

# **Implementing, monitoring, evaluating, and updating a road safety programme**

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Contribution to the Best in Europe 2003 Conference of the European Transport Safety Council: Targeted Road Safety Programmes in the EU, June 10, 2003, Brussels

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## Summary

In all EU countries, attempts are being made to promote road safety, and each country has its own approach. This contribution examines the implementation of road safety programmes, their monitoring and evaluation, and their updating. For analyzing policy implementation, monitoring and evaluation, a road safety hierarchy model is used in which the indicators of the various layers of the model illustrate the state of affairs. Based on general lessons about the effectiveness of policy processes, two checklists are presented. The first one relates to the contents of policy documents, the second one to the quality of policy implementation. Four key-components for effective implementation of policy can be indicated: organization, coordination, financing and knowledge/information. Monitoring and evaluation of policy implementation are core matters in every policy, thus also in road safety policy. In the literature, too little attention is paid to implementation aspects of road safety programmes. I recommend that policymakers in the European Union and in the individual Member States, as well as the research community pay systematic attention to implementation aspects of road safety programmes. It is plausible that a better policy implementation will result in a greater effectiveness; certainly greater efficiency would be attained. It is to be expected that the policy effectiveness will increase, not only by paying attention to the implementation of action plans and programmes, but also when drawing up road safety programmes.



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# 1. Introduction

Promoting road safety is a complicated matter. First of all, this is because of the nature of the phenomenon: no crashes are identical, crashes involve a large number of factors, crashes are very incidental occurrences with low individual chances, crashes are spread along an extensive road network, etc. Also, there appear to be many possible interventions for reducing the chance of a crash or reducing a crash's severity. Moreover, it is not only the road user who is responsible for a crash, but also all those in charge of road engineering, vehicle design, driver education, etc. Finally, a choice must be made from a wide variety of possible interventions, each must be judged as to its effectiveness, efficiency and social acceptance, costs for the citizen and government, etc.

In all European countries attempts are being made to promote road safety, and each country has its own approach. As time goes by, more information is becoming available as to how to promote road safety: which problems to tackle with which interventions. A summing up of interventions is often to be found in a national *Road Safety Programme*, in which a government describes how to promote road safety during the coming years. It is becoming ever more common to formulate concrete (quantified) targets (ETSC, 2003). It is then a matter of deciding whether the plans made are actually implemented and whether the implementation has resulted in the desired effects. If this is not the case, then it is probably necessary to intensify the implementation, or develop other plans. This requires a good insight in the road safety developments and in the factors that influence it. This contribution examines the implementation of road safety programmes, their monitoring and evaluation, and their updating.

## 2. Planning procedures for road safety programmes

There are many possibilities of illustrating the road safety planning process. *Figure 1* has been taken from the OECD report 'Safety on Roads. What's the vision?' (OECD, 2002).

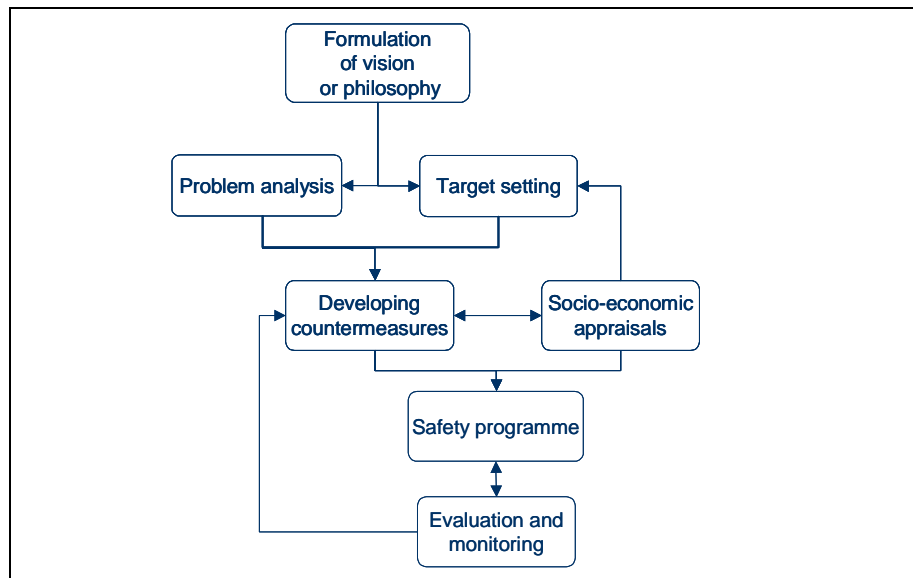


Figure 1. *Planning procedure for developing and implementing road safety programmes (source: OECD, 2002).*

This model starts with the formulation of a (road safety) vision or philosophy ('an innovative description of the future traffic system or a desired direction of safety development'). Some countries have explicitly formulated a vision (such as Sweden with the *Vision Zero* and the Netherlands with *Sustainable Safety*). Other countries, such as the United Kingdom, have no explicit vision except about a cost-effective way of further promoting road safety. The advantages of a vision have indeed been indicated by some, but proof has not yet been provided (can it be provided?) that a vision contributes to a quicker and more efficient reduction of the number of casualties. Still, general management literature suggests that a vision has a positive effect on policy (Collins & Porras, 1994). According to them, the basic dynamics of a vision, though they might vary, will hold up across cultures and nationalities.

Based on a *problem analysis*, the size and nature of the road safety problem can be sketched, together with the past and present influence factors. This is also the place to formulate the road safety paradigm - dominant thoughts on road safety (OECD, 1997) - an important step that is unfortunately often ignored. It probably means that no uniform views exist about questions such as: why do crashes happen, what are the causes, what are the influence factors, and what are the best ways to intervene. The next idea of the OECD model is *to formulate a target*. A (quantitative) target is the reflection of the ambition to further reduce the number of traffic crashes and casualties during a particular period, but only to attempt what is realistic. This involves

realising that there are sufficient measures imaginable to reach the stated target, and that it can further be regarded as reasonable to actually implement these possible measures. It will finally have to be made plausible that the measures to be taken, if added up to "business-as-usual developments", will achieve the goals aimed at. The idea of first setting the goals and then developing possible measures is, theoretically, the correct way, but in practice, will only be rarely so. This makes *Figure 2* not unexpected (ETSC, 2003).

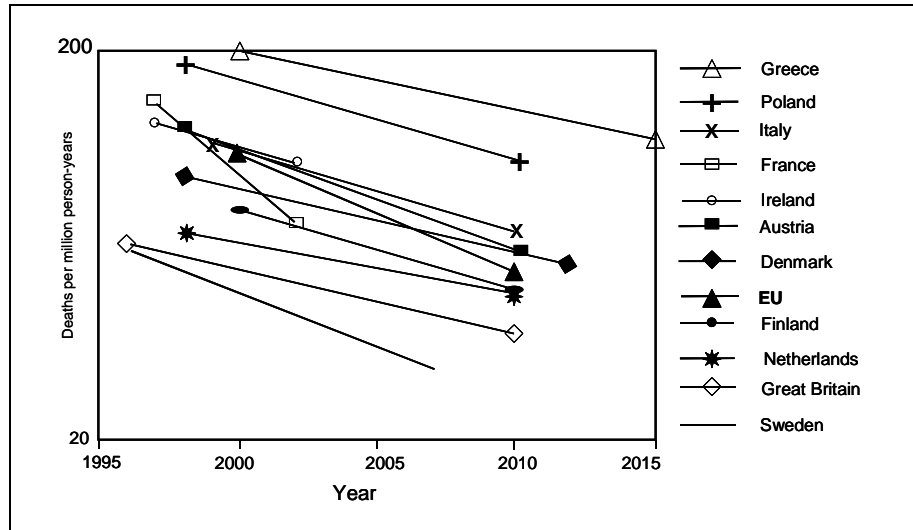


Figure 2. Targets for reductions of numbers killed or killed and serious injuries on the roads (source: ETSC, 2003).

*Figure 2* shows that the improvement pace is the same in different countries (practically all lines are parallel, except France and the European Union). The different countries apparently expect that this improvement pace will be achieved, and it is highly probable that countries know each other's goals when they formulate their own. A next step in the OECD model is assessing the various possible countermeasures *in socio-economic terms*. This involves two balances: via a cost-benefit analysis, forming a picture of the economic advantages and disadvantages (pros and cons) of a measure (in which the extent of the analysis is always a point of discussion) and, via a cost-effectiveness analysis, deriving what the ranking of possible measures should be in terms of road safety effect; this related to the amount of effort/costs of the implementation (see for example Wesemann, 2000). Based on this information, a road safety programme can be drawn up: fitting within a particular vision, with the most cost-effective measures in which attention is paid to the synergy between measures. If the decision is made to implement them, this should be monitored and evaluated. This can then lead via a feedback loop to intensification of existing countermeasures or the consideration of new ones. Even the possibility of formulating new goals should not be excluded.

This contribution involves the lower part of *Figure 1*. Attention is paid to the implementation of a road safety programme, its monitoring and evaluation, followed by the feedback or updating of a programme.

### 3. Analysis of policy implementation

In the modelling of policy processes or cycles, a distinction is always made in some way between: preparation, decision-making, implementation, evaluation, and adaptation. In government circles the policy implementation is not seldom a 'black box'. This is surprising because the understanding is growing that government policy, including road safety, is rather ineffective because of problems that occur in the implementation phase. A statement was once made that policy implementation is the Achilles heel of government. It is anyway good to realise that here, there are two distinguishable aspects: first of all the *policy performance*, the size and contents of the implementation programmes in a particular period to achieve a particular goal. For organisations, this is a very essential indicator, but the bottom line is the *policy effect*, which is often referred to as policy outcome or policy impact. A road safety example: the number of hours spent by the police on traffic surveillance is an indicator for policy performance, and the resulting behavioural changes are the policy effect. The ultimate goal is that the number of traffic casualties reduces as a result of the behavioural changes.

In *Figure 3*, a road safety target hierarchy is shown, based on a model from New Zealand (LTSA, 2000) and further developed in the SUNflower project (Koornstra et al., 2002). The various layers of the pyramid illustrate what is to be understood by policy context, policy performance, and policy outcome. In a vertical line through the pyramid, a causal chain can be shown. This pyramid was also used in the report entitled Transport Safety Performance Indicators (ETSC, 2001).

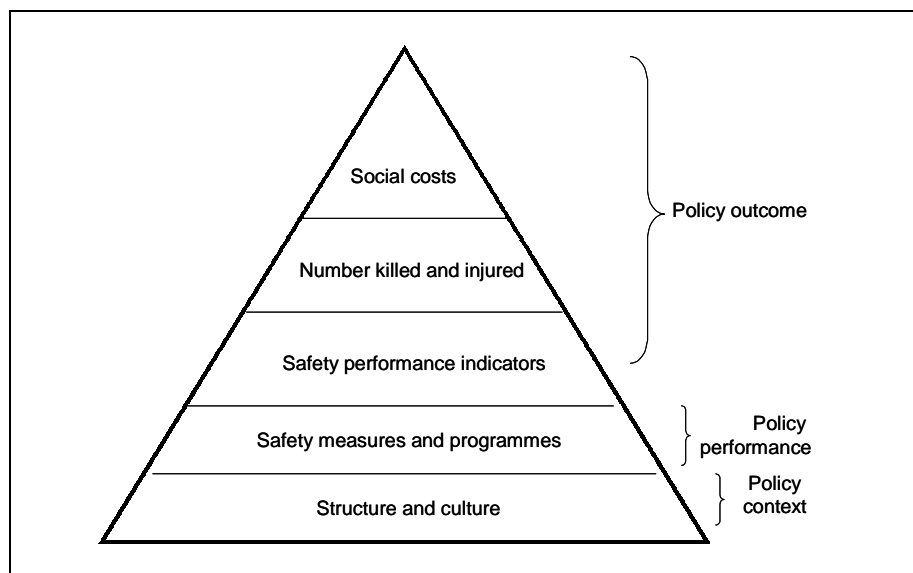


Figure 3. A target hierarchy for road safety (source: Koornstra et al., 2002).

The amount of attention being paid to road safety policy implementation seems to be increasing lately, partly because of the greater rationality in this area, and partly because of quantitative target setting. Anyway, such target

setting have to clarify what the contributions of the various policy interventions (safety measures and programmes) can be (in the policy preparation phase) and ultimately have been (in the policy evaluation phase).

There is next, not only the subject of the policy processes as shown in the pyramid is important, but also the organisation of policy processes. The question here is who is formally responsible for a particular policy area and how are partial responsibilities defined. In this, we postulate that the government has a dominant role in promoting road safety. This means that the success of the policy mainly rests in government organisations. Within such a organisations, every subject has to compete internally with others; they all struggle for political attention (and often for budgets). Policy implementation (and its effectiveness) improves with a better quality of the responsible government organisations as well as with a stronger position in a governmental organisation: 'the stronger, the better'.

Interesting in this is the chosen perspective within an organisation. A sketch is given here of a difference in angle, that is illustrative for the problems within an organisation. Seen from the top, policy implementation is sometimes seen as 'only' an implementation problem. The politically approved actions are transformed into a programme by the policy departments of an organisation. Then lower (status) parts of a hierarchy are forced to carry out the implementation. These lower parts are not expected to report back any implementation problems; this could be interpreted as poor management! The bottom-up perspective is that, given the conditions (money, personnel, legal regulations, etc.), the implementation organisation does its best and gives its own interpretations to the policy wishes, formulated at a higher level. Socially desirable reports are made by what is known as Lipsky's 'street-level bureaucracy' (Lipsky, 1980). It is clear that, between both perspectives, a synthesis must be found. The literature describes the connection between both perspectives as 'forward and backward mapping', in which 'forward mapping' refers to the relation between goals and means, and 'backward mapping' to the emerging by policy designers in the practical implementation problems.

This is all the more important if not a single but various different stakeholders (often autonomous) have to deliver policy performances that are geared to one another. Such a co-production generates its own problems because independent organisations often do not have a culture or history of partnerships in policy performances. Here external 'matchmakers' can do some positive work.

The context of a policy field combined with its potential social and economical impact are also of importance: how are target groups organised, how active is the political interest for a particular policy area, how politically sensitive is a subject, are the media interested, are there pressure groups and/or private organisations active in a particular policy area, what are areas of interest of road safety advocates, etc.?

Surprisingly, there is not much scientific literature about how road safety decision-making is shaped and given contents, which knowledge is used for this, which parties play a role, and on what basis choices are ultimately made. Here, the impression persists that not only rational balances are

made, at any rate not a rationality based on contents. If one studies, for example, the scientific literature, there is a great deal of attention for experimental interventions in which, via a before-and-after study with or without a control group, effects of interventions made are determined. The long-term effects are rarely reported, neither the nature of the interventions or the optimisation of effects, nor the upgrading to full-size of experimental interventions. This results in not being much learnt, in any case it is not reported. A stronger focus of the research community on these types of problems is thus strongly recommended.

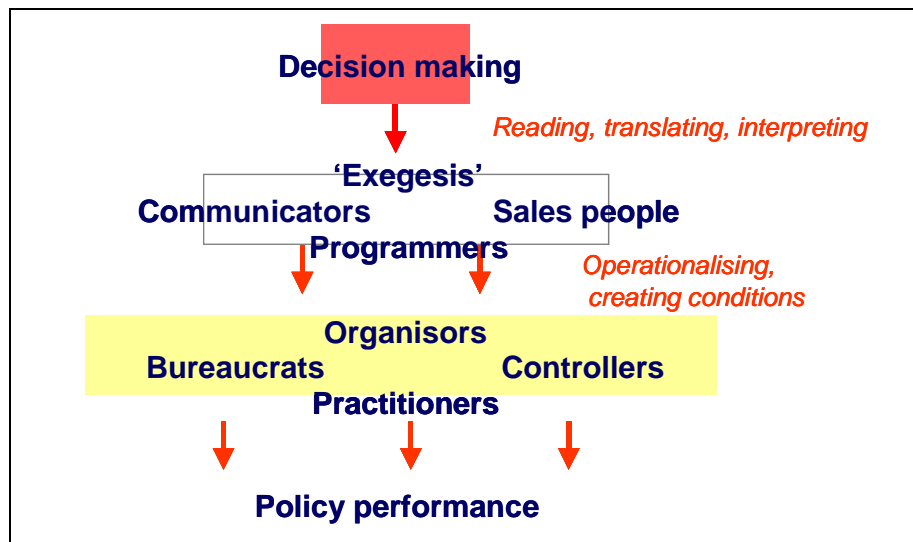


Figure 4. From concept to implementation in order to arrive at policy performance (source: van de Graaf & Hoppe, 1992).

In Figure 4 a sketch is given of different competences within an organisation, which together should ensure that the decisions of the policymakers actually lead to the intended policy performances (van de Graaf & Hoppe, 1992). It is important to understand that such a sketch can be made of every policy project and that, next to each other, they should lead to coordination (with policy makers within other organisations) and to co-production (with organisations that are responsible for part of the policy implementation). Policy implementation in its complexity deserves a lot more attention in road safety policy and road safety research.

## 4. Checklist for effective implementation

A number of general lessons can be learnt, based on the general knowledge about the effectiveness of policy processes and, in particular, the contribution towards this of policy implementation. In essence, this involves three terms (Glasbergen, 1987): *knowing*, *being able*, and *wanting*. An implementer must *know* what is expected from him, one must be able to implement the policy, and want to do so. The 'knowing' is a question of communication between commissioner and implementer (as shown in *Figure 4*). *Being able* is a matter of: money, time, personnel, and knowledge. *Wanting* is a matter of (vested) interests, pros and cons for an organisation involved in implementation, etc.

These general lessons have been summarised in two checklists (*Figures 5 and 6*). The first checklist is related to the contents of policy documents; the second is a checklist related to the implementation itself. These checklists were made about 20 years ago (Mazmanian & Sabatier, 1981), but are still just as relevant. It is surprising that, apart from a checklist about the implementation itself (*Figure 6*), there is also a checklist of policy document requirements (*Figure 5*): a good policy document can increase (the value of) good implementation. Moreover, Mazmanian & Sabatier are of the opinion that, in a democratic system, those elected must support a policy document, then the civil servant organisations and others.

1. Create political support
  2. Define goals/objectives/targets precisely
  3. Use valid causal theory (problem – solution)
  4. Organize enough means (implementation + monitoring)
  5. Reduce necessity of inter-organizational decisions
  6. Use sanctions/incentives for
    - co-producers
    - target audience
  7. All stakeholders should prioritize implementation
  8. Encourage active support of stakeholders
- Or: organize effective 'delivery mechanisms'**

Figure 5. Checklist of the quality of a policy document to improve policy implementation (source: Mazmanian & Sabatier, 1981).

The following observation can be made here. In *Figure 5* as many as three of the eight points refer to the support of stakeholders who should be included in the policy document (nos. 5, 7, and 8). So, these can be considered as core recommendations for a good policy implementation. A policy must, ultimately, be sufficiently clear that the term '*effective delivery mechanism*' is applicable and the responsibilities for these delivery mechanisms must also be seen to state that; preferably in the policy document itself and not just when it is being implemented (only to discover by then that there is no effective policy implementation at all).

If a policy document has been finalised (either a Strategic Plan or an Action Plan), implementation can begin. If we then assume that it, as much as possible meets the requirements of *Figure 5*, we recommend, from Day 1 on, keeping an eye on things. To do this, the checklist of *Figure 6* can be used.

- |  |
|--|
| <ol style="list-style-type: none"><li>1. Monitor economical/social/political environment</li><li>2. Monitor public support</li><li>3. Monitor progress of policy implementation</li><li>4. Monitor support of key-stakeholders</li><li>5. Monitor quality of 'delivery mechanisms'</li></ol> |
|--|

Figure 5. *Checklist of the quality of policy implementation (source: Mazmanian & Sabatier, 1981).*

What *Figure 6* effectively depicts to is the scanning of a policy context. After all, essential changes can occur in the implementation from the very first day onwards. By policy context is first of all meant the monitoring of the *economic, social, and political environment*. Just as important is the *public support* for the problems being tackled or the solutions proposed in a road safety programme.

A third area of attention is the *progress in the policy implementation*. The more concrete the policy plans indicate which countermeasures and activities should be carried out in which period, the easier it is to show the progress made. It is also possible to test empirically the assumptions at the base of the policy programme. While it is also possible that during the practical implementation, new and unforeseen problems will arise.

A fourth area of attention is the *support from the key-stakeholders* for the implementation. Organisations are also confronted with new realities and adapt to them. Then it can happen that support already offered disappears, without this being explicitly decided in practice. It is good if those responsible continually inform themselves of the extent to which stakeholders abide by their promised support for implementation.

Finally: there should be an effective *'delivery mechanism'* in a road safety action plan. Stakeholders have been allured/provoked or even forced to make their contribution, and assumptions are made as to how to deliver effective and efficient policy performances. Sometimes co-financing is used as mechanism, sometimes training programmes, and sometimes covenants are signed, etc. Here it is also relevant to enquire if and how these 'delivery mechanisms' work in practice.



## 5. Effective implementation for improved road safety

From the general literature about the effectiveness of policy implementation, as given in *Chapter 4*, four core subjects can be indicated that require the necessary attention in order to achieve a successful road safety policy implementation: *organisation, coordination, financing, and knowledge/information*. *Figure 7* shows them as four, related quadrants. The reasoning is that all four are essential and that, if just one is missing, the policy effectiveness and efficiency is damaged, or even worse. It should also be kept well in mind that for different policy interventions, different ways of completion of the four quadrants is necessary. Thus, the four road construction and management quadrants have a completely different structure than those for traffic education or trauma care. It is of great importance to realise this for designing strategic road safety programmes and action plans.

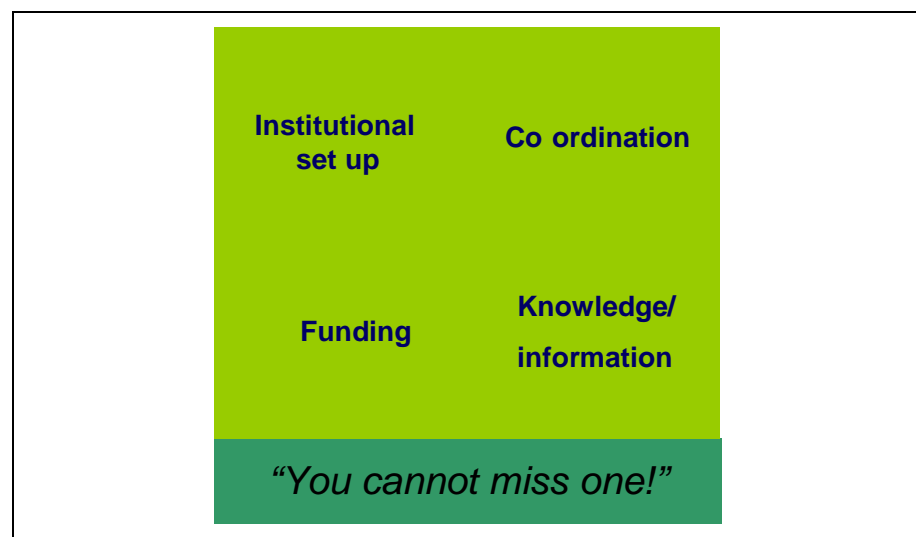


Figure 7. *Four key-components for effective implementation of policy.*

No blueprint exists for the *organisation* within government, as to what the best type is for promoting road safety (OECD, 2002). There is often talk of a 'road safety unit' that fulfils planning and implementation tasks. The planning involves activities such as drawing up a strategic road safety document and political communication about that. The 'unit', together with those politically responsible, also represents the role of leadership. For the implementation tasks one can think of data collection, commissioning/conducting research, specific legislation, international consultation, and some road safety subjects such as driving licensing, etc. Such an organisation should be embedded in government organisation in such a way that one could act with authority and effectiveness. This means encouraging important stakeholders to contribute to promoting road safety, without taking over their responsibilities. The road safety organisation structure is related with the views about central government's position in general and the institutional structures chosen in a country.

Closely related to this is how to shape the *coordination* of policy making and implementation. For this there is also no blueprint. The general conclusion is that every country has found its own and most desirable way of coordinating. One also chooses an own way of implementing the agreed policy. Therefore, the conclusion appears to be that there is no 'best practice' here and that countries, given their own culture and institutional structure, develop their own organisation. The distance between policymaking and implementation can also be different. There should, however, be a strong coordination between a few of the key-stakeholders: central, regional, and local governments; police and law courts; and private organisations. Here, it is of importance to state that there is nearly always some type of coordination when making plans, and that potential implementers are involved when making them (OECD, 2002). Furthermore, policy implementation is often awarded to existing organisations and attempts are being made to integrate the implementation in existing policy areas.

Three models of coordination can be distinguished. First of all, the model of a centralistic guiding system in which all responsibility for planning is held by one part under a part of central government, which is usually the Ministry of Transport. A second form sees that this coordination responsibility goes to an organisation specially set up to do so. A third possibility is that, (formally) separate from the central government, a road safety programme is drawn up (for example by a committee or board outside the central government) which is subjected to approval by those politically responsible. The second form seems to be the most frequently used (OECD, 2002).

Figure 8 shows which steps need to be taken to complete the policy cycle and obtain sufficient *financing* for achieving the agreed goals. It has already been indicated that this cycle is an iterative process. After all, the goals are not realistic if it is impossible to obtain the necessary financing to implement the plans.

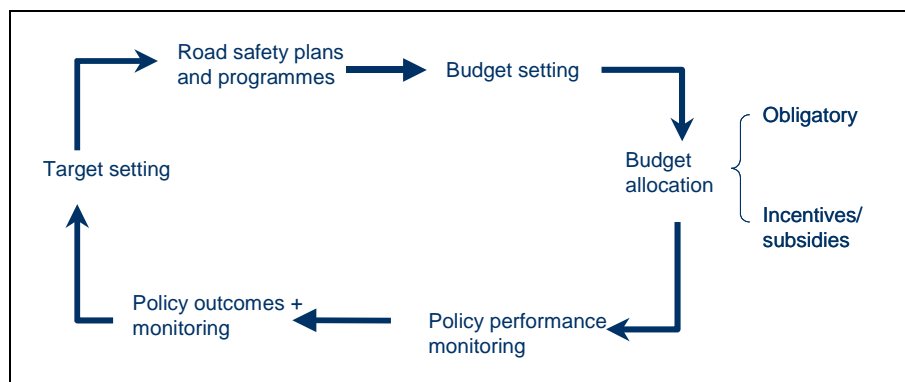


Figure 8. *Scheme of a policy process.*

Here it is interesting to see where the financing of the necessary plans should come from. Certainly in situations where the availability of additional means is limited (and where isn't this the case?), other sources of funding must be explored. These are outside the scope of 'taxation money', but still available (in some way or other) to the government. It would go too far to indicate here which type of financing would be best, but the predominant thought is that, first of all, the government invests in the prevention of

crashes and casualties. Part of the upcoming costs will be paid by road users (for example, safety devices in cars), while the private sector contributes via meeting the legal road safety requirements such as driving and resting hours of lorry and coach drivers. Other forms of private financing (even public/private) seem to be usually marginal.

The desirability of having *knowledge and information* available during the implementation of road safety programmes is beyond any doubt. It is obvious that rational road safety decision making and optimising its implementation requires knowledge and information. This must be systematically gathered. Not only information about 'what' to do is necessary, but also about 'how' to carry it out. In the road safety world, countries can learn from each other, but with the slogan: "adapt, don't adopt".

It has already been made clear in the preceding text that monitoring the progress of policy (policy performance) is important, and that information about the policy context is needed to be able to interpret any policy performance. Moreover, we are very interested in the policy outcome, as indicated in the target hierarchy, and shown in *Figure 3*. We of course want information about how the 'policy outcome' relates to the policy goals aimed at.

Knowledge and information are necessary to construct a policy information system of policy development and implementation. There is an example of the questions to be answered in *Figure 9*. Such a system should be available to all road safety professionals and its actual use should be promoted (Brouwer et al., 1999; de Craen & Wegman, 2003).

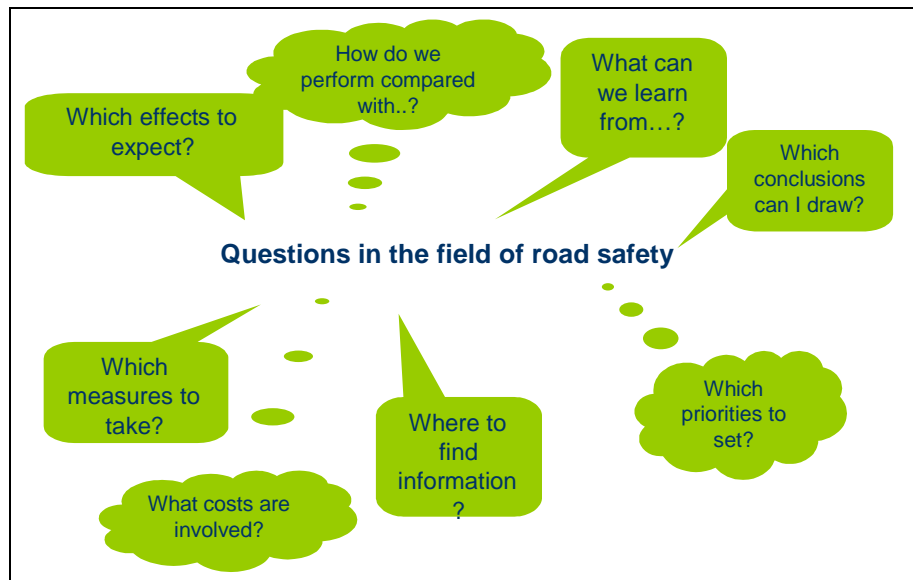


Figure 9. *Frequently asked question to a Road Safety Information System*

## 6. Monitoring, evaluating and updating of road safety policies

Measuring the progress of implementation systematically ('monitoring'), showing the policy effects, and judging if, and to what extent, the policy followed has resulted in achieving the stated goals ('evaluating') are core matters in every policy, thus also road safety policy. In this, the policy implementation is often the great unknown. Without monitoring we do not know if the formulated policy has been implemented and if the implementation really does result in the expected effects. Of course we also want to know if, in the meantime, there have been developments that make it easier or more difficult to achieve the goals aimed at. This brings us to the question of when to decide to set a new course, i.e. adapt use of the various interventions at such a moment in time that adjustments can be made to meet the policy goals aimed at. When timing new interventions, an estimate must be made of how much time the decision-making takes.

In practice, this requires a formal evaluation moment several years before the goal date. At the time of evaluation, a judgement moment must be made about whether to continue the intended policy process or whether additional policies must be formulated.

This requires a good insight into the process of the effect curve of policy interventions. The effects in time of this updating of policies are conceptually illustrated in *Figure 10*.

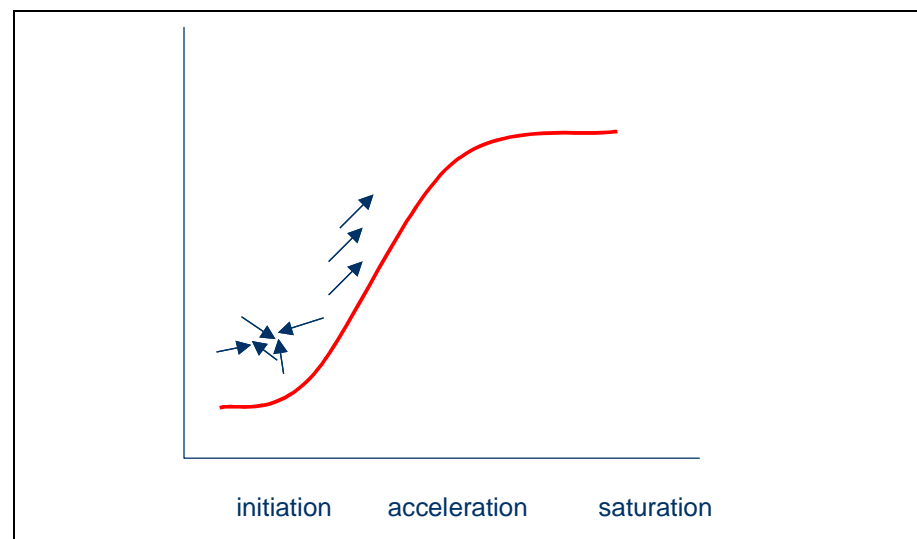


Figure 10. *Effectiveness of measures distinguishing three phases.*

Three stages are distinguished in this curve. As a result of starting problems some time elapses before the effectiveness of policies becomes visible in the initiation stage. After some time, a well-oiled implementation machinery can evolve and an acceleration of the effectiveness becomes visible. After this, saturation effects will occur whereby, for a particular measure, no further contribution to a further decrease in the number of casualties is

made. A measure has reached the end of its life cycle, and a policy innovation is necessary.

When judging whether continuing with existing policies, or whether an updated is needed, it is essential to look thoroughly which point on the 'effect time curve' has been reached. Evaluation research must be aware of this phenomenon because a simple before-and-after measurement can mean a distortion of the reality (e.g. be aware of a so-called novelty effect).

## 7. Conclusions and recommendations

In the literature, erroneously little attention is paid to implementation aspects of road safety programmes. Studies often report which programme is being, or has been implemented, but not how this has been done. It seems that there is too little interest for this aspect, which is by no means justifiable. It only hinders the learning process in promoting road safety. Furthermore, it is an expensive mistake to make since it can result in a waste of funds and time. Hence, it is reasonable to assume that this leads to unnecessary crashes and casualties. It is recommended that policymakers in the European Union and in the individual Member States, as well as the research community shall pay systematic attention to implementation aspects of road safety programmes. It is plausible that a better policy implementation will result in a greater effectiveness; certainly greater efficiency would be attained. It is to be expected that the policy effectiveness will increase, not only by paying attention to the implementation of action plans and programmes, but also when drawing up road safety programmes. The following recommendations aim at improving policy implementation:

1. obtain political commitment;
2. ensure that there is a road safety leadership role ('road safety champion');
3. make stakeholders who implement policy items accountable for those tasks allotted to them;
4. organise coordination between the key-stakeholders;
5. establish a relation, in a well-founded way, between goals, plans, organisation, and financing;
6. make the best possible knowledge and information available by ways of an information system;
7. monitor and evaluate systematically the implementation of plans and programmes;
8. make trained road safety professionals available;
9. include target groups in policy preparation and implementation: politicians, administrators, policy makers, road safety practitioners, and the population and road users respectively.

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