VANNESSA McCAMLEY

REWIRE for SUCCESS

An easy guide for using neuroscience
to improve choices for work, life and well-being

Contents

How the Brain Works

How the brain works

We typically wander around with little understanding how our biggest asset works. Our brain operates on autopilot in the subconscious 95 per cent of the time.[1]

I believe we need to understand how our brain functions, performs and adapts to changing environments.

There are many unfounded myths about the brain, including:
Myth 1: We use only a small percentage of its capacity.
Myth 2: You can't teach old dogs new tricks.
Myth 3: Our brains are fixed by the time we reach adulthood.

The truth

We do have the capacity to leverage the whole brain by creating a new habit. To do this requires energy, focus, being in a reward state and repetition.

Our brains are not fixed in adulthood. You may have heard the phrase brain plasticity, also known as neuroplasticity. This term refers to the brain's ability to change and adapt as a result of experience.

For a long time, it was believed that as we age, the connections in the brain became fixed, and then simply faded. Research has now shown that the brain never stops changing through learning. Plasticity is the capacity of the brain to change with learning.

Neuroplasticity is the human brain's amazing ability to reorganise itself by forming new connections between brain cells (neurons). Learning new things is the key to our health and well-being, as it helps our brains form new connections.

In addition to genetic factors, the environment in which people live and their actions play a significant role in plasticity.

1. Daniel Kahneman, a Senior scholar at Princeton University, author of Thinking, fast and slow, 2011.

Let's look at some of the brain's core areas responsible for rational and emotional thinking, decision-making, innovative thinking and problem-solving.

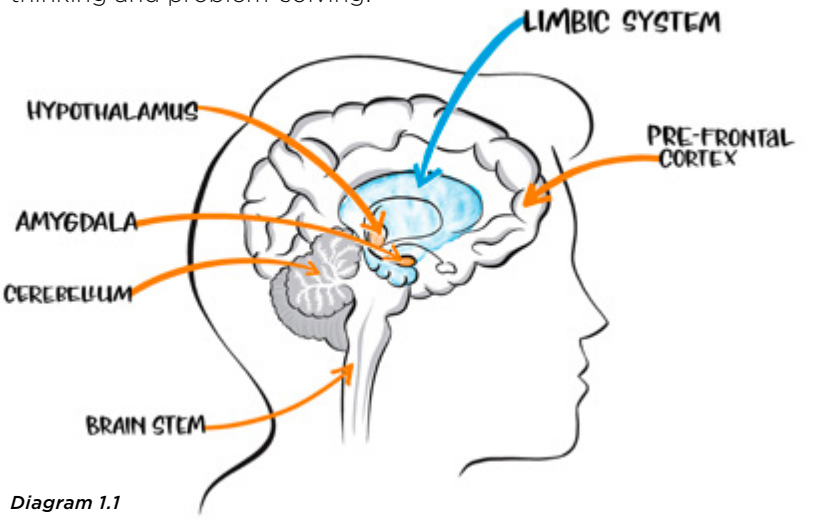


Diagram 1.1

Our brain is the most important asset we own. See diagram 1.1. I will explain some of the areas of the brain that come into play with functions such as leadership, decision-making, experiencing emotions and regulating emotions.

Brain Area	Description
Pre-frontal Cortex (PFC)	The PFC is the cerebral cortex covering the front part of the frontal lobe. This brain region is responsible for planning complex cognitive behaviour, personality expression, decision making, and moderating social behaviour. The basic activity of this brain region is considered to be orchestration of thoughts and actions in accordance with internal goals. The most typical psychological term for functions carried out by the prefrontal cortex area is executive function.

Limbic System	A component of the brain located above the brain stem that is responsible for three primary functions: emotion, memory, and arousal, including the hippocampus, the amygdala, and the hypothalamus.
Hypothalamus	The hypothalamus is in control of generating the body's numerous hormones. Consists of various stations which control the following functions: feeding, maintaining body temperature, control of water levels in the body and regulating sleep cycles.
Amygdala	An automatic response to physical danger that allows you to react quickly without thinking. When you feel threatened and afraid, the amygdala automatically activates the fight-flight-freeze response by sending out signals to release stress hormones that prepare your body to fight or run away. The name amygdala is derived from the Greek word, meaning 'almond', owing to the structure's almond like shape. The amygdala is part of the limbic system, a neural network that mediates many aspects of emotion and memory.
Cerebellum	Located at the back/bottom of the brain, behind the brainstem. Significant area used to function movement and coordination, including balance, motor learning, and vision.
Brain Stem	The heart rate, breathing, sleeping, and feeding are only a few of the essential processes of the brainstem. It also helps with conduction. The brainstem must carry all information from the body to the cerebrum and cerebellum, and vice versa.

Some basic facts about the brain

- It weighs around 1.3–1.4kgs and consists of 73 per cent water
- It consumes approximately 20 per cent of our oxygen and water intake
- The two key ingredients for optimal Pre-frontal Cortex function, are glucose and oxygen
- 95 per cent of the time our brain operates on auto-pilot and 5 per cent of the time we are conscious of thinking
- Attention is a limited resource – the human body sends an estimated 11 million bits of information per second to the brain for processing, and the conscious mind can only process about 40 bits per second[2]. Imagine what would happen to us if we were consciously aware of 11 million bits of information per second? We would literally go into melt-down. Most of the body's activities take place outside direct conscious control, so practice and habit formation are important.

Prefrontal cortex (PFC)

The prefrontal cortex controls our executive function, it is the CEO of the brain. It is known as our thinking and conscious rational brain and is located behind our forehead. The PFC comprises approximately 4–6 per cent of the brain's size and is the part of the brain that has developed the most since primitive times.

What job functions use the prefrontal cortex (PFC)?

The PFC is involved with problem solving, judgement, working memory, planning, anticipation, expressive language, analysis, inhibition of behaviour aka behavioural control (inhibition – like stopping yourself from saying something you will later regret),

2. Norretanders 1998 and Wilson 2002.

organisation, attention, initiation and risk assessment – just to name a few. It is an essential part of the brain, despite its size.

The PFC has limitations. How many hours of key thinking time (productivity) do you think we have in a day? On average, the PFC can be used optimally for around three hours in a 24-hour period[3].

To optimise your PFC, it is vital to maximise your precious time and energy throughout your day. Your brain can be likened to a mobile phone; if you have lots of apps and windows open, it slows down, shuts down or needs rebooting and charging. Our brain is similar; it needs the right balance of fuel throughout the day and night to recharge. Back-to-back meetings, continuous emails and multi-tasking are some of the things that drain its energy resources.

The limbic system

The limbic system, located above the brain stem, is the brain's emotional centre, and every thought goes through this part of the brain. We are emotional beings that think and not the other way around. With a corporate career spanning over 20 years, I was taught that business is just business; there is nothing to get emotional about when decisions are made from the top of an organisation regardless of how they impact your targets for the year ahead. This is yet another gap between what science knows and what businesses do.

The amygdala sits above the brain stem and is a component part of the limbic centre responsible for our fight, flight, and freeze response.

Why do we have an amygdala? To keep us alive, for survival.

3. Korn Ferry survey 13 November, 2019. www.kornferry.com/about-us//press/working-or-wasting-time Los Angeles, Nov. 13, 2019 www.codebots.com/library/way-of-working/how-many-hours-a-day-are-workers-productive www.cnbc.com/2019/11/17/67percent-of-workers-say-spending-too-much-time-in-meetings-distracts-them.html

It is our threat and reward response, the brain's organising principle. If you imagined you were on a three-lane highway, travelling at 120 kilometres per hour, and your tyre blew, which part of the brain would save you fastest? Would it be your PFC, that analyses and thinks through your options, or your amygdala designed to get you safe immediately? When you must make a decision quickly in life-threatening situations, it is likely your amygdala (our survival mechanism, subconscious and auto-pilot) that will get you out of this situation and to safety quickest.

The sympathetic nervous system is engaged when the brain detects a threat, triggering the so-called fight, flight, freeze reaction. Cortisol, a hormone that raises blood sugar and suppresses the immune system, is released, allowing energy to be transferred as a means of protecting against the perceived threat. Other hormones are released as well, including adrenaline (epinephrine), which raises heart rate, dilates bronchial airways, and constricts blood vessels, all in order to increase oxygen to the lungs and blood flow to muscles. You may feel your mouth go dry or your palms become sweaty when in a stressful situation, this means you're experiencing the sympathetic nervous system at work[4].

Think about a time you had a conflict with someone at work or at home. What was your thinking a couple of hours later? Did you think, "Why did I say what I did and why didn't I say this instead?" Depending on the severity of the threat, cortisol can block your rational thinking for a few hours or more. This means your emotional centre is in control, and your rational thought (executive / PFC action) is blocked and unable to inhibit your emotions.

4. ATD – Association for Talent Development article, The Neuroscience of Reward and Threat, 2016 www.td.org/insights/the-neuroscience-of-reward-and-threat

Flipping our lid (aka going limbic)

Have you ever heard of the concept of flipping your lid? It is something that happens within the brain when confronting a threat from the amygdala.

Dan Siegal, a clinical professor of psychiatry at the University of California, Los Angeles (UCLA) School of Medicine, author of several books and Director of the Mindsight Institute, has a simple explanation of the brain. It is so simple you can share it with children, but it also explains the relationship between our emotional and rational brain to adults effectively.

Professor Siegal explains that when we know what is going on in the brain, we can change what the brain does. The front part of the brain, the PFC, is the part that regulates the subcortical limbic and brain stem areas. This regulation is crucial because when we have things happen in our lives, such as being tired, exhausted, overwhelmed, and someone pushes an emotional button, we can flip our lids. Instead of being in tune, balanced and flexible, we can lose flexibility and reason and act in ways that are terrifying to others. Check out the reference section to view the clip[5], which is worth watching for the visual clues.

The amygdala

When we are busy, don't know what to do in a new role, or are learning a new technology, we can experience a situation that causes the amygdala to hijack control of our response to stress (aka the amygdala hijack). We let panic take over our thinking rather than proactively communicating in a positive manner. This response is triggered by emotions like fear, anxiety, aggression, and anger. Not only does it impact us, but also affects the people around us.

5. Dan Siegal, Clinical Professor of Psychiatry and author of several books and Director of the Mindsight Institute, has a really simple way of explaining the brain. Watch video www.youtube.com/watch?v=qm9ClJ74Oxw 2mins 31secs, 2012.

By actively stimulating your PFC, the reasoning, logical half of your brain, you can reduce or eliminate the symptoms of amygdala hijack. This may take considerable time and effort. If you make a mistake, it's okay; learn from it instead of bashing yourself up. Perfection does not exist, though learning is valuable and key for the brain's health long term.

It is a sign of the times that we are bombarded with loads of information, constant change, immediacy and heavy workloads. You can see a deadline as a threat (which chemically harnesses different activity in your brain), or you can see it as an opportunity to rise. You have a choice to either allow your brain to perceive things as a threat or see change as an opportunity.

Many neuroimaging experiments have shown that people with post-traumatic stress disorder (PTSD) have a greater level of amygdala activation[6].

The reward pathway

Two of the brain's key operating principles drive human actions: survival — food, sleep, avoidance of pain — and rewards. Any obstacle, event, or activity can be a reward if it motivates us, causes us to learn, or elicits pleasurable feelings. But how do our brains compute the value of a reward, and how is that translated into action? The answer lies in the brain circuitry known as the 'reward system.'

The reward pathway of the brain is connected to the areas that control behaviour and memory. It begins in the ventral tegmental area, where neurons release the neurotransmitter dopamine (the brain's natural happy / pleasure drug) to make you feel pleasure. The brain starts to make connections between the activity and the pleasure, ensuring that we will repeat the behaviour. Neurotransmitters are chemical

6. Biological Psychiatry article; Amygdala Activity, Fear, and Anxiety: Modulation by Stress, 2010.

substances made by the neuron specifically to transmit a message. See diagram 1.2[7].

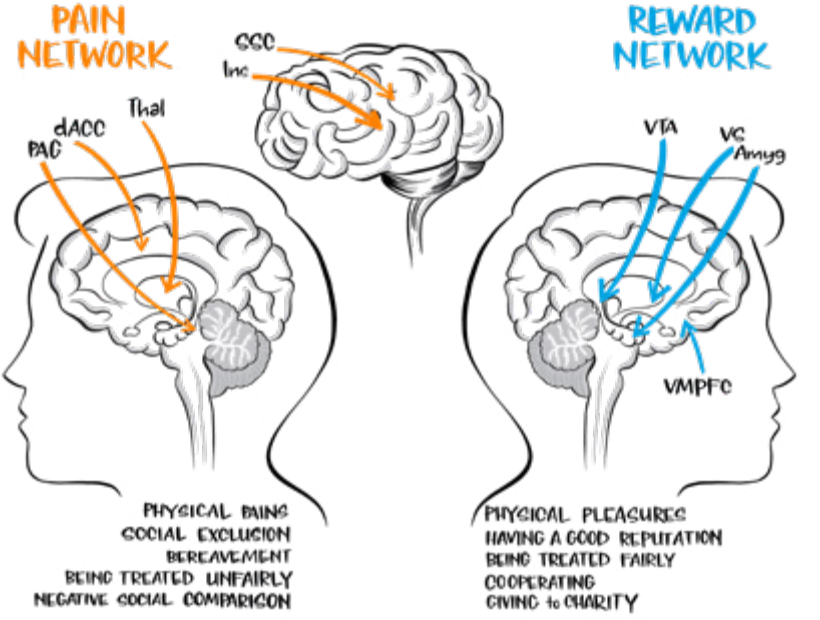


Diagram 1.2

The pain network consists of the dorsal anterior cingulate cortex (dACC), insula (Ins), somatosensory cortex (SSC), thalamus (Thal), and periaqueductal gray (PAG). This network is implicated in physical and social pain processes. The reward or pleasure network consists of the ventral tegmental area (VTA), ventral striatum (VS), ventromedial prefrontal cortex (VMPFC), and the amygdala (Amyg). This network is implicated in physical and social rewards.

Dopamine also enhances reward-related memories. It strengthens synapses — the junctions which neurons pass messages — in the brain's learning and memory centre or hippocampus. Dopamine signalling in areas of the brain that process emotions (the amygdala) and regions involved in planning and reasoning (the prefrontal cortex) also creates emotional associations between rewards.

7. Eisenberger & Lieberman, Pains and pleasures of social life, diagram sourced from sciencemag.org 2009.

It is not the reward itself, but the expectation of a reward that most powerfully influences emotional reactions and memories. Reward learning occurs when we experience something unexpected, when the actual reward differs from what we otherwise would predict. Suppose a reward is greater than anticipated, dopamine signalling increases. If a reward is less than expected, dopamine signalling decreases. In contrast, correctly predicting a reward does not alter dopamine signalling because we aren't learning anything new.

Dopamine responses vary from person to person. Some people's brains react more strongly to rewards than punishments, while others respond more strongly to punishments. The amygdala strongly influences reward learning and motivation.

Decision-making often involves evaluating risks in addition to rewards. Neuroscientists are investigating how the brain balances reward and risk and how your emotional state affects this balance.

Threat and reward responses have an impact on us, both physically and mentally. Compared with the reward response, the threat response tends to:

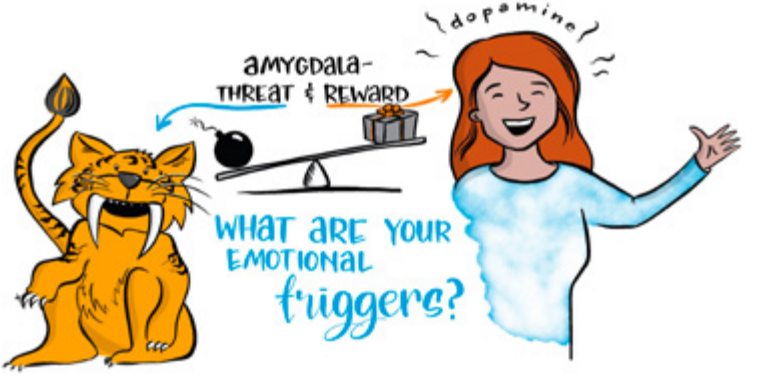
- speed the heart rate
- slow digestion
- release of hormones like adrenalin and cortisol
- shunt blood flow to major muscle groups
- impact other brain functions such as working memory, analytic thinking, creative insight and problem solving
- increase emotional response[8].

Just do it:

List the emotional triggers for flipping your lid. If you know what the most common ones are, you can be more aware as you feel

8. Young Diggers article; The fight or flight response: Our body's response to stress, 2010 www.youngdiggers.com.au/fight-or-flight; Strategy+Business article; Managing with the Brain and Mind, 2009 www.strategy-business.com/article/09306

your emotions rise, which allows you to get in early enough to take a break. Name how you feel, increase your oxygen intake and re-evaluate by asking yourself, "How else can I see this situation or what are the potential learnings for growth or how can I view this from the other person's perspective?"



Common client & team threat trigger examples:

- Having an overloaded inbox
- Being late for important meetings
- Being unprepared or having limited notice to be prepared
- Facing challenging situations such as dealing with a conflict between differing opinions, values and beliefs
- Having short notice deadlines and blaming others for missing deadlines
- Undergoing performance reviews
- Being hungry or dehydrated, when in back-to-back continuous meetings
- Multi-tasking, or having to do multiple things quickly and not as well as you can because of limited time provided
- Having an excessive workload
- Doing multiple people's roles due to resource shortages
- Unplugging from remote working (feeling like Ground Hog Day).

My threat triggers are when people blame others, not feeling I am adding value, wasting time, feeling I'm being taken for granted, and not having my needs for emotional connection met.

Perhaps these examples may get you curious about what your threat triggers are?

Being more aware of and probing why these triggers are important to you is helpful because they are usually instantaneous and controlled by your subconscious (reminder - we are on autopilot 95 per cent of the time).

Common reward trigger examples include:

- Being prepared and organised
- Establishing positive connections with colleagues which mean you can have a laugh together
- Being acknowledged for a job well done
- Receiving recognition through an excellence award
- Seeing people doing amazing work and collaborating effectively with other teams
- Receiving positive client feedback
- Achieving a goal
- Witnessing those in your team reaching their goals
- Getting to do what you are most passionate about
- Making a difference in the lives of others
- Being asked for your opinion and expertise.

My reward triggers include being recognised by my clients, family and friends for making a difference in their lives. Winning new client deals and accomplishing my goals provide me with big hits of dopamine.

What are your reward triggers? How could you increase them throughout your week?

Not all stress is harmful

Whilst it is clear that there can be serious outcomes from prolonged exposure to stress, some relatively new research suggests that stress can be good for you. It would seem our mindset about stress – whether we view it as harmful or as helpful – can profoundly influence how our body and brain react to stressors. Kelly McGonigal, a health psychologist, lecturer at Stanford University and author of *The Upside of Stress*[9], suggests we view stress differently.

McGonigal shows how to make stress your friend and provides research that supports the theory that if we change our mindset about stress, we can change the impact it has on us. The research she refers to in her TED talk (listed in the references section) studied 30,000 adults over eight years. The study asked two questions – how much stress have you experienced in the past year, and do you believe stress is harmful? Subsequently, the researchers examined death records to see who amongst the participants had died. People who reported that they experienced a lot of stress in the previous year and thought stress was harmful, had a 43 per cent increased risk of dying. Those people who experienced a lot of stress, but didn't see it as harmful, were no more likely to die. Other researchers refer to the importance of stress mindset and suggest we can have either a 'stress is debilitating mindset', or a 'stress is enhancing mindset'.

9. Kelly McGonigal is a health psychologist and lecturer at Stanford University who is known for her work in the field of 'science help' which focuses on translating insights from psychology and neuroscience into practical strategies that support health and well-being. Author of the upside of stress, www.youtube.com/watch?v=IaVKXx767rw 3:34 sec video, 2015.

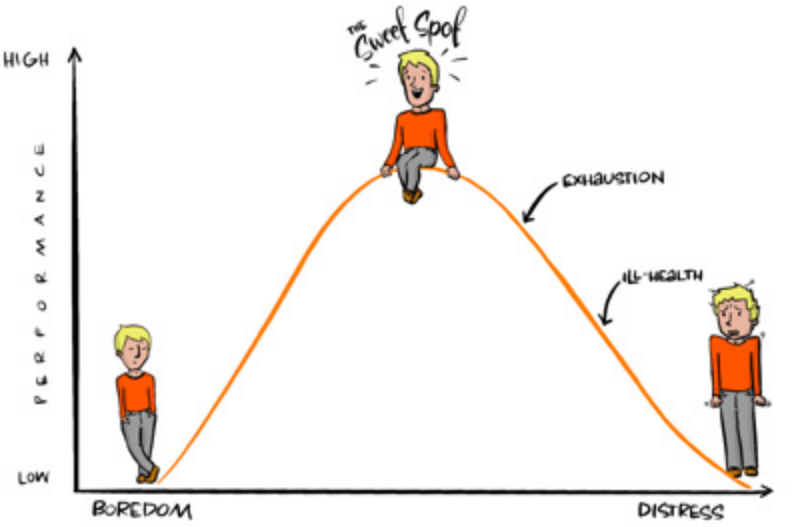


Diagram 1.3

Stress hormones and performance

In 1908, Robert Yerkes and John Dodson examined the range between our arousal and performance. The Yerkes-Dodson law suggests that our performance on any task will be poor when our arousal is low (an indicator of boredom) and too much stress may lead to distress / chronic stress[10] that has a shrinking effect on the PFC, the area of the brain responsible for memory and learning. As we get more aroused, i.e. motivated, excited and engaged, our performance picks up to a peak point, the brain's sweet spot.

The sweet spot for performance is at the top of the inverted U in diagram 1.3. This is where people work at their best, think at their best. This is where people experience flow, referred to as being in a state of neural harmony. It's also a state of maximum cognitive efficiency when we are performing at our very best.

10. Turo university Worldwide article 'The Mind and Mental Health: How stress affects the brain.' www.tuw.edu/health/how-stress-affects-the-brain

At work, or when you're doing something you care about, that's where you want to be and where you want people you are working with to be because that is where you get the best out of people. You want people to be in the middle in the sweet spot. It is vital to remember that no two brains are alike, which means that different stimuli will arouse people. No two people have the same arousal response, so identifying people's triggers provides valuable insights.

As mentioned, it is impossible to be in the sweet spot for huge amounts of time as our energy and attentional focus runs out of gas. That's why planning the structure of your day is imperative. Consider the time of day you do your best thinking, and when you work, take brain breaks at least every 45-60 mins for 5-15 minutes and increase your oxygen during these breaks. Communicate with others when you are doing your deep thinking, so they don't unnecessarily interrupt, and turn off devices, messaging sounds and pop-up messages. It is also crucial to allocate time for the unknown throughout your day. In my experience, there is always something that changes or happens or people that need your attention. See section 2 'Organise your daily structure based on when you do your best thinking' for more information and tips.

Just do it:

Answer the following questions:

- What does your performance sweet spot look and feel like?
- How long can you keep your attentional focus for?
- When does it make sense to add 5-15 minute brain breaks throughout your day to re-energise?
- What activities could you do in your 5-15 minute brain breaks that allow you to increase your oxygen uptake?
- What strategies could minimise internal and external

distractions during your sweet spot?
- What does high stress look-like for you?
- What are common distress triggers for you?
- How could you minimise high stress and perceive it differently?

It is okay if you don't have answers to all these questions yet. I recommend coming back to this page as you continue reading.

Working from home during COVID presented a mix of benefits and challenges (stressors). The main benefits were increases in productivity, flexibility, autonomy, focus, work-life balance and reduced commute time by at least six hours per week. Some of my clients saved 20 hours a week with reduced commute time, which was fantastic.

Some of the challenges were setting up technology remotely, internet bandwidth, loneliness, miscommunication or a lack of communication, too much information, back-to-back meetings, no brainstorming ideas over the water cooler, in the office kitchen or sharing a coffee, and distractions with other household members working and schooling from home.

Several of my clients found that unplugging after work, managing exhausting back-to-back video conferencing calls and inadequate exercise throughout the day was detrimental to their overall health and fitness. One client gained 15 kilograms in three months and is now doing the hard yards training and dieting, which is initially harsh on the body.

If you have some of these challenges, I will provide some more ideas for your consideration throughout the book.

Strategic decision making

Interestingly, intuition, also known as a gut feel, (which I have always found fascinating) is located in the limbic system. There

is no language in this part of the brain, so people sometimes refer to intuition as gut feel. I have often heard executives comment, "I know the data is telling me to decide in a particular direction, but my gut feel tells me it's not the right choice." Some of the best strategic thinkers show more activity in parts of the brain linked with emotion and intuition.

Interesting research from Asana Anatomy of Work Index 2021[11] shows that only 13 per cent of Australian and New Zealand workers' time is spent on forward-looking strategy. Asana is a web and mobile application designed to help teams organise, track, and manage their work. I have been a spokesperson for Asana providing brain friendly solutions to the Anatomy of Work Index 2021 results.

How important is strategic decision making for you in your current work? Would you like to improve in this area? Are you curious about what this could look like for you in the future?

What's involved with change

Change is all around us and often happens in a short period of time. It's an inevitable part of life. Some people thrive on change, but for others, it's very stressful. How often do we really think about how our brains deal with change? Why change is sometimes challenging to deal with? How we can more effectively manage change?

We operate in a world that doesn't stand still and is becoming increasingly complex, so it is crucial to understand our environment. We need to value and encourage innovation and see change as an opportunity, not something that needs to be managed in prescriptive ways. However, we haven't yet adapted sufficiently to deal with increased complexity.

11. Asana Anatomy of Work Index 2021. Accessed from: www.asana.com/resources/anatomy-of-work In October 2020, quantitative research was conducted by Sapio Research on behalf of Asana, to understand how people spend time at work.

Many people are frightened by the thought of change. Perhaps we need to alter our language by replacing the word 'change' with names such as organisational growth, vitality, and innovation. Organisational 'CHANGE Projects' shouldn't have finite time frames but should be continuously evolving.

Our brain works hard to decide if a reward is significant enough to warrant the energy hungry process of changing. The brain is an energy conserving organ and will resist change because it takes cognitive effort and uses up valuable oxygen and glucose resources. Fundamental to change are the judgements we make about whether to act or not to act, based on the sum of risk value + reward value. The result should be positive in the affirmative.

This means if we perceive the reward to be unworthy of the risk, we are unlikely to engage in change. The brain will decide it's not worth the effort. Therefore, it is critical to share the WHY of change to help people see the benefits of spending large amounts of precious cognitive resources in a change process. As the brain is wired to detecting threat / risk, the reward needs to be perceived as significant.

Because the brain loves to predict what will happen next, providing certainty is very important to the success of a change process. It is often overlooked and undervalued in the change process. With change, managers seem to assume that everything will be okay, and they don't deal with the uncertainty that change can create for most people.

We need people to feel certain about the purpose, benefits and steps involved in the change, and mitigate any potential risks, so their brains perceive the change as worth the effort (the reward for changing!). People need to feel that it is okay to do something new and different that they haven't experienced before, without feeling frightened.

Just do it:

What have you observed about how you deal with change? How could you see change in a different way?

The basis of neuroplasticity

One of neuroscience's most significant discoveries is neuroplasticity. This is the brain's ability to adapt just like malleable soft plastic can change shape. How does it work? Think of your brain as a dynamic power grid, with billions of neural pathways or roads lighting up every time you think, feel or do something. Some of these roads are well travelled; these are our habits. These are our established ways of thinking, feeling and doing.

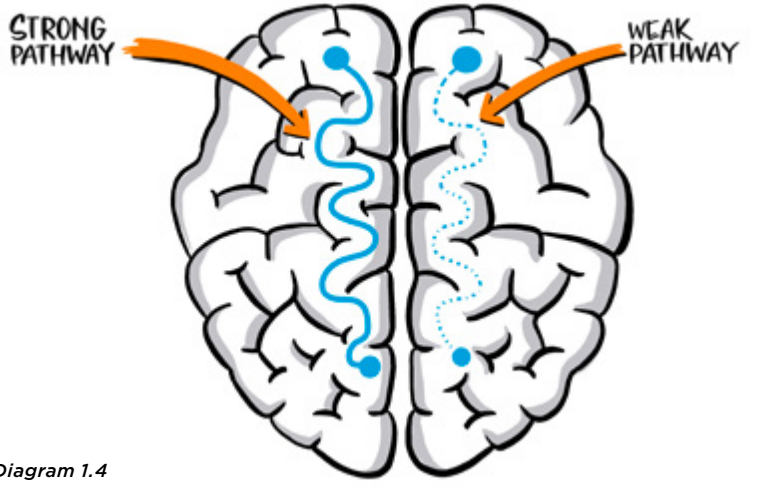


Diagram 1.4

Every time we think in a certain way, practise a particular way of doing something or feel a specific emotion, we strengthen these neural roads, and it becomes easier for our brains to travel them. This saves neural energy – as our brain is an energy demanding

organ. When we learn a new task or emotion, we carve out a new road. As we focus more on a new habit, the old road weakens (see diagram 1.4). This process of rewiring our brain by forming new connections (new roads) and weakening old ones is neuroplasticity in action.

"Neuroplasticity can be defined as brain's ability to change, remodel and reorganise for purpose of better ability to adapt to new situations". Vida Demarin, Neuropsychiatry[12].

Just do it:

We often have behavioural habits that no longer serve us in this busy digital age. What is one behavioural change you would like to make? What would it look like to achieve it? Write it down, and we will review this later in other sections.

12. V Demarin, S Morovic, R Béné. Neuroplasticity. Periodicum Biologorum. 2014;116(2):209-211.

VANNESSA McCAMLEY
REWIRE for SUCCESS

Are you feeling overwhelmed and at risk of burnout by the relentless pace of change that contributes to our uncertain world?

Are you searching for a framework that delivers effective decision-making and insightful problem-solving: one that allows you to bounce back from obstacles and ensures healthy balance and well-being?

If you answered yes, **Rewire for Success™** is essential reading.

Harnessing what neuroscience has revealed about the human brain and how this impacts our behaviour, Vannessa McCamley introduces a simple and effective framework that provides strategies to create less stressful, more purposeful careers and lives.

Rewire for Success is written with deep insight into neuroscience and the corporate world, along with Vannessa's trademark warmth and compassion.

Author Profile

During a successful career in which she held senior management positions with multi-nationals, **Vannessa McCamley** witnessed the myriad professional and personal challenges faced by executives, employees and entrepreneurs.

Believing there had to be a more purposeful, less stressful way to live, Vannessa studied what neuroscience revealed about the human brain and how this translates to our behaviour and impacts our ability to achieve goals.

Today, Vannessa helps individuals and organisations to understand how neuroscience can improve leadership, self-leadership, resilience and peak mental performance in the workplace.

linksuccess
www.linksuccess.com.au