

Advancing Traffic Safety Culture: Developing a Conceptualisation of Cultural Maturity Among Traffic Safety Stakeholders

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Take-away points

- Safe System implementation is often impeded by insufficient traffic safety culture and low cultural maturity among stakeholders
- Existing Traffic Safety Culture (TSC) research primarily focuses on road users at the community and organisational levels, with limited attention to stakeholders and their roles
- This study develops a conceptualisation of TSC among stakeholders involved in Safe System implementation

Background and aim

Safe System has become the state-of-the-art approach to traffic safety management, but implementation remains insufficient, even in pioneering countries. Research indicates that the main barriers are not technical, but social, cultural and organisational.

This highlights the importance of Traffic Safety Culture (TSC), understood as encompasses shared values, beliefs, attitudes, norms, and patterns of behaviours that shape how traffic safety is understood and enacted within a meaningfully defined group of actors in the transport system. This meaningfully defined group of actors can refer to road users, organizations, authorities, or other actors within the transport system. Existing research has primarily focused on road users at the community and organisational levels, while stakeholders involved in traffic safety implementation (e.g. authorities, NGOs, insurance companies) have received less attention. The aims of this study are to:

- describe current models of TSC at the community and organisational levels
- review previous research on stakeholders and their traffic safety culture
- develop a conceptualisation of TSC among traffic safety stakeholders

Methodology

This study combines two strands of research. First, it reviews existing research on Traffic Safety Culture (TSC) at the community and organisational levels, based on Nævestad (2021). Second, it reviews previous research on stakeholders through a systematic scoping review of Safe System literature (Nævestad et al., 2025). On this basis, the study develops a conceptualisation of TSC among traffic safety stakeholders.

Current understanding of TSC

Summing up previous research, Nævestad (2021) has developed an analytical framework for understanding Traffic Safety Culture (TSC) at the community level (private road users) and organisational level (road users at work). The model distinguishes between four analytical levels: system, culture, behaviour and crashes/outcomes. These levels describe a chain of causal relationships, starting with factors influencing culture, to culture at different levels, which influence behaviour and in turn crashes and outcomes. This relationship explains why culture is assumed to be important, as it influences behaviour and outcomes, and can be influenced in ways that may improve safety. Previous research does however, not fully address stakeholders who influence system-level conditions shaping both among private road users and road users at work.

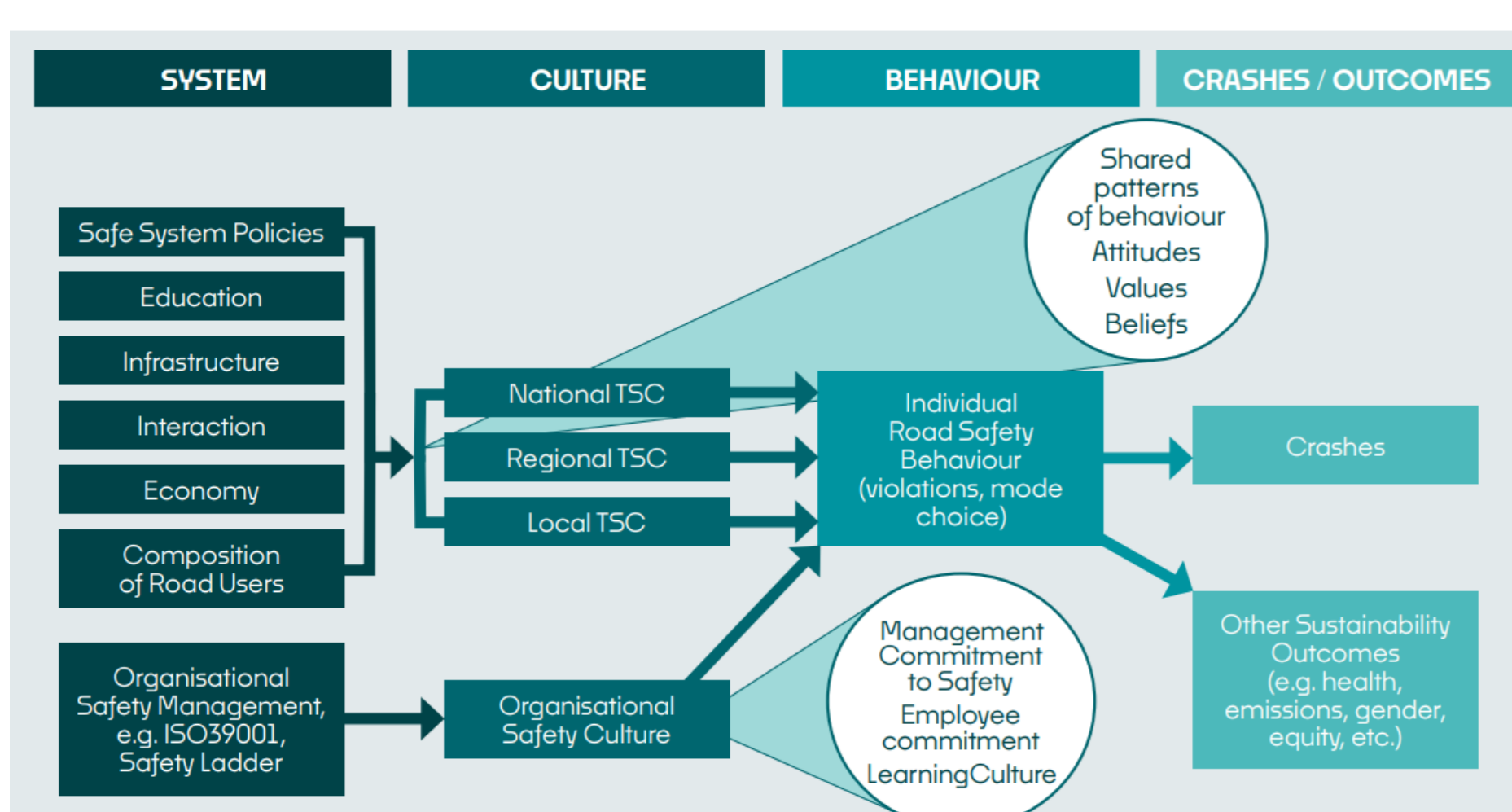


Figure 1. Model of traffic safety culture at the organisational and community level, based on Nævestad (2021).

Traffic Safety Stakeholders and Their Roles in Traffic Safety Culture

Previous research indicates that the organisational safety culture related to traffic safety stakeholders has received limited attention. This concerns actors such as national and local authorities in roles including road management, land-use planning and urban design, where culture influences how traffic safety is prioritised and implemented.

In the context of Vision Zero and the Safe System approach, stakeholders play a key role in shaping traffic safety outcomes. They influence safety through multiple roles, for example as road managers and planners, as regulators, as employers and purchasers, and as influencers of road user behaviour (Hysing, 2021; Wennberg & Dahlholm, 2023).

Different stakeholder roles

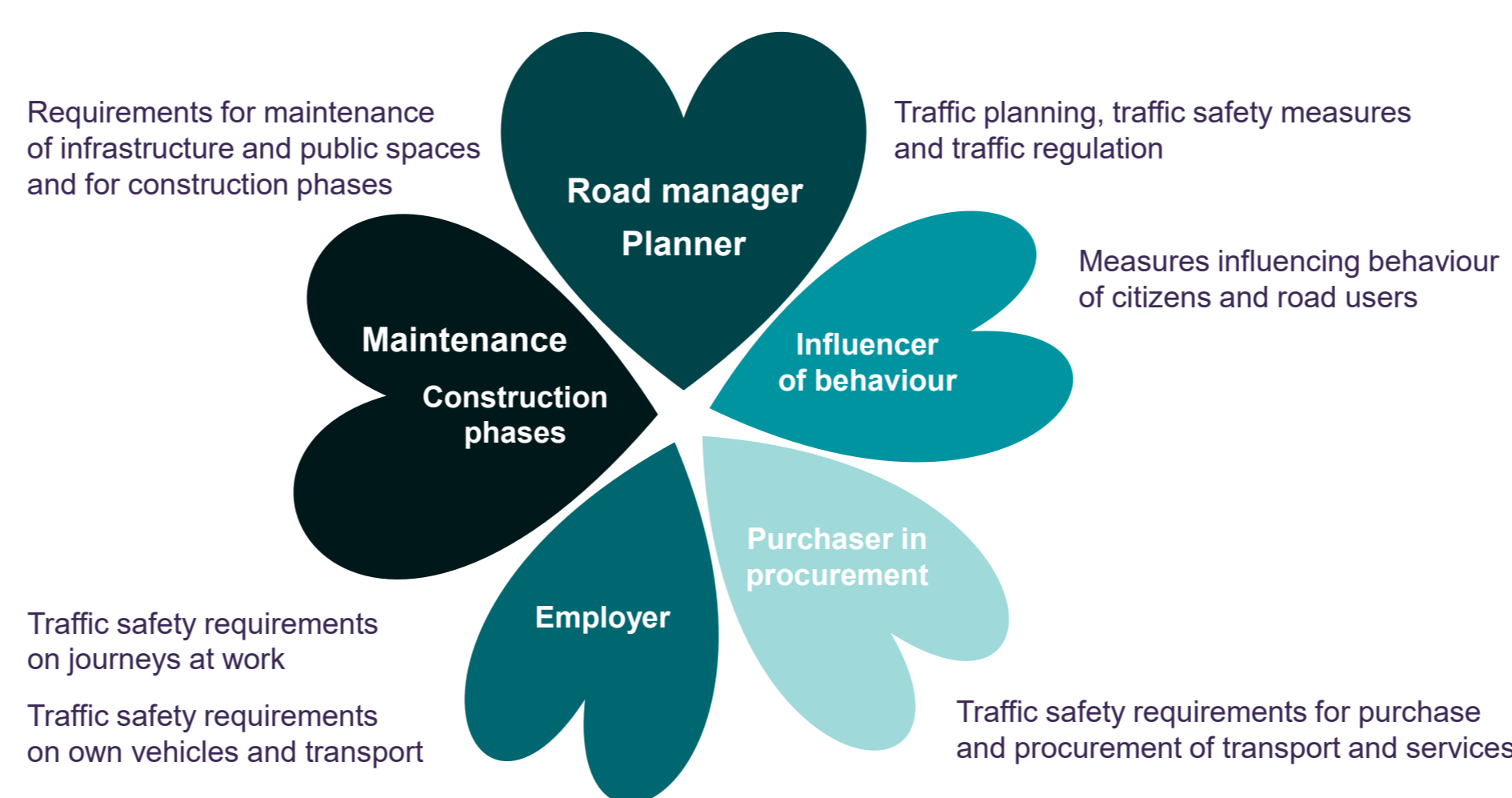


Figure 2. Different ways stakeholders may influence traffic safety culture. Adapted from Wennberg & Dahlholm, (2024).

Stakeholders and cultural maturity

Research on cultural maturity among stakeholders has primarily focused on authorities and highlights factors such as system responsibility, systems thinking and organisational readiness for change (Nævestad et al., 2025; Otto et al., 2022). However, the existing research mainly focuses on authorities and gives limited attention to other types of stakeholders. This indicates a need to extend the concept of Traffic Safety Culture to include a broader range of stakeholders involved in traffic safety.

1) Stakeholder Roles (Wennberg & Dahlholm (2024))	
Road manager & planner	My organisation sees road safety as a non-negotiable value that should guide all planning and design decisions, even when it conflicts with costs
Setter of requirements for maintenance/construction	In my organisation, strict safety requirements in maintenance and construction projects are essential, even if it increases project costs or timelines
Employer	My workplace has clear and well-known guidelines for speed and driving style that employees who drive for work must follow
Purchaser / Procurer of transport & services	When awarding contracts for transport and services, my organisation requires safety management systems (e.g. ISO 39001) from providers
Setter of requirements for own vehicles/travel	When choosing vehicles to purchase, my organisation chooses the highest available safety standards, regardless of cost
Influencer of citizen behaviour	My organisation aims to change social norms about what is considered acceptable behaviour in traffic
2) Management commitment (based on organisational safety culture research)	
	Traffic safety is very important to the top management of the organization where I work
	Traffic safety is very important to my immediate manager
Safe System views on responsibility and system thinking (based on Nævestad et al 2025)	
3) Views on system responsibility	As a road system owner, my organisation perceives that it is our ultimate responsibility to prevent traffic accidents on our roads
4) Level of system thinking	In my organisation, we actually design the traffic system to tolerate (unintended) errors made by the road users
	In my organisation, we actually design the traffic system so that the external forces in accidents do not exceed the human bodies' tolerance for biomechanical impacts

Figure 2. Illustration of questions that can be used to measure stakeholder TSC

Knowledge needs

Operationalising Safe System maturity:

There is a need to develop a structured checklist to assess Safe System maturity across different stakeholders and roles. This includes evaluating the implementation of measures and policies such as infrastructure, enforcement, and driver training, and linking these to cultural maturity.

Integrating traffic safety into sustainability frameworks (Agenda 2030):

Further knowledge is needed on how Traffic Safety Culture (TSC) should be understood and operationalised within the context of the Sustainable Development Goals (SDGs). Traffic safety is closely linked to several goals, including health (SDG 3.6), sustainable cities (SDG 11), responsible consumption and production (SDG 12), and safe working environments (SDG 8.8).

Role of organisations and stakeholders:

The increasing emphasis on sustainability highlights the responsibility of both public and private actors in traffic safety. More research is needed on how organisations can integrate traffic safety into sustainability practices, reporting, and procurement processes.

Conceptual development of TSC:

As traffic safety becomes embedded within broader sustainability agendas, there is a need to explore how this affects the concept of TSC, particularly in cross-sectoral contexts such as sustainable urban mobility planning.

References

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The TRUST project

This study is part of the EU-funded TRUST project. The project addresses the challenge that progress in reducing road fatalities has stalled, and that current efforts may fall short of the EU target of a 50% reduction by 2030. A central premise of TRUST is that further progress requires not only technical measures, but also stronger Traffic Safety Culture (TSC) among stakeholders.

The project focuses on understanding and developing TSC in order to support the implementation of the Safe System approach. This includes conceptual development, empirical studies and the development of tools to assess and strengthen cultural maturity among different types of traffic safety stakeholders.

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