

Cybernetics in Practice: Reflections on Organizational Viability and Collective Intelligence

Werner Boysen and Sven-Volker Rehm

Abstract. This *Conversations* article reflects on a restructuring process in a medium-sized industrial company through the lens of managerial cybernetics and collective intelligence. The conversation originated in a dialogue session hosted by the *Society for Managerial and Social Cybernetics*, followed by a reflective interview and written responses by Dr. Werner Boysen. The article uses five practical “moments” to explore how feedback, organizational lock-in, distributed responsibility, delayed adaptation, and the expansion of possibilities become visible in crisis situations. The article argues that organizational viability depends on the capacity to activate distributed knowledge, create feedback-rich discourse at interfaces, and translate collective perception into coordinated action.

Keywords. *Managerial cybernetics, collective intelligence, collective adaptation, crisis management, organizational inertia, organizational learning, organizational resilience, organizational viability, interface coordination, cybernetic management practice*

Introduction: Cybernetics beyond Abstract Theory

Cybernetics is often associated with abstract models, control engineering, or technical systems of regulation (Wiener, 1948). In managerial and organizational contexts, this association can obscure its practical relevance. Yet situations of crisis, restructuring, and transformation make visible why cybernetic thinking remains important: organizations fail because isolated decisions turn out to be wrong. They become vulnerable when feedback is ignored, dependencies are misunderstood, responsibilities are misplaced, and the capacity for coordinated adaptation weakens.

While this article refers broadly to cybernetics, its primary concern lies with *managerial cybernetics*: the application of cybernetic ideas to questions of strategic capability, leadership, empowerment, organizational viability, feedback, and adaptive coordination. This perspective offers a language for understanding organizational transformation, because it directs attention to circularity, feedback, delay, variety, self-regulation, and viability.

The conversation developed in this article starts from a concrete restructuring process in an industrial company. Werner Boysen first reflected on this process in a *SynergyLab* session—a practitioner-academia dialogue format hosted by the *Society for Managerial and Social Cybernetics* (*Gesellschaft für Wirtschafts- und Sozialkybernetik*, GWS)—and later in a reflective follow-up conversation. We also draw on his written responses to a set of reflective questions. Rather than presenting these materials in interview form, we integrated them into a series of moments in which practical experience and cybernetic interpretation are brought into conversation.

The company at the center of the reflection is *Carl Stahl Technical Webbing GmbH*, a medium-sized German manufacturer of automotive safety belt webbing based in

Herbrechtingen in Southern Germany. The restructuring process took place in 2024/2025 in a context marked by high customer dependency, financial pressure, shareholder fragmentation, and the need to restore both strategic viability and operational stability. The case is not treated here as a formal empirical case study nor as a management success story. Instead, it serves as a practical field of observation: a setting in which cybernetic principles become visible through managerial action, organizational resistance, stakeholder dynamics, and the gradual restoration of viability.

The article is organized around five “moments” for systemic thinking. Each moment begins with a practical situation in the restructuring process and then looks to what becomes visible when the situation is read cybernetically. The first moment concerns organizational lock-in and escalation. The second examines feedback, control, and learning. The third turns to the expansion of possibilities under crisis conditions. The fourth addresses distributed responsibility and adaptive coordination. The fifth reflects delayed reactions and organizational inertia. Together, these moments trace a movement from paralysis toward renewed organizational mobility.

The contribution that follows is written in the spirit of a reflective conversation between practice and theory. Its aim is not to apply managerial cybernetics as an external framework to a finished case, but to show how cybernetic aspects emerge from practice itself: Where do actions produce unintended effects? Which feedback loops enable learning, and which reinforce decline? How does an organization increase its (mental) space for maneuvering? Where should responsibility be located when knowledge is distributed? How quickly can a system change its behavior when the situation changes? These questions guide the following moments and lead to a broader reflection on *collective intelligence as a condition of organizational viability*. We hope to show that cybernetic thinking becomes practical when organizations must understand how their own actions produce effects, feedback, delays, and new constraints.

A central concern throughout the article is the relation between cybernetics and collective intelligence. Collective intelligence is often framed as an ‘automatically’ emerging, spontaneous property of groups, or as the sum of individual knowledge. However, organizations may contain many competent actors and still remain unable to act collectively. As we will argue here, collective intelligence becomes effective only when observations can circulate, differences can be articulated, responsibilities can be distributed, and feedback can be translated into coordinated action (see also Boysen, 2021, p. 46ff.). In this sense, collective intelligence is an emerging organizational achievement: it is produced through feedback, distributed responsibility, adaptive coordination, and the active expansion of possibilities.

The restructuring process discussed here is therefore relevant beyond the specific industry or company involved. It shows *how crises may reveal the breakdown of collective perception and coordinated action*, and how transformation requires more than financial stabilization and operational correction. It requires the rebuilding of feedback relations, the reopening of strategic discourse, the creation of new options, and the synchronization of action across organizational interfaces.

Moments for Cybernetic Reflection

Moment I — Organizational Lock-In and Escalation

The first moment concerns the gradual—and sometimes hidden—emergence of organizational lock-in. In the case discussed here, the crisis did not stem from a single failure, a poor decision, or one unexpected external shock. It developed through a configuration of mutually reinforcing dependencies: a dominant customer relationship, a narrowing of internal capabilities, a fragmented shareholder structure, increasing financial pressure, and a leadership culture that

had grown used to hesitating rather than intervening. From a managerial perspective, these were concrete restructuring challenges. Read cybernetically, they pointed to a deeper pattern: the organization had lost its capacity to interrupt the increasing dynamics that were driving it downward.

Werner Boysen described the central mechanism of the crisis as an inability to make essential decisions. The shareholder group had become internally blocked and, by extension, blocked the future development of the company (Boysen, 2025, p. 155ff.). Management adapted to this paralysis instead of overcoming it. The workforce, in turn, largely followed the established pattern. The paradox was that the downward movement was visible to those involved, yet no actor was able to stop it on their own. In Werner Boysen's words, the situation resembled the well-known tale of "The Emperor's New Clothes:" the problem could be seen, but it was not collectively articulated in a form that would have generated action.

Several dependencies reinforced this lock-in. The shareholders could not agree on restructuring measures or financial contributions, although these were expected by the financing institutions. The main customer, an automotive company, recognized the company's dependence on its call-offs and used this dependence to increase pressure. Potential new customers hesitated to place strategically relevant orders with a financially weakened supplier. At the same time, earlier specialization had eroded the company's own marketing, product management, and business development capabilities. The organization had become highly efficient within a narrowing operational role focusing on one key customer, while this efficiency no longer translated into strategic viability.

Here lies the cybernetic significance of the "lock-in" moment: a *crisis can become self-stabilizing*. Feedback does not always produce learning; it may also reinforce dependency, avoidance, and escalation. The organization did not lack signals. Many relevant actors recognized essential aspects of the situation. What was missing was the *collective capacity to turn perception into coordinated intervention*. The crisis was therefore financial and operational, but also a **crisis of collective agency**. The system could observe its decline without yet being able to reorganize itself around a shared response.

From a collective intelligence perspective, this distinction is important. Aggregation of individual perceptions may not lead to collective action or respectively, agency. In this case, many actors were aware of the crisis, yet awareness remained fragmented. It was constrained by ownership structures, power relations, dependency patterns, and routines of avoidance. Potentially, to manifest collective action would have required shared recognition of systemic patterns, the willingness to name uncomfortable causal relations, and the capacity to coordinate action across stakeholder boundaries.

This first moment thus marks the negative starting point of the later transformation. Before feedback could become learning, before responsibility could be distributed, and before new possibilities could be generated, the organization first had to be released from a self-reinforcing pattern of paralysis (Figure 1)¹. Organizational lock-in is more than a strategic problem; it is a **failure of adaptive coordination**. The task of restructuring, in this sense, was to address financial and operational issues while restoring the organization's capacity to act collectively under conditions of constraint.

¹ Note on the figures: The figures are intended as illustrative sketches rather than formal system-dynamics models. They highlight distinctions that become practically relevant in crisis situations, such as lock-in and learning, control and feedback, defensive stabilization and possibility expansion, or inertia and timely adaptation. Their deliberately simple visual language uses stick figures, arrows, and hand-drawn elements to echo the tradition of accessible cybernetic illustration, including Stafford Beer's use of diagrams, maps, and comic-like sketches to communicate complex ideas about organization, governance, and viable systems (see e.g., Beer, 1981, p. 291ff.).

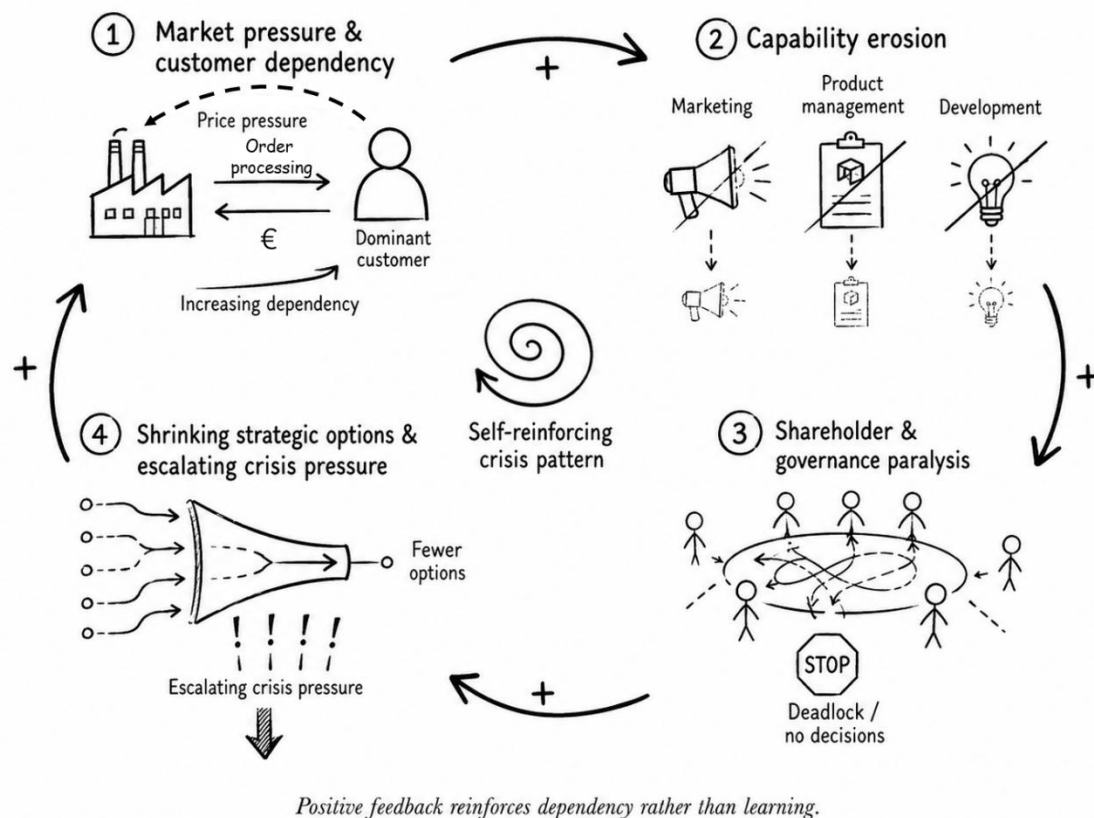


Figure 1. Organizational lock-in as a self-reinforcing crisis pattern

Moment II — Feedback, Control, and Organizational Learning

The second moment shifts attention from the external configuration of dependencies to the internal conditions of organizational learning. Once an organization has become locked into a downward pattern, the question is no longer only which decisions should be taken. It becomes equally important to ask how information circulates, how effects are observed, and whether the organization is able to translate signals into coordinated action. In the case discussed here, the problem was not a complete absence of information; many signals were visible (Boysen, 2025, p. 54ff.). The more difficult issue was that information did not become learning.

Werner Boysen described a pattern that is familiar in many organizations under pressure. Shareholders expected management to work harder, enforce stricter discipline, and impose a stronger cost-cutting logic. Management, in turn, implemented this expectation by suppressing creativity and individual responsibility within the organization. The result was a culture of compliance rather than initiative. What appeared as tighter management control narrowed the organization's own capacity to respond intelligently. As Werner Boysen put it in his written reflections, *"you do not win such a battle with obedient soldiers."*

This observation leads to a crucial distinction between reporting and feedback. Reporting, in Werner Boysen's account, is primarily bottom-up communication. It can support steering, but it often remains a one-way movement of information. Feedback, by contrast, involves communication on several sides and ideally on equal footing. It enables regulation—or *control* in the cybernetic sense—because it allows actors to compare expectations, possibilities, resources, and **effects at the interfaces** where work actually takes place (Bateson, 1972). In dynamic and complex situations, such feedback cannot be replaced by more reports. Reports may describe a situation; feedback enables the organization to adjust itself within that situation.

The cybernetic reading is therefore clear: a simplistic understanding of control as formal reporting process versus as feedback-driven function are not equivalent. Formal reporting may

generate obedience, measurable activity, or short-term discipline. Feedback enables perception, correction, adaptation, and agility. In the restructuring process, feedback loops had to be established both externally and internally. Externally, banks, further financing partners, advisers, customers, suppliers, shareholders, employees, and other stakeholders had to be brought into arrangements in which their respective interests could be made explicit and aligned sufficiently to keep the process moving. Internally, operational functions had to coordinate their use of resources, especially under conditions of acute liquidity pressure, while still creating the possibility of new action.

This distinction is central for the article's understanding of collective intelligence. Collective intelligence does not arise from 'collecting' reported information at the top of a hierarchy. It becomes organizationally relevant through feedback loops, when knowledge is recursively processed across the system, when local observations can be connected, and when actors are able to adjust their actions in relation to one another. In Werner Boysen's terminology, this requires **"systemic discourse" at organizational interfaces**: recurring exchanges in which expectations and possibilities are negotiated, capabilities are reassessed, and practical action is coordinated.

A learning organization, in this sense, is not defined by its formal commitment to learning or by the presence of reporting systems. It becomes visible when employees recognize the effects of their own decisions and adjust their behavior together, without waiting for every correction to be issued as a formal instruction. Such learning takes place in the many everyday interfaces of an organization: between procurement and production, between production planning and customer delivery, between liquidity management and operational performance, between market signals and strategic development, and so on. Improvements then generate motivation, and motivation increases the *willingness* to participate in further improvement (Boysen, 2011, p. 95, picture 3.8). Learning becomes recursive.

For collective intelligence, this moment shows that *organizational learning requires more than awareness*. The company had information, but the information remained ineffective as long as no actor could influence the overall pattern and as long as the prevailing leadership culture discouraged initiative. The intervention of an external interim manager created new degrees of freedom. It made mechanisms visible, interrupted routines, and signaled that continuing as before would endanger the company's existence. Once change became both necessary and legitimate, the organization could begin to move from "obedience" toward participation.

The transition from reporting to feedback-driven control thus marks a decisive step in **restoring collective adaptive capacity** (Figure 2). The organization did not become "more intelligent" by accumulating more data or producing more reports. It became *more capable* when information began to circulate through relationships, when actors were invited to interpret and respond, and when coordination became part of everyday work. From a cybernetic perspective, this is where *stability* begins to take a more viable form, moving from organizationally imposed discipline towards the capacity to regulate, learn, and act together under changing conditions. At this point, the paradox becomes apparent that *an organization requires movement in order to become stable*.

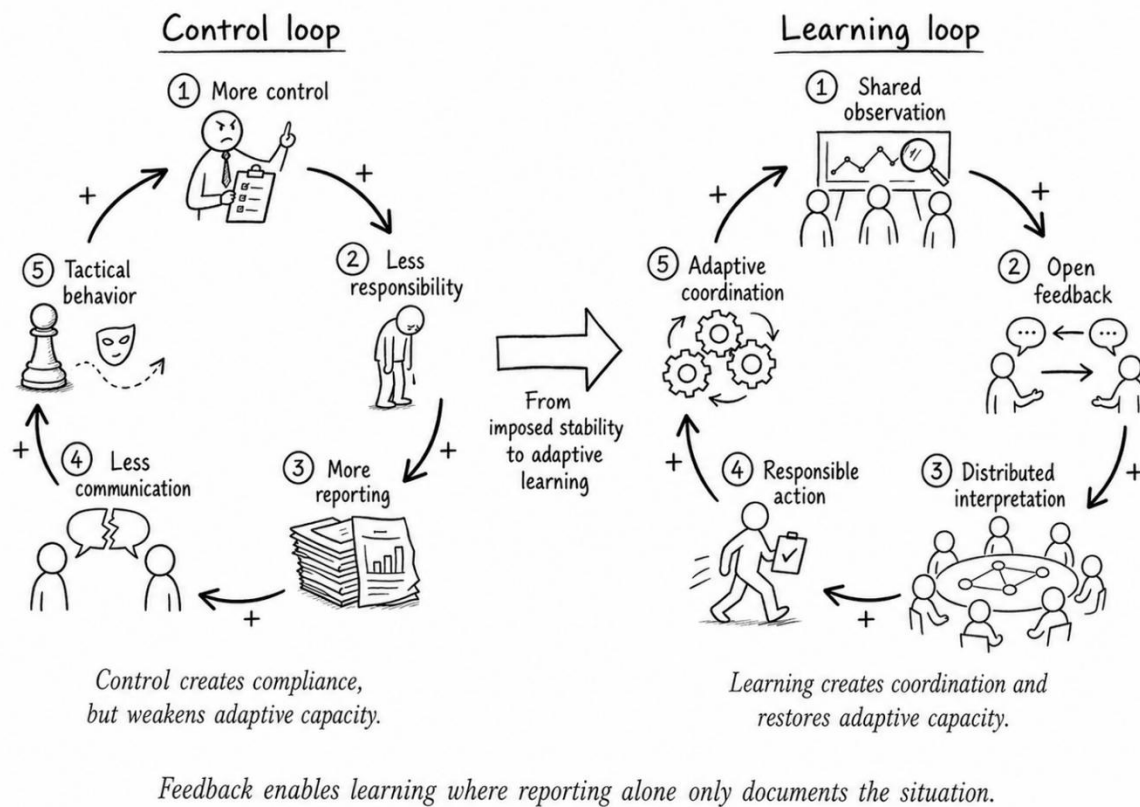


Figure 2. From control loops to feedback and learning loops. (Note: “Control” is used here in a narrow managerial sense, referring to a mandatory and repressive type of supervision, reporting, and instruction—not in the cybernetic sense of regulation through feedback, communication, and adaptive adjustment.)

Moment III — Expanding the Space of Possibilities

The third moment concerns the deliberate expansion of possibilities at a point when the organization’s space for maneuver seemed severely constrained. In acute crisis situations, perception and attention easily narrow. Liquidity, cost reduction, supplier management, customer commitments, and immediate survival move to the foreground. This narrowing is understandable by nature, yet it carries a risk of its own: the organization may become so absorbed by defensive stabilization that it loses sight of the capabilities from which future options could still be developed.

In the case discussed here, the company had become highly specialized around a dominant customer relationship. Over time, this had turned it into an efficient contract manufacturer with a sharply limited strategic profile. Its own marketing activities, product development, and market-facing imagination had weakened. The company had few visible product innovations to present and little basis for convincing new customers to place strategically relevant orders. In this situation, the decision to appear at a major trade fair for technical textiles may at the first view seem counterintuitive. Why should a company in crisis seek external visibility when it had almost nothing new to show?

Werner Boysen’s answer shifts the perspective. The company may not have had innovative finished products ready for display, yet it still possessed important basic capabilities. It knew how to develop and produce textile applications that could pull, secure, carry, redirect forces, and solve technical problems in demanding contexts. The trade fair presence was therefore not designed around a conventional product showcase. It presented the company as a problem-solving partner for technically challenging inquiries. This move invited potential customers to bring their own problems into the conversation. Rather than waiting until innovation had been produced internally, the company used the market encounter itself as a source of possible innovation.

This moment directly resonates with Heinz von Foerster's *ethical imperative*: act always so as to increase the number of choices (Foerster, 1995). In his written reflections, Werner Boysen made clear that this principle was not just a retrospective interpretation. The decision to participate in the trade fair was consciously guided by the aim of creating more possibilities after the decision than before it. In uncertain conditions, he added, it is also important to pursue several paths in parallel: "*One might call this hedging.*" For the organization, however, the effect was broader than risk reduction. It reopened a future horizon.

The cybernetic significance of this step lies in the **movement from defensive reaction to generative capability**. Crisis management often begins with reduction: reduce costs, reduce risks, reduce exposure, reduce complexity. These measures may be necessary, especially under liquidity pressure. Yet an organization cannot become viable again through reduction alone. It must also create new distinctions, new relationships, and new options. The trade fair decision did precisely this. It brought the organization into contact with potential customers, new application fields, and alternative interpretations of its own capabilities. It was a visible step out of the ruinous routine.

This is where the link to collective intelligence becomes particularly visible. Collective intelligence can emerge through the way an organization relates to its environment. New possibilities arise when external signals are allowed to enter the organization and when internal capabilities are reinterpreted in light of those signals (Senge, 1990). Werner Boysen mentioned the idea of an "*osmotic outer skin*" of organizations: observations from outside must be taken in, but they must also be processed. A company becomes more adaptive when it can transform external irritation into internal imagination and coordinated action.

The trade fair also had an internal effect. It sent a signal to the workforce that the company was no longer just defending itself against decline. A path forward was being opened. Employees could see that their expertise was relevant beyond the existing customer dependency. Their knowledge was being requested, not only used for routine execution. This matters because collective intelligence affords more than formal involvement; people must experience that their abilities can contribute to a meaningful future. The generation of new possibilities is therefore also a motivational process.

This moment suggests that organizational resilience cannot be reduced to robustness or damage limitation. *Resilience also involves the capacity to imagine and enact alternative futures*. In a crisis, the most important question may not only be how an organization can survive the next constraint, but how it can *prevent the crisis from defining the limits of its imagination*. In this context, Werner Boysen took up the ideas of Nalebuff and Brandenburger (1996) as well as their concept of "co-opetition": The playing field, the players and even the rules of the game can be influenced by anyone. By returning to the basic capabilities of the company and recombining them with new market conversations, the organization began to loosen its dependency on an inherited strategic frame.

We may read this *expansion of possibilities* therefore as a turning point in the wider argument of this article. Collective intelligence emerges when an organization learns *to perceive* more than threats, *to reinterpret* what it already knows, and *to mobilize* actors inside and outside the organization around possible futures (Figure 3). The decision to seek visibility at the trade fair did not solve the crisis by itself. Its importance lies elsewhere: it changed the field of perception. It made it possible for the organization to see itself again as a source of solutions rather than as a declining supplier trapped in a narrowing role.

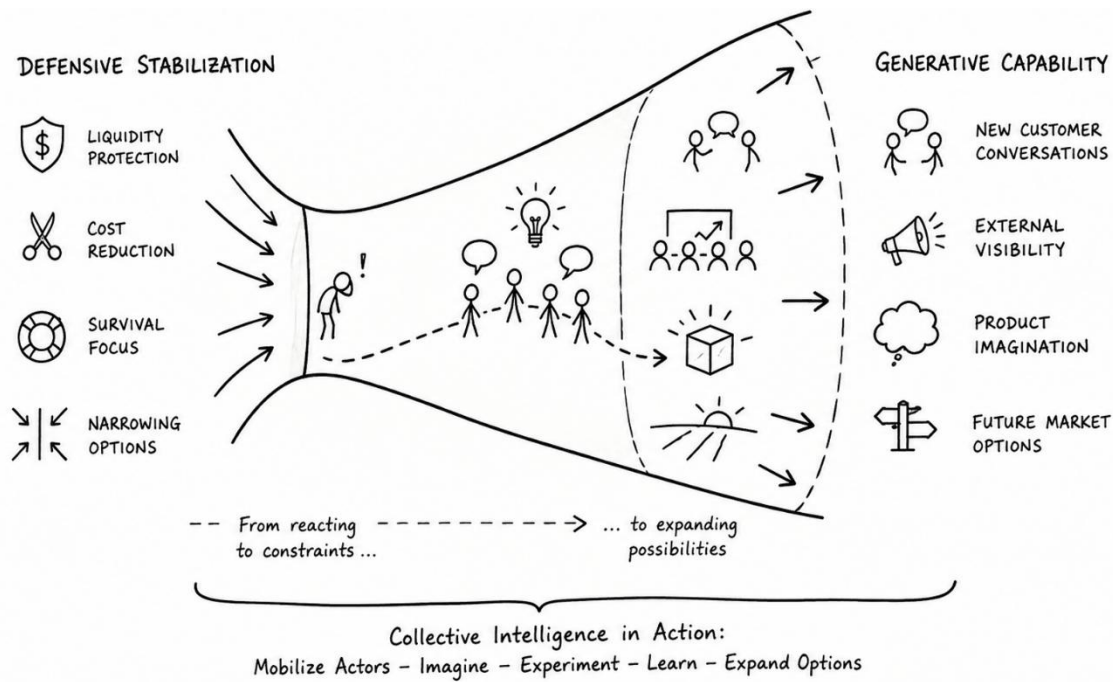


Figure 3. Expanding the space of possibilities under crisis conditions

Moment IV — Distributed Responsibility and Adaptive Coordination

The fourth moment concerns the redistribution of responsibility inside the organization. Once new possibilities had begun to appear, the company still faced a more immediate practical question: how could it act under crisis conditions when not all relevant decisions could be taken centrally? In a restructuring process, situations change quickly, information is dispersed, and many decisions depend on local knowledge. The organization therefore had to become capable of acting where the relevant expertise was actually located.

Werner Boysen emphasized that this required a fundamental **shift in leadership culture**. The workforce had long been accustomed to executing instructions from above. Creativity, initiative, and responsibility had been discouraged or suppressed. Under the conditions of the restructuring, this pattern became untenable. As an interim managing director working only part-time on site, he depended on the ability of employees to run daily operations independently and implement operational improvements without waiting for permanent top-down direction. The organization had to learn to make use of the intelligence that was already present in its own operative functions.

The first step was symbolic and practical at the same time. Employees needed to receive the clear message that their contribution was explicitly required. After decades of different expectations, this was not a minor adjustment. It called for communication, encouragement, visible initiatives, and a new alignment between responsibility and authority. If people are asked to assume responsibility, they also need the decision rights, information, and tolerance for error that make responsible action possible. Otherwise, empowerment remains only rhetoric.

This point is central for understanding collective intelligence in organizational practice. Collective intelligence arises when people are given an orientation toward the whole and are enabled to contribute from their particular position. Werner Boysen's remarks on operational decision-making illustrate this well. During acute liquidity pressure, decisions about inventory, purchasing, production planning, customer deliveries, and cash management could not be optimized in isolation. Each decision triggered consequences in other functions. The necessary intelligence was therefore not located in one central position, but in the coordination among those who understood the practical interdependencies.

From a cybernetic perspective, this recalls Warren McCulloch's principle of the *redundancy of potential command*: in an effective system, control cannot be tied rigidly to one fixed location (McCulloch, 1965). Depending on the moment and the task, those with the most relevant information must be able to shape action. This does not eliminate leadership. Rather, *leadership changes its function*. It provides orientation, clarifies the current situation, creates legitimate spaces for action, and ensures that local decisions remain connected to the overall direction of the organization.

The practical difficulty lies in making this shift real. Werner Boysen observed that employees first need access to the overall picture. Only then can they understand how their own decisions contribute to the restructuring process. Goals must be communicated or negotiated clearly. Responsibilities then become meaningful because they are connected to an intelligible situation. At the same time, responsibility cannot be introduced as an invitation only. In crisis situations, time is scarce. Some employees take up the new scope for action; others remain attached to old routines or avoid responsibility. As Werner Boysen noted:

“And not everyone gets on board. Employees deserve exactly the level of authority they actually exercise. People who do not fully utilize their authority shy away from responsibility. In such cases, it is essential to take a close look and quickly reassign critical roles. Everyone else notices this, too, and realizes that a new wind is blowing through the company.”

In such cases, the restructuring process may also require decisive changes in critical positions.

This gives the discussion of empowerment a sharper edge. In many management contexts, empowerment is presented as a generally positive cultural ideal. In the case discussed here, it was a condition of survival. The organization could not afford a passive workforce waiting for instructions, nor could it rely on isolated “heroic” decisions from the top. It needed coordinated decentralized action. Responsibility had to move closer to the points where information and possibilities are available and constraints became visible.

The link to collective intelligence becomes especially clear in Werner Boysen's later reflection on the concept. He described collective intelligence as necessary for two reasons: first, because he could not be present in the organization at all times; second, because transformation and restructuring continually create ad hoc changes that can often be grasped best by employees at the operational base. A decision to produce particular articles, for example, affects procurement, marketing, order acquisition, warehousing, logistics, and cash management. These activities condition one another. They can be optimized most effectively through ad hoc coordination among the relevant functions. For Werner Boysen, this is collective intelligence *in practice*.

The fourth moment adds an important dimension to this article's argument. Collective intelligence requires feedback and the expansion of possibilities, but it also requires an *organization capable of distributing responsibility without losing coherence*. The challenge is to connect local judgment with shared orientation. Adaptive coordination emerges when people are allowed and expected to act from where they see the situation most clearly, while remaining attentive to the effects of their action on the wider system. In this sense, distributed responsibility is not a soft cultural supplement to restructuring. It is one of the mechanisms through which organizational viability can be restored.

Moment V — Delayed Reactions and Organizational Inertia

The fifth moment concerns the temporal dimension of transformation. Organizations do not only struggle with what to perceive, how to decide, or where responsibility should be located. They also struggle with timing. In a restructuring process, the relevant situation may change faster than the organization's routines, expectations, and interpretations. What was necessary yesterday can become inadequate tomorrow, and what appears inconsistent from the inside may in fact be a coherent response to changing phases of crisis.

Werner Boysen described several such shifts. The first delay concerned the initial response to visible crisis symptoms. As in many other restructuring cases, valuable time passed after the signs of structural, revenue, or earnings crisis had already become evident. Countermeasures were not initiated early enough, or not with sufficient force. *This is a familiar pattern in organizational decline: the system continues to operate according to established assumptions even as its environment and economic situation have already changed.*

A second critical phase emerged when the company entered acute liquidity pressure. At this point, the organization had to change its operating mode almost completely. Production had to become more closely linked to actual orders. Receivables management had to become stricter. Inventories had to be reduced. Overtime, temporary labor, and operational purchasing had to be handled with restraint. These measures contradicted the previously dominant logic of increasing operational output. They were necessary to protect liquidity, yet they required the organization to act against its familiar habits.

Once interim financing became available, the required orientation changed again. The focus had to move from liquidity preservation toward operational performance, contribution margins, and renewed market activity. This shift created confusion among some employees and managers. To them, the change in emphasis could appear as a lack of clear direction. Werner Boysen interpreted it differently: the clear direction consisted precisely in adjusting consistently to the requirements of each restructuring phase. A metaphoric picture he used to illustrate this in the dialogue was:

Just like the automatic control of a double pendulum that must be kept in an upright position using an electric motor, the control input—as manipulated variable—is continuously adjusted.

The difficulty was not the absence of strategy, but the organization's need to understand why (and how quickly) the strategic focus had to change.

This is the cybernetic significance of delayed reaction. Organizations do not respond to signals like mechanical devices (Forrester, 1961). They interpret them through habits, roles, expectations, and prior experiences. Some members may appear to follow the new direction while continuing to act according to the old program. Werner Boysen illustrated this with a remark from another organizational context: a manager whose formal title had changed several times, while his *actual behavior* remained the same. Structural labels may change more quickly than patterns of action.

For this reason, communication becomes a central mechanism of coordinating temporal effects. Necessary shifts in direction should be announced and explained before they are implemented wherever possible. They need to be framed as transitions into the next phase of the restructuring process rather than as arbitrary changes in leadership preference. Even then, *communication has to be repeated*. A new orientation does not become organizational reality merely because it has been stated once. It has to be translated into expectations, indicators, routines, and conversations until enough actors understand what the next phase requires of them (Weick, 1995).

The case also shows how dangerous delayed effects can become when external actors are involved. Werner Boysen pointed to the delayed completion of a restructuring report that was required for financing. The postponement consumed valuable time while liquidity continued to deteriorate. Material purchases were postponed, business volume was lost, and the downward spiral accelerated. Here, the time delay had concrete economic consequences. A technically correct measure may lose much of its value if the organization or its stakeholders cannot bring it into effect at the right time.

From the collective intelligence perspective, this moment adds an important temporal dimension. Collective intelligence requires more than distributed knowledge and open feedback—it also requires *synchronization*. Actors must develop a sufficiently shared understanding of the current phase, the immediate priorities, and the likely next shifts. In a

crisis, the organization needs the ability to change programs without losing coherence. This ability depends on transparent communication, short feedback intervals, agreed indicators, and the willingness to discuss uncertainty openly with those who carry relevant expertise.

Werner Boysen emphasized that leaders should have the *courage to acknowledge uncertainty and develop alternative courses of action* together with competence holders in the organization. This is more than motivational communication. It is a way of reducing adaptation lag. When people understand not only what they are asked to do, but why the organization is moving from one operating mode to another, they can align their local decisions and behavior more quickly. The organization becomes easier to synchronize.

Moment V completes our sequence of reflections by showing that adaptive coordination unfolds in time (Figure 4). Lock-in must be interrupted, feedback must become learning, possibilities must be expanded, and responsibility must be distributed. Yet all of this depends on whether the organization can adjust quickly enough as conditions change. *Viability* is temporal as well as structural. An organization may know what is required and still fail if its collective response comes too late. Conversely, it gains *resilience* when it can interpret changing conditions, synchronize action, and move into the next phase before inertia consumes the remaining space for maneuver.

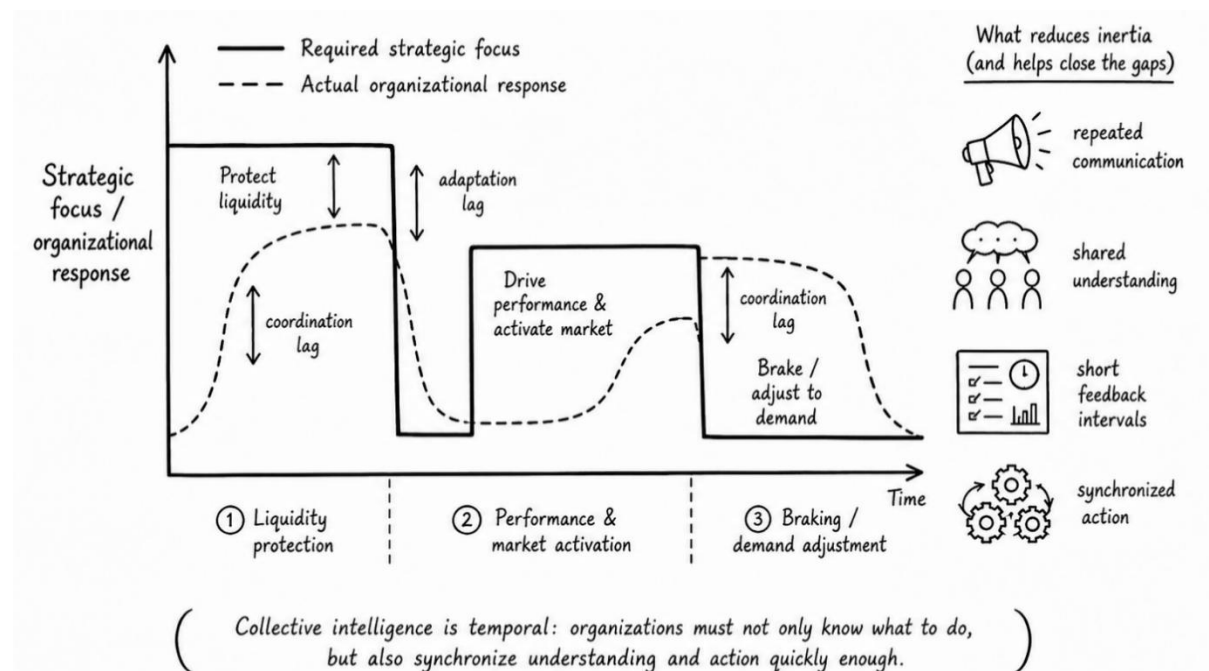


Figure 4. Organizational inertia as delayed collective adaptation

Reflections on Collective Intelligence and Organizational Viability

The five moments discussed above point to a shared insight: organizational viability depends less on centralized control than on an organization's capacity to sustain feedback, learning, coordination, and timely adaptation under conditions of uncertainty (Table 1). A company in crisis does not only need better plans or more determined leadership; it must regain the capacity to perceive its own situation, connect distributed knowledge, coordinate action across interfaces, and generate new options before its remaining possibilities are exhausted.

This has important consequences for how collective intelligence is understood in organizational contexts. Our case shows that many people may perceive a crisis without being able to transform this perception into coordinated action. Awareness alone does not create collective intelligence. It becomes organizationally relevant only when observations can

circulate, differences can be articulated, responsibilities can be assigned, and decisions can be tested against their effects on the wider system.

Table 1. Cybernetic moments and collective intelligence mechanisms

Moment	CYBERNETIC INSIGHT	COLLECTIVE INTELLIGENCE MECHANISM	VIABILITY EFFECT
Lock-In & Escalation	Feedback can reinforce dependency	Shared recognition of systemic patterns	Restores strategic awareness
Feedback & Learning	Dogmatic ‘control’ is not the same as feedback	Distributed interpretation and communication	Enables learning
Expanding Possibilities	Crisis narrows options	Collective generation of new futures	Increases resilience
Distributed Responsibility	Information is local	Empowered decentralized action	Improves adaptiveness
Delayed Reactions	Effects unfold over time	Synchronized sensemaking	Reduces adaptation lag

Werner Boysen’s reflections make this point particularly clear. He described collective intelligence as something that “*does not work without people*,” yet also as something that *has to be initiated, supported, and carried by leadership*. This formulation contains a **productive paradox**. Self-regulation does not simply emerge by itself. It must often be actively stimulated through deliberate managerial action: by creating feedback processes, opening communication channels, clarifying decision rights, and encouraging the organization to use its own dispersed competence. In this sense, collective intelligence is neither purely bottom-up nor purely top-down. It is a *relational capacity* that develops when leadership enables the organization to regulate itself more intelligently (see also Mulgan, 2018).

The notion of “*systemic discourse*” is central here. Werner Boysen uses this term to describe the recurring alignment of expectations and possibilities at organizational interfaces. Such interfaces exist between the company and customers, suppliers and banks as well as internally between the management and the shareholders and between the internal functions such as procurement, production, logistics, marketing, sales, and cash management. At each of these interfaces, actors must continuously compare what is needed, what is possible, what is available, and what consequences follow from a decision. Werner Boysen observed that even a KPI tree, e.g., the DuPont analysis, does not show the exchanges between the involved parties and functions; it only aggregates figures. When these exchanges are blocked, distorted, or reduced to formal reporting, the organization loses adaptive capacity. When they become active sites of negotiation, learning, and coordination, they can generate collective intelligence.

From a cybernetic perspective, this places feedback at the center of organizational viability. Feedback is more than the return of information to a decision-maker; it is the process through which a system observes the effects of its own actions and adjusts its behavior. In the case discussed here, feedback had to be restored at several levels: among external stakeholders, within operational processes, between strategy and execution, and across different phases of the restructuring process. The company became more capable once signals were no longer treated as isolated data points, but as differences that required interpretation and response.

Viability also required the expansion of possibilities. This is where the connection to Heinz von Foerster’s ethical imperative becomes especially important. Acting so as to increase the number of choices is not only an ethical stance; in organizational crisis, it becomes a practical condition of survival. A company caught in dependency, liquidity pressure, and strategic narrowing must avoid becoming defined entirely by its constraints. New possibilities emerge when internal capabilities are reinterpreted, external relationships are reopened, and future-oriented conversations become possible again. The trade fair decision in the case exemplified

this movement. It did not immediately solve the crisis, yet it altered the organization's view and its horizon of action.

Distributed responsibility adds another layer. If information is located throughout the organization, then adaptive action cannot remain concentrated at the top. Operational knowledge must be made available for decision-making, and people must be allowed to act where they understand the situation most concretely. This means that leadership has to create orientation, trust, and legitimate spaces for decentralized judgment (Boysen, 2011, p. 83f.). The organization becomes collectively more intelligent when local expertise can contribute to the whole without dissolving into fragmentation.

The temporal dimension is equally significant. Even when organizations recognize what must be done, they may react too slowly. They continue to operate according to old programs while the situation has already changed. In crisis and transformation, collective intelligence therefore also depends on synchronization. Actors must understand the overall direction as well as the current phase, the immediate priorities, and the reasons why yesterday's sensible behavior may no longer fit today's constraints. Here, communication has to do more than announce decisions. It must help the organization shift its interpretive frame quickly enough to act in time.

Seen in this way, the restructuring process reveals *collective intelligence as an enacted capability of organizational adaptation*. It includes shared perception, but also the courage to name uncomfortable patterns. It requires communication, but also the capacity to turn communication into action. It depends on leadership, yet leadership must enable distributed responsibility rather than suppress it. It uses feedback, yet feedback must become learning rather than defensive reporting. It generates resilience, not by preserving the existing order unchanged, but by keeping the organization capable of producing new options.

This also resonates with the practical meaning of managerial cybernetics. Cybernetics is often associated with simplistic control. In the context of organizational transformation, however, its deeper relevance lies in understanding how systems remain capable of steering themselves through feedback, learning, and agile, coordinated adaptation. The case discussed here shows that crisis becomes especially dangerous when an organization can no longer observe itself effectively, when strategic discourse collapses, and when dependencies are accepted as unavoidable. Conversely, viability can be restored when actors begin to reshape the relationships, rules, roles, and options that define the field in which they act.

In this vein, the connection between cybernetics and collective intelligence lies in the practical question of how organizations become capable of acting together under complexity. Collective intelligence is not a harmonious group property; it is a demanding organizational achievement. It requires structures and cultures that allow differences to be perceived, conflicts to be worked through, responsibilities to be distributed, and feedback to be translated into coordinated action. Under crisis conditions, this achievement becomes visible because the cost of its absence is immediate. Where collective intelligence fails, organizations drift. Where it is enabled, they recover the capacity to intervene in their own development.

Final Remark

From a managerial cybernetic view, crises in organizations are rarely isolated events. They are patterns of interaction, delay, dependency, and constrained perception. Viability, in turn, depends on the capacity to keep these patterns observable and adjustable. Resilience emerges when organizations preserve and generate options, rather than defending the structures that brought them into difficulty. Strategic discourse, feedback, distributed responsibility, and timely coordination are therefore not peripheral elements of management; they are conditions of organizational *collective intelligence*. In this sense, managerial cybernetics succeeds in

acting as a practical language for understanding how organizations learn, adapt, and remain capable of shaping their own future.

References

- Bateson, G. (1972). *Steps to an ecology of mind* (ed. 2000). University of Chicago Press.
- Beer, S. (1981). *Brain of the firm: The managerial cybernetics of organization; companion volume to "The heart of enterprise"* (2nd ed. 1995). Wiley.
- Boysen, W. (2025). *Nachhaltige Bewältigung von Unternehmenskrisen*. Haufe.
- Boysen, W. (2021). *Management-Kybernetik*. Carl-Auer.
- Boysen, W. (2011). *Kybernetisches Denken und Handeln in der Unternehmenspraxis*. Gabler.
- Brandenburger, A. M., Nalebuff, B. J. (1996). *Co-opetition*. Booz & Company.
- Foerster, H. von (1995). Ethics and second-order cybernetics. *Stanford Hum. Rev.*, 4(2), 308-319. <http://portal.acm.org/citation.cfm?id=212154.212248>
- Forrester, J. W. (1961). *Industrial dynamics*. The MIT Press.
- McCulloch, W. S. (1965). *Embodiments of mind* (ed. 2016). The MIT Press.
- Mulgan, G. (2018). *Big mind: How collective intelligence can change our world*. Princeton University Press.
- Senge, P. M. (1990). *The fifth discipline: The art and practice of the learning organization* (rev. ed. 2006). Crown Business.
- Weick, K. E. (1995). *Sensemaking in organizations. Foundations for organizational science*. Sage.
- Wiener, N. (1948). *Cybernetics: Or control and communication in the animal and the machine* (1st ed. 1961). The MIT Press.

About the Authors

Werner Boysen is a management consultant, interim manager and author working at the intersection of managerial cybernetics, restructuring practice, and industrial transformation. He is Managing Director of BlueMomentum Consulting GmbH, an internationally active consulting firm focused on earnings improvement, stabilization, restructuring, and transformation of industrial companies and industry-related service providers. His work combines technical, organizational, and economic perspectives, drawing on his background as a mechanical engineer, M.Sc. in Data Communication Systems, Executive MBA, Dr. rer. pol. in Business Administration, and Master of Business with AI (MBAI). Since 2001, Dr. Boysen has supported companies in advisory and interim executive roles, particularly in mechanical engineering, automotive supply, metal and plastics processing, and industrial services. He has published twelve professional books with renowned publishers, most recently *Nachhaltige Bewältigung von Unternehmenskrisen* with Haufe Group (2025). He serves as professional member of the Editorial Board of *Collective Intelligence Perspectives*.

Author Email: werner.boysen@bluemomentum-consulting.com
ORCID iD: <https://orcid.org/0009-0007-9648-9662>

Sven-Volker Rehm is a scientist whose work lies at the intersection of collective intelligence, artificial intelligence, systems science, and socio-technical systems design. He is Founding Director of the CAIR Institute and affiliated with WHU – Otto Beisheim School of Management. For more than 25 years, his work has examined the interplay of technology, communication, and

organizing across organizations, platforms, business ecosystems, and societal contexts. His research focuses on how coordination and inference shape collective reasoning and decision-making, and on the design of informational, communicative, and technological conditions for collective adaptation and governance. He has led major European research projects in collaboration with industry and public organizations. Dr. Rehm is Co-Founder and Editor-in-Chief of *Collective Intelligence Perspectives* and serves on editorial boards, including *MIS Quarterly Executive*. His academic background combines studies in engineering cybernetics, a doctorate in engineering in the field of information systems from the University of Stuttgart, and a habilitation in business administration from WHU.

Author Email: sven.rehm@whu.edu

ORCID iD: <https://orcid.org/0000-0002-9785-6707>

Received June 22, 2026; revised manuscript accepted by Senior Editor Andreas Gröbler on June 29, 2026 (editorial review).

© 2026 The Author(s). This open-access article is distributed under the terms of the [Creative Commons Attribution 4.0 International License \(CC BY 4.0\)](#).

Collective Intelligence Perspectives

ISSN 3055-7615

ci-perspectives.org

Published by the **Society for Managerial and Social Cybernetics**

Gesellschaft für Wirtschafts- und Sozialkybernetik (GWS)

gws-kybernetik.org