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The Social Infrastructure of Organizational Resilience, Agency Capacity and Resilience Spirals: Starting Points for Resilient Leadership

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Abstract

The aim of this chapter is to analyze the social preconditions and dynamics of organizational resilience and the role of leadership in managing these conditions and dynamics. The chapter begins with an examination of the concept of organizational resilience, presents an individualistic and systemic perspective on this construct, proposes a social infrastructure model of organizational resilience and describes the phenomenon of resilience spirals. The chapter presents a functional performance level model of organizations and describes the possibility of upward spirals where organizations move up the functional performance levels and the possibility of downward spirals where organizations move down the functional performance levels. The importance of leadership in building and maintaining the social infrastructure of resilience and in managing resilience spirals is emphasized.

Keywords: organizational resilience, collective action, collective agency, resilience spirals, social infrastructure, social capital, leadership

1. Introduction

In times of crisis and adverse events, a certain type of leadership is required which is often called resilient leadership [1–8]. The literature on resilient leadership delivers rich knowledge about the characteristics of resilient leadership [2], the leadership styles of resilient leaders [1, 9], their actions and activities during crisis to foster collective and organizational resilience [4, 9] and ways to enhance resilient leadership [8, 10]. In contrast to this, comparably little is known about the role of leadership in building and maintaining the social foundation of organizational resilience. Some scholars have gone in this direction explaining how leaders could cultivate and activate social and cultural resources which foster organizational resilience [11–13]. The aim of this paper is to continue this work by more closely examining the social preconditions for and dynamics of organizational resilience and the role and starting point of leadership in shaping these phenomena. For this purpose, the chapter focuses first on the concept of organizational resilience, second on the social foundation of organizational resilience and third on the phenomenon of

resilience spirals. The role of leadership in building and maintaining this social core of resilience and managing resilience spirals and the starting points to do so are emphasized.

2. Organizational resilience: perspectives and preconditions

This chapter presents two perspectives on the nature of organizational resilience and stresses the importance of examining the preconditions of organizational resilience.

2.1 Two perspectives on the nature of organizational resilience: the individualistic and systemic perspectives

The individualistic perspective on organizational resilience regards the individual resilience of the members of an organization as the main basis for organizational resilience [14–16]. Individual resilience could be defined as “the ability to bounce back from adversity, frustration, and misfortune” [17]. From the individualistic perspective, organizational resilience is the result of the aggregation of the individual resilience of all members. The factors that foster the resilience of individuals are a mixture of pessimism and optimism [14, 16], a proactive orientation [14, 18–20], sense-making abilities [14, 21], autonomy and self-determination [22], risk awareness [16], the ability to connect to others’ knowledge [23, 24], the ability to use available resources [24], individual readiness to change [25, 26] and tolerance for ambiguity [27, 28].

The systemic perspective conceptualizes organizational resilience as an attribute of the organization. The literature describes at least four different systemic conceptions of resilience. The ecological resilience concept characterizes resilience as a system’s ability to absorb external energy without structural change. This means that “the measurement of resilience is the magnitude of disturbance that can be absorbed before the system changes its structure by changing the variables and processes that control behavior” [29]. The second systemic concept describes resilience as the ability to bounce back to the previous equilibrium. This type of resilience “concentrates on stability near an equilibrium steady state, where resistance to disturbance and speed of return to the equilibrium are used to measure the property” [30]. The third conception of resilience defines resilience as the ability to achieve a new equilibrium, thus attaining a renewal state [16, 31]. The most dynamic systemic conception describes resilience as the ability of a system to switch between different equilibria [32–34] without changing the stable core of the system [33]. This core consists of the “keystone structuring processes which enables systems to adapt across a number of scales, sources of renewal and reformation” [33]. One aim of this chapter is to propose the hypothesis that in the case of social systems, the social infrastructure of collective systems is an important part of this core.

2.2 Preconditions of organizational resilience

There are specific and nonspecific preconditions that contribute to organizational resilience. Scholars have identified specific conditions that promote resilience. According to Hollnagel [35], resilient organizations are characterized by four abilities, namely (1) the ability to anticipate, (2) the ability to monitor possibly dangerous developments, (3) the ability to respond quickly and appropriately and (4) the ability to learn from past events and crises [36]. These abilities can be fostered by different measures [37], such as focused Human Resource (HR)

strategic management [19, 22, 31], collective risk awareness tools, critical incident reporting systems [38–40], preparedness strategy [16], uncertainty strategies [19] and analysis tools such as the resilience analysis grid [35, 41].

Nonspecific preconditions for organizational resilience are factors that are necessary but not sufficient for resilience. They are useful not only for coping with crises but also for managing routine, everyday demands. Nonspecific preconditions lay the foundation for resilience but are unable to produce resilience on their own. Research into organizational resilience has identified many attributes in organizations that could contribute to resilience in a nonspecific way [37]. Identified nonspecific preconditions for organizational resilience include ritualized ingenuity [14, 42], flexibility [42], elasticity [28], adaptive capacity [16], organizational readiness to change [26, 43], proactiveness [19, 44], robustness [16], redundancy [16], resourcefulness [16], rapidity [16] and the regeneration capacity of an organization [45]. Other nonspecific preconditions are financial resources [46, 47], technical resources [28, 47] and informational resources [28]. With regard to the social foundations of organizational resilience, it is worthwhile to more closely examine the social resources which have been identified as relevant for organizational resilience. These are communication (to exchange information and knowledge relevant in times of crisis) [16], commitment and emotional attachment to the organization [16, 24, 26], common values [21, 48], trust and open communication [26, 28, 48–50] as well as social capital, sense of belonging and relational reserves [16, 26, 28, 46, 51].

3. The social infrastructure of collective agency: the social foundation of resilience management and organizational resilience

One purpose of this paper is show, that the stable core, which Gunderson [33] describes as a property of higher order resilient systems, is—in the case of social systems—equivalent to the social infrastructure of these systems. This social infrastructure guarantees that fast collective decisions and action could be made and that the collective systems experiences collective agency during normal times and during crisis. This social infrastructure consists of at least four infrastructural components: adaptive structures, goal-attaining structures, integrative structures and pattern maintenance structures. According to the infrastructural model of organizational resilience (see **Figure 1**), these structures together heighten the agency capacity of an organization, which is its basis for collective action and collective agency. Collective agency itself is a general precondition for all management activities in an organization as long as these activities are based on collective action. This is also true for resilience management, which if properly done leads to a higher amount of organizational resilience. Additionally, organizational resilience is not only dependent on resilience management alone but also on infrastructure, agency capacity and collective agency in a direct way. The amount of organizational resilience in turn influences the amount and quality of the social infrastructure of collective agency (**Figure 1**).

Figure 1.
The social infrastructure model of organizational resilience.

3.1 The social infrastructure of collective action and agency capacity

According to the structural-functional theory, I distinguish functions from structures. The underlying hypothesis is that certain structures may have certain functions [52–54]. The structure is then a solution to a systemic problem. Talcott Parsons’ structural-functional theory further states that a social system has to fulfill four functions to act and survive: adaption (A), goal attainment (G), integration (I) and latent pattern maintenance (L; AGIL functions). The hypothesis here is that if all four functions are fulfilled, the collective possesses systemic agency capacity (see **Figure 2**) and by this, the ability to be an autopoietic social system. This autopoietic system is “self-producing or self-constructing” [55]. In this case, all four functions work together, forming the systemic agency capacity (**Figure 2**) and making a collective system able to act and react, to regulate itself according to its own value-based standards and to rebuild and reconstruct itself in times of crisis. Thus, if the metafunction systemic agency capacity exists within an organized collective, the emergence of an autopoietic social system from this collective is highly probable.

I now more closely examine the structures necessary to fulfill these four functions. They form the social infrastructure for collective agency and action. Adaptive structures enable a collective to produce (common) goods and deliver services and thus obtain resources from the environment in exchange, which can be used as general resources to adapt to new situations [53]. Goal-attaining structures enable a collective to make consensual decisions, set goals, control the goal-attaining process, analyze the gains and losses in a reflective way and redirect activities that have not been helpful to achieve a goal [56]. Integrative structures are necessary to prevent disintegration, subgroup conflicts and noncohesiveness and to build social capital. Integrative structures include reciprocity-based and trustful social networks [51, 57, 58]. Latent pattern maintenance structures [59], such as a system of values, knowledge, beliefs and symbols are necessary to guide and evaluate action with regard to the systems’ own value standards. Institutionalization and socialization agents and processes are part of this structure because they have the task of transferring the values, knowledge, beliefs and symbols into the collective system and to the next generation of individual members (see **Table 1**).

3.2 Agency capacity and collective agency

Organizational resilience requires (a) fast and consensual collective decision-making to react to new events in a timely fashion; (b) common collective actions of the leaders and followers to execute resilience management in an impactful way; and (c) a robust organization with a stable core, absorptive capacity and the property of general agency, which enables organizational fitness. The first point should not be taken for

Figure 2.
Systemic agency capacity as a higher-order function of the AGIL functions.

Adaptive structures	Goal attainment structures
Integrative structures	Latent pattern maintenance structures

Table 1.
The social infrastructure of collective agency.

granted within organized collectives, especially within management boards [60] and top management teams [61], where leadership in singular is replaced by leadership in plural. Leadership in plural is the new normal [62]. In sum, resilient organizations need collective agency and the general capacity to execute this agency as the foundation for fast, united and impactful collective action with regard to adverse events.

Collective action could be defined as “joint activities by a wide group of actors on the basis of mutual interests” [63]. Because people often do not have mutual interests, collective inaction is commonly observed [63, 64]. To overcome the default tendency of collective inaction and enter the state of collective action, collectives have to transform themselves into a collective agent [63] and in the long run into an autopoietic social system [65, 66].

A collective agent “is a collective (...) that can (...) be the subject of attitudes and can perform actions as a collective” [67]. An important property of a collective agent is collective agency. According to the social cognitive theory perspective, “people’s shared beliefs in their collective power to produce desired results are a key ingredient of collective agency” [68]. This includes not only “shared knowledge and skills of its different members, but also (...) the interactive, coordinative, and synergistic dynamics of their transactions” [68]. According to Bandura, “perceived collective efficacy is not simply the sum of the efficacy beliefs of individual members (...) it is an emergent group level property” [68].

Systemic agency is a special type of collective agency. It is produced if the collective transforms itself into an autopoietic social system [69] by incorporating additional structural features. The social ontology perspective within collective research [67] delivers some hints about these necessary features. According to this approach, the collective agency of an autonomous collective agent consists of at least three components. First, a collective which possesses collective agency should be a “social entity that consists of an unspecified number of individuals who share some properties that allow for their identification as a collective” [67] and which “exhibit a certain degree of persistence regarding their own identity in the case the identity of their constituents is changed” [67]. Examples of this are common values or even a common worldview of the members of the collective. Second, a collective agent which possesses collective agency should be clearly distinguishable from its environment and able to actively shape this environment and evaluate its own behavior with regard to normative standards and values, which are generated by the collective itself [67]. Third, the collective agency should be a significant property of the collective agent as a whole [67]. Out of this perspective, collective agency is a potential: “possessing agency (...) does not imply that the collective actually performs any particular action or holds a specific attitude at any instance”, but it implies “that it would be possible for it to do so” [67]. To distinguish this form of collective agency from the term used by Bandura [68], I propose to call the social-ontological-based term “systemic collective agency” or “systemic agency”.

The amount of collective and systemic agency depends on functional preconditions. As in the case of humans where personal agency requires that the human body is able to fulfill basic functions like body coordination [70], collective agency requires that the collective system is able to fulfill basic functions necessary for acting and surviving as a social unit. The agency capacity is the most important of

Stages of collective development	Basic function	Social infrastructure	Type of capacity	Type of collective (perspective of action theory)	Type of social systems (perspective of system theory)
Stage 1	—	—	None	Mere collective	Absence of a social system
Stage 2	I	Integrative structures	Action-shaping capacity	Cohesive collective	Social system capable of shaping action
Stage 3	GI	Integrative & goal-attaining structures	Collective agency capacity	Collective agent	Social system capable of acting
Stage 4	AGIL	Integrative, goal-attaining, adaptive & maintenance structures	Systemic agency capacity	Corporate actor	Autopoietic social system

Legend: I = Integration; G = Goal attainment; A = adaptation; L = Latent pattern maintenance.

Table 2.
Stages of collective development, AGIL functions and capacity type.

these basic functions. The amount and quality of the agency capacity of a collective corresponds with the development stage of the collective (**Table 2**).

A mere collective (stage 1 collective) is transformed into a cohesive collective (stage 2 collective) by adding social cohesion to the disorganized mere collective. In this case, the group fulfills the function of integration (I-function). The social group is therefore able to shape the actions and behavior of its members, producing conformity, group think and behavior change [51, 71–73]. This enables cooperation between individuals, including those with divergent interests [57, 74]. In cohesive collectives, social cohesion bundles otherwise chaotic individual energies and transforms these into social energy [56]. This kind of collective system can be called an action-shaping social system or social system capable of shaping action [75], and the type of capacity this collective possesses can be called action-shaping capacity.

If a cohesive collective is also able to set goals and attain them and if the members of this collective develop a sense of purpose [76], the goal attainment function (G-function) is fulfilled. Stage 3 collectives fulfill the G-function plus the I-function. This leads to the “GI factor” [56, 77]. This factor “produces collective energy within a group and gives this energy a direction, producing goal-oriented collective action” [56]. The result is a collective with “a sense of purpose and unity”, speaking with one voice [56, 77] and possessing shared beliefs of collective efficacy [68]. This kind of collective system could be called a collective agent or, from the social system perspective, a social system capable of acting [75]. These types of collectives possess “collective agency capacity”.

Social systems capable of acting (collective agent) could further transform themselves into an autopoietic system by fulfilling two functions, namely the adaptive function (A-function) and the latent pattern maintenance function (L-function).

The A-function is achieved if the collective produces goods and services for the environment to receive needed resources in exchange in order to accumulate needed resources as well as slack resources like social, human, economic and cultural capital [60, 78, 79]. The A-function is also fulfilled if the collective internally produces slack resources and flexible structures to be able to adapt to new situations in turbulent times [79, 80].

The L-function is fulfilled if the collective has incorporated value systems, knowledge systems, belief systems and symbolic systems (a) which serve as guiding standards and values against which the collective system's behavior is evaluated by itself and (b) which could be transferred to the next generation of members via socialization and internalization [54, 81]. Additionally, the L-function is fulfilled if these cultural elements are institutionalized into the collective system by roles, positions and norms [54, 64, 81]. This leads to an organization-culture fit [82]. By these three means—socialization, internalization and institutionalization of cultural structures—social systems, which are capable of acting, are additionally able to maintain the latent pattern of these systems over time. This and the ability of the social system to evaluate its own behavior by the cultural values which the system has generated itself ensure self-organization and autopoiesis independent of the strategies and personalities of the individuals who are temporarily members of this system.

If a social system fulfills all four AGIL functions, systemic agency capacity is produced (see **Figure 2**). This is a necessary condition for sustainable agency and the emergent birth of an autopoietic social system. From Coleman's action theory perspective, this type of system can be called a corporate actor [57]. From the sociological systems theory perspective, such a collective can be called an autopoietic social system [65, 66, 83–85].

3.3 Resilience management

Resilience management comprises different dimensions [86–88]. As already outlined, resilience management rests on four abilities: the ability to anticipate, the ability to monitor possibly dangerous developments, the ability to respond quickly and appropriately and the ability to learn from past events and crises [35]. The basis for these abilities is the capacity to perform collective action in a self-organized way. Without a minimum amount of this agency capacity, resilience management would be less impactful.

Resilience management could be defined as the process of collective coping with an adverse event and its consequences with the aim to prevent and reappraise adverse events and to buffer their impact or compensate for losses or damages. The concept of resilience management presented here consists of four types of collective resilience management, namely (1) appraisal-focused, (2) problem-focused, (3) impact-focused and (4) spiral-focused resilience management.

With regard to appraisal-focused resilience management, leaders can shape and influence the collective perception and appraisal of a given or expected situation with regard to its threat and loss potential. Leaders are also able to shape and influence the collective appraisal of the coping resources available to handle the situation properly. Additionally, they can support the collective reappraisal of a given situation [89]. In a positive scenario, a perceived threat could with the help of the leader be reappraised collectively as less threatening or as no longer threatening [90]. Charismatic leaders in particular are good at this [90].

Problem-focused resilience management aims to prevent adverse events in the future by altering the dangerous environment in the midterm and long term and/or decreasing the burden of the existing adverse event. Measures that fall into this category of resilience management include altering by political, regulatory or technological means the natural, technical, biological and psychosocial environment with the goal to minimize the probability and severity of adverse events in the future [91]. Other measures within this category include monitoring of possible threats, learning from crises (e.g., [92]), critical incident reporting [38, 39], preparedness strategy [16] and uncertainty management [19].

Impact-focused resilience management aims to manage the consequences of the adverse event. The aim of the measures in this category is not to solve the primary problem but to prevent the occurrence of follow-up problems caused by the primary adverse event and to mitigate the impact of the adverse event and the follow-up problems on the organization and their members. Measures within this category include using financial reserves, staff overhang, organizational slack, storage capacity, social capital and other impact-absorbing structures and resources (e.g., [47, 92, 93]). Other measures are to compensate for losses or impairment and to ameliorate the collective pain caused by the adverse event by organizing, for example, positive events to replace negative emotions with positive emotions. Another form of impact-focused resilience management is to accept the negative structural consequences of the adverse event and to adapt the organization to the new situation by restructuring it and attaining a new, often lower equilibrium. The fourth form of resilience management—the management of resilience spirals—is explained later in detail.

3.4 Organizational resilience

Organizational resilience occurs if an organized collective is able to prevent, appraise, absorb and cope with adverse events and their consequences in such a way that the organized collective can either (a) maintain the previous equilibrium; (b) bounce back to the previous equilibrium; (c) find a new, satisfying equilibrium; or (d) find new equilibria by maintaining a stable core within the system [33, 37, 94]. An optimal form of organizational resilience is obtained when an external adverse event can be managed by the organized collective without loss of collective performance.

The concept of functional performance levels outlined here proposes a hierarchical model of optimal organizational resilience. This model consists of five main levels of equilibria and five levels of a functional performance (see **Table 3**). The levels of equilibria are the (1) nonautonomous, (2) autonomous, (3) routine, (4) innovation and (5) resilience equilibria levels. These levels are separated by five functional thresholds: (a) survival, (b) autonomy, (c) routine, (d) innovation and (e) resilience. If an organized collective system falls below a threshold, it immediately moves to a lower functional performance level.

Level 5	The autonomous organized collective system is able to manage routine work, to be innovative and to cope with disruptions and troubles (resilience level)
T 5	Threshold of coping with disruptive events
Level 4	The organized collective system is able to act and to manage the professional routine work as well as tasks to innovate and change (innovation & exploration level)
T 4	Threshold of coping with the innovation and change tasks
Level 3	The organized collective system is autonomous and able to manage professional routine work (routine & exploitation level)
T 3	Threshold of coping with routine demands
Level 2	The organized collective system is able to act without help from outside (autonomous level)
T 2	Threshold of acting autonomously
Level 1	The organized collective system is able to act but depends on help from outside (nonautonomous level)
T 1	Threshold of surviving
Level 0	The organized collective system is not surviving

Table 3.
The concept of functional performance levels of organizations.

An organized collective system which is located on the functional performance level 5 fulfills all the requirements for good organizational resilience while still accomplishing innovation work as well as routine work in a parallel way. An organized collective system at functional performance level 4 (see **Table 3**) is able to innovate and do routine work but is unable to manage disruptive events without damaging innovation management and routine processes. This functional status is close to the status known in the management literature as ambidexterity. Ambidexterity is defined as an organization's ability to simultaneously exploit the present (by routine work) and explore the future (by innovation management) [95, 96]. Ambidexterity is regarded as a prerequisite for organizational survival [97], and there are empirical results that support this hypothesis [98]. Ambidexterity could be regarded as a prerequisite for resilience [99, 100] because "ambidextrous firms are better than others at responding to disruptive new business models and emerging technologies" [101]. Factors that promote ambidexterity include a collaborative community [102], support [103] and trust [103]. These factors are important parts of the social infrastructure of collective action as previously shown in this article.

If organized collective systems are unable to perform at level 3, they fall below the routine threshold, which means that they act autonomously but cannot manage routine tasks in the necessary quantity, quality, efficiency or timeliness.

If organizations also fall below the autonomy threshold, they reach functional performance level 2. This means that they need external support to act and survive. This external support could stem from the government or investors. An example of this are the bailouts of airlines during the COVID-19 pandemic [104] or bankruptcy. Some scholars argue that bankruptcy leads to a relief of financial burdens, but it does not change the structures and processes that led to bankruptcy. Therefore, without changing structures and processes and achieving a new equilibrium, long-term survival is doubtful in these cases [105].

If organizations also fall below the survival threshold, the organization will no longer survive.

4. Resilience spirals

Organizations differ with regard to the levels of their functional abilities and can be located according to these abilities on the functional performance ladder already shown in **Table 3**. Organizations that are close to bankruptcy are at the bottom of this ladder, and organizations that are flourishing are at the top. The important point is that first, organized collective systems are able to move up or down this functional performance ladder and that second, this move takes on the form of a spiral: an upward spiral in the case of organizational success and a downward spiral in that of organizational failure.

The reciprocal nature of the relationship between organizational success and organizational resources nurtures the organizational spiral. During upward spirals, the availability of resources leads to organizational success, this success leads to additional resource gains and so on. Some of the resources gained through success include financial or human resources (e.g., attracting young talent). This resource gain provides fertile ground for even more success in the future. In short, success breeds success. This effect is also known as the Matthew effect [106], which is the central pillar for upward spirals. Organizations on an upward spiral experience an accumulation of institutional advantages over time. Contrary to this, in downward spirals, a depletion of resources could provoke organizational failure, and this organizational failure reduces the probability of gaining additional resources in the near future. The causal path "resource depletion > failure > resource depletion > failure"

Figure 3.
The resilience spiral: downward spirals (-), upward spirals (+) and steady state (=).

produces a downward spiral. Organizations on a downward spiral experience an accumulation of institutional disadvantages over time [107].

Resilience spirals are a subtype of organizational spirals. The basic causal path is illustrated in **Figure 3**. The social infrastructure promotes organizations’ agency capacity. This agency capacity enables collective agency, which is necessary to execute resilience management. Additionally, this collective agency leads to strong organized collective systems, which due to their stable “social infrastructure” core can withstand even strong disruptive events by their mere stability and absorptive structures. If an organization is resilient by its mere presence and stability, it is able to gain resources even during times of trouble. This gain in resources could further foster the infrastructure of the social system, which leads to a causal chain of “infrastructural resources → organizational resilience → gain in infrastructural resources → gain in organizational resilience”. This pattern could be called an upward resilience spiral.

In the case of a downward resilience spiral, the causal chain is “weak organizational resilience → loss of infrastructural resources → weaker organizational resilience → additional loss of infrastructural resources”. For example, the collective learning process after a disaster could lead to the conclusion that the organization needs to strive for a new equilibrium. A move from the previous equilibrium to the new one could be associated with a gain or loss of resources (see also [108]). If the new equilibrium is on a higher functional level, the move is associated with a resource gain, while if the new equilibrium is on a lower functional level, there is a loss of resources. In this last scenario, the organization is stabilized on a weaker resource level than before. This loss of resources leads to lower collective agency, which could weaken organizational resilience and heightens the possibility of further loss of resources. In this case, there will be a downward resilience spiral. Upward resilience spirals are based in part on the Matthew effect [106]. Downward spirals are characterized by an accumulation of systemic disadvantages. This can be described as a negative Matthew effect.

Upward and downward resilience spirals are processes where old equilibria are abandoned and new equilibria achieved: lower ones in the case of downward spirals and higher ones in the case of upward spirals. In all these cases, the core of the system—the social infrastructure and the resulting agency capacity—should be protected to ensure stability during change and to make change possible. If this protection is no longer possible, the downward spiral has reached a critical phase.

This critical phase occurs when further resource loss leads to a situation where the social infrastructure and the corresponding agency capacity function is impaired in such a way that the functioning of the collective system, meaning its ability to act and to do this in effective way, is endangered.

5. Leadership and organizational resilience: starting points

Resilient leadership exists if leaders care about organizational resilience in at least three ways. One way is to lay the groundwork for long-term organizational resilience by building the social infrastructure for collective action. Another way is more specific, namely to develop resilience management, run it and activate it fully in times of trouble. In addition to these two leadership strategies, there is a third one, namely the strategy of managing organizational spirals in general and resilience spirals in particular. Therefore, we distinguish three starting point for resilient leadership: (1) the social infrastructure of collective action and agency, (2) resilience management and (3) resilience spirals. Because we already discussed resilience management, we now focus on how leaders could foster the social foundation and then on how they are able to manage resilience spirals.

5.1 Leadership: building up, maintaining and modernizing the social infrastructure of collective action and agency

A central leadership task is building and maintaining the social infrastructure for collective action by accumulating and conserving the adaptive, political, integrative and cultural structures. These structures are necessary to fulfill all four basic AGIL functions and their higher-order function systemic agency capacity. Leaders who manage social systems, which possess systemic agency capacity, are more successful in reaching their goals. This is greatly independent from the content of the goals and measures as long as they are compatible with the value system of the organized collective. Organizational resilience is an example of such a goal.

In times of rapid change, leaders have to build up structures which enable adaptation. This fosters the A-function and the capacity to adapt to new situations [109]. The primary way to do this is to promote adaptive leadership [110]. This is the ability of leaders “to become more fit with the environment in which they operate, including but not limited to modifying existing procedures, adjusting to new circumstances, and updating knowledge and skills to meet new situational demands”, [110] and it includes the “need to continually learn, change and keep a flexible mindset” [110].

The second task of leaders with regard to social infrastructure is to establish and optimize collective decision-making structures as well as the process of strategic goal-setting, –controlling and -attaining. There is broad knowledge about how to conduct and organize managerial decision-making [111] even in complex environments [112] and how to conduct and measure strategic goal-setting and -attaining [51, 113–115].

The third task of leaders is to strengthen the social integration and cooperation within the collective they lead. Leaders are responsible for building and maintaining solidarity and cohesiveness within the organized collective. This strengthens the social capital and the integrative structures of the collective they lead. Leaders can contribute to this by (1) a “consideration” leadership style which stresses the orientation toward good social relationships [116, 117]; (2) a transformational leadership style which combines having vision with creating a “we-feeling” among the followers [118] in such a way that they are willing to transfer the vision into practice; (3)

cohesive leadership [119], which promotes social cohesion within the followers; or (4) collaborative leadership [120–124], which “recognizes the need for appropriate balance—between power sharing and control, between process and results, between continuity and change, and between interpersonal trust and formalized procedures” [123] and which is most appropriate in professional organizations, knowledge work organizations and partnership networks [123, 125, 126]. Therefore, enhancing the social capital and cooperation within organizations is central for fulfilling the I-function and is one of the top tasks of leaders within organizations [76, 127].

The fourth task of leaders with regard to the infrastructure for collective agency is to build up the cultural structures within the collective they lead [128, 129]. Cultural structures comprise the value system, knowledge system, belief system and symbolic system. Leaders can shape the culture of an organization in many ways [59, 130–135]. They shape the culture of the collective by being a role model with regard to the common values of the collective [134, 136]. Additionally, they should be aware that their decisions send cultural signals to their followers with regard to the values the organized collective prefers [76, 133]. This is the case, for example, with job promotion (e.g., which person with which attitudes and values is the preferred one?) [76]. Additionally, leaders should organize the transfer of values, knowledge, beliefs and worldviews to their followers and the next generation. Organized collectives often try to establish a person-culture fit to reproduce their culture by employing individuals who fit into the organizational culture [82, 137]. However, if leaders want to change the culture of organized collectives, they should change the personnel selection team and the selection criteria in order to not reproduce the old culture by recruiting the same way the same sort of people as always.

The fifth function of leaders with regard to social infrastructure is to organize and manage the maintenance and modernization of these four structural elements: the maintenance and modernization of organizational culture [134, 138–140]; the maintenance, reproduction and modernization of the social structures which produce solidarity and integration [76, 141]; the maintenance and modernization of the adaptive structures like machines and technologies; [142] and the maintenance and modernization of the goal-attaining and decision-making structures [143, 144]. This guarantees the sustainability and adaptability of the collective system and its long-term survival.

5.2 Leadership: managing resilience spirals

Leadership plays a central role in the management of organizational spirals in general and resilience spirals in particular. The main task of resilience-oriented leaders is to manage the collective system they lead in such a way that the reciprocal mechanism (see **Figure 3**) stabilizes the system in a steady state where resource gains equal resource losses. In this scenario, there is a strong probability that organizational resilience can be maintained on a given level (either a low or a high level) [145]. If the level is low, one of the critical tasks of leaders and managers is to move the organization or organizational unit up the functional performance levels. They are able to accomplish this by using the causal pathway (see **Figure 3**) to higher resilience via fostering the social infrastructure of collective action by establishing adaptive structures, by investing in the social capital of the organization (integrative resources), by creating efficient decision-making structures and processes (political resources) and by working on common values, visions and knowledge (cultural resources). The second way is to manage the activities of the members in a goal-oriented and motivating way. The third way is by building up systematic resilience management through the implementation of specific resilience measures, such as resilience engineering, resilience analysis and threat monitoring (e.g., [92, 94, 146]).

Another important point of resilient leadership is to heighten the capacity of the collective system to be ambidextrous. This enables an organization to do routine as well as innovation work in an efficient and robust way with enough room and energy to also cope with adverse events. Another important task of leaders is to build up an early warning system which signals to them that a downward resilience spiral is just beginning and which delivers evidence-based suggestions [147] about how to stop the downward spiral in a fast and efficient way.

6. Limitations and conclusions

The main limitation of this article is its nonempirical foundation. The article presents theoretical thinking about the social foundations and social dynamics of organizational resilience. The hypotheses presented are not supported by empirical evidence. Thus, as long as these concepts and hypotheses have not been empirically tested and proven, it is necessary to be cautious with practical conclusions. However, it has to be stressed that the concept of the social infrastructure rests on the theoretically proven AGIL concept of Talcott Parsons [53] which has been used or discussed by several social theorists like Habermas [138, 141], Luhmann [148], Münch [149, 150] and Gerhardt [52, 151] and which has been tested empirically in part in some studies [56, 152].

With this limitation in mind, it is possible to draw some tentative practical conclusions from the concepts outlined. The first conclusion is that leaders should take care of followers by enhancing the integrating forces among them [76, 127]. The second conclusion is that leaders should be aware of the importance of effective and efficient decision-making structures and processes and goal-attaining structures (e.g., the controlling system) within the organizational unit they lead in order to enhance the unit's agency capacity. Third, leaders should foster the adaptive structures of their unit by building processes and structures to produce goods and services efficiently and by accumulating resources to obtain organizational slack which can be used in times of crisis. The fourth conclusion is that leaders should install knowledge and value management to stabilize and enhance the organization's cultural capital. The fifth practical conclusion is that leaders are better off if they install systematic resilience management which protects the organizational units in times of crisis [153, 154]. The sixth conclusion is that leaders should build up early warning systems to detect the beginning of downward spirals [155].

7. Summary

The aim of this paper was to describe the social foundations and dynamics of organizational resilience and the role of leadership in building and steering these social phenomena. The two main hypotheses were that organizational resilience depends on collective resilience management and the agency capacity of the organization. This capacity was conceptualized as a higher-order function combining the four AGIL functions. These functions are fulfilled if four AGIL-promoting structures are present, namely adaptive, goal-attaining, integrative and latent pattern structures. The reciprocal relationship between the social infrastructure of collective action and organizational resilience could lead to a resilience spiral going either upward or downward. In sum, the task of resilient leadership is to build and maintain the social infrastructure of collective action, foster the agency capacity of their own organization, execute resilience management and prevent downward spirals.

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