VDA SYS 2025

Talk: Limits of Processes and Increase of Creativity, Innovation, and Productivity

Processes can become a bottleneck too. What else do we need?

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1 Basic Notion of the Talk

AutomotiveSPICE (ASPICE) has a long and successful history, and its development remains active. (AutomotiveSPICE4.0) The focus continues to be on the professionalization of technical processes. However, it is becoming increasingly clear that there are areas that processes alone cannot address.

The current key challenges in the industry—creativity, innovation, and productivity—cannot be solved solely through processes. In fact, processes can sometimes act as a brake, hindering progress. (Bandura1977)(Brafman2006)(Brooks1975)(Brown2018)(Drucker1966)(DeMarco1999)(…)

Two key perspectives help frame this discussion.

First, when we examine development activities, they all fall under the umbrella of "knowledge work." However, there are fundamental differences within this category. A significant portion of development requires craftsmanship—strong technical skills, well-established methodologies, structured processes, and effective tools. This is the domain of maintenance: the work is clearly defined, and the focus is on execution—doing it right.

For this type of work, processes are the ideal support mechanism because they address the largest share of effort. In software development, up to 80% of the total workload is spent on maintenance. (Basili1996)(Kitchenham2002)(Lientz1978). Given this reality, it is both logical and necessary to focus on optimizing these processes.

However, when we talk about new development, we enter a completely different paradigm—one where we are doing things that have never been done before. There is no established roadmap, no predefined processes, and no clear guidelines. Instead, we are in the realm of exploration, experimentation, and discovery. Stepping in new realms. Which always includes learning. Failing, recovering, improving, trying again. While good principles can guide this process, the core of creativity remains a "black box" in engineering disciplines. Here, neuroscience provides valuable insights. Creativity is well understood, but it can only be influenced indirectly. (Beck2013)(Clark2020)(Damasio1999)(deBono1990)(Kahneman2011).

Creativity, innovation, and transformation do not follow procedural or algorithmic approaches. They resist rigid control. That is why they are often treated as an unpredictable "black box." However, we can make progress by borrowing from other disciplines. A useful analogy comes from Cleanroom Software Engineering, where we move from a **Black Box** (where we simply hope creative magic happens) to a **State Box** (where we can measure the internal state of creativity) and then to a **Clear Box** (where we can indirectly define internal structures to support creativity to emerge). (Kaur2011)(Linger1993).

The current draft of an assessment model incorporates both State Box and Clear Box elements, marking the early steps in a new approach.

The creativity we still treat as a **Black Box** in ASPICE actually appears on three levels: **Why**, **How**, and **What**. The **Why** represents the vision for a new product or feature—what comes before requirements. The **How** hides creativity within architecture and design (SYS.3 and SWE.2 + SWE.3). Finally, the **What** applies creativity to the implementation itself, as seen in SWE.3.

In short, we require creativity and innovation at three key stages—concept, architecture/design, and implementation. Of course, not every task demands creative input; sometimes, execution is purely mechanical. But often, the more creativity and innovation we integrate, the better the outcome.

Yet, due to this blind spot in our traditional models, we tend to favor "mechanical" solutions, which ultimately become bottlenecks rather than accelerators. The challenge now is to systematically recognize, measure, and increase creativity where it matters most, without constraining it through outdated, rigid structures.

Secondly, complexity also resists a procedural or algorithmic approach. There is a reason why environmental recognition shifted from algorithmic methods to AI years ago. The same principle applies here.

If we look at the Cynefin model, we identify two major “problem spaces”: complexity and chaos. However, I would argue that chaos should be considered a variant of complexity. This would align better with the mathematical foundations of chaos theory. From a systemic perspective, though, they remain distinct categories.

In the context of cybernetics and systems theory, the left and right sides of the model represent different forms of the same fundamental concept. However, according to the principle of **non-reducibility** of complexity, we cannot simply transition from one to the other. (Delorme2011)(Turner2019)

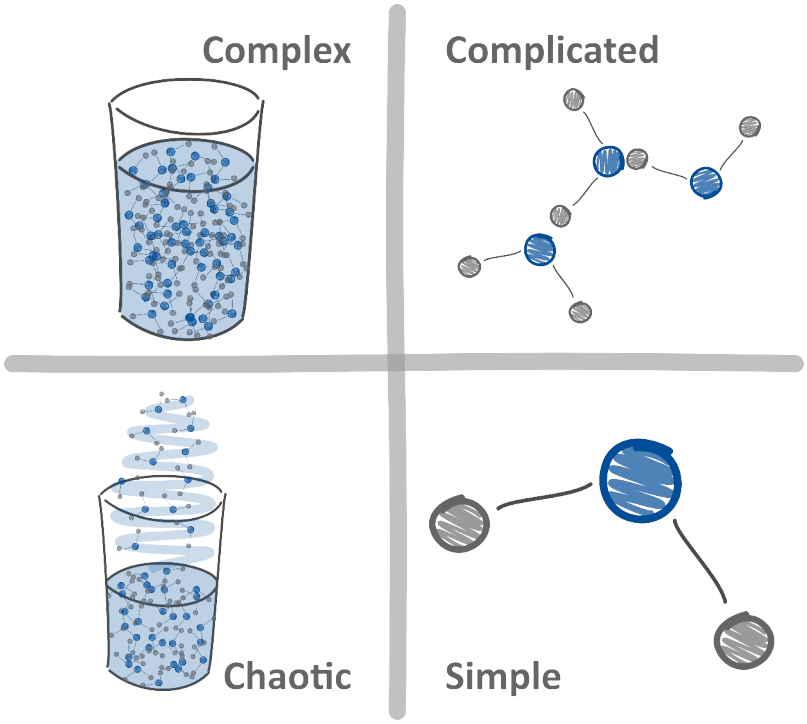

Figure 1: An interpretation of the Cynefin model (Kurtz2003). Here, however, based on water: the same element in different forms. Complexity is given here by the interaction of very many simple elements, which in principle cannot be modeled (Heisenberg uncertainty relation). Chaos is the enhanced version of complexity, where system boundaries become fuzzy.

We have around $8{,}4x10^{24}$ molecules in one glass. If we look at all humans on the planet right now, we have just $8{,}2x10^{9}$. All humans wouldn't even be a single drop. (Or we would need a trillion planets to get the number of humans as we have H_2O in one glass of water.) So while we can never model or control the inner state of the system (glass oof water), it’s easy to predict and control system behavior. And that’s the change in the mindset (perspective, worldview), we need.

Traditional algorithmic approaches, however, required exactly that—breaking complexity down into complicated approximations or partial solutions. While this method allowed for some level of replication, it ultimately failed to capture the full depth of complex systems.

The key insight is that complexity can only be addressed with complexity. Just as AI introduced complexity into the solution space rather than attempting to reduce it, we must stop trying to simplify problems that are inherently complex. Any attempt at reduction strips away essential system properties. (Delorme2011)(Turner2019)

What applies to products also applies to processes and organizations: we need to expand our approach to include a complex solution space.

The good news? We already have the necessary tools. We just need to use them. To transform our **Black Box** into a **Clear Box**, we draw from an interdisciplinary toolbox: neuroscience, psychology, sociology, cybernetics, systems theory, organizational theory, and even management theory.

This is why it's essential to understand how we can expand ASPICE assessments to include these additional aspects. The professionalization achieved through the implementation of ASPICE in the industry has been unparalleled. Now, it's time to take that vision to the next level. Professionalization without fostering an innovative culture, the right mindset/worldview, and collaborative abilities leaves vast potential untapped. (Sutton2014) (Tamm2005)(Wiseman2017)

The so-called "soft factors" are complex from a systems theory perspective. But they are also part of our brain —governed by **Limbi** (the limbic system), which functions differently than the neocortex. That doesn't mean we have to leave these parts to chance. (Damasio2010)(Kahneman2011)(Weinberg2001)

Just as processes have systematized command chains and elevated them to a new level, we can systemically systematize these "soft factors." While this is already happening in some places today, it remains a project for the future. (Christensen1997)

And as we have done the paradigm shift from chain of command to processes years ago, we enhance our worldview with the next paradigm shift: moving from a controled and direct approach, to the indirect approach of creating, measuring, and improving environments that enhance the probability for creativity, innovation, and transformation. Productivity on the next level.

If we are truly serious about productivity and innovation, we cannot bypass the human element. (Brown2018) In 10 years, integrating these aspects will likely feel completely natural to all of us.

2 Storyline of the Talk

The concept behind the talk is to explore the foundations of collaboration, taking as the path to the assessmetn model. The talk dives into the essential elements—**neurology, sociology, psychology, cybernetics, and organizational theory**—to uncover the prerequisites for true collaboration.

The art lies in optimizing these models for **practical utility**. After all, they must not only be accessible to assessors but also comprehensible to everyone within the organization. Only then can they serve as effective tools for fostering collaboration and driving meaningful change.

We start with organization theory, dive into neurology, before we take a look into psychology. Then a little bit management theory, before we come to sociology. This might seem random, but has a deeper logic, because even if they all are different disciplines, they all are interwoven. And we need all of them. This excerpt for the talk is not complete, but gives a stable foundation.

2.1 Forms of Organization: Puppeteers, Processes and Collaboration

When organizations are founded and start to grow, there's usually a "lead animal." Someone with a vision who gathers followers. This is a perfectly healthy and natural process.

But as growth and success take hold, the neocortex inevitably steps in and starts rebuilding Rome. (Laloux2014) (Sennett1998b)(Schumpeter1942) **How else can we ensure that everyone does what they're told?** So, we install a chain of command. This creates the image of officers (the command structure) and foot soldiers who do the actual work.

The logic is simple: "I think and direct; others execute." This is the "puppet master" organization, where intelligence resides with the puppet master and must be passed down as cleanly as possible. The focus here is on controlling the "what" – what each element of the organization is supposed to do.

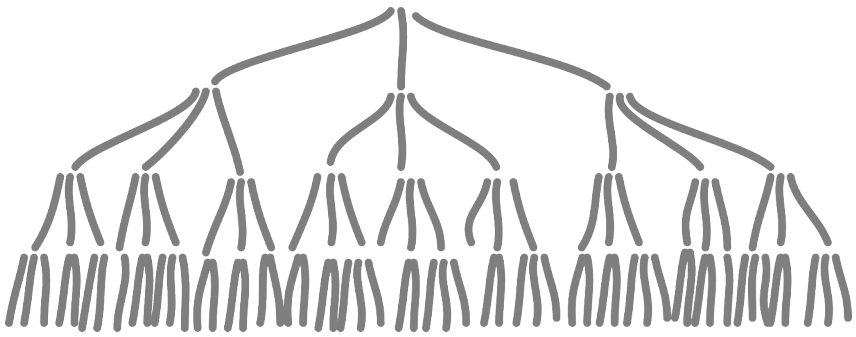

Figure 2: Puppeteer structure. The chain of command thrives on having little disruption and friction. However, this is the biggest problem in practice today. Interference in every form (especially additions and reinterpretations) and overlapping with one's own interests, which is ultimately not recognizable because the review is carried out via the same channel. There is no independent check.

The next evolutionary step came with the realization: "I can't possibly know everything. Why not let experts handle the details?" Enter the process-driven organization, where intelligence moves into the processes themselves. The chain of command is replaced by process structures, which encapsulate the "how" (and inherently the "what"). Management shifts to resource allocation and dispatching, becoming more of an assistant role.

If you've encountered process-driven organizations in practice, you'll have noticed something peculiar: the chain of command often remains, and the processes feel artificially imposed or patched on. It's what software engineers would call a "balcony"—a poorly integrated add-on. It increases friction instead of creating harmony.

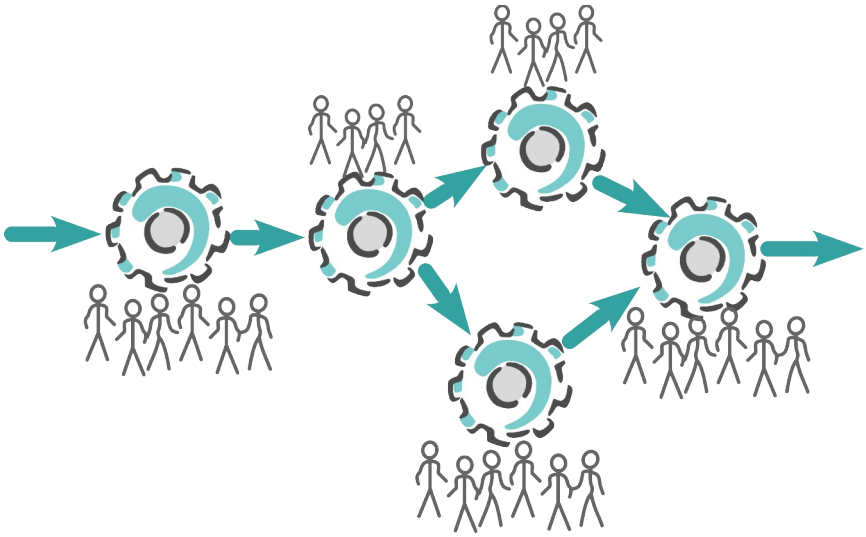

Figure 3: The process organization is super productive and much less sensitive to disruption and friction. As long as there is no parallel chain of command.

Let's return to the puppet master's eternal question: "How can I ensure that everyone does what I say?" The answer isn't more control; it's **alignment**[1]. What if everyone understood where we're heading and what we're aiming to achieve? Then everyone could contribute meaningfully.

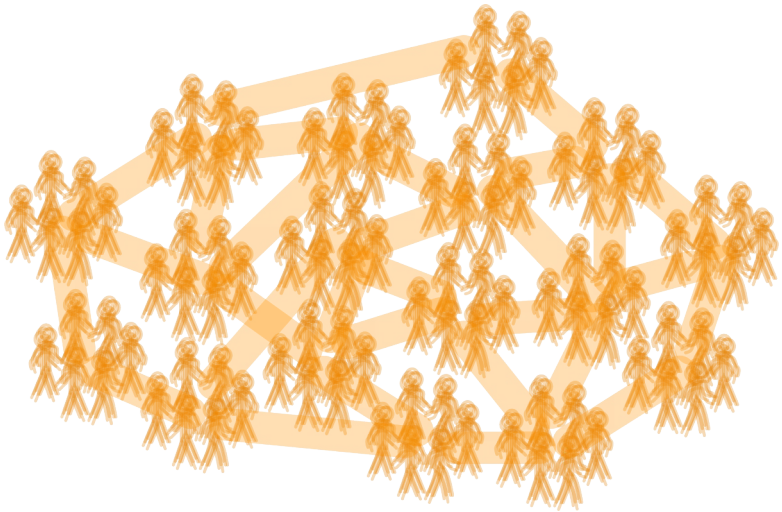

Figure 4: Sketch of a complex organization. We have connections between creative nuclei. This is about teams coming into a superimposed state. We get collaboration at the expense of individual performance, because that no longer exists.

This is the essence of collaboration. We build a network of relationships (a swarm of packs) and focus primarily on the **internal state of the organization**. When this inner state is strong, the organization works cohesively and effectively. In this model, neither the "what" nor the "how" is controlled. Instead, the focus shifts to **outcomes**. Are we collectively answering the organization's "why" or "what for"? Beyond that, no single leader can dictate solutions anymore because, in complexity, no one brain holds the perfect answer.[2]

1 As a side note: The notion of alignment was included in the early versions of ISO 15504 TR.

2 This is easy to proof by contradiction: Let's assume *x* is part of the system and we assume it's possible to have the whole system in one head. Therefore, *x*'s head would need to include all of x, which leads to a recursion (see also Russell's Paradoxon)

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The biggest hurdle to collaboration today lies in the overlapping nature of solutions—teams that combine thematic focus with deep expertise. While this may seem challenging for traditional organizations, it's a standard concept in systems thinking. In true collaboration, people genuinely work together—not just from their neocortex but also engaging the **limbic system**, the part of the brain responsible for social intelligence.

In this collaborative mode, a team can be viewed like a car. We'd never evaluate a car by testing its individual parts separately. No car review begins with, "The performance of the rear right tire was subpar, so we fired it." No single part can represent the car as a whole; they only function together.

And this is the cognitive leap we must make to move from the "potato field" of task-based work to true collaboration. It's time to stop managing pieces in isolation and start enabling the collective intelligence of our teams.

We invite you to contribute your insights and research on these evolutionary shifts in organizational design. Let's explore how we can break free from traditional hierarchies and process-driven structures to unlock the full potential of collaboration.

Romans

A few more figures on the hierarchy, if we follow the concept and figures of the Romans.

- Up to 80 persons in the organization 1 level (O1) is sufficient, up to 800 2 levels (O1-O2) are sufficient, up to 8000 3 levels (O1-O3) are sufficient, up to 80,000 4 levels (representation; O1-O4) are sufficient, up to 800,000 5 levels (O1-O5) are sufficient.
- 80 and above: all Ox (all officers = management) are 14% of the people; the lowest level (here O4) is ~13% and the level above (here O3) ~1%; all other levels are only 0.13% of the people
- *Flat hierarchies should be well below these figures, both in terms of levels and the number of people.*

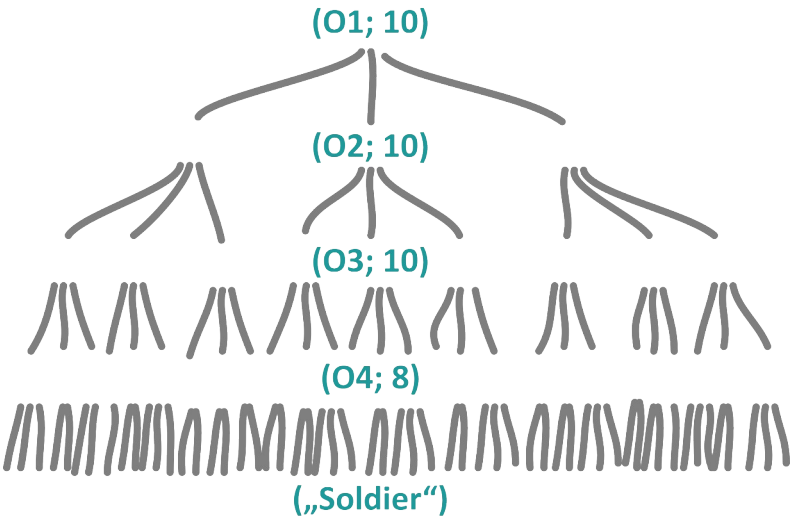

Figure 5: Here is a schematic representation of an organization with up to 80,000 people. There should always be 10 connections per level.

Two things we should see and pay attention to in the picture:

- We have two worlds: The officers (Ox) and the soldiers. We have the concept wherever there are CxOs.
- The lower O-levels are parking lots. The probability of getting to the top is very low. That's why most organizations on the upper levels are not as slim as the Romans. Which is doubly expensive.
  - More high salaries
  - More disruption (bottlenecks, friction, uncertainty, politics) in the chain of command (Shannon1949)

2.2 Brain and Fear

We cannot grasp the rest without first understanding the neurological foundation. (Aamodt2008)(Beck2013) (Beck2016)(Hüther2001)

Our brain's primary goal is to keep us "safe." In this context, safety means simply staying alive. Happiness and similar concepts are secondary, even trivial, to this primal function. From this perspective, our brain is remarkably simple: if you are alive, everything must be working fine.

This logic makes perfect sense in an environment where saber-toothed tigers lurk around every corner. But today, the world has evolved, and while real dangers still exist, our brain continues to rely on assumptions that no longer align with our reality.

In many ways, this simplicity is a good thing. We are safer now than at any other time in human history. However, the existential threats of the past also fostered a sense of unity and cohesion that is often absent in today's context.

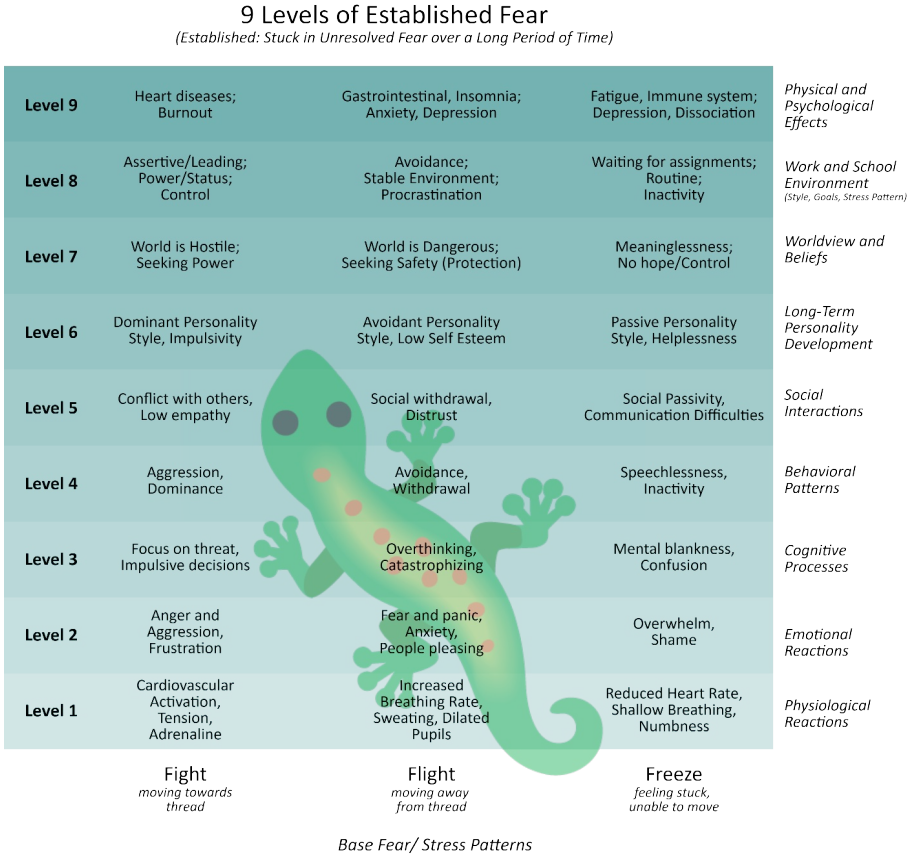

Figure 6: How the Gecko shows itself. Much of what we see as personality traits or types are actually fear patterns.

Our brainstem (or "reptilian brain," which we'll call the **Gecko** for a lighter analogy) is constantly on the lookout for danger. It kicks in when we find ourselves in a situation that neither our limbic system (Limbi, responsible for emotions and social structures) nor our neocortex (the part we usually mean when we talk about the brain) has a ready-made response or program for.

> Of course, our brain is much more complex, with many additional parts that are interconnected, and the boundaries between these three "clusters" (Gecko, Limbi, and Neocortex) are not rigid. However, for simplicity's sake, we work with this model of three primary functions: the Gecko for fear and survival, Limbi for emotions and social bonding, and the Neocortex for conscious thinking.

Back in the days of saber-toothed tigers, the Gecko took immediate control. It had to—those were life-or-death moments. Interestingly, even then, humans couldn't face such predators alone. We needed our "pack" to survive, to sleep safely, to fight effectively. This shared existential threat forced trust and cooperation. The "safe space" we built against external threats had to be non-negotiable because the alternative—losing trust—would mean death. This underscores a critical fear embedded in our biology: losing our pack equals existential peril.

Today, life is vastly safer, yet we find ourselves retreating behind metaphorical walls. We isolate ourselves, become self-reliant, and avoid dependency. However, because our brain still equates a lack of social cohesion with existential danger, our Gecko continually checks in with Limbi, asking, "Are all relationships solid? Is the pack intact?" If Limbi detects uncertainty—signals of dishonesty, instability, or mixed messages—it sends the Gecko into stress or panic mode, taking control.

This dynamic highlights the first challenge to rationality and the "humans = machines" assumption: the Gecko. While Gecko, Limbi, and Neocortex often collaborate, the Gecko is the gatekeeper. It assesses whether Limbi or Neocortex has an "app" (a pre-existing response program) for the current situation. If such an app or program (basically a habit) exists, the Gecko gladly hands over control. (Duhigg2012) But when it doesn't—especially in emotional situations—Gecko stays in charge.

The 9 levels of fear patterns reveal a critical issue: our Limbi often lacks the necessary programs for many situations because we suppress and fail to develop it. This is why emotional regulation is so essential—an undervalued and misunderstood skill. Suppressing emotions grants them more control over us. Letting them flow unchecked also gives them control. True emotional regulation means consciously perceiving and using emotions, allowing Limbi and Neocortex to work in harmony.

When these two systems—Limbi and Neocortex—are out of sync, problems arise. For instance, if we try to suppress Limbi, it resists and rebels. Since Gecko and Limbi process information before forwarding it to the Neocortex, any suppression leads to incomplete or distorted information reaching our rational brain.

Research overwhelmingly shows that these systems—emotional and rational—need each other to function optimally. Both must be developed and integrated. This is why recognizing fear patterns (Gecko) is so valuable, especially for individuals trapped in them for extended periods.

Another flawed assumption of rationality is that we are always operating in our best state. The reality is far different. Emotional and fear-driven mechanisms often disrupt rational thinking, making it vital to understand and work with—not against—our inner systems.

2.3 Worldviews

Worldviews often feel esoteric in the business context—more like wellness ideology than a critical component of strategy. Especially in times of crisis, it's easy to dismiss such ideas as luxuries we can't afford. But let's pause for a moment. This skepticism echoes the early days of AutomotiveSPICE (ASPICE). Back then, many leaders clung to their belief in command chains as the only way to ensure control. Those who embraced process-driven methodologies, however, understood that ASPICE was a game-changer—and it was.

Yet, even today, many organizations are stuck in a hybrid state. They hold onto command chains while attempting to adopt process-oriented systems, leading to conflicting control structures and increased friction. Despite these challenges, the mental shift ASPICE initiated has significantly shaped the way we think about management over the last two decades. Now, it's time to extend that shift to our understanding of worldviews.

And because the community was always ahead of time, it will be easy.

To bring worldviews into a more technical discussion, think of them as models. They are, like any model, simplifications of reality. They help us navigate complexity but are inherently limited and imperfect. A picture of a meal isn't the meal itself, and similarly, our worldview isn't the world. It's a construct we rely on to interpret, predict, and respond to our environment.

Figure 7: What part of the world can we see and process?

This is not a flaw; it's a necessity. We cannot access or process all available data, so we focus on what we perceive and what we deem relevant. The quality of a worldview, then, doesn't lie in its accuracy but in its utility.

Characteristics of High-Quality Worldviews

A high-quality worldview meets at least four critical criteria[3]:

1. **Explanatory Power**: It explains the past and present while enabling meaningful predictions about the future.
2. **Robustness**: While it simplifies reality, a good worldview can integrate new data without collapsing or requiring a complete overhaul.
3. **Utility**: Its primary purpose is to maximize the solution space—the range of actionable possibilities. A worldview that leaves us helpless or inactive has limited value.
4. **Adaptability**: A strong worldview grows and evolves, allowing us to continuously expand our capacity for action without frequent reconstruction.

Our brain plays a central role in shaping our worldview, and it operates on some very straightforward principles. Its primary goal is survival, not happiness or fulfillment. As long as you're alive, your brain assumes it's doing a good job. Needs like relationships, joy, and meaning are secondary considerations.

This survival-first programming made sense in a world full of existential threats, but it's less suited to our modern environment. Despite the relative safety we enjoy today, our brains still operate as though danger is imminent. When we perceive a lack of security—whether physical, emotional, or social—our brain locks us into patterns designed to keep us alive, even if they limit our growth.

3 You will note that "correctness" and "closure" is not part of it. All models (from complexity) are wrong by definition. So we need to solely focus on usability. If it's useful is the driving question. Which is close to the definition for intelligence: Intelligence is "Learning, Adapting, and Anticipating for System Survival and Success."

Generational Renewal

Adapting to a changing world requires us to regularly test and update our assumptions. This is where adolescents play a vital role. Between the ages of 12 and 25, the brain undergoes significant rewiring, allowing younger generations to question established norms and adapt to emerging realities.

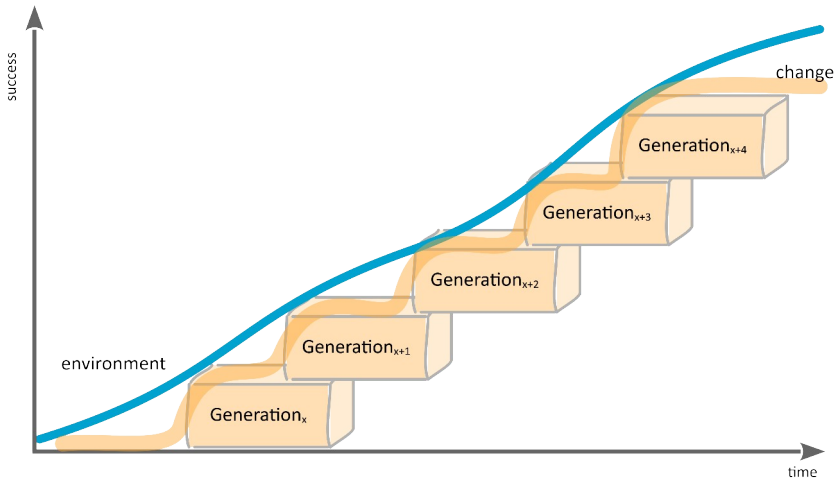

Figure 8: The ideal. Each generation sees the next as a gift. We build on each other. And become more intelligent as a collective. So better adapted.

This natural cycle ensures that societies remain dynamic and responsive to change. However, when we treat teenagers as passive recipients of tradition, telling them “this is how we’ve always done it,” we stifle innovation. As a result, societies lose their capacity for renewal, becoming stagnant and disconnected from current realities.

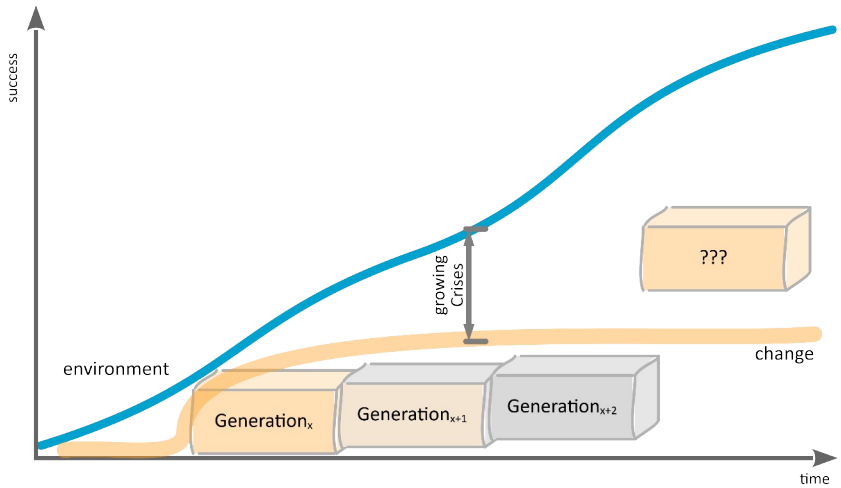

Figure 9: An image for a reality: We are keeping the next generations small. We want them to copy us and not be more intelligent than us.

Designing Functional Worldviews

The good news is that worldviews are not static. They are models we can actively design and reshape to serve us better. However, when we unconsciously inherit dysfunctional worldviews, they can severely limit our potential.

This is especially true in the context of mental health. Conditions like depression and narcissism often stem from specific, rigid worldviews—neural patterns that dictate how we process information. While these patterns can be changed at any age, doing so later in life requires significant effort. Recognizing the malleability of worldviews early on allows us to avoid these entrenched cycles.

Trauma is a prime example of how rigid worldviews can trap us. It creates loops, freezing parts of us in past situations and replaying them whenever triggered. These patterns are logical from the brain's perspective: they represent strategies that have "worked" in the past to ensure survival. However, they often come with immense emotional pain and limit our ability to adapt.

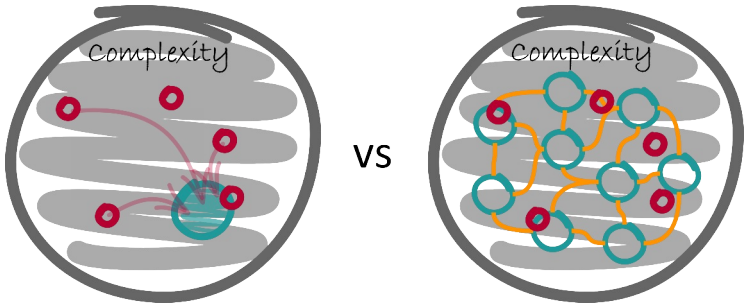

Figure 10: Dealing with challenges and problems in real complexity. I have to try to map the actual events in my model. Some things are then "far away" or get lost. This is where the distributed model has a clear advantage.

Breaking these loops requires active effort to reframe our worldviews and create new, healthier patterns. This is where curiosity becomes a critical tool. By adopting a mindset of discovery, we shift from replaying familiar scenarios to exploring new possibilities.

Curiosity functions as a meta-worldview, replacing fear as our primary driver. It encourages us to see gaps in our understanding not as threats but as opportunities for growth. This shift expands our solution space, making us more adaptable and resilient.

A functional worldview doesn't eliminate fear; it integrates it. Fear can be a helpful warning system, but it should not dominate our decision-making. By balancing caution with exploration, we create a model that maximizes our capacity for action.

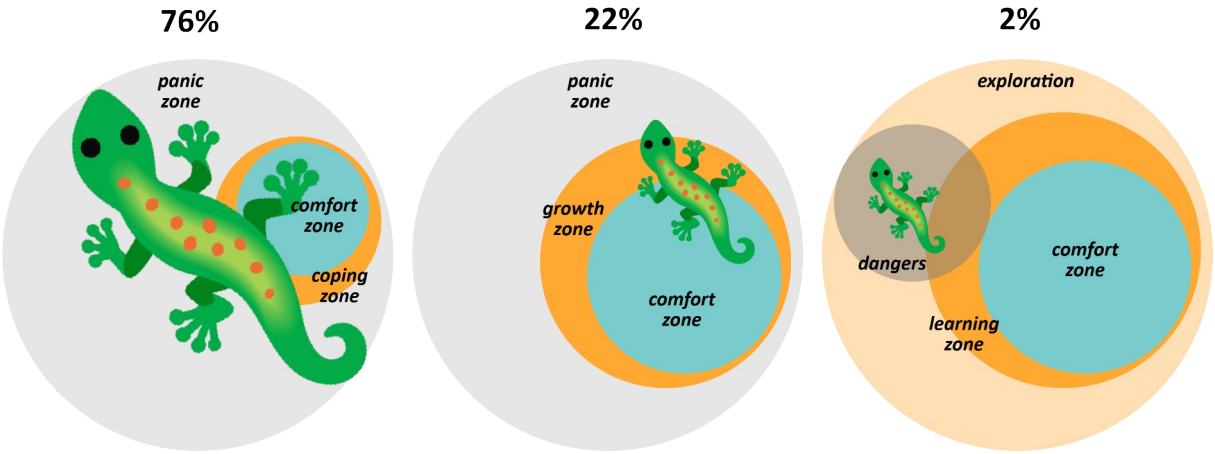

Figure 11: Different worldviews, all based on the comfort zone model.

When we examine our comfort zones, we see how different worldviews shape our lives. A fear-based worldview traps us in cycles of pain and survival. In contrast, a growth-oriented worldview allows us to embrace challenges and uncertainty as opportunities for discovery.

Functional worldviews are grounded in curiosity and openness. They acknowledge the existence of danger but focus on exploration and learning. This mindset not only enhances our resilience but also enables us to build models that adapt and expand over time.

Ultimately, the choice is ours. We can remain confined by outdated, limiting worldviews, or we can actively design models that empower us. By fostering curiosity, adaptability, and collaboration, we unlock new possibilities—not just for ourselves but for the organizations and communities we're part of.

Worldviews are not abstract, esoteric concepts; they are practical tools with profound implications. The sooner we embrace their potential, the better equipped we'll be to navigate the complexities of our modern world.

2.4 Steering

Leadership can vary widely depending on the type of organization and the focus of the leader. What exactly is being managed, and toward what goal, shapes the nature of leadership itself. Let's break this down into three archetypes: the **Boss**, the **Babysitter**, and **Authentic Leadership** focused on systemic functionality.

The Boss: Traditional Management

The **Boss** represents the traditional model of management. People are viewed as mere tools to achieve goals. This is often a puppeteer-like mode of leadership where employees are expected to do exactly what the Boss says. Ideally, from the Boss's perspective, employees would act as clones of the Boss, perfectly understanding and executing their directives.

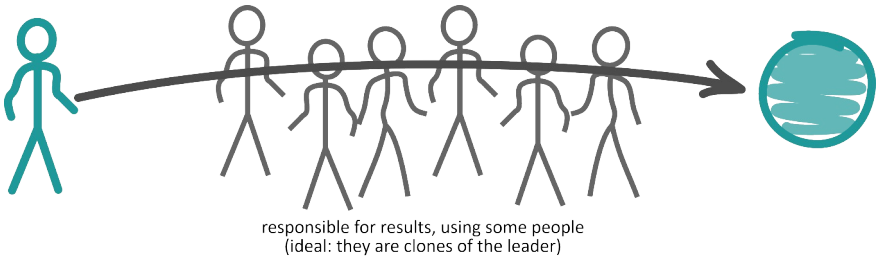

Figure 12: Boss mode

When the Boss has clear goals, strong decision-making, and the ability to communicate well, this approach can work effectively in structured environments. For example, this model thrives in settings like skilled trades, where the traditions of guilds have carried forward. The Boss leads small groups with clear roles, and expectations are explicit.

Even a poor Boss can form a stable team—sometimes using a negative unifying mechanism, such as a shared enemy. This dynamic is often observed in military basic training, where the struggle against a harsh environment or authoritarian figure can bond individuals. While this mechanism fosters cohesion, it's rooted in negativity and rarely builds trust. It can create stability, but it doesn't necessarily result in growth or strong collaborative dynamics.

However, this model, while functional in certain contexts, starts to falter when the complexity of work increases. At its limits, this type of leadership can become inflexible, overly hierarchical, and unable to adapt to the needs of modern teams.

The Babysitter: Overcompensating for the Boss

The **Babysitter** sits at the opposite extreme of the leadership spectrum. In contrast to the authoritarian Boss, the Babysitter focuses entirely on the emotional well-being of the team. While the intention is to empower the team to take ownership of results, Babysitters take on an unhealthy sense of responsibility for each individual's internal state.

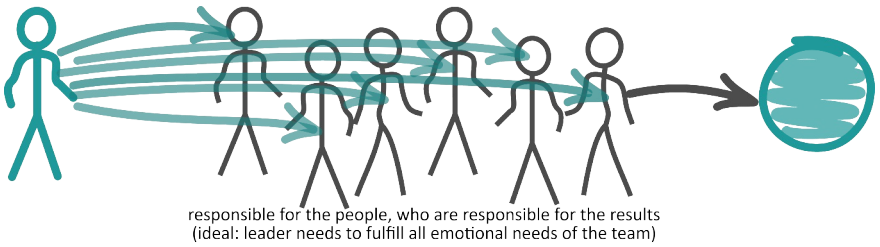

Figure 13: Babysitter mode

This dynamic often arises when leaders treat their teams like children—unable to differentiate between *wants* and *needs*. Babysitters attempt to fulfill every request or demand, often bending over backward to accommodate their teams. They absorb every "50 things you must do as a leader" list, striving to check every box but succeeding at none.

What's missing here is true responsibility and clarity. Babysitters sit awkwardly between roles—neither leading effectively nor empowering their team to self-manage. The result is weak, inconsistent leadership that often feels needy or aimless. It's exhausting for everyone involved, and unsurprisingly, it doesn't work.

The Babysitter's approach often stems from an overreaction to the Boss model. While aiming to avoid the pitfalls of top-down authority, Babysitters inadvertently create chaos, lack of structure, and diminished accountability.

Authentic Leadership: Building Functional Systems

True leadership lies not in controlling or overcompensating but in building **functional systems**. Authentic leaders focus on creating self-contained, independent, and complete systems that allow their teams to thrive without constant intervention. This approach shifts the focus from individual performance to **systemic performance**.

Functional systems provide what no single person could. They distribute responsibility and resources across the organization, preventing leaders from becoming bottlenecks. Instead of trying to do it all themselves, authentic leaders design environments that empower individuals to work collaboratively and effectively.

The core shift here is moving from a mindset of top-down, single-leader brilliance to systemic intelligence. By thinking in terms of systems rather than individual heroics, leaders can achieve far more.

For instance, rather than trying to solve 50 different issues themselves, authentic leaders create systems capable of handling those 50 demands as a collective. This approach fosters resilience, adaptability, and productivity while also lightening the burden on leadership.

Figure 14: Leadership is system building. Of functional systems.

Both the Boss and Babysitter models represent limitations in leadership thinking. The Boss over-relies on command and control, assuming all intelligence and decision-making reside at the top. The Babysitter sacrifices structure in favor of hyper-individualized care, creating a chaotic and unsustainable environment.

Authentic leadership, by contrast, is rooted in **systems thinking**. It recognizes that no single leader can carry an organization on their shoulders. Instead, the leader's role is to design and maintain a system where collaboration, accountability, and resilience thrive.

This shift in focus—from top-down control to systemic functionality—reflects the realities of modern organizations. Complexity demands that we move beyond the limited frameworks of traditional leadership and embrace a more holistic, sustainable approach.

By prioritizing systems over individuals, leaders can create environments that are not only productive but also humane. This is the key to unlocking the full potential of teams and organizations, enabling them to meet the challenges of the present and the future.

2.5 Collaboration

This provides many of the foundational elements for genuine collaboration, enabling us to achieve a “collaborative” state within the system. (Cross2016)(Hansen2009)(Markova2015)(Tamm2005) At the systemic level, collaboration means building complex systems that can effectively handle external complexity.

Cybernetics teaches us something crucial about complexity: when a system is faced with external complexity, its internal complexity must match that level to respond effectively. This is why we advocate for leadership systems wherever external complexity plays a significant role.

The good news is that social systems are inherently complex. While business management education often teaches us to reduce complexity, the principles of cybernetics show that this is not always the best approach. The solution to complexity already exists within our organizations. Our task is simply to ensure we don’t destroy it.

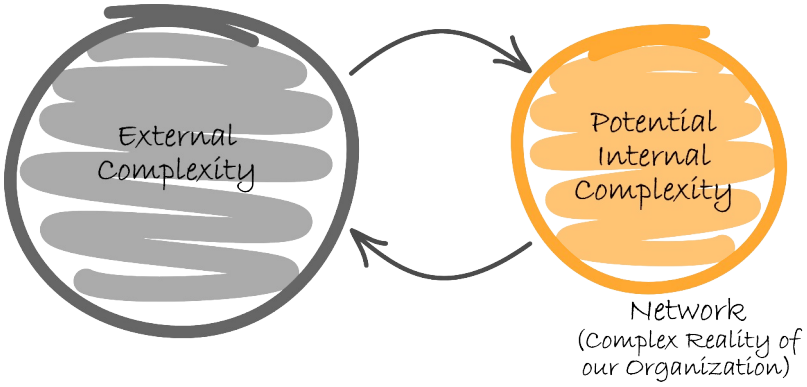

Figure 15: The answer to complexity is (potentially) already in the network in every organization.

If we attempt to address external complexity with management systems, we’re using a “dumb” tool. It’s like trying to use a cotton ball as a drill. Cotton balls aren’t bad; they’re just meant for something entirely different.

One critical point: any effort to reduce complexity by isolating individual elements from their context damages the system. Nobody would give a brand new car for a test in a magazine in it’s single parts. How should evaluate anyone the behavior of the car studying it’s parts?

We emphasize this repeatedly because it’s a common mistake. This “reductionist thinking” (or systemic stupidity) is deeply ingrained in how we operate, which is why we stress its importance so often.

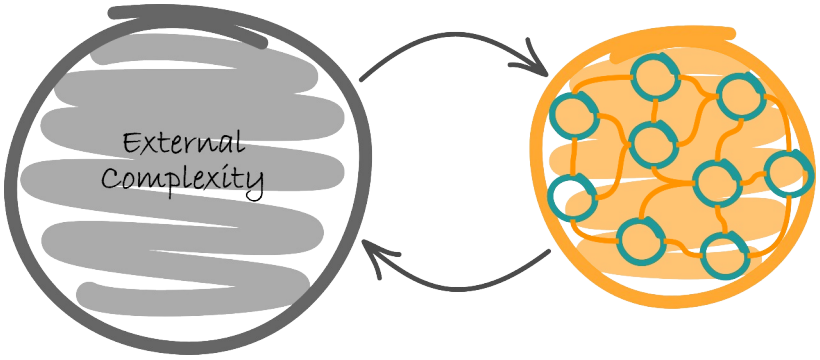

Figure 16: An intelligent clockwork tries to cover as much of the network as possible. However, it leaves the reaction to complexity entirely to the network. The model is no longer a limitation at all.

Management systems condense internal intelligence into a small model, often reliant on a single person. For certain purposes, this can work. However, when faced with significant external complexity, this approach becomes a problem, as the solution space is too limited to address the challenges effectively.

With this understanding, you will start to see the problems and challenges in organizations from a new perspective. It becomes clear that many issues are self-inflicted, arising because the model defining the solution space is too small, leaving us blind to better possibilities.

Uncertainty

Another crucial tool in the world of complexity is the concept of uncertainty. In complex systems, precise predictions are nearly impossible, so we must learn to live with a degree of ambiguity.

We borrow the term “uncertainty” from quantum mechanics, but the idea translates well to human and social systems. Chaos theory is also highly relevant in this context. Chaos theory provides mathematical descriptions of systems, revealing that while much of these systems are stable, certain edge areas can be unstable and chaotic. These marginal zones are particularly susceptible to the so-called butterfly effect.

Management systems often focus solely on the stable parts of a system, losing touch with the broader reality. In leadership systems, however, we must ensure that we consciously observe everything—including the 99% stability—while staying mindful of the areas that might become unstable or chaotic.

This is why we recommend explicitly modeling sharpness or fuzziness. A simple scale from 1 to 10 suffices. The goal isn’t to find an absolute value but to reflect consciously on the level of certainty or uncertainty in any given area.

In our templates for change initiatives and projects, this reflection is a fundamental component. For every aspect and decision, we assess how confident we are that we’ve understood things correctly and that the client fully grasps what is being done. By identifying potential zones of chaos or surprises, we can prepare better and respond more effectively.

This perspective also shifts how we view mistakes. In complexity, there are no guaranteed predictions. We don’t always know how a system will respond to change. As a result, we focus on learning. Exploration demands courage and curiosity. While we don’t intentionally seek to break things, we must acknowledge the inherent risks. Above all, we aim not to miss obvious opportunities.

Interference from People

Because relationships and trust are invisible, we often rely on analogies to make them more tangible. A fitting analogy can be drawn from physics, specifically interference. What happens when two people interact?

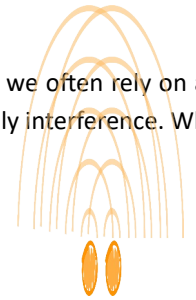

Figure 17: Model of interference - contact - between two people.

Imagine two stones being dropped into water, each creating ripples. These ripples—our "waves"—spread outward and sometimes intersect. At these points of intersection, called interference points, the waves amplify or complement each other. These are the moments when we inspire one another, feel close, or connect on a deeper level. This dynamic is what holds the internal network of relationships together.

Figure 18: Simple model of interference with several people. We can easily imagine that we can no longer determine and represent this complexity in reality. We can prevent or minimize it, but then it is dysfunctional. The art is to allow this complexity, to promote it and to be sure that it serves the goal.

Now, consider a team of six people. Even just counting the potential interference points within this group would be a complex task. These moments of connection are fleeting and unpredictable. This is why it is essential to create systems that make such moments easy and frequent to occur. Beyond that, there is little we can control. We must trust the system to do its work.

2.6 Productivity

Let's apply our model and see if it meets the criteria for quality. Can it explain observations? Does it provide a broad solution space?

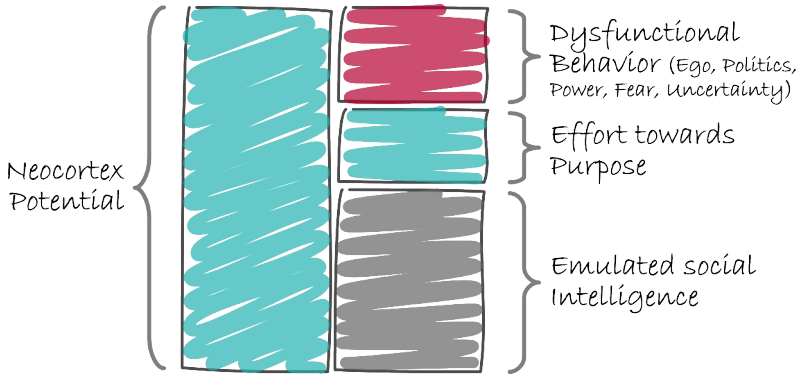

Figure 19: The status quo in organizations. Here the agile variant.

If we examine the status quo of traditional management and its corresponding organizational structures, we see that they are entirely designed around the Neocortex. This focus begins in early education: we are told and taught how to act, everything is consciously structured. As a result, our Neocortex develops the corresponding competencies, allowing us to slip into predefined social roles effortlessly.

Even when pursuing our personal interests, we follow the same pattern, trapped in these endless loops. This means that a significant portion of our cognitive resources is already blocked. Only 10-20% of our Neocortex's potential remains available for truly goal-oriented tasks.

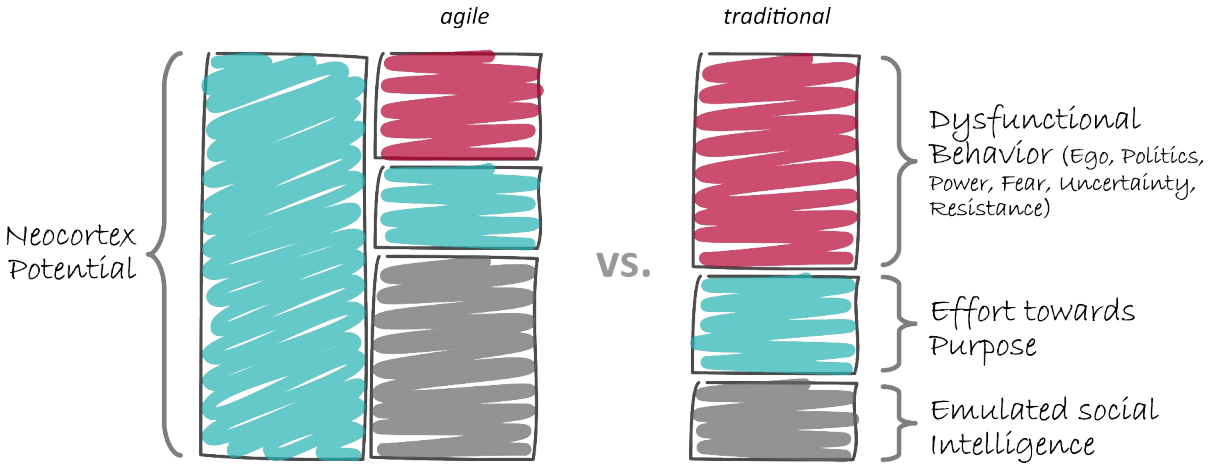

Figure 20: Traditional and agile organizations have the same limitations and problems. Just a different distribution.

This is no different in agile environments, unless the culture and structure have fundamentally changed. In fact, in some cases, agile frameworks can be even more challenging because the social expectations are significantly higher. While we might observe less dysfunctional behavior, simply switching to agile—through the application of methods alone—does not necessarily lead to real change. The underlying worldview remains largely unchanged, and patterns of fear are not dissolved.

Traditional fear-driven mechanisms may be weakened, but they are often replaced by new social pressure. Yes, there is less politics and ego-driven behavior, but the shift is not inherently liberating.

This is precisely why we took a detour through various sciences—to gain new tools that expand our solution space. Until now, our systems have been limited to the Neocortex. But what happens when we incorporate Limbi (the limbic system) and superposition, meaning social and systemic intelligence?

Let's recall: The individual parts of a car cannot drive. But once they are assembled and interconnected, the car moves as a single system. This integrated state, the **superposition** of all elements, is what we call systemic intelligence—when we stop breaking things down into small, controllable parts and instead recognize the whole system's emergent capabilities.

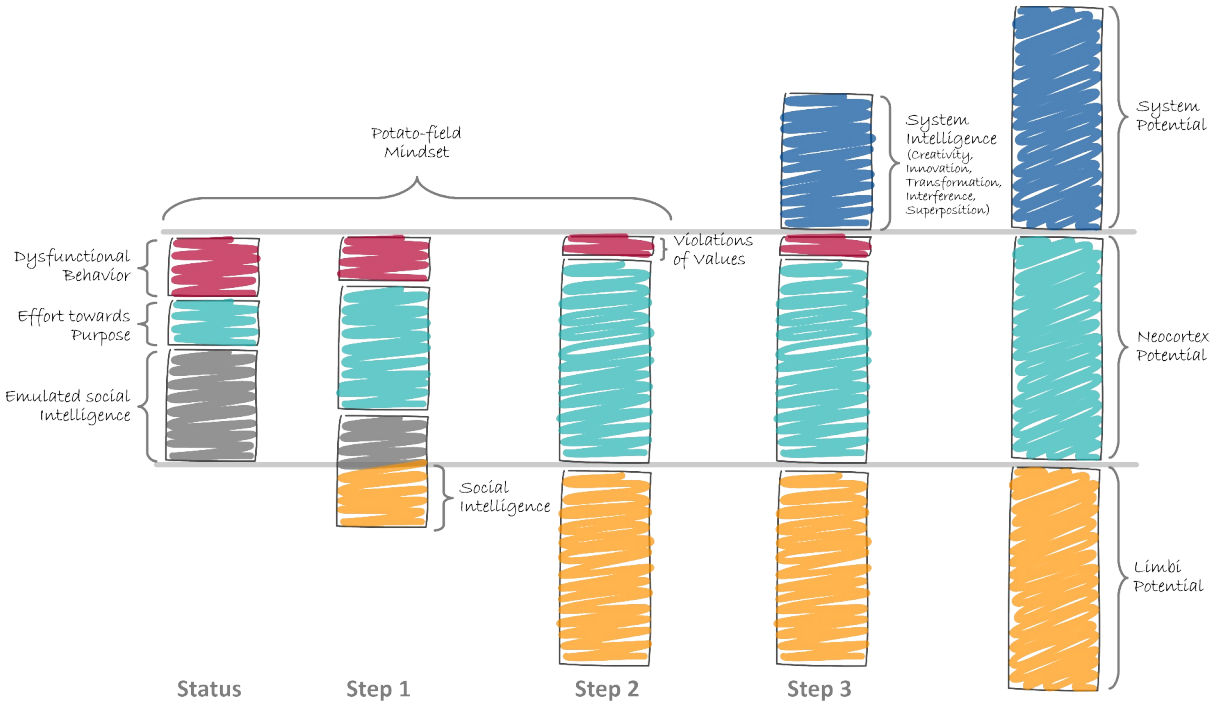

Figure 21: The gradual development of the various forms of intelligence. We will never reach "full potential", but it is about continuous learning. Nevertheless, we can expect a 300% increase in productivity over the first few years.

To extend this metaphor: Most HR and management tools would disassemble the car into its individual components, evaluate each part separately, and completely overlook the vehicle's actual purpose. They would never develop the vision of a car—neither in management nor within the system itself. The system would see itself as a collection of separate parts, constantly comparing and evaluating itself.

Instead of focusing on what is truly possible, the system would be trapped in the question: "Who is the most important part?"

This problem is not caused by reality but by our worldview. And that is exactly why we leave this perspective behind.

Productivity = Time?

This section focuses on how we measure productivity. In simple terms, what are we actually paying people for? Is it output, outcome or just the hours they spend at work? Naturally, we often refer to "working hours," but what does that really mean? We also know that actual productive time can vary significantly from the hours clocked in, depending on the environment. In some cases, only 20–30% of working hours are genuinely productive. The rest is spent on setup time, inefficiencies, or other friction losses.

The classic metric, of course, is time. We trade time for money. This concept works well in certain contexts—on a potato field, for example. It also applies effectively in many areas of skilled labor and similar fields. However, this highlights the importance of understanding the type of organization we are dealing with so that we can select the right tools and metrics for measuring productivity.

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Let's revisit the organizational models. In the puppeteer framework, the essence lies in issuing clear instructions that cascade down the chain of command for people to execute. Another critical element in this model is the provisioning and distribution of resources. This centralized approach makes sense for certain types of work but quickly falls short in environments where creativity, innovation, or autonomy are necessary for success. Recognizing these distinctions is essential if we are to modernize our understanding of productivity and develop systems that align with the realities of today's workplaces.

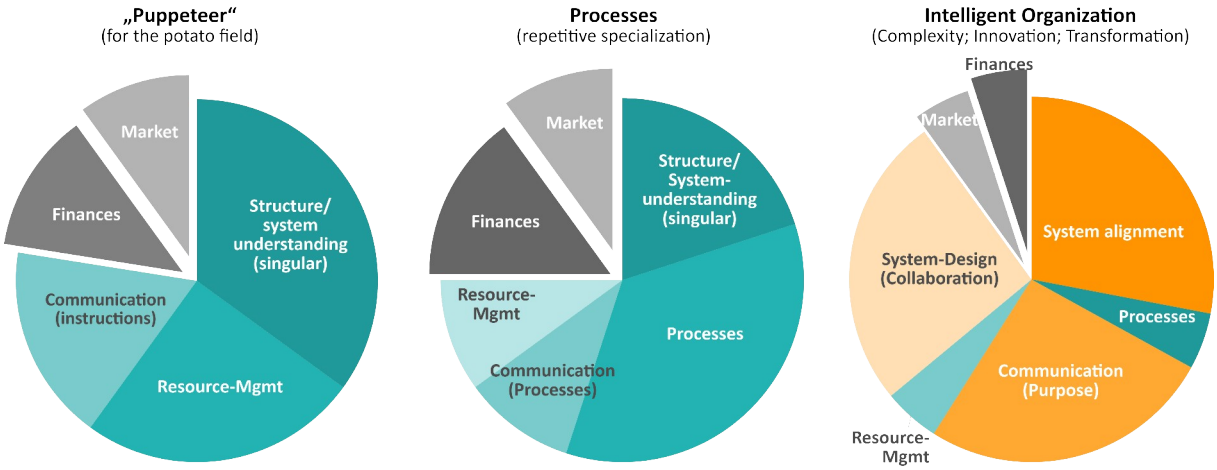

Figure 22: Leadership/management requirements in the various organizational forms

In process-driven organizations, we've already seen a shift. The command chain has been replaced—or at least significantly reduced—by processes. This evolution represents an important step, but the truly intelligent organization looks fundamentally different. Its focus is on alignment (purpose), the communication of that purpose, and designing systems that enable genuine collaboration.

This shift also fundamentally changes the competencies required of employees. In puppeteer or process-driven organizations, the intelligence resided in the central control—the command chain or the processes themselves. The workforce, the executing forces, could afford to be relatively unskilled or simply trained to follow instructions.

> This is also why so many critiques of the school system have emerged. Public schools were designed to produce "simple machines"—individuals capable of functioning within the needs of a command-driven organization. This was precisely what the puppeteer model required. While these systems still work to some extent for process-driven models, they are increasingly unsuitable for today's challenges.
>
> The underlying assumption has always been that innovation comes from the top. Creativity and innovation are seen as the responsibility of the "elite"—whether that's the nobility in historical terms or the "officers" in an organization's hierarchy. Let's not forget the "O" in C*O (CEO, COO, etc.) stands for "officer," a term deliberately chosen to distinguish these individuals from the common "soldiers" below them. This outdated model fails to harness the full creative and innovative potential of the entire organization, and addressing this gap is critical as we move forward.

This approach meant that presence and obedience were the primary requirements. As long as those were in place, everything worked. Manual labor, after all, depends on physical presence, and the limiting factor for productivity is the number of movements that can be executed within a given timeframe. The underlying idea was simple: the human being as a minimally intelligent and programmable machine.

But now, what happens when we need to shift intelligence to the "workers" or "soldiers" because they are the only ones with the expertise to solve increasingly complex problems? Then we need to rebuild everything from the ground up, and this is where we've fallen short. This oversight explains why we struggle so much with value creation, productivity, innovation, and transformation. Our outdated structures and worldviews actively slow us down.

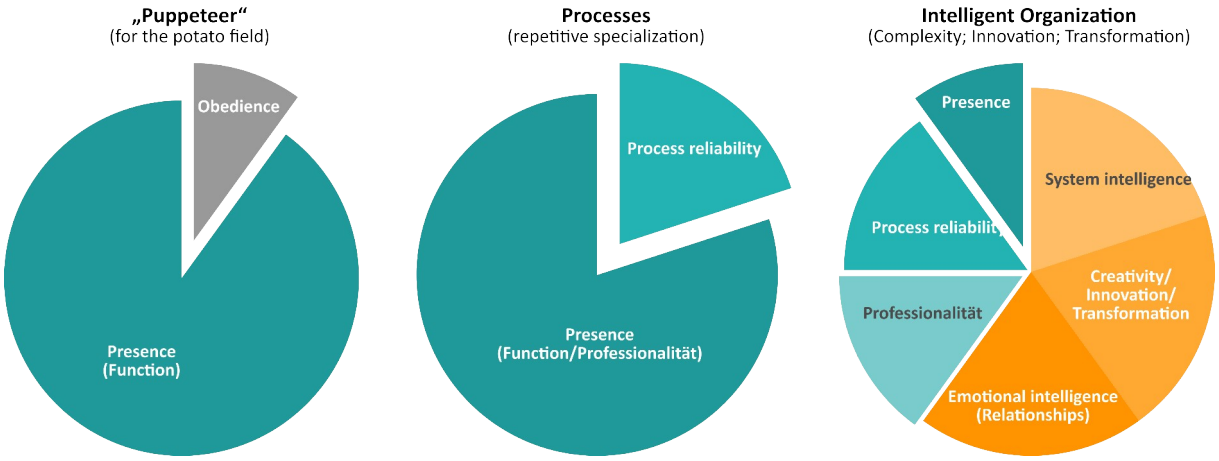

Figure 23: Anforderungen an Mitarbeiter in den verschiedenen Organisations-Formen (Bild: D/E)

When the economy faces challenges, the instinctive reaction is to call for more pressure and control—essentially doubling down on the “potato field” model instead of fostering innovation and productivity. But how do we measure these new priorities? How do we measure intelligence, creativity, or innovation? On which levels and dimensions can we differentiate creative solutions? What makes one innovation more innovative or one transformation smarter than another? None of these concepts can be measured in terms of time.

And how do we account for the moments when the best ideas emerge? Perhaps they come while showering in the morning or jogging in the evening, or even in the middle of the night. These breakthroughs don’t fit neatly into traditional work schedules. Even our legal frameworks are rooted in the “potato field” mentality. A quick glance reveals how deeply this thinking pervades everything, and this is one of the biggest obstacles to societal progress.

It’s worth noting that the “potato field” approach can still exist within an intelligent organization, particularly in areas where physical presence remains critical. However, whether the effect is truly as significant as we think is debatable. The real advantage lies in treating people as human beings. Psychologically, growth only happens when there is space and light to thrive. Yes, we’ve all encountered individuals who seem, to put it bluntly, “too dim to breathe.” But this, too, has a backstory.

We should focus on outcome—whether it’s manual or intellectual. Both are valuable, but they function differently. Manual work is measured in movements; intellectual work relies on internal intelligence, or what we might call “the brain’s own AI.” While we can observe and manage manual labor, we cannot directly control internal intelligence. Instead, we can create favorable conditions for it to flourish. This lack of direct control has always been a thorn in the side of the “puppeteers.”

But what if we tried something new? This doesn’t mean abandoning simple structures where they still work, but perhaps we could take a more human-centered approach. It might just open the door to a better way forward.

2.7 Assessment

All models are flawed. We've learned this from discussing worldviews and understand it through systems theory. The models we are working with are neither complete nor entirely accurate, but they are incredibly useful. They are designed to provide insight into the key topics we must address when building organizations that truly foster collaboration. As with any scientific endeavor, multiple disciplines interact here.

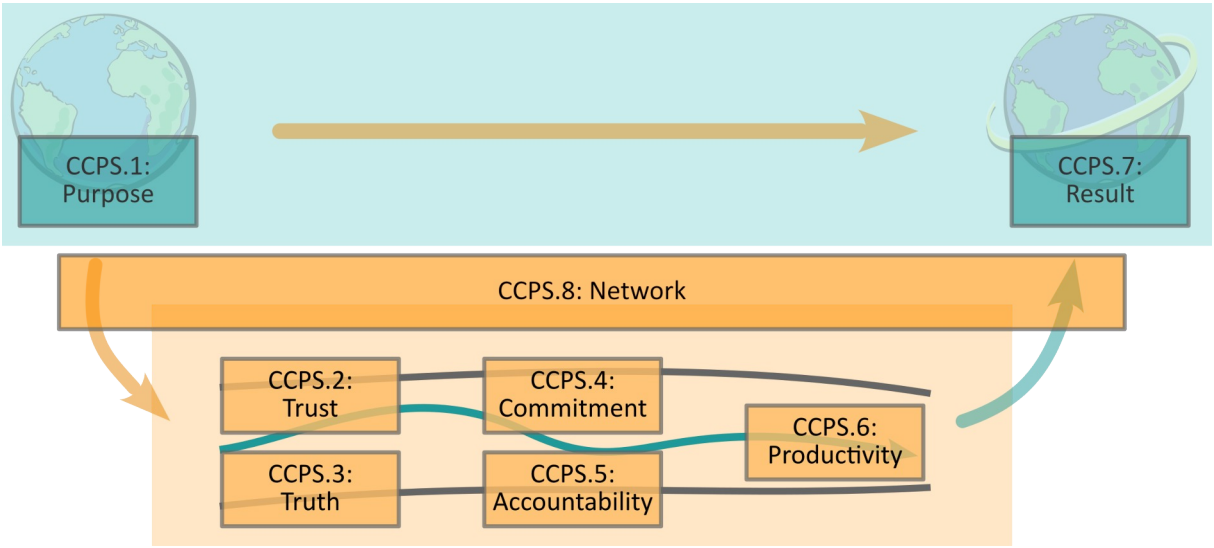

Figure 24: Basic model of the Assessment Model for Collaboration and Organizational Intelligence

The model used for assessments aims to be comprehensive enough to reliably identify the most critical issues. At the same time, it must remain as streamlined as possible, ensuring that assessors can rely on foundational understanding and common sense. Drawing inspiration from ASPICE, we aim for a framework that can be conveyed within a week. Just as ASPICE can develop competent assessors without requiring them to hold a degree in software engineering, this extended model should offer similar accessibility.

To achieve this, we focus on incorporating essential elements of psychology, neurology, sociology, organizational theory, and systems theory—presented in a way that anyone can grasp. This simplicity benefits not only assessors but also the application of the assessment itself, particularly in gap analysis and improvement measures. Everything needs to be clear and comprehensible, both for immediate application and long-term organizational growth.

One of the most significant challenges in developing and refining this framework over the coming years will be striking the balance between depth and accessibility.

In the talk, the goal is not to present all eight processes in exhaustive detail, as that would be neither engaging nor practical. Instead, the focus will be on providing illustrative examples and, more importantly, offering a vision of how tailored variants could look across Levels 2 through 5. This ensures that the concepts are both relatable and actionable for participants, bridging the gap between theory and practice.

So some examples (see https://orgiq.org/wp-content/uploads/2024/09/OrgIQ_AssessmentModel_v05.pdf for the current draft; CC 4.0)

Process ID
CCPS.1
Process Name
Managing Purpose
Process Purpose

Give clear direction in form of purpose. The purpose needs to be clear and simple enough that everyone has valid information and direction, to make all decisions serving the purpose.

Note: The purpose can be decomposed down to team or personal level. The purpose is to connect all people to work together in one direction.

The purpose should give the clear indication why this system exists, without restriction on the how the system operates. This is one of the tasks of the system to find out and permanently adapt. The purpose must also transport and cover the values.

Note: For everything that comes after this, we need the values to create (psychological) safety.

Process Outcomes

1) Define and communicate the purpose.

2) Provide purpose on all relevant levels.

3) The purposes are consistent and linked. All conflicts are avoided or removed.

4) All steering and management relies on the existence and application of the purposes.

5) The system has an internal validation that communication focuses on the purpose.

6) The communicated and understood purpose allows the handling of all operative decisions.

Process ID
CCPS.2
Process Name
Building Trust
Process Purpose
Create an environment that trust is build and constantly growth. With high levels of trust we create a safe space, where we can collaborate in a way that handles the complexity.
Process Outcomes
1) Understand and practice respect, authenticity, and forgiveness. 2) We understand how to support each other. We know what's best for the system, and we act this way. 3) We connect open as human beings. This includes also our personal life's. 4) We ask for help and offer help. 5) We have a fast and direct communication, especially with difficult (personal and emotional) topics. 6) We practice a mindset of gratitude for each other and what we achieve.

Process ID
CCPS.3
Process Name
Truth

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Process Purpose
Create and environment that truth can be spoken and lived. Concerning every topic we want to find the best way to achieve the purpose.
Process Outcomes
1a) You as a person are always safe. The personal worth is never in discussion. But all opinions, perspectives, ideas are. 1b) We allow every thought. Only the purpose decides if a thought is useful and productive. Paradigm change is welcome, if the purpose benefits. 2) Meetings are useful and productive. We also address and solve difficult (emotional/DSS) issues. 3) We have patience with each other, out of respect and the attitude to „listen to understand“. This is how we build relationships (see, hear, understand, touch) 4) We practice a learning attitude/mindset. Challenge new thoughts open and early. 5) Provide and apply methods and techniques for decision making, providing the best quality decisions.

...

Process Attribute ID
PA 2.1
Process Attribute Name
Environment Creation Management Process Attribute
Process Attribute Scope
The environment creation management process attribute is a measure of the extent to which the creation of the (safe & collaborative) environment is managed.
Process Attribute Achievements
1) Clear vision for practices and values leading to a defined OrgIQ-Objective. Note: Which environment do we need, to see the expected level of DSS/OrgIQ? 2) Investment in practices and values is planned. 3) Learning and application of practices and values is monitored and adjusted to meet the planning. 4) Needs for resources (coaching, PT DSS) and the time to learn and practice DSS are determined. 5) Needs for space and tools to live practices and values are determined. 6) Basic training is given to meet the planning. 7) Physical resources for performing the practices and values are identified, made available, allocated and used. 8) Connections between all involved and affected parties are visualized. We rely on the same vision. Note : It includes “translation” from the old world to OrgIQ-Perspective and back.

Process Attribute ID
PA 3.1
Process Attribute Name
Environment Definition Process Attribute
Process Attribute Scope
The environment definition process attribute is a measure of the extent to which a standard environment is maintained to support the deployment of the defined environment.
Process Attribute Achievements
1) A clear vision and a OrgIQ-Objective for a standard environment for new habits, practiced values and applied DSS is developed, established, and maintained. It includes fundamental elements that are needed to create and establish a smart environment. 2) The purpose and results of the environment are defined. Note: The OrgIQ value might be a practical tool for this. 3) People and competencies for creating and maintaining the environment (for the new habits, practiced values and applied DSS) are defined in the standard environment. Note: Especially the values are relevant for the psychological safety. There should be a competent internal or external unit that monitors ll breaches (value violations). 4) Tailoring guidelines for deriving an environment from the standard environment are defined and maintained. 5) All infrastructure needs are defined as part of the standard environment. 6) Suitable methods and required activities for monitoring the effectiveness, suitability and adequacy of the (applied) environment are determined.

2.8 Summary

Process frameworks and process assessments have been a revolutionary step away from the command-and-control model, enabling a level of product quality that was previously statistically unattainable—unknown, even unimaginable. These approaches are well understood, widely adopted, and proven to work (Deming1986) (ISO330xx)(AutomotiveSPICE4.0)(CMMI2020).

However, processes also have their limitations. There are systemic constraints, and beyond that, the world has evolved in ways that demand broader perspectives—including a growing emphasis on mental health (ISO45003)(Edmondson2018)(Clark2020).

When we design organizations, we operate within a complex landscape of multiple, often contradictory requirements. In some cases, we can manage this complexity effectively by defining subsystems or partial solutions, abstracting complexity away, and shifting it into Black Boxes.

Yet, there is immense value in bringing creativity, innovation, and transformation out of the Black Box and into the Clear Box, allowing us to expand our toolkit when needed. We start to build complex solutions for complex challenges.

The process community was the first to envision a future that, at the time, was unthinkable. It borrowed from other disciplines, integrated statistical methods, and built something new—a system that changed industries.

Now, it’s time to take the next step: to integrate complexity rather than reduce it—and in doing so, expand our solution space once again. And make it work for humans.

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