



# Arguments Against Vision Zero: A Literature Review

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## Abstract

Despite Vision Zero’s moral appeal and its expansion throughout the world, it has been criticized on different grounds. This chapter is based on an extensive literature search for criticism of Vision Zero, using the bibliographic databases Philosopher’s Index, Web of Science, Science Direct, Scopus, Google Scholar, PubMed, and Phil Papers, and by following the references in the collected documents. Even if the primary emphasis was on Vision Zero in road traffic, our search also included documents criticizing Vision Zero policies in other safety areas, such as public health, the construction and mining industries, and workplaces in general. Based on the findings, we identify and systematically characterize and classify the major arguments that have been put forward against Vision Zero. The most important arguments against Vision Zero can be divided into three major categories: moral arguments, arguments concerning the (goal-setting) rationality of Vision Zero, and arguments aimed at the practical implementation of the goals. We also assess the arguments. Of the 13 identified main arguments, 6 were found to be useful for a constructive discussion on safety improvements.

## Keywords

Vision Zero · Nollvisionen · Criticism · Road safety · Ethics · Systems thinking

## Introduction

The adoption of Vision Zero (“Nollvisionen”) in Sweden in 1997 represented a crucial shift in road safety management (Government Bill 1996/97:137). Road safety work at the time was heavily influenced by utilitarian cost-benefit analysis and by an approach that considered failing road users to be the main cause of road accidents. In contrast, Vision Zero emphasized the responsibility of system designers and clearly prioritized safety over mobility and cost containment. It declared that the fatalities and serious injuries that result from preventable crashes are morally unacceptable. Moreover, it assumed that road users want health and self-preservation and that this is what the design and operation of the road system has to deliver. The moral appeal and relative success of Vision Zero has led to its acceptance in more and more countries, states, and cities around the world, and it has had a considerable impact also in other areas of public safety than road traffic (Mendoza et al. 2017; Kristianssen et al. 2018).

However, the global proliferation of Vision Zero policies does not imply that it is without flaws. In fact, Vision Zero has sustained a fair amount of criticism, both in academic literature and in the public debate. So far, these criticisms have not been

investigated systematically. Therefore, in this chapter we aim to identify, categorize, and critically assess the arguments that have been put forward against Vision Zero. Our categorization of arguments is based on a desk-based review of academic research articles, reports, and policy documents from the last two decades. The documents were retrieved through searches in the bibliographic databases, Philosopher's Index, Web of Science, ScienceDirect, Scopus, Google Scholar, PubMed, and Phil Papers, and by following the references in the collected documents. Even if the primary emphasis was on Vision Zero in road traffic, our search also included documents criticizing Vision Zero policies in other safety areas, such as public health, the construction and mining industries, and workplaces in general.

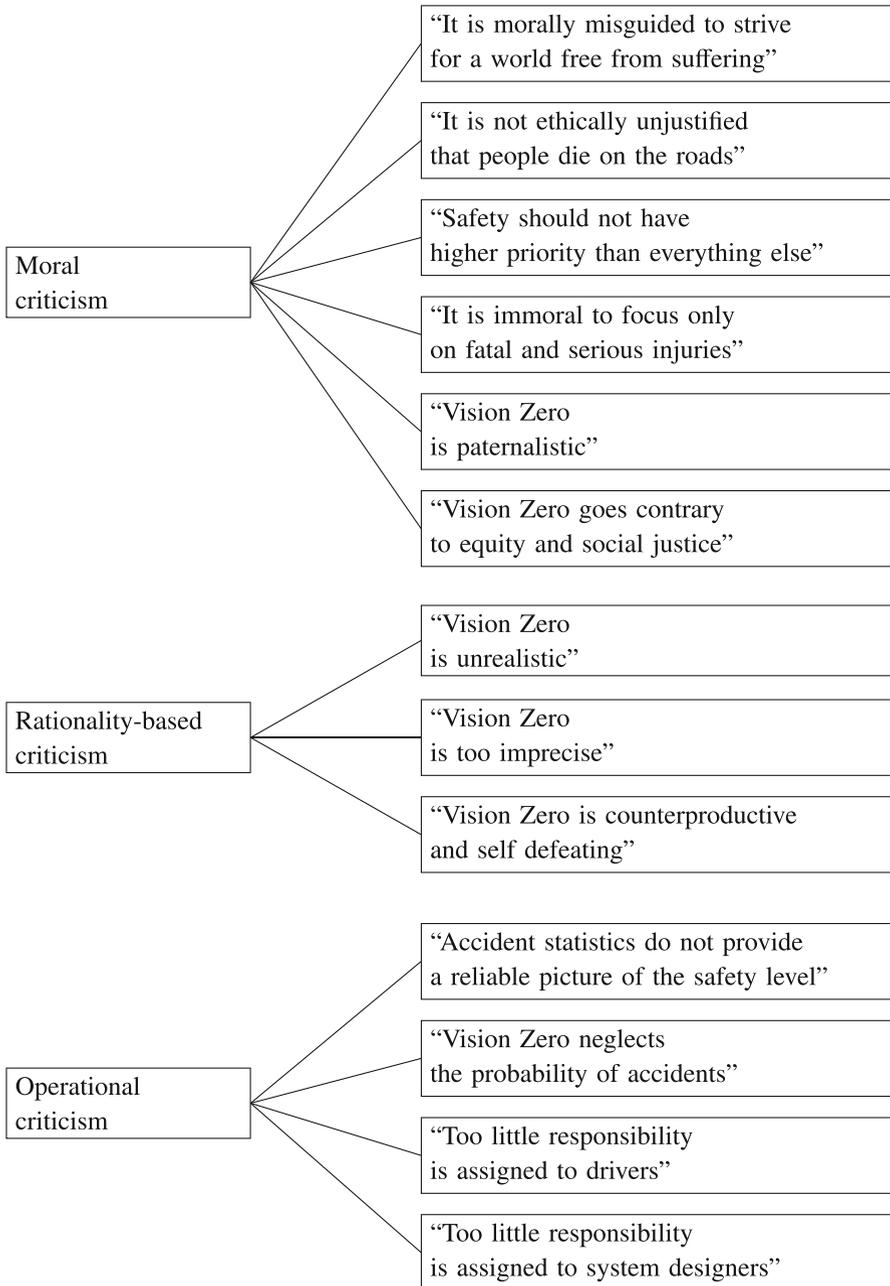
Our analysis shows that the most important arguments against Vision Zero can be divided into three major categories: moral arguments, arguments concerning the (goal-setting) rationality of Vision Zero, and arguments aimed at the practical implementation of the goals (see Fig. 1).

Firstly, critics target the central moral assumptions behind Vision Zero, such as its uncompromising prioritization of safety and its assumption that deaths and serious injuries in the road traffic system are morally unacceptable. For instance, the ethical assumption behind Vision Zero has been criticized by authors who claim that it is morally acceptable that some people die on the road, since driving is a risky activity that they chose voluntarily to engage in. Moreover, it has been argued that the resources required to realize Vision Zero will have to be taken from other policy areas where they could be used to greater advantage from an ethical point of view. Vision Zero has also been accused of being paternalistic and unjust, and some of the measures proposed to realize it have been accused of threatening the freedom, autonomy, and privacy of road users.

Secondly, critics question the rationality of setting and working toward the goal to prevent all fatalities and serious injuries in traffic safety. It has been argued that such a goal is unrealistic and therefore irrational to pursue. Doing so is counterproductive, according to the critics, since the agents who are responsible for achieving it will become demotivated when they realize that no matter how great effort they invest, the goal will never be achieved. In addition, Vision Zero has been criticized for being too imprecise to be serviceable as a goal for public policy.

Thirdly, criticisms target specific operationalizations of Vision Zero that have been used in its practical application. The ways in which safety is measured in the application of Vision Zero to road system design has been criticized. Some critics have claimed that too little responsibility is assigned to system designers. Others maintain that system designers are assigned too much responsibility and that this will reduce drivers' sense of responsibility and make them drive more dangerously.

In section "[Vision Zero: What It Is](#)," we introduce Vision Zero and its central assumptions. Sections "[Moral Criticism](#)," "[Rationality-Based Criticism](#)," and "[Operational Criticism](#)" present and analyze the arguments that we have found in each of the three categories just mentioned. Section "[Conclusion](#)" summarizes our findings and identifies some arguments against Vision Zero that are, in our view, particularly worthy of further consideration and analysis.



**Fig. 1** The arguments against Vision Zero discussed in this chapter

## Vision Zero: What It Is

A significant number of countries have adopted and are committed to Vision Zero. It was first adopted in 1997 when the Swedish parliament unanimously endorsed it as the country's traffic safety policy (Belin and Tillgren 2012). Currently, similar Vision Zero policies are in force in a number of other countries, including Finland, Norway, Denmark, the Netherlands, Germany, Poland, the UK (London), Australia, New Zealand, and Canada (see Part 2 of this handbook). While New York was the first city to adopt the policy in the USA (in 2014), many other cities have joined the group since then (Mendoza et al. 2017). So, what is Vision Zero and how does it differ from the safety policies it came to replace?

## Vision Zero as a Goal

According to the Swedish government, the long-term goal of road safety is that “no one should be killed or seriously injured as a result of traffic accidents in the road transport system” (Government Offices of Sweden 2016, p. 6). Despite the government's use of the term “vision,” it is clear from the preparatory work that Vision Zero is in fact a policy goal that is supposed to guide all road safety work in Sweden (Government Bill 1996/97:137). To reach the goal, which is not temporally specified, substantial adjustments of the road transport system will have to be made over an extended period of time.

As a policy goal, Vision Zero functions not only as a symbolic expression of the government's ambition to reduce the number of fatalities and serious injuries in the road system. The goal also guides and induces action toward achievement of the desired end-state. Using terminology from goal-setting literature, the goal is “achievement-inducing” (Edvardsson and Hansson 2005). As with most policy goals, Vision Zero coordinates action both temporally and between individuals and organizations. Vision Zero can be used by the national transport administration as a departure point for developing and implementing a series of safety measures over time in such a way that the desired end-state can more easily be reached. It can also be used to allocate resources among various sub-agencies or departments to the same effect. Based on Vision Zero, implemented road safety measures can be evaluated and adjusted, and responsibility for insufficient goal achievement can be established. Thus, Vision Zero functions as a normative framework against which road safety measures can be developed, implemented, evaluated, and adjusted (Rosencrantz et al. 2007; see also ► Chap. 1, “Vision Zero and Other Road Safety Targets”, by Edvardsson Björnberg, in this handbook). In this effort, Vision Zero posits the fallibility of human beings as a starting point for the design and operation of roads and vehicles (Johansson 2009). But, importantly, Vision Zero is not only a goal but also a strategy.

## Vision Zero as a Strategy

Vision Zero is a strategy that relies on both social and technological innovations in the process of approaching the goal of zero fatalities and serious injuries (Belin et al. 2012). Vision Zero differs fundamentally from the traditional approach to road safety management in terms of its “problem formulation, its view on responsibility, its requirement for the safety of road users, and the ultimate objective of road safety work” (Belin et al. 2012, p. 171).

*Problem formulation and ultimate objective:* In the traditional approach to road safety, traffic accidents were presented as the major problem to be solved, and individual road users were believed to be causally responsible for up to 95% of those accidents (Evans 1996). In contrast, Vision Zero puts focus not on the accidents per se but on the resulting fatalities and serious injuries. The difference between the traditional approach and Vision Zero can be clearly seen from the measures advocated by proponents of the two approaches. In Vision Zero, a road safety measure that leads to an overall decline in fatalities and serious injuries is preferable, even if it involves a greater number of accidents or minor injuries. This is, for instance, the main logic behind the shift from traffic lights to roundabouts in four-way intersections in most Vision Zero-committed countries, such as Sweden and the Netherlands (Mendoza et al. 2017). While roundabouts, as compared to traffic lights, tend to lead to a greater number of crashes, the reduced speed in roundabouts makes the crashes less severe, and the number of fatalities and severe injuries is considerably lower (ibid.). When it comes to road and street design, Vision Zero goes contrary to the traditionally dominant safety strategy of increasing space for vehicles through the construction of wider roads, wider lanes, straighter roads, and larger crossings (Bergh et al. 2003; Johansson 2009). Although these measures facilitate the flow of traffic and reduce the number of crashes, they often have negative effects on safety since “the most predominant effect of creating more space is an increase in driving speed, which means higher levels of kinetic energy in crashes” (Johansson 2009, p. 828).

Two prominent improvements in vehicle technology that have brought huge safety gains in Swedish roads are the introduction of seat belt reminders (SBR) and alcohol interlocks. A study by Krafft et al. (2006) of the driving behavior of 3000 Swedish drivers showed that “in cars without SBR, 82.3 percent of the drivers used the seat belt, while in cars with SBR, the seat belt use was 98.9 percent” (p. 125). Furthermore, “in cars with mild reminders, the use was 93.0 percent” (p. 125). From this, the authors concluded that installing seat belt reminders in all cars would have a dramatic impact on the number of fatal and seriously injured car occupants. Seat belt reminders are a prime example of a measure that aims at reducing the consequences rather than the probability of crashes.

Alcohol interlocks provide another important example of a technological innovation with huge safety benefits. Drunk driving is one of the major factors involved in crashes leading to fatalities and serious injuries. According to the WHO’s global status report (WHO 2018), between 5% and 35% of all road fatalities are alcohol-related. In Sweden and many other European countries, alcohol interlocks have been

introduced as a remedy to the problem of drunk driving. The technology is now widely employed in professional settings. In 2017, 97% of the busses operating in public transport in Sweden had an alcohol interlock (Sveriges Bussföretag 2018). The technology requires a driver to exhale into the machine and prevents the driver from starting the vehicles if a certain amount of alcohol is detected in their breath. Alcohol interlocks is one of many measures in traffic safety that have positive impacts both on the probability and the severity of crashes. Drunk drivers are more often involved in crashes, and these crashes also tend to lead to more serious injuries.

## Vision Zero as New Responsibilities

In the traditional approach to traffic safety, the individual road user was identified as the most important causal factor in traffic accidents. Based on accident investigations, it was reported that road users' behavior was the cause of about 95% of traffic crashes (Evans 1996). Consequently, it was assumed that road users carry almost the whole responsibility for traffic safety, and it was often concluded that safety propaganda, rather than technical improvement, was the best way to deal with the problem.

However, these reports were based on a questionable approach to causality, and the conclusions were largely unhelpful in attempts to improve road safety. Although we usually prefer to think in terms of "the cause" of an accident or other event, the assumption of a single cause is in many cases a gross oversimplification. Events do not typically follow from one single cause. Instead, there are several causal factors, all of which contribute to the effect. Various practical considerations influence which causal factor we tend to call "the cause," for instance, how certain we are of its influence, its conspicuity, whether it could plausibly have been absent, and whether it could have been changed by human action (Hoover 1990). For instance, if you ask a bacteriologist what is the cause of cholera you can expect the answer "the bacterium *Vibrio cholerae*," but a public health expert will probably give an answer referring to the lack of proper sanitation. These causal descriptions are useful for different purposes. In the treatment of cholera patients, the answer mentioning the microorganism may be the most adequate one, whereas the answer referring to sanitary conditions is more useful for disease prevention.

In much the same way, most traffic accidents have causal factors pertaining both to the behavior of the driver and to the construction of the vehicle and the road system. For instance, a driver's decision to drive drunk is often a causal factor contributing to an accident. However, there are also various other causal factors, including the social conditions that led the driver to drinking too much, the lack of resources for treatment of alcoholism, and vehicle-related causal factors such as the lack of an alcohol interlock on the car in question. In discussions on how to reduce traffic accidents involving drunk drivers, the drivers' decisions were previously almost exclusively at focus, whereas the decisions by regulators and manufacturers to allow respectively market cars without alcohol interlocks have not been part of

the discussion. The situation was similar for other types of traffic accidents. (On causality and responsibility in road traffic, see also ► [Chap. 5, “Responsibility in Road Traffic”](#), by Hansson.)

One of the basic insights behind Vision Zero is that it is often inefficient to focus on the causal factors that have traditionally been called “the cause” of various accidents. Instead, the focus should be on the causal factors that are most accessible to interventions that improve safety. It then becomes clear that technological factors such as the construction of vehicles and roads are usually much easier to change than human behavior. This has led to a whole range of new technological solutions that have reduced the number of serious road accidents. Where individual road users fail to act or behave as they are expected to, due to factors such as negligence, incompetence, lack of knowledge, or health issues, the road system can be redesigned so that people do not die or get seriously injured even when mistakes are made. As noted by Johansson (2009, p. 827): “It is true, that 95% of all crashes or collisions depend on human error, but according to Vision Zero philosophy, 95% of the solutions are in changing roads, streets or vehicles.”

In consequence, Vision Zero has led to a new focus on the responsibilities of the governmental, regional, and local authorities that are involved in the design of the road environment, as well as the responsibilities of vehicle manufacturers. These two groups are called the system designers, and according to Vision Zero they shared the ultimate responsibility for traffic safety (McAndrews 2013; Government Offices of Sweden 2016). According to Tingvall (1997, p. 41), the road system designers “bear the responsibility to do everything in their power to make the system as safe as possible. . . they are also responsible for meeting the road user demands for road safety in the system.”

In part this is an institutional responsibility, carried by the agencies and companies that construct roads and vehicles. However, it also has an important component of professional responsibilities. The engineers and other professionals who perform the actual construction tasks have responsibilities, both individually and collectively, to make the choices that save lives and avert suffering. A comparison can be drawn with healthcare. Governments are responsible for organizing healthcare systems that save lives and preserve health. This is an institutional responsibility. At the same time, physicians, nurses, and other healthcare professionals have a responsibility – again, both individually and collectively – to make the choices that best serve the health and well-being of their patients.

The professional responsibilities in Vision Zero go beyond traditional blame responsibility (often called backward-looking responsibility), which assigns blame for causing a traffic safety problem. The main focus is put on task responsibility, which is concerned with who can do something about the problem. In Vision Zero, the overarching task responsibility falls on the system designers. But unavoidably, blame responsibility can also become involved. System designers can be held responsible for inactivity or misdirected activity that leads to fatalities or serious injuries that could otherwise have been prevented. (On responsibility ascriptions, see also ► [Chap. 5, “Responsibility in Road Traffic”](#), by Hansson.)

Responsibility is not a zero sum game. In other words, if one group takes on more responsibilities, then this does not mean that some other group has to become less responsible. The fact that system designers assume new responsibilities does not relieve individual road users of their responsibility to drive safely and respect traffic regulations (Tingvall 1997). On the contrary, in Vision Zero, the moral responsibility of road users goes beyond what was traditionally expected of them. In addition to the duty of respecting and abiding by the traffic rules and regulations, the “moral responsibility of road users extends to the health of all road users in all situations—even those not anticipated or defined by the legislative and governing bodies. The moral responsibility of road users also involves making clearly stated and powerful demands on the designers of the system” (Tingvall 1997, p. 42).

### **Four Central Assumptions of Vision Zero**

The above discussion suggests that Vision Zero builds on a set of important but controversial assumptions, all of which are necessary to justify the adoption and promotion of the policy.

#### **Ethical Assumption: “It Can Never Be Ethically Acceptable That People Are Killed or Seriously Injured When Moving Within the Road Transport System”**

Vision Zero is based on the ethical assumption that it is morally unacceptable that people get killed or seriously injured due to preventable traffic crashes. For the proponents of Vision Zero, any goal other than zero amounts to voluntarily permitting that people are killed or seriously injured on the road (Tingvall and Haworth 1999). This ethical basis of Vision Zero is the major justification for the adoption of the policy in many Vision Zero-committed countries and cities. Importantly, it has called established practices in safety work and transport decision-making into doubt. For instance, this applies to the use of cost-benefit analysis in road safety planning, since CBA often trades the safety of road users to promote other values. Moreover, monetary valuation of human life and the use of willingness to pay in determining the economic value of traffic safety measures are deemed morally problematic from a Vision Zero perspective (Hokstad and Vatn 2008).

From this point of view, the level of road fatalities and serious injuries is the product of our choices as a political society regarding which values we should prioritize. Fatalities and serious injuries are not deemed to be necessary costs. Instead, they show what price a society is willing to pay for mobility. This is a radical departure from the traditional approach to traffic safety, in which traffic fatalities and injuries are viewed as the necessary costs of using the road system (Belin et al. 2012). Unlike the traditional approach to traffic safety in which safety is usually compromised to promote mobility, Vision Zero considers such a compromise as an unsatisfactory situation that should be changed. According to Tingvall (1997, p. 56):

It goes without saying that human life cannot be exchanged for some gain. To give an example, if a new road, new car design, new rule etc. is judged as having the potential to save human life, then the opportunity must always be taken, provided that no other more cost-effective action would produce the same safety benefit.

### **Empirical Assumption: Human Fallibility Is Unavoidable and Therefore Has to be Taken into Account in Traffic Safety Work**

There is a long history from industrial safety of attempts to avoid accidents by identifying the workers who cause them and taking measures aiming at these individuals. However, this strategy has been found to be inefficient, since accidents are not limited to the actions of a special category of particularly accident-prone individuals. Therefore, industrial safety instead focuses on making operations “fail-safe,” or “inherently safe,” which means essentially that the prevalence of human mistakes is accepted and focus is put on minimizing the negative consequences following from such mistakes (Hansson 2010; Hammer 1980; Harpur 1958; Jones et al. 1975). A similar development has taken place in patient safety, where a “blame culture” looking for scapegoats has largely been replaced by a focus on how the probabilities and the consequences of such mistakes can be reduced (Rall et al. 2001).

Vision Zero can be seen as representing the same trend, applied primarily to traffic safety. Traditionally, the mistaken behavior of individual road users was taken to be the dominant cause of safety problems in the road traffic system. Consequently, traffic rules and regulations, education, training, licensing, and other mechanisms for behavioral change were emphasized, with the pronounced intention of promoting the required behavior and adjusting the road user to the road system (Belin et al. 2012). Vision Zero instead focuses on making the road system “fail-safe,” so that human mistakes do not lead to serious accidents. This approach is based on the simple observation that, in contrast to human nature, vehicle technology and road infrastructure are accessible to radical change.

### **Operational Assumption: The Ultimate Responsibility for Traffic Safety Should be Assigned to System Designers**

This assumption has largely the same motivation as the previous one. From a Vision Zero perspective, the ultimate cause of accidents is taken to be the “imperfect system.” Therefore, it is the system that needs to be adjusted to the needs and capabilities of the individual road users, not the other way around. Since the problem of traffic safety is systemic in nature (Larsson et al. 2010), Vision Zero presumes that responsibility should be shared among the actors that directly or indirectly influence the safety of the system.

### **Empirical Assumption: Technology Can Solve Most Road Traffic Safety Problems**

In most countries that have shown a significant improvement in traffic safety over the past few decades, the role of technology has been significant. The introduction of seat belts, seat belt reminders, airbags, automatic brakes, alcohol interlocks,

motorcycle and bicycle helmets, and safer road and street designs have played and continue to play a key role in preventing fatalities and injuries. It is generally believed that further progress can be achieved with new, innovative technologies. However, the use and application of most of the technologies that improve traffic safety has long been questioned and debated due to their impact on economy, freedom, autonomy, and privacy. Nonetheless, in countries committed to Vision Zero, a strong emphasis on the development and implementation of innovative technologies appears to be the next step. The Swedish Vision Zero recommends the use of the best available technology when addressing road safety problems, hence emphasizing the role of technological innovation in promoting traffic safety. In the USA, one of the three major strategies identified in *The Road to Zero: A Vision for Achieving Zero Roadway Deaths by 2050* (Ecola et al. 2018) is to accelerate the production and use of advanced technologies.

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## Moral Criticism

We will consider six moral arguments against Vision Zero. Four arguments claim that Vision Zero assigns too high priority to serious injuries in road traffic. These arguments are presented in order of decreasing strength of the claims that they make. We discuss the argument that Vision Zero is paternalistic and in section “[Vision Zero Goes Contrary to Equity and Social Justice](#)” the argument that it counteracts social justice.

### “It Is Morally Misguided to Strive for a World Free from Suffering”

It has been argued that, because Vision Zero aims to achieve zero fatalities and serious injuries through the categorical prioritization of safety and health of road users, it seeks to create a risk-free society, which is considered problematic in various ways. Firstly, there is the argument that creating a risk-free society conflicts with individual liberty, interpreted as the freedom of individuals to choose what risks they wish to expose themselves to (see section “[Too Little Responsibility Is Assigned to Drivers](#)”). Ekelund (1999), for instance, criticized Vision Zero for aiming to eliminate all road traffic risks despite the fact that some people are willing to take more risks than others. In the context of public health policy, Fugeli (2006) similarly argued that Vision Zero is a luxurious quest of rich European countries to create a risk-free, perfect society. In his view, Vision Zero seeks to purify life and remove defects and risks, which will lead to undesirable consequences. What these authors seem to argue is that by adopting and pursuing Vision Zero policies society may well reduce suffering in the form of deaths and serious injuries caused by certain activities, such as driving, but it also denies people the opportunities of enjoying life to a fuller extent than what is possible under a Vision Zero regime.

Dekker et al. (2016) locate Vision Zero within the “Western Judeo-Christian salvation narrative,” i.e., “the notion that a world without suffering is not only

desirable but achievable, and that efforts expended toward the goal are morally right and inherently laudable” (p. 219). This narrative understands human suffering as the result of bad choices made by individuals. Consequently, suffering can be relieved by hard work and better individual choices. This is in line with much traditional safety work, according to which the causal responsibility for accidents is largely attributed to the individual. However, Dekker et al. argue, aiming to relieve suffering by focusing on individual choices invites gaming – both by individuals, who in employment settings may refrain from reporting injuries for fear of being blamed, and managers and CEOs, who may refrain from reporting incidents that may lead to the loss of bonuses – and creates more suffering in the end.

The claim that Vision Zero seeks to achieve a perfect society is not backed up by any evidence. We have found no indication of any such assumption in the written documentation on Vision Zero. On the contrary, a major assumption behind Vision Zero is the recognition that traditional approaches to traffic safety, criticized by Dekker et al. (2016), have failed in their relentless attempts to create a perfect road user. (Cf assumption 2 in section “[Four Central Assumptions of Vision Zero](#)”) Vision Zero differs from this approach in accepting the occurrence of mistakes, and hence even accidents, as an inevitable fact of life. This speaks strongly against the claim that Vision Zero aims to create a perfect society, free from any suffering. It is difficult to imagine a totally risk-free society, constituted of imperfect individuals who are by their own nature liable to make mistakes and act on the basis of wrong judgments. Furthermore, Vision Zero does not aim at eradicating all accidents and injuries but only those that will lead to “an unacceptable loss of health” (Tingvall and Haworth 1999). Non-serious traffic injuries are outside the scope of Vision Zero. Therefore, as was rightly indicated by Zwetsloot et al. (2013, 2017), the criticism that Vision Zero seeks to create a risk-free society is more of a misconception than a genuine argument against it.

In summary, the argument that Vision Zero errs in trying to create a perfect society is based on a blatantly incorrect description of Vision Zero, and not worth taking seriously. (Therefore, we do not see a need to discuss another assumption underlying this argument, viz., that attempts to move in the direction of a “perfect” state are condemnable.)

### **“It Is Not Ethically Unjustified That People Die on the Roads”**

One of the underlying assumptions behind the adoption and promotion of Vision Zero policies is the claim that it is morally unacceptable that people die and get seriously injured due to predictable and preventable crashes. Therefore, Vision Zero is “presented as a more, or perhaps the only, ethically sound approach” (Elvebakk 2005, p. 18). However, Elvebakk argues, the mere ambition to prevent all fatalities and serious injuries cannot in itself justify the ethical superiority of Vision Zero because “there are not necessarily major differences between wanting to reduce the number of serious accidents as much as possible, and wanting to eradicate them altogether. It would seem that either way, the best one can do is one’s best”

(Elvebakk 2005, p. 21). Moreover, “it is not necessarily *in itself* ethically unjustifiable to allow hundreds of people die in traffic every year. [...] Death is, after all, a fact of life, and as a society we have to accept that people will die, for one reason or another” (Elvebakk 2005, pp. 24–25).

Elvebakk goes on to present examples of cases of fatalities and serious injuries in different aspects of human life, where the causalities, she argues, are often deemed morally acceptable because of the mere fact that those who died or were injured had voluntarily and knowingly chosen to engage in activities associated with considerable risk. Examples are deaths as a result of suicide, drug overuse, skiing, fishing, swimming, etc. Although these risky activities claim a significant number of lives every year, Elvebakk claims that “there are relatively few calls for regulation, as risk seems to be accepted as an integral part of the activity” (Elvebakk 2005, p. 25). For her, these different areas or activities, including road traffic, belong in the “private space,” where individuals often voluntarily and knowingly choose to engage in risky activities and accept responsibility for doing so. Elvebakk comments:

Proponents of vision zero prefer not to compare road traffic to these areas, but to other professional fields, where fatalities are typically not deemed acceptable. But, arguably, the road traffic system cannot be straightforwardly compared to these professional areas, as they belong to different spaces: road traffic is (for most of the drivers) not a professional space. (Elvebakk 2005, p. 25)

Allsop (2005) advances a quite similar view regarding the nature of the road system and road users’ responsibility. For him too, the road system is not a “closed system in which everything can be defined as someone’s contractual responsibility, but as part of everyone’s day-to-day lives, which they expect to be largely free to lead” (p. 15). Moreover, Allsop identifies an additional similarity between these other risky activities that people often engage in and road traffic: most of them serve the same purpose of fulfilling and giving meaning to human life. Most people who lose their lives due to involvement in one of these risky activities have engaged in it “to meet either social needs, or demands for goods, or desires for fullness of life” (ibid.). Using the roads, he says, serves similar purposes. He concludes that “neither in terms of rational socioeconomic policy nor in terms of human desire for fulfillment is it unacceptable in principle for use of the roads to involve some risk of death or serious injury” (ibid.).

These arguments do not take into account that most of those who are killed and seriously injured in road traffic did not wish to take any risks. They just had no other choice than to travel in the risky traffic system that we have. Furthermore, the assumption that a risk is unproblematic if it comes with a voluntarily chosen activity is quite problematic. On the face of it, humans may seem to choose risk-taking. However, people taking risks do not usually desire the risk per se, but rather something else that it is associated with. For instance, consider a person who chooses to bungee jump. Arguably, what she is looking for is not the risk of dying or being seriously injured, but rather an advantage that it is associated with, namely, the thrill,

not the risk. If she had the choice of an otherwise exactly similar jump but with a safer cord, then she would presumably choose the safer alternative (Hansson 2013). The same seems to be the case for dangerous behavior in road traffic, such as speeding and drunk driving. These activities are undertaken for various reasons, including the pursuit of thrill (in the case of speeding). The claim that people drive dangerously because of a wish to increase the probability that they will end up in a wheel chair or a coffin is not borne out by any empirical evidence or plausible argument. To this should of course the observation be added that most dangerous behaviors in road traffic impose risk on other road users. We therefore have good reasons to write off the argument that we might as well let people die on the roads since they have taken the risks themselves.

### **“Safety Should Not Have Higher Priority than Everything Else”**

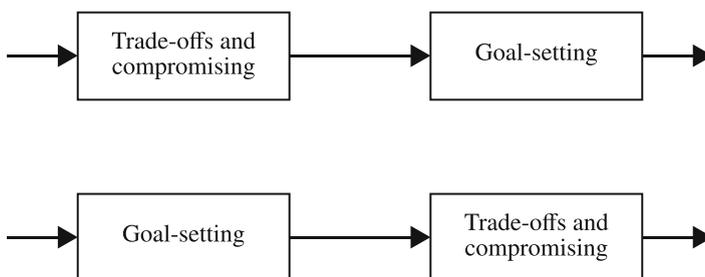
The adoption of Vision Zero was partly a reaction to the use of cost-benefit analysis (CBA) in transport policy and decision-making. (See Hokstad and Vatn (2008) and Hansson (2007) for elaborate discussions on the moral and philosophical issues associated with use of CBA.) Unlike CBA, Vision Zero does not promote the weighing of safety against other values in the traffic system. Life and health, it is claimed, “can never be exchanged for other benefits within the society” (Tingvall and Haworth 1999, p. 2).

Proponents of Vision Zero have claimed that it rectified a previous double standard for different transport systems. Safety had the highest priority in aviation and rail traffic, where accidents were treated as unacceptable events. In contrast, accidents in the road system were taken to be unavoidable and a price worth paying for mobility (Johnston et al. 2014). The high demands on airplane safety have seldom been criticized, and no attempts seem to have been made to systematically evaluate safety measures in that area with cost-benefit analysis. In contrast, the application of a similarly strict attitude to road traffic, which is promoted as part of Vision Zero, has attracted much criticism. Elvik (1999) maintained that the uncompromising prioritization of safety and health in the road traffic system would divert economic resources from other societal objectives to the promotion of road safety. Since resources are limited, he argued, this would reduce measures against other causes of death and injury in society, leading to an increase in general mortality. For similar reasons, Elvebakk maintained that from a utilitarian point of view, “rather than being a more ethical approach to road safety, vision zero is a less ethically sound basis for policy” (Elvebakk 2005, p. 24). Allsop (2005) argued that “the cold socio-economic logic of the human mind and the warm aspiration of the human spirit join their voices to say: no, they are not paramount, and yes, they can be traded. [...] Safety is for living: living is much more than just keeping safe” (p. 15).

Nihlén Fahlquist (2009) argued that Vision Zero could potentially be used to justify radical limitations of freedom of movement and individual autonomy and that it could lead to privacy infringements if inbuilt technologies and safety/surveillance cameras store data on drivers' behavior.

This criticism is based on the assumption that Vision Zero implies that traffic safety always has a higher priority than everything else. That is a misunderstanding. Proponents of Vision Zero accept that it cannot immediately be fully implemented. If traffic safety had higher priority than everything else, then all road traffic would have to be stopped immediately and only be restarted to the extent that it could be undertaken with no risk of fatalities. However, contrary to proponents of CBA, defenders of Vision Zero do not treat trade-offs, for instance, between safety and economy as optimal and satisfactory states. Instead, they treat such trade-offs as temporary compromises that should as soon as possible be superseded by new arrangements ensuring improved safety.

This can be clarified by a comparison with other social goals. There are a large number of policy areas in which society has goals that are subject to compromises with other goals. However, the relationship between goal-setting and compromises is different for different areas. In some areas, the tradition is to work with goals that are believed to be fully attainable. Economic policies illustrate this practice. It would be highly desirable to eradicate unemployment, but economic and labor market policies are not conducted in terms of such goals. Instead, more realistic goals are used, in this case a reduction in unemployment that is considered to be compatible with other goals for economic policies. In other areas, goals are used that represent the most desirable state rather than a compromise. For instance, law enforcement policies do not aim at an economically optimal frequency of manslaughter. Instead, they are based on the assumption that every case of manslaughter is one too much. Similarly, agencies for workplace health and safety are not instructed to try to achieve an economically optimal frequency of fatal accidents on workplaces but to reduce their number as much as possible. The difference between these two approaches is shown in Fig. 2. Either we make compromises and adjustments first and then set the goals (as in economic policies) or we set goals first and make compromises afterward (as in law enforcement and workplace safety). Vision Zero can be seen as an attempt to transfer traffic safety from the first to second of these patterns. This does not mean that the avoidance of traffic fatalities will be the only social goal that is never subject to trade-offs. Instead, it means that Vision Zero will be one of several goals that are given so high priority that any trade-offs will be treated as temporary and unsatisfactory concessions.



**Fig. 2** Two approaches to goal-setting and compromising

In this perspective, the argument that Vision Zero crowds out all other social goals is essentially a straw man argument. However, since the relationship of Vision Zero to other social goals is seldom sufficiently clarified, this is a criticism that has the virtue of giving rise to useful and clarifying discussions.

### **“It Is Immoral to Focus Only on Fatal and Serious Injuries”**

One important point where Vision Zero differs fundamentally from traditional safety approaches is its problem formulation (Belin et al. 2012). As noted above, the traditional goal of road safety was to prevent accidents, regardless of how severe they were. In contrast, Vision Zero accepts that accidents are inevitable in a complex system filled with cognitively fallible individuals. Therefore, it is argued, the road system should be forgiving, and so constructed that predictable crashes do not have severe consequences. Notably, crashes are often not a result of conscious negligence of instituted traffic rules and regulations but of honest and minor errors of judgment (Elvebakk 2007). Another reason for emphasizing fatalities and serious injuries in road safety is, of course, that it is those accidents that bear the largest personal, social, and economic costs.

In a recent book criticizing the Vision Zero approach in Victoria, Australia, Morgan (2018) identifies some debatable aspects of Vision Zero’s emphasis on fatal and serious injuries. Singling out and focusing on such crashes, he argues, fails to take into account the magnitude of suffering caused by minor injuries and the economic cost associated with them. He claims that “fatal and serious injury crashes are only a small part of the total road safety/vehicle collision problem” (Morgan 2018, p. 48).

It is fairly easy for a defender of Vision Zero to address this argument. It is generally accepted that saving lives has a much higher priority than preventing accidents that will only lead to temporary impairments of health and mobility. Furthermore, it can be argued that the focus on severe accidents was a crucial factor for making Vision Zero realistic enough to be adopted as a national traffic safety policy in several countries. However, it should also be conceded that the avoidance of minor accidents cannot be given zero priority. Although there does not seem to be a need to give up the strong priority for avoiding fatalities and serious injuries, there is certainly a need to discuss how less serious accidents can be included in preventive work that has a Vision Zero framework as its major driving force.

### **“Vision Zero Is Paternalistic”**

There is a long history of criticism against safety measures in road traffic that are perceived as restricting individual liberty. Legislation against drunk driving has been a major target of such criticism and so have seat belts and bicycle and motorcycle helmets (Jones and Bayer 2007; McKenna 2007). One major argument that is usually presented against the promotion of such safety interventions is that they

tend to diminish individual autonomy and pose undue interference in an individual's personal life. Much of this criticism has been couched in anti-paternalist terms (► Chap. 6, "Liberty, Paternalism, and Road Safety", by Hansson). It has been argued that as long as no harm is done to others, individuals should be allowed to do what they voluntarily choose to do in road traffic. This type of criticism has repeatedly been directed at Vision Zero. Ekelund (1999) argues that people who so wish should be allowed not to use safety belts, helmets, or other safety technologies. Allsop (2005) maintains that Vision Zero is morally problematic due to the restrictions it imposes on individuals seeking to engage in activities that make their life complete and meaningful, even at the expense of losing their health and safety. Elvebakk (2015) has presented what is probably the most extensive criticism along these lines. She provided two major reasons why road traffic systems operating in accordance with Vision Zero will be problematic from the viewpoint of individual liberty.

The first reason is related to the responsibility ascriptions in Vision Zero. Traditionally, individual road users almost exclusively took the blame for accidents. Moreover, the road system was conceived as a private sphere of individual road users, where they could act and behave as they wanted, so long as they took responsibility for their actions and behavior (Elvebakk 2007). According to Vision Zero, however, it is the responsibility of the system designers to design a road system that takes into account the fallibility and physical vulnerability of road users. Individual road users will still be responsible for respecting traffic rules, but "if they do not live up to these expectations, the system designers must take measures" (Nihlén Fahlquist 2009, p. 391). This, Elvebakk claims, means that contrary to previous systems in which road users themselves could determine the level of risk they wanted to take, in Vision Zero only the system designers determine the level of risk in the system. This argument is obviously fallacious since it is based on the incorrect assumption that road users in a traditional system can choose the level of risk they are exposed to. Many of the people who have been killed on the roads drove as carefully and safely as they could but were hit by another vehicle that suddenly appeared in a place where it should not be. This applies not least to pedestrian and cyclist fatalities.

Elvebakk's second argument is based on the observation that if the intention in Vision Zero is to bring down the number of killed and injured to zero, then system designers cannot allow road users to engage in "high risk activities" in the road traffic system. This observation is correct, and it is also true that proponents of Vision Zero have proposed and partially implemented measures that restrict the liberty to engage in high-risk activities on the road, such as speeding and drunk driving. The use of alcohol interlocks, seat belt locks, and intelligent speed adaptation (ISA) will have a significant impact on the safety of the road system. According to Elvebakk (2015, p. 301):

Although these technologies only reinforce existing regulation, they do in fact represent a considerable reduction of the individual road user's actual autonomy: while a ban merely adds a legal risk to the existing risk of the action, a coercive technology – if successful –

physically prevents the individual from carrying out the undesired action. Thus, to the extent that the measures are introduced to protect the road users performing the undesired action, they do take paternalism to a significantly higher level.

When evaluating this criticism, it is important to note that few if any of the measures proposed to implement Vision Zero are in fact paternalistic. For instance, Elvebakk commits a serious conceptual mistake when claiming that the introduction of alcohol interlocks is an expression of paternalism. According to the Global Road Safety Partnership (2007), the presence of even small amounts of alcohol in drivers' blood increases the risk of being involved in crashes. A recent report by the International Transport Forum shows that more than 273,000 annual deaths in the road traffic systems are alcohol-related (Vissers 2017). Obviously, a drunk driver poses a risk not only to her- or himself but also to other users of the road system. For instance, a report by the Centers for Disease Control and Prevention (1997, p. 104) indicates that "approximately one fourth of all traffic deaths among children aged <15 years involved alcohol and that in nearly two thirds of passenger deaths involving a legally drunk driver, the child was in the car driven by the legally drunk driver."

Alcohol interlocks, as well as speed limits that are also essential components of Vision Zero implementation, restrict the freedom of drivers to drive as they wish. However, the issue at play is not:

My freedom to drive as I like  
versus  
Public measures to protect me.

Instead it is:

My freedom to drive as I like  
versus  
Public measures to protect others on the roads and pavements.

Thus, criticism against Vision Zero for being paternalistic is largely misdirected. It is not paternalistic to prevent a person from engaging in an activity that exposes others to risks of death. It should be noted that even before Vision Zero, major reductions in the number of road traffic casualties had been achieved with non-paternalistic measures that restrict individual liberty. This includes requirements of licenses, speed limit laws, and drunk driving laws. Technological measures that further reduce the prevalence of speeding and drunk driving, such as alcohol interlocks and automatic speed adapters, certainly infringe on the liberty to behave in certain ways on the roads, but these measures are by no means paternalistic. It may be rhetorically efficient to defend the liberty to put others' lives in danger by labeling countermeasures as paternalistic, but this is certainly not a valid argument.

According to McKenna (2007), an important lesson from the experience with such interventions is that the perceived legitimacy of an activity and the associated intervention determine both the implementation and final success of the

intervention. McKenna uses the example of how difficult it was to succeed with interventions against drunk driving in the past, when it was perceived to be a morally acceptable practice, albeit illegal. However, as the public perception of drunk driving shifted from acceptance to considering it to be an antisocial activity, the preconditions for implementing interventions also changed; it became easier for law enforcement bodies to take “active steps to detect and deter drunk driving” (McKenna 2007, p. 2). As this shows, the perceived legitimacy of an activity can change over time. What is considered legitimate at one point in time may not remain so over time. In a study performed in Sweden, Norway, and Denmark, Eriksson and Bjørnskau (2012) investigated the public’s acceptance of three ICT-based traffic safety measures that have implications on the privacy and freedom of individual road users. The measures were speed cameras, intelligent speed adaptation (ISA), and event data recorder (EDR). The study indicated that awareness of the problem for which the intervention is used, the belief that one’s own actions could contribute to addressing the safety problem, belief in the fairness and effectiveness of the measure, and demographic factors influenced the acceptance of these measures. Generally, the study reported relatively high levels of acceptance for all three measures, despite their impact on privacy and freedom for the drivers concerned.

In summary, the argument that Vision Zero is paternalistic does not get off the ground, since the major restrictions on drivers’ behavior that have been proposed to implement Vision Zero are all non-paternalistic. (On paternalism and traffic safety, see also ► Chap. 6, “Liberty, Paternalism, and Road Safety”, by Hansson.)

### **“Vision Zero Goes Contrary to Equity and Social Justice”**

Globally, the burden of road traffic fatalities and injuries is disproportionately borne by pedestrians, bicyclists, and motorcyclists, who account for more than half of all deaths on the road. It has now been established that road traffic injury is the leading cause of death for children and young adults aged 5–29 years. According to the WHO, a major reason for this is that road safety planning and decision-making usually ignore the interests of these groups (WHO 2018). In many parts of the world, vulnerable road users are forced to use the same roads as vehicles operating at speeds that can lead to fatality or a serious injury if a crash occurs. In addition to the inequitable distribution of risks between different groups of road users, the measures taken to address the problem of road safety can impact differently on different segments of a population. Safety interventions tend to be instituted mainly in areas where people can afford them, which means that investments in safety tend to favor the rich (Elvik 2003). Moreover, when road safety policies are implemented in areas distinguished by large socioeconomic gaps, there is a risk that the policies, rather than addressing the road safety issue equitably, will further exacerbate the unequal state of affairs. While such concerns are almost nonexistent in, for example, a Swedish context, much has been written about traffic-related inequity in the USA, mainly in New York City (NYC).

The most serious of these criticisms are directed against the continued use of intensive policing as a safety intervention in the Vision Zero regime. Lee (2018) argues that Vision Zero has become an essential part of systematic segregation and discrimination in the streets of NYC. In his view, Vision Zero has been repurposed to serve a system of white supremacy that relies heavily on the policing of people of color to create a safe space for rich white people. These observations are made in relation to what he calls Vision Zero apartheid. Much of his criticism is directed toward the New York Police Department (NYPD) and the way they approach electric bike (e-bike) riders. Despite not causing many injuries, Lee argues, the City and NYPD have been using Vision Zero to police and ticket mostly immigrant delivery workers. To take an example, in 2017 over 923 e-bikes were confiscated from immigrant delivery workers and nearly 1800 e-bike criminal court summonses were issued, according to Lee (2018). Criminal court summons is particularly troublesome for immigrant workers, Lee notes, since if they do not show up in court, an arrest warrant will be issued for them.

Vision Zero, as initially developed in Sweden, clearly prioritized the prevention of fatalities and serious injuries and hence excluded minor injuries and noninjury crashes from consideration. The major justification was that it is impossible to avoid all crashes, given the fundamental fact that road users are cognitively fallible. The actual reality on the ground is very different, according to critics of Vision Zero in NYC. The police still target and penalize road users who commit low-level offenses that are not interesting from a Vision Zero point of view. Moreover, in the case of delivery workers on e-bikes, they do so despite lack of credible scientific evidence linking the use of e-bikes by the delivery workers to a serious loss of health (Lee 2018). According to Lee, the targeting of the delivery workers by the police is rather designed to “calm white fears of non-white bodies by using enforcement to impose punitive forms of racial and social control under the guise of public safety” (Lee 2018, p. 186). Thus, he continues, the policing strategy is just an extension and manifestation of systemic discrimination and bias against people of color and immigrants by enforcement agencies.

The enforcement strategies of NYC and NYPD must be understood against the background of the long history of policing in the USA, where a main strategy to prevent bigger criminal offenses has been through the intensive targeting and penalization of minor offenses (Lee 2018; Conner 2016). This policing strategy, called the “broken windows approach,” or “broken taillight policing” when applied in traffic safety enforcement, emphasizes the targeting of minor offenses with the view that this prevents people from engaging in major crimes. According to Conner, the continued use of this strategy has led to a situation:

where a violation relatively insignificant to safety is aggressively and subjectively enforced. The results are the disparate stopping, ticketing and arresting of drivers and bicyclists in predominantly African-American neighborhoods. Broken taillight policing criminalizes nonviolent and non-criminal behavior, and thus risks creating opposition to enforcement against dangerous driving. Further, because the summonses and arrests that result are tried in a racist criminal justice system, investigatory traffic stops are inherently inequitable. (Conner 2016, p. 16)

Conner further claims that it is impossible to achieve the Vision Zero goal without finding a proper solution to racial biases in police enforcement work and the justice system. This, it is rightly argued, is because the presence of racial discrimination in police enforcement work will lead to the misdirection of scarce public resources, “perpetuating linked cycles of racial bias and ineffective traffic enforcement” (Conner 2016, p. 18).

Connected to the criticism of the disproportionate nature of police enforcement is the issue of procedural justice when it comes to decision-making in road safety work. Critics argue that decision-making on police priorities and strategies is performed in ways that exclude affected parties and their interests. Lugo (2015) identified four major problems that Vision Zero implementation in US cities should address in order to be successful. First, she argued that Vision Zero is a Eurocentric policy, copied from Northern Europe and implemented without taking local realities and voices in the USA into account. Second, Vision Zero’s heavy reliance on police enforcement not only fails to consider the history of police violence against people of color in the USA but also opens opportunities for the police to further apply their biases. Lugo stated:

White people may look to police as allies in making streets safer; people of color may not. . . It really doesn’t seem like Vision Zero was designed to admit the problems that are an unfortunate reality for many in this country, a reality that other groups are working very hard to bring to light. It’d be great to see the development of a street safety strategy that starts with a dialogue on what “safety” means and whose safety we have in mind, taking it for granted that we don’t all face the same safety problems. (Lugo 2015, p. 3)

The assumption that most people of color would not opt for increased policing as an intervention appears to have some empirical support. A case study on Portland City’s Vision Zero equity efforts by the Vision Zero Network shows that community stakeholders and partners who were consulted on the issue of policing were not in favor of “increased penalties and fines for traffic violations” or the use of “check-points and saturation patrols to control for DUIs,” mainly due to fear of police racial profiling (Vision Zero Network 2018, p. 3).

The third problem with the Vision Zero initiative that Lugo identified is what she calls combative issue framing. The presentation of Vision Zero as “the only ethical choice,” Lugo claims, is meant to shame politicians by suggesting that disagreeing with the vision is unethical. However, Lugo urged that this could also have detrimental “silencing effects” on already oppressed people.

I’ve seen a worrying tendency among bike advocates to dismiss those who disagree with them as NIMBYs, flattening opposition regardless of whether it comes from community members who lived through the ravages of urban renewal or privileged homeowners concerned about an influx of colored bodies into their suburban sanctum. Vision Zero strategists should show their respect for meaningful inclusion through welcoming intersectional perspectives. (Lugo 2015, p. 2)

Last but not least Lugo criticized Vision Zero proponents’ “emphasis on top-down strategy,” where the main responsibility to bring about the required change

is delegated to policy makers and planners, overshadowing the importance of initial inclusion of other stakeholders in the policy process. According to Lugo, this “creates well-known barriers to participation in agenda setting by the very users the projects. . . are intended to serve” (Lugo 2015, p. 2).

Similar concerns of exclusion of affected parties from decision-making are aired in Lee’s (2018) research on immigrant delivery workers:

Despite the sizeable presence of delivery cyclists, city officials and bike planners and advocates do not involve delivery cyclists in dialogue about street safety and design. Partly, planning processes typically privilege top-down technocratic decision-making that discounts the embodied knowledge of people and communities particularly marginalized ones. (Lee 2018, p. 46)

These criticisms concern the way decisions are made and who is involved in the decision-making processes in Vision Zero. In modern democracies, deliberation by concerned stakeholders on a proposed piece of legislation or policy action is a requirement before the legislation or intervention is put into effect. If there are parties that could be affected by the legislation or action, then involvement and consultation of these parties is an important step that determines not only the legitimacy and acceptability of the legislation or action but also its success.

Generally, when discussing the issues of equity and social justice in Vision Zero, it is important to note, as mentioned briefly earlier, that some countries and cities committed to Vision Zero inherited a road traffic system that is highly characterized by inequitable distribution of benefits and burdens in the road system. These realities have two major implications for Vision Zero when it comes to ensuring the promotion of equity in traffic safety work.

First, it is essential to identify the sources, nature, and extent of past and present inequity and to determine how they now affect the promotion of equity in Vision Zero safety work. For instance, the US General Accounting Office (GAO) in 1983 and the United Church of Christ Commission for Racial Justice in 1987 both confirmed the primary role of race and economy in the distribution of environmental benefits and burdens in the USA. Later studies have also confirmed this to be the case (Bullard 1990; Bullard and Wright 2009). In such sociopolitical environments, it is important for Vision Zero efforts to recognize the impact that race and economy could have on the distribution of benefits and burdens in the road system. Discrimination on the basis of race or economy manifests itself, for instance, through lack of recognition for people’s concerns in public decision-making and also through denying them the opportunity to meaningful participation in decision-making processes on issues that affect their lives. Hence, according to social justice scholars (Young 1990; Schlosberg 2007), the correction of distributional inequity calls for consideration and inclusion of these components of justice, which have previously been ignored but are highly important in determining who gets what in a society. Generally, these theorists claim that distributional problems could not be grasped without recognizing other important aspects that determine the processes and

outcomes of distribution. For instance, they present recognition and participation as important aspects of justice. It is argued that lack of recognition and exclusion from decision-making processes causes unfair distributive results. These considerations are particularly important in countries and cities where race and economy have a large influence on the distribution of benefits and burdens. Moreover, promoting equity in Vision Zero could also require measures to correct past injustices and unfair distributions through mechanisms such as compensation, or reforming of legal and sociopolitical institutions that could have contributed to the inequitable distribution in the first place. In the USA, for instance, we currently see a growing call for compensating previously neglected areas through increased budgets for traffic safety work. Moreover, there is a similar interest in reforming public institutions such as enforcement agencies that have long and complicated relationships with people of color, minorities, and the economically disadvantaged (Morse 2015). It is also important that Vision Zero proponents design and implement strategies for equity and make sure that current safety work does not result in unfair distribution of benefits and burdens. Conner rightly comments that:

for all cities adopting Vision Zero, an intersectional and inclusionary equity analysis must permanently guide engineering, education and enforcement along the lines of age, gender, geography and socio-economic condition as well as race. Equity must become a fourth “E,” applied in a recurring process of analysis, implementation, and evaluation. Achieving equity in Vision Zero is not only a moral obligation; equity is a tool and tactic requisite to reach our goal. (Conner 2016, p. 18)

To conclude, the criticism against Vision Zero for perpetuating inequalities is valid, although not as a criticism against Vision Zero as such but as a criticism against implementation practices, in particular in places with an entrenched history of discrimination. As we see it, this is a criticism that should be taken seriously. Countries and cities committed to Vision Zero have the double burden of addressing the causes and ill effects of past transportation injustices and making sure that decision-making and policy implementation in the Vision Zero era result in an equitable and fair outcome for all.

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## Rationality-Based Criticism

A second category of arguments against Vision Zero concerns the rationality (rather than the moral justification) of adopting and pursuing the goal to prevent all fatalities and serious injuries in road traffic. We discuss the argument that Vision Zero is unrealistic and, thus, cannot be used to guide and motivate action toward the desired end-state of no fatalities or serious injuries. After that we discuss the argument that Vision Zero is too imprecise to guide action effectively. Finally, we address the argument that Vision Zero, partly because it is an unrealistic and to some degree imprecise goal, is counterproductive, or self-defeating.

## “Vision Zero Is Unrealistic”

A common argument against Vision Zero is that it is a utopian or entirely unrealistic goal: no matter how much we try, we will never be able to reach a state where nobody is killed or seriously injured on the roads. When the Swedish government’s ministry memorandum on Vision Zero was sent out for referral in the late 1990s, a few of the consultation bodies brought up the issue of achievability. Among those critical to Vision Zero were the county council of Jämtland and Täby municipality, both of which argued that Vision Zero was unrealistic given the extensive economic and administrative resources that would be required to achieve the goal (Government Bill 1996/97:137, section “[Accident Statistics Do Not Provide a Reliable Picture of the Safety Level](#)”). A report published by the Swedish National Road and Transport Research Institute (VTI) in 2005 confirmed that similar views were held by local politicians in the mid-2000s (Roos and Nyberg 2005). In this study, in-depth interviews were conducted with 20 municipal politicians responsible for road safety work regarding their views on road safety and the implementation of Vision Zero measures. A core finding was that a majority of politicians considered Vision Zero to be important but unrealistic. However, the practical implications of holding such views were not clear-cut. A few of the interviewed politicians emphasized that it was meaningless to have a vision that was impossible to achieve. Others, however, maintained that Vision Zero was nevertheless the only morally acceptable goal to pursue.

The achievability of Vision Zero has been questioned also in the academic literature. In relation to workplace safety, Long (2012, p. 27) claimed that “absolute goals, regardless of their excuse as aspirations, break the first rule in the fundamentals of the psychology of goal setting – achievability.” In Long’s view, while adoption of realistic goals typically fosters trust in the achievability of the goal and primes the agent for success, adoption of overly difficult goals leads to skepticism and instead primes the agent for failure. Similarly, in his criticism of Vision Zero traffic safety policy in the State of Victoria, Australia, Morgan (2018) argued that the goal of zero fatalities and serious injuries is impossible to achieve. Based on case studies on fatal and serious injury crashes in six areas over the period of 2012–2016, Morgan concluded that even when the widespread use of vehicle technology (autonomous braking) is realized, “some 25% to 30% of all fatal and serious crashes are still unlikely to ever go away, even with reduced urban speed limits.” However, Morgan does not cite any publications providing details of these studies. In the absence of detailed data, it is not possible to assess to what degree they support his conclusions.

In the goal-setting literature, attainability is often put forward as a rationality criterion for goals (Edvardsson Björnberg 2008). Goals need to be achievable, it is argued, in order to have the capacity to guide and motivate agents toward the desired end-state expressed by the goals. Thus, the SMART criteria, a set of goal criteria commonly referred to in management literature, include the requirement that goals should be attainable. One of the main arguments supporting this conclusion is that

goals that are utopian, or very difficult to achieve, risk becoming counterproductive. That is, when the agent realizes that she will not be able to reach the goal, her motivation to pursue it will taper off. Instead of stimulating action toward goal achievement, the goal could make it more difficult to reach or approach the desired end-state (Hansson et al. 2016). (This argument is further discussed in section “[Vision Zero Is Counterproductive and Self-Defeating](#)”)

There are at least two possible counterarguments to the “anti-utopian objection” raised by Long (2012) and others. Firstly, although empirical evidence supports the conclusion that totally unrealistic goals can have a demotivating impact (see below), a binary categorization of goals as either realistic or unrealistic is too simplistic for most policy purposes. It fails to acknowledge that goal achievability often comes in degrees. A goal that is utopian in the sense of having a very small chance of ever being fully achieved can nevertheless be approached to a meaningful degree. Many of the political goals fought for throughout history, such as equality and freedom, are in fact goals that may never be fully achieved but can still be approached to a meaningful degree. Thus, Rosencrantz et al. (2007, p. 564) write:

ideological goals like these cannot be achieved once and for all, but will always have to be fought for. This does not prevent social and political movements from using ideals such as freedom and justice as goals. It does not seem constructive to claim that goals like these should never be set, but should be replaced by goals that are known to be fully achievable. The only demand of attainability that seems to be generally required is that goals should be approachable, i.e., it should be possible to increase the degree to which they are achieved.

Highly ambitious goals are commonly adopted, not only by political decision-makers; they also play an important role in private organizations. As an example, Kerr and LePelley (2013) discussed the introduction of “stretch goals” by General Electric’s then CEO Jack Welch in the early 1980s. Inspired by Japanese-style management techniques, Welch was convinced that highly ambitious goals should be adopted in order to stimulate creativity, exploratory learning, and “outside-the-box thinking” among the company’s employees. Since then, several other companies have introduced a similar approach to goal-setting, among them the US Southwest Airlines and Toyota (Sitkin et al. 2011).

Secondly, as argued in section “[It Is Not Ethically Unjustified That People Die on the Roads](#),” there may be ethical reasons why the goal of achieving zero fatalities and serious injuries should be retained, even if it may well be impossible to fully achieve. Some political goals are difficult to adjust without losing their moral appeal. Consider, for instance, the goals to abolish slavery or human trafficking. There are good reasons for arguing that, from an ethical point of view, no number of slaves or trafficking victims above zero is good enough for these societal ambitions. In our view, the same argument applies to Vision Zero. As long as there are measures that can be taken to reduce the number of fatalities and serious injuries in road traffic, Vision Zero can be considered a rational goal.

## “Vision Zero Is Too Imprecise”

Goals typically need to be precise in order to have the capacity to guide and coordinate action effectively. Vision Zero has been criticized for failing also on this account. For instance, Lind and Schmidt (2000) argued that the strategy behind Vision Zero is vague and difficult to relate to, especially for actors at regional and local levels, since it has not been operationalized into more concrete targets and measures. One suggested solution to this problem is to introduce subsidiary goals in road safety work. This has been done in some Vision Zero countries, for example, Sweden, where the overall goal of zero fatalities and serious injuries was operationalized into the more precise sub-goal to reduce the number of road traffic fatalities to 220 by 2020. (With 223 dead on Swedish roads in 2019, the country was close to achieving this sub-goal (Transport Styrelsen 2020).)

Elvebakk and Steiro (2009) investigated how the Norwegian Vision Zero was interpreted and perceived among those working with transport and road safety in the country, including politicians, representatives of the National Public Roads Administration and the Council for Road Safety and Police, and NGOs. They concluded that:

the interpretative flexibility of the vision and relative lack of public debate have created a situation where actors focus on different aspects of the vision, and on different levels, from theoretical questions of ethics to specific practical questions of implementation. On the whole, it seems that the connection between the different levels of the vision are somewhat tenuous, and in this situation actors are relatively free to construct their own interpretation, rather than building one shared vision. (Elvebakk and Steiro 2009, p. 958)

A similar attempt to explore how Vision Zero is conceptualized and instantiated by key actors in Norway was made by Langeland (2009). Among other things, this study investigated how Vision Zero policy documents address the problem of conflicting goals and interests. One of the problems of adopting nonspecific goals, identified by the author, is that responsibility for addressing potential goal conflicts is transferred from the political level (where it arguably ought to be handled) to the administrative level, where different agencies may prioritize differently in the absence of clear political directions:

By keeping the zero vision on an abstract level, the actors may evade the conflicts that will arise when it is instantiated. The actors might find this beneficiary, as it gives them more leeway. When the zero vision is instantiated, conflicting interests and competing goals come to the fore. This may generate uncertainty for the parties involved. The more the zero vision is instantiated in terms of actual change, the more difficult it will become to ensure implementation. When the zero vision is instantiated through new policies, it will challenge goals competing with road safety. This will probably impede further realization of the zero vision. (Langeland 2009, p. 76)

There can be no doubt that lack of precision can decrease the action-guiding capacity of a goal. Imprecise goals can be difficult to follow. They can also be difficult to evaluate. However, the degree of goal specificity required for a goal to

guide and coordinate action effectively depends on the context in which the goal is implemented. For instance, in a context where the implementing agents have fairly good knowledge about what to do in order to reach or approach the goal, the goal does not have to be as precise as when such knowledge is lacking. Furthermore, it is important to recognize that trade-offs may have to be made between the action-guiding and motivating properties of a goal, since a goal that has a high degree of precision may not be particularly motivating and vice versa. In practice, the action-guiding and motivating aspects of goals often have to be balanced in goal-setting processes.

In general, goals that are implemented by another actor than the goal-setter require a greater degree of precision. Edvardsson and Hansson (2005) distinguish between three different types of precision: directional, complete, and temporal precision. A goal is directionally precise if it tells the agent in which direction to go in order to approach the goal. Complete precision means that it is in addition clear to what extent the goal should be reached. A goal is temporally precise if it includes a specified point in time when it should be achieved. Directional imprecision appears to be particularly deleterious, since it leaves the agent without a clear view of what to do in order to approach the goal. In organizational contexts, where goals are adopted and implemented by actors at different levels, imprecision typically also makes it more difficult to evaluate implemented measures and hold those responsible who have impeded goal achievement.

One could argue that the Swedish Vision Zero fulfills two of the three identified aspects of precision (Rosencrantz et al. 2007). Vision Zero is directionally precise, since it clearly states that there should be a reduction in the number of killed and seriously injured people on the road. It has complete precision, since it clearly aims to achieve a total prevention of fatalities and serious injuries. At the same time, the goal lacks in temporal precision; it does not indicate a precise point in time when it is to be fully achieved. However, although Vision Zero has both directional and complete precision, the emphasis on reduction of negative outcomes as an indication of safety has been criticized.

In a study of the formalization of the Swedish system designers' responsibilities between 1997 and 2009, Belin and Tillgren (2012) argued that, although the shift in responsibility ascriptions from individual road users to system designers presented a substantial change in road safety work, the change was nevertheless ambiguous. The reason for this was that it was difficult to get a clear idea of who the system designers were and exactly which of their activities ought to be regulated. Moreover, the authors suggested that, although there was a unanimous consensus on Vision Zero when it was formulated and legally adopted, conflicts of interests emerged during the implementation phase when different actors attempted to translate the vision into concrete action. This was particularly noticeable as perceptions of the costs and benefits of legislating on system designers' responsibility became more real to the stakeholders. These observations point to a fourth type of goal precision not covered by Rosencrantz et al.' (2007) tripartite definition of goal precision, namely, precision in the division of responsibility.

In summary, the empirical evidence indicates that the criticism of imprecision in the formulation of Vision Zero is apposite and also highly constructive. It shows that an overarching goal like Vision Zero is in need of more precise sub-goals that add precision in the dimensions in which the overarching goal is not precise enough for action guidance. In the case of Vision Zero, it is important that such sub-goals specify the temporal component of precision, i.e., clarify when various task should be completed. In many cases, the division of responsibility is also in need of specification in sub-goals.

### **“Vision Zero Is Counterproductive and Self-Defeating”**

Goals are typically adopted in order to achieve (or maintain) certain states of affairs. However, sometimes goals turn out to be self-defeating in the sense that instead of furthering the desired end-states, the goals interfere with progress, making it more difficult to achieve those end-states. As noted by Hansson et al. (2016), various mechanisms can contribute to making a goal self-defeating. We have found two major types of claims that Vision Zero goal is self-defeating, referring to economic and psychological mechanisms, respectively.

Elvik (1999) warned against economic self-defeating mechanisms of Vision Zero. Measures not subjected to cost-benefit calculations would become too expensive, and the policy would end up not only being economically counterproductive but also contributing to increased mortality.

An objective of eliminating a certain cause of death, like traffic accidents, may be so expensive to realise that it reduces resources available to control other causes of death and thus increases general mortality. (Elvik 1999, p. 265)

One of the basic assumptions underlying Elvik’s argument is that there is a causal relationship between income per capita and general mortality, particularly that there is a negative relationship between income and mortality. By disregarding CBA, Elvik argued, proponents of Vision Zero seek to invest in safety measures that do not generate returns on the invested capital, and this leads to a decline in income that would be required to prevent other causes of death in the society. Moreover, Elvik (2003) conducted an investigation into the efficiency of safety policies in Sweden and Norway and claimed to have found that the road safety policies in both countries were inefficient in improving road safety. His recommendation was that making policy priorities on the basis of CBA would lead to greater improvement of safety, than priorities based on Vision Zero.

Elvik’s economic criticism is based on a so-called risk-risk analysis, i.e., a comparison between two options, both of which are expressed in terms of risk. Some risk analysts have seen this type of comparison as a way to bypass the common psychological reluctance to value nonmonetary goods in money: “Converting all health outcomes into death-risk equivalents facilitates cost-effectiveness analysis by calculating the cost per statistical life equivalent saved, and it addresses concerns

with respect to dollar pricing” (Viscusi et al. 1991, p. 34). The most common way to perform this conversion has been to employ the correlation between health and wealth. Richer people tend to be healthier and live longer. Therefore, “the critical income loss necessary to induce one fatality” (Lutter and Morrall 1994, p. 44) has been calculated and used to translate regulatory costs into fatalities. Elvik’s analysis from 1999 is an example of this approach. However, this translation is based on highly uncertain assumptions (Hansson 2017). Since regulations also give rise to business opportunities, costs of regulation cannot be equated with losses in total income. Furthermore, the fact that people tend to live longer in richer societies depends on complex and largely unknown social mechanisms. In particular, there is a strong positive correlation between longevity and income equality. Any conversion of gross national product into gains in longevity is therefore severely misleading (Neumayer and Plümper 2016). There is no ground for assuming that an economic loss anywhere in the economy gives rise to a proportionate increase in total morbidity or mortality.

The second type of self-defeatance identified in the literature relates to the motivational, or behavioral, effects of Vision Zero. As noted above, goals are achievement-inducing not only because they guide and coordinate action toward the desired end-states. Goals can also help us achieve the desired end-states by inducing, or motivating, actions that bring us closer to the goals. This is an important aspect of goal-setting, commonly referred to in psychological and behavioral research. Significant empirical evidence supports the so-called goal-difficulty function, i.e., given certain conditions (such as that the agent has the ability to reach the goal and is committed to it), more ambitious goals will typically induce greater efforts by the agent (Locke and Latham 2002). This holds true up to a certain point where the discrepancy between the goal and the agent’s actual performance will be so great that the goal no longer has the capacity to create a corrective motivation to change the agent’s behavior toward the goal. If, at that point, the goal gives rise to frustration and resignation instead of inspiration and motivation, then the goal has become motivationally self-defeating (Hansson et al. 2016).

According to some critics, Vision Zero is a good example of a motivationally self-defeating goal. For instance, Long (2012) claimed that pursuing the goal of zero harm in the mining and construction industries has negative motivational consequences that ultimately lead to its own subversion and failure:

Unachievable goals drive frustration, cynism and negativity; that in themselves diminish effort, energy, resilience and persistence. Absolutes are not achievable with humans, only for machines and gods, and even machines decay and wear out in time. (Long 2012, pp. 24–25)

The stated reason why goals drive such frustration and negativity is that they prime people, in Long’s case employees of the mining and construction industry, for failure:

Zero harm language is not neutral and leaders should be far more aware of how such language ‘primes’ workers psychologically and culturally [...] This is the problem with

zero harm language, it's non-motivational, noninspirational and counterintuitively primes workers for failure. (Long 2012, pp. 30–31)

Fugeli (2006) similarly claimed that a public health policy based on Vision Zero thinking is problematic because it promises and demands “too much” (p. 268) and eventually leads to a distressed, dangerous, and sick society. He argued that Vision Zero’s “obsessive preoccupation with risk” will create a situation where “life becomes surrounded by dangers that the zero missionaries will rescue us from” (p. 268). According to Fugeli, “the Zero-vision demands not merely zero risk, it desires zero deviation from the ideal state of mind and body. . . . Before the Zero-vision a wise furrow, sorrow, shyness, big rump, falling penis—were regarded as natural phenomenon belonging to the mixed state of being human. In the light of the Zero-vision these occurrences become medical deviations claiming restoration by hormones, drugs and knives.” In this way, he says, the Zero Vision also contributes to the generation of injustice by dividing and ruling the society for the interest of the educated elites who have “the power to define the golden standards of human life and health and to point derisively at what we will not endure and whom we will not tolerate.” However, as far we can see, this is criticism of a straw man. We are not aware of any proponents of Vision Zero who would subscribe to this interpretation of what it means.

There is another way in which Vision Zero has been criticized for being self-defeating, namely, by creating a safety culture within the organizations responsible for implementing the goal that is not conducive to the goal’s achievement. Sherratt and Dainty (2017), for instance, argued that Vision Zero, instead of promoting safety, fosters the development of a non-learning culture in which discussions and debates about safety are eliminated. This, they argued, can lead to the “zero paradox,” i.e., by adopting and working toward Vision Zero, fatal or serious life-changing accidents actually become more likely. However, judging by the intense and mostly highly constructive debates that Vision Zero has given rise to in traffic safety organizations around the world, it is difficult to see how this could be an impending danger.

In summary, none of the proposed mechanisms that would make Vision Zero counterproductive and self-defeating has been shown to have any impact in practice. Furthermore, the success in many countries of safety work based on Vision Zero speaks against the existence of any strong such mechanisms.

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## Operational Criticism

We have identified four operational arguments, i.e., arguments concerning the practical methods applied in implementing Vision Zero. The first of these concerns the use of accident statistics and the second the (allegedly insufficient) use of probabilistic information. The last two arguments concern Vision Zero’s distribution

of responsibilities. According to one line of argument, more responsibility should be assigned to the road users. According to another, responsibility should instead be further shifted toward system designers.

### **“Accident Statistics Do Not Provide a Reliable Picture of the Safety Level”**

In safety work based on Vision Zero, the degree of safety is measured and evaluated in terms in the number of fatalities and serious injuries that occur. Several authors have criticized the use of this measure (Reason 2000; Long 2012; Dekker 2017). According to Long (2012, p. 18):

Zero harm, if set as a goal is an avoidance goal. One knows goal success by the absence of something rather than the presence of something. Avoidance goals are not only not positive but are not inspirational (Moskowitz and Grant 2009). Avoidance goals tend to be punitive in nature. Performance goals are much more positive and successful. In the framework of understanding motivation and learning leaders should be talking much more in cultural discourse about ‘keeping people safe’ than ‘preventing harm’. Later discussion shows how such discourse ‘primes’ others. Why does the safety community think that avoidance goals are so inspirational?

We are not aware of any evidence or plausible argument supporting the contention that avoidance goals are not inspirational. Furthermore, it is difficult to find a goal that cannot be expressed in either way. In WW2, the resistance movements in the countries occupied by the Nazis were fighting for the “avoidance goal” not to be under occupation, which could also be described as the “positive goal” to live in a free country. Vision Zero is usually expressed as the “avoidance goal” that no road user should be killed or seriously injured on the road, but it can also be expressed as the “positive goal” that everyone travelling on the roads should travel safely. Ergo, if there is a problem with avoidance goals, then it seems to be solvable with a simple reformulation.

However, there may be more to this. According to Reason (2000, p. 4), the fact that safety is often “defined and measured more by its absence than by its presence” is a safety paradox. He argued that the standard definition of safety, freedom from risks and dangers, fails to take into account the substantial features of safety. For him, safety is better presented if it is positively defined as the ability to deal with risks and hazards so as to avoid damage or losses while still achieving one’s goals. However, even more problematic than the way safety is defined, he argued, is that safety is measured in terms of the number of accidents or incidents: “An organisation’s safety is commonly assessed by the number and severity of negative outcomes (normalised for exposure) that it experiences over a given period” (p. 5). According to Reason, this is problematic for two reasons. First, it fails to recognize that there is only a weak relationship between an organization’s “safety health” and the registered negative outcomes, as chance plays a significant role in the occurrence of accidents.

As long as hazards, defensive weaknesses and human fallibility continue to co-exist, unhappy chance can combine them in various ways to bring about a bad event. That is the essence of the term 'accident'. Even the most resistant organizations can suffer a bad accident. By the same token, even the most vulnerable systems can evade disaster, at least for a time. Chance does not take sides. It afflicts the deserving and preserves the unworthy. (Reason 2000, p. 5)

Second, he argued, a decrease in accident rates does not necessarily mean that an organization's safety culture is improving. Such a decrease can be the result of instituting mandatory safety technologies or systems that resulted in an early improvement in safety. In most organizations accident rates decline rapidly in the beginning, and "then gradually bottom out to some asymptotic value" (p. 5). Once the asymptote is reached, says Reason, "negative outcome data are a poor indication of its ability to withstand adverse events in the future" (p. 5). He claims that although the presence of high accident rates implies a bad state of safety, low asymptotic values do not necessarily show good safety even though that is how such values have usually been interpreted. Such an erroneous interpretation, he indicates, is the cause of most safety paradoxes and poses practical implications that could negatively impede the promotion of safety.

Similar criticisms have been put forward by Dekker (2017), who also discussed problems associated with defining the goal of Vision Zero in terms of its "dependent variable," i.e., reduced accident outcomes, rather than independent variables that positively or negatively affect the negative accident outcome. According to Dekker, this is one of the reasons why little is known about what activities and mechanisms underlie the reduced negative outcomes achieved by Vision Zero-committed companies. For Dekker, a reduced negative outcome could just be the result of the fraudulent manipulation of the dependent variable (accident statistics), especially if improved statistical outcomes are associated with positive incentives.

Defining a goal by its dependent variable tends to leave organizations about what to do (which variables to manipulate) to get to that goal. Workers too can become too skeptical about zero sloganeering without evidence of tangible change in local resources or practices. (Dekker 2017, p. 169)

Dekker also claimed that the emphasis on the eradication of accidents often denies the real suffering of the individual workers by inviting data manipulation, stigmatization of workers involved in accidents, and the suppression of bad news. This can result in a work environment that considers mistakes as "shameful lapses, moral failures or failures of character in practice that should aim to be perfect" (Dekker 2017, p. 243). According to Dekker and Pitzer (2016), the reason why many industries face the plateauing of safety performance and, at times, get exposed to surprise fatal accidents is to be found in the very nature of the organizational structure and practices put in place to manage safety. Based on a review of relevant safety literature, they argued that organizational structures characterized by "safety practices associated with compliance, control and quantification" (p. 7) are prone to plateauing and surprise accidents. This, they say, is because in such organizations

safety performance close to zero can lead to “a sense of invulnerability,” deflection of resources into unproductive or counterproductive initiatives, continued application of obsolete practices, and the suppression of reporting of accidents that actually occurred in the organization.

These authors are right that in general, even if deaths or serious injuries are the main targets, measuring their occurrence may not be the best way to evaluate safety. This is because safety is concerned with the risk of future accidents, which may be of a different type. This is important in industries where rare but very large accidents are the major concern, such as nuclear reactors and many chemical industries. For instance, if day-to-day workplace safety is high in a nuclear reactor – no slippery floors, safe procedures for welding, low radiation exposure, etc. – this does not prove that the risk of a nuclear meltdown is also very low. The measures needed to prevent such an accident are quite different from those needed for more mundane workplace safety issues, and their success is not guaranteed by a low frequency of workplace accidents. The nuclear industry is rather extreme in this respect, but on most workplaces there is a need to carefully analyze the possibility of rare accidents or “surprise accidents.” Arguably, this is less important in road traffic than in most other areas of safety work, due to the exceptionally high yearly toll of fatal accidents that provide ample statistical material for priority-setting. However, rare but large accidents such as the collapse of a bridge or a hillside road, or a tunnel fire, surely need to be taken into account even if they do not show up in the accident statistics. Taken as a reminder of this, the criticism referred to above is relevant and should be taken into account in applications of Vision Zero.

### **“Vision Zero Neglects the Probability of Accidents”**

Morgan (2018) argued that Vision Zero is based on a simplistic account of risk because risk is understood solely in terms of the severity of crashes and does not take into account the likelihood that crashes will occur. He writes:

The safe system approach looks at only half the equation—it does not concern itself with likelihood. . . . The safe system premise that safety is everything . . . inevitably leads to this illogicality: mobility has no value and crash likelihood is not a consideration. . . . I think it takes a distorted view of humanity and a messianic view of one’s own understanding of life to put the safe system approach to speed management. (Morgan 2018, p. 90)

Not only is Vision Zero based on a flawed definition of what risk is, Morgan argues, it is also a system that does not trust drivers as it seeks to impose a population-wide measure on actions to be committed by one in ten people. In comparison to Vision Zero, speed design principles such as the 85th percentile would render better results since they involve a level of trust in drivers. He claims that “the only benefit of the safe system approach to speed management is that it paves the way for the whole sale proliferation of automated speed cameras, as urged by the safe system manifesto” (Morgan 2018, p. 91).

This criticism is based on the assumption that Vision Zero implementation is focused exclusively on the severity of accidents and does not take their probabilities into account. This assumption is not correct. Many of the measures promoted in Vision Zero have large effects on the probability of accidents. For instance, alcohol interlocks and speed limitations reduce the risks of all kinds of accidents, and roundabouts and central barriers reduce the risk of serious accidents. Probably the most clear examples of measures that reduce the severity of accidents without reducing their probability are seat belts and bicycle helmets, both of which were introduced long before Vision Zero.

### **“Too Little Responsibility Is Assigned to Drivers”**

Ekelund (1999, pp. 44–45) argued that Vision Zero’s responsibility ascription is counterproductive, since it puts too great emphasis on the responsibility of system designers. This, he argues, may lead to more reckless behavior by road users. The argument is part of Ekelund’s defense of the traditional emphasis on individual responsibility of road users, which he sees as an expression of the freedom of individuals to choose their own goals in life and decide which risks are worth taking:

By passing a new law for instance about bicycle helmets, instead of leaving the decision to the individual, the responsibility of individuals for their own safety is undermined. This will in practice send a signal: ‘You do not need to find out yourself about risks and make your own decisions. We have already found out the risks and made the decisions for you.’ By extension, this can induce people to make the assumption that everything that is not forbidden is safe. It will just not be worth the trouble to keep oneself informed about risks, since the government has probably already investigated the conditions of safety. This may very well result in an increased prevalence of careless behavior. (Ekelund 1999, p. 18, authors’ translation)

Hence, according to Ekelund, if a government introduces safety legislation against certain dangers, then this will lead the public to be less cautious in relation to other risks. If this were so, then we should, for instance, expect that seat belt legislation has made people more willing to climb dangerous ladders and that the extensive legislation on aviation safety should have induced people to skate on thin ice and swim in strong currents. He provides no evidence of this effect, and we are not aware of any reason to believe that it exists.

However, there are reasons to be concerned that safety legislation can lead to less responsible and more careless behavior *in the specific context* to which the legislation in question applies. For instance, it is much more plausible that measures to increase traffic safety will make drivers feel safer and therefore behave less cautiously, than that these measures will decrease the use of safety equipment in sport activities.

Grill and Nihlén Fahlquist (2012, p. 121) asked if there were “reasons to believe that ascribing responsibility for accident prevention to system designers will in fact make drivers feel less responsible for their driving and so less cautious?” They

argued that there are indeed areas where a shared responsibility could mean less responsibility for each party, such as when a certain safety device implanted in a vehicle takes over a task that would have been performed by the driver, had the safety device been absent. They presented examples from aviation where the airplane operator's familiarity with safety devices had led to inattention and complacency (Perrow 1999, pp. 152–154). In road traffic, they argued, similar effects could result from safety devices that take over a certain task from the driver and work continuously through the whole journey, such as a collision avoidance system: “Technical systems that are very sophisticated and where almost all safety hazards are guarded by automatic systems can erode the operator's feeling of responsibility” (Grill and Nihlén Fahlquist 2012, p. 121). In their article, the authors discussed the introduction and application of alcohol interlocks as a manifestation of the responsibility of system designers and refuted the criticism that the use of interlocks will make drivers irresponsible. In their view, the use of alcohol interlocks will not diminish the responsibility of the drivers because the interlock does nothing more than establishing the sobriety of the driver; it merely establishes whether the driver is sober before she can start the engine.

This test has no direct effect on the driving experience. It does not at all guarantee that the driver is a good one or that the safety of the driver and of other road users is automatically protected. There are many other safety features and conveniences in cars that do make drivers more passive, such as automatic transmission, cruise control and automatic braking systems. The interlock, on the other hand, only prevents people above a certain degree of intoxication from driving and is itself passive during the journey. (Grill and Nihlén Fahlquist 2012, p. 122)

In conclusion, it seems reasonable to assume that some but not all measures taken to reduce the occurrence of severe injuries in road traffic can have negative effects on drivers' sense of responsibility. This is therefore a criticism that should be taken seriously, as attention to it can improve the efficiency of a Vision Zero strategy.

### **“Too Little Responsibility Is Assigned to System Designers”**

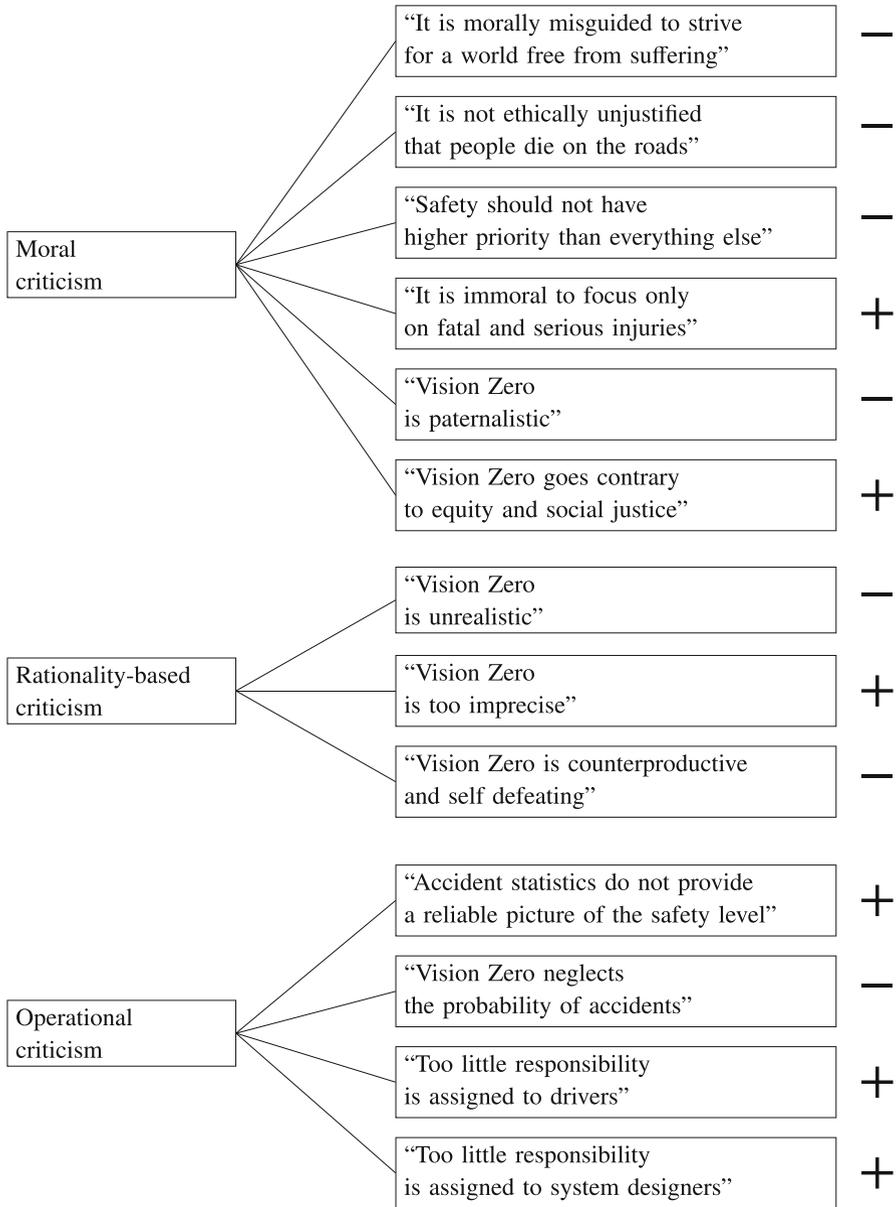
According to Vision Zero, system designers should take the overall responsibility for designing a road system in which fatalities and serious injuries will not occur. Road users are still expected to abide by traffic safety rules and regulation. Failure to follow safety rules and standards could have legal implications. Unlike the individual road users, however, no legal responsibility for safety has been assigned to system designers so far, despite the fact that they have the overall responsibility for the safety of the road system.

Belin and Tillgren (2012) have studied attempts made in Sweden during the years 1997 to 2009 to make system designers formally responsible. Based on evidence collected from official documents, they looked into the progress of the legislative process intended to formalize the responsibility of system designers. They argued that the process of formalizing the designer's responsibility involves a long and

complicated process and that there are important factors that limited the government's attempts to realize it. Unlike the initial process that led to the adoption of Vision Zero by the Swedish Parliament, in which the different stakeholders almost unanimously supported the policy, the process of formalizing the responsibility of system designers was characterized by conflicts of interest. These conflicts resulted from the perception that the benefits and costs associated with formalizing the responsibility of system designers were not fairly distributed. This, Belin and Tillgren argued, is in turn a result of a narrow conception of system designers as involving just "the state, the municipalities, and individual road administrators" (p. 94). They argued that "in such a case, we have moved to a position where the benefits are distributed to all road users, while the costs are concentrated among road administrators" (p. 94) and hence resistance against formalizing responsibility among those who perceived that they would receive an unfair share of the burden. The study also identified other factors that prevented the realization of legal responsibility for designers. These included the difficulties associated with changing the traditional responsibility ascription for traffic safety, which is well rooted in both national and international laws, the implementation of other government efforts that had similar effects as that of regulating the responsibility of designers through law, and processes and efforts at other government levels. As an example of the latter, they indicated the positive impact that the process of regulating government agency vehicles and transport services had had on enhancing the responsibility of system designers. The regulation of road administrators' safety responsibility through an EU directive also meant that Swedish road system designers were legally responsible for at least parts of the road network, i.e., the trans-European road network that passes through Sweden. In conclusion, based on the abovementioned reasons, the authors questioned if the attempt at formalizing the responsibility of the system designers was at all necessary. The implementation of other measures that have increased the responsibility of designers shows that "formal legislation is only one policy instrument among others and a formal legislation might not even be the most appropriate way to secure a higher degree of responsibility from the system designers" (p. 100). In fact, the government declined a proposal to introduce formal responsibility. The responsibility of system designers still has no other formal basis than the ethical code of conduct developed in Tingvall (1997).

According to McAndrews (2013), however, the effectiveness of relying only on ethical codes is questionable since a code depends on "the experts' self-regulation" and does not generate any leverage for compliance. A study by Van der Burg and Van Gorp (2005) seems to confirm McAndrews's analysis. These authors investigated how engineers involved in the design of trailers understood their moral responsibilities. They found that the engineers' conception of responsibility was limited to the narrow perspective of respecting the traffic laws and designing an economically efficient and physically strong product. They did not seem to consider themselves responsible for finding technological solutions that would improve traffic safety beyond the legal requirements.

As far as we can see, it is not possible to draw any firm conclusions on whether or not a system of accountability for designers of road traffic systems would contribute



**Fig. 3** A summary of our assessments of the arguments discussed in this chapter. The arguments that we found to be useful for a constructive discussion on safety improvements are marked +, whereas the others are marked –

to improved traffic safety. However, the issue is relevant and worth close attention as additional experiences of Vision Zero implementation accumulates. It should definitely be counted as one of the constructive and useful themes of critical discussion.

## Conclusion

We have discussed and evaluated 13 arguments. We found that five of them fail because they are based on misrepresentations or misconceptions of Vision Zero (see Fig. 3).

“It is morally misguided to strive for a world free from suffering.” – The goals and ambitions of Vision Zero are much more modest than what these critics claim.

“Safety should not have higher priority than everything else.” – Vision Zero does not include any such claim of absolute priority.

“Vision Zero is paternalistic.” The risk-taking behavior on roads that has to be eliminated according to Vision Zero involves risks for others than the persons who take the risk. Therefore, Vision Zero is not paternalistic.

“Vision Zero is counterproductive and self-defeating.” None of the proposed mechanisms that would make Vision Zero counterproductive and self-defeating has been shown to have any impact in practice. Furthermore, the many successes of safety work based on Vision Zero speak against this argument.

“Vision Zero neglects the probability of accidents.” On the contrary, measures that reduce the probability of accidents have a central role in Vision Zero and its implementation.

Two of the arguments are based on correct descriptions of Vision Zero, but they are nevertheless non sequitur arguments:

“It is not ethically unjustified that people die on the roads.” – The proponents of this argument claim that deaths on the roads are acceptable, since people have chosen to risk their lives by travelling on the roads. This argument is fallacious, since most people who are killed on the roads did not wish to take any risks. They just had no other choice than to travel in the risky traffic system that we have.

“Vision Zero is unrealistic.” This criticism is based on a too far-reaching requirement on policy goals. In order for a goal to be rational and useful, it has to be approachable, but it does not necessarily have to be realistic in the sense that it is known beforehand that it can be fully realized. Vision Zero is no doubt approachable to a very high degree.

Finally, we found six of the arguments to be at least in part constructive. They should all be further analyzed and taken into account in future traffic safety work:

“It is immoral to focus only on fatal and serious injuries.” – There are strong moral reasons to give much higher priority to the elimination of fatalities and severe injuries than to the

avoidance of lesser injuries and material damages. However, the critics are right that there is a need to pay more attention to how less serious accidents can be included in safety work that has Vision Zero as its major driving force.

“Vision Zero goes contrary to equity and social justice.” Although this does not apply to Vision Zero in general, the proponents of this argument have been able to show that in some places, Vision Zero activities have increased the burdens of transportation injustices. This is, therefore, a criticism that should be taken seriously and leads to careful evaluations of both procedural and distributive justice in Vision Zero activities.

“Vision Zero is too imprecise.” The critics are right that Vision Zero usually does not come with a precise time plan for what to do and when. It is necessary to complement it with more precise directives and sub-goals, but this has not always been done.

“Accident statistics do not provide a reliable picture of the safety level.” The critics are right that the yearly statistics on deaths in road traffic do not inform us of the risks of rare accidents with many fatalities, such as the collapse of a bridge or a hillside road or a tunnel fire. Traffic safety work based on Vision Zero should pay increased attention to such risks.

“Too little responsibility is assigned to drivers.” Judging by the available evidence, some but not all measures taken to reduce severe accidents can have negative effects on drivers’ sense of responsibility. The risk of such effects should be included in the evaluation of traffic safety measures aiming to implement Vision Zero.

“Too little responsibility is assigned to system designers.” The critics are right that there are currently no means to hold system designers accountable for the design of the road system. It is at present unclear what difference a system of accountability could make or how it should be constructed. However, the issue of accountability should be part of our deliberations on the implementation of Vision Zero.

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## Cross-References

- ▶ [Liberty, Paternalism, and Road Safety](#)
- ▶ [Responsibility in Road Traffic](#)
- ▶ [Vision Zero and Other Road Safety Targets](#)

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