

Governing the Unknown

Adaptive Spatial Planning in the age of uncertainty

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How does urbanism 'stay with' and 'benefit from' uncertainty? Exploring antifragility as a planning and design issue.

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Track 1. Adaptive Planning Theory

Abstract

Experiencing many local and global crises, which are overlapping and interdependent and trigger a growing instability, we live in a time of deep uncertainty.

How is urbanism dealing with uncertainty today? Is it able to 'stay with' uncertainty? If there is a rich tradition of studies on the evolving relationship between uncertainty and urban planning, the one on uncertainty and urban design is fragmented. However, the practice of urban design –as the one of urban planning– has dialogued and increasingly dialogues with uncertainty, revealing the ability not only to 'stay with' uncertainty but also to 'benefit from' it. Therefore, it proves to be *antifragile*. Indeed, antifragility is the ability to gain from uncertainty, according to its original definition (Taleb, 2012).

So, this contribution investigates the concept of antifragility. It then proposes exploring the vocation of antifragility as a nomadic concept, assessing the current state of its diffusion within different disciplines, and presenting what has been done so far to introduce it in the field of urbanism. The paper then seeks to evaluate antifragility in a broader theoretical framework, putting it in dialogue with well-established concepts and positionings, which deals with uncertainty. These other concepts come from studies on planning and uncertainty –such as *possibilism* and *negative capability*–, on resilience understood as *evolutionary resilience*, and on the characteristics of *complex adaptive systems* applied to urbanism. From this dialogue, antifragility unveils significant planning and design potential. Research literature and desk analysis are the basis for this work.

These issues are part of the PhD research that the author is carrying out at the Politecnico di Milano, identifying the antifragile strategies that feature many current design processes of European public space which not only 'stay with' uncertainty but also 'benefit from' it.

Keywords

Urbanism; Uncertainty; Antifragility; Evolutionary Resilience; Possibilism.

1. Introduction. Uncertainty will stay / Let us stay with uncertainty

As the subtitle of this conference suggests, we now live in an age of uncertainty. However, this age did not begin with the spread of the COVID-19 in the early 2020s, nor with the global economic crisis of 2008, nor with the international terrorist attacks that began on September 11, 2001. This is a complex and incremental situation resulting from increasingly frequent environmental, health, social, and economic crises, which are overlapping and interdependent and have local and global effects that unfold over short and long periods.

As early as 1971, Schön warned that we had gone *Beyond the Stable State*. Since then, the state of instability has become increasingly complex, articulated and permanent (the Foundational Economy Collective, 2018; Balducci, 2020), characterising our time as an age of uncertainty.

Since last year, when the spread of Sars-Cov-2 profoundly changed people's habits all over the globe, discussions and arguments about uncertainty have multiplied, so much so that uncertainty has become a buzzword of our time.¹

We live in a “vast ocean of uncertainties speckled by a few islands of calibrated and stabilized forms,” as Latour argued back in 2005 (245). Latour (2017) also invites to stop using the term *crisis* as it could suggest reversibility. Indeed, he avers that “we are not in a crisis. We can no longer say ‘this, too, will pass.’ We’re going to have to get used to it. It’s *definitive*. [...] The imperative confronting us, therefore, is to discover a *course of treatment* – but without the illusion that a cure will come quickly” (13).

If the age of uncertainty is not a short phase but an age, the course of treatment that Latour writes about is a long-term caring action that operates while staying with uncertainty. Moreover, the logic of care is not only specific to social, ecological and economic disciplines: urban planning also participates in this caring for our *broken plane*² in the age of uncertainty.

This paper tries to provide some arguments about how urbanism stays with uncertainty. With this aim, the next section reasons about the evolving relationship between urbanism and uncertainty, observing through some examples of how urbanism practices today are able not only to stay with but also to benefit from uncertainty. As the ability to benefit from uncertainty is the main property of an antifragile system (Taleb, 2012), the third paragraph investigates the concept of *antifragility* and its early applications in urban disciplines. The next paragraph broadens the perspective, combining antifragility with other concepts, already applied in urbanism, which in turn dialogue with uncertainty. Then, this contribution tries to enhance some connections between these concepts, which are useful to reflect on how that “vast set of practices” that constitutes urbanism (Secchi, 2000: 6, my translation) has been increasingly learning how to stay with and benefit from uncertainty.

2. Urbanism and uncertainty

If, as I have mentioned, the kind of uncertainty with which we have to deal has profoundly changed in the last forty years, urbanism has changed too. The mutations have taken place at the scale of planning, which has moved from rational comprehensive forms of planning to increasingly strategic, interpretive, relational and adaptive forms. The change has also taken place at the design scale, where, alongside top-down master plans, other forms of design have emerged, featured by participatory and inclusive approaches and by processes

¹ As I write this paper, in the early days of February 2021, I access ScienceDirect.com, the Elsevier's website to see how many peer-reviewed publications on this database contain *uncertainty* as a keyword. Without pretending to be scientifically systematic, I am doing this experiment because these data are quickly accessible, and this publisher has a wide range of publications in the main academic disciplines. I consider all the categories present –research articles, review articles, encyclopaedia entries, book chapters, conference papers, ... – and all the scientific fields listed in the database. Without too much surprise, I remark that the number of publications on uncertainty has always increased over the last few years, reflecting the growing interest in this topic. In fact, if the publications in 2015 containing the keyword *uncertainty* were 60,987, those in 2016 were 64,390, 67,418 in 2017, 71,540 in 2018, 76,291 in 2019, and then they increased to 89,331 items published in 2020. For the first month of 2021, 26,942 results appear already.

² The reference is to the pivotal exhibition *Critical Care: Architecture and Urbanism for a Broken Planet* curated by Fitz and Krasny at Architekturzentrum in Vienna in 2019.

increasingly open in time and space, which are responsive to ongoing changes in the physical and social context, developed according to progressive implementations, and increasingly tested through temporary experiments. Thus, planning and design practices have progressively changed –and continue to change– in response to the growing state of instability and uncertainty of our time, which characterise both the context in which urbanism moves and its own process (Abbott, 2005).

What about reflections on these practices?

In planning, there is a rich tradition of studies on the evolving relationship between planning and uncertainty, dating back at least to the 1960s. Among the many authors who have given substance to this tradition: Schön, Hirschman, Lindblom, Rittel and Webber, Christensen, Crosta, Donolo, and Abbot.

As far as reflections around urban design and uncertainty are concerned, they are still a fragmented system, although growing over the last decade. Among the most significant contributions, I would like to mention the book *Designing Disorder. Experiments and Disruptions in the City*, proposing “an alternative, underdetermined form of city-making, one which disrupts rigid forms” (12) towards the Open City, that Sendra published in 2020 with Sennett. Another valuable contribution is n.85 of the journal *OASE* (2011) edited by Havik, Patteeuw and Teerds, titled *Productive uncertainty. Indeterminacy in spatial design, planning and management*. In this issue, the three authors present a review of cases and interviews with designers and theorists working between the architectural and urban scales and addressing uncertainty in design. Some of these interventions open up to uncertainty as an aesthetic principle, leading to outcomes uncontrollable by designers, as in the works by the collective Baubotanik, which takes place between architecture, urban design, and landscape. Other interventions adapt and open up the design process and space management to the uncertainty that can develop over time. They redefine the roles of all parties involved, as in the case of Exyzt, which transforms the designer into an active initiator and participant in a series of happenings that give rise to a temporary transformation of the urban space. Others relate to uncertainty by creating indeterminate structures that can accommodate future changes or users’ transformations, such as the *surplus spaces* that Lacaton and Vassal designed to enable new practices inside the Faculty of Architecture in Nantes. All these cases have the remarkable capability to stay with uncertainty, without looking for a prompt escape.

In the practice of urban design –and planning– some projects are able not only to stay within uncertainty but also to benefit from it.

This is the case, for example, with the transformation of Sonnenfelsplatz in Graz (Kleboth und Dollnig, Komobile and Sammer, 2009-10). A case of a design process that improved the design and use of an existing public space by introducing some spatial indeterminacy and uncertainty in behaviour. Indeed, the designers transformed the existing square –more similar to a road crossing– into a shared space, removing any sign of division between the flows of cars, public buses, bicycles, and pedestrians. The addition of this degree of spatial uncertainty raises the threshold of attention for those crossing or standing in that space, decreasing the number of accidents found annually, and creating a more liveable and enjoyable space.

The introduction of uncertainty in a design process can occur not only in space but also in time. This last is the case of the Zollverein Park in Essen (2005-ongoing), where the planners and designers by Planergruppe and the city’s planning authorities have been dealing with the theme of the reconversion of a vast mining site into a public urban park through the transformation of the area in phases, keeping the process open, not defined a priori, but instead adapting it to the needs and contingencies that emerge over time.

In addition to cases where a project benefits from uncertainty in space and time, other cases concern projects that benefit from the uncertainty present in its context. This is the case with the famous *Esto no es un solar* (2009, 2010), a diffuse urban regeneration project designed by gravalosdimonte arquitectos in Zaragoza. The project results from years of preparation with the municipality of Zaragoza, involving many debates, meetings, and small experiments. The difficulty of realising a project spread over so many areas of the city mainly lay in these areas’ availability. After several attempts, the designers and the municipality were able to take advantage of a moment of deep uncertainty and crisis in the city’s real estate market: the global economic crisis of 2008. After that event, privately-owned vacant lots in the city had lost almost all their economic profitability. That is why

their owners accepted the municipality's ingenious proposal to temporarily give them up for public use, becoming the lively areas of *Esto no es un solar* project.

The ability to benefit from uncertainty demonstrated by these design and planning processes is called *antifragility*. The next section explores the main theoretical features of antifragility and first introductions into the field of urbanism.

3. Antifragility or the capability to benefit from uncertainty

By writing of antifragility, I refer to Taleb's neologism, which is the subject of his book *Antifragile. Things that gain from disorder* (2012), the fifth volume of his series *Incerto*. Taleb, a statistician expert of randomness, probability, and uncertainty, introduced the term antifragility to describe the "functional opposite" (17) of fragility. He observes that robustness is commonly mistaken for the opposite of fragility. However, if a *fragile* system gets damaged by uncertainty –as well as crises, shocks, disorder, volatility, errors, ...–, then a *robust* system could not be considered as its opposite, because a robust system remains just unaltered by uncertainty –as well as by crises, shocks, ...–. Instead, the author argues that the opposite of a fragile system is a system that improves and benefits from uncertainty. Since there is no word to describe this condition, Taleb proposes to use the term *antifragile*.

Investigating the relationship between fragility, antifragility, and robustness is not an exercise of abstract thinking. On the contrary, it makes it possible to focus on a wide range of practical implications that affect the decisions we make and, I suggest, the spaces we design and plan. Taleb argues that, in many cases, to acquire some antifragility features is more advantageous than to reach a certain level of robustness. Indeed, robustness is a safe condition, but it is not affected by context, while antifragility is context-sensitive, it is adaptive and able to deal with criticality. An antifragile system is ready to change and take advantage of stress, disorder, imperfection, error, chaos, and chance³ –an excellent advantage in our age of uncertainty.

Propagation

The propagation of the notion of antifragility during its first years of life might suggest that, in the future, it could be counted among the nomadic concepts (Stengers, 1987). Indeed, several scientific domains as physics, biology, computer science, and transportation planning have already fruitfully applied antifragility.

As far as spatial design and planning disciplines are concerned, the reflections that foster antifragility's design relevance are increasingly spreading.

For what concerns urban planning and design, the first meaningful work is by Shafique (2015) who proposes to consider antifragility as a possibility to re-situate contemporary urbanism. Later, Gasparrini uses the concept of antifragility not only for theoretical reflections on the future of the city (2018) but also as the main objective for the new plans he curated for Messina (2018) and the port of Ravenna (2020), in Italy. Similarly, Marchigiani uses antifragility to describe the actions that shape the new Trieste city plan (2016).

An intriguing cluster of interests has been organising around the relationship between antifragility, design, and planning in critical contexts. In this sense, *Fragile/Antifragile: Shigeru Ban + VAN* is an exhibition by Microma (Turin, 2014) which used antifragility as a metaphor to describe the socially engaged work of Shigeru Ban. Further, Magni referred to antifragility to comment on some contemporary architectures in the Global South for *Casabella* (2015). Three years later, Gambardella organised the conference *Periferie Antifragili* and the exhibition *Metropoli Novissima* (both located in Naples in 2018) to reflect on antifragile examples of urban peripheries worldwide.

³ Moreover, Taleb suggests that antifragility also "makes us understand fragility better. Just as we cannot improve health without reducing disease, or increase wealth without first decreasing losses" (2012: 11).

4. Antifragility in a broader theoretical framework

Taleb presents the concept of antifragility without placing it within a broader theoretical framework. In the course of my PhD research –and more shortly in this text– I seek to start grafting antifragility within a broader perspective, to create new connections and possibilities, foster understanding and root it in the fields of urbanism.

Therefore, I here continue exploring antifragility by relating it to other concepts and approaches. Some of these have been part of urbanism for decades; others are more recently introduced and reveal the excellent potential for interpreting and fostering the practices that today transform territories and cities.

Nonpredictive attitude and possibilism

In our age of uncertainty, rare events, unforeseen contingencies, and –as this conference suggests– *unknown unknowns* are becoming increasingly frequent. These events escape the predictive logic of risk assessment. For this reason, Taleb (2012) suggests shifting the focus from risk assessment, to the analysis of existing fragility features. Indeed, he declares “it is far easier to figure out if something is fragile than to predict the occurrence of an event that may harm it. Fragility can be measured; risk is not measurable [...]. This provides a solution to what I’ve called the Black Swan problem –the impossibility of calculating the risks of consequential rare events and predicting their occurrence. Sensitivity to harm from volatility is tractable, more so than forecasting the event that would cause the harm” (4-5).

To work on existing fragility features –and thus on antifragility solutions– means to make the most of what is already present. Fragility features are measurable and do not need any prediction. Hence, unlike risk assessment, a decision-making process based on fragility and antifragility features involves a *nonpredictive* logic: “by grasping the mechanisms of antifragility we can build a systematic and broad guide to *nonpredictive* decision making under uncertainty in business, politics, medicine, and life in general –anywhere the unknown preponderates, any situation in which there is randomness, unpredictability, opacity, or incomplete understanding of things” (4).

I suggest that Taleb’s *nonprediction* attitude has an interesting overlapping with Hirschman’s *possibilism*.

Hirschman started to consider his approach in economic development as possibilism when writing the introduction of his book *A Bias for Hope* (1971) in which he states that: “I have of course not been disinterested in claiming equal rights for an approach to the social world that would stress [...] the possible rather than the probable. For the fundamental bent of my writings has been to widen the limits of what is or is perceived to be possible, be it at the cost of lowering our ability, real or imaginary, to discern the probable” (28).

Later (1994) Hirschman remarked that his aim is not to make trends predictions, but rather to understand what is possible, that is to say, what *can* happen. Thus, focusing on the real –or perceived– possibilities that something –good or bad– can occur. Rephrasing with Taleb’s lexicon, this means to adopt a nonpredictive attitude, by working on fragility and antifragility features that are present in a specific situation. Hirschman specifies that what is already present can be in a manifest form or as *latent resources* (1958), to be identified and exploited within a process –or, I would add, a plan or project.⁴

Benefit from uncertainty and negative capability

There is a concept that combines the ability to stay in the middle of uncertainty –typical of antifragility– with the valorisation of latent resources⁵ and openness to unexpected transformations –typical of possibilism. This concept is what the poet John Keats called *negative capability*: “that is, when man is capable of being in

⁴ Concerning the focus on what is possible and to latent resources, I want to recall the exhortation Ellin makes in her book *Good Urbanism* (2012): “render the latent manifest, the possible inevitable” (11).

⁵ Latent resources and negative capability refer to the quadrant of the *Known Unknown framework* that is usually less mentioned: the *unknown knowns*. The unknown knowns are what we do not know we know, but which, if brought to light, can contribute to the construction of useful capabilities for planning and designing under conditions of radical uncertainty (Bovo, Galimberti, forthcoming).

uncertainties, Mysteries, doubts, without any irritable reaching after fact and reason” (letter to George and Thomas Keats, 21 December 1817, 2001). This concept was transferred by Ungers in the domain of social and political reform (1987) and then by Lanzara in organisational studies (1993, 2016), the latter contribution has directly influenced urbanism, especially in the Italian context⁶. For Lanzara the state of suspension evoked by Keats “does not necessarily lead us to inactivity [...]; rather, it is open to letting events follow their course and letting us be seized by the world as it comes to us, being in a state of watchful alertness, but with no pretension or impatience to fix an event’s direction, rhythm, and final ending” (2016: Prologue).

Lanzara’s reflections start from the direct observation of two disasters that struck Italy in the second half of the 20th century: the Florence flood in 1966 and the Irpinia earthquake in 1980. Lanzara notes that both events temporarily transformed the territory into an unplanned social laboratory “where people rediscovered the experience of what it means to both face a seemingly impossible, or even unthinkable, event and try to get things done with the few resources that were available” (2016: Prologue). While aid from government channels was subject to lengthy formal controls, small but widespread and effective rescue operations came from the population, which did not have extensive resources but had a profound knowledge of the territory: “new ways of doing things were tried out in spite of the disrupted situation –or, perhaps, precisely because of it” (2016: Prologue). Lanzara argues that “the creative capability of these actors does not consist in the invention of a new activity, but in the discovery that the same activity, although banal, could be performed in different contexts [...] enriching itself with new meanings” (1993: 12, my translation).

Therefore, for Lanzara with negative capability “work is done not just within, but with or through the constraints of a given context in order to reshape it and generate new forms of action” (2016, Prologue). Concerning the Florence flood case, the author observes that “the river brought destruction, but it also opened a space for innovation and opportunities for social discovery and learning”. Thus, in a broader sense, “discontinuities and fluctuations hide a potential for innovation for those who have tolerance for the uncertainty and ambiguity associated with the loss of sense and structure” (2016, Prologue). An attitude that is akin to antifragility understood as the ability to benefit from uncertainty.

Antifragile systems and complex adaptive systems

Antifragility, possibilism, and negative capability are three approaches that inevitably refer to complexity studies.⁷ Many authors have brought the knowledge of complexity studies into urbanism, as Allen, Sanglier, De Roo, Portugali, Alexander, Wilson, Batty, Dovey, and Salingaros, to name a few. Here I will only address a limited issue that relates antifragility to complexity studies. In particular, I argue that antifragile systems –as Taleb defines them (2012)– and *complex adaptive systems* –which are objects of studies for complexity– share some features.⁸ In particular, Taleb argues that an antifragile system has optionality features. Optionality is the ability to have several choice options available, so that, without being imprisoned by a predefined plan, a system can continuously adjust its process, according to the inputs emerging from the uncertain context in which it is embedded. One form of optionality is redundancy, which may seem like a waste of resources, but allows an uncertain situation to be addressed with a broad reservoir of resources at its disposal. In resonance with this, Dovey and Wood (2015) state that “some key properties of complex adaptive systems include the diversity and redundancy of different parts such that each performs a multiplicity of functions where no single part is crucial to success and the system can adapt by moving forms, functions and flows around” (9). Dovey and Wood’s reflections suggest that a complex adaptive system is not hierarchical. Indeed, no part is fundamental to the

⁶ I.e. Crosta (2010), Balducci and Mäntysalo (2013).

⁷ I argue that complexities studies constitute the broader theoretical framework in which antifragility moves.

⁸ This paper does not aim to address complex adaptive systems systematically. Here they are only instrumental in understanding antifragility within the broader framework of complexity studies. However, it seems useful to provide a simple definition of what is meant by complex adaptive systems, without claiming to be exhaustive: “‘Complex’ implies diversity – a great number of connections between a wide variety of elements. ‘Adaptive’ suggests the capacity to alter or change – the ability to learn from experience. A ‘system’ is a set of connected or interdependent things” (Zimmerman, B., Lindberg, C., Plsek, P., 1998).

functioning of the whole system. This property also features antifragile systems. About this issue, Taleb argues that if one part within an antifragile system shows its fragility, this not only does not harm the system as a whole but also may become a source of information for improving the system. To explain this statement, the author takes an example from the field of economics: “the fragility of every startup is necessary for the economy to be antifragile, and that’s what makes, among other things, entrepreneurship work: the fragility of individual entrepreneurs and their necessarily high failure rate” (2012: 180). More generally, Taleb sees errors and failures as a possible source of information to accumulate experience and improve the antifragile system. This characteristic is well represented by the adjective adaptive of complex systems. As illustrated by the brief and generic definition of complex adaptive systems that I have quoted above, to be adaptive means changing, and this also happens by learning from experience.

Finally, the ability of an antifragile system to be open, to stay and benefit from uncertainty resonates with the issue of emergence. Indeed, Dovey and Wood explain that “the detailed outcomes of a complex adaptive system cannot be determined in advance but rather ‘emerge’ from practices of adaptation and self-organization” (2015: 9).

Antifragility and evolutionary resilience

Complexity studies are also the background for a particular type of resilience, usually called *evolutionary* (Simmie and Martin, 2010, Davoudi, 2012) or *socio-ecological* (Folke et al., 2010).

Regarding resilience, the antifragile approach is often confused with the resilient approach. In its most common meanings –the *engineering* and the *ecosystem* ones, as discussed below– resilience is linked to risk assessment. In contrast, antifragility shifts the focus from risk to what is already there, to what is possible to control, as discussed in the previous paragraphs.

As I mentioned before, the interpretation of the concept of resilience is not univocal. Indeed, three families of interpretations can be distinguished. The first is *engineering* resilience, which answers shocks by bouncing back to the previous state of equilibrium and restoring its initial functionality (Holling, 1996). The second is ecosystem or ecological resilience, which responds to shocks by adapting to a new state of equilibrium, which is different from the previous one (Holling, 1996). The third and most recent form is evolutionary or socio-ecological resilience, which is no more connected to any state of balance and is subject to constant transformation in our age of uncertainty. For Davoudi “the evolutionary perspective broadens the engineering and ecological description of resilience to incorporate the dynamic interplay of persistence, adaptability and transformability across multiple scales and timeframes” (2012: 304). Further, she argues that “this perspective sets the resilience of a system in the context of the evolution of the system itself” (2019: 124). Indeed, Davoudi argues that “evolutionary resilience challenges the whole idea of equilibrium and advocates that the very nature of systems may change over time with or without an external disturbance (Scheffer, 2009)” (2012: 303). And she adds that it “is not about bouncing back to normality, but about the ability to change, adapt, and, crucially, to transform in response to sudden shocks or cumulative pressures (Carpenter et al., 2005). [...] Here, resilience is not a fixed asset or a trait, but a continually changing process. It is not a being but a becoming” (2019: 123).

This third form of resilience is the closest to antifragility because it is the only one that stays with uncertainty. However, unlike antifragility, it does not focus explicitly on the ability to benefit from uncertainty, even if evolution –and thus adaptivity and change– are concerned. However, the affinities are very high. During my PhD research, I have not already found a concept more akin to antifragility than evolutionary resilience. As for antifragility, evolutionary resilience “considers the universe as complex and inherently unpredictable. It questions stasis and equilibrium, and defines open systems as non-linear, self-organising, and ‘permeated by uncertainty and discontinuities’ (Berkes & Folke, 1998, p.12)” (Davoudi, 2019: 124).

Davoudi situates her reflection in the domain of urban planning, thus she avers that “complexity and evolutionary resilience call for a different type of planning which is premised on a different understanding of space and place” (2019: 124). For the scholar, it is a matter of implementing more and more forms of adaptive planning, as this conference also suggests. In particular, Davoudi argues that “the concept of adaptive planning owes its resurgence to evolutionary resilience and its application in tackling the uncertainties of adaptation to

climate change and the adaptive management of socioecological systems” (2019: 125). Davoudi continues by writing that “adaptive spatial planning is driven not by the ‘will to order’ space, such as imposing nested spatial hierarchies or geometrical grids, but by the ‘will to connect’ multiple, overlapping relations between materials, people, resources, and knowledge” (2019, 125). Indeed, it “is about working with [...] [relational complexities], making adjustments along the way, and identifying transformative opportunities that may arise from them” (2019, 125). Regarding opportunities, the author discusses that “turning a crisis into an opportunity requires a great deal of preparedness⁹ which in turn depends on the capacity to imagine alternative futures: just such a capacity which does, or ought to, define planning in broad terms. Planning is thus about being prepared for innovative transformation at times of change and in the face of inherent uncertainties” (2012: 303-304). The expression “turning a crisis into an opportunity” at the beginning of this last quotation shows perhaps the closest connection between antifragility and evolutionary resilience. Indeed, it opens up new developments for my research.

5. Concluding remarks

Antifragility / possibilism / negative capability / complex adaptive systems / evolutionary resilience. As I have tried to illustrate in this paper, some of these concepts are well-established in urbanism reflections. Others are emerging. They all have in common the capacity to dialogue with the uncertainty of our time in a transformative way, based on the valorisation of what is already present – in action or latency. In any of the cases presented the dialogue with uncertainty pass through the assessment of less and less predictable risks – unlike most approaches to resilient urbanism derived from studies on disaster risk reduction do.

This short discussion can deal only briefly with these aspects, but I hope it would be able to suggest what it means for a system – and, in the case of urbanism, what it means for a project or a plan – to stay with uncertainty and benefit from it, thus giving more depth to the planning and design potential of antifragility. This paper sought to focus on some aspects of antifragility placed within a broader theoretical framework, so as to contribute in interpreting more intentionally and nurturing the practical know-how and “tricks” (Bendiks, Degros, 2019: 29) that the practices of urbanism increasingly put in place to dialogue with our age of uncertainty.

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So far, I have been able to start testing part of these themes in the contributions I am listing below, this paper starts from them, with which it has some partial overlaps and parts of the text in common:

⁹ Preparedness is a term that starts spreading during the Cold War to refer to the preparation of civilians for possible nuclear events; in the following decades, it has been applied to the fields of disaster risk reduction, counter-terrorism and biosecurity. More recent are the implications in the field of urban planning (Armondi et al., 2020). Preparedness is an approach to emergencies that deserves attention when put in dialogue with antifragility, evolutionary resilience, possibilism, negative capability. Indeed, preparedness is not based on risk calculation as other approaches to emergencies are – prevention, deterrence, and precaution. Instead, preparedness stays with uncertainty. (Lakoff, 2017; Keck, 2020; Pellizzoni, 2020). It shifts the focus from the single uncertain event to a broad response capability, to cope with the next uncertain or unknown event, regardless of its specific nature (Armondi et al., 2020). However, preparedness does not necessarily imply transformative action (Lakoff, 2017); rather, it can contribute to transformation when employed within antifragility, evolutionary resilience, negative capability or possibilism.

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