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HOW TO DEVELOP RESILIENCE? A CASE STUDY OF THE CITY OF ANTWERP

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Never has so much been spoken, researched, and written about “resilience” as in recent years. We use it in our daily communications; scientists study the phenomenon, politicians regard it as important, and even large institutions such as the World Health Organization or the European Commission regularly debate the subject with international experts. Businesses are also highly concerned with resilience. They constantly monitor the situation and seek a balance between safety, sustainability, ecological footprint, social impact, waste reduction, and similar factors. Sometimes, these efforts arise from (inter)national regulations, while other times, they are driven by market expectations, including those of customers, suppliers, and shareholders. However, they are often guided by business leaders who believe in their company's social responsibility.

All these efforts for stable, responsible, and sustainable business practices are closely monitored and reported. As the saying goes, to measure is to know. However, many people's logic or conjectures often lack clarity about what is being meant or measured, or how to interpret the empirical data or results. Often, these empirical data may lack a ‘causal’ model or, worse, only refer to correlations. As a result, many business leaders find themselves somewhat at a loss for words. Which measurement results (indicators) demonstrate more or less resilience? Which factors genuinely contribute to resilience? Moreover, are we measuring them accurately? Or can we only evaluate whether we were resilient enough as an organization after experiencing a serious incident or crisis? The result is that many managers and business leaders are increasingly aware of the need to be better prepared for unexpected shocks. However, they remain puzzled about the concept of resilience. On one hand, they

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understand the need for resilience, but on the other, they don't know how to implement or improve it.

In recent years, we have also been intrigued by what resilience truly means, what elements it includes, and how to visualize an organization's resilience level. Our research pointed out that resilience is not about checking boxes; it's about what you do and how you align around that at an executive level. We developed a tool that visualizes executive team members' perceptions of their level of resilience, a methodology for discussing the results, and a holistic way of discussing the critical processes in the organization that need to be strengthened. Ultimately, it is a matter of being more resilient today than the day before.

In this paper, we demonstrate through a case study how an organization's level of resilience can be visualized, discussed, and improved.

Is it about bouncing back or forward?

Aaron Wildavsky was one of the first authors to introduce the term "resilience" into the scientific management literature in the late 1980s when he suggested that resilience was one of the strategies for dealing with uncertainties and risks. He added, "[It is] the capacity to cope with unanticipated dangers as they become manifest, learning to bounce back" (Wildavsky, 1988, p. 77). Since then, we inevitably link resilience to bouncing back. It is not surprising, either, since the English term "resilience" comes from the Latin "*resilire*" and "*resilio*," which mean to jump or bounce back.

In the meantime, significant research has been conducted, thoughts have been formulated, and scientific writings about the notion of resilience have evolved in various contexts. In addition to the individual psychological resilience of humans, the resilience of organizations and social structures has also been extensively examined, particularly in relation to crises.

Organizational resilience is increasingly defined as the capability to effectively absorb shocks, develop situation-specific responses that enable coping with those shocks, and ultimately engage in transformative activities that leverage disruptive surprises threatening organizational survival (Lengnick-Hall et al., 2011). A noteworthy aspect of this perspective is that resilience is viewed as a continuous process that must be ingrained in the organization, remaining ever vigilant for potential threats and opportunities, and utilizing them to its advantage. In this context, resilience can be described as the capability to move forward despite challenges. No matter where one bounces forward, the goal remains survival and development.

However, it is unclear which elements should comprise this capability to absorb shocks, which situation-specific responses should be developed, and how these transformative activities should be organized. Too often, it is interpreted as a model that indicates the root cause and a consequence, thereby allowing for predictive power, which is the ultimate goal of implementing "more resilience," as it would predict the organization's absorption capability in the event of a shock. We argue that this cause-and-effect approach can be misleading, as it

creates a false sense of prediction or calculation. Instead, we advocate for a systems view, in which various patterns can improve the ability to handle the unexpected.

A capability-based approach

Traditionally, there have been two dominant perspectives on resilience: as an outcome or as a process. In the first perspective (outcome), resilience is almost always linked to ex-post comparative studies, typically after a critical event, establishing benchmarks that ultimately determine which companies performed better. This is often evaluated from a financial standpoint, examining how quickly an organization recovers financially after a major incident or crisis. The second perspective (process) considers the integration of various actions of an organization before, during, and after a critical event or crisis.

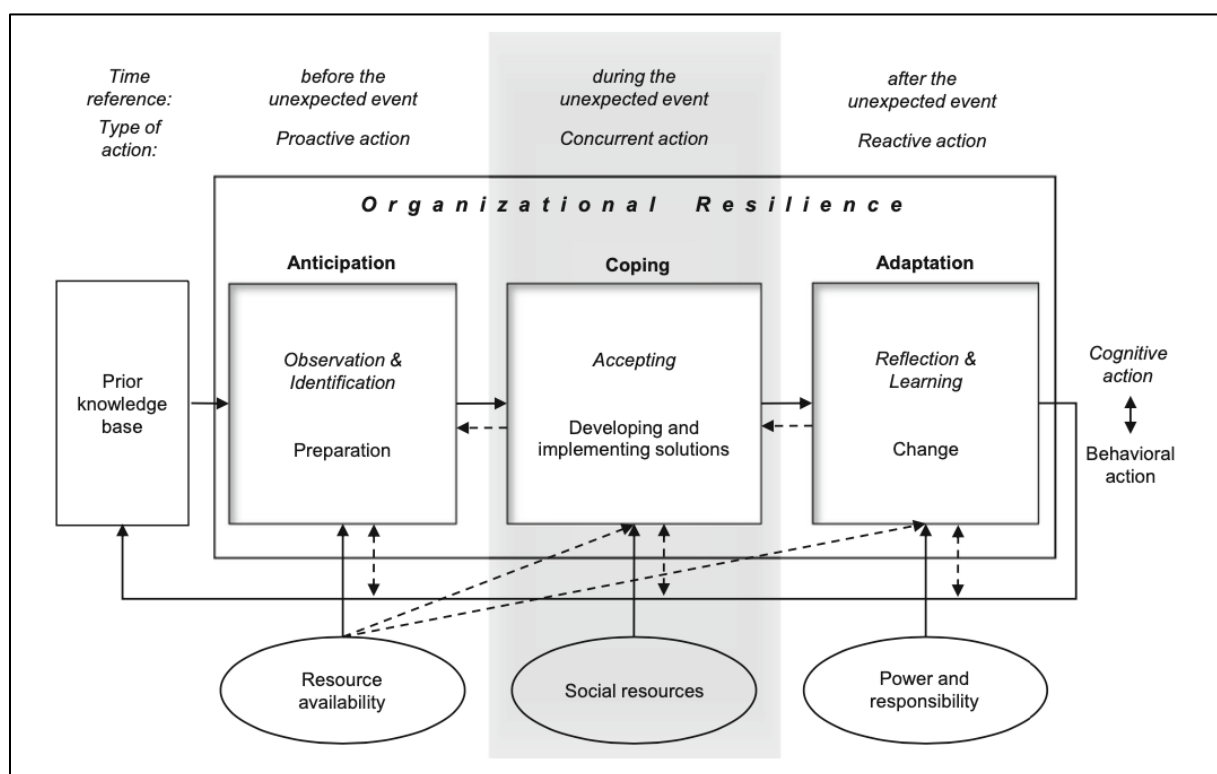


Figure 1. A capability-based conceptualization of organizational resilience
(from Duchek, 2020: 224)

One practical way to reconcile these two perspectives is to look at organizational resilience as a capability. For our research, we drew on the work of Stephanie Duchek (2020), who approaches organizational resilience as a meta-capability. She considers an organization's resilience as a continuous interaction between cognitive and behavioral actions, each influenced by essential resources needed to execute the right actions (see Figure 1). Additionally, Duchek offers a sequential classification that considers 1) the actions necessary for an organization to anticipate potential threats or dangers timely, 2) how to address a critical situation or crisis appropriately, and 3) after a crisis, how to adapt the organization to the changed situation, ensuring that the knowledge gained can help better anticipate future threats or dangers. Based on this process perspective, organizational capabilities shape the three stages that comprise the process of organizational resilience. Duchek states, “This

means that resilience can be conceptualized as a meta-capability consisting of a set of organizational capabilities/routines that allow for a successful accomplishment of the three resilience stages” (Duchek, 2020: 224). Duchek’s model defines resilience as a metacapability integrated by three capabilities (anticipation, coping, and adaptation), each of them formed by two types of actions: cognitive and behavioral, as shown in Figure 1 (in the rectangle identified as "organizational resilience"). Resource availability, social resources, and Power and responsibilities are external factors that can affect one or more of the earlier-mentioned capabilities.

The decathlon analogy

To explain what resilience is and how it can strengthen organizations, we compared it to sports, particularly the decathlon (Domínguez Ortega & Marynissen, 2021). This combined athletics event originated in the ancient Greek pentathlon, which is documented as far back as the 8th century BC. The decathlon is a relatively recent discipline, emerging in the 19th century in the United States. It consists of ten events: four races, three jumps, and three throws. The total result is calculated by adding the points earned in each of the ten disciplines, according to a scale established for each event's results, and consolidating them into the athlete's final score, which determines their ranking position.

For example, an athlete who completes the 100m sprint in 10 seconds will receive 1,096 points. In contrast, another athlete who finishes in 11 seconds will earn 861 points, based on the tables from the International Association of Athletics Federations that calibrate points corresponding to specific performances (for each discipline and both male and female categories). The results from the other events are then added to obtain the overall score.

From this, we can draw a couple of relevant conclusions. First, an athlete cannot train for the decathlon as a whole; instead, they must focus on each individual component event. In other words, the only way to improve the overall result is to enhance individual performances in the various disciplines. The second conclusion is that multiple ways exist to achieve the same final score. This means that an intermediate value can be attained by achieving low and high scores on the different tests. A high final score indicates a significant level of mastery in most disciplines. This, of course, affects the training strategies of athletes, who will aim to improve their scores most effectively. Specifically, they will devote more training to areas with potential for greater improvement while sustaining their results in areas without room for growth.

Let us link this back to the concept of resilience. We define organizational resilience as the capability to overcome adverse shocks and, even more relevant in an increasingly dynamic and complex environment, to identify weak signals and adapt nimbly to change. Our approach, based on the work of Stephanie Duchek (2020), incorporates six dimensions (like the ten events that constitute the decathlon). These dimensions include observation and identification, preparation, anticipation, solution development and implementation, reflection and learning, and change. Therefore, we propose that the integrated result of an organization’s performance across these dimensions yields an outcome regarding resilience.

Let us revisit the earlier observations regarding the decathlon. First, just as one cannot ‘train for a decathlon’ but rather for its various elements, an organization cannot train resilience directly. Instead, it can train its components to become more resilient. This creates significant opportunities by understanding absolute levels and considering the most efficient actions to enhance an organization’s resilience. Second, just as athletic test scores are tabulated to yield a point score, an organization’s performance on the previously mentioned dimensions of resilience can be quantified and used to assess resilience levels. Lastly, being resilient involves a specific mindset about structuring for performance. It requires focus, a healthy overall condition of the organization (neither too lean nor too bulky), and adequate capability to unite when a potential adverse event looms or when an organization finds itself in a ‘window of recovery’ between normal operations and chaos.

You’re not just training for the decathlon

Training for a championship, regardless of the preparation program chosen, will not only lead to a better performance of the athlete in that championship but will also have a beneficial effect on the athlete’s day-to-day life.

Hence, what you do in one facet, you can also apply in another (and vice versa). In the same way, an organization that trains to achieve a higher level of resilience (usually focused on overcoming a particular challenge) is simultaneously improving its capabilities, which will lead to better performance when it is not facing a crisis. By viewing resilience from this angle while considering certain organizational factors, we can uncover the keys to developing more thoughtful and more efficient organizations that recognize and choose their path to greater strength. Ultimately, to become better.

There are numerous references that demonstrate the interplay between resilience and other organizational fields. For example, we can mention entrepreneurship (Branicki et al., 2018; Zighan et al., 2022), creativity and innovation (Shela et al., 2024; Garrido-Moreno et al., 2024), and even aspects such as digital transformation (He et al., 2023; Shina et al., 2024).

Here, we face a **fundamental challenge**: How can an organization become more resilient in practice? First, it must be aware of its starting point. Then, it must reflect on priorities and options to define the path and set goals. Ultimately, actions must be carried out, and results must be monitored. It seems simple, but it is not.

Measuring is key. Lee, Vargo, and Seville (2013) highlight the importance of metrics in evaluating organizational resilience, identifying four key organizational needs: showing measurable progress, prioritizing forward-looking indicators, linking improvements to competitive advantage, and building a compelling business case for resilience investments (ibid., 2013:30).

However, it’s essential to note that researchers haven’t yet reached a clear consensus on how to measure organizational resilience, primarily due to the differing concepts and methods

employed. Some of them have even suggested that “organizational resilience cannot be measured in an ex-ante way” (Sevilla et al., 2023:199).

One example of such an attempt to measure and assess resilience is the one undertaken by the City of Antwerp. It involves evaluating the initial situation, collectively reflecting on the outcomes, prioritizing subsequent actions, and conducting ongoing follow-up.

Case of the city of Antwerp

Every business and public organization, regardless of size or seniority, faces the complex, uncertain, and turbulent environment in which we live and work (Albers et al., 2024). This means that every organization must be prepared for the unexpected and be capable of safeguarding its critical processes. Many organizations reflected on this at the onset of the general lockdown following the COVID-19 pandemic. Logistics companies, for example, had to reexamine the loading and unloading processes of container ships to comply with the imposed social distancing measures. Additionally, fire departments had to reorganize to continue providing essential services without jeopardizing the health of their personnel. In this context, they explored the concept of resilience of how a few foundational principles could help organizations remain functional by ensuring the continuity of critical processes.

This was also true for the senior management and the mayor of the City of Antwerp. They could call on a senior manager in the Department of Safety, Nuisance, Social Intervention, and Emergency Management. However, this senior official was primarily involved in proactive and/or reactive administrative measures during acute traditional crises such as floods, fires in apartment buildings, and gas explosions... Anticipating such crises was part of the role, but it is still far from ensuring the structural resilience of urban society. It was believed that an organization like the City of Antwerp, which is extremely connected with many different stakeholders and has historically been highly interdependent within a vast ecosystem, must adopt a resilience mindset, especially in a world increasingly faced with various consecutive or simultaneous crises. Consider the COVID-19 pandemic and the war in Ukraine. Both had significant impacts on the city's organization and its residents. Therefore, the decision was made to create a senior management position, the Chief Resilience Officer (CRO). The task of the CRO was to collaborate across the various departments of the organization on strategies for handling future disruptive situations⁴.

More resilient, better prepared

In 2024, the CRO elaborated a strategy alongside all management team members during a two-day workshop focused on making their organization more resilient. The management team's intention was not to assess the level of resilience within its organization, but to capture the dynamics across various capacities and evaluate which actions or resources could be enhanced or further developed.

⁴ The third author of this paper, Bart Bruelemans, was appointed as CRO by the management team of the City of Antwerp in March 2022.

1. Understanding the organization.

Before this, drawing from NATO's "seven baseline requirements for resilience" (NATO Review, 2019), the CRO identified *health care, essential mobility, food supply, communications, business continuity, energy supply, and public order and security* as essential areas for urban resilience. Although these "seven baseline requirements for resilience" originate from a military perspective, they are often used to capture the various critical domains within a region or city. Similarly, the entire management team of the City of Antwerp determined the critical or essential processes for each domain within these seven requirements.

2. Setting the scene

We began with the vision that the organization's dynamic environment impacts its capability to anticipate, respond to, and adapt effectively after an unexpected event. By examining three phases (before, during, and after) and the capabilities linked to each phase (anticipation, coping, and adaptation), we aimed to clarify the overall picture.

Therefore, each member of the management team completed a survey-based tool (Domínguez-Ortega et al., 2024) to measure organizational resilience beforehand. The tool explored the different actions related to resilience capabilities and the level of performance for each. The results were presented through individual visualizations (in the form of "spider diagrams"), which were then compared with the visualization of the collective interpretations (see Figure 2). A1 and A2 refer to the behavioral and cognitive actions in "anticipation", B1 and B2 in "coping", C1 and C2 in "adaptation" according to Duchek's model of organizational resilience (see Figure 1 above).

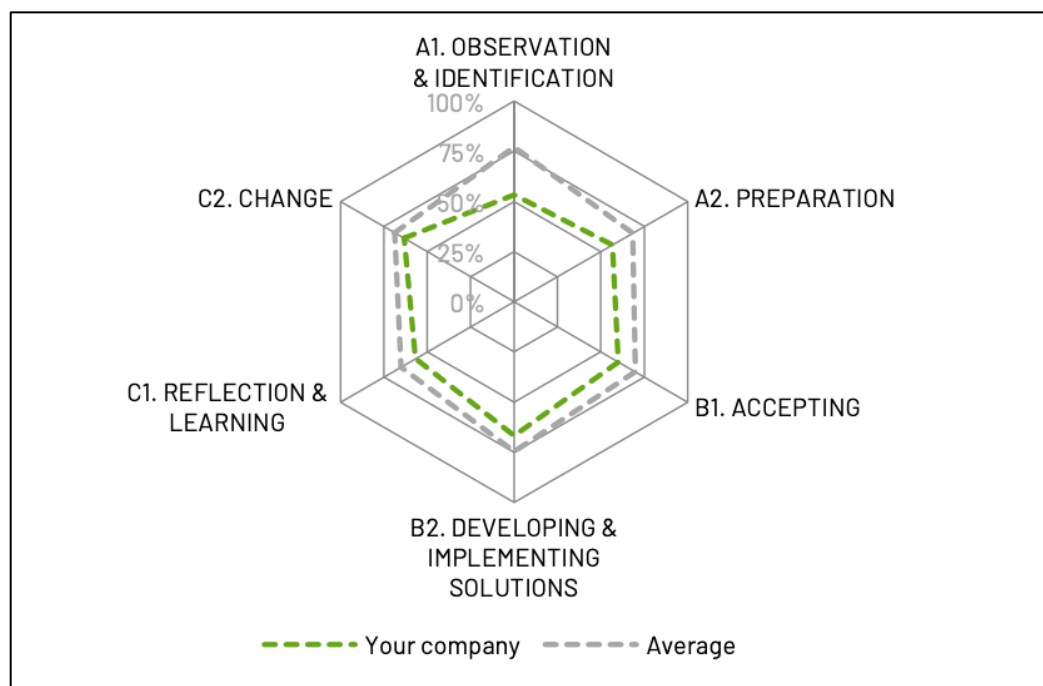


Figure 2. Individual perceived resilience compared to the collective view on resilience.

3. Guided discussions

This information supported management team members during their joint discussions on further strengthening critical processes within the city, ensuring they remained attentive and had adequate references to address the factors that most significantly impact each core process. At the end of their two-day workshop, the management team collectively decided which processes needed to be considered essential, and an enabling IT infrastructure was identified as a critical component for each of these processes. To make the discussions as practical as possible, the Management Team of the City of Antwerp selected specific domains: *security and information security*, *infrastructure and public domain*, and *demographic and socio-economic forecasts*. Based on these discussions, they are now deducing practical implementations to make the city more resilient over the next few years.

The management team's collective thinking exercise helped them understand that resilience can only be addressed through its continuous development as a dynamic capability. Exercising is essential for maintaining organizational fitness, as it nurtures and develops these qualities over time.

4. Follow-up

After the two-day workshop for the Management Team, an initiative was launched to guide middle and project managers within their organization through a 'turbulence journey.' For seven half-days, under the guidance of the CRO and professors from the Antwerp Management School and the University of Antwerp, they participated in a series of inspiring workshops focusing on relevant themes related to continuous change, alertness, and resilience. Knowledge sharing, networking, and the exchange of experiences were central to these sessions. Participants were divided into smaller groups of five, and throughout the learning process, they collaborated on an internal project. In doing so, they consistently applied the various knowledge-building blocks. This approach not only fostered an immediate application of the knowledge gained into practice but also encouraged a deeper reflection on how projects within the city can be designed to be more resilient. Upon the publication of this paper (June 2025), a second group of 125 project managers finished their 'turbulence journey.'

Returning to our earlier decathlon analogy, it can be argued that not only are athletes responsible for good results, but coaches must also maintain the right mental attitude -one that ensures athletes are given the (mental) space and resources to achieve top performance. In a resilient organization, it is not solely the responsibility of middle and project managers to focus on resilience; it is a collective effort where top management leads and collaborates with the rest of the organization to develop strategies for navigating turbulence, emphasizing the importance of making the organization flexible and adaptive.

Conclusion

Organizational resilience is not just about bouncing back, but also about moving forward despite challenges. This Crisis Issue paper explores resilience as a meta-capability, employing a capability-based framework to describe the various components and processes that contribute to resilience.

The City of Antwerp case study illustrates how resilience can be effectively operationalized through structured assessments, collective reflection and decision-making, and iterative improvements. Resilience is best developed by focusing on specific dimensions, such as anticipation, preparation, and adaptation, like training for individual events in a decathlon.

Resilience is a collective effort that necessitates commitment at all levels of an organization. The structured assessments and training programs implemented in Antwerp demonstrate the benefits of integrating resilience into organizational routines. To build resilience, an organization must incorporate specific activities into its daily work. For instance, to enhance early identification of potential danger, it needs to allocate time in the agenda of every meeting to “search” and discuss anomalies. The capability-based approach ensures that resilience becomes an integral part of decision-making rather than a reactive measure.

One might question whether the purpose of resilience is to reduce organizational uncertainty or to better deal with uncertainty. Our stance is that resilience addresses the need to cope with the unexpected. You may enhance your level of knowledge to some extent, for example, allowing you to view situations with greater certainty (e.g., if you strengthen your identification systems, you can assess something as certain much earlier). However, there are many factors beyond our control. Therefore, we would downplay the impact of reducing uncertainty. Resilience aims to enhance the ability to handle whatever happens, recognizing that uncertainty is an inevitable part of life.

Ultimately, resilience encompasses more than mere survival, it emphasizes transforming challenges into opportunities. Organizations that strategically integrate resilience do not aim merely to endure crises more effectively; they also strive to flourish in an era of uncertainty.

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