



Data in the design process

How we improved our workspace with the use of stress data



5 min glance
30 min read

Key takeaways:

Improving workspaces is a design process. At Framery, we recently tested the use of stress data in a situation where our company wanted to improve its work environment to better match the needs of our employees. We combined this data to other sources of information, including survey responses and interviews. Based on these data-driven insights, we initiated improved changes to succeed in our workspace project.

It's necessary to consider individuals and teams, when planning workspaces. In practice this is about getting to know individuals – what stresses them, what brings them joy and what spaces they need in order to be fluent at work. Our test found that stress data can be utilized when investigating each user's needs. These insights are highly valuable when designing user-friendly spaces.

Get tips on how to study stress levels – and how your organization can develop its workspaces in a data-driven way.

Human-centric workspaces

What do the best offices in the world have in common? Is it the office layout – open plan, enclosed or the modern activity-based office? Or is there a specific desk-sharing ratio that should be considered? Ergonomics or gimmicks?

“An outstanding workplace is simply one that superbly understands the needs of those who use it and builds an employee-centric workplace experience that meets these needs.” (Leesman)

Studies on the best workspaces in the world have revealed that the best ones are designed in a human-centric way. In other words, there is no one-size-fits all concept that can be copied from one organization to another. Instead, the best workspaces are designed with careful attention to the employees and their needs. This is important, as at the heart of the workspace stress is the mismatch between an employee and his or her work environment (source).

A good employee-workspace match is worth striving for. According to research, we have two psychological needs that explain how satisfied we are with our workspaces. Our workspaces should meet our needs for privacy and relatedness. We need to feel that we are part of a larger group, yet we also need a sense of privacy when needed. The human-centric workspace design aims to answer to these needs. The starting point of the design process is that we are different in many ways. Besides the obvious differences in work tasks and mobility profiles, we are also different in other ways, such as how sensitive we are to distractions and noise.

At Framery, we believe that workspaces influence employees' happiness. That's why we recommend investing in workspaces. The human-centric workspace design is the way. Find the hopes and needs of your employees and translate these needs into workspace requirements.

Understanding the employees – end users of the workspace

What we've learned in our field of business is that the best offices in the world put their individuals and teams at the heart of the design process. This means that when there are going to be changes in the work environment, it's vital to understand what the employees and teams

require in order for them to have creative and fluent workdays and to be able to fulfill their various tasks throughout the workday. So, the work environment change is essentially a design process.

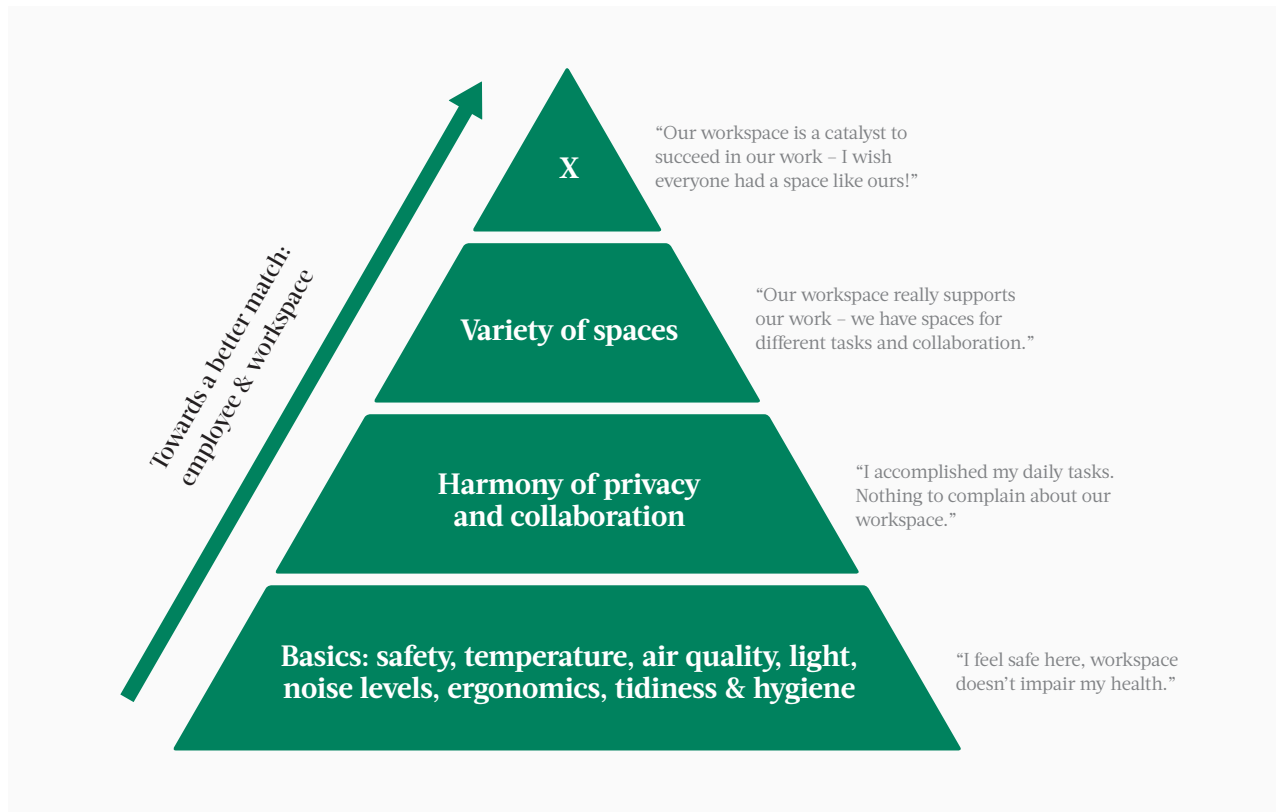
This human-centric design has lots in common with service design. Both focus on the end-users and both aim to deliver the best value and experiences for them. Service design is a method that aims to create services that really match the end-users' or customers' needs. It is a learning process with genuine interest in understanding the end-users. Service design can be also described as creative problem solving and as a continuously evolving process. It can be applied to various purposes, including to workspace design. Workspace design can benefit from service design tools and practices, as modern offices should support the constantly changing work and business life.

The service design process can be described with different concepts, such as Double Diamond process or Stanford Design Thinking Process. Common to the concepts are that they begin with understanding the end-user. This is sort of a learning phase: digging deep into the end-users' work days and learning about their daily pains and gains. How do the end-users see the workspace? What motivates them? What sort of daily routine do they have, what are they trying to accomplish daily?

This human-centric workspace design is something that we at Framery are interested in. First, our products are there to make offices happier. Second, we are always looking for ways to improve the wellbeing and happiness of our own employees. We have our own diversified team dedicated for this. The team members in what we call Kaguar Works work daily with topics such as research, services and new technology.

Our workspace research has come up with this first version of a “workspace need hierarchy” – to sum up findings from service design and work environment research. The purpose of this was to find words that are human-centered around workspace design.

Case Study



The idea goes as follows. As in the traditional Maslow’s needs hierarchy, in this pyramid the lowest levels must be fulfilled before you can enter the next. And you can go to the next level by gaining more insights about your employees and their needs through the work days. The goal is to create a workspace, that does not only enable working alone and meetings, but is a platform for experiences, learning and accomplishments. The ground level consists of the basic building blocks of any work space: safety, temperature and noise level to mention some of them.

The second level is about finding the right balance for working alone and together. In different companies this might mean different workspace settings. For example, academic work requires the ability for laser-like focus, while marketing teams may need inspiring spaces for collaboration. Research points to the direction that meetings are between fewer people than before, so a variety of meeting spaces is a big plus.

Case Study

Finding the match: what causes stress and excitement?

While working with this workspace need hierarchy, we have been experimenting different ways to understand why some workspaces suit certain teams and individuals better than others. For example, the office where product development is located, also accommodates our research team. We have learned along the process that the collaborative work of development work causes lots of talk and noise. This noise is a stress factor for research team every now and then. This and other findings have led us to investigate more workspace stress.

What is stress?

When people talk about stress in the workplace, they usually start naming things that cause stress - i.e. workload, deadlines and unrealistic targets. And they commonly refer to actions or situations that are unpleasant that they'd prefer to avoid. However, stress is not something negative that happens to us nor something that needs to be avoided. Stress, when we look at it as a biological process, is our body's natural response to a situation that needs adjusting. When we start to look at stress as our body's mechanism to cope with situations that require energy, we can then use the physiological response for our benefit.

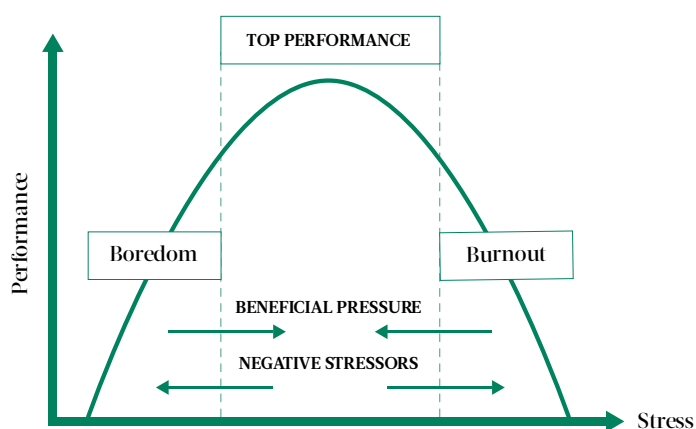
Professionals like to distinguish between acute and chronic stress. Acute stress is a momentary pressure that boosts performance. The brain detects a threat or an exciting opportunity and initiates a complicated process through the sympathetic nervous system - the heart starts pounding, blood pressure spikes, pupils dilate, palms sweat, adrenaline rushes - all this to energize the body to act properly.

After the situation ends and the brain believes it's safe again, the parasympathetic nervous system kicks in, allowing the body to relax and recover. The two branches of the autonomic nervous system - sympathetic and parasympathetic - work like a seesaw. The more intense the stress reaction is, the less room there is for the recovery to take place. To live a healthy, happy and productive life, the autonomic nervous system needs to reach balance every day. On the other hand, chronic stress develops over time due to inadequate recovery. The sympathetic nervous system is more active than the parasympathetic nervous system, resulting in an imbalance of the autonomic nervous system.

Positive and negative stress

Stress is a good thing when the amount is right. It was already in the beginning of the 20th century when researchers Yerkes and Dodson made the notion that peak performance is achieved alongside the proper amount of stress. Too much stress may lead to burnout and too little stress to boredom. Too little stress leaves our bodies under-stimulated. We need stress to feel good, motivated and to perform.

Stress is needed for high performance



The stressors of modern life are usually not physical as in the caveman times where it was survival of the fittest and we had to physically fight tooth and nail to survive.

Instead, today the things that stress us as human beings are more caused by emotional and cognitive stress. Knowledge work contains distractions, fast pace, escalating tasks, multitasking, intense social interaction and so forth that can all be stressing - depending on how your brain thinks about them.

It is also important to understand that positive stress - i.e. excitement, job engagement, wild ideation - wears out too. One common factor behind all these positive and negative stressors is that they keep our energy levels high, brains busy and therefore affect our ability to concentrate. A concentrated brain is a stress-free brain.

However, the tricky part is to know what the right amount is. As the stress reaction is initiated by our brains, we're not always aware what really causes us stress or arousal, to put it in a more neutral way.

Case Study

Because of our conscious mind, it's possible that your brain detects threats or gets excited without you ever realizing it.

Measuring your body's physiological signal, such as skin conductivity, gives an interesting view on how your body really reacts to different situations. As we start to understand what our own individual stressors at work are, we can begin to manage the stress to reach our own individual peak performance.

Work environment stressors

In every single work environment, you can find the most common stress factors – distractions. Distractions come in many forms. Someone walks suddenly behind your back and you startle. People quite near you are having a conversation and you hear them mentioning a project you're working on, making you curious about what's going on. The door bangs and your loudest coworker greets everyone at the top of her voice. A notification beep from a smartphone app. To block the noise and distraction from the flow of people, you put your headphones on and listen to some music, which can be a distraction in and of itself.



Distractions, noise, hustle and bustle of people flow, and lack of privacy are the most common factors that cause stress in the work environment.

Work environment stress can be seen in our brains. When there's a sudden noise or movement in the background, the "alarm system" in the brain switches on, informing us that something is happening. Even if the something is just harmless talking nearby, the brain informs us. Especially harming is the talking from which you can distinguish words, when you're concentrating on reading or writing. This is because the same part of the brain is responsible for hearing, reading and writing functions. The brain has no capacity to deal with audible talk, in addition to reading and writing.

Stress in the work environment is a combination of environment-related and human factors.

When two people work in similar conditions, their reactions are different. Depending on each individual's reaction type, work environment stress manifests in the body, in thoughts, feelings and behavior. In the work environment, there can be many stress-provoking factors, such as lack of space and distractions. But what's interesting and important is that when it comes

to stress reactions, the human factors are critical. What sort of stress reactions arise? Does one notice the symptoms and how one deals with stress? A similar situation in work causes different physiological and psychological reactions: some of us react strongly, some very little. The people flow and chatter in the office may be very positive to someone, feeling energized and that something interesting is happening. On the other hand, someone can find it very overwhelming to work in the middle of movement. This is why it can't be generalized that some factors in the work environment are **always** stressing – each individual is different.

Distractions are tricky. If we try to eliminate all distraction in the work environment there will be no communication. Without communication there will be no organization working towards the same goal. Therefore, getting rid of distractions is not the answer. Rather, learning to manage those distractions properly is the answer. Some of the "distractions" are highly useful for the organization, such as sharing ideas and spontaneous collaboration. These positive interactions turn into distractions when it takes place in the wrong workspace or if the timing is bad. So, eliminating all interactions and distractions is not the way to go.

Because work environment stress is about interplay of the work environment and individuals, it's necessary to consider the following.

1. **Minimize** distractions where they need to be minimized. Remember to keep some areas for interactions and good debate, while keeping some areas calm (with acoustic screens and walls, phone booths, library spaces and balance of collaboration and concentration spaces).
2. **Variety.** This is about human-centric workspace design. Find the needs and create spaces for formal and informal collaboration and for larger and smaller groups. Purposeful variety is the key to supporting the variety of people that are working in the same space.
3. **Office etiquette** – it's also about the ways of working. Decide together about the common house rules – such as which meeting rooms must be reserved in advance and which can be used ad hoc, as the need arises, and which areas are okay with noise.

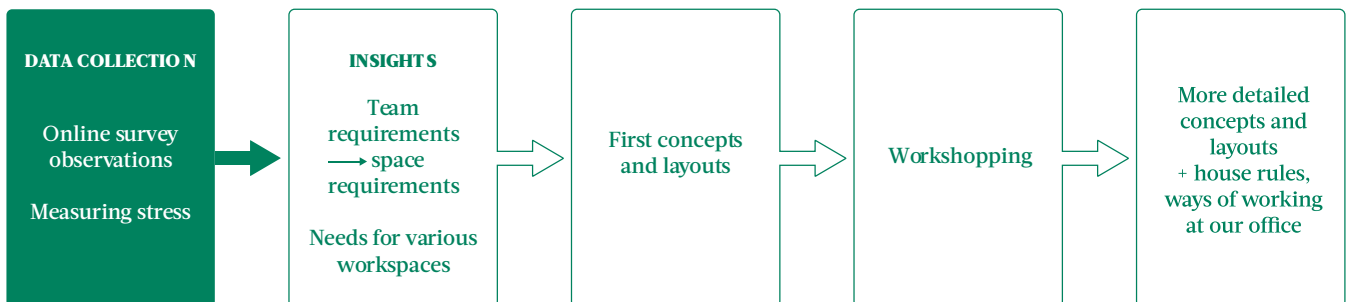
Case study: Workspace Design Process at Framery Headquarters

At Framery headquarters in Tampere, Finland, we were in a situation where our work environment needed change. It was very much unclear what sort of change was needed, but we just knew that something wasn't working. A clear sign to improve our workspace happened in 2017, when the amount of people working in the same office doubled. Some spaces were too crowded, and teams were located a bit too far from each other. We also knew already back in 2017 that distractions are a huge source of work environment stress. Our company's overall goal is to improve happiness, so we genuinely aimed to succeed in this area.

Framery Headquarters	 Tampere, Finland
	 200+ employees
	 Production & office

Therefore, improving the workspace for Framerians is both inspiring and challenging – the work environment should support a myriad of different work tasks and personal needs. There were two things we were especially interested in:

1. Stress in the modern working world is real and it comes from many sources. We don't want our workspace to be a source of stress. We wanted to measure which spaces actually lower stress levels.
2. We needed to find out the real needs of our different teams and individuals. For this purpose, we collected data and gained insights from it.



We wanted to improve our work environment by first understanding the needs of our individuals and teams. Framery employees sit within a unique group of different teams. What's quite interesting is that the actual production of the pods and office work take place in the same factory. Our production colleagues' main workspace is the production site, but they also need spaces for breaks and one-on-one meetings with supervisors. Office people and their work days also vary a lot. For example, our Finance team does a lot of focused work at their own desks, but every now and then they require a private space, when someone needs to discuss confidential matters such as payroll or absences. Our R&D team is a loud and messy team located at the end of the office, prototyping and testing new ideas (and frustrating our facility manager with their untidy workspace). In the same office there are numerous other teams, such as People & Culture, Sales, IT and Marketing.

The process above describes how we discovered our true needs and requirements. First, we observed the spaces, looking closer into which spaces in the workplace are overused and underused. Everyone took part in an online survey. The survey asked about necessary materials, ergonomics, monitors, space requirements, focus-related topics, feedback on improving teamwork, and how to improve the breakout areas. Besides observations and survey, 22 employees took part in stress measurements (learn more about this below). Besides data from the three methods, we gathered insights about our individuals and teams. We designed initial layout concepts and workshopped with at least one participant from each team. We had open and honest discussions about what works and what doesn't, feelings and fears about the changes, house rules and more. These translated into many improvement ideas and finally, new layout concepts.

Let's dig deeper with one of the need assessments: stress level measurements.

Case Study

Understanding our employees: measuring stress

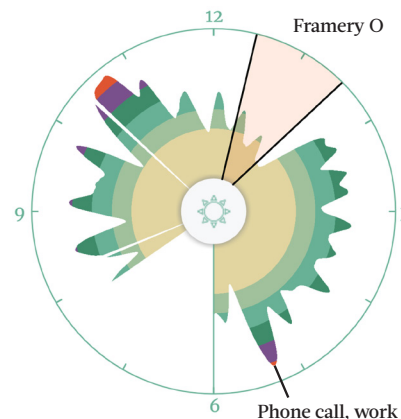
One way how stress manifests is reactions in the autonomic nervous system. This can be measured with wearable technology: Moodmetric rings. Moodmetric ring measures the changes in autonomic nervous system and sends this data in real time to a mobile application. The application analyses the data and draws a curve that describes daily stress and recovery reactions.

We ordered five different sizes of Moodmetric rings and recruited 22 employees from different teams to wear the ring for at least three days. Everyone was guided on how to use the ring and were advised to use Framery O and Framery Q 1-2 times during the day – when it was suitable – for 30-60 minutes. The participants wore the ring for the whole work day. After the measurement period the participants were interviewed about what environments were peaceful and what sort of stressful events they had along the day. The results from the measurement and interviews were noteworthy and fascinating, at the same time.

Finding 1. The stress levels while working in the pod were typically decent and rather low – but not every time.

The stress reaction while working in our pod was sometimes high, even if the space was very calm. This is understandable. If you have a stressful task, thought or phone call to do, the stress reaction can be high, no matter how calming the workspace is. Another finding was that when talking about introverted people, they especially need privacy. The data must be combined with interpretation – this is why we had short interviews after the measurement period.

In many cases, the levels were low: (And check out what happens when you receive a phone call from work on Friday evening!)

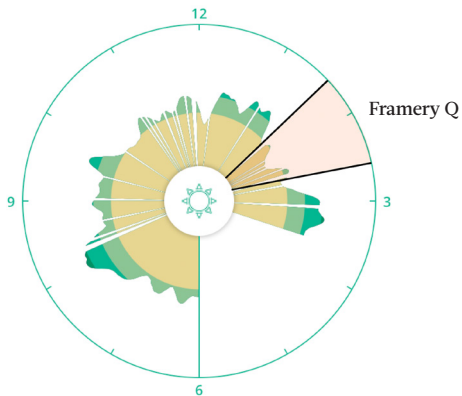


Finding 2. We truly have very different employees, when it comes to reactivity.

When we analyzed the data, we found out that the diagrams were dramatically different. Some people had very low levels generally, while others varied. We have our individual reaction types. Some participants gained personal insights: “I thought that working in the open space was fine for me, but it seems that my stress levels were the lowest while working inside the pod.” Similar situations provoke different reactions. One team has relatively similar work days, but the diagrams (i.e. stress reactions) were very different from each other. Our insight was that we must have a diversity of spaces for the diversity of our employees – spaces where our extroverts can enjoy the buzz and areas where our calm introverts can have a stimulus-free work environment.

Case Study

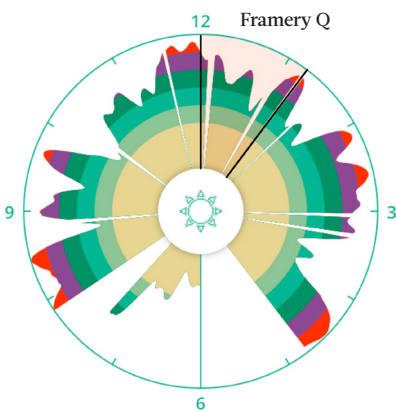
A very steady day with no stress peaks



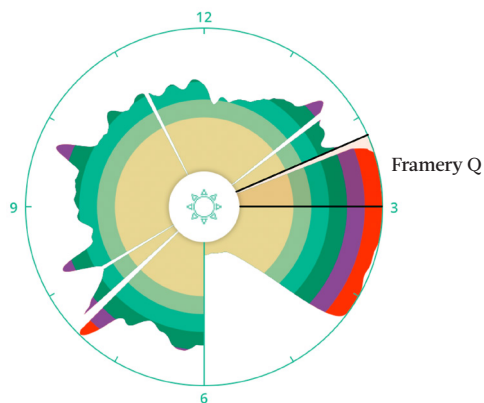
Finding 3. Private spaces can be a resource along the work day.

According to this study, we can't say that working in a private enclosed workspace always decreases stress levels. However, what we learned was that these spaces can be a resource for you and your colleagues throughout the workday. You have the knowledge that somewhere near you at the office is a space that you know has a calming effect on you. According to our findings, these spaces can be used for calming down at points during the work days.

A day with lots of stressful moments



This is what excitement looks like! The participant was looking forward to a basketball match in the evening.



Lessons learned: workspaces are an evolving work-in-progress

Humans are not immune to environmental factors, such as to disturbances, to people and to their feelings, the feeling of hurry and to the functionality and aesthetics of the work space. Therefore, it's extremely important to consider employees when improving the workspace. Today's knowledge work is cognitively demanding, so from this perspective it's also essential that the workspaces support fluent and creative work.

The tasks of knowledge work include thinking, problem-solving, creative combining of information, meetings, understanding of feelings of others. These are tasks which challenge the workspaces. Even if digital tools make it easy to do work anywhere, it should be questioned whether we should work anywhere. We should work where it is convenient and we can flourish. Humans can't flourish anywhere, and different people require different requirements in order to work fluently.

Improving work environment is a design process. This means that we can't know for sure what the outcome is. Design process also means that we must keep in mind the users, for whom we're designing the space. It's not a generic user, but each is a coworker who has his or her own special needs, dreams and creativity-killers. The design process should try to focus on these needs. After collecting insights about what the users need and want, you can translate these needs into space requirements.