

Academic perspectives on resilience

AN OVERVIEW OF VARIOUS DISCIPLINES

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The article sketches the origin and usage of the concept of resilience in a range of academic disciplines.

The concept of resilience features in a wide range of academic disciplines. In accordance with its roots in the Latin *resilire* (to rebound or recoil), usage of the term in such contexts tends to revolve around the notion of a successful response to some form of disturbance. What distinguishes resilience from resistance, for example, is the idea that a person, material, or system at least temporarily changes, becomes distorted, gives way, or adapts. In other words, resilience implies a certain flexibility (Vogt, 2015, p. 5).

Across the disciplines, resilience refers to **problem-solving capacities** – to processes or qualities that allow someone or something to be more robust in the face of crises, to continue to function, and not to be broken. According to this basic understanding, the concept of resilience can be applied almost everywhere, be it to economic crises, stress, trauma, terrorism, or natural catastrophes (Ill. 1).

The notion of resilience originally derives from the field of materials research, where its usage remains faithful to its Latin roots. Resilience here refers to the capacity of a material to rapidly regain its original form after its deformation (Martin, 2012). Following the application of force, a resilient material or object (such as a rubber band or a sponge) is not permanently transformed, but displays a certain springiness and elasticity. In the 1970s, the disciplines of psychology and ecology almost simultaneously, yet

independently, began to show greater interest in the concept of resilience as an observable phenomenon (Masten, 2014, p. 7).

Vogt, Markus (2015). Zauberwort Resilienz. Eine Begriffsklärung. *ForChange Working Paper 2*. Available at: <https://f-origin.hypotheses.org/wp-content/blogs.dir/1945/files/2015/03/Vogt-2015-WP2.pdf> [29.03.2018]

Bonß, Wolfgang (2016). *The notion of resilience: Trajectories and social science perspective*. In Andrea Maurer (Ed.), *New perspectives on resilience in socio-economic spheres* (pp. 9-24). Wiesbaden: VS Verlag.

Martin, Ron (2012). *Regional economic resilience, hysteresis and recessionary shocks*. *Journal of Economic Geography*, 12(1), 1-32.

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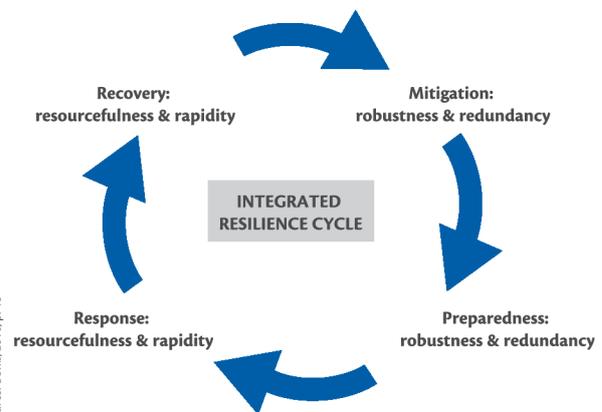
PERSPECTIVES ON RESILIENCE

Psychology

Psychology focusses on the **personal resilience** of individuals in the face of crises, pivotal events, or aversive living conditions: “Resilience is the process of effectively negotiating, adapting to, or managing significant sources of stress or trauma. Assets and resources within the individual, their life and environment facilitate this capacity for adaptation and ‘bouncing back’ in the face of adversity. Across the life course, the experience of resilience will

vary” (Windle, 2011, p. 12). Even more than in other disciplines, resilience is not understood in psychology as a return to the status quo, since this is either no longer reachable or simply undesirable. Emphasis is rather placed on the **importance of adapting**, while maintaining as high a quality of life as possible. This perspective is based on the positive conception of the human being that stresses the individual’s **capacity for action** and the importance of social relationships and cognitive mental structures.

Psychological research on resilience began with Emmy Werner’s longitudinal studies on the island of Kauai in the 1950s. Over the course of 4 decades, Werner observed the developmental circumstances and opportunities of 698 children born in 1955 (Werner, 1977, Werner & Smith 1982 and 2001). Around a third of the children were subject to significant developmental



Source: Bonß, 2016, p. 18

Ill. 1: In the context of disaster management, the theory of resilience cycles sees robustness, redundancy, resourcefulness, and rapidity as important qualities in the various phases of crisis response

risks stemming from poverty, health problems, or difficult social conditions. Despite these difficult circumstances, a third of the high risk children came to develop stable personalities, becoming “vulnerable but invincible” (Werner & Smith, 1982). The longitudinal research thus showed that some people are not only able to weather crises and stresses with relative stability, but can even grow through them.

Werner and Smith initiated an enduring perspectival shift insofar as they did not simply focus on the negative consequences of adverse living conditions or traumas, but also highlighted the psychological capacity for resistance. In doing so, they elaborated on the importance of the interaction between protective factors within the child, the family, and the surrounding social environment for the development and maintenance of resilience. They found that the emotional support provided by members of the child’s (extended) family had a significant and enduring influence on the recovery of high risk children in their adult lives (Werner & Smith, 2001). According to the authors, resilience is not an individual personality trait, but rather the end product of buffering processes that, while not ruling out risks and stresses, allow individuals to deal with them successfully.

Since the 1980s, psychological research on vulnerability, trauma, and risk factors, as well as on resilience, resources, and protective factors, has expanded beyond childhood to include the entire human lifespan (Reich et al., 2010). This research aims to identify **protective factors** that can help promote resilience (see also Fröhlich-Gildhoff & Rönnau-Böse in this issue). Some authors tend to take a critical view of the superficial resilience strategies (such as stress management) propounded in popular self-help literature, which focus on the responsibility of the individual at the expense of structural and societal factors (Vogt, 2015, p. 8).

Windle, Gill (2011). *What is resilience? A review and concept analysis*. *Reviews in Clinical Gerontology*, 21(2), 152-169.

Werner, Emmy (1977). *The Children of Kauai. A longitudinal study from the prenatal period to age ten*. Honolulu: University of Hawai’i Press.

Werner, Emmy & Smith, Ruth (1982). *Vulnerable, but invincible: A longitudinal study of resilient children and youth*. New York: McGraw-Hill.

Werner, Emmy & Smith, Ruth (2001). *Journeys from childhood to midlife: Risk, resilience and recovery*. Ithaca: Cornell University Press.

Reich, John, Zautra, Alex & Hall, John Stuart (2010). *Handbook of adult resilience*. New York: Guilford Press.

Ecology

In the application of the concept of resilience to **ecological systems**, Crawford Stanley Holling (1973) played a pioneering role. Holling defines the concept as follows: “Resilience determines the persistence of relationships within a system and is a measure of the ability of these systems to absorb changes of state variables, driving variables, and parameters, and still persist” (Holling, 1973, p. 17). Ecological resilience is measured here in terms of the **maximum disturbance** that an ecological system (such as a forest or stretch of water) can tolerate before a critical threshold is crossed and its original equilibrium is definitively destabilised. In the 1970s, Holling conducted empirical studies on desert plants that are able to withstand long dry spells before rapidly blooming with the onset of rain and then just as quickly and effectively adapting to subsequent water shortages (ibid.). Certain ecosystems, such as heavily overgrazed savannas, have also been found to be highly resilient on account of their high capacity for **self-regeneration**, which allows them to rapidly recover from disturbances such as fires. Here too, a decisive role is played by adaptive processes and subsystems that serve to maintain functioning in the face of crises. Such resilience-oriented approaches also provide a basis for contemporary climate research, which understands resilience as the capacity of an ecological system to cope with change and

to adapt and develop in response to it. The Stockholm Resilience Center’s “planetary boundary concept” provides a prime example here. In identifying 9 crucial ecological parameters (such as CO₂ levels, biodiversity, and soil erosion), it defines a number of corresponding **tipping points**, beyond which the system dynamics become unstable (Rockström et al., 2009). Should one of these thresholds (such as atmospheric CO₂ levels) be crossed, there is a risk that irreversible environmental changes will endanger the human habitability of the earth.

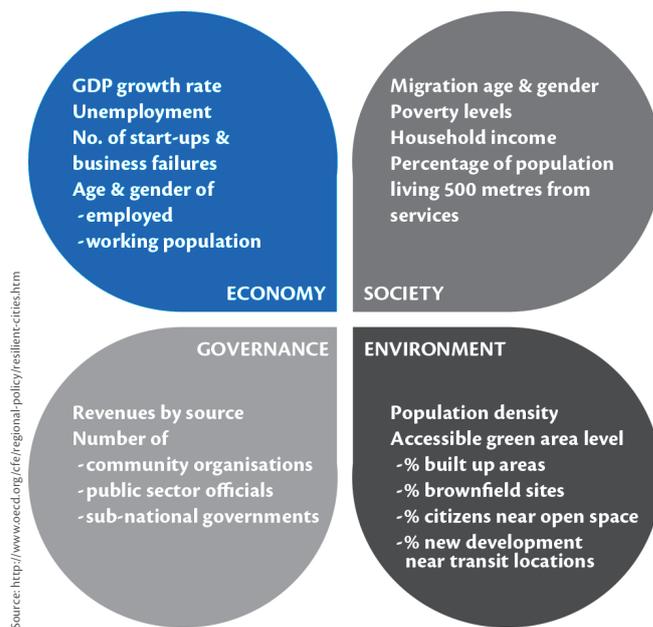
Holling, Crawford Stanley (1973). *Resilience and stability of ecological systems*. *Annual Review of Ecological Systems*, 4(1), 1-23.

Rockström, Johan et al. (2009). *Planetary boundaries: exploring the safe operating space for humanity*. *Ecology and society*, 14(2). Available at: <http://www.ecologyandsociety.org/vol14/iss2/art32/> [29.03.2018]

Socio-ecological resilience discourses

In the social sciences, the concept of resilience has been transferred from the individual to the societal level. Conceptions of **resilient societies** elaborated in the field of geographical development research have addressed the question of how to strengthen the resilience of cities, regions, and states in the face of natural catastrophes (Godschalk, 2003). Mileti (1999, p. 32-33) offers a definition of resilience that is highly representative of this approach: “Local resiliency with regard to disasters means that a locale is able to withstand an extreme natural event without suffering devastating losses, damage, diminished productivity, or quality of life and without a large amount of assistance from outside the community.” In such social-scientific conceptions, emphasis is not only placed on the technical dimensions of resilience. A resilient city, for example, is not just characterised by stress-resistant electricity and telecommunications networks or earthquake-proof buildings, but also by **social cohesion of its residents** living

together in social solidarity. In this regard, a study on the impact of Hurricane Katrina in 2005 showed that the urban society of New Orleans was able to draw on its unique underlying powers of renewal to recover from the disaster and draw new strength from it (Campanella, 2006). Since such crises do not simply affect individuals, but rather become part of the daily life of all of the city's inhabitants, they provide a common reference point around which social groups and networks can be formed: "Urban recovery occurs network by network, district by district, not just building by building; it is about reconstructing the myriad social relations embedded in schools, workplaces, childcare arrangements, shops, places of worship, and places of play and recreation" (Vale & Campanella, 2005, p. 347). Or, as Campanella (2006, p. 143) has noted: "A city is only as resilient as its citizens." This perspective on resilience rests on the insight that, in the face of the diversity, complexity, and unpredictability of such crises, it is impossible to prepare for every eventuality and to ensure safety and security across the board. This is why the OECD (III. 2) not only emphasises the importance of economic indicators (access to education and employment), political indicators (open and transparent governance), and ecological indicators (the sensible use of resources), but also of societal indicators such as a cohesive society.¹ A resilient city is therefore one that offers a diverse range of opportunities for participation and neighbourhood network creation, and that strives to include those socially disadvantaged groups that are especially vulnerable in times of crisis.



III. 2: The OECD is investigating how cities can increase their resilience. Factors that promote resilience include: a dynamic economy, open and transparent governance, a healthy and diverse environment, and an inclusive and cohesive society

since national economies and businesses are subject to an ongoing process of change and are under continual pressure to innovate. In light of the impact of the many banking crises, financial crises, real estate crises, and currency crises of recent years, it is then no surprise that resilience strategies promoting **inclusive growth** are currently on the agenda. Inclusive growth, which combines economic vigour with broad-based participation, can prevent the most socially disadvantaged members of a society from suffering disproportionately from the consequences of a financial crisis (Brinkmann et al., p. 16).

A prominent example of this socio-economic conception

of resilience is the **capability approach** developed by the Indian Nobel Prize winner Amartya Sen (1999). Sen's empirical research on famines showed that the decisive factor in overcoming such crises is not the level of supply of food to an area but rather the extent to which affected people are able to use their capacities to produce their own food and exchange it in the local region. Ensuring the conditions of this production constitutes a crucial resilience strategy in effectively coping with such crises. Ultimately, then, Sen (III. 3) equates poverty with a denial of the possibilities for self-determination. In doing so, he broadens the notion of economic growth and people-centred economics in a decisive manner: "Economic growth without investment in human development is unsustainable – and unethical" (as cited in Graham et al., 2018, p. 4).

At the level of individual businesses, the concept of **strategic resilience** is also enjoying great popularity. Since the 1980s, academic economists have examined how resilient businesses

Godschalk, David (2003). *Urban hazard mitigation: creating resilient cities*. *Natural hazards review*, 4(3), 136-143.

Mileti, Dennis (1999). *Disasters by design: A reassessment of natural hazards in the United States*. Washington, D.C.: Joseph Henry Press.

Campanella, Thomas (2006). *Urban resilience and the recovery of New Orleans*. *Journal of the American Planning Association*, 72(2), 141-146.

Vale, Lawrence & Campanella, Thomas (Eds.) (2005). *The resilient city: How modern cities recover from disaster*. New York: Oxford University Press.

Economics

In economics, resilience refers to the capacity of a national economy to implement preventative crisis management measures, to minimise the immediate consequences of a given crisis, and to adapt to changes in broader economic conditions (Caldera-Sánchez et al., 2016, p. 6). Particular importance is attributed here to the adoption of **pro-active measures** to avoid crises and identify relevant early-warning indicators. While from an ecological or technological perspective, resilience can often be desirable as a means of restoring a prior state of affairs, this is rarely the case in the economic sphere,

Graham, Carol, Comim, Falvio & Anand, Paul (2018). The global analysis of wellbeing report. Oxford: Oxford Foundation for Knowledge Exchange.

Hamel, Gary & Välikangas, Liisa (2003). The quest for resilience. Harvard Business Review, 81(9), 52-63.

THE PRESENT POPULARITY OF THE CONCEPT OF RESILIENCE

In economic and political discourses, the concept of resilience is currently in the process of supplanting that of sustainability. Sustainability is nonetheless the broader concept, since “resilience represents a necessary but not sufficient condition for sustainability” (Brinkmann et al., 2017, p. 11). Discourses on sustainability in ecology and economics are characterised by very long timescales, which usually span several generations. Discourses on resilience, by contrast, normally involve shorter timescales and tend to constitute responses to abrupt disturbances (ibid.).

This also serves to explain the growth of interest in the concept of resilience following the unexpected economic and political crises of recent years (such as September 11, Brexit, and the European refugee crisis). Since such events are at least in part unpredictable and unavoidable, they raise the question of the human capacity to deal with and overcome them. As Martin & Sunley (2014, p. 2) put it, “resilience is rapidly emerging as an idea ‘whose time has come’ in policy debates.” This perspective is at odds with the optimism of the 1960s and 70s, when there was widespread belief in the continuous progress of the sciences and their capacity to (preventatively) resolve all of the challenges facing humanity. To this extent, the present popularity of the concept of resilience also reflects “a crisis of the former understanding of scientific progress” (Bonß, 2016, p. 14). Resilience has also been regarded as an “interdisciplinary bridge builder” (Bourbeau, 2016, p. 32) and as a “unifying concept,” particularly suited to linking the natural and social sciences where

local and global resilience strategies are concerned (Thorén, 2014, p. 319). Despite its widespread popularity, the concept of resilience is not uncontroversial in academic contexts. The growth in its usage has sometimes been accompanied by a lack of precision (Swanstrom, 2008, p. 2). In (irreversible) situations, it has also been claimed that resilience can be an obstacle to positive and enduring development (Bourbeau, 2016, p. 28). This ambivalence can be seen in an example (presented by Bonß, 2016, p. 16), which concerns responses to water damage caused by catastrophic flooding. In a time of climate change, the author asks, which residents are more resilient – those who proactively continue to build up their defensive dykes and better seal their houses, or those who in the face of ever more frequent flooding resolve to leave their homes and settle elsewhere? ■

Martin, Ron & Sunley, Peter (2014). On the notion of regional economic resilience: Conceptualization and explanation. *Journal of Economic Geography*, 15(1), 1-42.

Bourbeau, Philippe (2016). Resilience, security and world politics. In David Chandler & Jon Coaffee (Eds.), *Routledge handbook of international resilience* (pp. 26-37). London: Routledge.

Thorén, Henrik (2014). Resilience as a unifying concept. *International Studies in the Philosophy of Science*, 28(3), 303-324.

Swanstrom, Todd (2008). Regional resilience: a critical examination of the ecological framework. *IURD Working Paper Series*. No. 2008-07. Available at: http://br.berkeley.edu/brd_workingpapers/2008-07-swanstrom-ecological_framework.pdf [29.03.2018]

NOTE

¹ <http://www.oecd.org/cfe/regional-policy/resilient-cities.htm> [13.03.2018]

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(and their employees) can maintain their flexibility by actively taking advantage of changing market and environmental conditions: “Strategic resilience is not about responding to a onetime crisis. It’s not about rebounding from a setback. It’s about continuously anticipating and adjusting to deep, secular trends that can permanently impair the earning power of a core business. It’s about having the capacity to change before the case for change becomes desperately obvious” (Hamel & Välikangas, 2003, p. 52). A business can bolster its resilience, for example, by diversifying its product portfolio and promoting an **open business culture** (ibid.). Here too, resilience means taking the initiative and not waiting for the crisis or collapse to arrive.

Caldera Sánchez et al. (2016). Strengthening economic resilience: Insights from the post-1970 record of severe recessions and financial crises. *OECD Economic Policy Papers*. Paris: OECD Publishing. Available at: <https://www.oecd.org/eco/growth/Strengthening-economic-resilience-insights-from-the-post-1970-record-of-severe-recessions-and-financial-crises-policy-paper-december-2016.pdf> [29.03.2018]

Brinkmann, Henrik, Harendt, Christoph, Heinemann, Friedrich & Nover, Justus (2017). Economic resilience - a new concept for policy making? Inclusive growth for Germany No. 11. Gütersloh: Bertelsmann Stiftung.

Sen, Amartya (1999). *Development as Freedom*. Oxford: Oxford University Press.