FORCE
Technology

Derisking
Tomorrow

Human Factors in culture and organisations

Strengthen safety, performance and culture by understanding how people shape and are shaped by their work systems.



Introduction

For more than 30 years, Force Technology's Human Factors team has helped clients develop their organisations, assisting them with organisational transformations during times of change.

We have supported organisations in introducing new technologies and new ways of working when they sought to improve safety or performance, or when they were undergoing major cultural changes.

- From developing a new control room or production facility or creating new workflows and training programmes, to changing the entire way the organisation thinks, talks and learns about safety and performance.
- From the performance of frontline workers to leadership style at the management level.
- From small deliveries and spot checks to entire transformation programmes.

Based on a combination of a human-centric approach, occupational and organisational psychology, and our Human Factors expertise, we utilise psychological methods, empirical data and knowledge to deliver insights, recommendations and interventions.

We provide input on the design of organisational adjustments, manage fixes and spot checks, and deliver comprehensive transformation and culture programmes involving tools and methods, as well as leadership and learning processes at all levels within the organisation.

You can read about our methods, our approach, philosophy and how we work in this brochure. Please get in touch, we would be happy to elaborate on how we can support your project or major organisational transformation.

The purpose

With a human-centric approach and proven psychological methods, organisations can build stronger teams, resilient systems and a culture of trust and continuous learning.

Value

Using a human-centric approach and creating capacity to improve human and organisational performance

With a human-centric mindset, our fundamental assumption is that people in organisations are not a problem to control. They are the solution. Instead of trying to change people through control mechanisms, we employ bottom-up approaches that engage and empower people and embrace the diverse perspectives they bring to the table. This influences people's motivation and general well-being.

When Force Technology improves organisational performance, we focus on strengthening the safety culture, creating alignment within teams and ensuring sustainable performance in dynamic environments. We view people as a capacity, and when we develop and strengthen this capacity, we improve human and organisational performance, creating stronger and more resilient systems.

We employ a human-centric approach to people within organisations, combining it with our extensive knowledge from psychological research on humans in general, including perception, cognitive processes, emotions, personality traits, behaviour, learning and decision-making. This knowledge, which is the core of our psychological expertise, can be utilised in our analyses of systems and our design and orchestration of organisational interventions to create systems and organisations which fit humans.

Combining contextual understanding with solid psychological knowledge
Combining insights into the context, drawn from comprehensive ethnographic observations and field studies, with knowledge about humans in general gives us advantages. Our recommendations and interventions become evidence-based, i.e., not only based on generalised assumptions and superficial understanding from desktop research, but also on the vast amount of established psychological knowledge combined with a deep understanding of the context. We use this knowledge to dig deeper and understand the underlying psychological explanations for how people act and interact in organisations, which gives us the opportunity to treat symptoms and address underlying mechanisms. We use it to plan organisational and cultural interventions with a profound impact and lasting effect.

Creating capacity and improving performance
Involving our Human Factors team will help reduce use errors in operations, incidents and near-misses, ultimately creating capacity and resilience. It will improve performance, as we uncover the individual's and the team's ability to perform tasks safely and efficiently, both in routine tasks and in complex situations. We believe that a healthy culture prioritises a positive safety culture with organisational learning, open communication and worker involvement.

Fostering a culture with psychological safety
Incorporating key Human Factors principles increases organisational performance and leads to better work conditions. We will help you ensure that work conditions set frontline workers up for success by actively involving them, making them co-creators of their own work conditions. This will strengthen their motivation and foster a culture of genuine ownership, trust and empowerment.

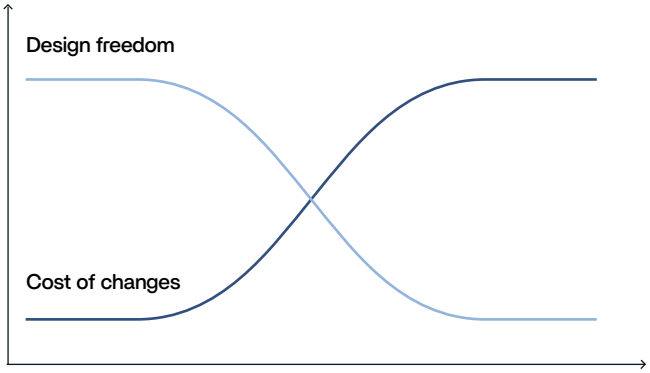
We utilise our combined 25+ years of experience to help you create an environment that ensures psychological safety. A culture with psychological safety allows workers to feel free to speak up, raise concerns and ask questions. It creates a space where workers share ideas for improvement and admit mistakes without fear of punishment or humiliation. To reduce incidents and errors, it is crucial to have an environment characterised by honesty, transparency and prioritising workers' well-being as a cornerstone.

Collaborate with the Human Factors team

Involving Human Factors from the beginning enables long-term, sustainable solutions.



We advocate for long-term and sustainable solutions over temporary fixes. To achieve long-term viability, early Human Factors involvement is critical because it enables greater influence on the design in the early stages, when design freedom is highest, and prevents costly redesigns at later stages. This reduces overall development costs and improves the efficiency of the design and integration process.



Integrating Human Factors into organisational and work processes
We can support organisational design and integration in many ways and at any time. We can be involved throughout the entire process, from early ideation and concept development to roll-out and follow-up, or we can step in for specific interventions along the way.

This includes solving issues and managing barriers, and by extension, optimising or improving existing processes and systems to create a better user experience, better workflows and a reduced risk of use errors.

How we work with you
We collaborate closely with project teams, management and frontline workers, contributing with our Human Factors expertise in data collection, analysis, evaluation and validation. With more than 25 years of combined psychology-based experience, we draw on a broad toolbox of methods, always choosing the least invasive and most efficient approaches that still ensure robust, high-quality results. We adapt our involvement to each project: either working as part of your team or delivering independent packages.

Deliverables and outcomes
Our work results in clear findings and actionable recommendations. We take pride in delivering the results needed for the process and transferring knowledge and qualifications to the client's team.

Our preferred methods of conveying the results include presentations, coaching, training, workshops and learning materials, which can be tailored to fit the client's preferred formats and supported by reports and written documentation.

We also deliver documentation for compliance and standards as required by the authorities. When products, systems and organisations are designed with Human Factors in mind, they are naturally aligned with international standards, minimising certification risks and approval delays. But we do not stop at the compliance and approval phase. We are committed to continuously supporting you and ensuring a high level of quality at every step, even as your needs and goals evolve.

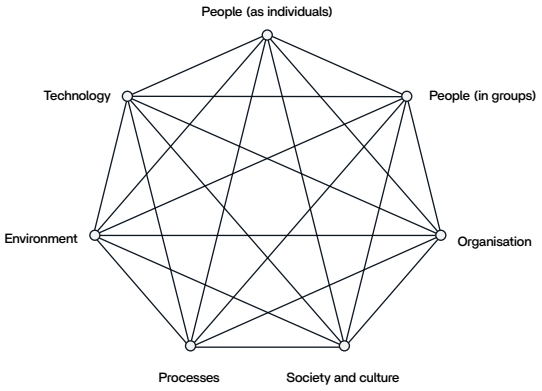
Knowledge transfer and coaching
Beyond delivering project results, we build capability within client organisations through tailored learning and coaching. These activities can be integrated into ongoing projects or offered as stand-alone workshops on specific methods and concepts.

For your benefit, we also offer 'train-the-trainers' courses, where we equip your instructors to train the workers more efficiently. We provide support throughout project development and integration, ensuring seamless handovers and clear communication throughout the project lifecycle.

Our frameworks

Our philosophy is inspired by the SEPTIGON framework. We use the framework as a guide when analysing and understanding complex systems and planning interventions in organisations.

The SEPTIGON framework provides an overview of the different elements of a complex socio-technical system, which are all interconnected and influence each other.



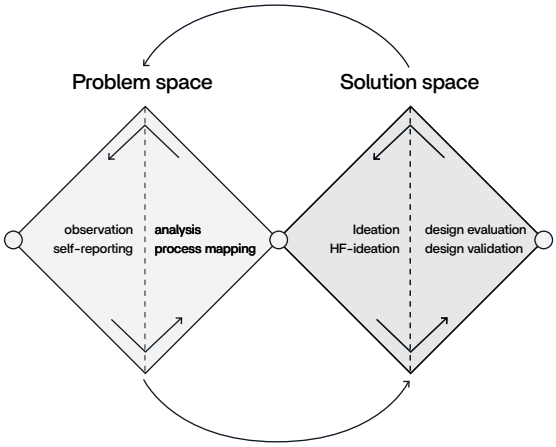
— With people at the top of the framework and the starting point of our analyses, we explore and unfold the interactions in the system to understand the strengths of the system. We examine the connections between elements, as well as the friction and pain points.

— The SEPTIGON framework describes a system where the changing of one element, like introducing a new technology or a new work process, will influence the entire system. We take a holistic approach to new technologies and organisational change, where we influence not only people and their behaviour, but also the entire system, i.e., the context and conditions that shape the people.

— Interventions in the system should not only focus on improving a single element, but on how the elements can be designed to connect and interact with each other optimally. Building a strong system means having elements which are compatible and aligned, as well as strong connections and interactions between them. We use a human and user-centred approach to build strong connections and create conditions that set people up for success, not failure.

— This means that we provide input to and design training, procedures, workflows, technology, physical environments and organisational processes which help people perform their best and succeed.

Working with complex systems and organisations will very often include the design of supporting technologies, environments and processes. In these cases, it is a good idea to combine the SEPTIGON framework with another framework, the Double Diamond Model.



We use the Double Diamond model to guide our process and plan our projects when we provide input on the design and implementation of technology, services, environments and workflows. The model helps us explore the use context and user needs and clarify goals. It guides us in delivering inputs and solutions, as well as in validating and implementing outcomes through feedback and iteration.

Our methods

Our Human Factors team employs a user- and human-centred approach to gain a deeper understanding of the root causes and underlying explanations.

We focus on the workers' personal experiences, feelings and motivation. By identifying and understanding the underlying root causes, we utilise our vast experience of user- and human-centred design. This will lead to deeper insights into "the real issues".

- We strive for end-user involvement, co-creation and empowerment of users, resulting in a higher sense of ownership and motivation. User-friendly and intuitive solutions are easier to learn and adopt. Higher usability, enhanced affordances and better user experience lead to faster uptake, improved productivity and long-term acceptance across diverse user groups.

- We have a vast set of proven techniques and methods we apply depending on your needs and context. We perform ethnographic research to observe behaviour, everyday practices, social dynamics and so on. These observations in the natural environment will help us diagnose and understand the "why" behind the workers' actions.

- We conduct interviews, contextual inquiries and think-aloud sessions to capture workers' thought processes. These are just a few of the many methods that help identify and clarify the underlying causes and explanations of the challenges, allowing the Human Factors team to analyse and understand what's really going on within the team, culture, and organisation. Based on the collected human insights, we design solutions and interventions that enhance your organisation's capacity, culture and overall performance.

Our Human Factors team believe in learning from not only failure but also successes. We do not only examine situations where things fail – we also use our methods to learn from what is working well and why. We look for opportunities and successful tasks to apply them in other areas and improve the overall performance.



Selected tools

The Human Factors team has developed a large toolbox of human-centric analyses and interventions. We constantly push the boundaries, seeking new paradigms and methods, and integrate them into our repertoire to ensure that our services are based on state-of-the-art knowledge.



Learning from normal work and investigations

Most organisations have a system for investigating and analysing mistakes and adverse events. But few organisations benefit from learning from their normal successful work when nothing extraordinary happens.

Learning from successful or normal work is a powerful method that can help organisations understand how they create successful outcomes on a daily basis. It can help organisations understand" what good looks like" and use it as inspiration for reflections and continuous improvement.

Learning from normal work is a method that trains organisations to focus on reinforcing what is already working, utilising existing capabilities and capacity within the organisation, and how to strengthen these, rather than only addressing failures.

Investigations – or, as we like to call them, analyses – focus on learning from mistakes and adverse events. They help us identify weaknesses in the system, where we need to establish barriers and where we need to build capacity.

However, when investigations are conducted with a positive, forward-looking mindset, they also provide an opportunity to understand the context and mechanisms that operate deep within the organisation. The adverse event might be an opportunity, but the analysis will also reveal the weaknesses. The analyses will also provide information on capacity, strengths, and the organisation's handling of variations. Some would say it is a side effect, but the way we manage incident analyses is deliberate.

Examples from our previous use cases:

- → Improving safety and performance through organisational and operational learning
- → Understanding and improving workflows and processes
- → Delivering inputs to procedures and planning of workflows
- → Delivering inputs to the improvement of technology, equipment and physical environments
- → Managing organisational changes and transformations
- → Involving and empowering people from the frontline and supporting psychological safety in teams

Reflection in action and reflection over action

Reflection is the source of learning, and learning is the source of continuous improvement. When we focus on reflection, we create capacity in the organisation.

We call it ”reflection over action” when people reflect on their actions before or after an activity or job. Reflecting during an activity or job is known as ”reflection in action”. Both are essential for optimal performance and safety.

Reflection skills can be trained, and this can be a team or individual activity when supported by the right tools. The tools we provide are all based on a bottom-up approach, where frontline personnel are invited to participate in discussions and engage in co-reflection with their peers and leaders.

We help leaders adopt a coaching style and ask open-ended questions to facilitate reflection within their teams. And we help people adopt practices and communication strategies that support reflection in different situations, including everyday routine operations as well as extraordinary or critical situations.

Examples from our previous use cases:

- → Improving focus and awareness in everyday routine situations
- → Creating a culture of sharing, learning and continuous improvements
- → Supporting proactive discussions
- → Improving pre-job risk assessments
- → Improving evaluation and learning from success as well as failure
- → Involving and empowering people from the frontline and supporting psychological safety in teams

Team resource management

Team performance can be optimised through training. This is called team resource management training, and in some contexts, crew resource management training (CRM).

The training content combines theory and practical exercises, role-plays and simulations, allowing participants to become familiar with topics such as situation awareness, decision-making, communication, leadership, teamwork, performance-shaping factors, personality and psychological capabilities and limitations. We help teams learn to optimise their communication and collaboration by providing insights into their own behaviours and those of others, and by training in simple techniques they can apply in their daily practice.

Through the team resource management training, we help participants develop leadership skills which support bottom-up processes and involvement of their team members, and they learn how to create an open learning environment and a sharing culture, where the team members feel empowered to take responsibility for their own performance and where they feel a high level of trust and psychological safety.

Examples from our previous use cases:

- → Improving safety and performance through leadership and teamwork
- → Supporting team coherence
- → Optimising leadership skills
- → Optimising team communication and the team’s psychological competencies
- → Creating a culture of sharing and learning
- → Involving and empowering people from the frontline and supporting psychological safety in teams

Ethnographic studies

We use ethnographic methods to study work contexts and organisational settings. This means that we observe work and interactions in the field and combine them with conversations with people to gain deep insights and understanding of not only ”work as imagined” but also ”work as done”.

Through this, we typically observe both positive practices and areas for improvement, which can serve as inspiration for various types of interventions and thereby facilitate the integration of Human Factors within the organisation.

The ethnographic studies in the field are a crucial part of our workflow, ensuring that our recommendations and interventions are grounded not only in theory but also in a profound understanding of the practical context in which we design our interventions.

As observers from the outside, with many years of experience making these observations, we notice details that are not immediately apparent to those within the system being observed.

FORCE
Technology

Derisking
Tomorrow

Integrate Human Factors to enhance user experiences and create better flows and processes
← Click or scan



Contact

Mariam Mastour
Human Factors Specialist
Risk Management & Human Factors
mamt@forcetechnology.com
+45 43 25 03 15



Contact

Thomas Koester
Senior Human Factors Specialist
Risk Management & Human Factors
tsk@forcetechnology.com
+45 43 25 06 06

Force Technology
Hjortekærsvej 99
DK–2800 Kongens Lyngby
+45 43 25 07 00
info@forcetechnology.com
forcetechnology.com