Vision Zeros – from Idea to Implementation

A Programme for Implementation Research within the Transport Sector
Preface

This research programme has been produced by Matts-Åke Belin at the Swedish Transport Administration and Mälardalen University, Ragnar Andersson at Karlstad University and Per Nilsen at Linköping University. The programme should be seen as a first attempt to establish a systematic research-based perspective on implementation and innovation in the transport sector. The focus of this programme is the Vision Zero, an important case from both a Swedish and international perspective, providing an opportunity to develop our knowledge of this area.

Whilst Vision Zero is interesting from a retrospective perspective, it is perhaps even more important in a forward-looking perspective. Both nationally and internationally, there are still great challenges before a safe transport system where no one is killed or seriously injured, has been achieved. This programme will hopefully contribute to increase the knowledge base concerning how a vision zero will be achieved efficiently and effectively. The next step in this process is to seek funding for specific research projects within the framework of the different research themes that have been identified.
1. Introduction

1.1. The need for Implementation Research

The overriding transport policy goal is to ensure an economically efficient and long-term sustainable transport system for citizens and businesses throughout the country. In addition to this goal, the Swedish parliament have also decided upon a functional goal, in terms of accessibility, and a consideration goal, in terms of safety, environment and health (Mål för framtidens resor och transporter, proposition 2008/09:93, betänkande 2008/09: TU14, Protokoll 2008/09:120).

The transport sector is currently facing major challenges. Over the years, a fair amount of knowledge has developed regarding the transport sectors different challenges and strategies, as well as the actions required to achieve the transport policy objectives. In comparison, very little is known concerning how the public sector and the various market actors interact with each other in order to achieve both the transport policy objectives in general and more specifically, Vision Zero. Likewise, research is lacking on how collected knowledge is put into practice and how these policy, innovation and implementation processes can be influenced in order to achieve the transport policy objectives more quickly and efficiently.

1.2. Vision Zero Academy

With fewer than 2.6 deaths per 100,000 inhabitants, Sweden is a world leader in road safety. Sweden has, through parliamentary adoption of Vision Zero in 1997, clearly committed itself to an ambitious and progressive traffic safety programme (Trafikanalys 2015). Vision Zero is not just a goal that the number of deaths and serious injuries resulting from traffic accidents will eventually be eliminated, but also an attitude and approach as to how road safety should be improved. Compared to more traditional road safety work, Vision Zero takes a more holistic approach in which societal, industrial and academic partners collaborate in order to achieve sustainable improvements.

Vision Zero has been a successful innovation that has been spread throughout the world, inspiring similar road safety efforts in for example Australia, USA and Norway. Also on a local level, in cities such as New York, San Francisco and Mexico City, Vision Zero has been adopted. Finally, on an international level, the Swedish Vision Zero has been highlighted by the UN and the EU’s road safety work as an example successful safety implementation.

In order to meet the international interest in Vision Zero, its principles and working methods, the Director General of the Transport Administration established a Vision Zero Academy in 2010 with the purpose of conducting research, analysis, training and advice on Vision Zero from both a national and international perspective. However, since then, progress has been slow, mainly due to uncertainty regarding the Transport Administration’s role with regards to road safety, and lack of resources. Some initiatives have been taken by the Transport Administration with regards to their mandate in spreading knowledge and information, as well as with regards to research and innovation. Among other things, a virtual academy was created (http://www.trafikverket.se/en/visionzero) and the conference Towards Zero was held (http://www.towardszero.se/en/2015). In addition, government officials, particularly from the Swedish Transport Administration, actively participate in various international fora in order to spread knowledge regarding the Vision Zero.

Much work remains before a Vision Zero Academy is established. However, discussions are ongoing with government officials on how a Vision Zero Academy can best be organized and funded.
Although the focus so far has largely been on road safety, the overall role of the Traffic Administration, is to include all types of transport safety, meaning that experiences, approaches and management strategies can be extracted and used. According to the Transport Administration’s safety policy, the Vision Zero should underpin all transport safety strategies, i.e. not exclusively road safety. Likewise, the Transport Administration’s goal is that no serious injuries or deaths should occur within the transport system or at their workplaces. According to the Transport Administration, a continuous improvement of the safety policies should occur in cooperation with transport operators and the local community. The Transport Administration is a learning organization and thereby can effectively prevent accidents, injuries and losses as well as increasing safety for employees and customers. The Transport Administration’s safety perspective is based on a holistic approach, involving people, technology and organizations in order to function well together and the agency’s safety perspective is systematically integrated in the management system. The policy covers all activities, including the activities of external actors, as well as products and services procured.

This broad approach, allows for the Vision Zero to be compared with regards to its implementation in various sectors of society. Vision Zero has spread to other areas such as health and safety, fire safety, patient safety, etc. enabling comparative research into the interaction between the various actors in society. The Vision Zero Academy could therefore serve as a resource for society’s collective safety approach.

1.3. An Interdisciplinary Field

Innovation, policy and implementation processes with a purpose of developing the transport system or other sectors of society can be extremely complex. In these processes a variety of actors from different sectors (public, private consumers, etc.) and different levels (international, national, local, etc.) interact. The processes often continue over long periods of time with many contributions at different levels, meaning that causal relationships are often difficult to identify (Sabatier 1999).

How social agendas are created, how public policy is formulated, and how public policies or instruments are implemented, are important areas to study. A knowledge and understanding of how supply and demand in the marketplace is created and its importance to the challenges in transport issues should also be developed. Questions such as what problems get attention in the marketplace, what goals or targets are formulated, which approaches the market has to provide a safe road transport, as well as how management, social responsibility and innovation processes are designed, are all important to study. How individuals can assume different roles, such as those of citizens and consumers, is also an important field of research in order to understand the requirements and demands for a safe and sustainable transport system. Linked to this are research questions regarding how people’s values, attitudes and norms are created and changed in favour of safety and environmental issues. Finally, how society, the market and individuals interact in collaborations are important to study.

This research field will need to use a whole arsenal of different research approaches, from retrospective evaluations and action research, to analyses of future implementation and innovation strategies and approaches.
2. Implementation Research

2.1. From Innovation Research to Evidence-based Implementation

Many features in today's implementation research can be attributed to innovative research on the spread of ideas, products and practices that originated in sociological research, conducted since the early 1900s. Everett M. Rogers combined different traditions and generated concepts concerning spreading and the "adoption" of innovations in his epochal book *Diffusion of Innovations* from 1962. Rogers defines innovation as "an idea, practice or object that is perceived as new by an individual or similar entity" (Rogers, 2003, p 12). According to this definition, an innovation is not necessarily required to be new. Rather, what is decisive is whether it is perceived as new in the context of where it is introduced.

Innovations are spread through diffusion and dissemination. Diffusion is a passive process, whereby the "abstract ideas and concepts, as well as technical information and actual documents" are spread within a social system (Greenhalgh et al., 2005, page 29). Dissemination is a planned and active process with the purpose of achieving greater adoption, beyond that achieved by diffusion. If diffusion is "let it happen", then dissemination can be described as "make it happen" (Nilsen et al., 2010).

Rogers diffusion theory contains several components relevant to understanding how innovations are disseminated and applied. The theory specifies five perceived characteristics of innovation (denoted innovation attributes) that affect the extent to which innovations are used. Relative advantage refers to the degree to which innovation is seen as an advantage or improvement on previous best-practice. Compatibility concerns how well the innovation conforms with potential users' needs, values and past experiences. Complexity refers to the extent to which the innovation is perceived to be understandable and possible to implement in a specific activity. Testability is concerned about which opportunities are available to test the innovation at a reasonable price (in terms of work, engagement and costs) before it is implemented in full scale. Also, how easy it is to return to a previous best-practice if the innovation doesn’t correspond to expectations. Observability is to what degree the innovation’s benefits are palpable or visible. Noteworthy is that these attributes should not be regarded as actual characteristics of innovations, but as individuals' perceptions of the characteristics of innovations (Rogers, 2003).

Fairly extensive empirical support for the relevance of these innovative attributes (Nilsen et al., 2010). Within innovation research, implementation is understood as the efforts taken after a decision has been made on the introduction of an innovation (Rogers, 2003). In Rogers diffusion theory, implementation is described as one of the steps in the sequence leading up to an innovation being put into permanent use. This sequence is as follows: knowledge; conviction; decision; implementation; and confirmation. The knowledge phase is when the recipient receives knowledge of the existence of the innovation and learns about its properties. The recipient will thereby be convinced of the innovations value and therefore embrace it. The implementation phase is, according to Rogers’s theory, that the recipient starts using the innovation. Confirmation is the final phase in which the recipient uses the innovation fully (alternatively stops using the innovation). This linear approach has been questioned, and the phases of the innovation process is no longer seen as clear, separate stages.

Within policy implementation research, the concept of implementation is often interpreted in a similar manner as within innovation research, ie, that the activities follow a decision. A policy process is usually described in a similar way to Rogers action sequence theory, commonly according to the model presented by Anderson (2003): problem identification and initiation of the policy process; preparation; decision; implementation; and evaluation. As in innovation research, this linear perspective has been criticised. Mainly due to the process often being more dynamic and changeable than models of this kind suggests. The so-called "governance" perspective in policy research would
argue that seeing this as a sequence is less relevance. Instead, they would regard policy as a factor that emerges due to the implementation, in the interaction between different forms of governance and actors (Hill & Hupe, 2009).

Research on policy implementation started in conjunction with the evaluation of the social policy reforms carried out in the US in the 1960s. The breakthrough of this research was the book Implementation by Pressman and Wildavsky (1973). The focus of the book is how democratic decisions are actualized. Policy implementation can, for example, be connected to activities that promote the realization of public programmes. The implemented policy need not be based on research-based knowledge, but can, for example, be ideologically based (Nilsen et al., 2013).

The concept of implementation is given a relatively broad spectrum of meanings within research on evidence-based implementation. This field is often called implementation science. Grol (2005, page 10) describes implementation as "a planned process and systematic introduction of innovations and/or changes of proven value." The process is, according to Grol's definition, "planned" in order to increase the probability that the implemented factor gets put to use. "Proven value" refers to the "procedures, techniques or processes" that are implemented and that these are "new, better or different" than those already available. This value can, according to this definition, be proven through systematic reviews, meta-analyses and individual research studies.

Implementation science has become a rapidly growing research field in the wake of interest for evidence-based choices and the increased use of evidence-based medicine (EBM) and evidence-based practice (EBP). Difficulties in the practical application of evidence-based has led to an increased focus on implementation research in order to identify barriers and facilitating factors for the utilization of research, as well as strategies to achieve a greater use of evidence-based practice in different settings.

Implementation science is concerned about the implementation of research-based knowledge of different types. Initially, focus was on studies within healthcare, mainly due to EBM being conceived within this area. Today, however, implementation research is applied in other areas, such as social work and public health. Implementation science has been defined as "the scientific study of methods to promote the systematic use of research and evidence-based practices in routine activities" (Eccles & Mittman, 2006, page 1).

### 2.2. What Affects the Outcomes of the Implementation Processes?

There are many actors who can influence the dissemination and implementation processes, by facilitating or obstructing potential changes from occurring. Innovation research emphasizes the importance of so-called intermediate agents for the dissemination and implementation of innovations. Rogers (2003), in his Diffusion Theory, describes four key actors who influence to what extent innovations are used. “Opinion leaders” are often pioneers and role models, operating within the organization and are often characterized by being socially respected and having large networks. "Change agents" work within the group of potential users. Often, they come from an external organization that wants to bring about change, but can also be internal so-called “change aides” that are more integrated in the group. Although "change aides” are often seen as less competent than "change agents”, they often harbour a greater trustworthiness. Lastly, "gatekeepers”, keep an eye on the developments and convey selected information to their colleagues. The influence of “gatekeepers” can be large.

“Champions” are personally involved in the dissemination of an innovation that he or she believes in. Their faith in the innovation may be economic, humanitarian or scientific. The “champions” can be seen as a passionate enthusiast.
Diffusion Theory also contains a description of the various categories of users based on how quickly they start using innovations compared with other individuals in the social system. Despite considerable research since, the five categories of users described by Rogers in the 1960s, are still highly relevant. “Innovators” are active and enterprising risk takers, interested in new ideas and influences beyond their local networks. “Early Adopters” are more integrated than Innovators in the local social system. They are respected for their opinions and serve as a role-model for others. The “Early Majority” make well-informed decisions, actively interacting with others, though rarely being leaders. The “Late Majority” tend to be sceptical of the innovations, only adapting after the social norm favours it. Lastly, ”Laggards” are more isolated than other categories and are suspicious of innovations.

Within the research on the diffusion of innovations, as well as research with a focus on the implementation of policies and evidence, an ambition has been to answer questions regarding how and why certain results are achieved, i.e. a search for “success factors”. Whilst there are obvious differences between research fields, there are also similarities regarding the perception of what facilitates or hinders successful dissemination and implementation of innovation, research and policies. Most theories, models and frameworks point to the importance of the following components:

- The characteristics related to the implementation object (e.g. an innovation)
- The characteristics of the users (i.e. the group that delivers the implementation object to the target group)
- The characteristics of the target group (“End Users”)
- The characteristics of the specific context in which the implementation occurs (from individual organisations to societal)
- The effectiveness of the selected implementation and dissemination strategies

Figure 1: Factors affecting the outcomes of the implementation process
Figure 1 shows that each individual explanatory factor is linked to all other factors, emphasizing that all the factors are interrelated and are likely to affect each other. The importance of the different factors should not be viewed or judged in isolation of each other. Rather, it is quite possible that two (or more) less significant factors, together, can be of great importance. The context should be seen as a base, illustrating that it permeates all other factors. A favourable trait or condition in a particular context may be less beneficial in another context, meaning that identifying general success factors for dissemination and implementation is difficult.

A structured plan along with well-chosen implementation strategies can greatly affect the outcome of the implementation process. Research has shown that multifaceted strategies are usually more effective than individual efforts, but it has been difficult to identify strategies that are consistently effective. Some general success factors that are valid in different contexts are therefore difficult to identify as is how to most effectively support the implementation process. Individual strategies need to be designed with regards to the recipients, the innovation as well as the context of the implementation (Nilsen & Roback, 2013).
3. Vision Zero as a Case Study

As a starting point for the development of policies, as well as implementation and innovation processes in the transport sector, the implementation of Vision Zero has been chosen as a case.

Traffic injuries are a considerable global public health problem. According to the World Health Organization (WHO), the number of fatalities in road accidents amount to about 1.2 million people worldwide, and the number of injured could be up to 50 million. Forecasts suggest that the number of deaths will increase by around 65% between 2000 and 2020 unless significant action occurs (Peden et al., 2004). According to the WHO, road traffic accidents were the ninth leading cause of death in the world in 2004 and if current trends continue, road accidents to be the fifth most common cause of death in 2030.

Poor road safety has been highlighted by the UN and the WHO together with the World Bank jointly published the World Report on Traffic Injury Prevention in 2004 (Peden et al., 2004). The World Report is for road safety, what the Brundtland Report (World Commission on Environment and Development, 1987) is for the environmental sector. The report was launched in conjunction with the World Health Day, 7 April 2004, that for the first time was dedicated to road safety. In addition, on April 14, 2004, the first road safety debate in the UN General Assembly and an historic United Nations resolution on road safety was adopted (United Nations General Assembly, 2004). Another important milestone was the UN General Assembly’s adoption of a global plan for road safety, (“The Decade of Action for Road Safety 2011-2020”) which was adopted in order to save lives and stop the expected negative trend in the number of traffic accidents in the world (United Nations General Assembly, 2010).

At the UN summit, 25-27 September 2015, world leaders decided on 17 new global sustainable development goals that will guide the international development cooperation over the next 15 years https://sustainabledevelopment.un.org/?menu=1300. Although several targets have a bearing on road traffic injuries, targets 3.6 and 11.2 are most clearly connected to road safety.

Goal 3. Ensure healthy lives and promote well-being for all at all ages

- 3.6 By 2020, halve the number of global deaths and injuries from road traffic accidents

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

- 11.2 By 2030, provide access to safe, affordable, accessible and sustainable transport systems for all, improving road safety, notably by expanding public transport, with special attention to the needs of those in vulnerable situations, women, children, persons with disabilities and older persons

In November 2015, there was a meeting in Brazil where a road safety declaration was adopted, describing more clearly the focus of the global road safety work http://www.who.int/violence_injury_prevention/road_traffic/Brasilia_Declaration/en/.

Sweden, with its 2.6 deaths per 100,00 inhabitants in 2015 (Traffikanalys, 2015), is the global leader in road safety. With the parliamentary adoption of Vision Zero in 1997 (Swedish Government and Committee on Transport and Communications, 1997), Sweden has clearly committed itself to an ambitious and progressive road safety initiative. Over the years, a comprehensive knowledge base has been developed regarding the severity and incidence of traffic injuries. This is also true of important risk factors and effective countermeasures (Elvik and Vaa, 2004; Peden et al., 2004). However, there are still large gaps in the knowledge regarding the road transport system where different components, vehicles, infrastructure and users interact and communicate with each other. Large investments,
predominantly industrial, are being made for this type of research worldwide. In addition, non-fatal injuries are becoming increasingly important to highlight.

An area of knowledge that is greatly understudied is how communities and markets work from a safety perspective. Such knowledge would contribute to how safety issues most effectively and appropriately can be solved and thus be of practical benefit to both the individual and society. There is therefore a lack of understanding of the dynamic process that aims to formulate and implement road safety policy as well as how road safety measures are effectively disseminated (Racioppi, 2004) (Wegman and Hagenzieker, 2010).

Deaths and serious injuries in road traffic accidents are ultimately a result of the road transport systems design and function. The road transport system can be defined as a phenomenon consisting of users, vehicles and the traffic environment that interact with each other in order to satisfy society’s need for road transport (Larsson et al 2010). These components and their interaction can be seen as a result of how the various actors individually and jointly act on a road transport system. These individual actors are in turn influenced by how social actors individually and jointly act and thus affect road transport. See Figure 2.

From the Vision Zero perspective, it is fairly easy to conclude that an efficient road transport system is a system that delivers the necessary mobility, whilst simultaneously, through its design and construction minimizes the number of people killed or seriously injured as a result of road traffic accidents. However, from an international perspective, it can be concluded that considerable improvements are needed before this has been accomplished. As previously mentioned, it is not primarily an issue of not knowing what is causing road safety problems or how they should be resolved, but rather how to get the community and road transport market players to make use of the available knowledge and implement the appropriate interventions.

Compared to a more traditional road safety policy, Vision Zero is different in several important respects. Specifically, the formulation of the problem, the perception of responsibility, the demand for safety from road users, as well as what the aim of road safety work ultimately is (Belin et al., 2011). It is therefore no exaggeration to claim that Vision Zero represents a kind of conceptual paradigm shift. This conceptual change has affected our analysis, research and development (e.g. in-depth studies, STRADA, analysis models, etc.), as well as how to work with road safety (e.g. performance
management, benchmarking, etc.) and specific road safety measures (e.g. 2 + 1 roads, safety cameras, speed systems, vehicle engineering solutions). See Figure 3.

Together with a well-developed system of both specific targets (e.g. targets for deaths and serious injuries) and specific indicators (e.g. the development of vehicle safety, the road environment and road user behaviour), the field of road safety and Vision Zero is an appropriate research field for studying innovation and implementation strategies more generally. The specific target and follow-up structure that exists within road safety allow for outcome-oriented policy and implementation research, from concept to results. (See model below). It is also important to study the impact of Vision Zero on its context, as well as the contextual impact on Vision Zero. As mentioned earlier, implementation research tends to be concentrated on the things that went wrong. With a bias of case studies regarding the bad examples, a focus on the successful implementation and results of the Vision Zero enables research on processes that have succeeded and comparison with those that have not succeeded.

In order to study this complexity, analytical tools are required and a map where the complex reality can be simplified to the extent that it can be studied systematically. Ever since the sociologist Max Weber launched the concept of the “ideal type”, this has been widely used in the social sciences. Ideal types do not describe reality but are analytical structures and aids in research (School of Social Sciences, 2012). An example of an ideal type of model, frequently used in studies of public policy processes, is the so called phase model (Parsons, 1995; Sabatier 1999; Vedung, 1997). The phase model is, simplified, a linear perspective on the policy process, starting with a policy issue problem on the agenda, objectives and strategies are developed, and measures are implemented. Below is an attempt to capture such an analytical model.

![Figure 3. Vision Zeros impact on deaths and serious injuries](image-url)
4. Some Research Themes

Below, a number of research areas are outlined that all affect Vision Zero's role in society, its potential, its limitations, possibilities and potential generalization to other areas. The basic concept of Vision Zero is that the system must be adapted to the objective that the limits of human tolerance to physical stresses are not exceeded. This is a complex task that includes many stakeholders and actors.

Road safety research is largely problem-oriented, taking its starting point in things that do not work. Within implementation research there is also a tendency to study the constraints and less successful results. Rothstein has described implementation research as "misery research" (Rothstein, 1998). The research Vision Zero Academy will produce ultimately aims to improve society's stakeholders to become better and faster at creating a safer road transport system, and therefore focus is on understanding the good examples. As with the public health sciences, who have highlighted the importance of studying positive aspects, such as health promotion (Lindström and Eriksson, 2005), this research programme is primarily focused on the innovation, policy and implementation processes that in a positive manner contribute to a safe road transport system.


The transport systems basic components and the interaction between them is outlined in Section 3 above, however, the systems architecture needs to be studied and developed further. Relevant parallel research is within the modelling of for example industrial socio-technical systems for accident prevention and social contexts for disease prevention and health promotion. A basic understanding of the systems architecture is a prerequisite for the identification of the categories of actors and continued modelling of the interaction between them. Thereafter, the safety work can be broken down and clarified in different areas in terms of levels and stakeholder categories as well as different system components. A safe system is dependent on how various technical systems interact and communicate, such as vehicle to vehicle and vehicle to infrastructure. This also raises questions regarding the differences in technological development between the different parts of the system as well as issues related to private integrity.

Safety work needs to be conducted on several fronts simultaneously and guided by strategies tailored to the specific environment and social context. The need to find new effective management structures in order to create and maintain safe transport systems will be an important issue. The stakeholder's independent system of targets and monitoring are also important areas for research.

Safety culture is also an important global research field and is related to the overall potential for successful road safety.

An important aspect in the evaluation of new policies aimed at changing systems, is whether the effects that seem to be seen in the statistics, truly reflect the new policy or if they are associated with other underlying trends in society, so-called secular trends. The decline in traffic injuries, occurring simultaneously throughout the West, was predicted by scientists on the basis of mathematical modelling long before it occurred and without any knowledge of the policies that would be implemented. Similar predictions and patterns have been identified in other areas, such as occupational injuries, where the declines are largely attributable to structural changes in the labour market and a general technological development that replaced previous dangerous work. Despite this, downward trends are often explained by responsible parties to be caused by the introduction of safety measures.
Being able to distinguish the implementation effects from secular trends or interference effects from other parallel events is crucial to accomplish a meaningful learning from different safety improving initiatives. It is also important to further develop the arsenal of methods for impact evaluation on a system level in order to more clearly than previously determine the effects of the implemented measures.

Closely related to this area are questions regarding new developments in the transport sector that need to be quickly identified and handled, such as an increased incidence of motorcycles and mopeds. Also in these cases, it is important to study trends in order to quickly respond and follow-up implemented interventions.

4.2. Vision Zero and the State

This area of research is centered around the government control of society's transport policy and aims to increase the knowledge regarding the state's ability to work with other social actors for a safer road transport system. The questions relate to how social agendas are created, how public policies are formulated and implemented, etc. The area interlinks with the international, national, regional, and local road safety policy and practice.

The state plays a central role, both directly and indirectly, in the work for a safe road transport system. The state can take on different perspectives, such as Parliament, the Government and authorities as well as different roles that are important to keep separate. The state can be both policy maker and infrastructure developer but also direct users of the transport network. The state's roles, therefore, are important to identify and analyse.

With regards to its role as an influencer of market stakeholders in order to create a safe road transport system, the state must decide whether to intervene or whether to let the market take care of itself (Bemelmans-Videc et al., 1998). It is important to examine in which circumstances the markets work well from a traffic safety perspective. Once the state finds a need to act, there are different options for action; information, creating financial incentives or through regulations (Bax, 2011) (Belin et al 2014). In recent years, the state's toolkit has been developed further with the availability of performance management, network management, benchmarking, etc. An important research question is to identify, analyse, compare and evaluate these different approaches. The state's normative role, which in turn creates a demand for related technologies, is also probably an important role.

Amongst the available policy instruments, regulations play a particularly important role (Friedland et al., 1990) (Belin 2012). Regulation for companies, such as within occupational safety or permit approval can possibly have considerable importance for safety in the future. How regulations work in these different contexts is important to understand.

Another available policy instrument is financial incentives to guide and stimulate the market and both consumers and suppliers may be affected in the short and long term. Such incentives have, in contrast to climate or environment issues, been rarely used within road safety. Experiences from the insurance industry, where differentiated premium rating have been used, may be relevant here.

Several policy areas have been successful in integrating their issues in related areas, such as climate and environment issues. Road safety has not been as successful. Mobility management, in its broadest sense, may be a relevant approach. From a safety perspective, mobility restrictions, such as speed limits, become a hindrance of mobility simultaneously turning safety into a positive condition for mobility.
4.3. Vision Zero and the Marketplace

Within this area of research, focus has shifted from the societal processes to an organizational level on how market stakeholders act and interact. The interest is directed towards understanding how supply and demand in the market is created and its importance for road safety. Important research questions are; what safety aspects receive attention in the market, what goals or targets are formulated, which approaches does the market use to provide a safe road transport system, and how are management systems, social responsibility and innovation processes designed.

Additional questions in this field may be:

- The Swedish Transport Administration’s market-oriented approach to road safety. What distinguishes this strategy? In which situations or contexts is the strategy appropriate? Disadvantages? Costs?
- CSR (Corporate Social Responsibility) and brand development. Brand image is considered to have considerable importance for a company’s actions in general, but what role this plays in regards to safety is less well known.
- Safety in trade. Consideration of safety aspects in the procurement of transport services is likely to increase in importance. The introduction of ISO 39001 as well as the new EU Directive point in this direction.
- Driving forces for innovation. What is the role of competition, financing, programs, etc.?

Consumer programmes, assessments and safety communication. Testing and rating of cars and roads increases. However, knowledge is lacking on how these instruments affect the market.

Sweden has, through SIS, led a global effort to develop a new ISO standard for improving road safety worldwide. The standard (ISO 39001 http://www.sis.se/ledningssystem/sis-tk-511) covers the individual, the vehicle and the road, and addressed all of the organizations that in some way affect or are affected by road safety. Examples of such organizations are trucking companies, schools, road constructors, vehicle manufacturers and government agencies. By thinking and acting from a road safety perspective with a holistic view of their business, new roads, interchanges, vehicles, procedures and changes in behaviours contribute to increased road safety (http://www.sis.se/ledningssystem/sistk-511). Because ISO 39001 is an innovation that can be of considerable importance for the functioning of the market when it comes to road safety, it is important to study its dissemination, implementation and function on the market.

4.4. Vision Zero, Citizens and the Local Society

Individuals occupy a variety of roles in society, for example, as citizens, consumers and users. To understand how requirements and demands for a safe road transport system are created, it is important to know how individuals act in these different roles. For example, which problems they experience and what requirements they have. How people’s values, attitudes and norms are created and changed in favour of safety is also an important research field.

At the aggregate level, citizens are often described as a living in a community with connections to both the market and civil society. The local level is particularly prominent for the emergence of grassroots initiatives of various kinds, often of great importance for public safety and perceived security. It is also an important target for initiatives. Road safety in the local community is a responsibility spread across several sectors of society and requires considerable citizen participation, for example, on issues related
to separation of traffic, school routes and public transport. Interest in community-based safety, such as
the WHO Safe Communities model, has been obvious during the last couple of decades and requires
further investigation with regard to its potential for traffic safety work.

There are several examples of how, despite initial reluctance, demand and acceptance of various safety
innovations can rapidly change. For example, EuroNCAP assessments now seem to influence the

4.5. Learning and diffusion of ideas between sectors and countries

The idea of Vision Zero is now spreading to new sectors and policy areas. Today in Sweden, there are
national Vision Zeros within occupational injuries, patient injuries and fire. Other similar initiatives
with varying status exist within suicide prevention, emissions from ships, homelessness, evictions of
families with children, abortion, housing construction on agricultural land, burglary, violence against
women, drugs at school, drowning, rape, fair play in football, etc. There are also a number of
companies with internal “Vision Zero” policies on for example environmental issues. It is against this
background, that the need to analyse the breadth of Vision Zeros in order to achieve greater clarity
regarding what is reasonable to expect of a Vision Zero, apart from merely a vision. There is also a
need for a knowledge exchange between sectors working to prevent accidents and injuries. Policy areas
overlap, for example with many occupational injuries occurring in the transport network, which
creates a need for collaboration and knowledge sharing.

The idea of a Vision Zero has also spread to other countries. The idea that low- and middle-income
countries cannot take advantage of advanced policy development in high-income countries is most
likely incorrect. On the contrary, there is evidence to suggest that such countries can advance quickly
due to improvements in safety. The presence of multinational enterprises can contribute to the
improvement of the safety of employees as well as for society.
References:


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