ISO 39001: A New Tool for Safe Systems

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Introduction

Road traffic injuries are a significant public health problem and a growing cause of death and injury around the globe. In 2009 the World Bank estimated that more than one million people are killed and a further 50 million injured each year in road crashes worldwide. The socio-economic and health impacts of this road trauma are substantial.

In March 2010, the United Nations General Assembly proclaimed the period 2011-2020 as the Decade for Action for Road Safety (1), with the goal to stabilise and then reduce the forecast level of road traffic fatalities through a sustained plan of action. It is considered that, with the right action, up to five million lives and 50 million injuries can be prevented during the Decade of Action, a reduction of about 50 per cent on the global death predicted by 2020.

Research and experience in many countries around the world has shown that large reductions in death and long term injury can be achieved through the adoption of a holistic, Safe System, approach to road safety. The Safe System approach brings together an analysis of all aspects of the road transport system that contribute to crashes, and seeks to eliminate death and serious injury from the road network. Critical to this approach is acknowledgement that there are limits to human performance which influence both the way people behave in traffic and their physical tolerance to forces released in road traffic crashes.

Also central to the Safe System approach is the notion of sharing responsibility for road safety outcomes between the individual road users who must comply with rules, standards and guidelines and the "system designers" who influence not only the way the transport system is built and maintained, but also the way it is used. ISO 39001 provides support for any organisation to contribute to improving the safety of the users of the road transport system and to reaching the long term goal of eliminating death and serious injury from the system.

The need for a management system in the area of road safety

Practitioners involved in transport and road safety are generally familiar with product or technical standards which outline certain requirements that the product or process must meet. Unlike these other types of standard, management system standards cover multiple aspects, levels and functions of the organisation or entity in order to meet agreed objectives. Implementation of a management system standard can therefore have a substantial impact on how an organisation operates and manages its business processes.

The International Standards Organisation (ISO) is the world's largest developer of voluntary International Standards for business, government and society. In 2009 its portfolio included more than 18,000 standards for every sector of economic activity and technology. ISO 9001 and ISO 14001, which give the requirements for quality management and environmental management systems respectively, are among ISO's most well known and widely implemented standards, used worldwide by businesses and organisations large and small, in public and private sectors, by manufacturers and service providers, in all sectors of activity (2).

In 2007, Swedish government and private sector interests recognised that a market exists for a road traffic safety management system standard that will assist both public and private organisations to meet their road safety objectives. Swedish authorities have been actively engaging with private transport companies in road safety for a number of years and noted from experience that organisations place a high value on safety from both an injury and financial cost perspective. The Swedes noted that the field of road safety worldwide is fragmented, with different road safety cultures in countries and organisations making co-operation difficult to achieve, and that a standardised management tool for road safety would simplify the process and ensure greater co-operation between the entities influencing road safety in the country/state or region concerned.

On this basis, together with the need for a common approach to address road safety problems at the global level, a proposal for the development of a road traffic safety management system standard was put forward by the Swedish Standards Institute to ISO. ISO conducted its own market assessment, and determined that it should develop the standard, with the support of a Swedish based Secretariat. An ISO proposal was considered by Standards Australia, through its association with Austroads. The development of a Standard aligned with Safe System thinking was seen as a positive step and as such Standards Australia voted in support of the development of ISO 39001.

Australian participation in the development of ISO 39001 is coordinated by the Standards Australia Mirror Committee ME-088, comprising representatives from roads and traffic authorities in South Australia, New South Wales, Victoria and Western Australia, the Commonwealth Department of Infrastructure, Transport, Regional Development and Local Government, University of Adelaide Centre for Automotive Safety Research, ARRB Group, Australian Automobile Association, International Association of Oil and Gas Producers, Australian Fleet Managers Association, Insurance Council of Australia and the National Transport Commission.

Representatives from Australia have been taking a lead role since the initial meeting of the ISO Project Committee in June 2008.

Interest in the development of the ISO 39001 has been strong, with 30 countries and nine international organisations participating (Figure 1).

Figure 1. International participation in the development of ISO 39001
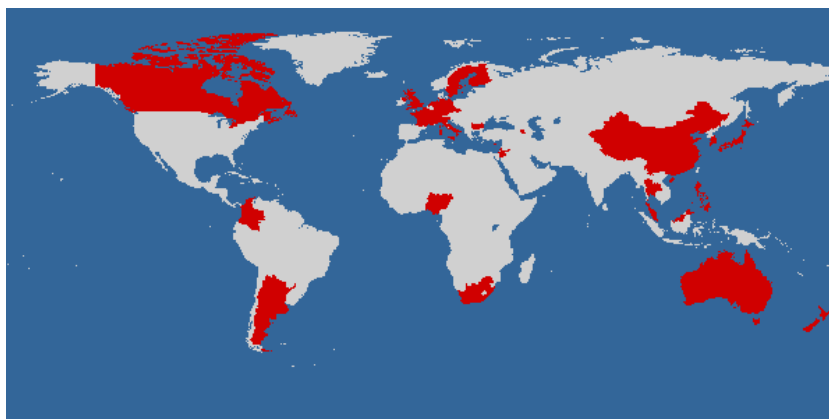
Source: Swedish Standards Institute, ISO PC 241 working papers (3)

The intended user of the ISO 39001

ISO 39001 concerns the production of road safety in a variety of organisational contexts. It seeks to be applicable to public and private organisations that interact with road safety through:

- the transportation of goods and people;
- the operation of facilities that generate demand for transport;
- personnel who are working in the road transport system;
- the design, building, operation and maintenance of roads and road environments;
- the design and production of cars, trucks and other road vehicles; and
- the provision of emergency medical assistance to crash victims.

The Standard can therefore equally apply to government agencies leading a country's road safety efforts, to private corporations, large and small firms, and other public and community entities. It does not specify any specific technical solution or minimum requirements, and is flexible and adaptable to the needs and resources of each specific organisation.

The core elements of modern road safety management

The Safe System approach is the exemplar of the modern road traffic safety management system in terms of its goal and safety design principles. It was first articulated in a joint 2008 Organisation for Economic Cooperation and Development and International Transport Forum publication "Towards Zero: Ambitious Road Safety Targets and the Safe System Approach." (4) This report referenced a codified road traffic safety management system that was developed, and subsequently published in 2009, by the World Bank/Global Road Safety Facility (WBGRSF) (5). The

WBGRSF publication drew on a comprehensive review of road traffic management practice around the world to identify those elements of management that are crucial to improving road safety performance.

The road safety management system depicted in Figure 2 is a representation of the WBGRSF framework. It involves three inter-related elements, namely institutional management functions, interventions and results.

Figure 2   World Bank/Global Road Safety Facility Road Safety Management System Framework
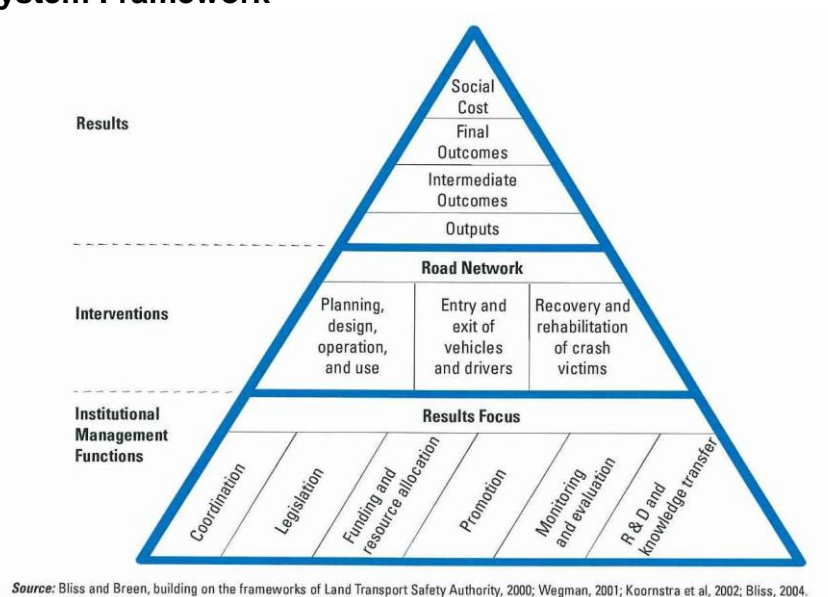
Source: Bliss and Breen, building on the frameworks of Land Transport Safety Authority, 2000; Wegman, 2001; Koornstra et al, 2002; Bliss, 2004.

Institutional management is the process for specifying an organisation's vision and objectives, developing policies and plans designed to achieve these objectives, and the allocation of resources to their implementation. In the WBGRSF framework there are seven institutional management functions that need to be performed as part of a successful road safety management system. These include:

- *Results focus* – a statement of the organisation's level of ambition and accountability that guides all activities and interventions.

- *Coordination* – the orchestration and alignment of interventions both internally within the organisation and horizontally across related organisations with a role or interest in road safety.

- *Legislation* – this function ensures that legal or policy instruments for road safety are well-matched to the road safety task.

- *Funding and resource allocation* – the financing of interventions and activities on a sustainable basis, using a rational evaluation and programming framework to allocate resources.

- *Promotion* – the sustained communication of road safety as a core interest of the organisation, emphasising the shared societal responsibility for delivering interventions that will achieve the desired improvements in road safety performance.

- *Monitoring and evaluation* – the systematic and ongoing measurement of road safety outputs and outcomes and evaluation of the interventions to ensure that they are delivering the desired results.

- *Research and knowledge transfer* – the systematic and ongoing creation, codification, transfer and application of knowledge in relation to road safety.

The middle layer of the WBGRSF pyramid outlines the interventions which are typically the focus of road safety practitioners. The exact nature of interventions are identified, shaped and implemented in order to achieve the desired results in the jurisdiction, agency or organisation concerned. Interventions in the following areas are known to bring about lasting improvements in road safety outcomes:

- the safe planning, design, operation and use of the road network
- the conditions of entry and exit to the network by vehicles and drivers
- the recovery and rehabilitation of crash victims

The final element of the WBGRSF road safety management framework is the identification, documentation and measurement of the desired results and their expression as quantitative targets. These are generally expressed in terms of final outcomes, intermediate outcomes, and outputs.

- Final outcomes include the long term vision of the future safety of the road system, together with short to medium-term targets expressed in terms of social costs, fatalities and serious injuries.
- Intermediate outcomes are measures of interventions that are known to improve final road safety performance, such as average traffic speeds, or the safety rating of the vehicle fleet, and provide more meaningful management data.
- Outputs represent the physical deliverables of organisations that seek to improve intermediate and final outcomes, such as kilometres of engineering safety improvements, or the number of police enforcement operations, or completion of specific task milestones.

While this management framework was developed originally to assist country performance in road safety, it is applicable to any organisational context. An important aspect of the work to develop ISO 39001 has been to share this understanding of road safety management, and integrate the framework with the management systems approach developed and adopted by ISO.

The ISO 39001 Framework

As highlighted above, the systematic management of road safety requires the implementation of sound interventions that deliver improved results. It is an iterative process where there is continuous improvement towards a long term vision and intermediate goals. The process approach embodied in ISO management system standards makes it a useful tool for promoting and implementing evidence-driven road safety activity across a range of organisation types. In adopting this process approach, ISO 39001 requires all organisations to periodically review and evaluate its performance, identify opportunities for improvement and then implement these opportunities.

There are, however, two key points of difference between ISO 39001 and other management systems from the ISO family. The first is that ISO 39001 adopts the Safe System vision of zero deaths and serious injuries as the fundamental basis to which the organisation must subscribe. This high level vision in ISO 39001 recognises the evolution of road safety management that has been achieved in high-income countries and the expectation that low and middle-income countries will need to shift rapidly to the Safe System approach if they are to stabilise and then make significant gains in road safety performance during periods of rapid motorisation.

The second key point of difference is that the draft ISO 39001 Standard requires all organisations to systematically consider the full range of activity areas that are known to result in road safety improvements. This requirement focuses the organisation on the interventions that will have positive, measurable results. In doing so, the standard is expected to support the transfer of knowledge about what works from road safety researchers and practitioners to a wider range of personnel in different types of organisations.

While there are some unique features of ISO 39001, it largely adopts the structure and terminology used in other management system standards. This is a deliberate strategy to ensure that organisations already familiar with management system standards in the quality, environment and other fields can readily adapt to the road safety context.

Using ISO's familiar management system framework, ISO 39001 seeks to guide organisations through a process of continual improvement in road safety performance. The draft Standard contains the following elements:

1. Introduction
2. Scope and application
3. Terms and definitions
4. Context of the organisation
5. Leadership and management commitment
    a. Policy
    b. Organisational roles and responsibilities
6. Planning
    a. Actions to address issues and concerns
    b. Road safety performance factors
    c. Additional road safety performance factors that may be required
    d. Road safety aspects
    e. Other requirements (eg legal)
    f. Collaboration and coordination
7. Support
    a. Resources
    b. Competence
    c. Awareness
    d. Communication
    e. Promotion
    f. Documented information
8. Operation
9. Performance evaluation and management review
10. Improvement

Specifically, the draft ISO 39001 Standard requires the organisation to:

- Develop an understanding of how it can influence road safety outcomes both directly through its own activities and indirectly through collaboration and coordination with other organisations. This requires an examination of the organisation's interactions with roads (and roadsides), vehicles, road users and emergency crash response.

- Determine its policy in relation to road safety and then communicate that policy, not only internally to all staff (and those working on its behalf) but to all stakeholders outside the organisation.

- Establish its objectives and targets for road safety performance, both in the long and shorter-term, taking into account its agreed road safety policy and any legal requirements to which the organisation is bound. Organisations are then required to establish targets for intermediate outcomes in areas that are known to improve road safety, which are to be met during the lifecycle of the management system.

- Consider a standard set of factors that have been shown to positively impact on road safety in a known way (termed safety performance factors in the Standard). By starting with these factors, every organisation will be ensured that the most important road safety areas are covered. The three domains of road safety performance factors include the:

    o safe planning, design, operation and use of the road network, specifically
        - road design and safe speed especially considering separation (on-coming traffic and unprotected vulnerable road users), side areas and intersection design
        - use of appropriate roads depending on vehicle type, user, type of cargo and equipment
        - use of personal safety equipment especially considering seat belts, child restraints, bicycle helmets, motorcycle helmets, and the means to see and be seen
        - safe driving speed also considering vehicle type, traffic and weather conditions and fitness of drivers especially considering fatigue, alcohol and drugs
        - safe journey planning (eg need to travel, amount of travel, mode of travel, choice of route)

    o safe entry and exit of vehicles and road users to the road network, specifically
        - safe vehicles especially considering the level of occupant protection, protection of other road users (vulnerable unprotected as well as other vehicle occupants), crash avoidance, mitigation, road worthiness and securing of loads in and on the vehicle

    o recovery and rehabilitation of crash victims from the road network, specifically
        - post crash first aid, preparedness to alert and post crash recovery and rehabilitation.

- Ensure that road safety activities identified under the management system are resourced appropriately and that there is top management commitment to this resourcing. It also requires organisations to ensure that the people doing the work are competent and aware of the road safety policy that the organisation subscribes to.

- Measure its road safety performance (or the part of the organisation's activities that are the subject of the management system), both as a baseline and then at planned intervals during the lifecycle of the management system. The organisation needs to determine what will be measured, how and when. The results of these performance evaluations are to be reviewed by the top management.

- Plan to continually improve its road safety performance by analysing the results of its evaluations, addressing any areas of deficiency, taking corrective and preventive action to ensure that deficiencies do not re-occur.

A key feature of management system standards is the importance placed on gaining and maintaining commitment from the top level of management for the organisation's specific processes and activities. The World Bank/Global Road Safety Facility review of good road safety management practice noted that responsible and accountable leadership is vital to success. In the absence of such leadership, efforts aimed at improving road safety are not likely to be sustainable. In this vein, ISO 39001 places formal requirements on the organisation's top management to show leadership, specifically in the areas of strategic direction, communication and collaboration and performance evaluation.

Adoption of ISO 39001 within Australia

ISO 39001 is currently in development and is expected to reach the Draft International Standard stage in 2011, before being published in early 2012. The development of an ISO standard for a road traffic safety management system is a significant step towards building capacity within organisations to implement best practice road safety initiatives within the safe system framework.

The standard is also expected to provide a strong opportunity for private organisations with a keen motivation in road safety from an occupational health and safety or financial management and risk perspective. It is also anticipated that release of ISO 39001 will also stimulate interest in road safety among those organisations familiar with management system standards in other areas, or who see it in their wider corporate interest to contribute to a renewed effort to eliminate death and serious injury on the road.

ISO 39001 also comes at a crucial stage for a number of jurisdictions who have endorsed road safety strategies for the next decade and will require guidance and clear processes aimed at ensuring that these ambitious plans can be delivered and the expected results achieved. Public agencies with a lead role in road safety are likely to be 'early adopters' of ISO 39001, and the Standard will provide a useful basis for engaging and cooperating with a range of private and public organisations in the implementation of good road safety practice.

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