Safety Culture
Series #1

# Introduction to the European Railway Safety Culture Model

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Safety Culture Series #1

# Introduction to the European Railway Safety Culture Model

# Foreword

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Safety is not only about regulation, rules and procedures. Safety is about a living and collective commitment. This was my main motivation when issuing the European railway safety culture declaration which has now been signed by more than 150 European rail leaders and emphasises the importance of continuous learning.

We need to get everyone on board! We need a positive safety culture to achieve sustainable and safe performance in the Single European Railway Area.

The European railway safety culture model is an effective tool to support all the players to contribute to this paramount objective. It is the result of the work of a dedicated task force with professionals from diverse backgrounds representing different types of organisations and from a variety of Member States. The model has been successfully tested and practically implemented to evaluate and improve railway safety culture. Its dissemination will be fostered through innovative trainings and guidance to be published under the new "safety culture series".

By developing useful instruments to support the sector, the European Union Agency for Railways is demonstrating its engagement to develop a positive safety culture. I am indeed convinced this constitutes a prerequisite to make the railway system work better for society.

# Contents

# 1. Introduction

For many years, safety performance of high-risk organisations, commonly measured as the frequency of accidents, has continuously improved. However, a plateau has been reached. Focusing only on technical aspects and strengthening procedures and processes alone is no longer resulting in a reduction of incidents and accidents. It has also become paramount to focus on informal organisational aspects – such as teamwork and leadership, that impact safety.

In the same direction, disasters such as the nuclear accident at Chernobyl, the explosion of the space shuttle Challenger, and the Clapham junction rail crash in the 1980s, contributed to put the concept of safety culture on the agenda. Indeed, it became apparent that behaviours of individuals at all levels played a key role in the lead-up to these accidents.

In 2016, the concept of safety culture was introduced in the fourth railway package. While the main vector to improve railway safety had been most exclusively the implementation of a safety management system (SMS), the importance of cultural aspects, as a necessary informal "ingredient" for sustainable safety management, has now been recognised, and a legal basis has been established.

Furthermore, the common safety methods on safety management system requirements (regulation EU 2018/762) state that the top management shall promote a "positive safety culture" and that the organisation shall provide a strategy to continually improve its safety culture.

To provide technical assistance to its stakeholders the EU Agency for Railways launched an ambitious programme in 2017, which is comprised of various initiatives to raise awareness of, assess and improve the safety culture of railway organisations. The need to establish the theoretical foundations of the programme has quickly been identified as key. In this context, the EU Agency for Railways, together with representatives of the sector, has developed the following understanding applicable to any railway organisation:

> *"Safety culture refers to the interaction between the requirements of the safety management system, how people make sense of them, based on their attitudes, values and beliefs and what they actually do, as seen in decisions and behaviours."*

In addition, the European railway safety culture model was developed, as a conceptual and evaluation framework that may be used to better understand the concept of safety culture, and to assess and improve the safety culture of any railway organisation.

So far, this model has been successfully used and tested in different settings, to carry out safety culture assessments and to integrate safety culture in regulatory and oversight activities.

To provide support to the sector to effectively implement the complex concept of safety culture, the EU Agency for Railways has decided to publish a set of concise guidelines under a new sequence called "safety culture series". The aim of this first guide is to explain the

European railway safety culture model as a tool to understand how safety culture develops and can be influenced. The target audience is wide, covering regulators, senior managers, rail safety managers, supervisors, researchers, and all other individuals interested in the concept of safety culture.

Section 2 of the present document describes the model at the highest level, by defining its building blocks and components. In the section 3, each component is further detailed. This leads to express the twenty-four attributes of a positive safety culture. The conclusion mentions some concrete applications of the model that will be further described in upcoming publications to be issued under the EU Agency for Railways'"safety culture series".

# 2. Building Blocks and Components of the European Railway Safety Culture Model

The main characteristic of the European railway safety culture model is that it articulates two of its features applicable to any rail organisation([1]): its organisational culture and its safety vision. The organisational culture is encapsulated by two building blocks of the model: behaviour patterns (2.1) and a set of four cultural enablers (2.2). The safety vision is seen through the third building block: a set of four railway safety fundamentals (2.3). Putting together the building blocks and the related components allows a simple and straightforward representation of how an organisation may develop a positive safety culture (2.4).

## 2.1 First Building Block: Behaviour Patterns

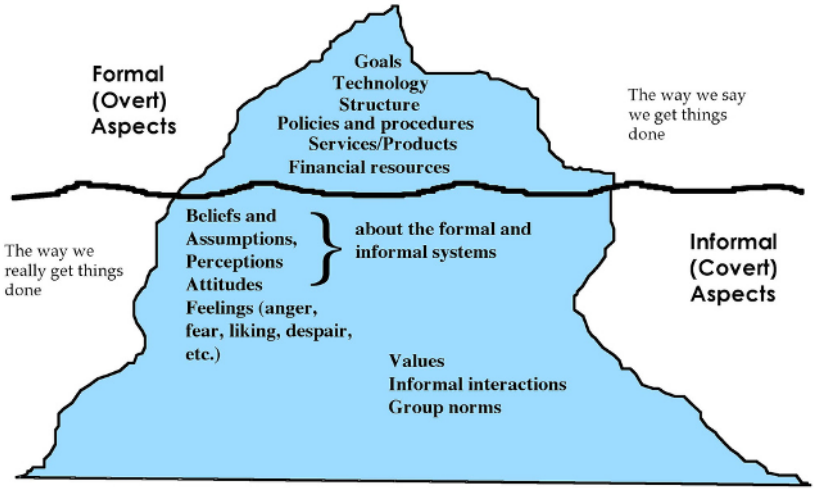
The literature on culture, organisational culture and safety culture is broad. While it is not the place here to discuss the various theoretical approaches and schools of thought on the subject, the following general ideas encompass what culture is:

- Culture is deeply-rooted, it is not a superficial phenomenon and hence fairly stable over time;
- Culture is shared and relates primarily not to an individual, but to a group, a community, or an organisation;
- Culture is broad and covers all aspects of external and internal relationships in a group, a community, or an organisation,
- Culture develops through day-to-day interactions.

Shared assumptions, beliefs, values and norms are commonly recognised as main characteristics of any organisational culture([2]) . In the late 1970s Stanley Herman introduced the "iceberg model of workplace dynamics", illustrated by Figure 1, that became popular to visualise the successive layers of organisational culture, from the most visible traits to the deepest foundations.

([1]) This distinction is consistent with current theoretical developments; see in particular Le Coze, J.C., 2019. How safety culture can make us think. Safety Science 118, 221-229.
([2]) Edgar Schein has distinguished three levels of culture: artefacts, shared values and basic assumptions that can also be seen through the "iceberg" lenses. See Schein, E.H., 1992. Organizational culture and leadership. Jossey Bass.

**Figure 1:** Stanley Herman's Iceberg Model ([3])




Applied in the railway domain, the upper part can be considered as the safety management system of a company. The effectiveness of its implementation will depend on those informal aspects specified in the lower part of this figure.

Shared assumptions, beliefs, values and norms will lead individuals behaving similarly within a group. Those shared ways of acting and thinking are designated under the terms "behaviour patterns", which reflect the organisational culture and constitute the first building block of the European railway safety culture model.

## 2.2 Second Building Block: Cultural Enablers

Organisational culture develops through a typical sequence([4]) of elementary actions undertaken within any group.

As members of a group, individuals make sense and interpret what they see, when experiencing a specific situation. The behaviour resulting from this individual sensemaking is then challenged when members of the group exchange meanings through formal and informal dialogue, giving rise to mutual adjustments, agreements and expectations with regard to each other's behaviours. This stage, designated by **"interacting"** constitutes the first cultural enabler.

Based on the shared understanding that grows out of this, the group starts formalising this common views through the distribution of tasks, roles, and responsibility, the description

([3]) Source: https://sandylearningblog.files.wordpress.com. More information in French, W.L. and Bell, C.H., 1978. Organisational Development: Behavioural Science Interventions for Organisational Improvement.

([4]) This sequence has been developed by Frank Guldenmund. See for example Guldenmund, F., 2018. Understanding Safety Culture Through Models and Metaphors in "Safety Cultures, Safety Models: Taking Stock and Moving Forward" (ed. Gilbert, Journé et al.)

of procedures and rules as well as more physical structures and technology. This stage, designated by "**formalising**" constitutes the second cultural enabler, and typically covers also all requirements of a safety management system.

Organisational structures, rules and procedures are then communicated through various forms of information and education. This stage, designated by "**disseminating**" constitutes the third cultural enabler.

Meanings, standards and expectations are enforced and reinforced through various management interventions and organisational processes. Members of the group share a comparable understanding of reality; the organisational culture is taking shape. This stage, designated by **"reinforcing"** constitutes the fourth and last cultural enabler.

Next to "behaviour patterns", this set of four cultural enablers is the second building block of the model. Each cultural enabler may be considered as a model component and is further described in the subsection 3.2 *Twelve Attributes Emanating from the Cultural Enablers*.

## 2.3 Third Building Block: Railway Safety Fundamentals

In high-risk sectors, we expect the organisational culture to be qualified as a (positive) safety culture; in other words, the patterns of behaviours, attitudes and perceptions that characterise the organisational culture allow sustainable and safe performance.

To this end, the EU Agency for Railways has established a set of railway safety fundamentals, which are four overarching principles, based on characteristics of the railway sector and on existing safety frameworks developed in several high-risk industries.

Firstly, the major risks shall be controlled through the proactive identification of adverse situations and mitigating measures (anticipation) and the development of capabilities to operate safely under unexpected situations (resilience). "**Control major risks"** is the first railway safety fundamental.

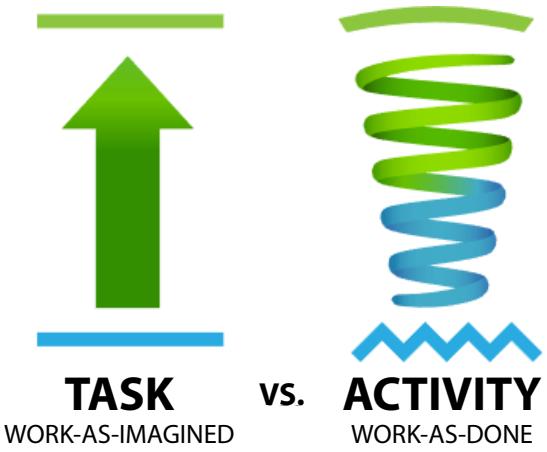
Secondly, work needs to be understood from the local perspectives of those doing the work. The match, or sometimes tensions, between work as designed and work as actually performed should be analysed and monitored continuously, rather than only through periodical revisions. A careful attention shall be brought to those factors that actually influence human activity. To cope with disturbances in demands and conditions, human performance, individually or collectively, will vary. To highlight the need to capture and report on this (wanted or unwanted) variability, "**Understand workplace reality**" is the second railway safety fundamental.

Thirdly, learning and continuous improvement are key. It is based on the systematic analysis of safety related feedback, while actively taking into account the input of people who do the work. "**Learning from experience"** is the third railway safety fundamental.

Lastly, in the effort of individuals and organisations to optimise performance, safety shall be always considered and integrated into business at all levels. This requires vision and decision taking. "**Integrate safety consistently**" is the fourth and last railway safety fundamental.

The railway safety fundamentals rely on the core principle of **activity-centred ergonomics**, a discipline that distinguishes[5] the task (prescribed work supposed to lead to expected results under defined conditions or "work-as-imagined") from the activity (effective work which lead to actual results under real conditions or "work-as-done"). Figure 2 illustrates this central distinction.

**Figure 2:** The Central Distinction between Task and Activity




A positive safety culture is characterised by a collective commitment to the four railway safety fundamentals that need to be fulfilled by the organisation to manage its activity in a safe and sustainable way. The railway safety fundamentals also serve as a basis for a railway company to develop its safety vision([6]). Create and share a safety vision are two central principles of safety leadership, which characterises the attitude of managers at all levels to actively develop a positive safety culture. The safety vision shall be reflected in the safety policy and the safety management system to achieve sustainable and safe performance.

Next to "behaviour patterns" and "cultural enablers", this set of four railway safety fundamentals constitutes the third and last building block of the European railway safety culture model. Each railway safety fundamental may be considered as a model component and is further described in the subsection 3.1 T*welve Attributes Emanating from the Railway Safety Fundamentals.*

([5]) This distinction characterises the French speaking approach to ergonomics institutionalised with the creation of the French-speaking Ergonomics Society (SELF) in 1963. For example see Guérin, Laville et al., 2007, "Understanding and Transforming Work: The Practice of Ergonomics". This essential distinction between task and activity has recently gained new credence with current developments on work-as-imagined and work-as-done.

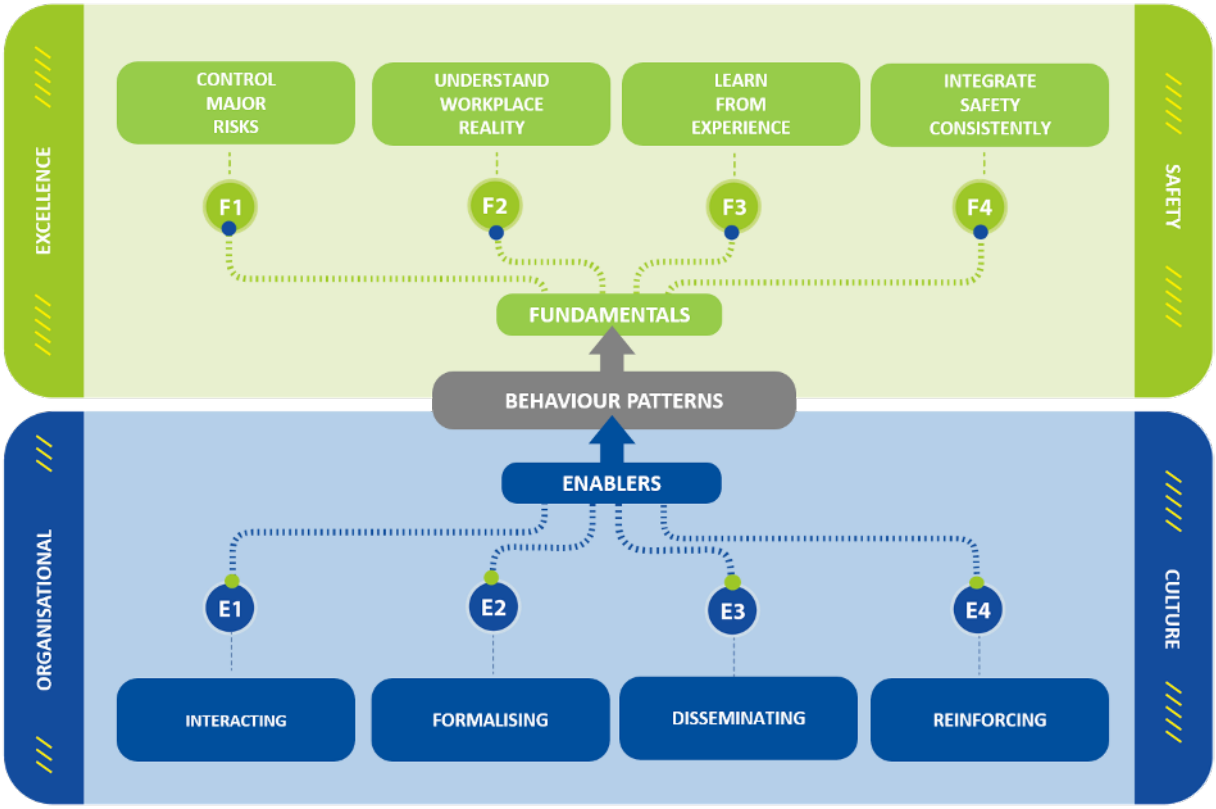
([6]) Applied to an organisation, a vision may be defined as a vivid mental image of what its leaders want their business to be at some point in the future, based on their goals and aspirations.

## 2.4 High Level Visualisation of the European Railway Safety Culture Model (Component Level)

Together, organisational patterns of behaviours, attitudes and perceptions, cultural enablers and railway safety fundamentals are the three building blocks of the model.

Figure 3 explains the mechanism that takes place when organisational culture develops to effectively implement a safety vision based on the railway safety fundamentals. The enablers shape the organisational culture, which are manifested through shared ways of thinking and acting (behaviour patterns). For those behaviour patterns to accomplish the four railway safety fundamentals and lead to organisational excellence as well as safe and sustainable performance, a clear vision of how to implement this has to be integrated in all enablers.

**Figure 3:** The European Railway Safety Culture Model - Component Level



# 3. The Attributes of a Positive Safety Culture

To be implemented in practice and to support evaluation, the four railway safety fundamentals and the four cultural enablers have each been broken down into three attributes. In this section, for each fundamental (3.1) and for each enabler (3.2), the related attributes are formulated, characterised by a key word, and explained with a few sentences (understanding), as follows:

| | |
|---|---|
| **Xi.j** | Attribute |
| **Key word** | **Understanding** |

Putting together this comprehensive list of principles constitutes the twenty-four attributes of a positive safety culture (3.3).

## 3.1 Twelve Attributes Emanating from the Railway Safety Fundamentals

The four following paragraphs successively present the three attributes, key words and understandings associated with each railway safety fundamental.

### 3.1.1 F1: Control Major Risks

| | |
|---|---|
| **F1.1**<br>**Risk awareness** | **Individuals at all levels are aware of major risks and understand their personal contribution to safety**<br>The organisation has identified all activities that could lead to severe injuries and fatalities, directly or indirectly. Staff realises that accidents may actually occur. They are aware of the risks they are exposed to, and also of the risks that their activities introduce into the railway system. Staff understands its contribution to risk analysis and risk mitigation. |
| **F1.2**<br>**Resilience** | **The capability to operate safely under unexpected situations is developed**<br>The organisation anticipates and plans its activities in normal and degraded operations and effectively prepares for emergency situations. It recognises that there are limits to anticipation strategies. Therefore, staff is given the necessary resources, training and decision-making power to identify unexpected situations and react in a safe and efficient way. The organisation reviews and challenges its plans in order to stay alert and avoid complacency. |
| **F1.3**<br>**Questioning attitude** | **Individuals at all levels avoid complacency, challenge assumptions, encourage and consider opposing views**<br>The organisation creates an environment in which staff at all levels feels comfortable challenging assumptions and understands the importance of avoiding complacency. The organisation actively encourages people to voice their opinions, even if they are not aligned with the organisation's mainstream positions. Opinions are considered and feedback is provided. |

### 3.1.2 F2: Understand Workplace Reality

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|---|---|
| **F2.1**<br>**Working conditions** | **The organisation recognises that working conditions, such as time pressure, workload and fatigue influence safe behaviours**<br>Productivity and time pressure can create working conditions that may lead to human errors and deviations. People may behave unsafely and apply trade-offs in order to resolve goal conflicts and to cope with the changing demands of the system. The organisation strives to understand how working conditions affect performance. This is used as inputs for the design of the workplace, equipment and processes. |
| **F2.2**<br>**System complexity** | **The organisation recognises that its technologies and systems are complex and can fail in unpredictable ways**<br>Safety is considered within the perspective of the overall system. The organisation recognises that human, organisational, technical and external factors can influence safety at a system level and analyses the interactions between system components.<br>Safety is managed in a proactive away. The organisation acknowledges that the workplace reality is dynamic and continually scans and interprets threats to safety. |
| **F2.3**<br>**Reporting** | **Routine and abnormal deviations from expected performance are recognised and reported. Measures to identify and mitigate organisational silence are implemented**<br>The organisation recognises there are always gaps between the task (work-as-imagined) and the activity (work-as-done). Therefore, it strives to identify, monitor, analyse and act upon all relevant gaps, using all available knowledge, including frontline experience. The organisation has processes and tools with which staff at all levels reports near-misses, incidents and accidents.<br>Organisational silence refers to the collective phenomenon of saying or doing very little in response to (safety) problems. The organisation puts efforts to identify those processes, arrangements, leadership styles and habits that may contribute to organisational silence and acts upon them. |

### 3.1.3 F3: Learn From Experience

| | |
|---|---|
| **F3.1**<br>**Analysis** | **Reporting is systematically analysed to identify those factors that allow organisational learning and improvement**<br>The organisation has a system in place to systematically identify, register and analyse deviations. The analysis takes into account the Human and Organisational Factors and is oriented to find the underlying factors that influence performance. |
| **F3.2**<br>**Improvement** | **Safety related feedback is perceived as an opportunity to improve performance and is acted upon**<br>The organisation systematically takes measures to manage critical variability in performance and avoid recurrent deviations. Safety related feedback is analysed and, where necessary, acted upon to support continuous improvement. Lessons learned are shared across the organisation. |

| | |
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| **F3.3**<br>**Learning from others** | **The organisation actively seeks learning opportunities**<br>The organisation strives to identify where it can learn from others, both from the railway industry and wider. This includes opportunities such as benchmarking, peer reviews and external event analysis. It also provides support for staff to engage in learning and development outside of the organisation. |

### 3.1.4 F4: Integrate Safety Consistently

| | |
|---|---|
| **F4.1**<br>**Safety vision** | **The organisation develops and implements a safety vision to support the achievement of business objectives**<br>The organisation has defined a safety vision consistent with its environment and its business strategy and objectives. This vision is communicated to all staff through different means and at different moments. Managers and staff understand and share the safety vision. The safety vision is systematically integrated in the processes and procedures of the safety management system. |
| **F4.2**<br>**Resource allocation** | **Safety is a primary consideration in the allocation of resources**<br>The organisation identifies and allocates the adequate resources needed to operate safely. Staff requirements and resources for safe operations are recognised by decision makers throughout the organisation. |
| **F4.3**<br>**Decision making** | **Individuals at all levels are convinced that safety and operations go hand in hand**<br>Everyone in the organisation considers safety as part of daily activities and strives for safe performance. This is reflected in decision making at all levels throughout the organisation. |

## 3.2. Twelve Attributes Emanating from the Cultural Enablers

The four following paragraphs successively present the three attributes, key words and understandings associated with each cultural enabler. While the cultural enablers have been formulated in a neutral manner([7]), positive attributes are proposed as a means to develop an organisational culture that supports the railway safety fundamentals.

### 3.2.1 E1: Interacting

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|---|---|
| **E1.1**<br>**Teamwork and collaboration** | **Collaboration within and across organisations is nurtured to operate safely**<br>The organisation recognises it is one component of a larger socio-technical system and implements arrangements to facilitate sharing within and across organisational boundaries. Staff interacts and openly exchanges relevant information, formally and informally, within their team, their department, with other departments and with other organisations (e.g. suppliers, contractors, stakeholders). |

([7]) As explained in Section 1, the four cultural enablers describe a sequence through which any organisational culture develops. The resulting organisational culture may or may not support the railway safety fundamentals. The twelve attributes introduce here favour patterns of behaviour that support the railway safety fundamentals

| | |
|---|---|
| **E1.2**<br>**Interpersonal values** | **Trust, respect and openness permeate the organisation and characterise inter-organisational relationships at all levels**<br>The organisation and its management truly see value in an open culture where ideas and opinions can be articulated and discussed, even if they create ambiguity and friction. Trust and respect throughout the organisation enable reporting and sharing. Managers are aware that trust is difficult to build and easy to lose, and behave accordingly. Frontline staff feels comfortable to report to the management. |
| **E1.3**<br>**Regulatory relationships** | **Healthy regulatory relationships exist and ensure that the accountability for safety remains with the operating organisation**<br>Healthy regulatory relationships are those relationships between regulatory bodies and the railway organisations that support the achievement of sustainable and safe performance of the railway system through regulatory activities. They are based on transparency and trust, common understanding of safety issues and responsibilities, and use of proportionate power. |

### 3.2.2 E2: Formalising

| | |
|---|---|
| **E2.1**<br>**Roles and responsibilities** | **Roles, responsibilities and authorities are understood and accepted**<br>Roles, responsibilities and authorities within the organisation are defined, effectively communicated and regularly reviewed taking into account major risks and workplace reality. Particular attention is placed on staff conducting safety related tasks, including contractors, to make sure everyone knows, understands and accepts its role and contribution to safety. |
| **E2.2**<br>**Organisational design** | **Organisational structures support sustainable and safe performance**<br>The organisation has built its structures (organisational chart, processes, procedures, formal rules) to be consistent with the safety vision. The organisational structures take into account the control of major risks, workplace reality and continuous improvement. |
| **E2.3**<br>**Organisational systems** | **Processes, tools and documentation support sustainable and safe performance**<br>The organisation has implemented a living safety management system, which leads to the accomplishment of the safety vision. Documentation, procedures, rules, and technical solutions support railway safety fundamentals and are actively used by staff. |

### 3.2.3 E3: Disseminating

| | |
|---|---|
| **E3.1**<br>**Communication** | **Safety information is openly shared within and across organisations**<br>The organisation has defined safety information, and the means for disseminating it within and outside the organisation, including contractors, other railway organisations, regulatory and investigating bodies.<br>Staff is aware of the importance of sharing safety information with the objective of delivering sustainable and safe performance. |
| **E3.2**<br>**Competence management** | **Competence management ensures a knowledgeable workforce**<br>The organisation has a competence management system, targeting all staff, that reflects the requirements of operations and contributes to the railway safety fundamentals. |

| | |
|---|---|
| **E3.3**<br>**Soft skills** | **Safety leadership and non-technical skills are systematically developed**<br>The organisation has identified that development of soft skills is essential and has integrated this in its competence management system for all staff. Managers and staff engage in the development and application of soft skills. |

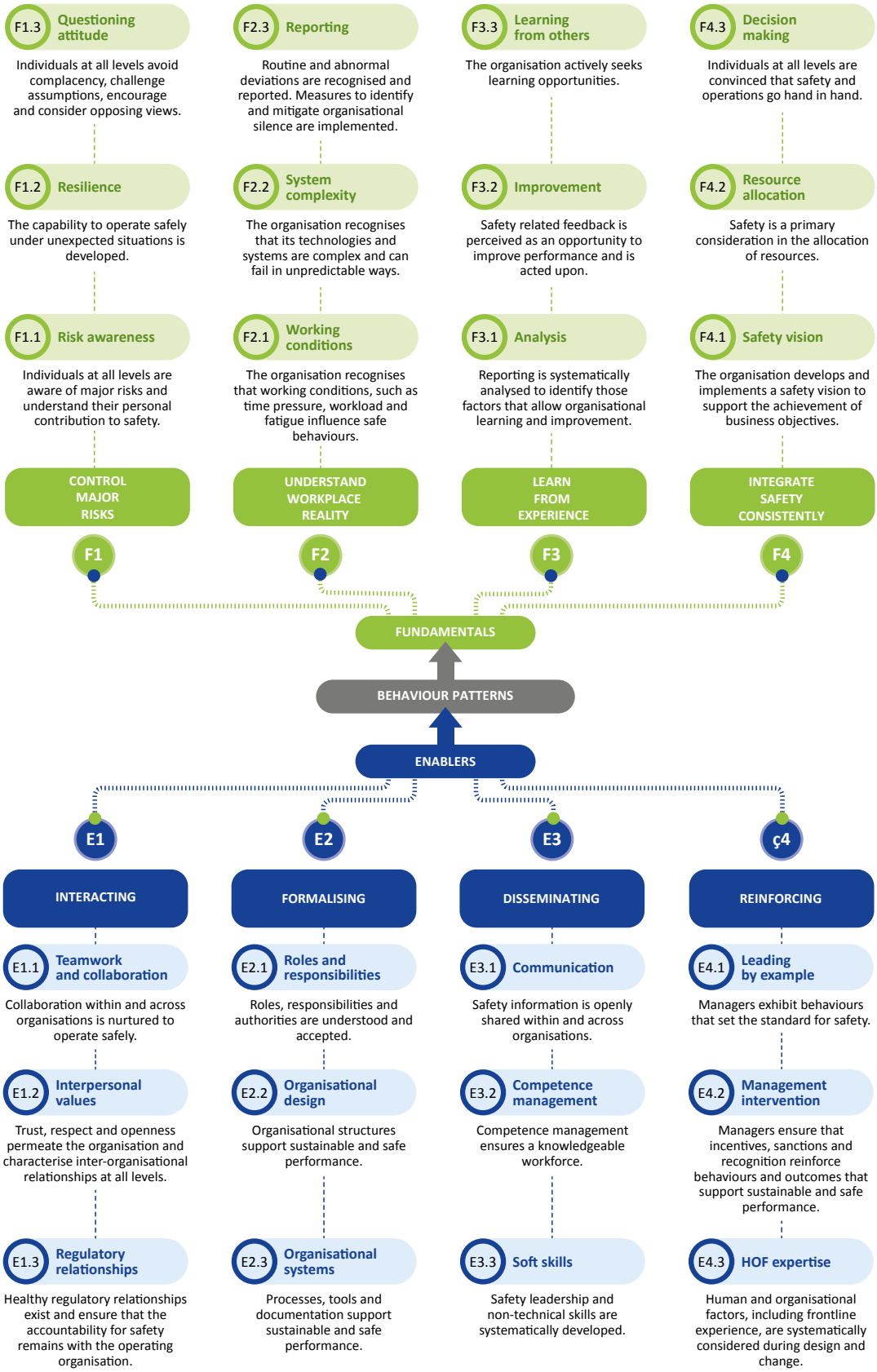
### 3.2.4 E4: Reinforcing

| | |
|---|---|
| **E4.1**<br>**Leading by example** | **Managers exhibit behaviours that set the standard for safety**<br>Managers shape the organisational culture. This is why they are expected to be safety leaders, in particular by sharing the organisation's safety vision and leading by example. Their presence is effective through observation, coaching and reinforcing standards and expectations. |
| **E4.2**<br>**Management intervention** | **Managers ensure that incentives, sanctions and rewards reinforce behaviours and outcomes that support the accomplishment of the safety vision**<br>The organisation creates a transparent, consistent and shared understanding of what is acceptable and unacceptable. This is proactively supported and demonstrated by managers throughout the organisation, for example by providing timely feedback on both safe and unsafe behaviours. |
| **E4.3**<br>**HOF expertise** | **Human and organisational factors, including frontline experience, are systematically considered during design and change**<br>The organisation puts efforts to understand the Human and Organisational Factors (HOF) that contribute to sustainable and safe performance, and integrate these into design, planning, monitoring, analysis, improvement and change. Groups and communities of end-users are involved in dialogue to define both problems and solutions, with the support of HOF experts, where appropriate. The organisation actively challenges its working environment and context and seeks innovations in order to promote safe behaviours and discourage unsafe behaviours. |

## 3.3 Detailed Visualisation of the European Railway Safety Culture Model (Attribute Level)

Figure 4 gathers the twenty-four attributes presented in the two previous subsections and completes the Figure 3.

**Figure 4:** The European Railway Safety Culture Model (Attribute Level)



# 4. Conclusion

The European railway safety culture model has proven to be an effective tool to better understand the complex concept of safety culture in the railway sector.

The model at the component level clarifies how the two main features of any railway organisation, its organisational culture and its safety vision, may be articulated to achieve safe and sustainable performance. The model has been also a great vehicle to raise awareness of safety culture (See Appendix 2). The European railway safety culture declaration, whose principles are aligned with the railway safety fundamentals has been signed by a great number of European rail leaders. The four railway safety fundamentals have also been used to facilitate workshops during which the participants contribute to conceive what may be their safety vision.

The set of twenty-four attributes of a positive safety culture constitutes an appropriate basis for assessing the safety culture of any railway organisation. It has been successfully tested to draw the safety culture picture of a railway undertaking, consisting of cultural strengths and areas for improvement at a given moment. The picture may then lead to designing and implementing a strategy to improve safety culture, focusing on one or several attributes to influence those patterns of behaviour that support the accomplishment of the railway safety fundamentals and hence the goal of sustainable and safe performance. The model has been also fruitfully implemented by national safety authorities to integrate safety culture in their activities.

Other guides will be published under the safety culture series to further describe these practical cases; detail how information on safety culture can be captured; how this information may be analysed to draw a safety culture picture; and how national safety authorities can implement the model in their regulatory activities.

## APPENDIX 1

# Safety Culture in the EU Railway Legislation

In the EU rail sector, the fourth railway package introduced safety culture in 2016 in the Railway Safety Directive, which has been underpinned by the common safety methods on safety management system requirements in 2018.

**Figure 5:** EU Railway Legislation Articles and Sections on Safety Culture

**EU Railway Safety Directive (2016/798)**

- Recital 10: Member States should promote a culture of mutual trust, confidence and learning in which the staff of railway undertakings and infrastructure managers are encouraged to contribute to the development of safety while confidentiality is ensured.
- Article 9(2): Through the safety management system, infrastructure managers and railway undertakings shall promote a culture of mutual trust, confidence and learning, in which staff is encouraged to contribute to the development of safety while ensuring confidentiality.
- Article 29(2): The Agency shall evaluate the development of a safety culture including occurrence reporting. It shall submit to the Commission, by 16 June 2024, a report containing, where appropriate, improvements to be made to the system.

**Common safety methods on safety management system requirements related to railway undertakings and infrastructure managers (2018/762)**

- Recital 7: The way safety is perceived, valued and prioritised in an organisation reflects the real commitment to safety at all levels in the organisation. Therefore, it is also important for railway undertakings and infrastructure managers to identify the actions and behaviours that can shape a positive safety culture and to promote through their safety management system this culture of mutual trust, confidence and learning in which staff are encouraged to contribute to the development of safety by reporting dangerous occurrences and providing safety-related information.
- Annex I and II – Section 2.1.1 (j): Top management shall demonstrate leadership and commitment to the development, implementation, maintenance and continual improvement of the safety management system by: (…) promoting a positive safety culture.
- Annex I and II – Section 7.2.3: The organisation shall provide a strategy to continually improve its safety culture, relying on the use of expertise and recognised methods to identify behavioural issues affecting the different parts of the safetymanagement system and to put in place measures to address these.

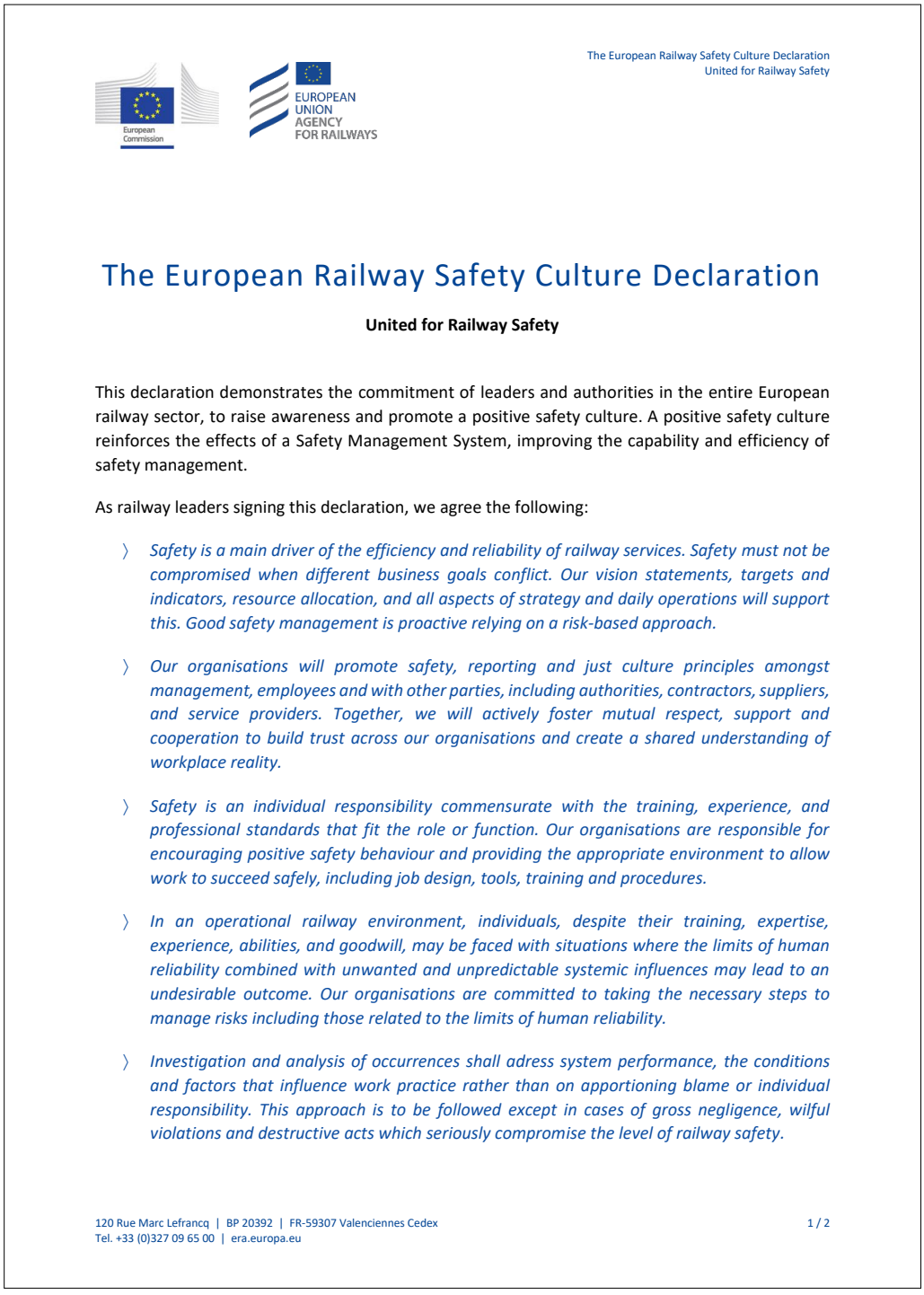
These legal statements underline the tight link between safety culture and the safety management system and the strong influence of top management on organisational culture.

Moreover, a strategy shall be developed in any railway organisation to continually improve its safety culture. The results of a safety culture assessment give an overview of cultural strengths and weaknesses and is therefore an appropriate basis to take decisions on how to improve safety culture.

**APPENDIX 2**

# European Railway Safety Culture Declaration

The European railway safety culture declaration was introduced during the first European rail safety summit in April 2018 in Dubrovnik. It has now been signed by more than 150 European rail leaders. This symbolic act illustrates their commitment to safety. The principles highlighted in the declaration are aligned with the four railway safety fundamentals.



The European Railway Safety Culture Declaration
United for Railway Safety

European Commission

EUROPEAN UNION AGENCY FOR RAILWAYS

## The European Railway Safety Culture Declaration

**United for Railway Safety**

This declaration demonstrates the commitment of leaders and authorities in the entire European railway sector, to raise awareness and promote a positive safety culture. A positive safety culture reinforces the effects of a Safety Management System, improving the capability and efficiency of safety management.

As railway leaders signing this declaration, we agree the following:

- *Safety is a main driver of the efficiency and reliability of railway services. Safety must not be compromised when different business goals conflict. Our vision statements, targets and indicators, resource allocation, and all aspects of strategy and daily operations will support this. Good safety management is proactive relying on a risk-based approach.*
- *Our organisations will promote safety, reporting and just culture principles amongst management, employees and with other parties, including authorities, contractors, suppliers, and service providers. Together, we will actively foster mutual respect, support and cooperation to build trust across our organisations and create a shared understanding of workplace reality.*
- *Safety is an individual responsibility commensurate with the training, experience, and professional standards that fit the role or function. Our organisations are responsible for encouraging positive safety behaviour and providing the appropriate environment to allow work to succeed safely, including job design, tools, training and procedures.*
- *In an operational railway environment, individuals, despite their training, expertise, experience, abilities, and goodwill, may be faced with situations where the limits of human reliability combined with unwanted and unpredictable systemic influences may lead to an undesirable outcome. Our organisations are committed to taking the necessary steps to manage risks including those related to the limits of human reliability.*
- *Investigation and analysis of occurrences shall adress system performance, the conditions and factors that influence work practice rather than on apportioning blame or individual responsibility. This approach is to be followed except in cases of gross negligence, wilful violations and destructive acts which seriously compromise the level of railway safety.*

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- *Positive safety behaviour and initiatives are to be captured and shared within and across organisational boundaries to demonstrate that we value the continued improvement of safety.*
- *Individuals at all levels in our organisations take part in actively defining how to continuously develop, promote and regularly assess organisational principles and practices to foster a positive safety culture.*

**Together, we can reach our goal for the European Union to be the world leader in railway safety.**

***ERA – Safety Culture understanding***

*Safety culture refers to the interaction between the requirements of the Safety Management System, how people make sense of them, based on their attitudes, values and beliefs and what they actually do, as seen in decisions and behaviours.*
*A positive safety culture is characterised by a collective commitment by leaders and individuals to always act safely, in particular when confronted with competing goals.*

***Legal references:*** *Recast Railway Safety Directive - Directive (EU) 2016/798*

Recital 10: *Member States should promote a culture of mutual trust, confidence and learning in which the staff of railway undertakings and infrastructure managers are encouraged to contribute to the development of safety while confidentiality is ensured*

Article 9 (2): *Through the safety management system, infrastructure managers and railway undertakings shall promote a culture of mutual trust, confidence and learning, in which staff is encouraged to contribute to the development of safety while ensuring confidentiality.*

Article 29 (2): *The Agency shall evaluate the development of a safety culture including occurrence reporting. It shall submit to the Commission, by 16 June 2024, a report containing, where appropriate, improvements to be made to the system.*

**APPENDIX 3:**

# Where to Find More Information on Safety Culture? (A Brief Selection for Further Reading)

- **Safety Culture: from Understanding to Action.** The ICSI "Safety Culture" working group (2017). Issue 2018-01 of the Cahiers de la Sécurité Industrielle collection. Institut pour une Culture de Sécurité Industrielle (ICSI), Toulouse, France, 2018.
  This comprehensive document gathers ICSI's main concepts to understand and influence safety culture. It also contains a broad list of references to learn more about safety culture.
- **Safety Cultures, Safety Models: Taking Stock and Moving Forward**. Ed. Claude Gilbert, Benoît Journé et al. Springer, 2018 - Technology & Engineering
  The book offers an analysis of the different schools of thought around the concept of safety culture providing international viewpoints by leading researchers from various disciplines and practitionners from different industrial sectors. It also includes Frank Guldenmund's article which influenced the design of the European railway safety culture model.
- **Patient Safety Culture: Theory, Methods and Application.** Ed. P. Waterson. CRC Press, 2016
  The book contains theoretical developments and practical applications, mainly in healthcare organisations. It also includes a contribution from Eurocontrol safety culture professionals providing examples and concrete cases implemented to assess safety culture within air traffic management.
- **Improving Safety Culture in Public Transportation.** Washington, DC: The National Academies Press. National Academies of Sciences, Engineering, and Medicine 2015.
  This pedagogical document on safety culture is based on a review of literature and practical cases. Differences between safety climate and safety culture are highlighted; data collection methods to assess safety culture are detailed; guidelines for improving safety culture are introduced.
- **Theorising National Cultures.** P. D'Iribarne. AFD, 2014.
  This short book written by a recognised social scientist brings together many important cultural studies.
- **Occupational Safety and Health Culture Assessment: A review of Main Approaches and Selected Tools**. EU-OSHA, 2011.
  This working paper offers a selection of tools, questionnaires to evaluate occupational health and safety culture. It also mentions a list of additional references providing further reading on safety culture.
- **Safety Culture in Nuclear Installations: Guidance for Use in the Enhancement of Safety Culture.** IAEA TECDOC 1329. International Atomic Energy Agency, 2002.
  A reference which introduces Schein's famous theoretical framework in the nuclear industry. Some of the symptoms of weakening safety culture in nuclear installations that are presented may also be applied in the railway sector.
- **Managing the Risks of Organizational Accidents.** J. Reason. Routledge, 1997.
  A seminal book that includes James Reason's famous models applicable in many different domains. It is also considered as one of the first books to properly deal with the safety culture concept.

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## Safety Culture Series guidance

1. Introduction to the European Railway Safety Culture Model