottom-up process of development that is responsive and adaptive to local circumstances. Because of the intense use of ICT, they interplay with each other without geographical limits. The result is a network of networks that operates at different scales and on an undetermined territory. The active presence of these social innovation initiatives has taken the form of a movement interacting with various sectors and industries at local, regional, and national scales [86].

12.2.2 The Italian Social Innovation Movement

12.2.2.1 Geography

The entire Italian peninsula is affected by this movement of social innovation. A web platform named *Italia che cambia* (Italy that changes) started in 2015 the

mapping of the initiatives and the sharing of their basic information. So far, the web platform has mapped roughly 1800 initiatives present in all the Italian regions (Fig. 12.1). However, many others are missed as the mapping process is on a voluntary basis: every single initiative has to self-register on the platform and decide what contents to share. The map provides a representative account of the movement, geographically and regarding the area of activity. In fact, the initiatives are grouped according to the following categories: living, agriculture, art and culture, production cycles and waste, economy, education, energy, social integration, jobs and entrepreneurship, legality, mobility, health and nutrition, environmental sustainability, lifestyles, traveling [99].

The resulting picture is an eclectic movement of citizens, grouped in initiatives dealing with all the major themes regarding society and the territory. The same panorama results from a study in 2015, named *Sud Innovation*, that investigated the phenomenon in Southern Italy, from the Campania region, of which Naples is the seat, to Sicily [87].

12.2.2.2 The Habitat of Initiative of Social Innovation

Economic indicators show a difficult situation, particularly for Southern Italian regions that registered a lower GDP than the other Italian areas, making them eligible for European structural funds [100]. However, in the biennium 2015–2016, the South recorded a reversal of the trend by growing more than the North, yet, at this rate, the prediction is that the South will regain the pre-crisis level in 2028, while Italy can do so in 2019 [101].

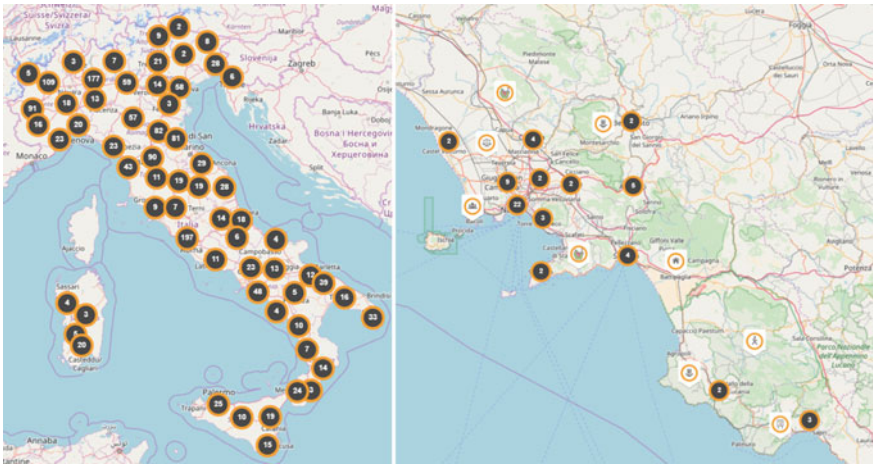

Fig. 12.1 Mapped Italian initiatives at October 2017. Italy (left), Campania Region (right). *Source* [99]

There is a vast economic and social gap between Southern and Northern Italy rooted in historical reasons, among which the out-migration phenomenon and progressive globalization have played crucial roles [102]. In the last decades, the Southern countryside has seen rural communities affected by the phenomenon of new immigrants, subjected to a low-wage, casual, and frequently irregular employment that originated in critical situations similar to those at the turn of the 19th century when the South was primarily based on an agricultural economy. However, the organization and appearance of these rural peripheries took different aspects, reflected in new economic, social, and spatial changes shaped by the influence of globalization [103].

In these less developed regions (Campania, Puglia, Basilicata, Calabria, Sicilia) there are thousands of small towns and villages, mostly located in inner areas, which have been significantly affected by economic globalization, and that present several issues, such as high unemployment rate, strong outward-migration, population ageing, abandonment and deterioration of physical assets, lack of infrastructural investments, and lack of capability of local governments in facing contemporary challenges [104]. These aspects have plummeted towns and villages on a pauperization trend that today reveals situations of distressed communities with substantial economic stagnation or decline that persists for decades [87].

That situation is particularly real for small towns and villages (up to 5000 inhabitants) which in Italy represent 69.9% of all municipalities (Table 12.1) [105]. In those territories, economic and social components show values of risk threshold or even dynamics of no return [106]. A large number of initiatives of social innovation deal with these types of settlements.

Almost all of those cities are hill towns with a medieval historical center. Although it is usually the most distressed area of the town, it represents an identity place for local inhabitants, especially for youths. They are particularly attracted to the old town, which frequently hosts the headquarters of several initiatives of social innovation. That is the case of *LongoTherapy*, a cultural association born to attempt to give to the historical center of Longobardi village (Calabria) an innovative perspective on the cultural overview of the territory by organizing cultural and

Table 12.1 Small towns and villages in the Southern Italian regions

Regions	No. of municipalities	No. of small municipalities	% of small municipalities
Abruzzo	305	249	81.6
Molise	136	125	91.9
Campania	550	335	60.9
Puglia	258	85	32.9
Basilicata	131	101	77.1
Calabria	409	323	79
Sicilia	390	205	52.6

Source [105]

leisure events that can remember all the social and cultural flow, which used to animate their community. The association has refurbished at its expense *La Casa delle Culture* (the house of cultures), a public structure unused for a long time [107]. In Succiso (Tuscany), all of the 65 inhabitants are part of a community cooperative named *Cooperativa Valle dei Cavalieri* (Cooperative valley of the knights) [108]. In 1991, after the last bar shut down, a group of youths decided to gather together, investing their money in the refurbishment of the abandoned schools. Then, they opened several business activities in the sectors of food&drink, accommodation, local products, and leisure. Today, they generate an economy of €700,000 per year having invested €1.5 million over 25 years [109].

A large number of initiatives aim to revitalize historical centers, or at least make an impact that will benefit those heritage neighborhoods. This purpose can be found in manifestoes, statutes, or just documents of intention of a number of initiatives.

For example, the mission statement of *Belmonte in Rete* is "*we work for the sustainable development of the historical center of Belmonte Calabro*" (Calabria) [110]. In Sicily, the *Farm Cultural Park* is an independent cultural center with a strong focus on contemporary art and innovation. Located in the heart of the old town of Favara, it has acquired some of the abandoned houses and transformed them into contemporary art exhibitions, meeting spaces, open kitchens for workshops and lunches, cocktail bars, and vintage shops [87, 111].

The case of Pisticci town is emblematic. This is a historical hill town in the Basilicata region, headquarters of the *Imbianchini di Bellezza* (beauty painters), and an initiative that in 2014 in reaction to the state of abandonment of their historical center decided to paint the house façades with whitewash. The group grew fast and started to take a variety of actions. Under the topic of urban regeneration, they now organize activities directed to "*propose a model of territorial development that can combine the listening of the citizens by the public administration and the needs of the community*" [112].

From these intentions and activities, it emerges that the revival (whatever is a revitalization, regeneration, refurbishment, or recovery) of these historical urban masterpieces is a crucial point for several initiatives of social innovation.

Not only have the small historical centers hosted initiatives of social innovation. The *Borgo vecchio factory* is a social promotion project developed by the not-for-profit organizations *PUSH* and *Per Esempio Onlus* in collaboration with the street artist Ema Jons. It involves the creation of a cycle of creative painting workshops for 20 children in the neighborhood of Borgo Vecchio in Palermo (Sicily). The children of Borgo Vecchio have an active part in the project: they work with artists to create street-art—inspired by their drawings—on the walls of the neighborhood houses and buildings. The initiative has been funded by a crowdfunding campaign [113, 114].

Palermo is one of the Italian metropolitan areas that is constituted not by an interrupted city, but rather by a constellation of urban fragments, including single buildings, industrial agglomerations, entire detached districts, and medium and small municipalities with both modern and historical quarters, all scattered among agricultural fields, orchards, public parks, and woods.

From an administrative point of view, this is the effect of the Italian legislation that in 2014 aggregated a huge number of municipalities into 10 metropolitan areas [115], regardless of geographic and socio-economic differences of their components. The result is large metropolitan territories of high complexity made prevalently of scattered small towns and villages around a central city. However, the territorial coherence of such metropolitan cities can be very different from each other due to the complex morphology of the Italian peninsula. The settlements within the metropolitan city can be very close and connected, such as in the case of the Metropolitan cities of Milan and Venice, or very far and disconnected, such as for those Metropolitan cities that extend over the Apennines Mountains, such as Palermo or Reggio Calabria. The last one is mostly rural, spanning between two seas and with a huge mountain range in the middle, very different economies, and lack of infrastructure that discourages any type of synergy among its parts. Naples is a typical Italian Metropolitan city, with over three million people inhabiting 92 municipalities of which 60% is less than 10 km^2 wide, and only 12 municipalities have more than 50,000 inhabitants. It is also exposed to a high seismic risk due to the presence of the Vesuvius volcano in the middle and the Campi Flegrei volcanic complex at the north.

12.2.2.3 What Triggers an Initiative and What Drives It

In the harsh Italian climate of development, a young person faces the decision whether merely to stay inactive, emigrate if it can, or challenging itself by starting a project. Those who decide to undertake the challenge find the necessary motivation rooted in their spirit and linked to the innate sense of place toward the native territory. The motivation supports the new entrepreneur who is confident that through his efforts he will also help his native place to improve.

The innate link between a human being and a place was already identified by ancient Romans by resorting to the concept of *Genius Loci*, the protective spirit of a place. Not only places had their genius, but also every person had one; therefore, this establishes a robust innate relationship between people and places that Wilson defined as biophilia [116]. Norberg-Schultz investigated the topic within the field of architecture and pointed out how the ancients had recognized and respected the *Genius* of the place they wish to inhabit [117]. Bevilacqua suggests that it is through the sight and sentiment of astonishment that we can see the presence in a place of a *Genius Loci* [118].

That sentiment is precisely the one that young innovators have towards their native place. That deep spiritual attachment enhances the motivation and overwhelms the dissuasive power of economic indicators that would discourage any investment in that area.

In Jacurso, a less than 630 inhabitants historical village in Calabria, the initiative *Jacurso da Vivere e Imparare* (Jacurso to live and learn) seeks to record and safeguard aspects of the traditional life in reaction to the globalization effects that could erase them. They aim to restart the life of the small community through

sustainable tourism based on participation, offering a full immersion through workshops, Italian language classes, guided tours with an anthropologist and contact with the local community daily life [119].

However, the effort of a single person would never be enough to change the direction of a town in economic decline. The confidence is that it is exactly around a clear project that other people will find their motivation and aggregate to the initiative. The personal motivation fed by the sense of place reveals to be the most valuable source of power for starting a grassroots initiative of social innovation that aims to increase the quality of life for the innovators and their whole community.

12.2.2.4 The Innovators

People involved in initiatives of social innovation are young, hold a degree, and are armed with the intention to improve their surrounding territories. They are aware that they have to rely mostly on their capabilities and they are willing to do so. These people are seen as protagonists of a soft revolution for which they fight using their talents such as creativity, bravery, resilience, transparency, and ability to engage people, culture, youth, ethics, visions of beauty, and humanity [120].

These young people have not experienced the welfarism of the Italian state, which until the 1990s guaranteed to their parents a safe future. Neither can they quickly aim for a permanent public job nor to a large availability of non-repayable funds to start a business, like those that in the past drugged the Italian market with the results of putting people one against the other in the run for achieving public funds [87].

Young innovators place their trust in a collective entity, the group. While the Renaissance man mastered its skills and produced masterpieces through a solitary process of development, today people gather together around projects, taking advantage of the numerous skills and knowledge shared by others through the network. The Italian social innovators manage to meet in specific events and collaborate on short- and long-term projects at different geographic scales. Interactions rely mostly on technologies such as open-access web platforms, social networks, and phone apps used to spread their media contents and reach other players and networks. For young innovators, the communication is the biggest sector of investment in terms of work-time.

12.2.2.5 Peer-to-Peer, Networking, and ICT

The phenomenon of social innovation can be described as a peer-to-peer networking system made of initiatives (nodes) and social relationships (links). ICT is used to attract, share, and spread knowledge, and to organize, promote, and grow the initiatives, also to expand the network (Fig. 12.2).

Peer-to-peer is a crucial principle for innovators of the 21st century. This form of relational dynamic, based on the equivalence of its participants, suits entirely the

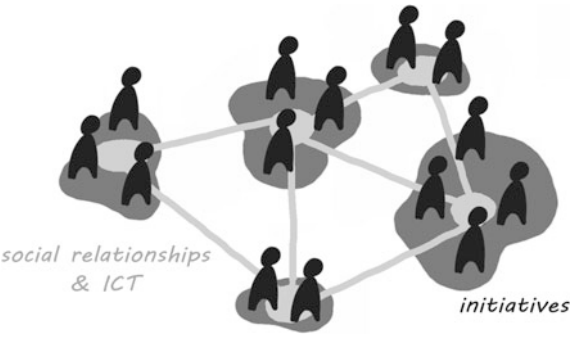

Fig. 12.2 Peer-to-peer networking system of initiatives of social innovation. *Source* Authors

vision of a future society where people organize through free cooperation in the view of creating common goods, accessible to and improvable by everyone. Peer-to-peer is powered by a robust social networking activity that fosters the exchange of know-how, information, and ideas among the members.

People decide to join a network of their interest because they believe they can support it with their skills and capabilities. However, one of the implicit objectives of networking is to establish professional relationships that may turn useful for future projects, business activities, and career development.

The peer-to-peer network of innovators is also used to solve practical issues and reduce operation costs. Not only knowledge and skills are shared with other members of the network, but also physical assets, such as residences and other properties.

For example, it is a common pattern for several initiatives to organize events on specific topics where specialists are invited to make presentations and offer their point of view on the matter. This is a sharing operation as the specialist is usually asked to spend some time, maybe days, in the town. S/he is walked around like a tourist, putting them in contact with local stakeholders, allowing them to experience the context truly, and offering them free accommodation and meals. In exchange, the specialist shares his/her knowledge and opens their network with the local innovators. In this way, the network expands, and the share of know-how is not conditioned by a monetary transaction.

Trust is put in the networking system. The trusting mechanism is the most powerful weapon against the threats that would come from outside and inside the network. Members build trust by maintaining regular contact with each other, not only professional, and as much as is possible in face-to-face occasions. If a member is seen to be in contrast with the principles of the network, it is likely that s/he would be isolated, resulting in losing the support of the network, which in this way protects its members.

There is a strong interaction between the initiatives that aggregate in networks at different scales: people with people, initiatives with initiatives and groups of initiatives with other groups. This is a precise and conscious strategy that generates shared visions of systemic effects on the socio-economic fabric of the whole country, similar to what happens for reticulated business systems as in cluster

productive districts [121]. The difference is that the social innovation network is established not only within a single industry sector but with whichever (single players, informal groups, associations, institutions) is interested to be part and support the network, independently of the geographic distance. This allows a holistic approach to emerge by doing networking that reflects a predisposition of the innovators in being open to new possibilities, even if they cannot foresee them yet.

The major requirement to facilitate the emergence of a peer-to-peer network is the existence of a technological infrastructure that enables and facilitates access to the network and interaction between its members. ICT facilitates and speeds the process of aggregation of people as well as the emerging and sharing of ideas. Feedback is also received immediately and discussed among members or the network, which accelerates more the development process of an initiative of social innovation than in the past.

Young innovators make extensive and sophisticated use of web platforms and phone apps for social networking, organizing activities, and spreading information. The most common platforms of interaction are Facebook (to publicize initiatives and related activities, get information from others, organize themselves through the use of the group function, etc.) and WhatsApp to keep themselves in permanent contact. Websites are instead used more like showcases or portfolios to display their best outcomes, keep a record of the activities, and provide easy access to basic information and contacts. Other platforms and software are used for online meeting places, selling and buying materials, online learning, etc.

ICT infrastructures represent, therefore, a crucial asset for young innovators that are willing to start an initiative; therefore, investments in ICT infrastructures are crucial for any city that aims to foster social and economic development.

12.2.2.6 Structure and Development Process of Initiatives of Social Innovation

Initiatives of social innovation are structurally similar to business enterprises, which differ in their aim, which is to create primarily social value [92]. Murray identified six stages of development that an initiative usually goes through: prompts, proposals, prototyping, sustaining, scaling and diffusion, and systemic change [91]. These stages have feedback loops between them and might not be sequential or even not using all the steps. The development process is very sensitive to local conditions, project ideas, and the organization model of the initiative.

Typical Italian initiatives start from a small group of people that usually know and trust each other. In most of the cases, they live in the same town or geographic area. This is especially true for those initiatives that want to address the topic of city development. In the prompting stage, they identify problems, causes, and discuss possible solutions. A group such as this is the embryonic state of a social innovation initiative. The following case is a clear example of how an initiative can be started and the relevant role the network played in that.

Belmonte in Rete is a social initiative emerging from the community of Belmonte Calabro (Calabria). Its mission is to foster sustainable development in that village. Belmonte in Rete was born with the first goal of building a shared Vision of Belmonte Calabro that images the town over the next 20 years; capable of inspiring all its inhabitants and all those who want to contribute to the development of Belmonte [39]. In 2015, one of the co-founders attended a seminar near Rome on the revitalization of historical centers. There, he met other people presenting their initiatives, some of which were based on bottom-up processes and citizen participation. Inspired by the other stories, he went home with the motivation to start something similar for his hometown, Belmonte Calabro. At the seminar, he also met the other co-founder of *Belmonte in Rete,* which as an idea, was born in Calabria, and then found the necessary partnership and support provided by the network in Rome.

A crucial factor that is frequently determinant in the emerging of an initiative is the presence of a mentor. This figure is a knowledgeable person that is attracted by the ideas of the group; thus, s/he offers help by protecting and supporting the initiative through its capabilities, experience, network, and sometimes even financing activities. A mentor is a kind of guardian angel for an initiative of social innovation [87]. Having one or more mentors is a crucial resource in the stage of generating proposals and ideas.

As part of its organization the association *Pensando Meridiano* (Calabria) recognized a group of mentors that have no responsibility nor statutory role in the association; they are there for reference, support, and accompaniment to those actions that the association identifies and plays. The mission of the association is to foster social innovation among youth generations. It also helps local institutions to develop visions for the future of their communities. Bottom-up processes and the use of ICT are at the base of their programs and initiatives [122].

Once the group is solid and the motivation high, an initiative usually develops in a more structured subject, clearly defining the aims, principles, and the way to act. Innovators have to decide which would be the most appropriate identity for the group. The most common forms are simply an informal aggregation of people that collaborate on a common agenda, a private company, or a nonprofit organization.

The last formula is the most chosen, as it communicates well the willingness to operate for making social value and not for an exclusive economic benefit. That form also provides easy acceptance by the related community, and at the same time, it guarantees openness to whoever is interested in being part of the initiative. Another reason for choosing a nonprofit formula is the simplified and cheap opening procedure as well as the access to fiscal benefits. It is easy, fast, and inexpensive to open a nonprofit association, it suits well for a broad range of industry sectors, and its structure and organization can be determined by the associates in the way it serves to better the aim of the initiative.

Other typical activities are the design of a logo, the organization of a launching event open to the whole community. Later on, many initial events and activities are planned and realized. All of the activities are finalized to develop a prototype. That would be one or more services for cases of initiatives that aim to improve a town.

Expanding the network, achieving competence, analyzing strengths and weaknesses of their territory, and gaining feedback are all activities finalized to grow and diffuse the initiative.

There are several ways the initiatives engage with the community. Workshops, photographic and video contests, education activities, conferences and festivals, guided tours of the city, sportive and leisure events are all activities ideated and implemented to work systemically for general community development. The primary intent is to bring into the local territory different points of view, ideas, and knowledge that could be used to develop proposals and projects for the city.

The *Progetto Artena* was a five-year participative strategic design project for the revival of the historical centre of Artena (Rome) started by the nonprofit organisation *International Society of Biourbanism*. After more than 80 initiatives (Fig. 12.3), during the third year of the project, a breakthrough event happened: The *Comitato Centro Storico Artena* (The neighborhood committee of the historical center of Artena) arose spontaneously by a proposal of a few citizens. Social events, recovery of neglected areas, restoration of buildings, a mediation role between citizens and the Municipality, promotion of local products, fundraising for initiatives are the kinds of initiatives the Committee promotes to improve the quality of life of the community. Today, the Committee involves around 30 residents and supporters, gathering different actors such as local business owners, makers, professionals, the Municipality, food producers, schools, and associations [123].

12.2.2.7 Relations with Local Institutions

In the Italian panorama, the public sector finds difficulties in promoting effective public policies supporting innovation and development. This is due to the lack of investment in new technologies for public offices, and unskilled human resources of the administrative apparatus, which therefore results in being slow and inefficient, even in being aware of what happens in its territory. The sole logistical-infrastructure deficit penalizes the Italian economic system for an amount of €42 billion per year. In addition, the burden of bureaucracy is on small and medium enterprises for an amount of €31 billion a year [124].

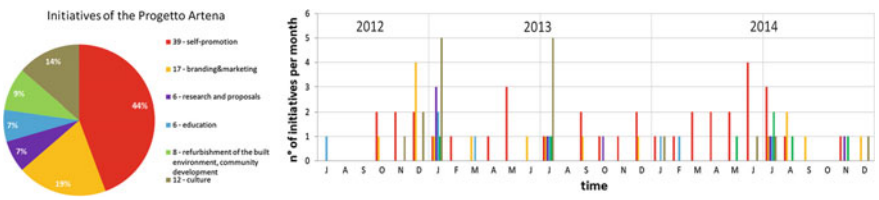

Fig. 12.3 Initiatives of the *Progetto Artena* by type and their distribution over time. *Source* Authors

All of those factors encourage a climate of light control and propensity to assist people outside the legislative framework. Simply, the most effective solutions are taken, regardless of the law and standard procedures in a climate of corruption (moral and economic) that people are keen to undergo to gain more profit by overcoming the bureaucracy and the cost of operations. A visible effect on the built environment is the presence of a massive number of illegal buildings and appropriations of public spaces.

This critical situation is produced by the overlapping of two different paradigms of governance. The first one is an informal and shared ancient model that relies on peer-to-peer social relationships to address issues. That one was proper for the Italian preindustrial municipalities, mainly self-sufficient where the preservation of the community integrity was seen as paramount to respond to outside threats. The second one is the modern hierarchical model of governance based on a powerful central authority. There are urban areas where the contemporary model of governance is weak and gives space to the remains of the older informal model to take place. However, in that situation, both models coexist, clashing with each other. Those are the situations where initiatives of social innovation find a fertile territory to propose their ideas. Their success is due to the fact that they work by using a model based on social relationships, which allows the two governance models to find points of contact. Initiatives of social innovation usually take the role of mediators between the community and institutions.

The public authority is frequently a partner. There are several forms of collaboration. Almost always there is a simple institutional patronage on singular activities that works as a sort of guarantee that the activity promoted by an initiative of social innovation is for noble and shareable purposes. Sometimes, the patronage is combined with funds or other services (a school bus to drive people, the cleaning of a place for an event, etc.) but in most cases, it goes with a concession of using a public space or a building for free. Those concessions can also stand for long periods of time, such as the case of providing a free-of-charge space as headquarters for a nonprofit organization. A more recent and growing practice is the establishment of a collaboration agreement where a public property is given for free under certain conditions, such as the maintenance and refurbishment of the property on expansion of the initiative.

Some municipalities have taken this direction by implementing sophisticated tools for the management of their unexploited assets by relying on the active involvement of third sector's subjects. For example, this is the case of Bologna, which developed an ICT platform called *Iperbole2020* [125]. To pursue the aim of cooperation, Bologna created a project called *Collaborare è Bologna* (Collaborating is Bologna), which works as a framework for several initiatives. Its aim is to promote the culture of collaboration and seeking community involvement to make information, technologies, resources, space, knowledge, and skills more accessible. The project is based on a document, "*the Regulation on collaborative forms between citizens and administration*" [126].

In Altamura (Puglia), *Iperurbano* is a network of three subjects aggregated to develop a participatory path promoted by the Municipality of Altamura to build the

Integrated Sustainable Urban Development Strategy [127]. Each of the three subjects has a story of intense activity in the promotion and development of Altamura's territory. They are *Esperimenti Architettonici* (Architectural Experiments) a research group born in Altamura in 2011 consisting of a network of students, researchers, and designers from different parts of Italy. It is set up as a collaborative platform between the web and the territory, promoting urban regeneration strategies and cultural promotion focused on the active involvement of citizens [128]; the association *Cuore di Altamura*, made of citizens residing in the historical center of Altamura, aiming to enhance the historical and cultural heritage of the ancient district [129]; the *Pro Loco Altamura*, a local association with the aim of promoting and developing the territory [130]. Saverio Massaro, President of *Esperimenti Architettonici*, is confident that this working opportunity along with the public administration will strengthen the relationships between the three organizations and pave the way for further involvement of the citizens in the governance of the whole town.

12.2.2.8 Relations with the Built Environment

The Italian built environment is largely deteriorated, especially in the peripheries and historical centers. The wild and unregulated urbanization that started during the second half of the last century has left the new generations a damaged territory with plenty of second and third property houses, infrastructures, and industrial buildings most of them illegally built and then regularized by the politics through a series of laws that threatened the environment more and more; this in contrast with the Italian Constitution, which specifically addresses safeguarding of the landscape [131]. A considerable number of empty buildings, mostly in bad condition and of poor quality, are scattered along the main arterial roads, alternated by unused plots and abandoned fields that have originated a continuous ugly urban landscape [132]. Historical centers look at those territories from the top of their hills where they are in a dreadful state, mostly abandoned, full of private properties without residents and dangerously in ruin [133].

How to use public and private unexploited assets is a long-running debate in Italy. The State's real estate has a value of almost 60 billion Euros: over 47,000 inventories, 32,691 buildings and 14,351 areas, worth 54.1 and 4.78 billion, respectively [134]. There are not enough public funds nor an effective national strategy to maintain all of them and put them into the economic system. Recent selling programs of state properties have achieved lower results than expectations [135].

This huge real estate represents an opportunity for the reintroduction of those assets into the economy of each Italian municipality. The already cited study, Sud Innovation, explores the relationship between social innovation and physical heritage. Several initiatives deal with these assets, taking care of them and bringing them into a new economic and social dynamic. The social innovation phenomenon offers a way to a model of management that is based on subsidiary and cooperation

principles. At least, a part of the public and private heritage could be maintained by local citizens and put into an economically sustainable dynamic of asset management, without the necessity to recur to external funds [87]. The new approaches to enhance public assets by supporting grassroots participation have achieved success under certain conditions, such as "*the presence of a community capable of self-organized processes, the location of the buildings in urban centers, specific building characteristics in terms of type and state of preservation, the presence of a party — other than the public administration — with the ability to independently assume a managerial role in the activities promoted, and a flexible legal relationship between the administration and private parties*" [136].

The model that emerges by looking at the built environment refurbishing activities implemented by initiatives of social innovation is opposite to the one that is based on significant investments for large projects, and requiring a long time and several bureaucratic procedures. This alternative model is based on incremental developments made of micro interventions of refurbishment and reconnection to the urban system of deteriorated public spaces and buildings.

The described model of intervention has several points in common with an urban regeneration method called *urban acupuncture* [137]. Here, the underlying assumption is to cure the urban organism where it is affected by an illness or harmed in its physical part. The principle and practice of recovering the energy of a sore or fatigued spot by means of a simple touch have to do with the revitalization of this point and the surrounding area [137]. This method combines urban design with acupuncture, which comes from traditional Chinese medicine [138]. The method wants to provoke a shock that affects all the connected elements of the urban system. In fact, "*urban acupuncture is characterized by punctual interventions through the official surface of the city which aim to establish contact between the urban collective conscious and the life-providing systems of nature, including human nature*" [139].

An example is the case of the village of Artena, close to Rome. The inhabitants of the half-abandoned historical center take care of the maintenance and refurbishment of many small public spaces, they collect money to buy street furniture and to repair public fountains. They also organize open events on a range of topics related to their town's characteristics. The activities are organized by a local neighborhood committee, which was founded in 2014 with the purpose of promoting projects and initiatives aimed at improving the quality of life of the residents of the historical center of Artena [140].

12.2.2.9 Scales of Intervention

Initiatives dealing with social innovation operate on at least three scales: the local one, accounting for the largest number of initiatives, a middle scale, made of groups that focus on helping other initiatives by offering highly specialized services, and lastly, a high scale where initiatives support all the others by sharing their stories or offering a space to publicize their activities.

All of the cases presented so far, mostly operate at the local scale. An example of high-scale initiative is *Italia che cambia*. We have already seen that it offers a free mapping service on their web platform. In addition, this initiative is registered as a digital newspaper, as its aim is to document and share information about all other initiatives [99].

Italian Stories is a "*digital marketplace for immersive travel experiences focused on Italian craftsmanship.*" That initiative has the form of a business that finds and engages with local crafters, sharing their stories in a network accessible to whoever "*wants to discover the real artisan knowledge, while living unique immersive experiences.*" [141].

South Cultural Routes finds stories, places, and people, a testimony to a past that today lives and revives thanks to a new form of tourism: slow, attentive, sustainable, and green. The initiative was started by Lorenzo Scaraggi who embarked on a caravan trip across the slow cultural and tourist itineraries in Puglia, Basilicata, Calabria, Campania, and Molise [142]. Massimo Castelli defines himself as a traveler, storyteller, filmmaker, and human being. Through his *Amazing Everyday People*'s project, he video-story tells places and people he meets, aiming to inspire other people to make a positive impact on society. He largely uses ICT, drones, and other technological devices [143].

Other initiatives operate at the middle scale, networking with other initiatives and young innovators, providing support or establishing mutual help. Usually, shared projects originate from linking together two or more of these initiatives.

Founded by Andrea Paoletti and Mariella Stella in 2012, *Casa Neturali*s is based in Matera (Basilicata). It is a "house" where the community can start collaborations and shared projects with social innovators from all over the world. Thanks to the Co-living project, the innovators can live and work together but, above all, meet the local population and try to imagine possible futures for the territory. In 2017, they launched an incubator project, a training course to make cultural and creative businesses sustainable thanks to the team's experience and the support of a large network of international mentors. They also are involved in the field of education, tourism, and event organization [144].

GiovanIrpinia, born 2017, is a socio-cultural association aimed at enhancing the youth, the arts and the territory. They help young people between 18 and 35 years old to become active builders of their future, collaborating in partnership with public and private bodies, associations, and institutions to make Irpinia's geographical area (Campania) more and more livable. The association wants to attract ideas and innovations that produce more work opportunities in their territory and beyond. The association is particularly close to all those young people who experience uncomfortable situations and who would like to be heard and supported in developing their own ideas and ambitions [145].

12.2.3 The Common Effort to Overcome the 21st-Century Uncertainty

Periods of profound crisis, like nowadays, produce huge cultural changes, revealing the fragilities of the in vogue society model and allow the emergence of profound spiritual doubts that permeate daily life [146]. The uncertainty about the future overwhelms the optimism that instead is predominant during more prosperous periods.

Nowadays, a general sense of discouragement and anxiety permeates the heart of young generations [147, 148]. Most of the youths are afflicted by a predominant anguish of failure, they doubt their capabilities, and they fear being alone in facing the widespread social injustices they see. In this climate of uncertainty, some of them find the courage to start to act, exactly because they are aware that neither the system nor any other person will pave them the way to the future. Therefore, they identified an effective means in concrete actions to make a change in society. They are confident that this way will create a positive feedback as the actions will become examples to be followed, bringing trust into the city community where others can be inspired and join the effort.

Making resolute actions is the same strategy that the Renaissance man relied on. It was confident in science and human capabilities to seek glory as a way to assure itself a surviving after death and therefore defeat uncertainty [149]. Like Leonardo, who retouched *Gioconda* until his last day, young innovators of the contemporary era never stop to increase and improve their baggage of knowledge through the countless experiences they get from the social networking system they are part of. It is a self-feeding pedagogic approach similar to the Socratic Method [150, 151]: as members of the network they do not have all the solutions, rather, they find them by dialogue with each other. The communities the innovators are part of the benefit from the spillover of that process of learning and know-how exchange.

The popular case of *Interazioni Creative* is a co-working initiative in Cosenza (Calabria) conceived by Deborah De Rose who decided to devote a physical and virtual space to the unexpressed talents. It is based on interactions to share ideas in a continuous synergic exchange, to innovate and allow the emerging of the community social dimension, a crucial asset to build an effective path toward the personal and community well-being [152].

12.2.4 A New Humanism at the Base of 21st-Century Urban Design Strategies

At the end of the 20th century, cities all over the world started to face a long transitional phase of profound structural change due to the effects, positive and negative, of globalization [153]. The situation was aggravated at the turn of the 21st century when a huge crisis, coming prevalently from the economic system, hit all

the other society sectors and became systemic [154]. European urban communities found themselves unprepared against the increasing uncertainty recognizable in several threats, such as the collapse of markets and social welfare under policies of austerity, climate change, terrorism, and other parochialisms that bring disaggregation at national and international levels [155]. The effect of globalization has been much worst in Italy, which has experienced a long stagnation phase where almost no structural reforms have been made to readapt the economy and the society to the new challenges [156, 157]. While the national government was revealed to be unprepared and unable to set up a process of getting out from the crisis, at the local level, the Italian movement of social innovators organized to challenge the long-time unsolved issues accentuated by the crisis [88]. An emergent movement of social innovation has spread across the Italian country, taking root in many villages, towns, and cities.

Several aspects of this Italian social innovation movement suggest an analogy with the historic Italian Renaissance, of which the humanistic stance was at its basis. The Renaissance was a huge cultural revolution, born in a context of crisis that created the condition for the emergence of a humanistic view of life where its fundamental characteristic was the spiritual, moral, and civil training of the human being [158]. Similarly, the Italian social innovators revalue the human being and put trust in its capacities and virtues.

In the manifesto of the *Belmonte in Rete* initiative, it is clearly expressed that in their vision "*the human being is the main element of the urban ecosystem, […] in opposition to the capitalist and mechanistic model that identifies persons as just passive users and consumers.*" In addition, the citizen is seen "*as an active agent, a creator of processes, physical and digital places, and networks.*" [110]

We can synthesize the Italian revival of local communities as a phenomenon that has taken place from within the city and for the merit of grassroots' initiatives of social innovation, constituted mostly of young people leveraging on their capabilities—mainly knowledge, skills, and creativity—promoting a novel vision for the future of their community.

That vision proposes to build a more sustainable urban system that can combine the economic development of the city and the personal development of those living in that system.

In the actual neoliberal society, those two aspects exclude each other as human rights are sacrificed to increase productivity [159]. At that point, the social innovation movement proposes a change of paradigm where the human being is put at the center of the system and its design. Social innovators propose that change by leveraging on local assets (physical resources, institutions, individual knowledge, creativity, skills and capabilities, entrepreneurial spirit, sense of place) to trigger a community revival process [98] able to produce positive systemic effects on the whole urban system, which would then offer a better quality of life [160]. Frequent effects are a change in the local governance towards more inclusive models, the promotion of sustainability at the ecologic level of the urban system, the healing of that system by its incremental regeneration.

In conclusion, every initiative of social innovation heals a part of the urban ecosystem producing systemic effects on the surroundings. Contemporary economic and spatial design strategies cannot disregard the fact that cities are being transformed by their citizens on the basis of a revived human-centered paradigm, an alternative to the one that dominates the modern society. The future structure of the city is difficult to foresee but new coming development strategies have to take into account those emerging phenomena.

12.3 Mushrooming Experiment Providing for New Biourban Strategies to Nourish Life-Enhancing Diversification in a City

12.3.1 Spatial Development Governed by Capitalist Economy in a City?

Looking into the relation of space and economy in city explains why the experiment of Mushrooming is so interesting. While researching contemporary spatial development, Carmona [161] has identified a battlefield of three tyrannies. They compose of creative, market-driven and regulatory modes of praxis. Carmona proposes that it is the battle of these three tyrannies to hinder spatial development, leading to compromises and thus to poor quality spaces without character. Interpreting Carmona, we can say that it is the market-driven tyranny to be the most powerful of these three. Firstly, because regulatory tyranny can be regarded mostly as an attempt to correct market failure. Secondly, because the designers are playing themselves out of the game. They are creating their own arena of fantasy, in which they can be the tyrants to value image-like aesthetic qualities over real needs of people and to neglect the constraints of economic feasibility. Market-driven tyranny is the most powerful also from a simple practical point of view. As McGlynn [162] puts it, those who have the ability to fund development, have the real power to shape our urban environment.

Building for example upon the work of Alexander [163] and Salingaros [164], Biourbanism sees it essential how built environment should support the well-being of humans as psycho-physio-social wholes. Thus, the issue of buildings as goods of market is seen troubling [165]. If the viewpoint of market dominates, buildings become instruments of consumerism, where, for example, aesthetics serve more the illusory styles that feed market than real experiences of beauty [166]. Consumerism is based on creating artificial needs, thus making people forget their real needs. Built environment that is not created to meet our real needs can never really support our well-being as humans. In addition, urban space created by the rules of market breaks human relations [45]. This breaking happens, for example, at the emergence of big shopping malls at the crossroads of motorways. Urban spaces produced by shopping malls, to which people arrive in their private cars, foster much less local human encounters than pedestrian streets filled with varied small shops.

The question arises: what to do in this market-driven reality, in order to create better cities for us? Serafini [165] points out one path: we need designers who acknowledge the actual powers and forces at play, we need designers who master economics. With the experiment of Mushrooming, the author will add to this. As designers, it surely is important for us to claim a new powerful position in the battlefield that the tyranny of market reigns. Nevertheless, there are interesting things happening outside this frontline as well. For example, in the following paragraphs the author will show how the network of self-organizing co-working places of Mushrooming mostly stays out of the real estate market, and thus, out of the frontline. Even more, it uses the left-over spaces of the market as its seedbed. For us designers, understanding alternative economics is part of the task of understanding economics. This possibility of adding understanding of alternative economics in the context of design when acting outside of the battlefield encouraged us to gather and analyze more in detail, what we could learn from the spatial and economic processes that the experiment of Mushrooming has fueled.

12.3.2 Self-organized Work as Context for the Experiment

In order to understand the experiment of open process and bottom-up urbanism in Finland we first need to get familiar with the phenomena of self-organized work. This is important also as we are interested in economic design strategies that consider livelihoods of people. Development of ICT technologies has freed many professions from the traditional places, times and communities of work. Many become self-entrepreneurs, collecting their livelihood from several projects here and there. Working life has fragmented [167, 168] meaning also that we more and more often change jobs or professions.

In most cases self-entrepreneurialism is a chosen path of self-expression, for one to choose more freely for example one's own projects or working habits. This is the largely celebrated view in literature that dangerously misses part of the picture [169]. One can also be forced to self-organize one's work, for example, in situations where bigger companies or public institutions are suddenly out-sourcing their services. In both cases there is the risk of dropping out from the everyday communities of work. Thus, people have started to form their own social anchor-points of work. They rent a space and create their own coworking communities. People work there side-by-side, sharing their everyday of work, sometimes working on same project, sometimes on their own. These self-organizing coworking communities differ from corporate-run coworking spaces firstly by being smaller and more intimate, comprising usually of 2–10 people. Secondly they differ from corporate-run coworking spaces, as they do not accentuate monetary profit in the making of livelihoods, but, they concentrate on developing wellbeing at work [170]. In this article with coworking communities we refer to the self-organizing ones, if not mentioned otherwise.

12.3.3 Mushrooming—A Network of Self-organizing Coworking Spaces

Mushrooming is a seven years old conscious experiment on bottom-up urbanism in Finland. It supports connections and interaction of self-organizing coworking communities that did not know each other before. Metaphorically said, the facilitators of this network have made mycelium (i.e. connections) grow, waiting what mushrooms (i.e. reactions) pop up and where. During the years there have been different strategies to support the growth of the network. The strategies have been a combination of conscious design and letting bottom-up activities emerge [171]. There has also been a combination of virtual platforms and interaction in real places in cities, face-to-face.

Since the beginning, Mushrooming has been developed as an open project on many scales, meaning, for example, that there has not been any fixed idea on what Mushrooming should become or what functions it should have. The network is open to anyone; its' use is free of charge and its service-page on internet is built on open source software (mushrooming.fi). Network's main activity has become to connect the individuals in search of a membership of a coworking community to the coworking communities that would need new members. There are also other things happening in the network, such as looking for help to a work project, recycling goods or organizing happenings of getting to know one-another. Mushrooming is active in the biggest cities of Finland (See on Facebook e.g. Mushrooming Helsinki) and it can grow to any country. It is used by over 7000 people and approximately by 300 coworking communities.

The understanding of Finnish coworking culture and of the Mushrooming network presented here is based on intensive on-going action research [172] that the author (Alatalo) has been doing for seven years. Together with a fluctuating group of 4–10 facilitators we initiated the network and have been experimenting with it since 2010. Conceptualizations are based on analyzing further the observations that I have marked in my field diaries. These observations have been collected in action at different situations of developing the network, such as irregular meetings of facilitators (from twice per year to periods of meeting every other week) or organized problem-solving workshops open to anyone. The author has co-organized several face-to-face happenings of Mushrooming with the intention of getting to know one-another in four Finnish cities. Many insights have come from visiting numerous collectives while co-organizing open doors-happenings in different cities at least once a year. Some of the notes come from participating to public discussions on coworking culture in Finland. Part of the research material has been gathered by following the discussions and practices on the virtual platforms of Mushrooming. This material is recorded as screen prints with notes. The author has also lived the everyday life of four coworking communities personally, of which two were established by her.

In the next paragraphs the author will not explain more in detail how Mushrooming has been facilitated [171], but she will concentrate on what

interesting spatial and economic processes in the city it has launched. The aim is to add understanding of the relationship of space and alternative economies in city. The author started tracing the processes by describing and listing observations related to spatial or economic development, which were encountered in coworking communities during all the seven years of action research in Mushrooming (See Tables 12.2 and 12.3). Observations listed were often the kinds that with the help of the open networking are becoming stronger and more frequent. In other words, they are becoming processes supported and fed by networking. When tracing economic processes the author was especially interested in development of livelihoods. With spatial processes she already knew that many dealt with specialization of spaces. So, she wanted to dive deeper into that. In this phase of tracing, it was thought to be more fruitful to consider economic processes rather broadly; more as processes that are closely related to economy, in order to create a varied pool for further analyses.

12.3.4 Tracing New Economic Processes in the Network of Self-organizing Coworking Spaces

People come to self-organizing coworking spaces often during different periods of change. This means periods such as when finishing studies and entering working life, when starting a new enterprise, when changing a profession or when having

Table 12.2 Economic processes emerged by developing the network of coworking communities. On the left observation from the network, on the right the type of economic process it suggests

More possibilities to shelter over economically unsecure times	Process of continuous livelihood
Sharing economy becoming more usual	Process of growing shared resources
Gift economy becoming more usual	Processes of increasing non-monetary economies
Different professionals meeting more	Processes of innovations by skill collision
Different professionals living together more	Processes of innovations in everyday making
Lower expenses of work, culture of experimenting	Processes of prototyping
Hobbies mixed between making of livelihoods	Processes of hobbies ripening to professional skills
More diverse sets of professional skills	Birth of new professions by skill combinations
More diverse sets of professional skills	More challenges in offering the set of skills
Markets of non-professionals, micro jobs, tasks tackled by a group	New cultures of dealing and accomplishing work
More possibilities to find special peers of work	Processes of further spezialisation

Source Authors

moved to a new city. These are all vulnerable times in relation to personal economy. Coworking communities tend to keep their expenses of space and amenities low. This means that coworking communities offer shelter over unsecure economic times. It is important for self-entrepreneurs in regressive situations that are economically challenging. Mushrooming network supports the founding and survival of coworking communities and more there are these communities, more there are possibilities for people to manage over economically difficult periods. Shelter is important also for the ones taking risks to success, as you often need to cope a moment with economic insecurity before business really takes off.

Sharing economies are strong in coworking communities. Space and its' amenities are shared and maintained together. Space is often shared also for people outside the core community. In Mushrooming many coworking communities advertise if they have a special resource that other people could also use, such as old machine for working with wood or 3D-printer. Know-how is also shared, meaning that members of a community often assist each other in tasks that each is most talented to do. Sharing can build up to co-work projects, but it can be also about very simple everyday tasks. This can also be named as gift economy, where nothing specific is waited back in return of the favor done. Another signal of emerging non-monetary economies is the tendency of coworking communities to maintain a function that is not self-sufficient in regards to capital, but in which they see other values. For example, one community maintained a specific skateboarding shop, covering its shortcomings by income from other activities of the community, just to ensure that there is such a resource for the larger subculture of skateboarders in the area.

Traditionally a coworking space has been founded with old friends from school or other arenas. This means that the communities were rather homogenous. Before Mushrooming, for an individual it was difficult to find a place in coworking community outside one's own acquaintances. Nowadays half of the coworking space memberships in Helsinki are mediated through Mushrooming [170]. This means that people from varied backgrounds with different professions have started to mix. In the early phases of Mushrooming there were mostly different kinds of professionals from creative fields, such as designers, artisans, artists and knowledge workers using the network. They had had their isolated communities, but with the emergence of Mushrooming, they started to mix. During last two years also other kinds of professions have found Mushrooming, such as physicians, teachers, engineers, cooks or barbers. Now also these different professions have started to work side by side with the early adapters. This means that Mushrooming enables different talents to collide, which creates excellent ground for innovations. We can call it a process of innovations by collision of different skills.

Breeding innovations is an economic process. Innovations start new livelihoods, they are the motors of economic activities. In coworking communities the collisions of different skills is not usually programmed, but it happens by accident or little by little amongst everyday making. This kind of innovations of everyday life are often very practical, they rise from developing an answer to a question at hand. For example, an artisan might be working on jewelry. An engineer sharing the same

space sees the difficulty of handling one of the phases. The engineer remembers a tool from totally different context that might help the artisan. When discussing this with the artisan, the engineer gets more knowledge about the work at hand, and suddenly understands, how some practices the artisan uses would actually help also in the current engineering project.

As stated before, the low expenses of work in coworking communities allow periods of experimenting. Experimenting happens usually in cycles of prototyping. Experiments are often fitted between work that brings the livelihood. Thus, people are not left totally without livelihoods nor is there too much pressure on prototyping to start quickly to bring income. Spaces of coworking are used also for different kinds of hobbies and rehearsing. People often mix these to the agenda of the day. This brings even more variety to the skills present at coworking spaces, which then can collide and produce new innovations. Flexibility of agendas support people to develop their skills from hobbies to the state that they can offer their talent as services, and thus, new livelihoods are born. These kinds of prototyping and rehearsing are essential early stages of innovation culture. They are the necessary phases of incubation, as you need some evidences of capability of your business before applying supportive funds or searching for companions to start-up development.

There are new professions born in coworking spaces. One way is the aforementioned ripening of a skill from hobbies to the state of a professional skill. These new professions are the kinds that do not yet have a school where you could study them and thus they are not yet even recognized as professions. Another kind of professions emerge from the multi-talentism of the people. As starting point, one has the already splintered project-structured working life of a self-entrepreneur. Then, one is encouraged to experiment with different skills and one also gets inspired by new professionals around. People develop surprising collages of skills that lead to unconventional professional capacities. One might, for example, be a priest and a cook, with skills of academic researcher and choreographer of ballet. Challenge of these multi-talents is in communicating their capacities. When asking from one person at a coworking community, what is your profession, he answered: "*It is easier, if you describe me the task for which you think you might need my skills. Then I can tell you, if and how I can help. Most probably I can also lead you to other people, who I know, who could help you in this. But it does not lead us anywhere, if I start to list the several professional degrees or other skills I have, you would never get the picture.*"

There are new cultures of dealing with work emerging. One is the way of describing the task at hand and sending it to the Mushrooming network. These tasks are usually complex and the kinds that you do not clearly know what established profession should grasp them. This process is somewhat opposite to the dominant, where you are looking for a certain professional and trusting that the professional knows how to handle the work. This kind of dealing a complex work invites groups of people to combine their skills and tackle the work. Another occurring practice is to deal with very small tasks that we call micro-jobs. Mushrooming has created channels, where coworkers have started to ask help from each other, as for example,

in situations, in which one needs a photographer for couple of hours or another seeks instant hints for internet advertising. These micro-jobs are usually paid for. There has also emerged markets for non-professionals. For example, you do not always need the most talented photographer, sometimes it is enough that there just is a person to take pictures for notes. This again is a saving in expenses of the project, and thus, lowering the threshold to experiment. Markets of non-professionals offer precious situations to rehearse the perhaps ripening professional skills and add a little new source to the collection of income.

Some coworking communities have chosen specific goals in their community building, in which Mushrooming network has supported them. These goals are about specialization, which may be an important advantage when competing for sources of livelihood. Coworking communities have started to form intentional groups of professional skills, which as a compound can grasp challenging tasks. Sometimes it means a group of different professionals, who then manage a multi-purpose hub of sub-culture, for example. There are also groups who have specialized in tasks such as audio-visual production, capable of handling everything in between recording a happening to mastering television series. There are also very peculiar communities, such as a group of midwifes, who offer alternative places and ways for women to give birth. These groups have specialized little by little, usually experimenting on ways of doing that are different to dominant services in the market. Mushrooming has helped in finding people, who share the same specific interest.

12.3.5 Spatial Processes Emerged in the Network of Coworking Communities

Coworking communities take into use spaces that are left over from the dominant market. This means, for example, spaces that have lots of repairing to be done, or they are in challenging locations without good public transport. These spaces often have strange floor plans, having been in the use of small industry or built for other special functions whose spatial solutions are difficult to modify to average needs. There are also small, unused spaces here and there, such as rooms in attics, in cellars or back in the yard. Some temporary situations may be too short for stabilized businesses, when self-organizing coworkers instead see them as good opportunities. Luxurious premises at central locations are also leftovers that no single entrepreneur sees wise to house, but coworkers can take into use by cutting personal expenses low by intensive sharing.

Coworking communities prefer left-over spaces because these spaces usually have low rents, meeting the aim of keeping the expenses of work low. For coworkers there is also the wish to renovate and furnish the space by themselves, in order to experiment with what everything the working environment can be like and to realize it meeting the personal tastes and needs. This wish to renovate the space by themselves stems also from the situation, that new experiments on livelihood often

require spatial features that one does not find ready-made from the normal market. Renovating is usually done little by little, both because of limited monetary resources and because of searching the best solution gradually. This is important, because it means that non-professionals are learning by making, what kind of places they actually like and how they can realize them. This applies also to professionals re-learning to forget the styles of design that they have adopted at school. When one creates an environment by really sensing, what feels good, one comes quickly to note how many visual dogmas learnt at design schools create stress. In Biourbanism, the visual dogmas, or memes in other words, which professionals and industry are keen to repeat without questioning the quality of the environment that they produce, are seen as one of the biggest challenges in contemporary architecture [164]. In a Finnish study it was found, that people are doing better in coworking communities, than in other working places in general [170]. Big portion of this well-being stems from the quality and fittingness of self-made working space as well as from the self-managed community. This leads us to the last note on why coworkers prefer left-over spaces. As the spaces do not really interest any regular buyers or renters, they provide freedom for one to do whatever experiments there are on one's mind.

The tendency of coworking communities to take left-over spaces into use and renovate them has created a phenomenon of bottom-up urban repair. This has been empowered trough the network of Mushrooming. Communities find nowadays new members more easily, thus they have more courage to renovate. Communities have started to take into use bigger premises. Some property owners have found Mushrooming and offer difficult premises with little money for coworkers. Via Mushrooming coworkers send hints of empty premises that seem promising to other communities. There is also a process of inheriting spaces, which leads to another scale of gradual renovation. When a community leaves its space for reason or another, it advertises the space in Mushrooming for other coworkers. Next coworking community steps in and renovates the space a little further. This has created paths, where the space has become renovated gradually by several communities to top standards with seemingly little efforts and resources. Backlash of this development is that rents tend to grow as space gets more renovated. Thus, Mushrooming network should assist in finding new models of contract that safeguard the rights of coworkers of not getting higher rents after having put their own workforce to renovate a space.

As described before, the left-over spaces as such are already rather special and diverse. This diversity grows even more as each coworking community repairs the space to fit the specific needs they have. This diversification of spaces of work is a welcome counter-process to for example the monotonous offices dominating the everyday of knowledge workers. Coworking communities organize plenty of open happenings, which makes their spaces momentarily public spaces and thus they diversify also the affordance of them. Through Mushrooming a kind of commons of spaces of work is created: you can find and have access to a huge diversity of spaces, from smithies to dance halls, though you need to follow the rules each community sets. Still many communities welcome visitors for short times for free and are open to new collaboration.

Urban repair described above is often dismissed as it happens slowly, scattered to spaces here and there, and hidden to privacy of the communities. Still it is a valuable process of repair in cities, working upon small scale tasks, contrary to big scale development that top-down models prefer. The diversity that this process of urban repair produces would be very difficult to produce by other traditional methods. Usually there comes the moment when coworking communities step outside from their spaces indoors and start to affect the public space in their vicinity. This comes through different neighborhood movements and shared happenings, aiming to enliven and repair the common spaces outdoors. Coworking spaces also tend to cluster. After one community has arrived to a new area, soon several other ones have found the premises as well. All these activities start to change the area, even to the degree where coworkers find themselves having assisted to the well-known process of gentrification, prices mounting to be too high for themselves to continue there.

Different kinds of coworking communities settle in different parts of the city. The ones in the commercial city center are the most familiar to us, as they are visible parts of the streetscape. They occupy the spaces of former shops with big display windows to the street. These coworking communities often consist of the laptop workers of creative fields and the choice of location is bi-fold. Firstly, they communicate about themselves and their services by being visible and easily accessible. What their space looks like and what the workers and their working looks like is in this case experienced important. Secondly, they choose the bustling city life to be in the center of services for themselves, such as cafés and restaurants. They feel that the work they are doing benefits of them sensing the zeitgeist directly from the city life around them. Also some artisan professionals enjoy the city center and use the display windows traditionally to advertise their products. Usually these artisans deal with small production such as jewelry or exclusive clothing produced in small quantities in small spaces. There are also groups of artisans that run their common shop in the center, but, they have their places of production elsewhere. Coworking communities in central locations often have meeting rooms and other special amenities that they rent out for anyone interested.

Then there are coworking communities that prefer peace and quiet, work on production and experimentation that is somewhat messy or wish to keep their expenses very low. These communities house the hidden spaces in the city center, in cellars or back in the yards. Moving a little outside the center they prefer for example the former spaces of industry. These are the spaces of high mixing of professionals. Low costs invite to practicing the hobbies as well. We have coworking communities also in the housing suburbs; there, the driver has been to bring the working as close to the living as possible. Here the coworkers are often young parents balancing through the currents of parenthood combined to working life. Often these communities activate the shared spaces of apartment buildings, but sometimes they also rent a flat and for example establish a shared visual arts studio there.

Outside the cities we have one more specific type of coworking space emerging. It is still a weak signal, but seems to be strengthening. These coworking spaces are

established by people living in the countryside. They are managing generous premises with lots of spatial potentials surrounded by splendid nature. These communities have chosen the tactics of inviting interesting people with fresh ideas to come to them. This is done by offering a combination of working and living space for a limited period of time, varying from weeks to couple of months. We are talking of retreats, that artists and writers have done for centuries, but that is now introduced to any professional interested.

In Finland the growth of Mushrooming has made visible differently accentuated cultures of coworking in different cities. In the capital of Finland, where Mushrooming has existed since 2010, there are the most specialized coworking communities. For example, there is a self-organizing community of performing arts, referring to actors and performance artist. One can imagine that it is not self-evident to be able to create your livelihood out of these professions. This coworking community has established different kinds of supporting activities and services for themselves. They include workshops from developing your professional skills to open sharing of funding and project possibilities, not to forget weekly well-being meetings. Even though being practitioners of the field, they also keep themselves intertwined to the latest theoretical development by inviting inspiring persons to work with them.

The other local branches of Mushrooming are now just about two years old. During fall 2015 and spring 2016, there came wishes from coworkers in other cities of Finland to establish Mushrooming network also there. These local networks are at the moment accentuated by the coworking communities from which they started to grow. We cannot say whether the differences of Mushrooming network in each city mean that there are different coworking cultures in each of them. It can also be that only part of coworkers has yet found the network in these newcomer cities. For example, in Turku, the initiator community is focusing on design and advertising. Its motivation for establishing Mushrooming was to find new interesting people to collaborate with professionally and to keep their space full in order to manage their rent. Instead in Jyväskylä there was a group of artisans and artists, who had a need to get politically organized and to have the support of Mushrooming of the capital in order to negotiate about former industrial spaces in the center of new development. In Tampere, there were strong alternative cultures of artists and urban activists, who took Mushrooming as one more platform of their interaction. Some local users of Mushrooming have wanted to differentiate from this agenda, which has resulted even in leaving the network in the fear of becoming too strongly associated with the alternative movements towards which they are critical (Table 12.3).

12.3.6 Development by Spatial and Economic Opportunities

While collecting the economic and spatial processes that have emerged in Mushrooming, the author noticed that there are also situations where these two processes are closely intertwined. This led to one of the key findings: development

Table 12.3 Spatial processes emerged by developing the network of coworking communities. On the left observation from the network, on the right the type of spatial process it suggests

Taking into use left-over spaces	Processes of recycling spaces
Renovating and fitting the space by themselves	Relearning spatial qualities by experimenting
Courage for more challenging premises and inheriting of spaces	Process of bottom-up urban repair
Inheriting of spaces	Higher rents by upgrade
Special spaces taken into use and renovated to become even more special	Diversification of spaces of work
Spaces available via Mushrooming network	Emergence of commons of spaces of work
Urban repair and clustering of cool coworkers	Gentrification
Different types of coworking communities preferring different kinds of spaces	Growth of different coworking cultures in different parts of a city
Different contexts of birth of city based groups	Growth of different coworking cultures in different cities

Source Authors

in the network of coworking communities is sparkled by spatial and economic opportunities. For example, a coworking community is established when a spatial or economic opportunity emerges. Here one spatial opportunity can be an empty premise encountered or one economic opportunity a possibility to new livelihood by finding a new peers of work with whom to collaborate. These opportunities are encountered more and more with the help of the network. This is interesting in relation to view of the battle field of three tyrannies [161] preventing spatial development, reflected in the beginning of this part of the chapter. In the network of self-organizing coworking communities, it is not the tyranny of market that hinders the spatial development, but the opportunities to new livelihoods that sparkle the spatial development, especially in the cases such as introduced next, where economic and spatial development are closely intertwined.

The professional mixing and specialization that Mushrooming has enabled and supported during the years, has become visible also as spatial mixing and specialization. As an example of mixing, there are coworking communities that consist of knowledge workers, artists, yogis, dancers, social workers, musicians and cooks. They have developed spatially rich complexes that fit multiple uses. These multiple uses cover the spaceeither in turns or simultaneously. This means, for example, a melting pot of café-restaurant, a well-equipped gig hall, practice halls, laptop worker's rooms and studios for painting, hosting everything from discussion evenings to rare cinema projections, a flamenco school and mother-child yoga.

It is not only a mixed group of professionals coming together that produce multi-purpose spaces, the reason behind a multi-purpose space can also be about professional specialization. One of the main runners of this kind of a place mentioned, that they saw establishing a multi-purpose space as the only mean for themselves to do what they wish, which is to continue developing as professional

dancers. Early in their career they understood, that it is only a fraction of dancers who get stable jobs and that kind of institutionalization is not even what they want to. The other usual try to earn the living as a dancer is to continuously apply for project-based funding from different foundations. That is very unsecure business, taking lots of effort and forcing you to concentrate on what are the wishes of the foundations. To have the freedom of expression they chose not to earn their livelihood from the dance, but to figure out something else that brings enough money to live and leaves enough time to practice dancing. Their solution was to manage a spatial compound that rents out the multiple facilities it has at low prices but with full house all the time, resulting in richly inspiring working environment for themselves as well. This meant for them to expand their professional tasks a little, from learning sound engineering to become assistants in kitchen, but not too much for dancing to get affected. It is not an easy path. One pioneering highly mixed community like this is at the moment in their third location experimenting with their third combination of actors, balancing on the edge of economic survival, but also creating a vivid and appreciated sub-cultural hub at the same time.

It can also be a special spatial opportunity that creates the community and possibilities for new livelihoods. For example, there is one interesting type of coworking communities, where specialized group of designers, artisans and other small producers grows combined to special spatial opportunities to support a specific short and vulnerable period of new enterprises. Spatially this means to have a good location with windows to the street and enough space for a shop-showroom combined to a café where possible buyers of the products can linger, and where you can organize inviting happenings. In connection to this, you need big spaces suitable for housing different kinds of workshops from clean high-tech production to rougher machinery. The prototypes developed in the workshops are presented and sold in the shop-showroom since their rough first versions. This way developers can get straight feedback from the customers throughout the whole process of prototyping. In Helsinki, one community like this housed at a time about ten starting enterprises of one to six persons in each. The production rooms were not open to everyone and many small enterprises preferred having their own room. This early incubator community worked very well and was recognized as an interesting place for trendsetters. One of the runners of this community presented a notion, which had come as a surprise to him: the turnover rate of the starting entrepreneurs was really high. Either their experiment did not succeed in half a year and they left the space, or, their experiment succeeded so well, that their needs for space grew bigger than the incubator community could provide. He saw it very important, that you have these kinds of incubator places, where failing experiments are natural part of the picture. He also saw that Mushrooming network had been precious in finding the new self-entrepreneurs as the changeability had been surprisingly high.

As Mushrooming grew to other cities, some coworking communities developed tactics in creating satellites to them. This is an example of combined economic and spatial tactic. Establishing a branch of a coworking community to a bigger city than it is originally from, presents usually an economic challenge of higher rents and higher competition of the best locations. It also presents an economic opportunity of

new clients. One way to balance through this is bravely to rent a big space and directly sub-rent a good portion of it to for example a pop-up restaurant surviving with simple kitchen. Coworking community then starts in the small space left, using the hype of the new restaurant to advertise oneself for example by organizing a series of brunches with program that presents the doings of the coworking community. Restaurants often have a lifetime of 3–4 years in Finland, during which the coworking community has time to grow steady and fill the whole space if needed.

In other words, self-organizing coworkers create spatial development, that is, establish new spaces to our cities, by gripping to spatial opportunities and to opportunities to develop new livelihoods. And not only opportunities, a strong need can also be the driver, as in the case of dancers in need of developing their livelihoods. When coworking community is established based on a spatial opportunity, it usually means, that the community does not exist yet. A space is found by couple of people who then start to look for other members. Mushrooming network helps in this search. On the other hand, when the developing of a new livelihood is more the kick-starter of the coworking space, there usually is already a community that in turn is in search of a space for them. Mushrooming helps also in this case, though the adverts on empty spaces are much rarer in the network, than the adverts of memberships in a community.

Based on the activities in the network it seems that self-organizing coworking communities are established mostly by encountering a spatial opportunity. At the same we know from the field that need for spaces is bigger than availability of them. There are fitting spaces, but the channels for dealing them, such as Mushrooming, are not familiar to property owners. Thus, the central issue hindering development of self-organizing coworking culture is that the communities do not get established as much as they could, as plentiful vacant spaces and their possible users do not find each other. Mushrooming is efficient in making different professionals to find each other, but new practices should be developed to foster the establishment of coworking communities by encountering a spatial opportunity. Spatial opportunity seems really to be the key for the development of the coworking culture, as also the communities who start from the idea of developing a new livelihood, will immediately face the question of where to find a space for them. Thus, we can say that in the field of self-organizing coworking culture, it is not the market that hinders the spatial development, but the poor communication of spatial needs and offers.

12.3.7 Markets Creating the Coworking Bubble?

Since the beginning of coworking phenomena, it is observed that the orientation of coworking itself is not in the business [169]. Regardless of that, the hype around coworking is used for marketing and especially city branding to such a degree that many question [169, 173] whether it is creating a coworking bubble. There are similar kinds of expectations born of coworking, as there have been around

Florida's ideas on creative class [174] and its capacity to foster economic development. Are these expectations in vain?

One challenge that researchers have when trying to answer this question is, that most of the studies are made on corporate-run coworking places. This is because the self-organizing ones are difficult to reach, if there is no network such as Mushrooming. The world of corporate-run coworking places is different to self-organizing ones. From the perspective of corporate-run places, there is the risk of a bubble. In the arena of self-organizing coworking places, we can see promising alternative development instead. The idea of corporate-run coworking places is usually to have a rather big premise that can house, for example, a hundred coworkers. It aims to foster collaboration, but, often ends up to become more likely a drop-in office, where freelancers work alone together [173, 175]. As this happens, it breaks the coworking bubble by not fulfilling the expectations of fostering new innovations. As collaboration is not happening, there are questions, whether coworking really brings new skills or supports survival of coworkers [173]. This result may come also from the twisted and partial view of having studied mostly the corporate-run coworking places. Examples from Mushrooming show, that when self-organizing coworking places are networked, different professionals start to mix and develop new livelihoods. When costs of working are low, people are encouraged to experiments leading to innovations.

The isolation in corporate-run coworking places is fought back by hiring professional community managers, which increases costs. Corporate-run coworking places act in the markets, they compete by offering extra services to freelancers, as well as extra spatial qualities. All this increases costs even more. Here comes one thing that is creating the bubble: corporate-run coworking places become too costly to the majority of potential coworkers. It has been already noticed, that the profitability of corporate-run coworking places often is low [173]. I claim that this does not mean, that coworking culture would not be promising in fostering economic development. It just means, that the coworking culture flourishes on other economic arenas and with other logics than our dominant markets. As cases from Mushrooming presented above in this text show, the profitability in self-organizing co-working places is high; for example, in situations, where with very little resources, conditions of accommodation are created to cover economically uncertain times.

12.3.8 Mushrooming Providing for Biourban Strategies

As presented earlier in this text, in the core of the tactics of self-organizing coworking communities there is to grip to a spatial opportunity encountered in a city. Even if a community is driven firstly by economical experiments, they need the spatial opportunity to start developing. This suggests, that even though economic perspectives are strong in the self-organizing coworking culture, it is very much about spatial development, and thus, in the arena of urban designers and other

city developers. We can learn for our design strategies from Mushrooming to facilitate the tactics of self-organizing coworking communities.

Biourbanism strategies are mainly considering a city as a complex living organism which cannot be strictly planned. Instead it can be rather guided and directed. New possible routes to development may be opened, new actors may be supported to act. Biourbanism suggests strategies, such as urban acupuncture [139] or peer-to-peer (P2P) urbanism [71]. Urban acupuncture finds specific elements of action in a city; these elements can launch healing and energizing processes, which may essentially be spread inside the urban fabric. These operations can activate or renovate factual urban spaces. P2P urbanism is more about building networks and enabling bottom-up development in the cities. These networks are often used for sharing resources, or, for making improvements to individual everyday lives with the help of peers. By networking with other peers, proposed small actions can be slowly transformed into city-scale phenomena.

Initiating and facilitating a network of coworking communities such as Mushrooming is a design strategy combining elements both from P2P urbanism and urban acupuncture. There is the building of a network of peers as to enable self-organization, similarly to ideas of P2P urbanism. Then, both the facilitators and the users of the network are doing acupuncturing kind of actions that launch different processes in the virtual and spatial dimensions of the network. Acupuncture in Mushrooming does not refer to everyday stabilized practices of the network, but, to new activities introduced every now and then, which start new processes and alter the functions of the network itself [171]. Emergence of new acupuncture activities is possible as the network is an open process. It has not any fixed idea of what it should be for; it is more an interaction channel for the coworking communities. This has created practices that enable the emergence of acupuncture activities from bottom up [171].

Whilst analyzing different spatial and economic processes emerged in Mushrooming, it was soon noticed that many of them are about mixing and specialization (See Tables 12.1 and 12.2). In other words, they are about diversification. In the following sentences, this diversification has been conceptualized from the point of view of the professions. The author is currently working on similar conceptualizations of diversification of spaces, but this is not yet ready for publication. The first order of the diversification in Mushrooming is about specialization by becoming other, by one isolating oneself. It refers to a situation in the beginning, when the simple act of establishing a coworking community is a diversifying thing in relation to the dominant working culture. These communities often consisted of old friends, thus, they were rather homogenous and non-surprising, and still they offered special conditions for professional development. For example, forming a group of visual artists may be very emancipating. Second order of diversification was about mixing. It happened, when these communities started to use Mushrooming for their survival, in situations, where new members were needed to share the rent; different professionals started to mix, still though being mainly creatives. The third order of diversification was about specialization, when coworking communities started consciously to use Mushrooming for finding special

community members or proposing special amenities. Then, interaction was no longer about survival over unexpected situations. The fourth order of diversification was again about mixing. It happened, when other professions than creatives found Mushrooming and started to share spaces alongside them. In other words, it seems that from a larger perspective, diversification in Mushrooming takes new steps in producing diversity in alternate waves of specialization and mixing. At the same time, in the everyday life of coworking communities, specialization and mixing are often intertwined, as in the case of dancers creating themselves opportunities to develop their skills of dance by simultaneously running a multi-purpose space.

The Mushrooming experiment provides for biourban strategies, because it creates processes of diversification. Ability of a city and of human culture to have processes of diversification can be mirrored to the ability of an ecosystem to have processes of growing biodiversity. We need that diversity for situations, where circumstances change rapidly, where old dominant solutions no longer work. In evolutionary theory, when looking long perspectives of time, evolution of species seems to be dominated by long periods of stagnation that then are punctuated by sudden revolutionary change [176]. During the stagnation or balance, the genes of dominant species stay quite much the same, the mutations and alterations to genes happen mostly in the groups that, for a reason or another, become isolated from the dominant pool [177] and are small enough to be affected by alterations in the genes of even one individual. It is from these small alternate groups that new genetic development rises after dominant one fits no longer. More diverse these groups are, more possible new solutions we have.

Urbanist Shane shares the view of the importance of having the pockets of richly varied grass-roots' alternative cultures in a city [178]. He sees that these pockets play important roles in the development of a city and especially in the situations of rupture. Similarly to evolutionary theory, he sees that in situations of urban change the alternative solutions these pockets have practiced, may suddenly fit better to the new context than the practices of the dominant culture. These alternative solutions can be about new innovations but also about old practices that dominant culture remembers no more. Alternative pockets are thus important reservoirs from which fitting solutions filter every now and then to the dominant culture. What is not so often discussed, are the methods of whether and how we could support these alternative pockets, and whether supporting them could be conscious act of urban developers. Case of the Mushrooming shows that by creating open interaction processes the alternative cultures do not melt together and vanish but they actually grow even more special and more diverse. Openness of the network and transparency of self-organization are crucial in order the alternatives not to become too extreme or too other to the society.

The Mushrooming experiment provides for Biourban strategies by being a combination of P2P urbanism and urban acupuncture with the special emphasis on creating processes of mixing and specialization that then compound to processes of diversification to become life-enhancing strategies for a complex ecosystem, such as a city. Seeing diversification as life-enhancing process in a system is built also on Capra and Jakobsen's [34] systems view of life and philosophy of organism.

They propose four life-enhancing principles: nested systems, self-generating networks, open systems and cognitive interactions. Earlier in this paper the author described how coworking communities are nested systems inside a coworking network. In an earlier paper [171] the author explored how coworking network is a nested system in relation to its context. In that paper, the themes of openness and cognitive interactions were analyzed as processes of shared knowledge generation emerged in Mushrooming. At a conceptual level Mushrooming shares many features with the idea of life-enhancing ecological economics of Capra and Jakobsen; these authors talk about the principles. What new things Mushrooming can bring to this discussion, is to show what empirically happens in some case, where these principles are in function.

Stepping out from the context of coworking, we can say in more general terms that Mushrooming is about facilitating open networking of self-organizing communities. Learning from the growth of Mushrooming in new cities has shown, that, because of the local communities, it always takes local forms of appearance. It grows from the people's knowledge of their context, thus, it is a strategy that can be applied to many places. It has many scales, some of the actions considering the everyday life activities of a room, up until to phenomena becoming visible at metropolitan scale, and even among cities. It differs from many design strategies by taking years to develop; Mushrooming grows hidden in the privacy of coworking communities. It is a strategy aiming for diversification of spaces and it could be applied to other domains as well. For example, we may foresee that developing co-living by facilitating self-organizing co-living communities to interact can promote processes of diversification similar to those emerging in Mushrooming, thus, resulting in the creation of interesting new spaces of housing in connection to new ways of living together.

12.4 Naples Biourban Smart City: A Spatial Strategy for Local Innovations

12.4.1 Introduction

The European Union has dedicated relevant efforts to devising a strategy for achieving urban growth in a "smart" way for its metropolitan areas, according to other international institutions oriented to believe in a wired, ICT-driven form of development (for example, the Intelligent Community Forum, the OECD and the EUROSTAT), stressing the role of innovation and providing a suitable framework of analysis on urban innovation [179]. Indeed, the availability and quality of the ICT infrastructure is not the only definition of a smart city—taking into account the relation between ICT infrastructure and economic performance [180], the role of human capital and education in urban development—but also the interaction between human capital, urban development and economic development [181, 182].

In general terms, a smart city can be described by six key dimensions: (1) smart people, (2) smart economy, (3) smart mobility, (4) smart environment, (5) smart living, and (6) smart governance [183–186]. These dimensions are closely interlinked and describe the relations system that characterizes tangible and intangible processes of urban and territorial development. According to Vinod Kumar and Dahiya [187], among the six dimensions of a smart city—conceived as a "system"—a prominent and central role has been assumed by "smart people", characterized by excellent skills, high level of qualifications and expertise based on economy of knowledge and innovation, a high Human Development Index and a high Graduate Enrolment Ratio, supported by cultural and educational services, a lifelong learning and use of e-learning models.

At the same time, "smart people" are highly flexible and resilient to the changing circumstances, with creativity, open-mindedness, and a multicultural perspective. They are able to maintain a healthy lifestyle and are involved in sustainable and inclusive development processes. The role of "smart people" is essential for the identification of smart citizens as possessing civic intelligence—according to the conceptualization of "human smart city" [188, 189] centered on the human aspect—and the different multidimensional components able to mobilize the participation and cooperation of citizens, businesses and societal organizations, overcoming the technocentric approach. Adding "human" means to introduce a new perspective oriented to consider equitable, effective, long-term, incremental, and participatory design processes, which can integrate experimental, educational, and community mobilization, research, and policy work within a shared, coherent perspective [190, 191]. The human dimension is consistent with the Biourbanism perspective that supports a human-centered urban life, requiring a really human-friendly environment and enhancing the environment's own identity, where human well-being and human values interact and support each other [45].

According to the above considerations, decision-making processes related to territorial transformations and economic development require the elaboration of appropriate multidimensional frameworks, which can support the choice of public and private resource allocation—favoring different interests and purposes—and include the human dimension as civic intelligence. Today, we are beginning to realize that a sustainable and smart transformation of the territory, aimed at enhancing it in innovative approaches, can have positive economic effects and become an opportunity for improving the level of well-being and quality of life. Sustainable and smart territorial transformations, therefore, require a strategy to reduce its vulnerability to external forces that can compromise its integrity, sinking or undoing the value needed for the survival of a community within it. Spatial transformations can indeed determine or intensify the system of anthropic and natural pressures, thus increasing the risk of non-linear evolution of the pressures themselves [192]. The vulnerability of a territory, moreover, is not limited to its physical-environmental aspects, but it also involves the social and economic dimensions. Recognizing the resource value of the territories, which can improve the level of well-being of the local community, determines the need for new management processes, with the predisposition of complex design capabilities.

Vulnerability control becomes a condition of exposure and ability to cope with dynamic processes of territorial transformation. At the same time, attention to the resilience of a territory means to analyze spatial arrangement, spatial interactions and spatial context, and identify spatial relationships that affect the social-ecological systems. Indeed, resilience research has often emphasized the importance of spatial dimension—especially, cross-scale interactions [193–196], identifying resilience as the potential of a territorial system to remain in a particular configuration and to maintain its feedbacks and functions, involving the ability to reorganize following disturbance-driven change, and reflecting flexibility capacity to experiment and adopt innovative solutions. The identification of suitable directions and agendas, which can outline practical and human-centred implications for citizens, governments and professionals, needs a framework based on the combination and interaction of bottom-up and top-down processes, of which p2p urbanism constitutes the core [197].

Starting from the previous reflections, the paper analyzes the case study of the Metropolitan City of Naples, verifying the potential of an approach that identifies development opportunities, considering the synergistic design capacity of the various municipalities. Each municipality in the coastal belt of Naples is analyzed by selecting some indicators that describe the processes and governance actions promoted by the municipal administration (top-down) and activated from below (bottom-up) through initiatives by the citizens and local associations, expression of social innovation processes. Through the tools of spatial analysis, multi-criteria and multi-group analysis, it is possible to explain the ability to activate synergies and territorial symbiosis between the different resources that characterize coastal areas.

12.4.2 Naples Metropolitan City: Towards a Biourban Spatial Strategy

The Italian metropolitan cities are considered as territorial institutions oriented to the metropolitan area's strategic development, taking into consideration the support and management of local services, associated functions, infrastructure systems, and communication networks. Naples, in Italy's Campania Region (Fig. 12.4), is one of the 14 metropolitan cities defined "territorial entities of vast area", which have replaced the homonymous provinces—established on January 1, 2015—after the reform of Italian local authorities with the Law no. 142/1990, and then recognized by the Law no. 56/2014. In particular, the Law no. 56/2014 (also named "Legge Delrio") governs the ten metropolitan cities of regions with ordinary status, whose territories coincide with those of the pre-existing provinces: Rome, Turin, Milan, Venice, Genoa, Bologna, Florence, Bari, Reggio Calabria and Naples. To these are added the four metropolitan cities of the regions with special status: Cagliari, Catania, Messina and Palermo.

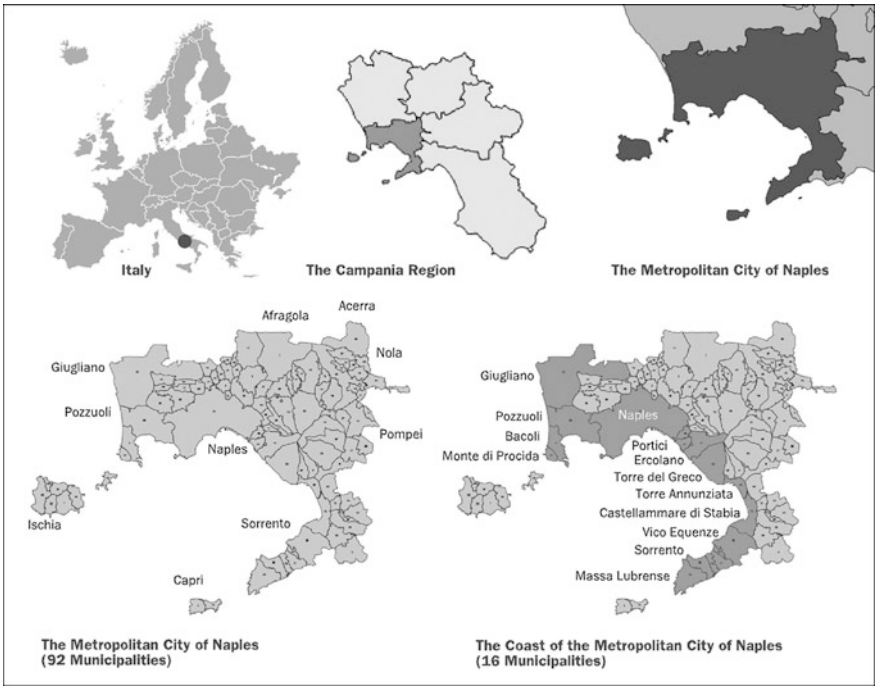

Fig. 12.4 The metropolitan city of Naples. *Source* Authors

The Metropolitan Conference Resolution no. 2, June 11, 2015 adopted the Statute of the Metropolitan City of Naples, dividing its territory into so-called "homogeneous zones" for a more suitable, balanced and functional management of local resources, which takes into account their identity characters, historical and cultural components, geomorphologic and naturalistic contexts, landscape functional interactions, and socio-economic frameworks. Indeed, the concept of "homogeneous zones" is part of the metropolitan strategic plan and is oriented to improve the territorial productivity, services to citizens' opportunities, and cooperation among the different municipalities. According to the definition of homogeneous zones, it is possible to identify common territorial interests, to activate effective shared projects, and to manage associated forms of socio-economic services and urban infrastructures [198, 199]. The need to identify some homogeneous zones, having common characteristics, has also been recognized by the European Union.

The Metropolitan City of Naples is a recent institution, and the Coordination Territorial Plan was adopted with the Resolution of Metropolitan Mayor no. 25 on January 29, 2016, published on the following February 3 and declared immediately executable. This huge asset of information, analysis and strategic lines—the result of a multi-year activity of confrontation with the territory and of constant updating—is destined to be the starting point for the future Metropolitan Territorial Plan [200].

The Coordination Territorial Plan identifies a perimeter of "areas" aimed at selecting the constituent elements of the metropolitan territory, with particular reference to the landscape and natural, cultural, environmental, geological, rural, anthropic and historic characteristics. It does not constitute a division of territory into "homogeneous territorial areas", as indicated in DM 1444/1968, being the task of the Municipalities through the local urban plan (municipal urban plan—PUC) to establish the division of communal territory into "homogeneous territorial zones" (ZTO), indicating physical and functional transformations eligible in the individual areas as well as areas not subject to processing. The homogeneous zones—to be established by a resolution of the metropolitan council—have to be constituted by aggregations of territorial contiguous municipalities, which comprise a population of not less than 150,000 inhabitants, identified on the basis of identity characters and historical reasons, geomorphologic, naturalistic and landscape contexts, functional relations and economic-social frameworks that substantiate their common membership.

The Regional Law no. 16 of 2004 and the Regional Regulation no. 5 of 2011 stipulate that the Coordination Territorial Plan contains structural and programmatic provisions. Through the structural provisions, we identify the urban planning strategies, the definition of the value and potential characteristics of the natural and anthropic systems of the territory, the determination of the areas where it is appropriate to establish protected natural areas of local interest, the definition of the infrastructure network and other works of provincial interest, the perimeter of historic centers, productive and tertiary areas, and areas of agricultural vocation.

The establishment of the Metropolitan City body is an important opportunity for the Neapolitan context, where the metropolis processes manifest themselves with clear intensity and criticality. These processes unfold on a spatial scope that crosses the provincial boundaries within which the new institution has jurisdiction: A priority for its activity is the search for agreements with neighboring municipalities on some key issues. Another crucial issue is the establishment of homogeneous areas to govern the territory, taking into account its high degree of polycentrism. At the same time, it is necessary to adopt this new partition for revision and rationalization of the current spatial spheres of the organization of services and the exercise of functions [201, 202]. The Metropolitan City has among its priority tasks to promote socio-economic development of the territory, pursuing its mission of enhancing the strategic development through six fields of intervention: strategic planning; simplification of local government; management and organization of public services of general interest; territorial marketing; support for innovation and new entrepreneurship; and the implementation of the Digital Agenda.

The present contribution proposes the structuring of a methodological process for the identification of homogeneous zones, with particular reference to coastal municipalities (Fig. 12.5), which represent a significant reality of the Metropolitan City of Naples. The methodological proposal recognizes as essential the identification of the specific characteristics of the various municipalities of the Metropolitan City and of their resources. Its aim would be the identification of homogeneous zones, which presupposes economic, social, environmental and

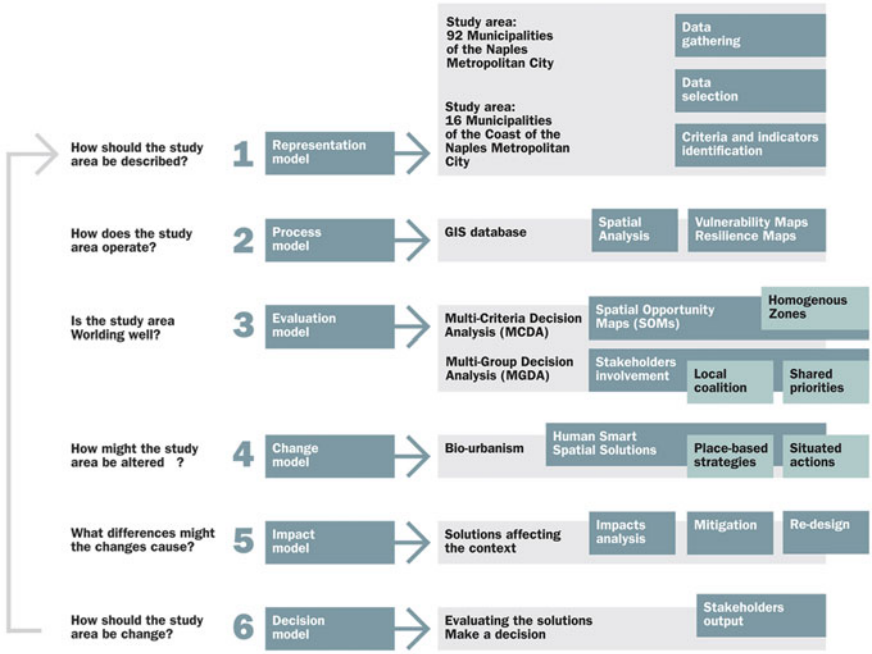

Fig. 12.5 The methodological process. *Source* Authors

cultural dynamics that can activate spatial synergies and symbiosis, and where Biourbanism principles could be implemented as the starting point of a more diffused process. The perimeter of homogeneous zones cannot be defined by a unique top-down process, but it must be characterized by top-down and bottom-up continuous feed-backs, which can activate double-view vertical processes and recognize the energy of horizontal processes developed locally, in small communities.

A smart development strategy, conceived in the sense of "human" [45, 187, 189, 197], identifies the communities and the relationship system that binds them to the territory as the essential components to activate sustainable regeneration processes.

12.4.3 Naples Metropolitan City: A Description Through Some Indicators

The Metropolitan City of Naples—with a population of more than three million people (3.107.006 inhabitants according to ISTAT, 2017)—is the third Italian metropolitan city by the number of inhabitants, and it is the first in terms of housing density. The entire metropolitan territory extends over an area of 1.178,93 km^2 and includes 92 municipalities, 12 of which count more than 50,000 inhabitants. It includes two of the three UNESCO World Heritage declared sites, and it is part of

the World Heritage List for outstanding universal cultural and natural values: the historic centre of Naples (the historic city centre, the largest in Europe, has been listed by UNESCO as a World Heritage Site since 1995), the archaeological sites of Pompeii, Herculaneum, and Torre Annunziata. The volcanic Somma-Vesuvius complex is also part of the UNESCO World Network of Biosphere Reserves. Each one of the 92 municipalities consists of one historic centre of cultural relevance, where the form of human settlements identifies a broad and continuous cultural landscape with archaeological sites, significant monumental attractions, religious sanctuaries and churches.

The Naples Metropolitan City, characterized by a significant seismic and volcanic vulnerability due to the presence of Vesuvius and the Campi Flegrei, has a territory that occupies just 8.6% area of the Campania Region (13.590 km^2), where it concentrates more than half of the entire regional population. This overcrowding phenomenon has created a strong demographic and territorial imbalance with the other areas of the region, which are wider and less populated.

The territory is characterized by many heavily inhabited centers with a high population density: 60% of the municipalities of the Metropolitan City is small (less than or equal to 10 km^2), while 36% is medium in size (>10 km^2 and ≤ 25 km^2), and 11% exceeds 25 km^2, of which two municipalities (Acerra and Giugliano) are between 50 and 100 km^2, and only the municipal area of Naples exceeds 100 km^2. The population density of the territory is 2.672 ab./km^2; 12 metropolitan municipalities exceed 50,000 inhabitants; and in the list of the first 60 Italian municipalities, there are three of the Neapolitan area: Giugliano, Torre del Greco and Pozzuoli—where Portici is the first municipality in Italy with a population density of about 12,000 ab./km^2, followed shortly by Casavatore.

In the last Coordination Territorial Plan, it has been found that the urbanized area is a total of 381.12 km^2, corresponding to 32.54% of the total area of the territory. This results in an actual picture of the high demographic density that rises to over 8000 ab./km^2. In the vast hinterland, there are portions of territories where the cultivation intensity is still high, distant from the inhabited centers and located mostly in the northern parts of the area, lapping the area near the city of Caserta. Indeed, it is possible to identify some main relevant regions, recognized by common historical, geographic, social and economic characters: Naples, Nord Naples, Nord-West Naples, Nord-East Naples, Vesuvius Area, Nola Area, Campi Flegrei, and Sorrento Peninsula.

Municipalities developed along the old state roads (Via Nazionale delle Puglie, SS Sannitica, the Miglio D'Oro, and the ancient Calabrian Street) are nowadays only small and medium-sized suburbs – a kind of over-populated, decentralized neighborhoods—a mosaic of autonomous fragments, which gravitate on the city. At present, it is difficult to distinguish the boundary between the city of Naples, the adjacent areas and the hinterland, completely welded together into a seamless urban unicum, both in the vast area of the North (Giugliano, Afragola, Acerra and Nola) and that of the Campi Flegrei, the municipalities near Vesuvius, and the towns of Torre Annunziata and Castellammare di Stabia; less chaotic and out of the conurbation are the Sorrento Coast and the islands of Ischia, Capri and Procida. In

the outskirts of urban and historical centers, intensive farming, abandoned industrial lands, and urban sprawl have compromised the potential environmental quality of the landscape.

The Metropolitan City of Naples is characterized by intensive, dynamic anthropogenic processes, full of potentials and also of many critical issues. The discriminatory management of urban areas has led to a series of negative impacts, which affected the physical-spatial quality and health conditions of the inhabitants. The great danger of contaminated sites has resulted in a significant ecological and social damage, in particular in "the Vesuvian Areas" (11 municipalities) and in the "Land of Fires" (32 municipalities). The excessive and speculative cementation of the Neapolitan hinterland has not created an orderly urban framework equipped with adequate structures, but has transformed much of the former province of Naples into "periphery". This transformation has not been accompanied by economic, urban and infrastructural development which can guarantee a good quality of life and services, but has increased a major commuting phenomenon towards the center of the metropolis. The historic city, however, is unable to support the over-municipal burden of a populated and over-urban hinterland that over the years has been fully integrated into its urban, economic and social fabric. Thus, from the urban point of view, Naples is one of the most compact, populous and congested metropolis in Europe. It shows relevant phenomena of increased population pressure within limited territorial areas, seen as economic, social and environmental challenges. At the same time, the area is characterized by a strategic location in the Mediterranean region that makes it an important infrastructure node for maritime and terrestrial interchanges. The Naples Port area is the main economic device of the Campania Region, one of Italy's most important passenger ports and also the headquarters of the Port System Authority of The Central Tyrrhenian Sea, which manages the ports of Naples, Salerno and Castellammare di Stabia.

The Metropolitan City of Naples is the most relevant employment centre in the region (it gives jobs for 955,800 people), and its Gross Domestic Product is 55,170 million Euro—the 4th among Italian metropolitan areas. The industrial sector is well developed and extends to a number of suburban centers. Metalworking, engineering, chemicals, petrochemicals, shipbuilding, food (pasta; food processing) and construction materials (cement) are the largest industries, but textiles, footwear, leatherworking and garment manufacturing (including relevant products such as Alfa Romeo; also shipbuilding and metal processing) are organized on a semi-craft scale. The major industries are engineering and metalworking (Pomigliano d'Arco, Casoria, Castellammare di Stabia, Naples), chemicals and petrochemicals (Naples, Pozzuoli, Torre Annunziata), construction materials (Naples), food and food processing (Torre Annunziata, S. Giovanni a Teduccio), textiles garment manufacturing and footwear. Another relevant economic sector is tourism that drives the development process. Despite all the different economic activities (tourism, agriculture with the accent on fruits, crafts such as clothing, shoes and food, as well as industries of means-of-transport), the minimum salary in the Metropolitan City is 20% lower than the Italian average, and 25% of the people remains unemployed. Poor neighborhoods have the characteristics of slums, and organized crime runs its

own informal regime. Naples is unable to reduce unemployment, which is the cause of serious problems related to crime, the "black economy", and the emargination of young people. At the same time, Naples and the Metropolitan City are an important example of creativity and cultural vitality, as shown by the recent study of the European Commission [203] on "Cultural and Creative Cities Monitor"—a tool to promote mutual exchange and learning between cities to boost culture-led development processes.

Indeed, only the city of Naples counts a large museum offer, including the National Archeological Museum (one of the most important in the world for quantity and quality of its collection, especially from the Greeko-Roman period) and the Capodimonte National Museum, housing paintings from the Renaissance to the Baroque periods. Naples is also home to the biggest science museum in Italy, the Città della Scienza. Naples is considered an important laboratory and an international window for contemporary arts. The Naples Art Palace and the Donnaregina Museum are very active in this sense. Also, since 1996 and up to the second decade of the millennium, the so-called art stations have been built to combine urban transport underground with the fruition of modern art installations. The city is characterized by a long-lasting theatre tradition; Naples hosts the theatre-related events labeled Europe for Festivals, Festivals for Europe, etc. According to the main dimensions selected by the "Cultural and Creative Cities Monitor", Naples occupies a good ranking position in terms of the following criteria: "openness, tolerance and trust", "human capital and education", "creative and knowledge-based workers"—even if its total C3 Index, which assesses 29 indicators clusterized in nine dimensions, is particularly criticized. Indeed, Naples occupies the penultimate place on the list; if we consider the related sub-index, the last position is for "Cultural vibrancy", the third last position for "Creative economy", and a better position for "Enabling environment".

Taking into account the above considerations, the Metropolitan City of Naples can be described selecting some relevant indicators, which can analyze the multidimensional dynamics that characterize the area and the different municipalities.

12.4.4 Naples Metropolitan City: A Methodological Proposal for the Coast Area

In order to identify a methodological approach useful for delineating the boundaries of the "homogeneous zones" [cf. §12.4.2]—made up of municipalities activating synergic cooperation processes—the municipalities in the coastal area of the Metropolitan City of Naples are analyzed, characterized by the same geographical context and many common aspects, including the direct relationship with the sea. The municipalities of the Coast Area of Naples structure a territorial, geographical, environmental, economic, social and cultural context, where there are multiple and differentiated resources that identify complex, sometimes conflicting, characterizing features, isolated or fragmented in many cases. At the same time, they identify

seaside towns that, in a different way, have activated systems of use, and relations with the coastal strip and port areas, becoming catalysts of economic, social and cultural processes, in which they compare lifestyles and development models.

In general terms, cities along the coast form cosmopolitan sites, open to many cultures—spaces of creativity and innovation for the economy, culture and society [204]. However, they are also places of significant conflicts between economy and ecology, between economy and culture, and between ecology and society. Consumption of natural resources and production of pollutants, together with the intensification of uses aimed at meeting the economic needs of coastal areas, contribute to compromise the complex ecological balance and to alter or destroy specific local characters. In many cases, the processes of environmental degradation and pollution are accompanied by the production of economic wealth, which entail not only ecological costs, but also social and cultural costs, along with a progressive reduction in the well-being and quality of life.

These cities have extraordinary value added that can play a decisive role in a strategic vision of urban development. In recent years, the concept of "water renaissance" [205, 206] has been growing in the urban sphere to define that complex process of redevelopment and revitalization of waterfront areas—which has characterized many renewal, recovery and retraining operations and valorization in many cities around the world—rediscovering the value of water in the city [207–210]. The port and coastal areas, therefore, represent sites where multiple contradictions often arise, but are also the most suitable places to reduce conflicts and turn them into synergies through innovative approaches to governance, planning and territorial management. They can become the point of entry for a sustainable development process of the wider urban system, activating synergies between port areas, where deep differences exist between cultures, lifestyles and socio-economic dynamics, but where the potential for creativity is higher and can overcome the various criticalities and possible conflicts. A key feature of a sustainable city is the ability to close the circuit of resources through circular processes, capable of reproducing/regenerating the original capital stock. In this way, cities can become key to the implementation of a new model of sustainable development based on multiple value-added systems, focused on a synergistic and circular approach, capable of breaking the current linear organization of many traditional economic systems and allowing the local economy to strengthen through integration.

12.4.4.1 The Methodological Process

In this perspective, the study of the municipalities of the coastal area of the Metropolitan City of Naples analyzes the opportunities for transformation and enhancement that the sea resource can offer to the territory, trying to identify the components that could interact to improve territorial productivity of coastal cities and make the urban and territorial regenerative city model operational.

Through the recognition of the different kinds of projects promoted, implemented and/or ongoing—following a top-down and a bottom-up approach—a knowledge framework of the transformations in place has been structured, elaborating an interpretative analysis in support of possible regeneration scenarios in a long-term vision, according to the principles of Biourbanism approach and considering the perspective of spatial vulnerability and resilience. The study is divided into six main phases (Fig. 12.5), that identify the main issues elaborated by the Steinitz framework for Geodesign [211] and advocates the use of six models to describe the overall planning process:

1. Representation Models (*How should the context be described?*);
2. Process Models (*How does the context operate?*);
3. Evaluation Models (*Is the current context working well?*);
4. Change Models (*How might the context be altered?*);
5. Impact Models (*What differences might the alterations cause?*);
6. Decision Models (*Should the context be changed?*).

The first three models comprise the assessment process, looking at existing conditions within a geographic context, considering hard data and soft data, and including stakeholders' interactions.

The second three models comprise the intervention process, looking at how that context might be changed, the potential consequences of those changes, and whether the context should be changed and by whom. In our proposal, the fourth model—the Change Model—starts from the principles of Biourbanism approach [cfr. 12.1, 12.2, 12.3 sections of this chapter] and provides the specific framework for developing and creating the proposed changes (design scenarios) that are predicated on the science- and value-based information contained in the Representation Models and assessed against that same information in the Impact Models.

The definition of Geodesign considers the term "geo", defined as geographic space or also as geo-scape, describing all types of spatial data (physical, biological, social, cultural, economic, urban, etc.) that can be geo-referenced and analyzed. Indeed, geo-scape is the planet's life zone, including everything that lies below, on, and above the surface of the earth that supports life [212]. At the same time, the word design usually refers to a process or series of activities. Design is conceived as the thought process comprising the creation of an entity [192]; it is the mental synapse that instantly sees the potential connection between the problem and possibility.

Considering the above reflections, Geodesign is the thought process comprising the creation of an entity in the planet's life zone (geo-scape); or more simply, Geodesign is designed in the geographic space (geo-scape) in order to facilitate life in the geographic space (geo-scape) [211]. The relevant link between the entity being designed and its geographic context provides the tangible basis for doing both science-based and value-based designs, providing operational linkages to a wide variety of domain-specific information and the multidisciplinary platform for doing integral/holistic design.

In our proposal, in phase 1—the Representation model—the main steps of data gathering, data selection and criteria and indicators elaboration are related to identifying the general framework of the Municipalities of the Metropolitan City of Naples and of the Cost. In particular, we identify the transformation projects of the sixteen municipalities of the coastal area: Giugliano, Pozzuoli, Bacoli, Monte di Procida, Naples, Portici, Ercolano, Torre del Greco, Torre Annunziata, Castellammare di Stabia, Vico Equense, Meta di Sorrento, Piano di Sorrento, Sant'Agnello, Sorrento, and Massa Lubrense. The transformation projects have been selected and classified by taking into account a number of significant criteria that have highlighted the type of work, location, work amount, funding type, actuators and partnerships, top-down approach and bottom-up approach, state-of-the-art implementation, and the reference period. For each municipality, the relevant "project cards" have been drafted with the identification of selected projects and specific detail information, synthesizing the transformations that have characterized the municipality territory, also highlighting the processes of governance and territorial management activated.

In the step 2—the Process model—the identification and classification of the selected projects have also been carried out with the support of the Geographic Information System (GIS), enabling information organization and their visualization by thematic maps. These maps have also been elaborated to describe the main dimensions that characterize the context, in order to understand the economic, social, and environmental dynamics related to each municipality. The various information collected were elaborated by appropriate, simple and composite spatial indicators, useful to identify the potentials and critical aspects of the areas affected by the interventions, both with reference to the coastal area and the municipal surface. Therefore, the opportunities for activating territorial regeneration processes have been highlighted by analyzing the specificities of the territories of the municipalities concerned.

By selecting some relevant indicators, the concepts of vulnerability and resilience have been expounded in three dimensions: environmental, social and economic vulnerability; and environmental, social and economic resilience. In this way, it has been possible to elaborate a multi-criteria analysis, which could explicate the territorial vulnerability and territorial resilience of the municipalities of the coastal area of the Naples Metropolitan City, and a multi-group analysis able to include the preferences of the different stakeholders.

Indeed, in step 3—the Evaluation model—a multi-criteria analysis and a multi-group analysis become useful support to identify the suitability areas, where the Change model of step 4 could be implemented. In this case, the Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) [213, 214] has been implemented, starting from the results of the elaborations developed in the previous phases. Maps of territorial opportunities have been set up, where through the selection of some composite indicators and the support of spatial analysis, it has been possible to outline the construction of a territorial coalition strategy oriented to the identification of "homogenous zones", where the municipalities could enhance endogen resources and make the "Biourbanism model" operational.

In step 4—the Change Model—through the identification of Spatial Opportunity Maps (SOMs), it has been possible to verify the significance of the processes in progress and to elaborate the simulation of possible regeneration and valorization scenarios of the coastal area that could promote synergic and symbiotic relations among the various opportunities discovered, expression of connected diversifications.

The breadth of the study area, the heterogeneity of the data, and the variety of subjects involved, and the processes underway identify the coastline of the Metropolitan City of Naples as a multidimensional system characterized by complex values and expression of local specificities; it can start with the elaboration of strategic goals and actions that can generate "new values" through the identification of spatial solutions, expression of local strategies, and situated actions [215].

The step 5—the Impact model—identifies how solutions could affect the context and the related needs of mitigation and/or re-design process.

The step 6—Evaluating the solutions and Making a decision—considers the final step of the process, where the alternatives are selected, and the stakeholders choose the shared solutions. Also in this step, the support of multi-criteria analysis and multi-group analysis methods can make the process more transparent and able to consider a multidimensional perspective.

The local reality—with its spatial, economic, environmental, social and cultural characteristics—is the context where the responses to regeneration and territorial enhancement are defined. The identification of an urban regeneration, as evidenced by Audis [216], can no longer rely on traditional growth and urban transformation factors—driven only by the private propensity to invest, especially real estate—and the impacts that these investments could generate on specific territories.

In a context characterized by scarce economic resources, complex problems, and relevant conflicts, it is essential to propose quality actions in a multidimensional perspective that takes into account material and immaterial, hard and soft, objective and subjective values, use, non-use and intrinsic values, and their synergic and complementary relationships, in order to formulate "situated actions".

12.4.4.2 Implementation of the Methodological Process

This research develops and deepens the following phases of the methodological process, with the related results. In step 1—the Representation model—a collection of data and their classification has been oriented to the construction of knowledge of the transformations of the territory along the coast of the Metropolitan City of Naples. A definition of the decision problem through an interpretative analysis of processes and opportunities for the transformation of the coast is started from the analysis of potentialities and criticalities for a long-term scenario, in terms of resilience and vulnerability. The development prospects for the coastal area of the Metropolitan City of Naples have been investigated by verifying the performance of the coastal territorial system in relation to the three key aspects of sustainable development, translated into three macro-criteria: environment, economy, and

society. They include the selected urban regeneration criteria for evaluating the coastal opportunities for transformation, with an identification of relevant indicators. The selected indicators differ in being simple or composite [217]. The former allows for the framing of municipalities in the environmental, social and economic systems and for assessing the transformation projects and activities analysed in each municipality; the second consists of aggregating simple indicators that are considered representative of different aspects of a multi-dimensional phenomenon. The various indicators—identified from the environmental, social and economic characteristics of the territory, and developed taking into account the information gathered for each municipality—have been structured into the GIS.

In the step 2—the Process model—the classification of indicators by means of a GIS has enabled the elaboration of a series of thematic maps that return the spatial distribution of the investigated phenomena, highlighting the potentialities and the criticalities that characterize each municipality and the coastal area, enabling the acquisition, recording, analysis, display and return of information derived from geo-referenced data. The analyzed indicators are explained according to two main criteria: territorial vulnerability and territorial resilience. The vulnerability of a system is a concept linked to the risk of an intervention and consequently, of an investment of different capital forms. In a broader perspective, the various actors (institutional, economic, social, etc.) operate by taking on the risks associated with the criticalities that depend on the characteristics of the context in which they operate. Critical aspects, in turn, exercise pressures on the territory in multidimensional terms and contribute to increasing the level of vulnerability of the system. Vulnerability measures the probability that the same criticality may result in negative impacts, and the ability of the system to withstand pressures determines the level of vulnerability [192].

A vulnerable territory is a system that has lost its ability to withstand external pressures and therefore remains exposed to the risk of adverse impacts; so, small disturbances can lead to high levels of vulnerability and consequently, put at risk the development of the territory itself. In a vulnerable system, where processing instances are difficult to handle, change cannot create development opportunities, thus reducing territorial attractiveness. Evaluating an area's attractiveness can support build development models where it is possible to establish symbiotic relations between the physical environment, social actors and the economic world, improving the productive use of the territory, promoting functional diversification, and getting the relationships system better, in order to reduce the conflict between conservation, change and transformation.

In step 3—the Evaluation model—multidimensional vulnerability assessment presupposes the selection of indicators capable of describing the complexity of the context based on specific objectives, which, in the present case, are related to the identification of smart valorization and regeneration strategies on the coastal area of Naples Metropolitan City.

The structure of vulnerability indicators on a municipal scale, identified for the present study, consists of three main dimensions (Table 12.4):

Table 12.4 The vulnerability indicators

Criteria	Indicators	M.U.	Scale	Source
Environmental dimension				
Urban context	Extension of the urbanized urban area compared to the total extension of the municipal area	%	Municipal	SIT
	Index of building degradation	%	Municipal	Istat
	Surface of degraded areas	ha	Municipal	SIT
Coastline	Extension of the artificial municipal coast compared to the total extension of the municipal coast	(ml/ml)%	Municipal	SIT
Water system	Poor quality bathing water	%	Municipal	Arpac
	Polluted outfalls	%	Municipal	Arpac
Social dimension				
Demography	Housing density	ab/kmq	Municipal	Istat
	Average age of the resident population	years	Municipal	Istat
Social inequality	Average annual income per inhabitant	€/ab	Municipal	Istat
	Unemployment rate	%	Municipal	Istat
Economic dimension				
Enterprise system	Variation in the number of local companies in 2001–2011	%	Municipal	Istat
	Variation in the number of employees in shipping and fishing companies in 2001–2011	%	Municipal	Istat
	Variation in the number of employees in manufacturing companies in 2001–2011	%	Municipal	Istat
	Variation in the number of employees in the construction companies in 2001–2011	%	Municipal	Istat
	Variation in the number of employees in the hospitality sector in 2001–2011	%	Municipal	Istat
No-profit services	Variation in the number of employees of no-profit companies in 2001–2011	%	Municipal	Istat
	Total number of social projects	no.	Municipal	Municipality
	Percentage of projects with no-profit actuators	(n/n)%	Municipal	Municipality
Real estate market	Real estate market intensity index (Ratio between NTN and Housing Stock)	%	Municipal	OMI
	Percentage variation in property prices between 2008 and 2017	%	Municipal	OMI

Source Authors

1. Environmental dimension: Physical and environmental vulnerability factors are identified, which involves the search for indicators describing the ability of a system to maintain self-regeneration capacity, or conversely, its ability to increase structural fragility [218]. In the present case, environmental vulnerability indicators have been subdivided into the following macro-categories: urban context, coastline and water system.
2. Social dimension: Indicators based on the theory of adaptive systems can be highlighted [219], underlining the multidimensional nature of the concept of vulnerability to a social system. Appropriate indicators have been identified for the following macro-categories: demography and social inequality.
3. Economic dimension: Economic vulnerability indicators identity the relevance of the economic processes and can be divided into the following macro-categories: enterprise system, no-profit services, and real estate market.

The spatial variability of vulnerability components—determined by the territorial non homogeneity of development processes and the existence of local factors—significantly influences the multidimensional level of well-being for the local community, as well as individual opportunities and enterprise development [220–222].

Each criterion is a different information layer that, if overlaid on the other layers, builds a complex picture of interrelated information. Each layer of information identifies a degree of system vulnerability. For each of the three dimensions of vulnerability, a ranking of municipalities has been elaborated in order to identify shared territorial contexts with greater or lesser vulnerabilities and analyze the most influential factors. As vulnerability can be understood as the tendency of a system to undergo the effects of external pressures with poor responsiveness, resilience identifies its ability to cope with and recover from the perturbing action effect, based on the system intrinsic capacity of adaptation and regeneration [219, 220]. In a resilient system, change, or external pressure has the potential to create new development opportunities by recovering over time an identical or similar situation and introducing variations that can make important innovations [221]. For the above reasons, it is possible to bring together the vulnerability analysis and the resilience analysis of the territorial systems.

In assessing resilience at the local scale, factors that could lead to an increase are considered. The analysis of the resilience of a territory can also be decomposed respectively into the social, economic and environmental. The resilience indicator context is the municipal one in order to compare the results of the vulnerability analysis with that of resilience analysis and produce useful information for building territorial opportunities for enhancement scenarios.

The construction of territorial resilience framework of the coast municipalities has been achieved by declining the selected dimensions with respect to some relevant indicators:

1. Environmental dimension: The elements that describe the aptitude of a system for maintaining self-regeneration capacity have been considered. Environmental resilience refers to the ability of systems to change processes, practices or structures to moderate or balance any damage or seize any opportunities arising from change. For the coastal area system of the Naples Metropolitan City, they have been considered the most likely factors to represent the ability of the territory to adapt to critical issues.
2. Social dimension: Social criteria have been identified that can describe the system's capacity to adapt to external pressures, linking each of them with some indicators. It is important to emphasize the relational dimension between demographic factors (generational regeneration capacity) and the factors that reduce social inequality.
3. Economic dimension: The ability to respond to a territory has been investigated as an ability to adapt, induced by actions from internal agents to the economic system. Therefore, some indicators that describe the current framework of the local economic system have been considered.

The complex framework of information thus generated has been elaborated using the multi-criterion and multi-group methodology of Novel Approach to Imprecise Assessment and Decision Environments (NAIADE) [213, 214], which allows for a ranking of municipalities based on their level of vulnerability and resilience. The construction of preference orders has been elaborated through the structuring of a multi-criteria decision process [223], in which the alternatives are made up of the sixteen municipalities of the Coast of the Naples Metropolitan City, and the criteria are the selected vulnerability and resilience indicators. The NAIADE method builds a preference order between municipalities, from the least vulnerable to the most vulnerable and the least resilient to the most resilient. The order of preference obtained is represented in the GIS, associating each municipality with its position in the ranking obtained from the multi-criteria analysis. Therefore, the assessment made it possible to develop a territorial vulnerability map for each of the three dimensions (environmental, social, and economic) and at the same time, elaborate vulnerability maps for each of the selected indicators (Figs. 12.6 and 12.7). Similarly, territorial resilience maps have been elaborated (Table 12.5).

The analysis of territorial vulnerability and resilience for coastal municipalities allows a comparative analysis of the critical aspects and potentials to identify smart development and valorization strategies, structuring an assessment of the opportunities for a smart spatial development. The elaboration of Spatial Opportunity Maps (SOMs) is the output of a multidimensional evaluation process that leads to the identification of specific territorial contexts with a greater propensity for some specializations relating to the economic sectors and the local transformation.

In step 3—the Evaluation model—combining the results of the NAIADE implementation and the preferences of the local stakeholders (mayors, technical experts such as engineers, architects and economists, construction companies, developers, port authorities, ship-owners, fishermen, hoteliers, restaurateurs,

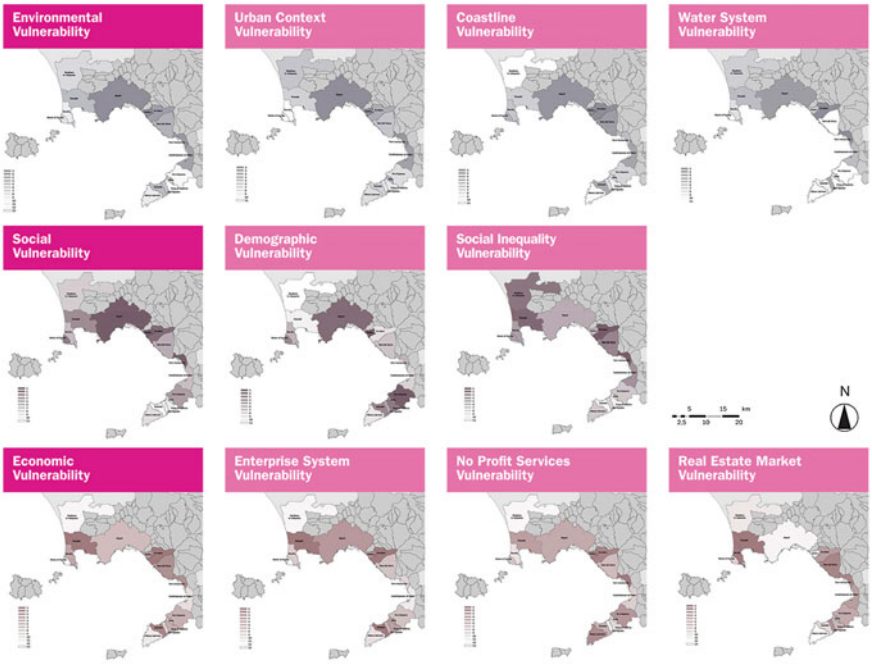

Fig. 12.6 The vulnerability maps. *Source* Authors

traders, cultural associations, environmental associations, and citizens), collected during a series of five focus groups; four areas of opportunity have been identified for the exploitation of resources of the coastal municipalities of the Metropolitan City of Naples (Fig. 12.4): Receptivity and seaside tourism; Culture, archeology and nature; Maritime economy and productivity; Buildings recovery and urban regeneration; and Local good governance.

As regards to local good governance, an index of the dynamism of public investment and local community involvement has been developed, enabling to identify the municipalities with greater propensity to manage and implement territorial transformations, combining top-down processes and bottom-up and p2p activities. Opportunity maps show—with a semaphorical scale (green for municipalities with better performance, red for municipalities with worst performances)—the ranking of municipalities for each opportunity. The evaluation through the NAIADE method returns a ranking of the Municipalities based on the selected criteria and indicators. The opportunity maps obtained allow identifying the geography of territorial resources and values that take into account the specifics of each municipality. The analysis of the results of the opportunity maps detects the existence of territorial clusters with specific peculiarities. One of the features of multidimensional evaluations should be taken into account, which depends on the correct interpretation of the results: the final ranking of the alternatives, constituted by the municipalities of the Coast, depending on the selection of the indicators

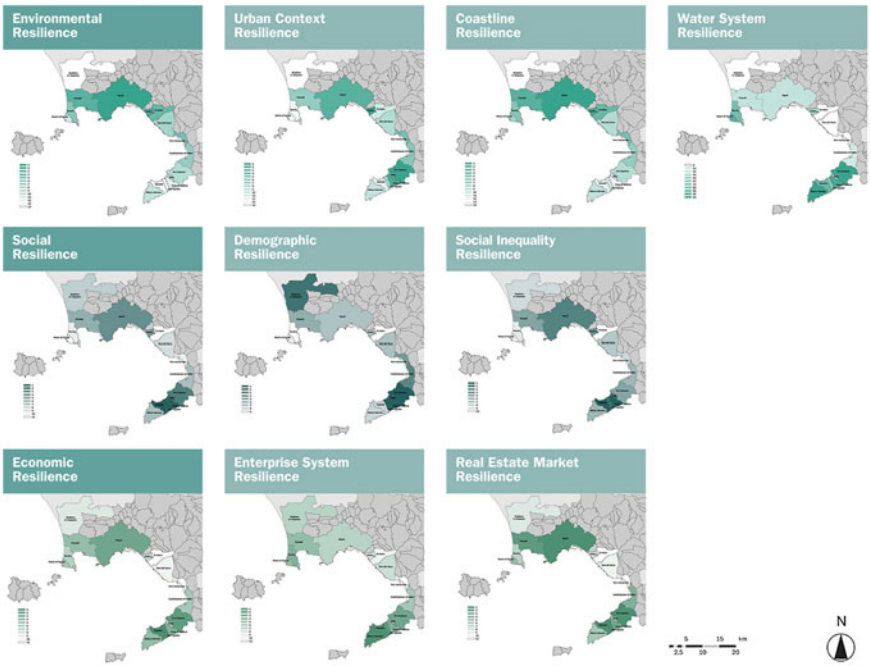

Fig. 12.7 The resilience maps. *Source* Authors

under consideration. Therefore, sorting returns an interpretation of reality, based solely on the data available, which could still not fully grasp the complex description of territorial realities, but only focus on certain aspects.

About "Receptivity and seaside tourism" opportunities, the municipalities of the Sorrento Peninsula identify a concentration of territorial opportunities where, among the most relevant factors, there is the high quality of bathing water and the absence of commercial ports, as well as the existing receptivity vocation of the area. At the same time, there is an additional aggregation of municipalities with a high degree of opportunity for receptivity: Monte di Procida, Bacoli and Pozzuoli. In this case, the absence of commercial ports and the presence of tourist ports remain among the most important factors, in addition to the remarkable extensions of the natural coastal bays, the beaches and the sandy coasts.

As regards to the opportunities related to "Culture, archaeology and nature", the municipalities of the Sorrento Peninsula play a significant role due to the absence of port areas and degraded areas of considerable size, as well as due to the morphological features of the coast, characterized by cliffs that enhance its landscaping value. In addition, the city of Giugliano di Napoli shows good performance, mainly due to the absence of port areas and the remarkable extension of the coastal strip, despite some environmental concerns.

Table 12.5 The resilience indicators

Criteria	Indicators	M.U.	Scale	Source
Environmental dimension				
Urban context	Extension of the municipal area destined to be green areas compared to the total extension of the municipal area	(mq/mq)%	Municipal	SIT
	Historical-architectural and landscape pre-existences in extra-urban areas	ha	Municipal	SIT
Coastline	Extension of the municipal coast compared to the municipal area	(ml/mq)%	Municipal	SIT
	Extension of the natural municipal coast compared to the total extension of the municipal coast	(ml/ml)%	Municipal	SIT
	Areas of historical-cultural and landscape interest along the municipal coastline	ha	Municipal	SIT
	Surface of the municipal beaches compared to the surface of the provincial beaches	(mq/mq)%	Municipal	SIT
	Accessibility	no.	Municipal	SIT
Water system	Excellent quality bathing water	%	Municipal	Arpac
Social dimension				
Demography	Youth concentration	%	Municipal	Istat
	Schooling rate	%	Municipal	Istat
Social inequality	Average annual income per taxpayer	€/taxpayer	Municipal	Istat
	Employment rate	%	Municipal	Istat
	Activity rate	%	Municipal	Istat
Economic dimension				
Enterprise system	Number of local businesses per inhabitant	%	Municipal	ATECO
	Number of employees of manufacturing companies per thousand inhabitants	%	Municipal	ATECO
	Number of employees of construction companies per thousand inhabitants	%	Municipal	ATECO
	Number of employees of companies in the hospitality sector per thousand inhabitants	%	Municipal	ATECO
	Total number of projects of public or private-public initiative	no.	Municipal	Municipality
	Total number of public-private-social projects	no.	Municipal	Municipality
	Total number of social projects	no.	Municipal	Municipality
	Total value of the interventions	1000 €/ab	Municipal	Municipality
	Percentage of projects with private actuators	(n/n)%	Municipal	Municipality
	Percentage of projects with no-profit actuators	(n/n)%	Municipal	Municipality

(continued)

Table 12.5 (continued)

Criteria	Indicators	M.U.	Scale	Source
Real estate market	Quotation price of residential properties (average municipal value)	€/mq	Municipal	OMI
	Quotation price of buildings for commercial use (average municipal value)	€/mq	Municipal	OMI
	Quotation price of buildings at production destination (average municipal value)	€/mq	Municipal	OMI
	Property market intensity index (Ratio between NTN and Housing Stock)	%	Municipal	OMI

Source Authors

About "Maritime economy and productivity" opportunities, Naples appears to be the territorial sphere with the highest level of opportunities, involving the neighboring municipality of Pozzuoli also. In addition, the towns of Torre Annunziata and Torre del Greco show a good level of opportunity, mainly due to the presence of commercial ports and a high concentration of the population which, in terms of production, translates into high availability of human capital.

As regards to "Buildings recovery and urban regeneration", the municipality of Giugliano di Napoli, on the basis of the selected indicators, presents the greatest opportunities (mainly due to the absence of the port area), together with the municipality of Portici (where, in addition to the absence of port areas, the large number of historical-architectural pre-existing buildings in the extra-urban area is relevant) and the municipalities of Vico Equense and Piano di Sorrento (where, among the most important factors, there is the limited extension of degraded areas within the municipal territory).

Finally, for the analysis of the opportunities for "Local good governance", projects for public buildings and urban spaces analyzed for each municipality are selected along with the various bottom-up interventions, promoted by associations and citizens, also in collaboration with institutions and private subjects; however, the collected data set is not complete, and some data on the municipalities of Bacoli, Monte di Procida and Sorrento are missing.

Municipalities with good performance due to the high value of per capita spending on projects on urban and urban heritage are Massa Lubrense, Torre Annunziata, Naples and Pozzuoli. In the case of Massa Lubrense, together with Torre del Greco, the number of projects activated on the territory is decisive for the purpose of defining a high level of opportunity. At the same time, the municipalities of Torre Annunziata, Naples and Pozzuoli are the only ones that have shown a certain propensity to public-private partnership to activate the processes of transformation, recovery and conservation.

The obtained opportunity maps (Fig. 12.8) become the input for an assessment of the possible strategies for valorization and regeneration of the Coast, by identifying possible synergistic coalitions between the municipalities in order to make complementary opportunities for a smart spatial network. Considering the results of Spatial Opportunity Maps, an evaluation process oriented to the identification of possible coalitions between the sixteen municipalities—taking into account territorial specificities to activate a network strategy that recognizes synergy, symbiosis and complementarities as essential components of a process of valorization and regeneration at the territorial level, and where spatial solutions are consistent with the principles of the Biourbanism approach—could be implemented.

The methodology used to analyze possible coalitions among municipalities is a multi-group analysis defined as "equity analysis", provided by the NAIADE method. This method consists of a fuzzy clustering algorithm that associates a verbal scale qualitative assessment for each pair of alternatives/groups, expressing the preference of a group with respect to the alternative and consequently, constructing the dendrogram of the coalitions—that is, the consecutive aggregation of the groups with respect to the preferences. In the present case, alternatives are made up of different opportunities for valorization, while the groups are made up of municipalities which, based on the results of the analyses obtained with the opportunity maps, express a preference over each of the specializations of the territory. It is therefore possible to structure a process of progressive formation of the coalitions, so that each municipality can recognize its role within the territorial system and can either seize the opportunities offered by the territory or build a

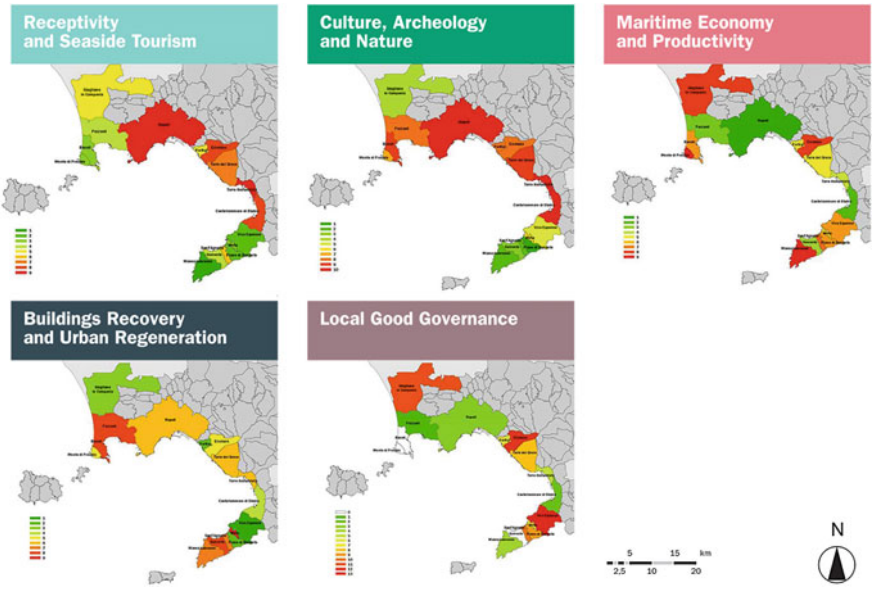

Fig. 12.8 The spatial opportunity maps (SOMs). *Source* Authors

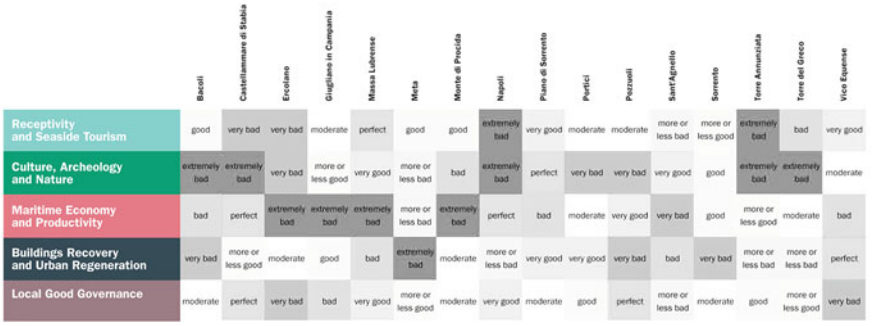

Fig. 12.9 The equity matrix. *Source* Authors

network of municipalities of the Coast with different levels of specialization and local resources. The starting point for the equity analysis is the construction of the so-called "equity matrix" (Fig. 12.9) that corresponds to each alternative/group crossing a judgment according the following verbal scale: perfect, very good, good, more or less good, moderate, more or less bad, bad, very bad, or extremely bad.

For territorial governance opportunities, there is no complete information on the municipalities of Bacoli, Monte di Procida and Sorrento, and it has been decided to give a mid-term evaluation (with its verbal "moderate" judgment). Through the fuzzy clustering algorithm, the NAIADE returns the coalition's dendrogram that allows the coalitions to be reduced to a similarity index between the groups, represented by the municipalities (Fig. 12.10).

The dendrogram permits to grasp the major or minor similarities between municipalities in terms of opportunities for coastal zone enhancement and territorial specialization. At each coalition, it is possible to calculate the value of the conflict index for each partnership alternative. This conflict index is a measure of the level of agreement between members of the coalition towards a specific alternative.

This index tends to zero if the agreement increases, but grows instead if the agreement declines. In addition, some coalitions may veto one or more alternatives, coming up with a veto on most (or even all) alternatives for cases of very low similarity index values (Fig. 12.11). The conflict index for each coalition allows to select the preferred alternatives for each coalition level and identify coalitions and alternatives with a low value of the conflict index that corresponds to the priority specializations in terms of opportunities for each municipality. The final ranking identifies the following list of priorities: "Local good governance", "Receptivity and seaside tourism", "Buildings recovery and urban regeneration", "Maritme economy and productivity", "Culture, archeology and nature".

With the existence of territorial zones with similar vocations in terms of opportunities for Coast enhancement and local coalitions, it is possible to analyze the similarity matrix between the groups, which allows estimating how similar the preferences expressed between each pair of municipalities are. In particular, it is possible to detect the presence of three main groups of municipalities with a high

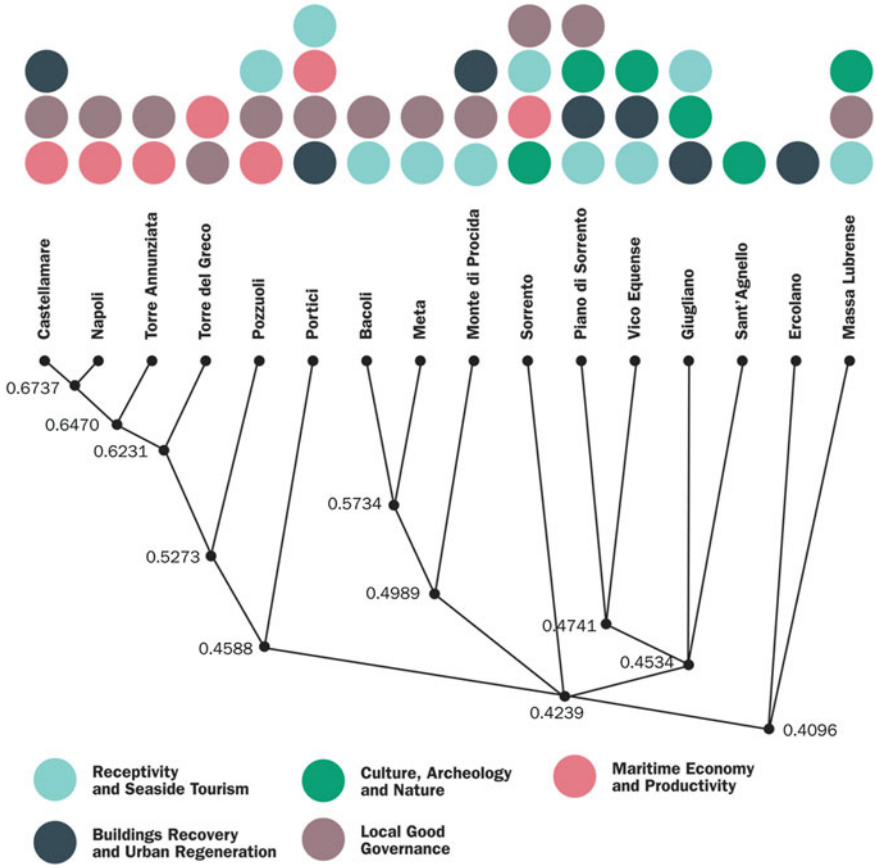

Fig. 12.10 The dendrogram of coalition. *Source* Authors

degree of similarity. The first group consists of the following municipalities: Castellammare di Stabia, Napoli, Pozzuoli; Torre Annunziata, Torre del Greco, and Portici. These municipalities show greater opportunities for the maritime economy and productivity, and for local good governance. In the second group, there are the municipalities of Bacoli, Meta, Monte di Procida, Meta di Sorrento, Piano di Sorrento, Sant'Agnello, Sorrento, Vico Equense, and Giugliano. These municipalities mainly present more opportunities for receptivity and seaside tourism, as well as for the theme of culture, archaeology and nature. In the third group, there are the municipalities of Ercolano and Massa Lubrense that consider different thematic strategies: for Ercolano buildings—recovery and urban regeneration; and for Massa Lubrense—receptivity and seaside tourism.

The evaluation results enable a strategic map to be built (Fig. 12.12), where it is possible to highlight the connected diversifications as opportunities that the identified territorial networks could be activated. Therefore, the elaboration of human

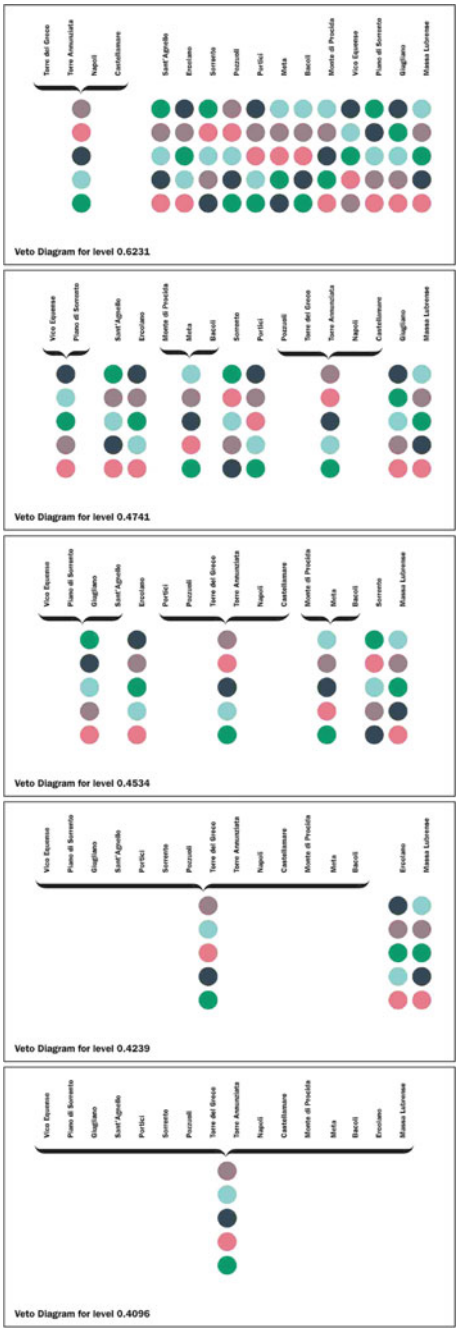

Fig. 12.11 The veto diagram: The progressive reduction of the conflict index. *Source* Authors

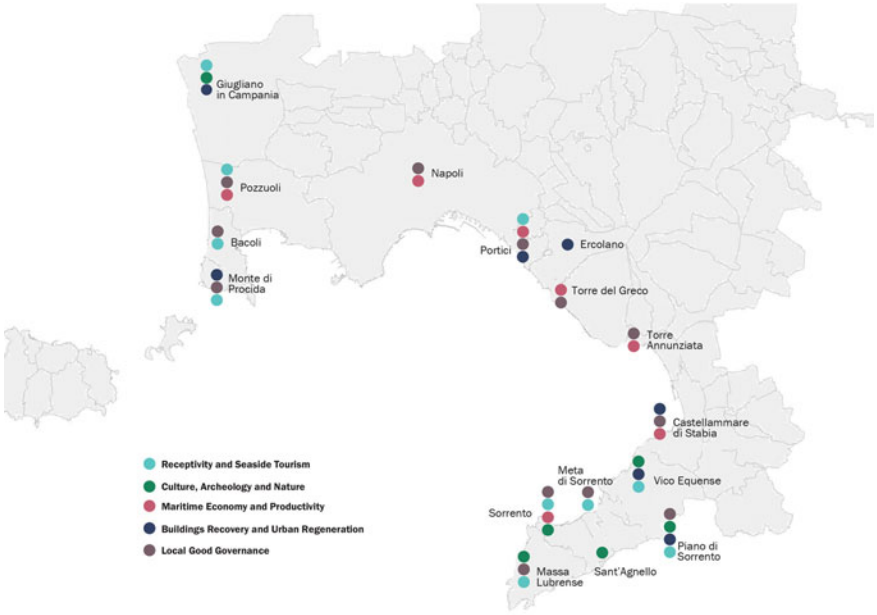

Fig. 12.12 The strategic map of connected diversifications. *Source* Authors

smart spatial solutions, characterized by place-based strategies and situated actions, for the enhancement of the coastal area of the Naples Metropolitan City can be considered as a prerequisite for the activation of a process oriented to the identification of "homogeneous zones", conceived not only as areas with similar characteristics, but above all as territories where it is possible to promote networks of opportunities between the various municipalities and their communities. The last two steps of the methodological process—the step 5: Impact model, and the step 6: Decision model—can be implemented after identification of the specific actions, in order to assess the related impacts, the necessary mitigations and the eventual re-design. The final decision closes the process and activates an operative interaction among the involved stakeholders.

12.4.5 Discussion and Conclusions

The evaluation process structured in the present study has made it possible to understand the specific resources of the coastal municipalities of the Naples Metropolitan City by examining the components that characterize the environmental, social and economic systems. In particular, spatial specificities have been analyzed from the identification of vulnerability and resilience characteristics through a selection of specific indicators. The vulnerability and resilience maps,

elaborated by the multi-criteria approach of the NAIADE method combined with GIS, have allowed identifying the most vulnerable and resilient municipalities. Through the application of the NAIADE method, it was also possible to identify municipalities ranking in relation to the identified opportunities, by the opportunities maps elaborated in GIS, from which the main propensities of the objectives of valorization and regeneration are pursued.

From the methodological process, it emerges that at least two territorial networks can be identified along the coast of the Metropolitan City of Naples, with respect to which some opportunities are most significant. Coalitions between the municipalities, which emerge from the interpretation of the dendrogram elaborated with the multi-group approach of the NAIADE method, allow to highlight how municipalities with similar opportunities could identify a shared intervention strategy, to exploit the resources present and transform the differences into synergies and symbiosis, implementing their connected diversifications.

From the results obtained, it is possible to find new approaches and new tools for planning and managing the transformation and regeneration processes, supporting close resource flows through circular processes, capable of activating virtuous synergies between institutions, communities, and citizens. The study has been dealt according to a "multi-methodological" approach [224], with a view to addressing a complex decision-making process such as the transformation of the Coast of the Metropolitan City of Naples, characterized by multiple variables and a high level of uncertainty, in an incremental evaluation process with continuous feedback and iterations, useful to outline a process of conscious transformation and enhancement that is sensitive to the specificities that characterize the territory under consideration. A "multi-methodological" approach allows to handle complex decision-making process by simultaneously taking into account a multitude of aspects of the problem, trying to build models that can describe, interpret, and understand the complexity of the real world. A suitable evaluation path should start from the correct definition of objectives and values, highlighting their synergy and conflict relations and the relative importance assigned to them by the various stakeholders involved in the decision-making process [225]. Managing a large and complex set of quantitative and qualitative information in evaluation processes may require the use of appropriate Decision Support Systems [226] that can improve the quality and transparency of the choices.

The methodological process has been structured to identify significant opportunities that should be triggered by an urban regeneration process for the Coast of Naples Metropolitan City, recognizing the essential role of sea resource and synergies that could develop into a win-win-win–oriented territorial cohesion [227]. Here, each of the sixteen municipalities involved could play a decisive role, enhancing their environmental, social and economic resources and collaborating in building a territorial network of resources and actors.

Numerous urban regeneration practices that have activated symbiosis models allow to highlight how "co-operation" is a source of mutual benefit and involves a mutual convenience, based on the constant construction of ties and relationships and the interdependence determined by spatial proximity. Economic processes

require cooperative-collaborative behaviors between the various components and become increasingly territorialized, and therefore, more resilient and at the same time, less and less associated with the production of negative environmental impacts. The economic development crisis due to a public and private resource crisis coupled with the crisis in demand for the type of product the market used to offer may become an opportunity to redesign the city and the metropolitan area on the basis of models closer to the need of citizens, where the terms "quality", "urban welfare" and "sustainability" play a leading role [216].

The smart Biourbanism model identifies a development perspective capable of stopping the ongoing degradation processes, with the purpose of rebuilding the local economy and stimulating a demand for social and cultural innovation. Indeed, the above model emphasizes that it is no longer necessary to preserve the existing forms of capital; but it has become essential to increase them, creating economic, social and environmental benefits. It is therefore based on the relationships and ties that are able to trigger synergies and symbiosis, to generate circular organization processes and show how to cooperate economically, socially and environmentally. It is therefore necessary to regenerate the relations between the inhabitants, between the inhabitants and the urban space, between the inhabitants and the rural area, between productive activities and economic activities, and between the urban space and the rural area. The model prioritises the reconstruction of links at different levels, from which the density of new development activities emerges. It assumes synergistic processes, circularization and symbiosis as tools to multiply the ties that, in turn, generate new synergies and symbiosis, triggering new circular processes. These processes shape the city and make it more attractive to locate new activities and new investments. In fact, economic productivity can be considered as a function of attractiveness, which in turn depends on the quality of the landscape, the function of the synergy and symbiosis intensity, and the processes of circularization between the different forms of capital characterizing the city-territory system. The notion of symbiosis, broadened to the urban and social sphere, is central to the regenerative city model, where the circularization of processes concerns the very organization of the city, its economy, its social system and its governance. Attention, hence, is focused on how to make the regenerative city model operational, understanding how it is possible to stimulate and multiply the links and circular relationships—that is, the "virtuous circular processes"—and thus the synergies and the symbiotic among the various resources of a territory, able to regenerate the ongoing processes and to produce virtuous processes capable of building new values.

In the age of globalization, each territory must identify its own specificities, making it different and unique, exploiting the existence of differences to become more attractive due to the productive factors it owns and from which it can derive its strategic role on a local scale or global. Territorial productivity is closely linked to the ability to activate circularization processes, combining different interests and goals, and to create new bonds, new synergies and new symbiosis projects as components of a chain that generates different, not just economic, values. They, at the same time, create new relationships shared between social actors and new

knowledge, in a circuit that is self-feeding and self-supporting. This development strategy should integrate economic values, social values and environmental values into a "win-win-win approach" that will help increase the resilience of the city, understood as the city's ability to react and manage change, while integrating its urban and organizational structure, and reducing vulnerability. A development process that takes into account these assumptions cannot be based on the approaches and tools of the traditional economy, but identified in the ecological economy the bases for realizing a new urban and territorial metabolism in a long-term perspective [228, 229].

By integrating economic wealth production with ecological safeguarding and social marginalization reduction, it is possible to outline the circular processes that develop along these three main levels [230]:

1. *Economic*: Capable of activating symbiosis processes for value production, allowing synergies and stimulating circuits between society and community prosperity [231], between society and the city, among all the actors and the territory;
2. *Social*: Capable of regenerating interpersonal relationships, often debilitating in urban contexts, through the promotion of relationships and ties with the "places" recognized as identity and symbolism;
3. *Ecological*: Can support ecological processes that characterize living systems, allowing you to conserve and reproduce in time. Circular processes imitate the organization of ecological systems, which are able to self-procreate (*autopoietic*) and at the same time, "support" other (*heteropoietic*) systems. Examples of ecological circular processes emerge through re-use, recycling and regeneration, with a reduction in negative externalities. Therefore, economic, social and ecological circular processes contribute to increasing the resilience and creativity of urban systems by reducing linear metabolism and vulnerability.

Cities are conceived as vital organisms when acting as complex dynamic systems, capable of transforming and adapting to the constant pressure of external change, and capable of modifying space structure, systemic organization and typologies of functions, combining infrastructures, services and activities, and retaining their identity and constituent characters [232–236].

Activating and promoting circular processes in the territories of the port cities and the coastal strip, therefore, imply a new economic organization of the city that reduces material consumption, waste generation, energy consumption, and pollutant emissions by linking the port areas to the city-territory system through pilot experiments of circular projects, capable of making the "7 R" slider operational: Reduce, Replace, Reuse, Recycle, Recover, Refuse, Reject and Rethink [237]. It is therefore necessary to reorganize coastal cities according to processes that favor symbiotic exchanges between the productive structures of cities, between the city and the production systems, and between the city and the extra-urban territory.

12.5 Conclusions

The study team offers a deep analysis of the contemporary socio-economic situation, showing all the incongruence, inequalities, environmental problems and the general unsustainability of the actual economic system. They consider necessary a new theory and practices of smart cities and economic development, suggesting a new framework based on a Biourbanism epistemology. This framework adopts the *systemic principles of life* and suggests to shift from techno-city to human city—called homological smart city—to be contrasted with the diffused idea of the smart city. The actual idea of the smart city is an "empty box", with a vague meaning. This vagueness furnishes energy to the actual unsustainable economic system thereby exacerbating economic inequalities and environmental crisis. All this has affected contemporary city creating, especially in the global South, critical conditions.

The proposed framework offers a clear vision of what a smart city should be, and a deep concept of sustainability founded on life value. Only this epistemological revolution can permit to our society the regeneration of the socio-economic body, founded on citizens' active participation and communities' involvement, respect of nature and life, shared values and commons. Only if we shift the paradigm, we may assure a better future, able to reinforce social inclusion, support an inclusive economy and protect the physical environment.

The implementation of the homological smart city model, based on Biourbanism principles, recognizes peer-to-peer strategies and actions as the starting point for social, cultural and economic innovations, promoting a novel vision for the future of local communities. This change of paradigm considers the human being at the center of the socio-economic system and social innovators as the key-actors able to manage and implement the change. By leveraging on local assets and human resources, they trigger a community revival process able to produce positive systemic effects on the whole urban system and on local governance inclusive models, promoting incremental regeneration processes.

Diversification is considered as a principle of life in a city, conceived as a living organism that cannot be strictly planned but whose processes should rather be guided toward new futures. New strategies to function in a complex system like a city need to be developed by experimenting with real-life situations, implementing open process and bottom-up practices to build a network of interactions between small self-organized co-working communities, taking into account spatial, cultural and economic processes. These processes were able to activate connected diversification, recognized as a systemic principle of life, suitable for the urban development context. It is able to reduce territory vulnerability to external forces that can compromise its integrity, and to identify resilience as the potential of a territorial system to remain in a particular configuration and to maintain its feedbacks and functions, involving the ability to reorganize following disturbance-driven change, and reflecting flexibility capacity to experiment and adopt innovative solutions.

Recognizing the resources value of the territories, which can improve the level of well-being of the local community, determines the need for new management processes, with the predisposition of complex design capabilities, and the identification of suitable directions and agendas, which can outline practical and human-centred implications for citizens, governments and professionals, needs a framework based on the combination and interaction of bottom-up and top-down processes.

According to the above reflections, the case study of the Metropolitan City of Naples can be considered an example to test the potential of an approach that identifies development opportunities, considering the synergistic design capacity of the various municipalities of the Coast Area. Each municipality in the coastal belt of Naples is analyzed by selecting some indicators that describe the processes and governance actions promoted by the municipal administration (top-down) and activated from below (bottom-up) through initiatives by the citizens and local associations, expression of social innovation processes. Through the tools of spatial analysis, multi-criteria and multi-group analysis, has been possible to explain the ability to activate synergies and territorial symbiosis between the different resources that characterize coastal areas.

The Statute of the Metropolitan City of Naples divides its territory into so-called "homogeneous zones" for a more suitable, balanced and functional management of local resources, with the purpose to take into account their identity characters, historical and cultural components, geomorphologic and naturalistic contexts, landscapes functional interactions and socio-economic frameworks. Indeed, the concept of "homogeneous zones" is part of the metropolitan strategic plan, and is oriented to improve the territorial productivity, services to citizens' opportunities, and cooperation among the different municipalities. The authors reflect on the need to identify some homogeneous zones able to underline common identity characters and activate a strategy of connected diversification, with a specific attention for the municipalities of the Coast Area of the Metropolitan City of Naples.

Starting from vulnerability and resilience concepts, the study has been dealt according to a multi-methodological approach, based on a Geodesign process supported by multi-criteria analysis, multi-group analysis and spatial analysis.

The elaboration of Spatial Opportunity Maps (SOMs) is the output of a multi-dimensional evaluation process that leads to the identification of specific territorial contexts with a greater propensity for some specializations relating to the economic sectors and the local transformation.

The identification of a biourban strategy, characterized by human smart spatial solutions, place-based and situated actions, for the enhancement of the Coast Area can be considered as a prerequisite for the activation of a process-oriented to the identification of "homogeneous zones", conceived not only as areas with similar characteristics but above all as territories where it is possible to promote networks of opportunities between the various municipalities and their communities. "Co-operation" is conceived a source of mutual benefit and involves a mutual convenience, based on the constant construction of ties and relationships and the interdependence determined by spatial proximity. Economic processes require

cooperative-collaborative behaviors between the various components and become increasingly territorialized, and therefore more resilient and at the same time less and less associated with the production of negative environmental impacts.

The methodological process has been structured to identify significant opportunities that should be triggered by an urban regeneration process for the Coast of Naples Metropolitan City, recognizing the essential role of sea resource and synergies that could develop into a win-win-win–oriented territorial cohesion. Each of the sixteen municipalities involved could play a decisive role, enhancing their environmental, social and economic resources and collaborating in building a territorial network of resources and actors.

The proposal of a smart Biourbanism model identifies a development perspective capable of stopping the ongoing degradation processes, with the purpose of rebuilding the local economy and stimulating demand for social and cultural innovation. This model is based on the relationships and ties (between the inhabitants, between the inhabitants and the urban space, between the inhabitants and the rural area, between productive activities and economic activities, and between the urban space and the rural area) able to trigger synergies and symbiosis, to generate circular organization processes and show how to cooperate economically, socially and environmentally.

The model prioritizes the reconstruction of links at different levels, from which the density of new development activities emerges. It assumes synergistic processes, circularization, and symbiosis as tools to multiply the ties that, in turn, generate new synergies and symbiosis, triggering new circular processes. These processes shape the city and make it more attractive to locate new activities and new investments, the catalyst of circularization processes between the different forms of capital characterizing the city-territory system.

References

1. Saad-Filho A, Deborah J (2005) Introduction. In: Saad-Filho A, Deborah J (eds) Neoliberalism—a critical reader. Pluto Press, London
2. Abbey R (2005) Is liberalism now an essentially contested concept? New Polit Sci 27:461–480
3. Campbell JL, Pedersen OK (eds) (2001) The rise of neoliberalism and institutional analysis. Princeton University Press, Princeton, New Jersey
4. Chomsky N (1999) Profit over people—neoliberalism and global order. Seven Stories Press, New York
5. Harvey D (2005) A brief history of neoliberalism. Oxford University Press, Oxford
6. Bourdieu P (1998) Contre-feux: Propos pour servir à la résistance contre l'invasion néo-libérale. Éditions Liber, Paris
7. Bourdieu P (1998a) L essence du néolibéralisme". Le Monde diplomatique Mars 1998. Available at: http://www.monde-diplomatique.fr/1998/03/BOURDIEU/10167
8. Bourdieu P (2001) Contre-feux 2: Pour un mouvement social européen. Éditions Raisons d Agir, Paris
9. Touraine A (2001) Beyond neoliberalism. Polity, Cambridge

10. Bernard W, Gisela N (eds) (2006) Neoliberal hegemony—a global critique. Routledge, London
11. Chomsky N (2009) Understanding the crisis. Markets, the State and Hypocrisy. In: Focus. Available at: https://chomsky.info/20090210/, 10 Feb 2009
12. Marx K (1970) Capital, vol 1. Lawrence & Wishart, London
13. Marx K (1970) Capital, vol 2. Lawrence & Wishart, London
14. Foster JB, Magdoff F (2009) The great financial crisis. Monthly Review Press, New York, pp 91–93
15. Lawrence A (1999) The skyscraper index: faulty towers. Property Report. Dresdner Kleinwort Waserstein Research
16. Carol W (1999) Form follows finance, skyscrapers and skylines in New York and Chicago. Princeton Architectural
17. Barr J, Mizrach B, Mundra K (2014) Skyscraper height and the business cycle: separating myth from reality. Rutgers University
18. Geier J (2008) Capitalism's worst crisis since the 1930s. The international socialist review 62. Available at: http://isreview.org/issue/62/capitalisms-worst-crisis-1930s
19. Hope W (2010) Time,communication, and financial collapse. Int J Commun 4:649–669
20. Adam B (2004) Time. Polity, Cambridge, UK
21. Singh K (2000) Taming global financial flows. Zed Books, London
22. Katz C (2009) The crisis of capitalism. Beyond regulation and greed. International socielist review, 65. Available at: http://isreview.org/issue/65/crisis-capitalism
23. Mészáros I (2014) Structural crisis needs structural change. Available at: https://systemicalternatives.org/2014/03/03/structural-crisis-needs-structural-change/
24. Cairó-i-Céspedes G, Castells-Quintana D (2016) Dimensions of the current systemic crisis: capitalism in short circuit? Progress in Development Studies 16(1) pp 1–23. Available at: http://journals.sagepub.com/doi/pdf/10.1177/1464993415608067
25. World Economic Forum (2017) Global risks report 2016. Available at: http://www.oliverwyman.com/content/dam/oliver-wyman/global/en/2016/jan/Global_risks_report_2016.PDF
26. WWF (2016) Living planet report 2016. WWF International, Gland, Switzerland. Available at: http://wwf.panda.org/about_our_earth/all_publications/living_planet_report/
27. Heidegger M (1990) Introduzione alla Metafisica. Mursia Publishing
28. Adorno TW, Horkheimer M (2010) Dialettica dell'Illuminismo. Einaudi, p 3
29. Marcuse E (1998) Some social implications of modern technology. In: Kellner D (ed) Technology, war and fascism: collected papers of Herbert Marcuse, vol 1. Routledge, London and New York, p 49
30. Working Group 'societal relationships with nature' (GesNat) of the Federal Coordination of Internationalismus (BundeskoordinationInternationalismus – BUKO) After the failure of the Green Economy. 10 theses of a critique of the green economy. Available at: http://social-ecology.org/wp/wp-content/uploads/2012/05/Theses-on-Green-Econ.pdf
31. Latouche S (2003) Sustainable development as a Paradox. Available at: http://rsesymposia.org/themedia/File/1151679499-Plenary2_Latouche.pdf
32. Das Prinzip Verantwortung HJ (1979) Versuch einer Ethik für die technologische Zivilisation. Frankfurt
33. Cambridge Dictionary. Dictionary. http://dictionary.cambridge.org/dictionary/english/development
34. Capra F, Jakobsen OD (2017) A conceptual framework for ecological economics based on systemic principles of life. Int J Soc Econ 44(6):831–844
35. Mac Intyre A (2007) After virtue: a study in moral theory. University of Notre Dame Press
36. Eraclitus. Fragments (2003) Penguin classics
37. Aristotle's "Politics" (2013) University of Chicago Press, 2nd edn
38. Cendejas JL (2017) Economics, chrematistics, oikos and polis in Aristotle and St. Thomas Aquinas. The Journal of Philosophical Economics. X pp 5–46

39. Leshem D (2016) What did the ancient Greeks mean by oikonomia? J Econ Perspect 30 (1):225–231
40. Tommaso d'Aquino. Summa Theologica. ESD-Edizioni Studio Domenicano
41. Encinar MI, Cendejas JL, Muñoz FF (2006) On the relationship between ethics and economics. Cuadernos de Economía 29(79):93–118
42. Dierksmeier C, Pirson M (2009) Oikonomia versus Chrematistike: learning from Aristotle about the future orientation of business management. In: Journal of Business Ethics 88(3), 15th IESE international symposium on ethics, business and society business and management: towards more humanistic models and practices, pp 417–430
43. Lovelock J (1988) The ages of Gaia. Norton, New York, NY
44. Ingebrigtsen S, Jakobsen O (2007) Circulation economics. Theory and Practice, Peter Lang, Oxford
45. Caperna A, Serafini S (2013) Biourbanism as new framework for smart cities study. In: Vinod K (ed) Geographic information system for smart cities. Copal Publishing, Ghaziabad, India
46. Hollands RG (2008) Will the real smart city please stand up? In: City: analysis of urban trends, culture, theory, policy, action, vol 12(3), pp 303–320
47. Eger J (1997) Cyberspace and cyberplace: building the smart communities of tomorrow. San Diego Union-Tribune
48. Coe A, Paquet G, Roy J (2001) E-goverance and smart communities: a social learning challenge. Soc Sci Comput Rev 19(80):80–93
49. Thorns D (2002) The transformation of cities: urban theory and urban life. Palgrave, Basingstoke
50. Caragliu A, Del Bo C, Nijkamp P (2009) Smart cities in Europe. Serie Research Memoranda 0048. University Amsterdam
51. Batty M et al (2012) Smart cities of the future. Centre for advanced spatial analysis University College London, Paper, p 188
52. Graham S, Marvin S (2001) Telecommunications and the city: electronic spaces, urban place. Routledge, London
53. Castells M (1996) The rise of the network society. Blackwell, Oxford
54. Ishido T (2002) Digital city Kyoto. Commun ACM 45(7):78–81
55. Komninos N (2002) Intelligent cities: innovation knowledge systems and digital spaces. Spon Press, London
56. Caperna et al (2011) Biourbanism manifesto. Source: http://www.biourbanism.org/biourbanism-definition/
57. Serafini S (2011) Liberazione partecipata dello spazio dall'iperreale. L'Italia come esperimento biourbanistico. Abitare l'Italia. Territori, economie, diseguaglianze, XIV Conferenza SIU, 24/25/26 marzo 2011. Planum, The journal of Urbanism
58. Marx C (1990) Results of immediate process of production. In: Capital vol 1. A critique of political economy. Penguin Classics, London pp 943–1084
59. Debord G (1970) The society of the spectacle. Black & Red Ed
60. Augé M (1995) Non-places introduction to an anthropology of supermodernity. Verso, London
61. Benjamin Widom (2009) Scholarpedia 4(10):9054 Available at: http://www.scholarpedia.org/article/Scaling_laws
62. Sornette D (2006) Critical phenomena in natural sciences: chaos, fractals, self-organization and disorder: concepts and tools. Springer Series in Synergetics, 2nd edn. Springer, Heidelberg
63. Bak P (1997) How nature works. Oxford University Press, Oxford
64. Newman MEJ (2005) Power laws, Pareto distributions and Zipf's law. Contemp Phys 46 (5):323–351
65. Gabaix X (1999) Zipf's law for cities: an explanation. Q J Econ 114(3):739–767
66. Cristelli M, Batty M, Pietronero L (2012) There is more than a power law in Zipf. Sci Rep 2:812

67. Salingaros NA (2010) Twelve lectures on architecture. Algorithmic Sustainable Design, Umbau, Solingen
68. Bejan A, Lorente S (2010) The constructal law of design and evolution in nature. Philos Trans Royal Soc B 365:1335–1347
69. Caperna A, Serafini S (2013) Biourbanistica come nuovo approccio epistemologico. In: Mortola E (ed) Partecipazione e ICT. Gangemi Editore, Rome
70. Serafini S (2011) P2P (peer to peer) Urbanism and Biourbanism. МЕЖДУНАРОДНАЯ НАУЧНАЯШКОЛА"Перспективные направления физико-химической биологии и биотехнологии" (тезисы докладов)». TomskStateUniversity, Tomsk, pp 11–15
71. Caperna A, Mehaffy M, Mehta G, Mena-Quintero F, Rizzo A, Salingaros NA, Serafini S, Strano E (2010) A definition of P2P (peer-to-peer) urbanism, AboutUsWiki, the P2P foundation, DorfWiki, peer to peer urbanism. Presented by Salingaros N at the international commons conference. Heinrich Böll Foundation, Berlin, Available at: http://wiki.p2pfoundation.net/images/P2PUrbanism_definition.pdf
72. Perri S (2013) Ascesa e caduta del modello economico italiano. Available at: http://www.economiaepolitica.it/primo-piano/ascesa-e-caduta-del-modello-economico-italiano. Accessed 12 Aug 2017, Accessed 15 Sept 2017
73. Babones S (2007) Studying globalization: methodological issues. In: Ritzer J (ed) The blackwell companion to globalization. Wiley, New York, p 146
74. ISTAT—Istituto Nazionale di Statistica (2015) I. Stat database. http://dati.istat.it. Accessed 12 Aug 2017
75. ISTAT—Istituto Nazionale di Statistica (2017) Occupati e disoccupati Giugno 2017. Available at: http://www.istat.it/it/files/2017/07/CS_Occupati-e-disoccupati_giugno_2017.pdf?title=Occupati+e+disoccupati+%28mensili%29+-+31%2Flug%2F2017+-+Testo+integrale+e+nota+mettodologica.pdf. Accessed 12 Aug 2017
76. European Commission (2017) Employment and social developments in Europe. Annual review 2017. Available at: http://ec.europa.eu/social/main.jsp?catId=738&langId=it&pubId=8030&furtherPubs=yes. Accessed 21 Aug 2017
77. Galli G (2015) Il golpe invisibile. Kaos, Milano
78. De Fiores C (2007) Rappresentanza politica e sistemi elettorali in Italia. Available at: http://www.costituzionalismo.it/articoli/253/. Accessed 18 Oct 2017
79. Schmit H (2017) La garanzia dei diritti elettorali fondamentali. Available at: https://www.academia.edu/33331644/La_garanzia_dei_diritti_elettorali_fondamentali. Accessed 1 Oct 2017, Accessed 19 Oct 2017
80. Scandone R (ed) (2015) Le catastrofi naturali in Italia. Scienze e Ricerche 10, supplemento
81. Aon Benfield (2017) 2016 Annual global climate and catastrophe report. Available at: http://thoughtleadership.aonbenfield.com/Documents/20170117-ab-if-annual-climate-catastrophe-report.pdf. Accessed 19 Oct 2017
82. ISPRA—Istituto Superiore per la Protezione e la Ricerca Ambientale (2015) Dissesto idrogeologico in Italia: pericolosità e indicatori di rischio. Available at: http://www.isprambiente.gov.it/it/pubblicazioni/rapporti/dissesto-idrogeologico-in-italia-pericolosita-e-indicatori-di-rischio-rapporto-2015. Accessed 17 Oct 2017
83. ISPRA—Istituto Superiore per la Protezione e la Ricerca Ambientale (2017) Consumo di suolo, dinamiche territoriali e servizi ecosistemici. Edizione 2017. Available at: http://www.isprambiente.gov.it/it/pubblicazioni/rapporti/consumo-di-suolo-dinamiche-territoriali-e-servizi-ecosistemici. Accessed 21 Sept 2017
84. Archibugi D, Filippetti A (2012) Innovation and economic crisis: lessons and prospects from the economic downturn. Routledge, London
85. Kania J, Kramer M (2013) Embracing Emergence: how collective impact addresses complexity. Stanford Social Innovation Review 2013: 1–7. Available at: https://ssir.org/pdf/Embracing_Emergence_PDF.pdf
86. Smith A, Fressoli M, Abrol D, Around E, Ely A (2017) Grassroots innovation movements. Routledge, New York, NY
87. Consiglio S, Riitano A (2015) Sud innovation. Franco Angeli, Milano

88. Caroli MG (ed) (2016) L'innovazione delle imprese leader per creare valore sociale. Terzo rapporto CERIIS sull'innovazione sociale. Franco Angeli Open access, Milano. Available at: http://ojs.francoangeli.it/_omp/index.php/oa/catalog/book/220
89. Moulaert F (ed) (2015) The international handbook on social innovation: collective action, social learning and transdisciplinary research. E Elgar, Cheltenham (UK)
90. European Commission (2010). This is European social innovation. Available at: http://ec.europa.eu/DocsRoom/documents/19042. Accessed 15 Oct 2017
91. Murray R, Calulier-Grice J, Mulgan G (2010) The open book of social innovation. National endowment for science, technology and the art, London
92. Phills A, Deiglmeier K, Miller D (2008) Rediscovering social innovation. Stanford Soc Innov Rev 6(4):34–43
93. Moro G (2015) La cittadinanza attiva: nascita e sviluppo di una anomalia. In: Salvati M, Sciolla L (eds) L'Italia e le sue regioni. Istituto della Enciclopedia Italiana, pp 55–77. Available at: http://www.treccani.it/enciclopedia/la-cittadinanza-attiva-nascita-e-sviluppo-di-un-anomalia_%28L%27Italia-e-le-sue-Regioni%29/
94. Costituzione della Repubblica Italiana. Parte II, Titolo V, articolo 118. Available at: https://www.senato.it/1025?sezione=136&articolo_numero_articolo=118. Accessed 15 Oct 2017
95. UNPLI—Unione Nazionale Pro Loco d'Italia. http://www.unioneproloco.it. Accessed 22 Oct 2017
96. ISTAT—Istituto Nazionale di Statistica (2012) 9° Censimento industria, servizi 2011. La rilevazione sulle istituzioni non profit: un settore in crescita. Available at: http://www.istat.it/files/2013/07/05-Scheda-Non-Profit_DEF.pdf. Accessed 23 Aug 2017
97. OECD (2011) Fostering innovation to address social challenges. Workshop proceedings. Available at: https://www.oecd.org/sti/inno/47861327.pdf. Accessed 28 Aug 2017
98. Kretzmann JP, McKnight J (1993) Building communities from the inside out: a path toward finding and mobilizing a community's assets. Center for urban affairs and policy research, neighborhood innovations network, Northwestern University, Evanston, Ill
99. Italia che Cambia. http://www.italiachecambia.org. Accessed 20 Oct 2017
100. European Commission (2014) Regional eligibility for structural funds, NUTS 2 regions, 2014–20. Available at: http://ec.europa.eu/eurostat/statistics-explained/images/8/84/Regional_eligibility_for_structural_funds%2C_by_NUTS_level_2_region%2C_2014%E2%80%9320_%28%C2%B9%29_%28%25_of_EU-27_average%29_RYB15.png. Accessed 29 Aug 2017
101. SVIMEZ—Associazione per lo sviluppo dell'industria nel Mezzogiorno (2017) Anticipazioni dei principali andamenti economici e sociali dal "Rapporto SVIMEZ 2017 sull'economia del Mezzogiorno". Available at: http://www.svimez.info/images/RAPPORTO/materiali2017/2017_07_28_anticipazioni_testo.pdf. Accessed 20 Oct 2017
102. Marfé L, Schibotto E (2012) Il divario: Globalizzazione, emigrazione e Sud. Edizioni Nuova Cultura, Roma
103. Corrado A, Colloca C (2015) La globalizzazione delle campagne: Migranti e società rurali nel Sud Italia. Franco Angeli, Milano
104. Arminio F (2012) Terracarne: Viaggio nei paesi invisibili e nei paesi giganti del Sud Italia. Mondadori, Milano
105. Anci IFEL (2015) Atlante dei piccoli comuni. Available at: http://www.fondazioneifel.it/documenti-e-pubblicazioni/item/4635-atlante-dei-piccoli-comuni-2015. Accessed 29 Aug 2017
106. Legambiente (2016) Piccolo (e fuori dal) comune. Cosa sta cambiando nell'Italia dei piccoli comuni. Available at: https://www.legambiente.it/sites/default/files/docs/dossier_piccoli_e_fuori_dal_comune_piccolicomuni2016.pdf. Accessed 11 Sept 2017
107. LongoTherapy. https://www.facebook.com/longotherapy.2014. Accessed 22 Aug 2017
108. Cooperativa Valle dei Cavalieri. http://www.valledeicavalieri.it. Accessed 25 Oct 2017
109. Grella D. (2016) Succiso, il paese-cooperativa dove ogni giorno si cambia lavoro. Available at: http://www.vita.it/it/article/2016/05/23/succiso-il-paese-cooperativa-dove-ogni-giorno-si-cambia-lavoro/139495. Accessed 25 Oct 2017

110. Belmonte in Rete. http://www.belmonteinrete.flazio.com. Accessed 22 Aug 2017
111. Farm Cultural Park. http://www.farmculturalpark.com. Accessed 22 Aug 2017
112. Inbianchini di Bellezza. http://www.imbianchinidibellezza.it. Accessed 20 Oct 2017
113. Borgo Vecchio Factory. https://www.facebook.com/borgovecchiofactory. Accessed 25 Oct 2017
114. Borgo Vecchio Factory. Indiegogo. https://www.indiegogo.com/projects/borgo-vecchio-factory-education#/. Accessed 25 Oct 2017
115. Gazzetta Ufficiale della Repubblica Italiana—Serie Generale n.81 del 7–4-2014. Legge 7 Aprile 2014, n. 56. Disposizioni sulle citta' metropolitane, sulle province, sulle unioni e fusioni di comuni
116. Wilson EO (1984) Biophilia. Harvard University Press, Cambridge
117. Norberg-Schulz C (1979) Genius loci: paesaggio, ambiente, architettura. Electa, Milano
118. Bevilacqua F (2010) Genius loci. Il dio dei luoghi perduti. Rubettino, Soveria Mannelli
119. Jacurso da Vivere e Imparare. http://jacursodavivereeimparare.it. Accessed 25 Oct 2017
120. Tucci F (2016) Soft revolution. L'Erudita, Roma
121. Levanti G (2010) Il governo dei sistemi reticolari di imprese. Franco Angeli, Milano
122. Pensando Meridiano Association. https://www.pensandomeridiano.com. Accessed 25 Oct 2017
123. Progetto Artena. http://progettoartena.com. Accessed 26 Oct 2017
124. CGI Mestre (2017) Le inefficienze dellaPAa frenano la ripresa. Available at: http://www.cgiamestre.com/articoli/23933. Accessed 23 Oct 2017
125. Iperbole2020. http://iperbole2020.comune.bologna.it. Accessed 23 Oct 2017
126. Comune di Bologna (2014) Regulation on collaboration between citizens and the city for the care and regeneration of urban commons. Available at: http://www.comune.bologna.it/media/files/bolognaregulation.pdf. Accessed 30 Aug 2017, Accessed 23 Oct 2017
127. Iperurbano. https://www.facebook.com/iperurbano. Accessed 22 Aug 2017
128. Esperimenti Architettonici. http://www.esperimentiarchitettonici.it. Accessed 22 Oct 2017
129. Il cuore di Altamura. https://www.facebook.com/Il-Cuore-Di-Altamura-523721281099589. Accessed 22 Aug 2017
130. Associazione Turistica Pro Loco Altamura. http://prolocoaltamura.it. Accessed 22 Aug 2017
131. Settis S (2010) Paesaggio Costituzione cemento: La battaglia per l'ambiente contro il degrado civile. Einaudi, Torino
132. Minervino MF (2010) Statale 18. Fandango libri, Roma
133. Lauria M (ed) (2009) Che fine hanno fatto i Centri Storici minori? Atti del seminario di studi. Centro Stampa di Ateneo, Reggio Calabria
134. Agenzia del Demanio. http://dati.agenziademanio.it. Accessed 25 Aug 2017
135. Il Fatto Quotidiano (2016) Vendita immobili pubblici, quegli incassi che cambiano di anno in anno. Ma il Tesoro nega che ci siano partite di giro. http://www.ilfattoquotidiano.it/2016/05/07/vendita-immobili-pubblici-quegli-incassi-che-cambiano-di-anno-in-anno-ma-il-tesoro-nega-che-ci-siano-partite-di-giro/2701474/. Accessed 22 Aug 2017
136. Mangialardo A, Micelli E (2017) From sources of financial value to commons: Emerging policies for enhancing public real-estate assets in Italy. Papers in Regional Science
137. Lerner J (2003) Acupuntura urbana. Record, Rio de Janeiro
138. O'Connor J, Bensky D (eds) (1981) Acupuncture: a comprehensive text. Eastland Press, Chicago, Ill
139. Casagrande M (2013) Biourban acupuncture. Treasure hill of Taipei to Artena. International Society of Biourbanism, Rome
140. Comitato di Quartiere Centro Storico Artena. https://www.facebook.com/centro.storico.artena. Accessed 24 Oct 2017
141. Italian Stories. https://www.italianstories.it. Accessed 25 Oct 2017
142. South Cultural Routes. https://www.facebook.com/SulleStradeDelSud/. Accessed 25 Oct 2017
143. Massimo Castelli. http://www.massimocastelli.eu. Accessed 25 Oct 2017
144. Casa Netural. http://www.benetural.com. Accessed 25 Oct 2017

145. GiovanIrpinia. https://www.facebook.com/GiovanIrpinia. Accessed 26 Oct 2017
146. Signorelli A (2016) La vita al tempo della crisi. Einaudi
147. Bartolini S (2013) Manifesto per la felicità. Feltrinelli, Roma
148. Gage T (2017) Fully alive: using the lessons of the Amazon to live your mission in business and life. Atria Books, New York, NY
149. Ariès P (1980) L'uomo e la morte dal Medioevo a oggi. Laterza, Bari
150. Platone (428–347 a.C). Cambiano G, Adorno F (eds) (1995–2008) Dialoghi. UTET, Torino
151. Dolci D (1996) La struttura maieutica e l'evolverci. La Nuova Italia, Firenze
152. Interazioni Creative. https://www.interazionicreative.com. Accessed 26 Oct 2017
153. Sassen S (1988) Globalization and its discontents: essays on the new mobility of people and money. The New Press, New York, NY
154. Braga JC (2009) The systemic crisis of financial capitalism and the uncertainty of change. Estudos Avançados 23(65):89–102
155. Egan MP, Nugent N, Paterson WE (eds) (2010) Research agendas in EU studies: stalking the elephant. Palgrave Macmillan, Basingstoke
156. Nesi E (2012) Storia della mia gente. Bompiani, Milano
157. Joji Sakurai—YaleGlobal Online (2014) Italy and Japan: Troubled Twins of Globalization. Available at: http://yaleglobal.yale.edu/content/italy-and-japan-troubled-twins-globalization. Accessed 24 Oct 2017
158. Garin E (1967) La cultura del Rinascimento. Laterza, Bari
159. Brera GM, Nesi E (2017) Tutto è in frantumi e danza. La nave di Teseo, Milano
160. Orsi W, Ciarrocchi RA, Lupi G (2009) Qualità della vita e innovazione sociale: Un'alleanza per uscire dalla crisi. F. Angeli, Milano
161. Carmona M (2009) Design coding and the creative. market and regulatory tyrannies of practice. Urban Stud 46(12):2643–2667
162. McGlynn S (1993) Reviewing the rhetoric. In: Hayward R, McGlynn S (eds) Making better places: urban design now. Architectural Press, Oxford
163. Alexander C, Neis HJ, Moore M (2012) The battle for the life and beauty of the earth: a struggle between two world-systems. University Press, Oxford
164. Salingaros NA (2006) A theory of architecture. Umbau-Verlag, Solingen
165. Serafini S (2016) Editor's note: the silence of design. J Biourbanism 1&2:9–23
166. Al-Sabouni M (2016) Architecture with identity crisis: the lost heritage of the middle east. J Biourbanism 1&2:81–98
167. Osnowitz D (2010) Freelancing expertise: contract professionals in the new economy. Cornell University Press
168. Vosko LF, Zukewich N, Cranford S (2003) Precarious jobs: a new typology of employment. Perspectives on Labour and Income 15(4)
169. Gandini A (2015) The rise of coworking spaces: a literature review. Ephemera 15(1): 193–205
170. Houni P, Ansio H (eds) (2015) Duuniakimpassa: YhteisöllisettyötilatHelsingissä (Working together: Co-working communities in Helsinki). Helsinginkaupungintietokeskus, Helsinki
171. Alatalo E, Jokinen A (2016) Connecting the spaces of co-work: joy of expedition in a growing trajectory. J Biourbanism 1&2:205–221
172. Kemmis S, McTaggart R, Nixon R (2014) The action research planner: doing critical participatory action research. Springer, Singapore
173. Moriset B (2014) Building new places of the creative economy. The rise of coworking spaces. In: Proceedings of the 2nd geography of innovation international conference 2014, Utrecht University, Utrecht
174. Florida R (2002) The rise of the creative class: and how it's transforming work, leisure, community and everyday life. Basic Books, Cambridge
175. Spinuzzi C (2012) Working alone, together: coworking as emergent collaborative activity. J Bus Techn Commun 26(4):399–441
176. Gould SJ, Eldredge N (1977) Punctuated equilibria: the tempo and mode of evolution reconsidered. Paleobiology 3(2):115–151

177. James M (2001) The speciation revolution. J Evol Biol 14:887–888
178. Shane DG (2006) Recombinant urbanism: conceptual modeling in architecture, urban design and city theory. Wiley, Oxford
179. Caragliu A, Del Bo C, Nijkamp P (2011) Smart cities in Europe. J Urban Technol 18(2): 65–82
180. Roller L-H, Waverman L (2001) Telecommunication infrastructure and economic development: a simultaneous approach. Am Econ Rev 91(4):909–923
181. Berry CR, Glaeser EL (2005) The divergence of human capital levels across cities. Pap Reg Sci 84(3):407–444
182. Le Galès P (2006) Le città europee. Società urbane, globalizzazione, governo locale. Il Mulino, Bologna, Italy
183. Batty M, Axhausen KW, Giannotti F, Pozdnoukhov A, Bazzani A, Wachowicz M, Ouzounis G, Portugali Y (2012) Smart cities of the future. Eur Phys J Spec Top 214:481–518
184. Dioguardi G (2015) Città-impresa per il governo della complessità urbana. Domus, Supplemento Smart City, 14–17
185. Dubey SK, Sharma D (2017) An overview of sustainable dimensions and indicators for smart city. In: Singh R, Kumar S (eds) Green technologies and environmental sustainability. Springer, Dordrecht–Heidelberg–New York
186. Lacinák M, Ristvej J (2017) Smart city, safety and security. TRANSCOM 2017. In: International scientific conference on sustainable, modern and safe transport, procedia engineering 192:522–527
187. Vinod Kumar TM, Dahiya B (2017) Smart economy in smart cities. Smart economy in smart cities. International collaborative research. Springer, Singapore, pp 3–76
188. Concilio G, Marsh J, Molinari F, Rizzo F (2016) Human smart cities: a new vision for redesigning urban community and citizen's life. In: Skulimowski AMJ, Kacprzyk J (eds) Knowledge, information and creativity support systems: recent trends, advances and solutions. Springer, Dordrecht–Heidelberg–New York, pp 269–278
189. Concilio G, Rizzo F (2016) Human smart cities: rethinking the interplay between design and planning. Springer, Dordrecht–Heidelberg–New York
190. Hart K, Laville JL, Cattani AD (eds) (2010) The human economy. Polity Press, Cambridge and Massachusetts, USA
191. Schuler D (2016) Smart cities + smart citizens = civic intelligence? In: Concilio G, Rizzo F (eds) Human smart cities. Rethinking the interplay between design and planning. Springer, Dordrecht–Heidelberg–New York, pp 41–60
192. Miller F, Osbahr H, Boyd E, Thomalla F, Bharwani S, Ziervogel G, Walker B, Birkmann J, Van der Leeuw S, Rockström J, Hinkel J, Downing T, Folke C, Nelson D (2010) Resilience and vulnerability: complementary or conflicting concepts? Ecol Soc 15(3):11
193. Walker B, Carpenter S, Anderies J, Abel N, Cumming G, Janssen M, Lebel L, Norberg J, Peterson G, Pritchard R (2002) Resilience management in social-ecological systems: a working hypothesis for a participatory approach. Conserv Ecol 6(1):14. http://www.consecol.org/vol6/iss1/art14/
194. Folke C (2003) Social-ecological resilience and behavioral responses. In: Biel A, Hansson B, Mårtensson M (eds) Individual and structural determinants of environmental practice. Ashgate, Aldershot, UK, pp 226–242
195. Resilience Alliance (2010) Assessing resilience in social-ecological systems: workbook for practitioners (Version 2.0). http://www.resalliance.org/3871.php
196. Walker B, Abel N, O'Connell D, Grigg N (2016) A resilience approach to conservation and development. Working Paper Version 1.5. CSIRO, Australia, https://www.resalliance.org/discussion-papers
197. Caperna A, Mehaffy M, Mehta G, Mena-Quintero F, Rizzo A, Salingaros NA, Serafini S, Strano E (2010) A definition of P2P (peer-to-peer) urbanism. AboutUsWiki, the P2P foundation, DorfWiki, peer to peer urbanism. Presented by Salingaros N at the international commons conference, Heinrich Böll Foundation, Berlin, 1 Nov 2010. http://www.biourbanism.org/definition-of-biourbanism/

198. Fusco Girard L, Cerreta M, De Toro P (2015) La risorsa mare per il territorio. Prospettive di sviluppo per la fascia costiera della provincia di Napoli. Giannini, Napoli, Italy
199. Fusco Girard L, Cerreta M, De Toro P (2017) Towards a local comprehensive productive development strategy: a methodological proposal for the metropolitan city of Naples. Qual Innov Prosperity/Kvalita Inovácia Prosperita 21(1):223–239
200. Vetritto G (ed) (2017) I dossier delle Città Metropolitane. Città metropolitana di Napoli. Dipartimento per gli Affari Regionali e le Autonomie Presidenza del Consiglio dei Ministri, DARA, Roma, Italy
201. De Matteis G (ed) (2011) Le grandi città italiane. Società e territori da ricomporre, Marsilio, Venezia, Italy
202. Staricco L (2016) Secondo Rapporto «Giorgio Rota» su Napoli. SRM-Centro Einaudi, Napoli, Italy
203. European Comission (2017) The cultural and creative cities monitor. Joint Research Centre, Varese, Italy
204. Sassen S (1994) Le città nell'economia globale. Il Mulino, Bologna, Italy
205. Bruttomesso R (1993) Waterfront e trasporto urbano d'acqua. Kineo 3:8–11
206. Bruttomesso R (2007) Nuovi scenari urbani per le città d'acqua. Percorsi d'acqua 2006–2007, Lecture, Milano
207. Moretti M (2008) Cities on water and waterfront regeneration: a strategic challenge for the future, Grundtvig, II meeting rivers of change-river//Cities Warsaw, Poland, 24–27 July 2008, http://www.river-cities.nazwa.pl/www/download/m.moretti_warsaw2008.pdf
208. Hou D (2009) Urban waterfront landscape planning. Master's thesis, Blekinge Institute of Technology Karlskrona, Sweden
209. Hein C (ed) (2011) Port cities: dynamic landscapes and global networks. Routledge, London, UK
210. Timur UP (2013) Urban waterfront regenerations. In: Rijeka ÖM (ed) Advances in landscape architecture. InTech, Rijeka, Croatia, pp 169–206
211. Steinitz CA (2012) Framework for geodesign: changing geography by design. ESRI Press, Redlands, CA
212. Campagna M (2016) Metaplanning: about designing the geodesign process. Landscape Urban Plann 156:118–128
213. Munda G (1995) Multicriteria evaluation in a fuzzy environment. Physica-Verlag, Heidelberg, Germany
214. Munda G (2008) Social multi-criteria evaluation for a sustainable economy. Springer, Heidelberg, New York
215. Cerreta M (2010) Thinking through complex values. In: Cerreta M, Concilio G, Monno V (eds) Making strategies in spatial planning, knowledge and values. Springer, Dordrecht–Heidelberg–New York, pp 381–404
216. Audis (Associazione Aree Urbane Dismesse) (2014) Documento di proposte per la rigenerazione urbana. http://www.reagaa.eu/images/reag/news/AUDIS_Documento_per_la_rigenerazione_urbana_16_maggio2014__02931.pdf
217. OECD (2008) Handbook on constructing composite indicators. OECD Publications, Paris, France
218. Hansen LJ, Biringer JL, Hoffman JR (eds) (2003) Buying time: a user's manual for building resistance and resilience to climate change in natural systems. WWF Climate Change Program, Berlin, Germany
219. Cutter SL, Finch C (2007) Temporal and spatial changes in social vulnerability to natural hazards. Proc Natl Acad Sci 105(7):2301–2306
220. Naudé W, McGillivray M, Stephanié R (2008) Measuring the vulnerability of subnational regions. Research paper n. 2008/54, UNU-WIDER World Development Economic Research Institute
221. Turvey R (2007) Vulnerability assessment of developing countries: the case of small-island developing states. Dev Policy Rev 25(2):243–264

222. Graziano P (2012) Rischio, vulnerabilità e resilienza territoriale. Serie Rossa, Economia—Quaderno N. 87 novembre 2012. Università Cattolica del Sacro Cuore, Piacenza, Italy
223. Roy B, Bouyssou D (1993) Aide Multicritère à la Decision: Méthodes et Cas. Economica, Paris, France
224. Cerreta M, De Toro P (2012) Integrated spatial assessment (ISA): a multi-methodological approach for planning choices. In: Burian J (ed) Advances in spatial planning. InTech, Rijeka, Croatia, pp 77–108
225. Costanza R, Folke C (1997) Valuing ecosystem services with efficiency, Fairness and Sustainability as Goals. Island Press, Washington, D.C., USA
226. Beinat E, Nijkamp P (eds) (1998) Multicriteria analysis for land-use management. Springer, Heidelberg, New York
227. de Bruijn H, Ten Heuvelhof E (2008) Management in networks: on multi-actor decision making. Routledge, London and New York
228. Fusco Girard L (2010) Sustainability, creativity, resilience: towards new development strategies of port areas through evaluation processes. Int J Sustain Dev 13:161–184
229. Fusco Girard L (2013) Creative cities: the challenge of 'humanization' in the city development. BDC 13(1):9–33
230. Ravetz J, Fusco Girard L, Bornstein L (2012) A research and policy development agenda: fostering creative equitable and sustainable port cities. BDC 12:67–69
231. Porter ME, Kramer MR (2011) Creating shared value. Harvard Business Review. https://hbr.org/2011/01/the-big-idea-creating-shared-value
232. Calafati A (2009) Economie in cerca di città. La questione urbana in Italia, Donzelli, Roma, Italy
233. Girardet H (2010) Regenerative cities, world future council and hafencity university. Hamburg, Germany
234. Micelli E (2016) Restituire alla comunità il public value delle scelte urbanistiche: Tassazione vs strumenti di partenariato. Scienze Regionali 3(3):105–113
235. Barreca A, Curto R, Rolando D (2017) Assessing social and territorial vulnerability on real estate submarkets. Buildings 7(94):1–17
236. Torre CM, Morano P, Tajani F (2017) Saving soil for sustainable land use. Sustainability 9 (350):1–35
237. Antonelli Abella T (2013) Follow the Rs: reduce, replace, reuse, recycle, recover, refuse and reject, rethink. Envirocities eMagazine 4:8–10