SAFE SYSTEM
CULTURAL MATURITY

Prince Michael
INTERNATIONAL
ROAD SAFETY AWARDS

2010 Have A Kip

Prince Michael
INTERNATIONAL
ROAD SAFETY AWARDS

2010 MAST Online

Prince Michael
INTERNATIONAL
ROAD SAFETY AWARDS

2014 Safer Roads, Berkshire

CIHT AWARDS 2010

INNOVATION AWARD: HIGHLY COMMENDED
MAST ONLINE

CIHT AWARDS 2011

ROAD SAFETY AWARD WINNER
MAST ONLINE

HIGHWAYS MAGAZINE
EXCELLENCE
AWARDS 2011
Commended
Road Safety Project of the Year

IVCA CLARION
AWARDS 2011
HIGHLY COMMENDED

roadsafetyanalysis

agilysis

Brake
FLEET
SAFETY
Awards
2018
Highly Commended

BIKES, BIG TRUCKS & YOU
ROAD SAFETY IN THE COMMUNITY

CIHT AWARDS 2018

JOHN SMART ROAD SAFETY AWARD WINNER
DRIVESTART

CIHT AWARDS 2020

JOHN SMART ROAD SAFETY AWARD WINNER
RIDESTART

FIRST CAR 1
YOUNG DRIVER ROAD SAFETY AWARDS
2018
DRIVESTART
BEST PARTNERSHIP SCHEME

Prince Michael
INTERNATIONAL
ROAD SAFETY AWARDS

2020 Supporting UK Road Safety

Prince Michael
INTERNATIONAL
ROAD SAFETY AWARDS

2017 DriveStart

Prince Michael
INTERNATIONAL
ROAD SAFETY AWARDS

2019 DriveStart

Context
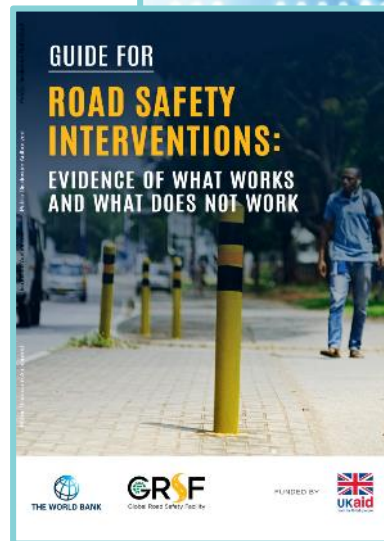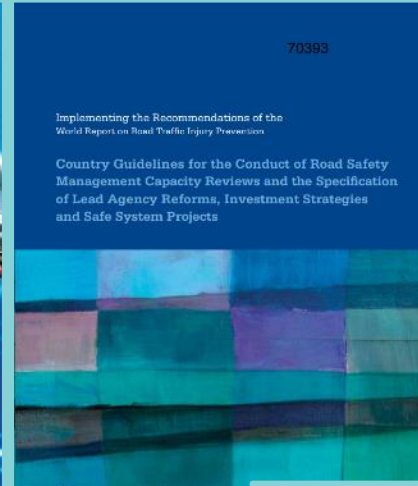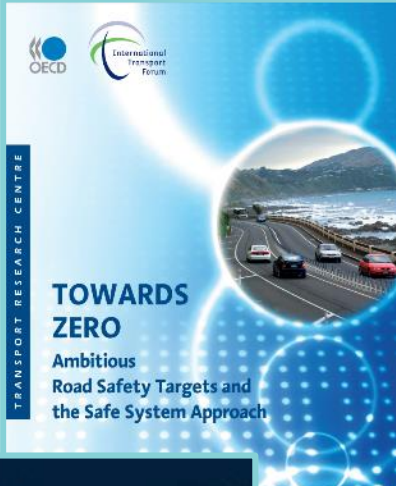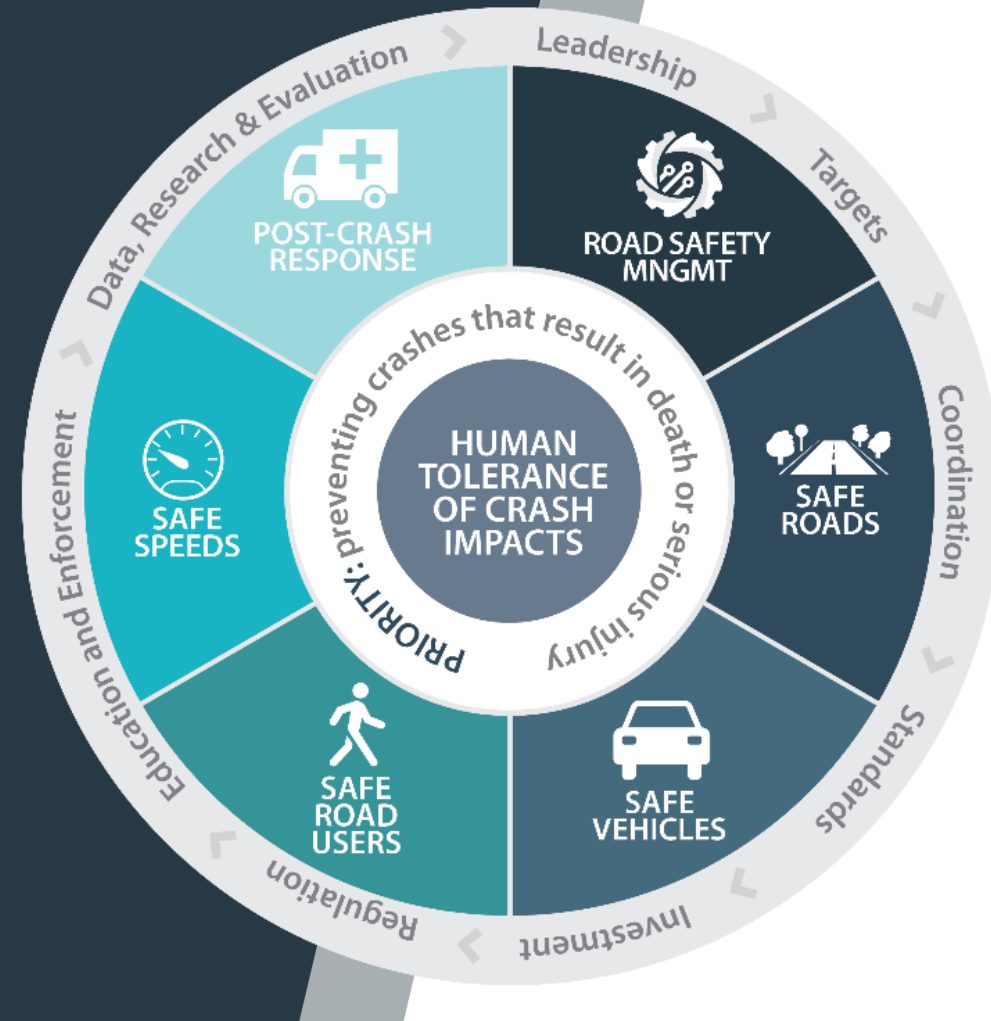
Safe System
Literature
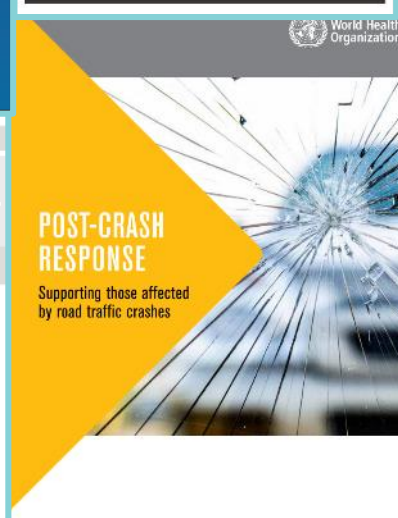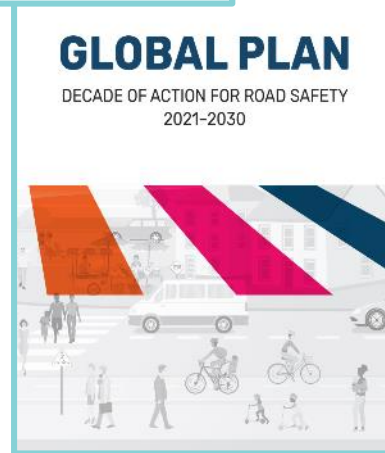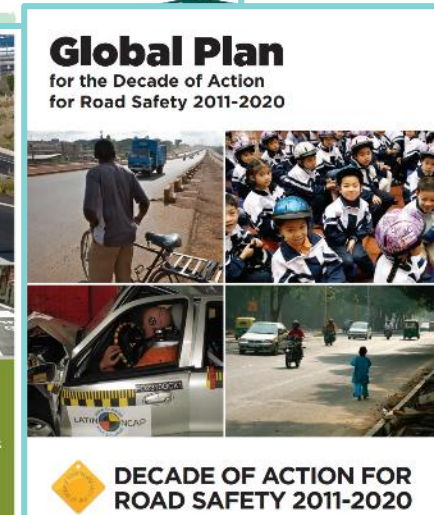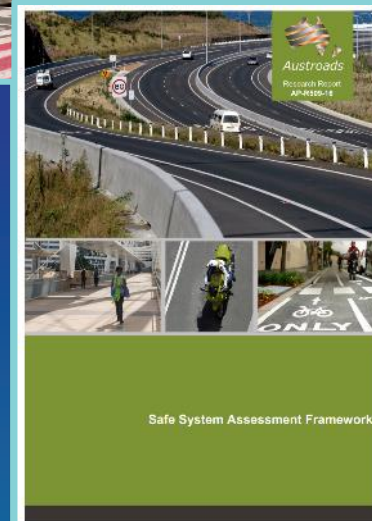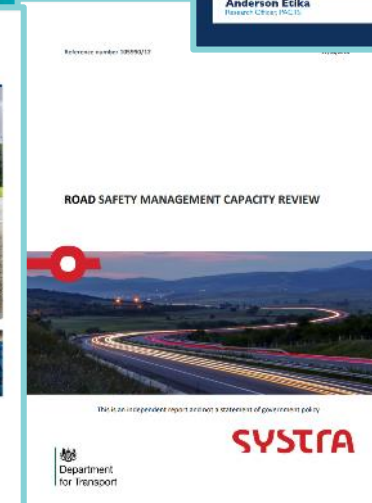
Safe System Actions & Change

- Mechanisms of change in outer circle
- Synthesised Safe System models from:
    - PACTS, United Kingdom
    - Australia
    - New Zealand
    - Canada
- Actions independently categorised & grouped.

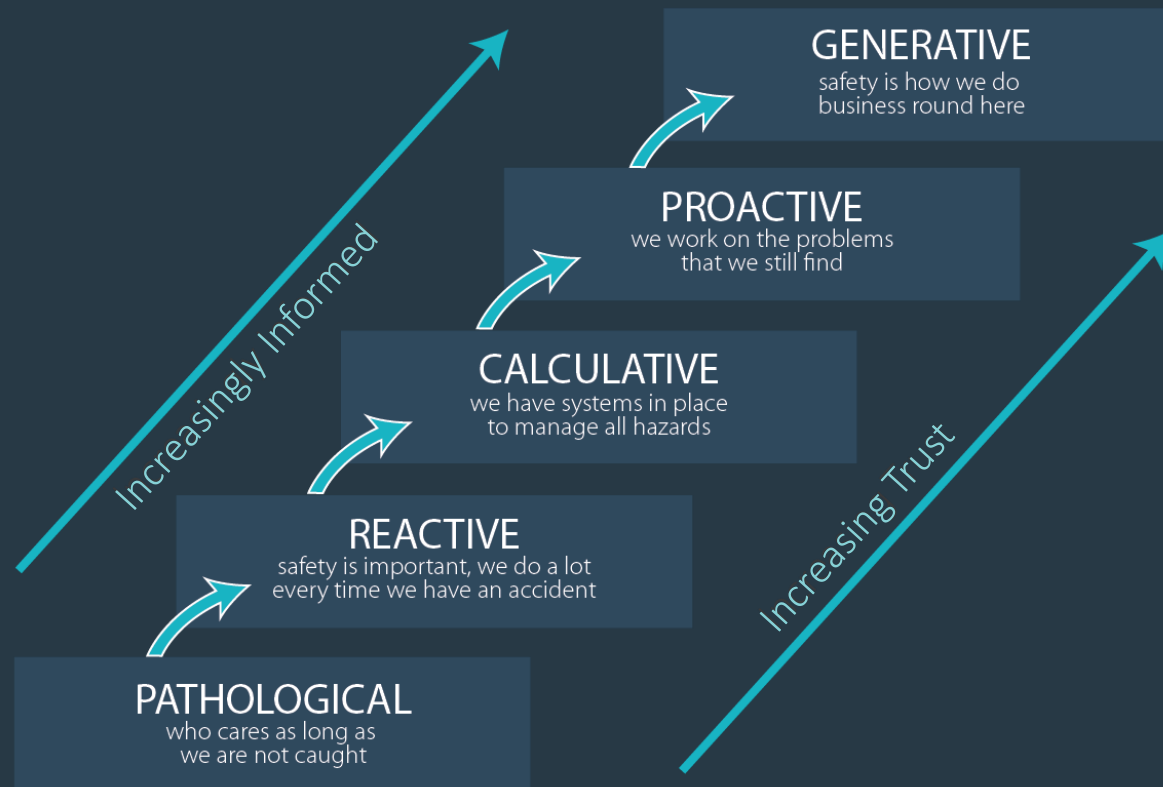| Loughborough	Australia	New Zealand	Canada	Combined
R&D and Transferring Knowledge	Data, Research and Evaluation	Understanding Crashes and Risk	Information, Data, Research	**Research, Monitoring and Evaluation**
Monitoring and Evaluating				
Promoting	Education and Information	Education and Information	Communication, Awareness	**Education and Communication**
			Education, Training	
	Standards			**Standards and Training**
	Licensing and Registration			
	Innovation	Innovation	Technology	**Design and Engineering**
Co-ordinating	Coordination	Leadership and Capability	Linkages	**Leadership and Co-ordination**
Target-Setting				
Leadership				
	Road Rules and Enforcement		Enforcement	**Compliance and Enforcement**
Funding				**Investment**
Legislating	Road Rules and Enforcement	Legislation and Enforcement	Policy, Legislation, Regulation	**Legislation and Regulation**

Cultural Maturity Literature

Cultural Maturity Literature

- *Westrum's Typology of Organisational Culture* (Westrum, 1993)

- *Evolutionary Model of Safety Culture* (Hudson, 2001) (Hudson, et al., 2000) (Reason, 1997)

- *Fleming's Safety Culture Maturity Model* (Fleming, 2001)

- *Process of Change Model* (Hudson, et al., 2000) (Prochaska, 1995)

- *Westrum's Cultural Scale Adaptation* (Hudson & Willekes, 2000)

- *TALK/WALK Matrix of Safety Culture Dimensions* (Hudson, 2001)

- *Descriptions of levels of safety culture for 'concrete' and 'abstract' organisational aspects* (Parker, Lawrie, & Hudson, 2006)

- *The Health and Safety Culture Maturity Model* (Lingard, Zhang, Harley, Blismas, & Wakefield, 2014)

- *Cultural Maturity – Measurable Components* (Filho, Andrade, & de Oliveira Marinho, 2010) (Warszawska & Kraslawski, 2016) (Hudson, 2003) (Reason, 1997)

- *Maturity model for academic partnerships* (Fekadu, et al., 2021)

- *Mining Industry Risk Management* (Foster & Hoult, 2013)

Hearts & Minds Model

GENERATIVE
safety is how we do
business round here

PROACTIVE
we work on the problems
that we still find

CALCULATIVE
we have systems in place
to manage all hazards

REACTIVE
safety is important, we do a lot
every time we have an accident

PATHOLOGICAL
who cares as long as
we are not caught

Increasingly Informed

Increasing Trust

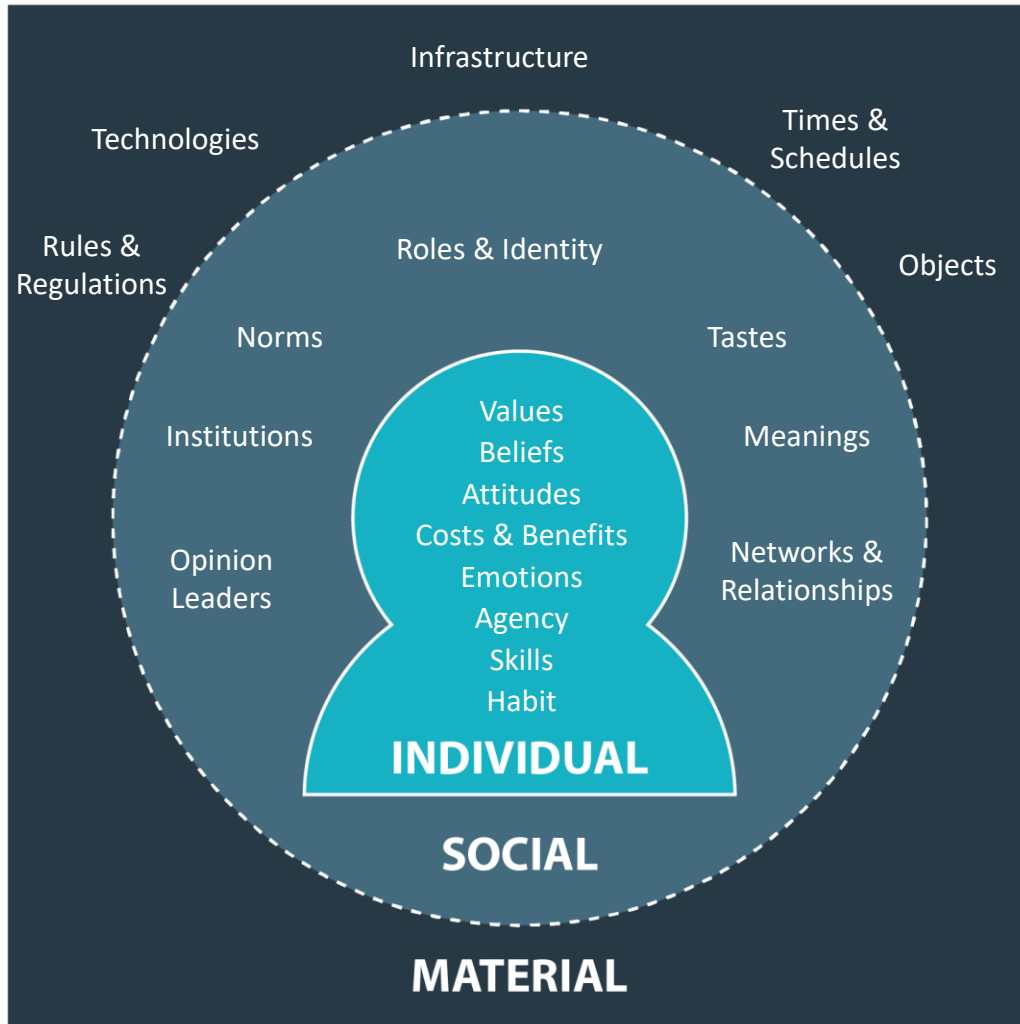The Hearts and Minds Model, Hudson & Parker, 2000

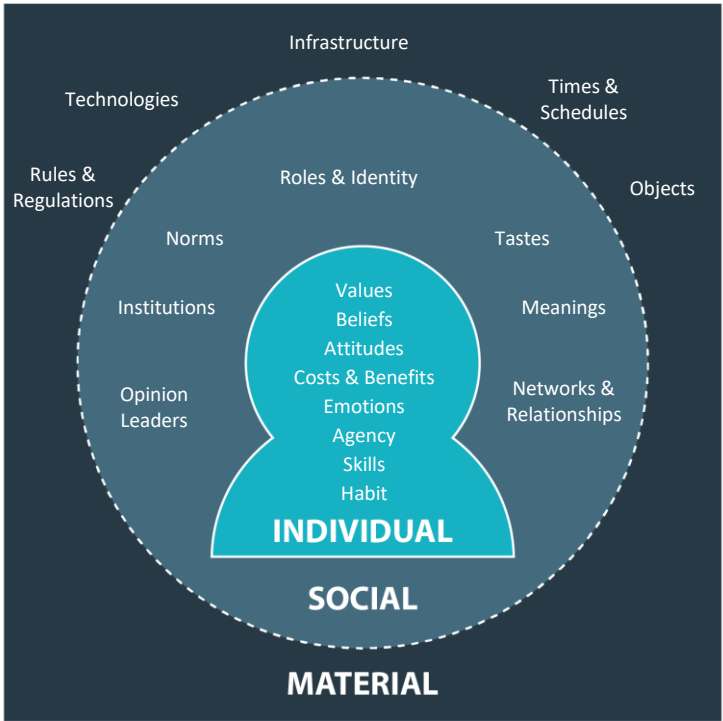# Behaviour Change Frameworks

ISM Model

The ISM Tool, Darnton & Evans, 2013

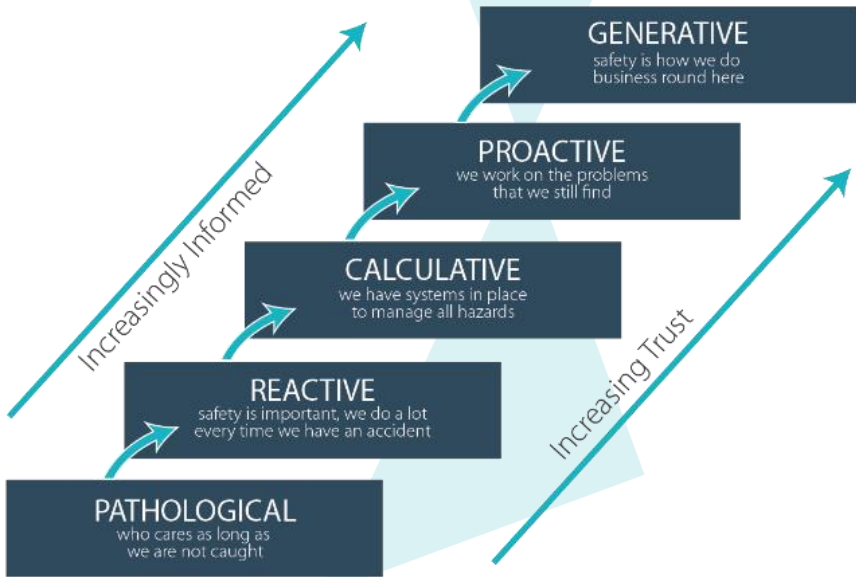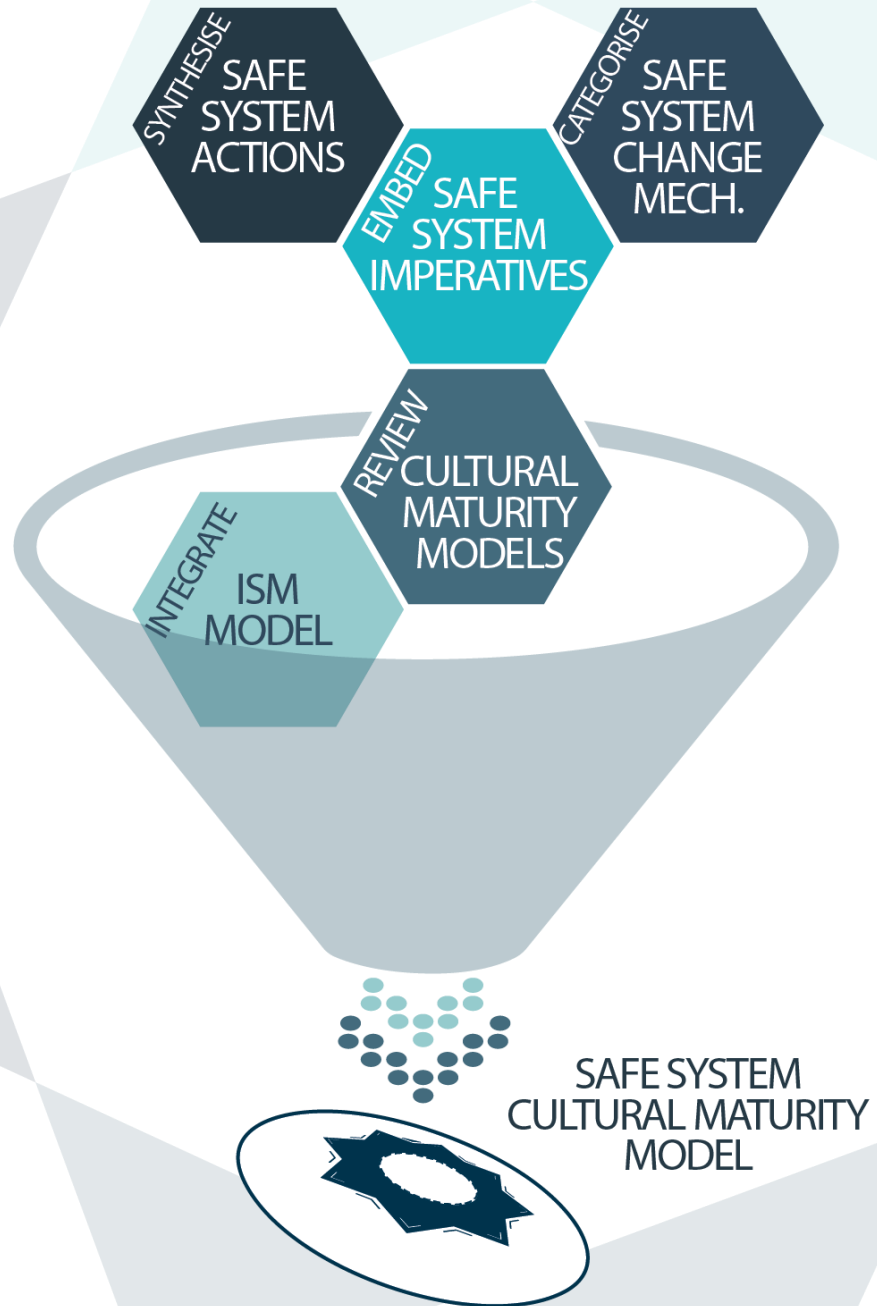# The Safe System Cultural Maturity Model

Combining Models

SYNTHESISE
SAFE SYSTEM ACTIONS

CATEGORISE
SAFE SYSTEM CHANGE MECH.

EMBED
SAFE SYSTEM IMPERATIVES

REVIEW
CULTURAL MATURITY MODELS

INTEGRATE
ISM MODEL

SAFE SYSTEM CULTURAL MATURITY MODEL

agilysis
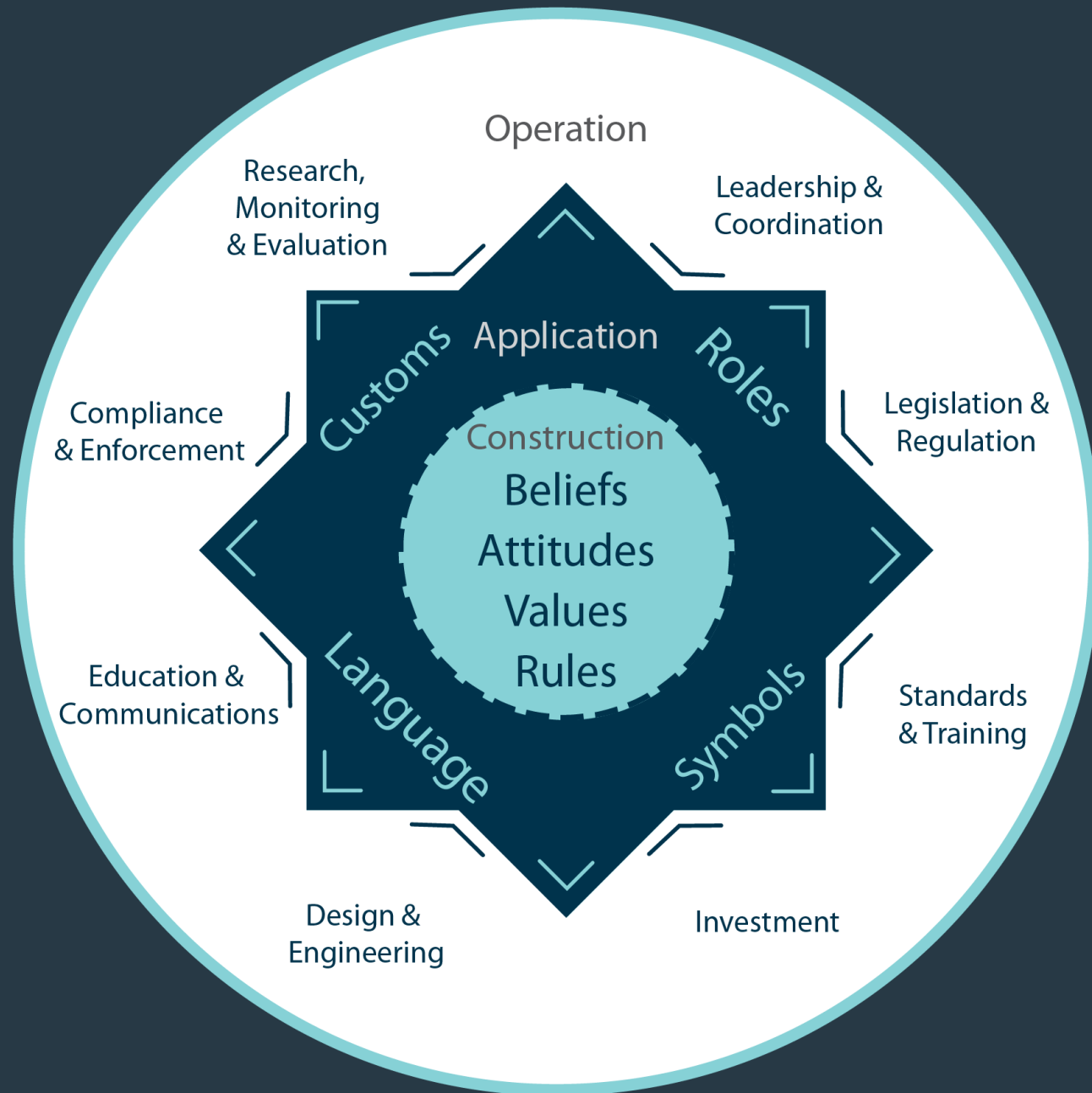
Components

Measuring Performance

Question Creation

- All Safe System imperatives
- All Safe System pillars
- Priority Safe System actions
- All identified change mechanisms

- **Diagnostic**: highlighting the overall health of Safe System culture that is prevalent in the organisation.

- **Comparative**: by seeking to create a set of statements that relate to the delivery of the Safe System overall, the survey has applicability beyond National Highways allowing for benchmarking performance against other road safety delivery bodies.

- **Transformative**: pinpointing the pillars, change mechanisms and actions which remain weak and in need of further improvement, across the organisation as a whole or within divisions.

- **Evaluative:** useful over time to consider progression, or indeed regression in some elements, as the organisation moves towards its goal of a more mature culture.

QUESTIONS ARCHITECTURE
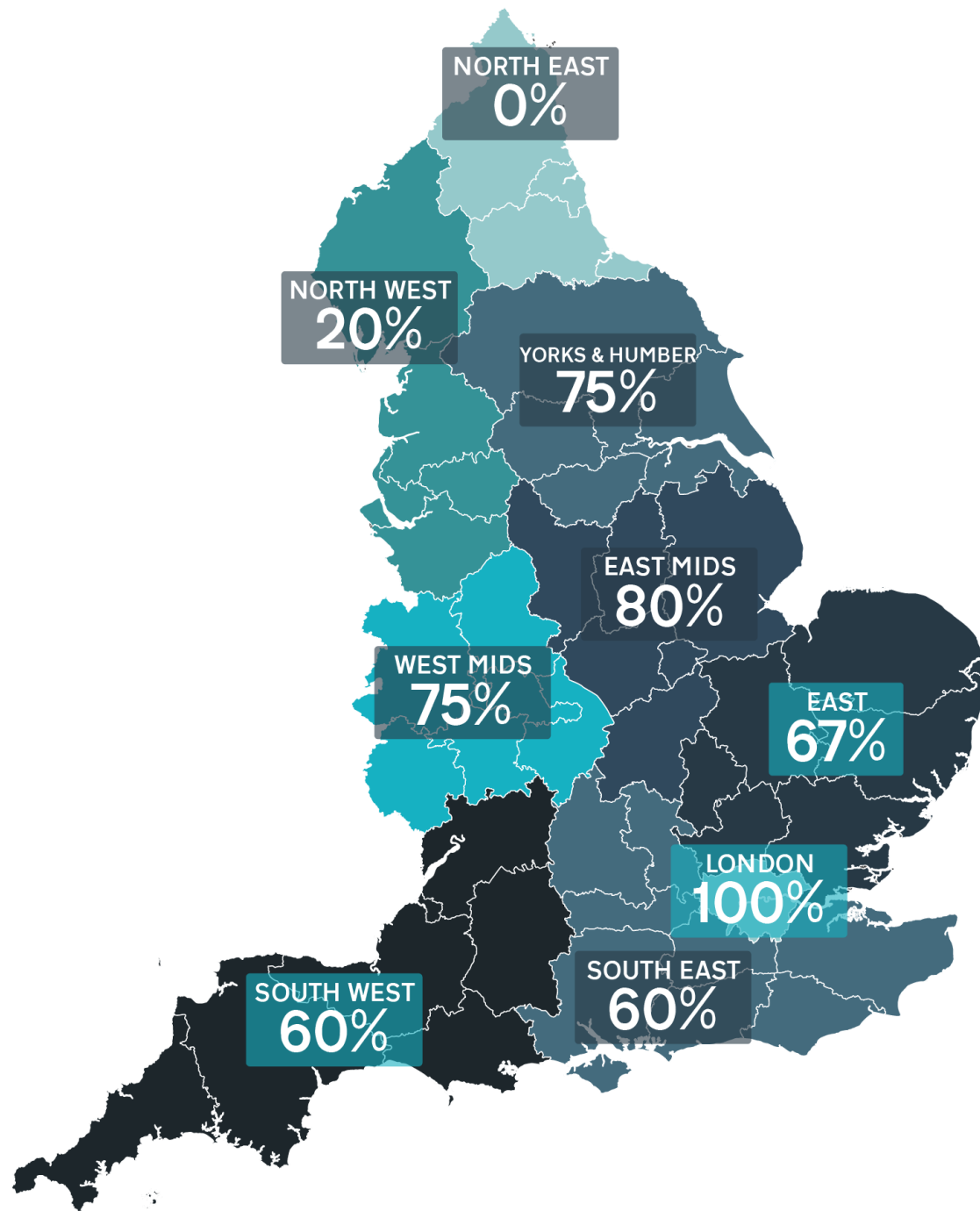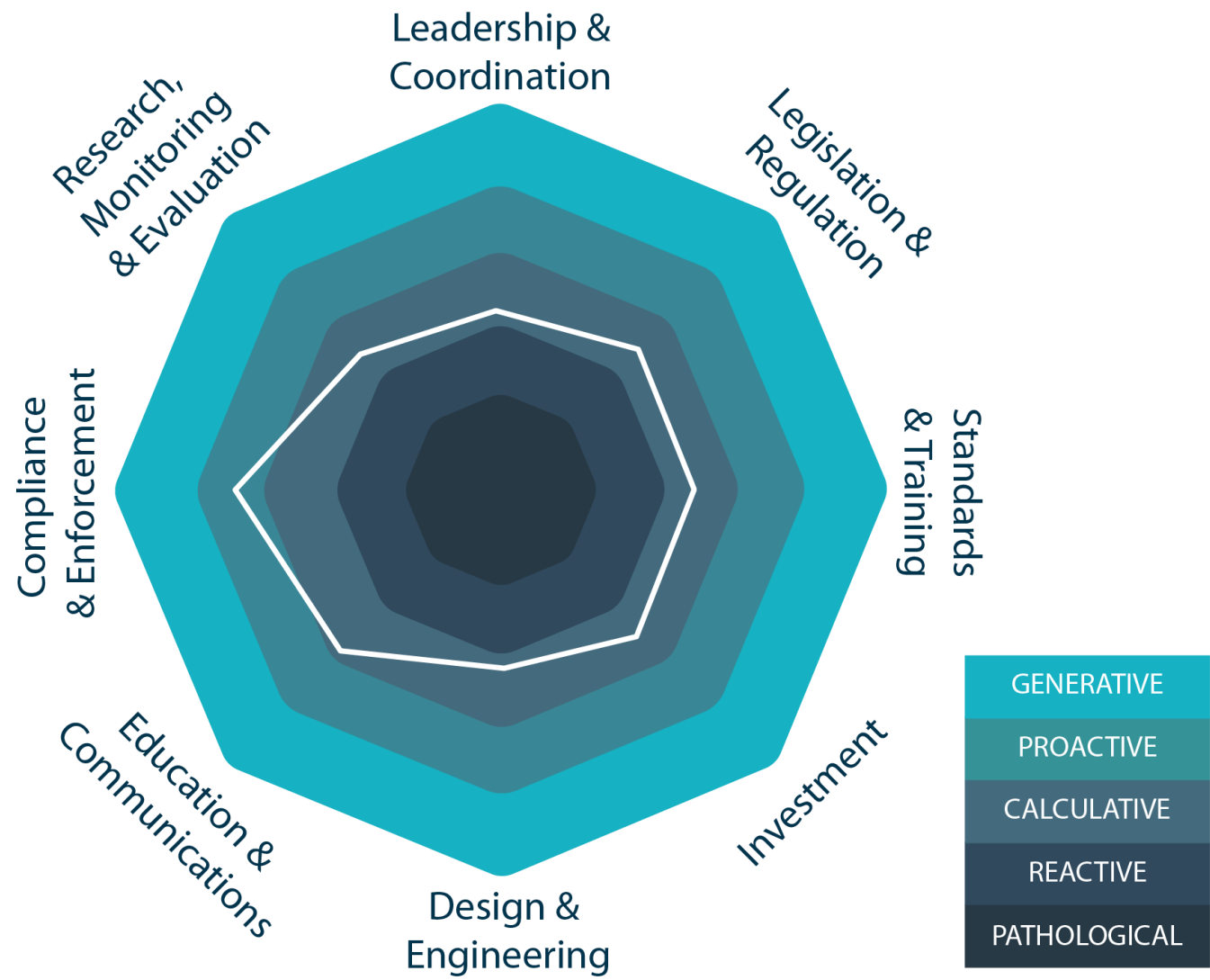
- 22 Questions Measuring Current State of Maturity (Pathological to Generative)

- Focus on 8 Mechanisms of Change

- Addressing 6 Safe System Components

- Checking 33 Discreet Safe System Actions

Component	Category	Question	Pathological	Reactive	Calculative	Proactive	Generative
Road Safety Management	Leadership & co-ordination	How does the Safe System impact on the actions of the organisation?	It is a concept adopted at Government level. The Safe System does not really affect how we work.	We're starting to think about how we apply Safe System. It is early days and not all colleagues understand it. There are only some Safe System pillars that we can influence.	Leaders and managers feel the Safe System is important to us. They talk about our commitment to Safe Systems. However, it does not significantly change what we do day to day.	We are actively working towards adopting a Safe System approach. We are working hard within our organisation and with our partners to ensure responsibility for Safe System delivery is shared	Safe System thinking is embedded into everything we do. We champion the philosophy of the Safe System, working extensively with partners and stakeholders to promote implementation beyond our own network.

Example statement set – addressing leadership & coordination, as part of road safety management safe system component

NORTH EAST
0%

NORTH WEST
20%

YORKS & HUMBER
75%

EAST MIDS
80%

WEST MIDS
75%

EAST
67%

LONDON
100%

SOUTH EAST
60%

SOUTH WEST
60%

Sample organisational data

Generative

Proactive

Calculative

Reactive

Pathological

Sample organisational data

Road Safety Management

Safe Road Use

Safe Roads & Roadsides

Safe Speeds

Safe Vehicles

Post Collision Response

GENERATIVE
PROACTIVE
CALCULATIVE
REACTIVE
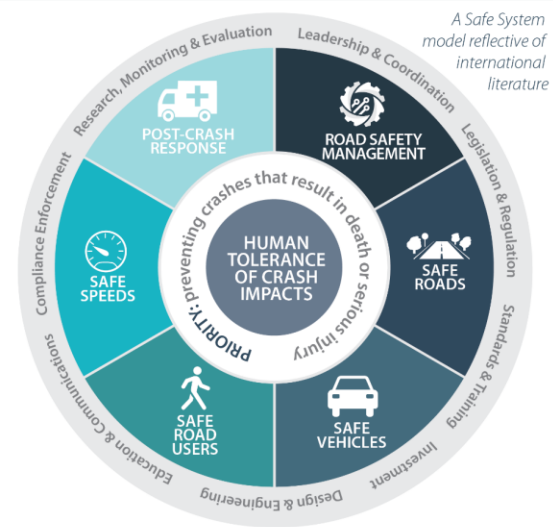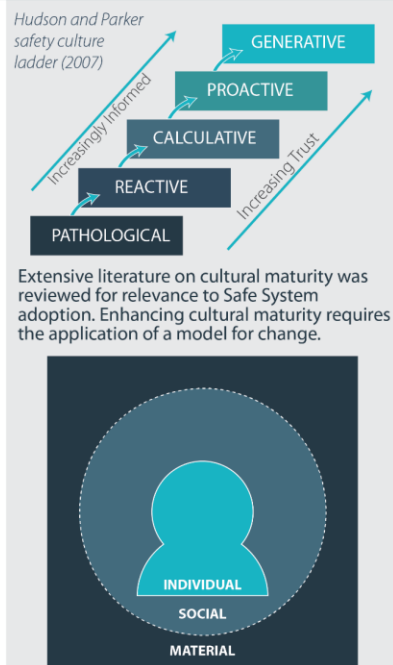PATHOLOGICAL
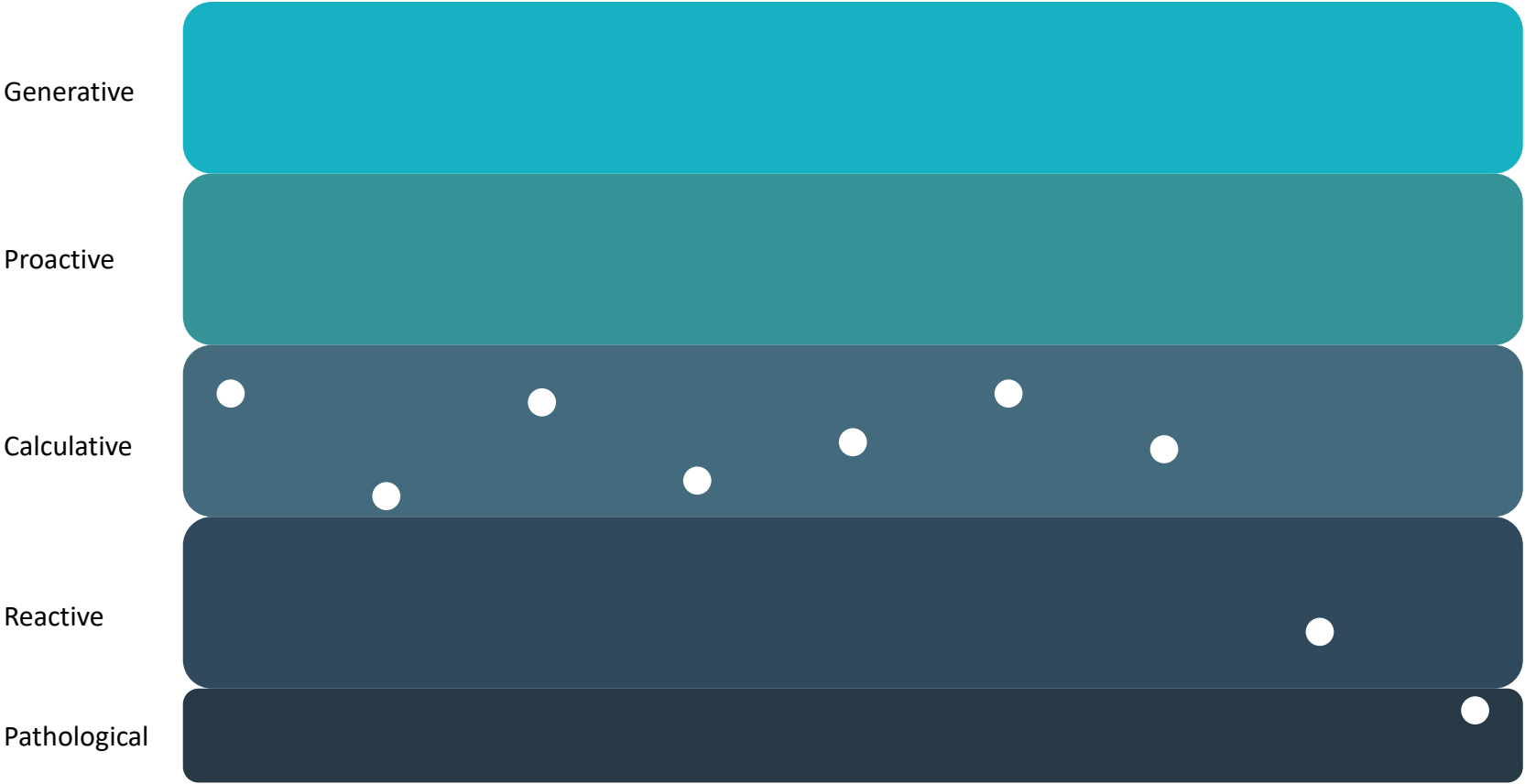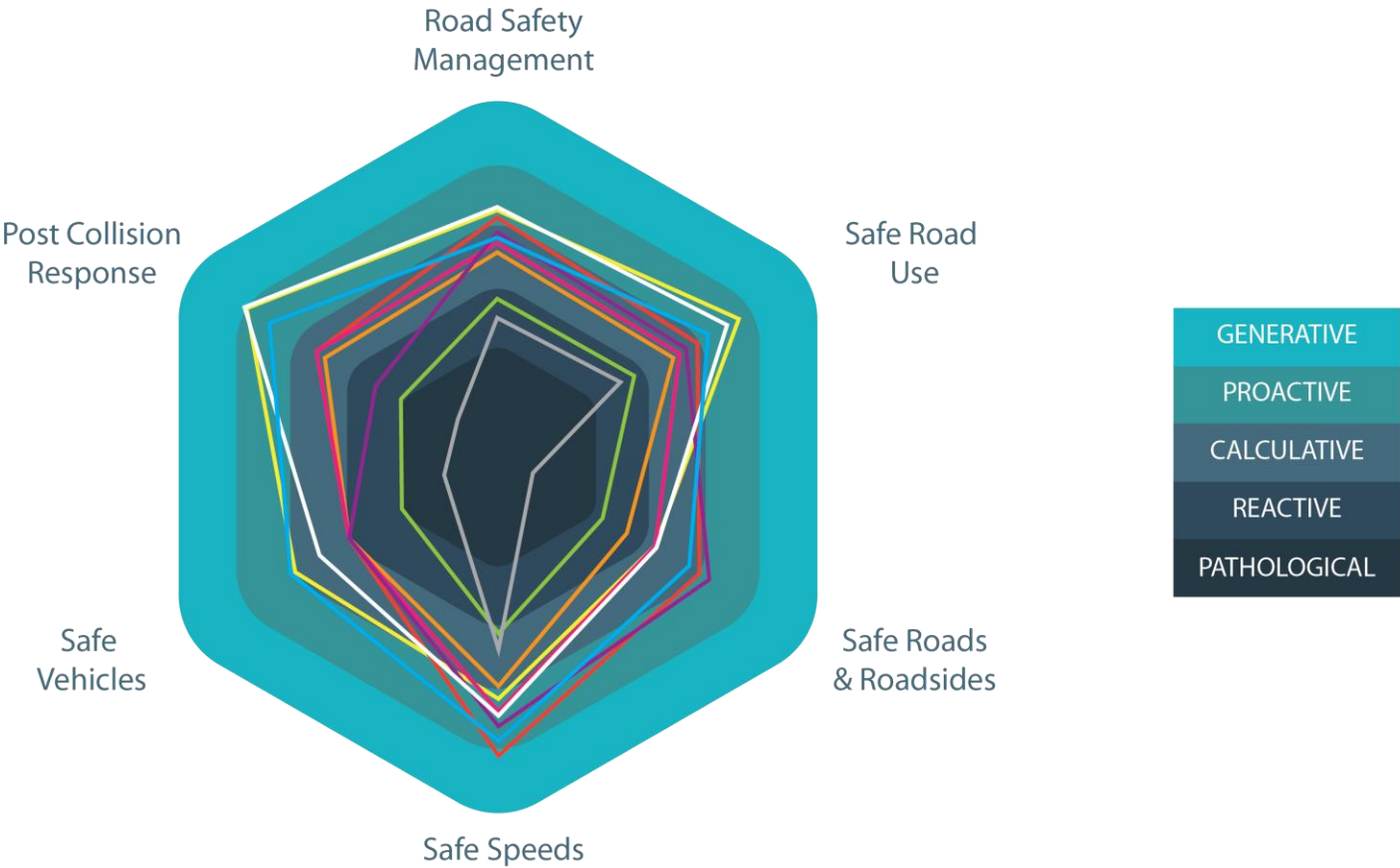
Creating a cultural maturity model to assess Safe System readiness within road safety organisations

CONTEXT

A Safe System model reflective of international literature

Research, Monitoring & Evaluation · Leadership & Coordination · Legislation & Regulation · Standards & Training · Investment · Design & Engineering · Education & Communications · Compliance Enforcement

POST-CRASH RESPONSE · ROAD SAFETY MANAGEMENT · SAFE ROADS · SAFE VEHICLES · SAFE ROAD USERS · SAFE SPEEDS

HUMAN TOLERANCE OF CRASH IMPACTS

PRIORITY: preventing crashes that result in death or serious injury
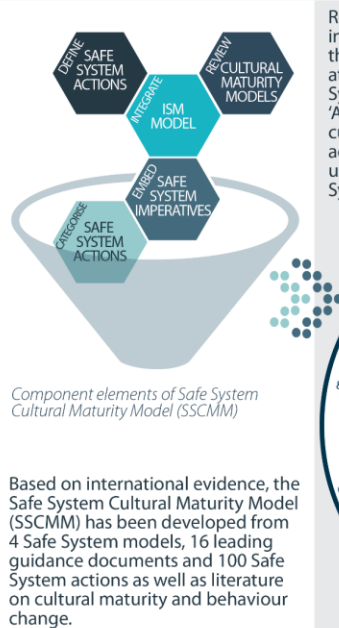
The Safe System is the international best practice approach to road safety management requiring strong leadership, co-ordination, and culture to be implemented effectively. Local adoption has been patchy depending on organisational structures, history and corporate cultures.
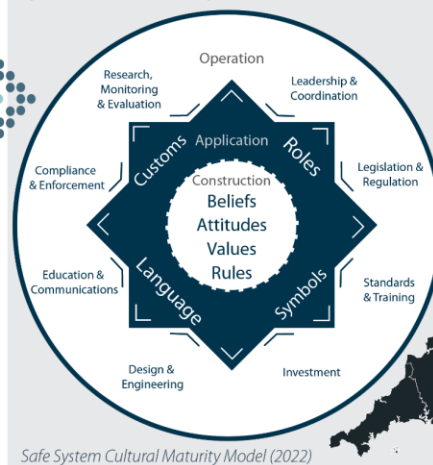
CULTURAL MATURITY

Hudson and Parker safety culture ladder (2007)

Increasingly Informed → Increasing Trust

GENERATIVE
PROACTIVE
CALCULATIVE
REACTIVE
PATHOLOGICAL

Extensive literature on cultural maturity was reviewed for relevance to Safe System adoption. Enhancing cultural maturity requires the application of a model for change.

INDIVIDUAL
SOCIAL
MATERIAL

COMPONENTS

DEFINE SAFE SYSTEM ACTIONS · REVIEW CULTURAL MATURITY MODELS · INTEGRATE ISM MODEL · EMBED SAFE SYSTEM IMPERATIVES · CATEGORISE SAFE SYSTEM ACTIONS

Component elements of Safe System Cultural Maturity Model (SSCMM)

Based on international evidence, the Safe System Cultural Maturity Model (SSCMM) has been developed from 4 Safe System models, 16 leading guidance documents and 100 Safe System actions as well as literature on cultural maturity and behaviour change.
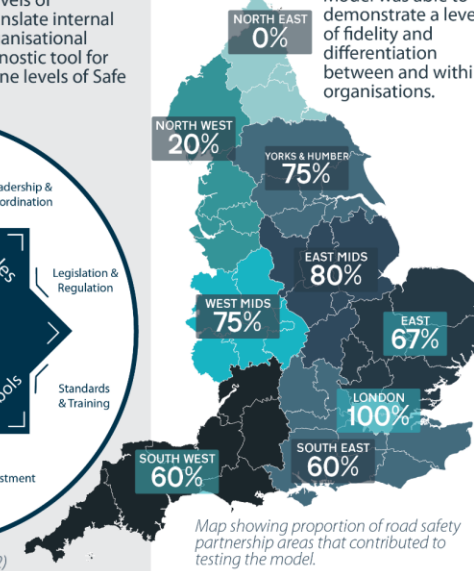
MODEL

Reflective of the ISM Model and concepts proposed in the Hearts and Minds model, 'Construction' is at the centre of the SSCM. It includes the beliefs, attitudes, and values of individuals towards the Safe System. The model also describes levels of 'Application' and 'Operation' that translate internal cultural constructs into external organisational activity. It is accompanied by a diagnostic tool for use within organisations to determine levels of Safe System cultural maturity.

Operation · Application · Roles · Customs · Construction · Symbols · Language

Construction: Beliefs · Attitudes · Values · Rules

Research, Monitoring & Evaluation · Leadership & Coordination · Compliance & Enforcement · Legislation & Regulation · Education & Communications · Standards & Training · Design & Engineering · Investment

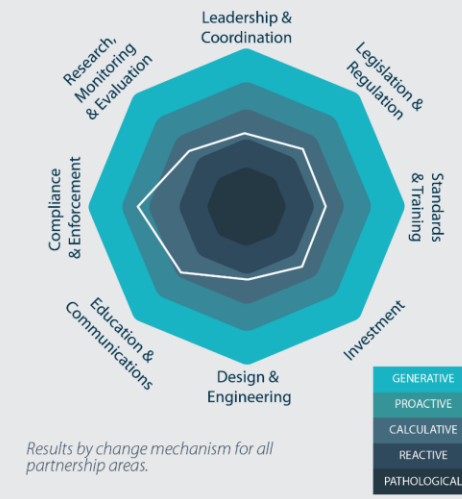*Safe System Cultural Maturity Model (2022)*

TESTING

Through testing with organisations across the UK, the Model was able to demonstrate a level of fidelity and differentiation between and within organisations.

NORTH EAST 0%
NORTH WEST 20%
YORKS & HUMBER 75%
EAST MIDS 80%
WEST MIDS 75%
EAST 67%
LONDON 100%
SOUTH EAST 60%
SOUTH WEST 60%

Map showing proportion of road safety partnership areas that contributed to testing the model.

RESULTS

As well as reviewing answers to discreet questions, results can be explored according to Safe System components or mechanisms of change to identify potential areas of strength or prevailing weakness. Aggregated results for multiple organisations (as shown below) can be used as comparators and highlight necessary sectoral development.

Leadership & Coordination · Legislation & Regulation · Standards & Training · Investment · Design & Engineering · Education & Communications · Compliance & Enforcement · Research, Monitoring & Evaluation

GENERATIVE
PROACTIVE
CALCULATIVE
REACTIVE
PATHOLOGICAL

Results by change mechanism for all partnership areas.

CONCLUSION

The Safe System Cultural Maturity Model proposed here is founded on robust evidence, developed from Safe System actions defined in multiple international guidance manuals. The theoretical part of this study resulted in a robust explanation of how cultural maturity can influence Safe System thinking and application.

The purpose was to create an exploratory tool which could be diagnostic of an organisation; allowing comparisons between organisations; useful in evaluating progression or regression over time; and to transformative when applied to specific components, change mechanisms and actions. Initial testing has demonstrated that the tool provides this function.

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Campsall, D., Fosdick, T., Kamran, M., Scott, S. (2022)

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