THE INTEGRATED FRAMEWORK A QUICK GUIDE

Measures for Behaving Safely in Traffic (MeBeSafe)





MeBeSafe, Horizon 2020 - MG 3.5-2016: Behavioural aspects for safer transport

A SHORT INTRODUCTION TO ...

A NUDGING APPROACH TO BEHAVIOUR CHANGE

Focuses on supporting automatic behaviour and decision making in a specific situation through influencing choice architectures (humans influenced by the context, technology etc)

TYPE OF INFLUENCE:

Influences behaviour directly every time the situation arises

Can only influence behaviour in a specific situation

Influences primarily System 1 thinking (automatic behaviour)

REQUIRES:

Requires that the supportive choice architecture is provided at each location where the safe driving behavioiur is to be supported

Requires that the road user attends to or makes use of the specific choice architecture

USEFUL WHEN:

Road users' behaviour is influenced by cognitive biases

A safe driving behaviour is to be supported at a particular location

A COACHING APPROACH TO BEHAVIOUR CHANGE

Focuses on changing behaviour by supporting reflective learning to influence behaviour in various situations through supportive coaching experiences (humans influenced by humans, but sometimes mediated by technology)

TYPE OF INFLUENCE:

Can influence behaviour directly during a coaching event and indirectly in situations in-between events

Can influence behaviour both in a specific situation and beyond

Influences System 2 thinking (reflective behaviour)

REQUIRES:

Often requires repeated coaching to influence behaviour over time

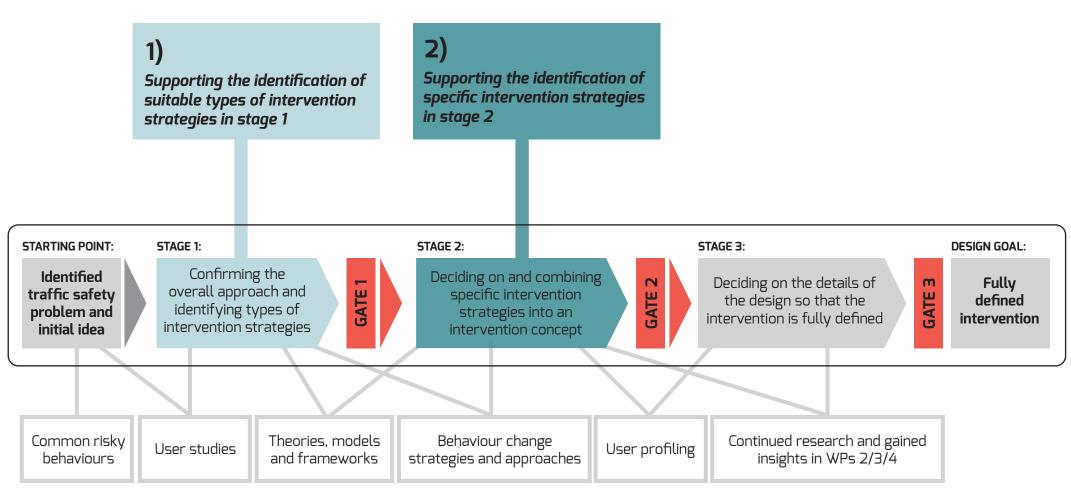
Requires the development of a quality relationship between coach and coachee built on trust and commitment

USEFUL WHEN:

Road users are willing to learn and change

A safe driving behaviour is needed also at other places than where the coaching is provided

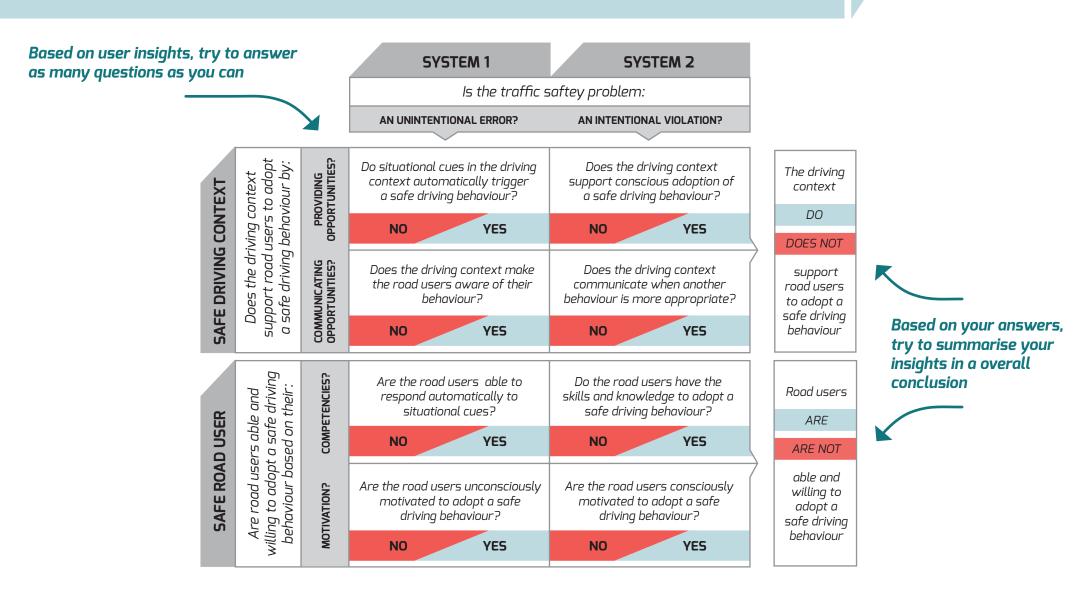
THIS QUICK GUIDE AIMS TO SUPPORT THE PROCESS OF DEFINING SUITABLE INTERVENTIONS FOR MEBESAFE WP MEMBERS BY:



EXAMPLES OF SOURCES OF INFORMATION THAT MAY SUPPORT THE DESIGN PROCESS AND DECISION MAKING

STAGE 1: Confirming the overall approach and identifying types of intervention strategies

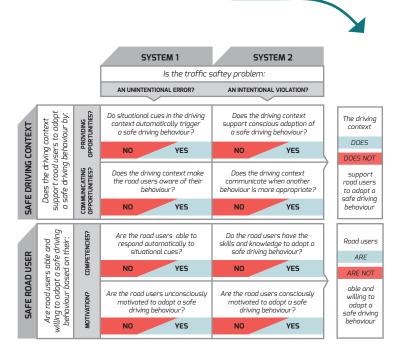
STEP 1.1: GAIN INSIGHT ABOUT THE TRAFFIC SAFTEY PROBLEM



STAGE 1: Confirming the overall approach and identifying types of intervention strategies

STEP 1.2: IDENTIFY SUITABLE TYPES OF INTERVENTION STRATEGIES

Based on your overall conclusion in step 1.1, identify suitable types of intervention strategies



If the driving context DOES NOT support road users to to adopt a safe driving behaviour, target the driving context

If road users

ARE NOT able

and willing to

adopt a safe

driving behaviour,
target the road

user

| | | SYSTEM 1 (AUTOMATIC) | SYSTEM 2 (REFLECTIVE) |
|----------------------|---------------------------|--|--|
| SAFE DRIVING CONTEXT | INCREASE OPPORTUNITIES | (Re)Design functions of the driving context so that it enables and facilitates safe driving by triggering automatic responses to situational cues | (Re)Design functions of the driving context so that it enables and facilitates conscious choices to drive safely |
| | IMPROVE | (Re)Design how and when the message is communicated so that it facilitates perception and interpretation | (Re)Design the content of the message so that opportunities for safe driving are made clear without contributing to a too high cognitive load |
| SAFE ROAD USER | DEVELOP COMPETENCIES | Support the road user to develop e.g. perception skills, driving skills and habits to increase the level of automatic responses that results in safe driving behaviours | Support the road user to develop e.g. analysing skills and knowledge of own behaviour to increase the adoption of safe driving behaviours |
| | INCREASE MOTIVATION | Increase the road user's unconscious motivation for safe driving by e.g. providing a social reference point, endorsing behaviour and arousing emotions | Increase the road user's conscious motivation for safe driving by e.g. increasing awareness, supporting conscious goal-setting and providing incentives |

STAGE 1: EXAMPLE - TRAFFIC SAFTEY PROBLEM: INAPPROPRIATE SPEED

STEP 1.1: INSIGHTS GAINED ABOUT THE TRAFFIC SAFTEY PROBLEM DURING STAGE 1

STEP 1.2: IDENTIFIED TYPES OF INTERVENTION STRATEGIES

SYSTEM 1

SYSTEM 2

Is the adoption of an inappropriate speed:

AN UNINTENTIONAL ERROR?

AN INTENTIONAL VIOLATION?

The adoption of an inappropriate speed is an unintentional error

The adoption of an inappropriate speed is not an intentional violation

Does the driving context

support conscious adoption of

an appropriate speed?

PROVIDING OPPORTUNITIES? SAFE DRIVING CONTEXT

Do situational cues in the driving context automatically trigger an appropriate speed?

the driver aware of the current

speed and the appropriate

speed? NO

PARTLY

NO Does the driving context make

Does the driving context communicate when another speed is more appropriate?

PARTLY

The driving context does not support drivers to adopt an appropriate speed

Does the driving context support drivers to adopt an appropriate speed by:

Are drivers able and willing to adopt an appropriate speed based on their:

SAFE ROAD USER

COMMUNICATING

COMPETENCIES?

MOTIVATION?

Is the driver able to respond automatically to situational CLIPS?

YES

Is the driver unconsciously motivated to adopt an appropriate speed?

> **UNCLEAR AT** THIS STAGE

Does the driver have the skills and knowledge to adopt an appropriate speed?

YES

Is the driver consciously motivated to adopt an appropriate speed?

YES

Drivers are able and willing to adopt an appropriate speed

MAKE THE DRIVING CONTEXT SAFER BY:

IMPROVING COMMUNICATION

(Re)Design functions of the driving context so that it enables and facilitates drivers to adopt an appropriate speed by triggering automatic responses to situational cues

(Re)Design functions of the driving context so that it enables and facilitates conscious choices to adopt an appropriate speed

AND/OR

INCREASING OPPORTUNITIES

(Re)Design how and when speed is communicated so that it facilitates perception and interpretation

(Re)Design the content of the message so that opportunities for adopting an appropriate speed are made clear without contributing to a too high cognitive load

STAGE 1: EXAMPLE - TRAFFIC SAFTEY PROBLEM: DROWSY DRIVING

STEP 1.1: INSIGHTS GAINED ABOUT THE TRAFFIC SAFTEY PROBLEM DURING STAGE 1

STEP 1.2: IDENTIFIED TYPES OF INTERVENTION STRATEGIES

SYSTEM 1 SYSTEM 2 Is drowsy driving: UNINTENTIONAL? INTENTIONAL? Drowsy driving is not Drowsy driving is an an unintentional error intentional violation Does the driving context support drivers to take a break when driving drowsy by: PROVIDING OPPORTUNITIES? Do situational cues in the drivina Does the driving context offer opportunities for the driver to context automatically trigger SAFE DRIVING CONTEXT The driving the driver to take a break when take an intentional break? context driving drowsy? support NO YES drivers to take a break Does the driving context make Does the driving context when driving communicate when the driver is the driver aware that (s)he is drowsy driving drowsy without taking a driving drowsy and should take hreak? a hreak? YES YES Are drivers able and willing to take a break when driving drowsy based on their: COMPETENCIES? Is the driver able to respond Does the driver have the skills automatically to situational and knowledge to take a break when driving drowsy? cues? SAFE ROAD USER Drivers are able to but YES YES unwilling to take a break Is the driver unconsciously *Is the driver consciously* when driving MOTIVATION? motivated to take a break when motivated to take a break when drowsy driving drowsy? driving drowsy?

NO

NO

MAKE THE DRIVER ACT IN A SAFER WAY BY:

INCREASING MOTIVATION

Increase the road user's unconscious motivation to take a break by e.q. providing a social reference point, endorsing behaviour and arousing emotions

Increase the road user's conscious motivation to take a break by e.g. increasing awareness, supporting conscious goal-setting and providing incentives

If the driving context DOES NOT provide road users with opportunities to adopt a safe driving behaviour, increase the opportunities

If the driving context DOES NOT communicate opportunities to adopt a safe driving behaviour, communicate the opportunities

DRIVING CONTEXT

SAFE

INCREASE

Design the road system in a way so that all components jointly facilitate safe behaviour Add components to the road system in order to increase opportunities for safe behaviour Add functions to the road system or components to restrict risky behaviour in certain situations Add functions to the road system or components to eliminate risky behaviour Design the interaction with components in a way so that safe behaviour is scripted/guided Design the interaction with components in a way so that errors are prevented Make the interaction with the components easy, effortless, and convenient Make use of opt-out default options so that safe behaviour requires little effort Make use of prompted choice so that the consequences of behaviour is made conscious Provide reminders to make drivers aware of opportunities for safe driving Provide warnings to make drivers aware of potential risks

IMPROVE

Communicate safe driving opportunities either explicitly or implicitly
Make use of different types of stimuli to communicate safe driving opportunities
Enhance consequences of behaviours to make it easier to evaluate opportunities and outcomes
Structure and group complex options to make it easier for the driver to choose between them
Provide information in a way that match conventions and the driver's previous experiences
Ensure that a stimuli's associated outcome match the driver's expectations
Adapt the format through with information in provided so that it suits the driving situation
Simplify information to reduce the driver's cognitive burden in a specific situation
Frame information from a certain perspective to influence perception and evaluation of outcomes
Prime information to influence the processing and responses of subsequent stimuli
Anchor information to a specific starting point to facilitate interpretation
Schedule information to provide information only when needed to reduce cognitive burden

If road users
ARE NOT able to
adopt a safe
driving behaviour,
support them to
develop their
competences

If road users

ARE NOT willing
to adopt a safe
driving behaviour,
increase
motivation

SAFE ROAD USER SE DEVELOP

COMPETENCIES

Provide the driver general information about risks associated with the behaviour Provide the driver information about the benefits and costs of action and inaction Tell the driver how to perform a behaviour or preparatory behaviours Have an expert or peer show the driver how to correctly perform the behaviour Teach the driver to identify environmental cues that remind the driver to perform the behaviour Set easy tasks for the driver and increase difficulty until the target behaviour is performed Prompt the driver to rehearse and repeat the (preparatory) behaviour Help the driver to identify and manage situations likely to result in re-adopting risky behaviours Prompt the driver to identify barriers to the behaviour and to plan for how to overcome them

Prompt the driver to monitor/keep a record of the behaviour

Support drivers in self-evaluating their own behaviour

Provide the driver feedback and data on the driver's behaviour and its effects

INCREASE MOTIVATION

Provide the driver praise, encouragement or material rewards that are linked to the behaviour Prompt the driver to compare performance to a pre-set standard or to others performance Provide the driver information about others (dis)approval of the behaviour Prompt the driver to observe others' performance e.g., in a group class or using video Indicate how the driver may be a good example to others

Arouse emotions to trigger motivation for safe driving

Prompt the driver to formulate self-motivating statements

Prompt the driver to use self-instruction and self-encouragement (aloud or silently)

Prompt the driver to decide to set a general goal

Prompt the driver to make a detailed plan of what (s)he will do

Prompt the driver to sign a resolution (contract) specifying the behaviour to be performed

Prompt the driver to review previously set goals or intentions