

WHITE PAPER

Built for Machines, Staffed by Humans

Why the Modern Workplace Is Still Fighting Biology and How to Stop

Presented by Work Better Co., 2026

Executive Summary

For more than a century, organizations have designed work around systems created by standardized processes, hierarchical management structures, and measurable outputs. The Industrial Revolution gave birth to a model of work that prized uniformity and replicability. Today, that model is failing. Despite billions of dollars invested in employee engagement initiatives, productivity programs, and culture transformations, the needle has barely moved. According to Gallup's 2025 State of the Global Workplace report, global employee engagement fell to just 21% in 2024, and in the United States alone, only 31% of workers reported being engaged, which is a 10-year low.

The root cause of this persistent failure is not a lack of effort. It is a fundamental misalignment between how work is designed and how the human brain actually functions. Work Better Co. closes that gap. Drawing on the latest discoveries in cognitive neuroscience, organizational psychology, and behavioral science, Work Better Co. helps organizations redesign work in ways that align with the biology of the human brain, enabling individuals to perform at their natural best, teams to collaborate with greater cohesion, and organizations to achieve sustainable, measurable results.

This white paper presents the problem, the evidence, and the path forward.

A Brief History of Work — From the Factory Floor to the Asynchronous Age

The Industrial Revolution and the Invention of Standardized Work

Before the Industrial Revolution, work was largely individual, craft-based, and self-directed. The blacksmith, the weaver and the farmer each shaped their labor to their own rhythms, skills, and circumstances. When they worked, how they worked, and the pace at which they worked were matters of personal discretion, guided by the demands of the season, the tools at hand, and the nature of their craft.

The Industrial Revolution changed everything. Beginning in the late 18th century and accelerating through the 19th, the rise of factories, railroads, and mass manufacturing demanded a radical new approach to human labor. Work was no longer individual, it was collective. And for collective work to be efficient, it had to be standardized.

Frederick Winslow Taylor's "scientific management," introduced in the early 1900s, formalized this thinking into a doctrine. Time-motion studies broke every job into its smallest components. Workers were assigned single, repetitive tasks and measured against precise productivity targets. The goal was to treat the organization as a machine — and each human within it as an interchangeable part. Taylor famously argued that the ideal worker did not think; he executed.

This approach generated enormous gains in efficiency and scale. It enabled Henry Ford to build a Model T every 93 minutes. It allowed railroads to span continents and steel mills to transform entire economies. Standardization was, in the context of the industrial age, a genuine breakthrough.

The cost of standardization was the removal of the individual.

The Knowledge Economy and the Persistence of Industrial Thinking

Over the course of the 20th century, the nature of work shifted dramatically. The manufacturing sector gave way to services, and services gave way to the knowledge economy. By the late 20th century, the most valuable work being done in advanced economies was cognitive in nature, focused on analysis, creativity, problem-solving, communication and design. The product was no longer a physical object but an idea, a decision, or a solution.

Yet the organizational structures inherited from the industrial age remained largely intact. Office buildings replaced factories, and open-plan workspaces replaced assembly lines, but the fundamental design logic was the same: standardized schedules, uniform expectations, visible presence as a proxy for productivity, and management hierarchies built for control rather than enablement. The human being, each with its unique personality, neurobiology, cognitive rhythms, and motivations, was still treated as a standardized unit.

The Asynchronous Revolution: Technology Enables What the Brain Always Needed

The 21st century has introduced a new variable: technology that, for the first time in history, makes it genuinely possible to structure work around individual human needs rather than organizational convenience. Cloud-based collaboration platforms, project management tools, video conferencing, and AI-assisted workflows have eliminated many of the logistical constraints that once required everyone to be in the same place at the same time doing the same thing.

The COVID-19 pandemic accelerated this shift dramatically. Remote and hybrid work arrangements, once considered fringe benefits, became mainstream. Asynchronous communication, where team members contribute on their own schedules rather than in real-time, became a legitimate and often superior mode of collaboration. Research from Atlassian's internal pilot programs found that teams adopting asynchronous updates with defined response windows increased project-milestone completion by 22% and reduced reported stress by 17%.

We are now at a genuine inflection point. The technology exists to design work in ways that honor human individuality. The Industrial Revolution's demand for uniformity was a practical response to the constraints of the era. The knowledge economy has no such constraints. **Yet organizations continue to design work as if all brains are identical, creating a material amount of individual, team and organizational friction.**

The Engagement Crisis — Decades of Effort, Persistent Stagnation

What the Data Shows

Few challenges in modern organizational life have received more sustained attention and produced more disappointing results than employee engagement. Since Gallup began tracking global engagement data in 2009, the picture has been sobering.



According to Gallup's State of the Global Workplace: 2025 Report, global employee engagement fell to 21% in 2024 — matching the lowest levels recorded since the pandemic began. In the United States, the situation is similarly alarming: only 31% of U.S. employees were engaged at the end of 2024, a 10-year low matching levels last seen

in 2014. Approximately 3.2 million additional employees became disengaged compared to the prior year.

The demographic picture is particularly troubling. Engagement among workers under 35 dropped by five percentage points in a single year. Generation Z, the workforce of the future, is the most disengaged cohort ever measured by Gallup at the start of their careers. Among the most significant declines recorded:

- Only 46% of employees clearly know what is expected of them at work; down from 56% in 2020.
- Only 39% strongly feel that someone at work cares about them as a person; down from 47% in 2020.
- Only 30% believe someone at work is actively encouraging their development; down from 36% in 2020.

Where Conventional Interventions Fall Short

Organizations have responded to the engagement crisis with a growing portfolio of interventions: annual surveys, pulse check-ins, town halls, flexible work policies, wellness programs, recognition platforms, leadership training, and culture change initiatives. These are not wrong in concept. When first introduced, they typically produce drastic increases in engagement. But as the data shows, they only seem to increase engagement to a point.

Perhaps the engagement ceiling is due to one self-evident fact: the modern workplace is not designed for the way the brain actually works.

The Neuroscience Imperative: Designing Work With Humans in Mind

The Mismatch Between the Modern Workplace and Our Neurology Creates Significant Friction

The human brain is an extraordinary instrument, but it is not a neutral one. It has been shaped to prioritize survival, conserve energy, detect threats, and seek social connection. Many of the features of the modern workplace work directly against these biological imperatives and the result is predictable: stress, disengagement, cognitive overload, and diminished performance. **All of these are what Work Better Co. calls friction.**

Attention: The Brain's Most Finite Resource

One of the most consequential findings of modern cognitive neuroscience is that human attention is deeply limited, and the modern workplace systematically depletes it. Research from UC Irvine has found that employees spend an average of just 47 seconds on a task before self-interrupting. At MIT's Attention Lab, continuous partial attention,

which is the rapid switching between tasks that characterizes most modern knowledge work, raised error rates by 37% and reduced working memory accuracy by 20%.

The brain's attention networks, particularly the dorsal attention network which supports sustained, goal-directed focus, are in constant competition with the ventral attention network, which monitors the environment for novelty and potential threats. The notifications, open-plan office noise, and always-on communication culture of modern workplaces consistently activate the latter at the expense of the former. Functional MRI studies at Cambridge and Stanford have confirmed that even brief exposure to digital notifications triggers measurable dopamine release in the brain's reward circuits, creating a compulsive pull toward interruption.

The solution is structural, not motivational. Research validating Dr. Cal Newport's concept of "deep work," conducted at Georgetown University, demonstrates that scheduling uninterrupted 90-minute work blocks produces higher output and fewer errors than equivalent time spent in fragmented sessions. Microsoft Viva Insights research found that employees with at least four hours per week of protected focus time reported 121% higher engagement and 68% fewer instances of cognitive fatigue, and that **the effect was most powerful when focus periods were standardized across teams rather than left to individual discretion.**

The Brain's Performance Cycle: Why the Undifferentiated Workday Fails

The attention research above reveals what happens when the brain is interrupted. But there is a deeper and equally consequential phenomenon that most organizations have never considered: the brain does not operate in a single mode. It cycles continuously through distinct functional states, each characterized by different patterns of neural oscillation, each suited to a different kind of cognitive work — and the modern workday, by treating all hours as interchangeable, systematically prevents the brain from using any of them well.

Neuroscientists categorize these states in part by their dominant brainwave frequencies. Beta waves (approximately 13–30 Hz) characterize the alert, analytical mind engaged in active problem-solving and linear reasoning. This is the state most associated with conventional "productive" work like tasks and executing regular work functions. Alpha waves (8–13 Hz) emerge during relaxed, open awareness: the mind is calm but receptive, and this state is strongly associated with creative insight, pattern recognition, and the integration of complex information. Theta waves (4–8 Hz), typically associated with deep relaxation, drowsiness, or light sleep, are paradoxically among the most important for knowledge work: they are the neurological signature of the brain's Default Mode Network (DMN) in full operation — the state in which the brain consolidates learning, generates novel connections, and produces the kind of breakthrough insight that no amount of focused Beta-state effort can manufacture.

Research on ultradian rhythms, the approximately 90-minute cycles of neural activation and recovery first described by sleep scientist Nathaniel Kleitman and later extended to waking cognition by researchers including Peretz Lavie and Ernest Rossi, has

established that the brain naturally alternates between periods of higher and lower arousal throughout the day. During the high-arousal phase, focused analytical work (Beta) is most accessible. During the low-arousal phase, the brain shifts toward Alpha and Theta states, becoming better suited to reflection, creative synthesis, and associative thinking. Attempting to sustain Beta-state focus during the low-arousal phase is not merely ineffective, it actively degrades performance and accelerates cognitive fatigue. It is important to note that neural activation phases will vary by individual and that they can be influenced by external factors. Organizations are not beholden to random schedules, rather conditions can be actively set up to create low-arousal that facilitates Alpha and Theta states.

Research from the Santa Fe Institute and subsequent work in computational neuroscience has further established that the Default Mode Network — active primarily in Alpha and Theta states — is not idle during apparent rest. It is performing some of the most sophisticated cognitive processing available to the human brain: integrating experiences across time, stress-testing assumptions, generating hypothetical scenarios, and producing the emergent insights that arrive, famously, not at the desk but in the shower, on a walk, or in the moment between waking and sleep. Organizations that eliminate recovery time and unstructured reflection are not maximizing productivity. They are suppressing the brain processes responsible for their most valuable cognitive outputs.

The organizational implication is significant and largely unaddressed: high performance in knowledge work requires deliberate access to all three primary cognitive states — not just sustained focus. **A workday designed exclusively around meetings, deliverables, and always-on availability does not produce more output. It collapses the cognitive diversity that makes genuine excellence possible.**

Decision Fatigue and the Hidden Cost of Cognitive Overload

Every decision a person makes depletes a finite pool of cognitive resources. This is not metaphor, it's neurobiology. The prefrontal cortex, which governs executive function, judgment, and self-regulation, consumes a disproportionate share of the brain's glucose supply during periods of high cognitive demand. As that supply is depleted across a workday filled with meetings, interruptions, and unresolved complexity, the quality of decision-making deteriorates in predictable and measurable ways.

The phenomenon, now widely described as decision fatigue, was dramatically illustrated in a landmark study published in the Proceedings of the National Academy of Sciences. Researchers analyzed more than 1,100 parole board decisions made by experienced judges over the course of a single day. Early in the morning, and immediately after food breaks, favorable rulings were granted in approximately 65% of cases. By the end of each session, that figure collapsed to nearly zero. The judges were not less experienced or less conscientious as the day wore on. Their prefrontal cortex resources were simply depleted, and the brain had shifted to a default mode of denial, the cognitively cheapest option available.

Research from Columbia and Stanford Universities has extended these findings into organizational contexts, demonstrating that cognitive depletion follows a similar arc in knowledge workers. The consequences compound: depleted decision-making leads to riskier choices, reduced ethical reasoning, diminished creativity, and a retreat toward familiar patterns rather than thoughtful innovation. A 2023 study in the *Journal of Applied Psychology* found that employees who attended four or more consecutive meetings without meaningful breaks showed a 40% decline in ability to concentrate and a significant increase in stress biomarkers. What a meaningful break means to an employee will vary, it's not simply a matter of not being in a meeting. There is no prescriptive formula that can be applied, rather each employee must understand their brain and body to know how to effectively recover between scheduled meetings, including the opportunity to have some meetings scheduled at a different time.

The modern knowledge workplace has, in effect, institutionalized decision fatigue. Back-to-back calendars, always-on communication expectations, and the chronic underinvestment in recovery time between cognitively demanding tasks mean that the most consequential decisions — strategy, hiring, investment, culture — are routinely made by minds operating well below their biological peak. This is not a personal failing. It is a systems failure, and it is one that neuroscience gives us the tools to correct.

The research on both cognitive state cycling and decision fatigue points to the same structural conclusion: the conditions under which people work are not incidental to the quality of what they produce. They are determinative. **Optimizing those conditions is not a wellness initiative, it is a performance strategy with a direct and measurable return.**

What becomes clear across all of this research is that the science of how human brains function at their best is not esoteric or inaccessible. It is well-established, peer-reviewed, and practically applicable. What has been missing until now is a disciplined methodology for translating it into the everyday architecture of organizational life. That translation is precisely what Work Better Co. provides.

The Work Better Co. Approach — Where the Science Meets Your Organization

The research presented in this paper is not a prescription, rather it's a foundation. The factors and dynamics that go into our work and guidance will vary in every organization:

- cognitive state cycling that determines when a team's best creative thinking is available
 - the decision fatigue patterns that govern how strategic choices get made
 - the attention dynamics that shape what any individual can realistically accomplish in a given day
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The uniqueness of an organization is also shaped by industry, culture, leadership, role design, and the composition of the people doing the work.

The specific practices, frameworks, and interventions that translate this science into organizational results are therefore not one-size-fits-all. They are constructed in partnership with each client and guided by Work Better Co.'s proprietary framework, **Friction to Flow**. What Work Better Co. brings is the expertise to teach you how to diagnose where friction exists in your organization, and to address it effectively in order to drive optimal performance at the individual, team and organizational levels.

Our work is scientifically grounded, field tested and practical in its application.

Conclusion: What the Science Makes Possible

The argument this paper has made is not complicated, but it is consequential. For more than a century, work has been designed around organizational logic, efficiency, control, and standardization, rather than human biology. The result is an engagement crisis that billions of dollars of well-intentioned intervention have been unable to reverse, because the interventions have not addressed the root cause. When work is structurally misaligned with how the brain functions, no amount of cultural programming, survey data, or leadership training can fully compensate.

What neuroscience makes clear, through decades of peer-reviewed research on attention, cognitive state cycling, decision fatigue, and the limits of the prefrontal cortex, is that the conditions under which people work are not incidental to what they are able to produce. They are determinative. The brain is not a neutral instrument that performs equally well under any set of circumstances. It is a biological system with specific requirements, and when those requirements go unmet, the cost is paid in disengagement, error, cognitive depletion, and the quiet erosion of the very creativity and judgment that knowledge work most depends upon.

The good news is that this is a solvable problem. The science has been proven, and the organizational tools to apply it are within reach. What has been missing is the disciplined, evidence-based methodology to translate neuroscientific insight into the practical architecture of how work actually gets done. That is the problem Work Better Co. was built to solve.

What This Means for Your Organization

The research in this paper describes universal neurological principles, which are the largest source of friction within your organization. There are other sources of friction that are equally important to recognize, and these sources are common in every organization, though they are adjacent to the neurological truths we have outlined here. How all of these frictions manifest in your organization is specific to you: your industry,

your leadership culture, your meeting norms, the cognitive demands of your particular work, and the individuals who make up your teams.

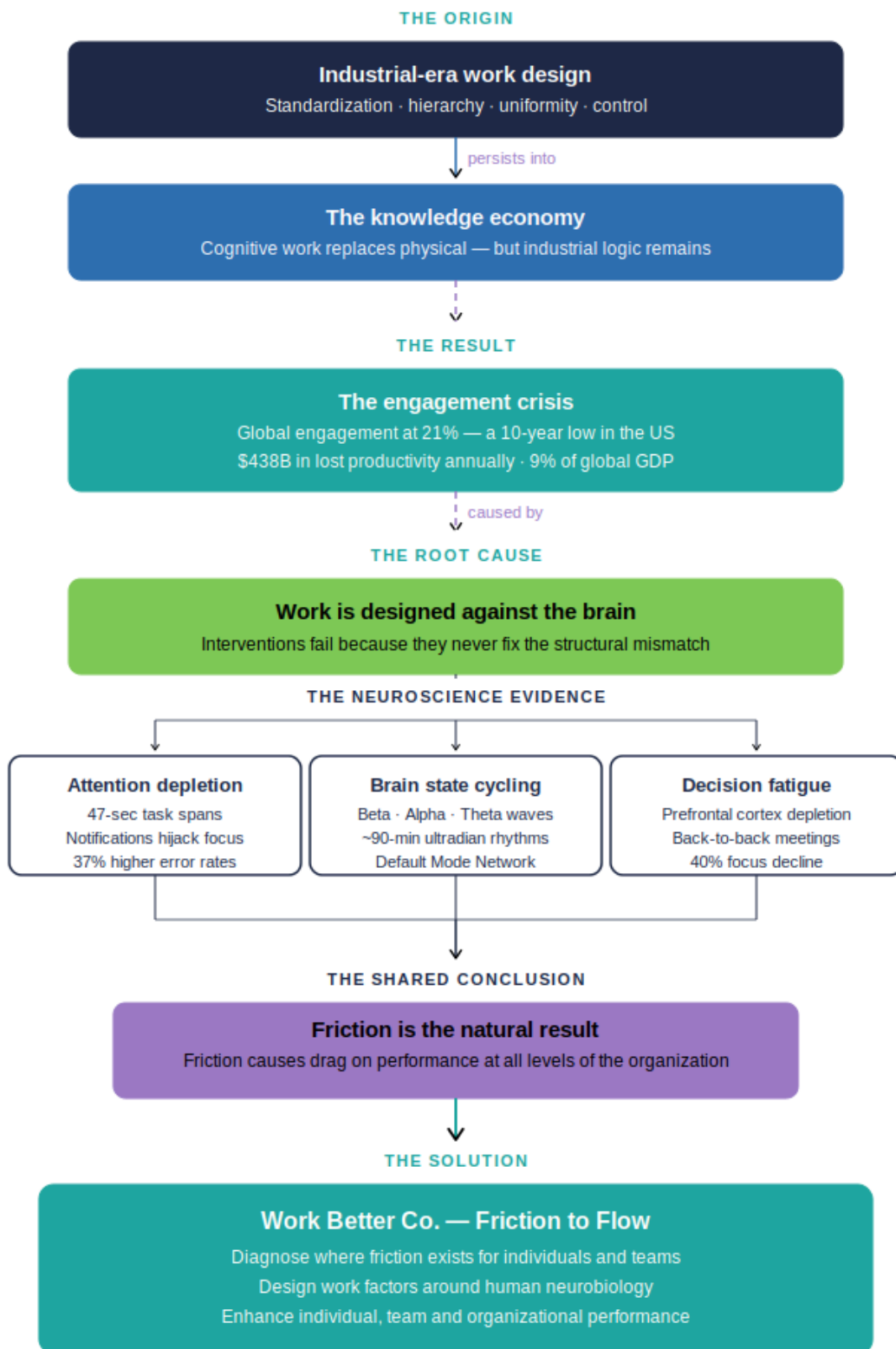
This means there is no universal protocol to hand you at the end of this paper. There is no checklist that, once completed, will align your organization with its people's neurobiology. Our framework is designed to enable you to observe, name and solve your own sources of friction, wherever they originate. It begins with honest inquiry into where friction is highest, where cognitive resources are being most systematically depleted, and where the gap between how work is currently designed and how the brain actually functions is costing you the most.

Start With a Conversation

The best place to start is with a simple conversation about where you are experiencing friction as an employee or within your organization. This gives us an opportunity to examine, together, the specific ways that current work design is working against your people's cognitive strengths, and to begin to map what a human-centered approach to your organization might look like in practice. If you recognize your organization in the research presented in this paper, that recognition is the starting point. We invite you to bring it to us.

Work Better Co. is committed to reducing friction to create better work.

Visual Summary of This White Paper



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About Work Better Co.

Work Better Co. is dedicated to helping organizations design work in alignment with how the human brain actually functions, in order to drive sustainable performance, genuine engagement, and meaningful work at every level of the organization. To learn more or start a conversation, visit www.work-better.co
