THE PROS AND CONS OF AGILE FRAMEWORKS FOR NEURODIVERGENTS

Abstract

Motivation. *Today's enterprises operate at previously unprecedented lightning speeds to outperform global competition for successfully developing innovatively new products and services using lean and agile frameworks. In order to do so, they must attract, keep, and retain the best and brightest global talent at rock bottom prices who are willing to work on a 24x7 basis. Furthermore, individuals must be broadly talented, highly motivated neurotypical unicorns who do the work of four or five people at a fraction of the cost of multiple neurodivergent specialists.*

Problem. *The main challenge is that the global talent pool consists of neurodivergent people who were born and live on-the-spectrum with a variety of neuropsychological, neurobehavioral, and neurobiological (genomic) challenges and limitations. Neurodivergent people often exhibit a variety of suboptimizing comorbidities such as cognitive impairment, communication delays, short term memory, anxiety, introversion, selective mutism, catatonia, elopement, attention-deficit/hyperactivity disorder (ADHD), obsessive compulsive disorder (OCD), neuroticism, bipolarism, impulsiveness, intellectual disabilities, intermittent explosive disorder (IED), social limitations, addictiveness, infatuation, disassociation, megalomania, hypersensitivity, simple administrative abilities, etc. It becomes a clash of cultures when neurotypicals run circles around neurodivergents who seem to be obstacles to their success. The question becomes, can neurodivergents successfully contribute to fast moving enterprises when applying lean and agile frameworks*?

Approach. *Our approach is to compare and contrast the attributes of neurotypicals and neurodivergents, identify the pros and cons of how lean and agile frameworks help or hurt neurodivergents, and further discuss the environment in which neurodivergents may or may not have the best chance of competing for jobs in today's global lightning fast lean and agile-enabled environment optimized for neurotypes. We will also discuss other tried and true lean and agile thinking values, principles, and practices which may enable hybrid neurotypical and neurodivergent teams the greatest possible environment of harmony, success, and mutual benefit for the betterment of fast-moving global enterprises.*

Results. *The results will be multiple tools and frameworks for analyzing the strengths and weaknesses of neurotypicals and neurodivergents, the best environment of success for people on opposing ends of the spectrum, and other surprisingly traditional approaches for leveling the playing field to enable success of global enterprises.*

Conclusion. *Our conclusion will be to openly and frankly discuss the attributes of neurotypicals and neurodivergents; establish benchmarks and guardrails for individuals who are on the spectrum; and help organizations, teams, and individuals identify, manage, and successfully leverage lean-agile new product and service development teams who may be composed of both neurotypicals and neurodivergents.* BLUF: ***In extremely rare circumstances, subclinical neurodivergents may be able to function well in neurotypical settings using minimalistic lean and agile frameworks***.

Introduction

Let's begin the conversation with a short synopsis of today's marketplace, its challenges, how it addresses these challenges, and the people it selects for accomplishing their outcomes. Today's enterprises are faced with previously unprecedented challenges, which include massively parallel global competition and competitors, introduction of innovatively new products and services in lightning-fast intervals, shortage and competition for global talent, and, of course, competing at the lowest possible operating costs. The management paradigm of choice for this global high technology shark tank is, of course, lean and agile frameworks, which are geared towards gathering a small number of requirements, forming a minimal viable product (MVP), delivering it to the global marketplace in fractions of a second, gathering qualitative and quantitative feedback, and rinsing and repeating as often as possible. Lean and agile frameworks are relentless tyrants, burning freight trains, and merciless overlords and taskmasters to the enterprises and people which apply them (i.e., tyranny of Scrum). Whereas the old model was to develop new billion-dollar decade long products and services which often failed, the new model is to field an MVP in 90 days or less. The top enterprises conduct over 100,000 new product and service business experiments each year, of which 95% of them fail or fail to yield any business, market, or enterprise value. Done right, multiple business experiments can be performed in as little as one week with real measurable business results. Gone are the days when a global leader must commit a billion dollars and a thousand people to a decade worth of effort to develop and deliver a failed business experiment.

Of course, this places enormous pressures on the enterprise, cultural, and capital infrastructure to compete on Internet time (speed of light). The strategy must be nimble, risk adverse, and adaptable to change; the technologies themselves must be malleable, inexpensive, and disposable; the management paradigms must support the minimum amount of structural governance and the maximum amount of human communication; and the people themselves have to be the best-of-the-best and the least cost as well. Many of today's business experiments are in the form of new Information Technology (IT)-based products and services, and over 90% of these are in the form of hopelessly entangled multi-decade old legacy systems (or code monoliths). A single simple change to an obsolete legacy system designed to attract a new customer or market base may take hundreds of people to crack the code open, make the change, reintegrate and test it, and re-field it in 90 days or less. So, today's enterprises must attract and obtain a workforce of hundreds of people in the global marketplace at the least possible cost, keep them up day and night to do microsurgery on these code monoliths, revalidate and field them as quickly as possible, and then release the workforce as quickly as they were retained. The enterprise executives who oversee these pyramid builders must be highly qualified, extremely intelligent, have impeccable track records, ruthless, make split second decisions, work 24 hours a day, and bring these new product and service development initiatives to market with split second accuracy using Objectives and Key Results (OKRs) as their compass (without consideration of morale, sustainability, or ethics).

This model, of course, assumes that everyone, whether at the top, middle, or bottom of the food chain is on the same neurodevelopmental spectrum. That is, the global workforce is a clone army with big lightning-fast parallel processing brains, billions of ultrareliable neurons, photographic memories, emotionally and behaviorally stable and rock solid, and can work 24 hours a day without skipping a beat at the lowest possible cost. Oftentimes, the worker bees or bottom tier workforce are outsourced or offshored to achieve low operating costs, while the middle managers and executives are insourced or onshored at the lowest possible cost too. Insourced executives and middle managers are extremely well educated, hyperintelligent, have impeccable records and qualifications, willing to work 24x7, and are young, inexpensive, highly motivated, multidisciplined, and ruthless unicorns. For example, Netflix only hires the best of the best, and then financially incentivizes the average superstars to leave with only the elite genius level failsafe automatons remaining. But this model of ruthlessly amalgamating and sifting through unicorns simply doesn't apply to everyone. I mean, how well did it apply to Netflix who has quickly declined to a less than mediocre service product behind other streaming services such as Amazon Prime? Of course, Amazon had a secret formula in the form of the ultimate highly flexible new product and service delivery framework or architectural runway (i.e., Amazon Web Services). Something was certainly missing in Netflix's formula for high performance neurotypical homogeneity. But the more important point is that there are neurodivergent people all along the spectrum who may be a bit slower, less talented, less qualified, less skilled, and less resilient to stress and long relentless hours. Do neurodivergents have a place in the playing field of lightning-fast enterprises and markets applying lean and agile frameworks?

Lean-Agile Thinking

Let's talk a little bit about the emergence of lean and agile thinking. The lean part of the equation emerged with Japan's postwar rebuilding effort when its top automobile manufacturer designed the scientifically driven Toyota Production System (TPS) in the 1950s. Toyota, of course, was inspired by the likes of W. Edwards Deming and Joseph Juran who were completely ignored by the more profit-driven Western North American enterprises. At the heart of TPS principles was flexibility, adaptability, and speed. Yes, Japan preached long term 100-year strategic plans, all the while quickly disrupting U.S. automobile markets with innovatively new, low-cost, reliable, and fuel-efficient vehicles. Of course, Japan used lean manufacturing principles to disrupt other markets like televisions, radios, computer memories, heavy machinery, and a veritable smorgasbord of consumer electronics. While competing on quality and reliability was certainly central to TPS, the more important element was competing on speed (i.e., quickly identifying MVPs, rapidly fielding them, collecting market feedback, and endlessly rinsing and repeating before Western firms ever caught on). The early 1990s brought a sudden change to Western competition with Japan as the U.S. put the brakes on imports, forced trading reciprocity, and adapted lean thinking in the form of TPS. This gave rise to Agile methods which were minimalistic one-piece workflow systems designed to quickly field MVPs without the bloat of century old management systems. U.S. management systems evolved to include hundreds of processes, mountains of documents, thousands of people, decades, dozens of governance boards and stage gates, and of course, the highest

cost and lowest quality. Western forms of lean and agile methods were designed to undo a century of needless bloat. These included Scrum, Extreme Programming (XP), Scaled Agile Framework (SAFe), DevOps, Startup Way, Design Sprints, Business Experimentation, and Cloud Computing (which supplanted TPS as an innovation paradigm). These frameworks had common elements such as minimally scoped products and services; minimal processes, documents, metrics, and governance; and, most importantly of all, "raw speed" and improved quality. UX and automation were tacked on for additional speed and quality. Now it was possible to spin up hundreds of the smartest, fastest, and inexpensive people and toss the hot potato back at Eastern Markets faster than they could say, "Ohayou-gozaimasu!"

Neurodivergence

So, where does neurodivergence fit into this equation, story, and continuum? While there is no universally accepted definition of neurodivergence, let's discuss some of the attributes commonly exhibited by neurodivergents. No two neurodivergents are alike, have the exact same underlying neuropsychiatry and neurobiology (brain), and more importantly, it's hard to find two experts who agree on what causes neurodivergence, how it manifests itself (symptoms), and why it manifests itself the way it does. Some scientists believe it's a simple personality attribute, such as the difference between extroverts and introverts. Others believe it is deeper than simple neuropsychology but is neurobiological in origin. That is, during early childhood neurobiological development, the human genome and brain may not fully develop or may develop in unique ways. Common outcomes of neurodivergence may include cognitive impairment, communication delays, short term memory, anxiety (panic), introversion (shyness), selective mutism (silence), catatonia, elopement (isolation), attention-deficit/hyperactivity disorder (ADHD), obsessive compulsive disorder (OCD), neuroticism, bipolarism, impulsiveness, intellectual disabilities, intermittent explosive disorder (IED), social limitations, addictiveness, infatuation, disassociation, megalomania, simple administrative abilities, etc. Of course, by definition, neurodivergence means that people on the neuropsychological and neurobiological spectrum may exhibit some of these behaviors to varying levels of intensity. Some cases of neurodivergence may be so extreme that institutionalization or full-time adult care may be necessary. Moderate cases may include some integration into the public sphere as menial labor. Subtler cases may be called subclinical, meaning they are present but barely perceptible. Neurodivergents may be so skilled at masking (blending in) that they may be indistinguishable from neurotypes (people with little to no neurodivergence). However, when the rubber meets the road—Peter Principle or rising to one's level of incompetence—then neurodivergents may be easily distinguishable. Neurodivergents may be just a little slower, require more than average time to learn, communicate slower, take on fewer tasks, struggle with anxiety, make more mistakes than normal, work slower and produce lower quality outputs, work fewer hours, or appear less ambitious, oddly bipolar or ADHD, neurotic and OCD, impatient, and easily anger or have regular outbursts when stressed or challenged. Much of this is attributable to fewer neurons, synaptic layers, weak cortical structures, diminished hemispheric lateralization, and abnormal neurotransmitter levels (i.e., cortisol, adrenaline, serotonin, dopamine, oxytocin, endorphins, etc.). Neurotypes manage neurotransmitters while neurodivergents are overwhelmed by them leading to unplanned amygdala highjacks (emotional outbursts). Neurotypes have better emotional intelligence and make well balanced decisions, while neurodivergents make sudden rash emotionally based decisions (when more rational due diligence may serve them better in the long run).

Simple Agile Frameworks

Let's examine one of the most common and simple agile frameworks called "Scrum," it's elements or attributes, and how it may or may not favor neurotypes or neurodivergents. Scrum emerged circa 1994 at the hands of Ken Schwaber and Jeff Sutherland. They were inspired by Japanese innovation principles. Yes, Japanese manufacturing frameworks such as TPS were smoking hot, but leading Japanese innovators taught a new simple incremental and iterative framework for quickly developing innovatively new products and services called Scrum. They were inspired by the Australian sport of Rugby, and how small teams of footballers interlock arms and hands to move the ball along. The Japanese innovators viewed small teams of engineers as Rugby teams, working closely together to quickly create innovatively new products and services. The innovation (ball) may move forward, backward, sideways, or diagonally along the field until a point is scored (not quite in a straight line). This represented the highly uncertain ebbs and flows of innovatively new product and service development which may or may not be a linear process. This notion was adapted by Ken Schwaber and Jeff Sutherland for small software development teams of no more than 10 to 12

engineers. It was a minimalist approach. A Product Owner (PO) specified a prioritized list of new product and service requirements (product backlog). The team selected highest priority items that could be done in 30 days (today reduced to two or three weeks, two weeks being the norm). The two-week plan is called a Sprint plan (consisting of a Sprint backlog). The team implements the requirements in one piece workflow style together. They meet for 15 minutes a day to describe their progress (daily standup). At the end of the two-three-or-four-week sprint, they demonstrate what they developed to the Product Owner (PO). A Scrummaster facilitates all events, removes impediments (roadblocks), keeps the Scrum team moving forward, and optimizes velocity. The team conducts a brief retrospective at the end of the Sprint to make systemic process and product improvements. The key is that the team is empowered, self-managed, and self-organized. There are minimal processes, documents, and governance, and the focus is on quickly developing an innovatively new product or service. They may execute as many sprints as necessary to optimize the value of the Product Backlog. Scrum is a goal and business value driven system, not a scope driven system (i.e., the goal is to achieve business value, not complete the Product Backlog). Like Rugby, Scrum is not a linear process, but one of ebbs, flows, emergence, and convergence towards a highly uncertain and unpredictable business outcome. That is, the optimal business outcomes are discovered or emerge along the way, not specified in advance.

Neurodivergence & Scrum

In a well-balanced Scrum team, there are many attributes favoring neurodivergents (as shown on the left column below). Scrum is simple, has well-defined rules, and has a minimal set of events, ceremonies, or processes. This alone is ideal for simple neurodivergent capabilities. Furthermore, it's highly structured, routine, and repetitive. This is also favorable for neurodivergents with ADHD, OCD, stimming, etc. The short timeboxes are also good for short term memory, ADHD, impulsiveness, neuroticism, etc. Small Scrum teams of engineers, technicians, and other technical specialists are also good, especially if one or more of them are neurodivergents as well. It's not uncommon for entire Scrum teams to be composed of neurodivergents. So, small Scrum teams turn out to be neurotribes, but not always. One bad apple will ruin the batch (i.e., extroverted bipolar neurotype who terrorizes the neurodivergent neurotribe). This is also common, as some extroverts enjoy being big fish in small ponds. Lean thinking and its minimalistic value system is also helpful for neurodivergents (i.e., single tasking, one piece workflow, and minimum documents, metrics, reports, product scope, and constraints in the form of acceptance criteria). Although Scrum is ideal for small neurotribes of neurodivergents, Scrum also has some pain points better suited for neurotypes. Scrum involves a lot of IT uncertainty, risk, ambiguity, communications, conversation, monotony, interpersonal skills, emotional intelligence, social reciprocity, and creativity. That is, most stakeholders expect gold-plated MVPs which neurotypes with bigger brains and deeper and broader skills are capable of producing. Expectations are high in today's marketplace, which puts pressure on Scrum teams to do more with less. As one person once said, "We're going to push this wagon as fast as it can go until the wheels are about to pop off, and then we'll ease up just a little bit." That may be translated as "Stretch Goals" or "Reality Distortion Field." Neurotypes double, triple, or quadruple Scrum team workload just because they can (whereas neurodivergents often match capacity to demand and reduce work in process quite a bit).

Positive Factors	Negative Factors
Simple	IT Uncertainty
Well Defined Rules	Ambiguous Goals
Minimal Events	Conversations
Highly Structured	Communications
Routine, Repetitive	Monotonous
Short Timeboxes	Anxiety, Pressure
Short Timescales	Ambiguous Scope
Small Teams	Interpersonal Skills
Simple Scope	Gold Plated MVPs
Lean Thinking	Co-Contribution
Minimum Documents	Emotional Intelligence
Minimal Metrics	Theory of Mind (ToM)
Minimal Reporting	Gold-Plated Demos

| Minimal Product MVP | Emergent Design |
| Minimal Constraints | Scaling, Dependencies |

Neurodivergence & Job Type

Agile frameworks such as Scrum were meant to limit the scale, scope, and complexity of a new product and service development team, while maximizing its success. However, as alluded to earlier, the faster the industry sector, the more the neurotypical attributes favor the individual. Neurotypes can move faster, work with more scope, parallelize, work longer, manage stress, exhibit more emotional intelligence and stability, and develop more full-featured gold-plated MVPs resembling final products. When one is working for a Fortune 500 firm, and its clients are blue chip firms as well, the expectations increase exponentially for the scale, scope, size, and speed of gold-plated MVPs. You better be able to walk on water and pull a net full of fish out of a dry lake if you want to succeed in a Fortune 500 firm. Otherwise, for the neurodivergent professional, it may be best to select a lake with deep water, plenty of fish, plenty of time, plenty of support and resources, and a helpful crew who won't throw you overboard in two weeks because they want your job (or don't want you to threaten their job). The turnover among middle managers and executives in Fortune 500 firms is extremely high, they're cutthroat, and they'll eat your lunch before you can shower, shave, and get to work. Your fate will be sealed before you even show up for the first day. Neurotypes wheel and deal behind the scenes everyday determining who will be voted off the island to ensure their continued success. So, there are some job types that favor neurodivergents over neurotypes. These may include the public sector, higher compensation, job stability, and longer time horizon. Neurodivergents require more time to learn, acclimate, and achieve optimal performance than neurotypes. Neurodivergents also favor hands-on technical and engineering positions where the work ethic is "head down and nose to the grindstone" over enterprise politics. In general, jobs that require less emotional intelligence, theory of mind, foresight, social skills, and communication may be better suited. The bigger and slower the project the better (i.e., one that has many Scrum teams with just enough interdependencies to slow the pace or velocity down to the level of the slower neurodivergent cognitive speed). Back end or infrastructure teams are better, where technical skills are valued more than personality skills, there is more camaraderie and humility, and political showboating or winning an international shark tank contest is not valued very highly. Some global, non-Western cultures favor sustainable pace over cutthroat time-based competition (but it requires a lot of emotional intelligence, adaptability, and resilience to operate effectively in a multi-cultural environment where expatriate failure rates are extremely high in intensely xenophobic ethnically homogenous settings).

Attribute	Yes	No
Industry	Public Sector	Fortune 500
Compensation	High	Low
Stability	High	Low
Time horizon	Long	Short
Delivery speed	Slow	Fast
Type	Technical	Management
Level	Engineering	Executive
Multitasking	Low	High
Responsibility	Singular	Multiple
Visibility	Low	High
Rules	Explicit	Implicit
Skills	Specialized	Multidisciplinary
Intelligence	Lower	Higher
Memory	Short term	Long term
Cognition	Slow	Fast
Pressure	Low	High
Conflict	Low	High
Quality	Lower	Higher
Precision	Lower	Higher

Talent, Skills	Narrow	Broad
Qualifications	Low	High
Track Record	Medium	High
Patience	Low	High
Social Skills	Low	High
Political Savvy	Low	High
Face Validity	Low	High
Ambition	Low	High
Scale	Higher	Lower
Teamsize	Smaller	Bigger
Direct Reports	Fewer	More
Influence	Low	High
Position	Backend, technical	Customer facing, PMO
Temperament	Volatile	Stable
Communication	Asynchronous	Synchronous
Geolocation	Domestic	International
Scrum Type	Scrumban---	Scrum+++

---/+++ Extremely minimalistic Scrumban vs. Gold-plated Scrum practices (with bells & whistles).

Neurodivergence & Teamwork

Lean-agile frameworks by definition involve teamwork. Although fierce individualism is highly valued in the Western hemisphere, lean-agile frameworks originated in Eastern Cultures where teamwork, group consensus, and cooperation are demanded. In Eastern cultures, "There is no 'I' in 'We'," but in Western cultures, "There is no 'We' in 'I' delivery." Lean-agile frameworks like Scrum—derived from Eastern traditions—were designed to insert the 'We' back into the equation. Unfortunately, Western Scrummasters override Scrum by assigning user stories (work item types) to individuals vs. teams. Early agile frameworks like Extreme Programming (XP) demanded that each user story be implemented by "Pair Programming" (a small team of two programmers). In modern Scrum, Pair Programming is considered an unnecessary luxury. However, some highly unique companies designate small teams of Agile and Scrum coaches to work in unison. They may assign two or three agile coaches at the portfolio, large solution, product, or even Scrum team level. In the 1960s (mainframe era), it was quickly realized that the productivity difference between the best and worst programmers was 10,000 to 1. Process frameworks were created in part to level the playing field so that all engineering team members could contribute to the end goal productively. Through the era of downsizing (1980s, 1990s, 2000s, 2010s, 2020s, etc.), we've come to rely on the single multi-talented unicorn to work 24x7 at half the pay of the traditional engineer. That is, we've gone too far in the wrong direction overvaluing neurotypes instead of neurodivergents (and subtracted over 95% of the workforce from the equation). It's time to put the "We" back in "I" as Eastern agile frameworks such as Scrum demand (because the development of innovatively new products and services is a team vs. individual sport). If there's one thing Netflix has taught us, "That one perfect unicorn is not the key to enterprise success (if you want to watch your total market capitalization melt like a glacier in the hot Sun)."

Neurodivergence & Performance

Neurodivergent individuals face a lifetime of personal, social, academic, professional, and societal performance integration challenges. Some of these challenges and limitations may be due to a confluence of neuropsychiatric, neurobehavioral, and neurobiological differences. And, of course, much of this is due to the influence and imbalance of neurotransmitters and hormones that impact the ability to make sound, quick, and well-balanced decisions which combine logic, reason, socio-political correctness, and emotion (i.e., cortisol, adrenaline, serotonin, dopamine, oxytocin, endorphins, etc.). Basically, when neurodivergent individuals operate outside of their goldilocks zone, they may not perform very well. This may lead to suboptimal personal, social, academic, professional, and societal performance. However, when neurodivergent individuals find their goldilocks zone, sweet spot, or center-of-percussion, then their performance may have a better chance of stabilizing, normalizing, and even improving. Some

neurodivergent individuals isolate themselves from society to prevent neurotransmitter flooding, saturation, and the resulting personal, social, and professional performance meltdowns. Even Buddhist Monks spend years meditating in monasteries to achieve hormonal balance, peace, happiness, and optimal performance (at least as it's defined by them). For instance, some neurodivergent individuals are hypersensitive to sensory inputs and wear headphones, dark glasses, and special clothing, and avoid wildly ranging flavors, foods, and odors. So, yes, some neurodivergent individuals may be well beyond the bounds of social integration (like Buddhist Monks). However, for individuals with subtler subclinical neurodivergent attributes, some level of Western social integration may be possible as described throughout this case study. When (subclinical) neurodivergent individuals identify, seek, and find their goldilocks zone, sweet spot, or center-of-percussion as indicated in this case study, then higher individual, team, and enterprise performance may be possible. Oftentimes, neurodivergent individuals may bounce back and forth between too much and too little social, personal, and professional integration with neurotypical individuals and groups. This may lead to performance misalignment which manifests itself as a poor personal, social, academic, professional, or societal track record. However, when neurodivergent individuals are better aligned, then their subtle social differences may be manageable to a certain extent leading to higher performance outcomes for everyone involved (including teams and enterprises). But it's important to note that neurodivergent individuals are hypersensitive to minor fluctuations in neurotransmitter levels leading to regular inconsistencies on a day-to-day basis. However, with some level of awareness, mindfulness, and rationalization, neurotransmitter fluctuations may be tolerable and manageable leading to stable, consistent, and improved performance. Again, buyer-beware, because of intense neurotransmitter flooding.

Attribute	Aligned	Misaligned
Anxiety/Panic	Lower	Higher
Perception	Better	Worse
Value	Higher	Lower
Resumé	Better	Worse
Socialization	Higher	Lower
Vulnerability	Lower	Higher
Performance	Higher	Lower
Revenue	Higher	Lower
Acceptance	Higher	Lower
Satisfaction	Higher	Lower
Socio-Politics	Better	Worse
Stability	Higher	Lower
Quality	Higher	Lower
MVP Value	Higher	Lower
Longevity	Higher	Lower
Emotions	Better	Worse
Appreciation	Higher	Lower

Summary

What we've emphasized so far is that neurotypes tend to have more individual strengths, qualities, breadth, and utility. That's why neurotypes tend to float to supervisory, middle management, leadership, executive, and entrepreneurial positions. They simply have more depth, breadth, and capabilities (implicitly, explicitly, or both). So, we've attempted to identify where neurodivergents and neurotypes tend to shine or succeed the best. In summary, neurodivergents have a small advantage on smaller Agile or Scrum teams (vs. larger highly complex over scoped traditional projects with hundreds of processes, documents, governance boards, metrics, requirements, etc.). And neurodivergents have an even better advantage when one makes the subtle shift into larger and slower moving Agile projects with many Scrum teams, more interdependencies, slower velocities, and lower expectations. However, even large public sector Agile projects have many types of Scrum teams that may favor neurotypes over neurodivergents. That is, neurodivergents may prosper on highly technical hands-on backend engineering teams where technical skills are valued over social political skills (which demand a stronger theory of mind, emotional intelligence, and better

temperament). As we've indicated before, neurodivergents tend to have abnormal neurotransmitter levels (i.e., cortisol, adrenaline, serotonin, dopamine, oxytocin, endorphins, etc.). More normal neurotypes can manage neurotransmitter levels while neurodivergents are overwhelmed by neurotransmitters leading to unplanned amygdala highjacks (emotional outbursts). Neurotypes have better emotional intelligence and make well balanced decisions, while neurodivergents make sudden rash emotionally based decisions (when more rational due diligence may serve them better in the long run). So, smaller, less visible, less political, and more collaborative technical engineering teams may be better suited for neurodivergents who are sensitive to neurotransmitter abnormalities. Neurotransmitters are powerful survival hormones or chemicals that are difficult to control leading to unplanned emotional outbursts when you least expect it. More importantly, neurodivergents really shine when they can contribute to a small neurodiverse team of neurotypes and neurodivergents. It won't be easy with daily cognitive reality distortion and dissonance, but it is possible. Neurotypes must slow down just a little bit, and neurodivergents must likewise speed up just a little bit too. Neurodivergents tend to get too comfortable with lifelong (suboptimizing) coping strategies and don't realize how much neuroplasticity they have when asked to operate just beyond their goldilocks zones. Neurodivergents must build up antibodies, resistance, and tolerance to high neurotransmitter levels, otherwise they lose immunity (use it or lose it). That being said, it's important for neurodivergents to establish clear individual boundaries because it's too darn easy to dive into cortisol filled shark tanks and get eaten in microseconds.

Common Attributes of Neurotransmitter Flooding & Saturation			
Anxiety	Ego	Worry	Pride
Overconfidence	Panic	Megalomania	Paranoia
Fantasy	Delusion	Rage	Anger
Bitter	Catastrophe	Bipolar	OCD
ADHD	Pessimism	Negative	Nihilism
Impulsive	Irrational	Risk	Uninhibited
Catatonia	Selective Mutism	Elopement	Isolation

Limitations

The American Psychological Association (APA) is divided on the definition of neurodivergence which has a wide-ranging symptomology. This may include, but is not limited to cognitive impairment, weak theory of mind, mind blindness, communication delays, short term memory, anxiety (panic), introversion (shyness), selective mutism (silence), catatonia, elopement (isolation), attention-deficit/hyperactivity disorder (ADHD), obsessive compulsive disorder (OCD), stimming, neuroticism, bipolarism, impulsiveness, intellectual disabilities, intermittent explosive disorder (IED), social limitations, addictiveness, infatuation, disassociation, megalomania, apathy, dementia, simple administrative abilities, monologuing, etc. It's easier to select one of the most prevalent comorbidities and focus on that one (i.e., diagnose a neurodivergent with ADHD). And no two neurodivergents agree on a common symptomology. It's like the four blind people touching the elephant but missing the forest for the trees. Neurodivergents describe themselves by the comorbidity they believe best suits them (i.e., I'm ADHD, but I'm not passive-aggressively bipolar). Of course, a hallmark characteristic of neurodivergence is mind blindness (i.e., one simply does not know what they don't know). The goal of this treatise is not to clinically or scientifically describe neurodivergence which has defied definition for a century. Some people even want the field of neurodivergence to completely vanish in lieu of individual comorbidities. And the goal of this treatise is not to stereotype or demean the value of neurodivergents. We are simply describing a large and somewhat ambiguous elephant after seeing a few parts (i.e., this could be a simple toad, Godzilla, real, or imagined). Like lean-agile frameworks, neurodivergence is a bit of a "me-too" Cargo Cult (i.e., there's a bit of anchoring and cognitive bias involved and we're simply repeating the canonical formulas of the well-established neurodivergent literature). And, of course, this treatise does not portend establishment of a definitive framework, set of constraints, or boundaries in which neurodivergents can or should operate. Neurodivergence by definition is divergent or diversified, no two are alike, the human brain is remarkably neuroplastic and adaptable, and there are other contributing factors to each and every neurodivergent. One of the common skills neurodivergents have is "Masking" (i.e., the ability to mimic their surroundings, blend in, and behave as neurotypes). That is, "When in Rome, do as the Romans do" (which is a suboptimizing coping mechanism that helps

neurodivergents blend into society without being noticed much of the time). <u>A popular comorbidity is dyslexia which lean visualization techniques like Scrum and Scrumban boards may help manage</u>. Other comorbidities also present themselves as neurodivergence (i.e., hypoglycemia; substance abuse; video game, social media, and video streaming or dopamine addiction; hormonal disorders; etc.). We've described neurodivergents who are limbic or emotionally centric versus those who are frontal lobe or non-emotionally centric (i.e., narcissistic personality disorder). Some believe neurodivergence may be finely tuned by realigning visual pathways and electromagnetic waves. And, of course, reader beware, this is not a case study by a trained mental health care professional, so this case study does not purport to be a proper medical diagnosis, regimen, clinical treatment, or other authoritative mental prescription.

Further Reading

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Case Studies

Project A. *Project A was a billion-dollar, 400-person project consisting of 40 Scrum teams. A neurodivergent Scrum coach was asked to be the Chief Scrummaster of all 40 teams. Without recognizing she was even neurodivergent, the neurodivergent did know enough to realize managing 40 teams and 400 people was simply too much. It was a 24x7 job, and the Chief Scrummaster often managed the 400 engineers directly which was untenable for the neurodivergent. The neurodivergent was asked to Scrummaster two engineering teams which did seem tenable. One of the teams was new and had a neurotypical team lead with an aggressively extroverted and hostile personality. The other team lost its leader, so the neurodivergent Scrummaster had to motivate this team to be productive with little power and status. After 90 days of floundering, a neurotypical team leader stabilized both teams, and the neurodivergent Scrummaster established a solid OCD stimming routine of Scrum events. This consisted of release planning, sprint planning, daily standups, sprint reviews, retrospectives, Scrum of Scrums (SoSs), ALM tool use, backlog grooming, etc. It was touch and go there for a while, the neurodivergent Scrummaster intuitively delegated technical decision making to two chief programmers, kept the work in process (WIP) to a minimum, facilitated the Scrum events, and helped the teams form 90-day release plans. The neurodivergent was mentored and coached by the lead Agile coach, Chief Scrummaster, and other ALM experts. Eventually, the Chief Scrummaster was replaced by three Chief Scrummasters who shared the burden of managing the 40 Scrum teams and reduced their hours to 9 to 5 jobs. The neurodivergent Scrummaster was able to muster enough emotional intelligence to get the job done. Scrum served as minimal viable product (MVP) or set of crutches or braces to augment the neurodivergent Scrummaster's comorbidities. It only got out of hand during release planning, when the neurodivergent Scrummaster needed to interact with the other 40 Scrummasters. Scrum was simply not enough to make up for lack of emotional intelligence, social reciprocity, and political savvy. The Chief Scrummasters attempted to scale the Scrummaster up to managing more Scrum teams which she wisely refused. Although this was the steadiest job for the neurodivergent Scrummaster in years, eventually the relentless tyranny, routine, and monotony simply became too much for the Scrum teams, and meltdowns were a regular occurrence.*

Project B. *Project B was a billion-dollar, 200-person Scrum project consisting of 15 to 20 Scrum teams. A neurodivergent Scrum coach was asked to be the Scrummaster of three backend infrastructure teams. Although sight unseen, the neurodivergent believed this would be a better position in the bowels of the data center far away from the limelight of the Agile program management office (APMO) where the neurotypical sharks devoured one another on daily basis. This was a wise move. The neurodivergent took charge on day one, mastered multiple new ALM tools, organized backlogs, simplified them, reduced the WIP, facilitated the Scrum events, and prepared the 90-day release plans for the three infrastructure teams. By this time, the neurodivergent was growing accustomed to using Scrum as a coping mechanism to deal with her comorbidities, weak theory of mind, and lack of emotional intelligence. It was a bold move, because the Product Owners (POs) had all of the power on this Scrum project and made all of the decisions. The POs basically acted like self-taught Scrummasters. Due to the mind blindness of the neurodivergent, she simply walked over the senior POs and took over. They really didn't know what hit them. Of course, the backend infrastructure team was allergic to Agile frameworks and Scrum and weren't shy about letting the neurodivergent Scrummaster know. However, the neurodivergent Scrummaster ignored the rebuff, put her head down, and damned the Scrum torpedoes. She was going to force the PO's hand. They had to throw her out if that's what they were going to do. It was that or face the neurotypical sharks in APMO which had already bitten off huge chunks of her ego, pride, and flesh. What could these harmless bipolar POs do to her that she hadn't already endured. She mapped the integrated master schedules (IMSs) to the Scrum 90-day release plans, codified the tasks as user stories, and populated the Scrum release plans quickly. This worked out well for two of the three Scrum teams. In fact, it was the best release planning event for those two teams since project inception. And all of that on a wing and a prayer. The third Scrum team was a bit of a challenge. They were a programming team led by a bipolar extroverted multitasking neurotype. He rejected every release plan devised by the neurodivergent Scrummaster. It took a couple of releases for them to get in synch. Eventually, the neurotypical PO was promoted and left the Scrum project. The neurodivergent Scrummaster stabilized all three Scrum teams within six months. They went from last to first in terms of program velocity and the directors of three organizations took notice. They weren't going to let this neurodivergent Scrummaster get away very easily. The visibility of the infrastructure teams transformed from invisible to visible overnight. The backend teams still hated Scrum, agile, and the neurodivergent Scrummaster which was a shotgun wedding. It's important to note POs selected a minimalistic Scrumban approach which was a critical success factor for the neurodivergent Scrummaster's success. Another critical success factor was a bipolar engineer who produced gold plated schedules every 90 days, which could be easily translated into 90-day release plans for the three Scrum teams who were simple neurodivergents themselves.*

Project C. *Project C was a billion-dollar, 100-person brick-n-mortar lift-n-shift data center project consisting of 10 Scrum teams. It started out as a traditional project over its first nine years. The project management office (PMO) decided to transform it to a Scrum project overnight in order to win the follow-on contract. They retained three Scrum coaches who trained the entire team including the PMO, Product Owners (POs), Scrummasters, and infrastructure engineers. The PMO was transitioned to an Agile Project Management Office (APMO) who took charge of the overnight transformation. The three Scrum coaches merely had to go along for the ride. It was a remote Scrum transformation in the middle of a global pandemic. A neurotype was put in charge with a very charismatic personality; tons of emotional intelligence, political savvy, and ambition; and instant credibility or face validity to boot. The other Scrum coaches were neurodivergent. They immediately took subservient roles to the neurotype and worked together as a team. The neurotype took responsibility for interfacing to the APMO, while the neurodivergents did the technical tasking. The APMO managed the transformation, and the three Scrum coaches really only played an advisory role. Since the 10 Scrum teams had POs and Scrummasters, the Scrum coaches divided the 10 teams amongst themselves in which to play an advisory role. The Scrum coaches formed their own Scrum team, formed a roadmap, release plan, user stories, codified them in an ALM, and used Scrum events to manage themselves. They were really an 11th Scrum team. This was a good opportunity for neurotypes and neurodivergents to compliment one another's skillsets and capabilities. The neurotype often set rather ambitious stretch goals, while the neurodivergents struggled to keep up. Tempers occasionally flared due to the cognitive dissonance, distance, and reality distortion field. The neurotypical Scrum coach really knew what she was doing, while the neurodivergent's theories of mind were too weak to predict her next moves, identify behavioral patterns, and keep up. In some sense, the neurodivergents anchored and slowed the neurotypical Scrum coach down. It seemed like the right thing to do, but in retrospect the ambitious stretch goals envisioned by the neurotypical Scrum coach were really what the customer wanted. They wanted gold plated MVPs that could only be envisioned and quickly realized by the neurotypical Scrum coach. The customer was somewhat disappointed with the neurodivergent Scrum coaches who only produced anemic MVPs. The customer really wanted gold plated MVPs every week, while the neurodivergent Scrum coaches simply couldn't keep up, and only produced periodic anemic MVPs. All in all, this was a successful Scrum transformation due to the buy in and support of the PMO, Scrum teams, POs, Scrummasters, and vision of the consulting firm to appoint a team of three Scrum coaches to assist the PMO. Of course, the real changemakers were the neurotypical PMO and Scrum coach. The neurodivergents were just there for support, but it did highlight the power of good old-fashioned teamwork in a mixed neurotypical and neurodivergent Scrum transformation coaching team. Scrum itself was invaluable as a neurodivergent communication coping mechanism. The project continued to use Scrum although the legacy APMO did not win the follow-on contract.*

Project D. *Project D was a 50-person web services project consisting of three Scrum teams. A neurodivergent Agile coach was hired to be the Agile leader of a $100 million digital transformation initiative of one of the largest domestic energy firms. The neurodivergent Agile leader quickly realized she was expected to do the work of four or five people, work 24x7, know and be everything to everyone, have all of the answers, be extroverted and charismatic, inspire and motivate traditionalists, and solve any and every problem imaginable on-the-fly. The neurotypes quickly realized they hired the wrong (neurodivergent) Agile leader with less-than-admirable qualities. The neurodivergent Agile leader also realized she was in over her head (like a deer-in-the-headlights). The neurodivergent Agile leader had a weak theory of mind (ability to predict the future) and was too mind blind to assume the client was seeking a neurotypical unicorn to single-handedly transform dozens of IT projects from traditional to agile thinking overnight. The neurodivergent Agile leader quickly changed gears, asked the neurotypical digital transformation leader for assistance, and said she worked better as part of a team. The neurotypical leader agreed to be part of the agile transformation for fear of losing face (since it was he who had hired the neurodivergent Agile leader in the first place). The neurotypical leader helped the neurodivergent Agile leader downsize the Agile transformation initiative to a very manageably sized MVP. Instead of transforming 12 or more global teams, the Agile leader was to transform three teams who were considered non-mission critical. The IT executives of the three IT teams were somewhat reticent to commit to an Agile transformation. The neurotypical leader went on vacation, so the neurodivergent Agile leader took over and scheduled the transition from traditional to Agile frameworks using Scrum. A 90-day release planning event was scheduled, a venue was reserved, the 50 IT developers were convened to use a simple highly structured Scrum-based project management framework. The neurotypical leader returned from vacation in the nick-of-time, facilitated the event, and a 90-day release plan was formed by three teams. Of course, the transformation skills of the neurodivergent Agile leader were somewhat lacking, so she retained the consulting and mentoring abilities of her colleagues who coached her on the basics of the Scrum project management framework. Working together, the neurotypical leader, neurodivergent Agile leader, Agile colleagues, and the Scrum teams themselves initiated the first Agile transformation of this very large energy firm.*

Footnote. These projects are real but represent < 5% of projects in which neurodivergent was better aligned.