A process for designing policy packaging: ideals and realities

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Abstract

The article introduces a design process for policy packaging, combining a heuristic approach with a real world example of European policy making. The policy packaging process is divided into six stages, starting with (1) the definition of goals and objectives, (2) the creation of an inventory of measures, (3) the formulation and assessment of the initial package, (4) the modification of the initial package through adding, adjusting or removing measures, (5) package implementation, and finally (6) the monitoring and evaluation of the package. The process stands as a generic, comprehensive framework developed as a means of guiding policy formulation and increasing the likelihood of efficient, effective and acceptable policy interventions. The approach is compared to practice, examining whether it can support policy formulation in relation to the EU 2011 White Paper on transport. It shows that several principles of the design process are already reflected by the White Paper, with some important differences also observed. While objectives, targets, and an inventory of measures are part of the White Paper, policies recommended for implementation are treated separately as discrete interventions. The White Paper hence lacks examples or recommendations as to how various measures might be combined in order to achieve the policy objectives. Based on a policy example from the White Paper, it is attempted to apply the heuristic framework and offer recommendations on how to best construct a policy package.

1 Background and introduction

The transport sector generates significant and disproportionate negative externalities to society, whether in relation to anthropogenic climate change, atmospheric pollution, or immediate externalities such as road accidents. For example, while the sector amounts to five percent of the EU27 workforce and contributes a similar share of Gross Value Added (EC, 2012), it produces 20 percent of EU27 CO_2 emissions (Eurostat, 2012). Hence, the development of a more sustainable transport system has become a core focus for contemporary transport policy. However, achieving sustainability in the transport sector involves enormous challenges as policy attempts to address the multifaceted dimensions involved in such a transition. Ensuring economic efficiency, environmental protection, social inclusion and enhanced accessibility can often lead to pronounced conflicts of interest, and no single policy measure can address them all. In this context, the concept of policy packaging is attractive as it offers the possibility to combine different policy measures and simultaneously address multiple objectives.

System-wide impacts from policies often affect different actors concurrently. For instance, a subsidy for public transport might be disputed from a purely economic perspective, but could provide social benefits, such as social inclusion. Another argument for the application of policy packages becomes evident in relation to those transport policies that suffer from a lack of public acceptability. For example, an urban road pricing scheme may be theoretically effective in encouraging modal shift from private car travel to public transport, but in practice may generate significant opposition from motorists. Possibilities for easing this opposition include public transport improvements, or the hypothecation of scheme revenues to other road improvements. Both strategies have been applied in the Stockholm congestion charging scheme (Sørensen et al., this issue). These are simple examples, but nevertheless serve to illustrate the relevance of combining policies in order to achieve policy objectives and improve the sustainability of modern transport systems. The definition of a policy package used in this paper follows that employed by Optic (Givoni et al., 2013: 3), where a policy package is "a combination of policy measures designed to address one or more policy objectives, created in order to improve the effectiveness of the individual policy measures, and implemented while minimizing possible unintended effects, and/or facilitating interventions' legitimacy and feasibility in order to increase efficiency."

Before discussing the process of package design, some principal concepts must be introduced at the outset. Two core concerns for policy packaging are the need for policy interventions to be effective and to be efficient (see Bemelmans-Videc et al., 1998). Here, these concepts are interpreted in a more holistic sense than is typical in public policy circles. 'Effectiveness' commonly refers to the degree of goal achievement. Recognizing the significance of unintended effects, i.e. positive or negative non-intentional outcomes of a measure, this paper broadens this definition and refers to effectiveness as corresponding to interventions' wider influence on exogenous objectives, across timescales, policy domains and geographical boundaries (Nicholson, 1997; Givoni, this issue). For example, although mandatory cycle helmet legislation may prove immediately effective with respect to its intended objective of reducing head injuries, the regulation may have the unintended effect of reducing cycling rates *per se*, in turn reducing the wider health benefits to a given population (Robinson, 1996). Likewise, the interpretation of 'efficiency' is a broad one. Specifically, efficiency is not limited to discussions of 'immediate effectiveness per unit of financial cost' but extended to include a concern for transaction costs. A definition of the terms *effectiveness*, *efficiency* and *transaction costs* in the context of policy packaging is provided in Givoni (this issue), but see also Milgrom and Roberts (1990). Additionally, the term 'framework' is sometimes used to describe the design process for policy packaging. This follows the definition by Ostrom that distinguishes between framework, theory and

model, considering framework as the least demanding of the three concepts with respect to inherent explanatory potential (Ostrom, 1999).

This article hence introduces the process of policy packaging, framed in a somewhat idealized manner, and departing from the definition of a policy package provided above as well as the definition of efficiency as described in Givoni (this issue). The process itself is split into several stages, with the subsequent section describing each in detail. Clearly, in reality, decision-making processes do not or only partly follow the ideal process presented here. Therefore, Section 3 considers the idealized approach presented in the context of the EU White Paper on Transport and its accompanying Impact Assessment (EC, 2011a; 2011b), reflecting on the possibilities for policy packaging on the basis of the White Paper policies. Conclusions about the ideals and realities of policy packaging are offered in Section 4.

2 A process for designing policy packaging

Typically, there are two main elements distinguished in the policy formulation process, one referring to the *content* of the policy making process, over which it is assumed the policy maker has control and where judgment can be used. Another is the *context* within which the process takes place. Context embraces cultural, political, legal, organizational and economic institutions as well as the technical parameters that influence the packaging process. Context is used here in order to address those elements that are *exogenous*, existing outside the packaging process but nevertheless influencing it. Hence, participants in the packaging process have little or no control over these elements, but must account for them. For example, certain measures may not have a legal foundation for implementation, the fiscal framework may not allow a specific type of measures to be considered, or the rules of the policy packaging process may favour actors who are veto players (Tsbelies, 2002). In the following discussion, the focus is on the *content*, with those elements inside the policy packaging process presented as a stepwise, practice-oriented and iterative procedure for policy packaging. The framework of the policy packaging process proposed here is similar to what has become standard textbook understanding of the stages in the policy process (e.g. Ham and Hill, 1993). It is also strongly related to the notion and model of rational decision-making (Simon, 1955; see also March, 1994, on different models of decision-making). The process differs, however, from other approaches by the fact that packaging of policy measures is explicitly treated as a priority.

Although it is evidently not the case that a viable package can be created on the basis of formal procedure alone, it is widely acknowledged that a consistent and implementable policy package should make reference to some form of strategic process (Banister et al., 2000; Feitelson, 2003; Taeihagh et al., 2009; Givoni et al., 2013). The proposed framework discussed in this paper is depicted in Figure 1, with its six stages described below. While the ‘efforts’ invested in each step and in the process as a whole will vary between applications, depending on the nature of the policy ‘problem’ addressed and associated spatial scale (city, region, etc.), it is argued that policy packaging processes which can follow these stages are more likely to reach their intended outcomes.

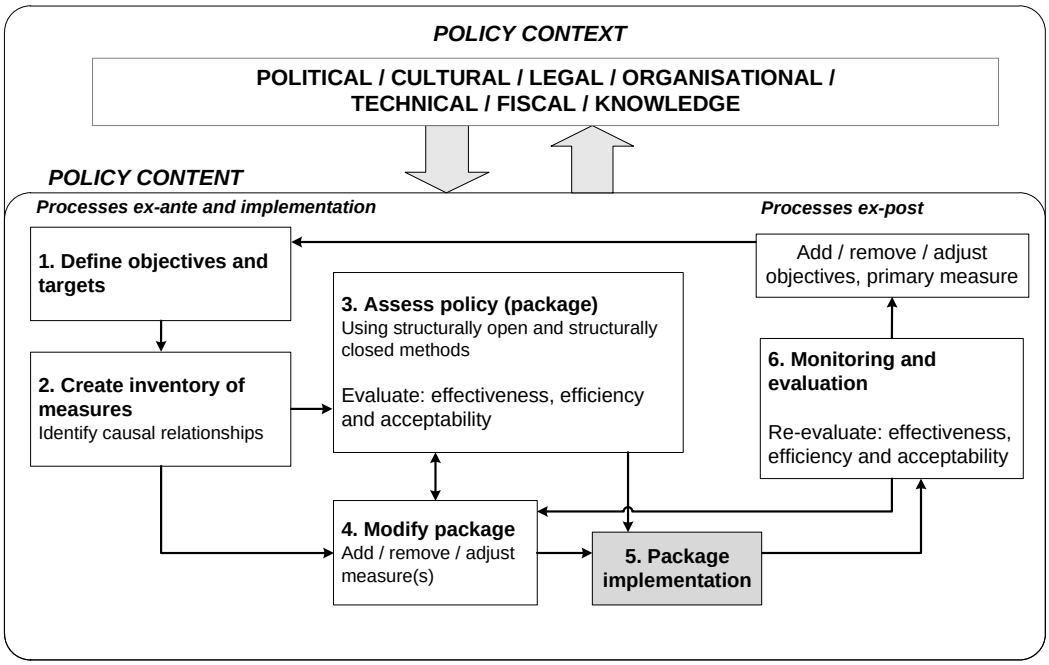

Figure 1: Design process and framework for policy packaging

Stage 1: Objectives and targets

To demonstrate the difference between objectives and targets, it is assumed that the policy objective indicates the direction of an intended action but not the action itself. For instance, an objective could be *to significantly reduce carbon dioxide emissions from passenger transport in the EU*. Targets are usually narrower, more specific and define the thematic field in which policy action is planned, such as to *increase public transport use by five percentage points of all trips within the city*. Ideally, targets are quantifiable and connected to specific values or indicators that allow assessment of the extent to which the target has been met. Otherwise it becomes difficult to evaluate accurately intended effects of a policy action. Once values, clearly defined objectives and concrete targets are defined, the challenge is to develop an effective (in terms of alleviating a specific challenge or problem in the transport sector) and implementable (financially viable and publicly acceptable) policy package to achieve the set targets. This essentially represents the point of departure for policy packaging.

Admittedly, this first stage in the packaging process is strongly simplified. It is seldom the case that politicians, stakeholders or other decision makers analytically outline and rank different objectives and define the targets in accordance with these objectives. It can be expected that the stage of setting objectives and targets will be time-consuming, complex and done in parallel to other stages, and not in isolation. However, it is expected that the presence of clearly defined objectives and targets will greatly increase the likelihood of successful policy packaging.

Stage 2: Inventory of measures, primary measures and causalities

Measures are the building blocks of policy packages and are orientated toward the achievement of a specific target, for example: *Bus priority lanes are introduced on all main axes of the inner city*. Stage 2 is about the identification of primary measures defined as measures responding in an effective and direct manner to some given externality or policy objective (Feitelson, 2003; Taeihagh et al., 2009; Givoni et al., 2013). Primary measures

reflect the core of the policy package, while further measures (such as ancillary[1] measures) are considered subsequently (see also Givoni, this issue). An essential condition for the selection of primary measures is the creation of an inventory of measures, which reflects a list of possible policy interventions. There are no exclusive criteria for the definition of measures here, and it can include both well-established 'best practices', as well as promising, innovative ideas. It functions as a 'base of knowledge', comprising a comprehensive overview of policies, their characteristics and expected effects. In addition, it is important to include a mix of measures of different types offering a wider range of potential interventions, as well as an indication of measures' likely reception.

Stage 2 should include an exercise on the detection of the causal relationships assumed to exist with regard to the measure(s) selected. One possibility to create awareness about causal relationships is the exercise of causal mapping. In facilitating a diagrammatic representation of knowledge, causal maps function as a "form of visual aid to enhance our understanding of the thoughts of an individual, group or organization" (Pinch et al., 2010, p. 377). This sort of exercise serves to identify the major variables involved and indicates the linkages and relationships between them, although not necessarily direction and magnitude of causal interrelationships. Yet at this relatively early stage of the process, it serves to identify the most likely occurring intended and unintended effects, and options for their mitigation, while requiring relatively little effort or resources. However, such exercises cannot replace more rigorous, model-based analyses of cause-effect relationships (see Justen et al., this issue).

At the end of Stage 2, and as a result of identifying causal relationships, a prioritization among measures can be achieved. This can go as far as a formal ranking along a predefined set of criteria that relates to the aspects of efficiency, effectiveness and acceptability, allowing for the identification of the most 'promising' measures and their consideration for inclusion in the initial package developed in Stage 3.

Stage 3: Assessment of the policy package

While in Stage 2 measures were assessed individually and in isolation, in Stage 3 they are assessed together with, and in relation to, other measures with respect to a specified set of criteria. Starting with primary measures, ancillary measures also might be assessed and considered for inclusion in the package. These criteria should be tangible, quantifiable indicators, linked to the initially set objectives and designed to assess effectiveness and efficiency. Similar criteria should be used in the *ex-post* evaluation (see Stage 6) to assess the extent to which targets have been met and to hence judge the overall performance of the package.

It is in Stage 3 where models or other techniques for a more detailed analysis of expected impacts are applied. The aim is to predict the expected impacts of a set of measures as accurately as possible in order to determine the package performance, including a concern for expected direct and transaction costs. The effectiveness and efficiency of primary measures should preferably be predicted by making use of structurally-closed methods[2] (e.g. analytical transport models, cost-benefit-analysis, statistical analysis). However, it is unlikely that one single model is capable of capturing and quantifying all causal

[1] Ancillary measures are additional measures that accompany the primary measure(s) to e.g. enhance their effectiveness, efficiency or create acceptability by 'easing' negative consequences.

[2] The distinction between 'structurally-closed' and 'structurally-open' methods roughly corresponds to the distinction between 'quantitative' and 'qualitative' approaches. In principle, structurally closed methods are used where data is available and where causal relationships are known, can be defined and then estimated. Structurally open methods are used more for general, indicative assessments and for collection of opinions, ideas, feedback and visions (see Justen et al, this issue).

relationships. It is recommended to reflect at an early stage – in between Stages 2 and 3 – on the expected impacts and the assessment methods and tools needed for appraisal (Justen et al., this issue).

As a consequence, the extent to which structurally-open methods (e.g. focus groups and expert workshops) may also be required has to be determined. These methods are in particular valuable as a means of evaluating measures' acceptability, as this aspect is generally not addressed in conventional models. Structurally-open methods bring in additional value by opening up the arena for qualitative evaluation criteria and allowing for wider participation in the decision-making process. Analyzing the likely acceptability of a package involves considering which actors will be affected, how they might be affected, how much political capital they possess, and at what time during the implementation these actors are affected (Feitelson, 2009; Rietveld and Verhoef, 1998; OECD, 2007). Of particular interest are those groups expected to be adversely affected by a policy intervention. For instance, stronger opposition can be expected if a redistributive policy of repressive character is introduced (e.g. a pricing scheme – see Sørensen et al., this issue). In such cases pronounced opposition can threaten the viability and implementation of an entire policy package, with additional policy action via ancillary measures potentially required to ameliorate negative effects (see Stage 4).

At this stage, consideration of the interactions between measures becomes a priority. Naturally, the assessment of a number of measures of different types creates uncertainty regarding the presence of synergetic and/or contradictory effects. It seems unrealistic that these effects can be identified entirely or predicted correctly using structurally-closed methods, given a large number of measures and the potential for various synergetic/contradictory effects between them. However, strategies do exist to cope with measure interaction through the application of structurally-closed methods, where, first, primary measures are analyzed separately to get a notion of their 'stand-alone' effectiveness and efficiency. The analysis can then be successively extended to the assessment of measures in combination. For instance, three measures can be analyzed in three pairs, analyzing whether synergetic and/or contradictory effects occur (Taeihagh et al., 2013). To some extent this strategy can be extended to more complex packages, with ancillary measures included in this iterative process so long as their underlying causal relationships are sufficiently captured by the assessment methods. Of course, a trade-off needs to be made between the number of combinations analyzed and the resources available for running the assessment (Justen et al., this issue).

If predicted impacts suggest that satisfactory results regarding effectiveness and efficiency are obtained from implementing the policy package, the intervention may be considered sufficient and no further packaging efforts are required. However, given the complexity of contemporary transport policy problems, it is expected that Stage 3, the assessment of a combination of measures, will be repeated several times following the decisions made in Stage 4.

Stage 4: Modification of the policy package

After each round of evaluating a certain policy package (Stage 3) the question should be asked as to whether the package is ready for implementation. Testing the package can include also consultation with experts and, importantly, various stakeholders likely to be affected by the package, to gauge their likely response and also to negotiate changes that will make the package more acceptable and thus more efficient, even if less effective[3]. But

[3] In case of a congestion charging scheme an option is the allowance for exemptions or discounts to make the policy package acceptable and hence implementable, even if the models suggest more rigorous charging to

negotiation of the policy package is a challenging task as concessions made prior to implementation are difficult to reclaim once the package is implemented. The adjustment of the package requires for careful observation to keep a balance between too strong concessions to get the package implemented at all and failing in achieving the policy objectives set at the beginning of the packaging process. Reasons that require a modification of the package can be manifold: additional primary measures may improve its immediate effectiveness or acceptability may be achieved by an ancillary policy that reduces public hostility or strengthens legitimacy. Beside the aspect of acceptability, the formal criterion to decide whether another measure is to be included in the package is whether the total marginal benefits resulting from its inclusion outweigh the total marginal costs. In other words, there is a need to generate a surplus between overall costs and benefits along the evaluation categories of effectiveness, efficiency and acceptability to justify the inclusion of additional measures.[4] The modification of the policy package might occur after each assessment stage, i.e. ex-ante, but also after the implementation stage once unintended effects arise and are addressed through corrective actions (ex-post, see Stage 6).

The number of iterations between altering the package (Stage 4) and assessing the refined package (Stage 3) will remain limited in real world policy making, due to limited time and resources. In the case of more local problems where budget and spatial scope dictate relatively small interventions, quantitative assessment may not take place and the evaluation techniques will remain of qualitative character. This is different for large policy interventions, such as cost-intensive infrastructure projects where iterations between Stages 3 and 4 are necessary or even mandatory to identify an optimal policy solution. While the packaging design process is generic, different levels of resources and tools can be used for distinct levels of policy making, combining less resource-intensive evaluation methods (Stage 2, e.g. causal mapping) with more complex and challenging methods (Stage 3, e.g. transport models).

Stage 5: Package implementation

It is in Stage 5 where the policy package is brought into action, thus this stage characterizes the transition between ex-ante and ex-post processes. Once it comes to implementation, the challenge of managing barriers arises if, for instance, the policy package still suffers from a lack of public legitimacy. This becomes urgent if remaining concerns were not properly addressed through consultation and negotiation processes as suggested to occur already during the assessment phase. Besides a lack of acceptability, the legal or financial basis might remain unclear, technical equipment inadequate or expected benefits insufficiently communicated. The body of research and literature on implementation relevant to policy packaging is large and beyond the scope of this paper, but see Hill and Hupe, 2002 and Sørensen et al., this issue.

Stage 6: Monitoring and evaluation

We define monitoring as the continuous assessment of whether initial targets are met by the policy package and conceive it as an integrative part of the entire policy packaging process. This implies that the actors who initially decided upon the package have to be willing and able to change its nature if targets are not sufficiently met. Another motivation

reduce congestion to the desired level. This was, for instance, the case with the introduction of the London congestion charging scheme (see Banister, 2003 and Sørensen et al., this issue).

[4] As was argued before, in the process trade-offs will be made between, for example, increased benefits in one category (effectiveness) and reducing costs in another (financial cost or public unacceptability) which might not be possible to fully quantify and here judgment of decision makers is required.

for remedial action may be that initial policy objectives change, thereby necessitating ex-post remedial adjustments to the package.

During Stage 6 monitoring, evaluation criteria and indicators play an important role. They serve as signposts, indicating the extent to which stated policy objectives and targets have been met. In accordance with the framework, different types of remedial action are illustrated, similar to those considered in Stage 4 (see Figure 1): first, to address and/or change initial objectives and targets or remove/adjust the related primary and ancillary measure(s). More likely, primary measures are kept or only adjusted but not entirely removed (Optic, 2011). This is due to the high costs (time, effort, acceptability) involved in the replacement of a primary measure. Indeed, it is unlikely that primary measures are removed, given that they were most likely chosen carefully at the beginning of the process as representing good performance in relation to the evaluation criteria. More likely would be to consider removing, adjustment or introduction of ancillary measures.

3 The EU Transport White Paper as a policy package

In this section the idealized policy packaging process presented above is examined in a real world policy context, that of the 2011 EU White Paper on transport. The White Paper includes objectives, targets and various policies[5] and therefore represents a strong starting point for creating policy packages to help meet the EU objectives for the transport sector. By going through the different stages, we demonstrate how policy packages can be designed to achieve goals of the White Paper, pointing along the way to difficulties in applying the proposed process in practice. The two main documents on which the analysis below relies, and which together represent the EU White Paper on transport, are:

(1) The White Paper (WP): Roadmap to a single European transport area – towards a competitive and resource efficient transport system (EC, 2011a): The WP comprises the EU strategy on transport for the next decade and beyond. It provides a vision towards a low-carbon and sustainable transport system, including concrete policy objectives and initiatives aimed at their achievement. The policy scope of the document is broad; initiatives embrace both passenger and freight transport, all transport modes as well as manifold types of measures to be applied at different spatial and administrative levels. To promote initiatives, the EU can introduce so-called directives (e.g. on EU-emission standards for new vehicles) that by obligation need to be translated into national policies. For other WP-initiatives the EU depends on the willingness of the member states regarding their implementation (e.g. the introduction of urban congestion charging schemes).

(2) *An EU Commission staff working paper on Impact Assessment (IA) accompanies the WP (EC, 2011b):* The IA is an accompanying document to the WP developing different policy packages and providing results of their model-based appraisal. The IA is prepared by the Directorate General for Mobility and Transport (DG MOVE) in cooperation with the DGs for Climate Action (DG CLIMA) and Energy (DG ENER). The IA policy packages[6] represent possible transport futures arising from various

[5] In the following, the terms policy, initiative and measure are used synonymously.

[6] Within the policy packages of the IA (referred to there as policy options) measures are bundled from seven policy areas (pricing, taxation, research and innovation, efficiency standards, internal market, infrastructure and transport planning). The packages have measures in common but differ with regard to the assumed intensities. The consideration of the temporal scale by varying the intensity of measures over time leads to three scenarios up to 2050 (with an intermediate step in 2030) beside the trend development. One reflects advances in powertrains and stringent CO_2-standards for new vehicles, a second puts emphasis on managing mobility and on carbon pricing, a third provides an intermediate approach combining aspects of both (EC, 2011b, p. 39ff).

specifications of measures. These packages, however, differ from our use of the term policy package in that they combine many important measures from different areas and do not depart from the selection of one (or a few) primary measures combined with ancillary measures to improve synergetic effects. The measures' specifications are tentative and might be adjusted in accordance to specific policies defined at a later stage. Hence, the IA serves more as an indication and compass as to what type and combination of measures might be appropriate to achieve the EU long-term goals in the transport sector. Its results are not binding for policy decision-making.

Below a potential implementation path of a selected WP-initiative is examined against the policy packaging process proposed in section 2. The WP is used to illustrate how the 'ideal' process might look like in practice and what the main challenges are likely to be. Emphasis is placed on Stage 2 (inventory of measures and policy causalities), and in particular on Stages 3 (assessment) and 4 (package modification).

Stage 1, Objectives and targets: The WP very clearly, and explicitly, sets out a principal policy objective and quantifies the respective target. In so doing, it follows the requirements of Stage 1 of the process. The overarching objective is to reduce GHG-emissions from transport by 60% by 2050 (against 1990's emissions' level). Subsequent quantified targets, among others, aim to: a) halve the use of conventionally-fuelled cars in urban transport by 2030, b) use 40% of low carbon fuels in aviation, c) reduce shipping emissions by 40% and d) shift 50% of medium distance passenger and freight journeys from road to rail. Further, non-quantified targets aim at, e.g. the development and deployment of new and sustainable fuels and propulsion systems or the optimization of multimodal logistic chains (EC, 2011a, p. 9). However, although to some extent targets are quantified, the WP remains vague on some policy goals where quantifiable targets are absent.

The WP also sets guidelines, or restrictions, on how these objectives can be met. While salient politically, these limit the 'space for action' and even contradict the objectives described. For example, while setting an ambitious environmental goal (reducing GHG-emission from transport by 60%), it is said that "curbing mobility is not an option" (EC, 2011a, p. 5). Another example concerns interurban transport and the role of new infrastructure. Although responsible for more than a half of total passenger and freight CO_2-emissions, the extension of the TEN-network by e.g. bridging missing links or creating links to third countries remains high on the EU's agenda (EC, 2011b). In sum, the requirements defined for Stage 1 of the process are partially fulfilled by the WP. While overarching goals and targets are quantified, many subsequent targets remain vague and require further specification.

Stage 2, Inventory of measures and causal mapping: Beside a comprehensive list of policies in the WP, also the IA provides a number of measures, including their specification for each of the policy packages modelled (EC, 2011b, p. 46-52). Quantification of these policies is included and is partly backed by findings of scientific studies. IA-measures are well-specified, and comply with the standards set by Stage 2 of the process. Table 1 exemplifies selected EU policy actions listed in the IA in the areas of taxation, pricing and vehicle emission standards.

Taxation	2013-2019: introduction of CO_2-tax components for fuels (10 € per tonne of CO_2) and vehicles; gradual taxation of biodiesel / 2020 onward: same tax rate for commercial and non-commercial diesel use; taxation of kerosene for aviation
Pricing	internalization of external costs for all modes by 2050
Emission standards	until 2020, 95g CO_2/km for passenger cars; 135 CO_2/km for light commercial vehicles

Table 1: Examples of policy specifications of IA-scenarios, Source: EC, 2011b

Despite the fact that the policy specifications presented in the IA form a good starting point for policy packaging, the philosophy of policy packaging in the IA differs substantially from what the process presented in this paper suggests. In contrast to the framework, manifold primary measures are bundled together and assumed to act concurrently. The method applied in the IA does not suggest any qualitative measure-by-measure evaluation of unintended effects (as suggested by Stage 2), or the adjustment of the package using ancillary measures. Furthermore, the issue of policy acceptability is not treated in the IA-analysis and there are no guidelines provided on how to perform such an analysis.

Moreover, the WP also includes a comprehensive number of policy initiatives but their descriptions remain rather vague and unspecific (EC, 2011a, pp. 18-30). For instance, the WP states that "appropriate standards for CO_2 emissions of vehicles in all modes" (ibid., p. 25) are needed and calls for "promoting awareness of the availability of alternatives to individual conventional transport" (ibid., p. 26). This lack of concrete specification for each of the WP-initiatives undermines the scope for framework exercises on mapping underlying causal relationships, jeopardising both knowledge of intended and unintended effects and eventual policy effectiveness.[7] At this point, important deviations between the WP and the framework become apparent as the WP lacks both specifications and recommendations for the analysis of causal relationships.

Taking one of the overarching WP-goals as a starting point for creating a policy package, one can identify from the WP numerous initiatives that support the goal attainment. In the following, the WP-goal of "halving the use of conventionally-fuelled cars in urban transport by 2030" (see above) may serve as an example. According to the framework, the next step would be to identify WP-initiatives that can work as primary measures to achieve that goal. Utilizing the list of WP-initiatives as inventory of measures leads to a comprehensive list of potential measures that intuitively will work to achieve the goal of having less conventional cars in urban transport (see Table 2).

Selected WP-initiatives to achieve the goal of "halve the use of conventionally-fuelled cars in urban transport" → Primary Measures	1. Implement a recharging and refuelling infrastructure for clean vehicles
	2. Introduce urban road pricing and access restriction schemes
	3. Run demonstration projects for electro mobility (and other alternative fuels)
	4. Implement measures to promote increased replacement rate of inefficient and polluting vehicles
	5. Introduce vehicle standards for noise emission levels

Table 2: Example of inventory of measures based on WP-initiatives, Source: EC, 2011a

In the WP this connection between policy goals and potential measures to achieve them is not included. Respectively, and based on information provided in the WP, Table 2 indicates one possibility of how to relate initiatives to an overarching goal. As noted previously, the exemplary measures in Table 2 require for further specification before commencing a process of policy packaging in a meaningful sense.

Stages 3, Assessment and 4, Modification of the policy package:

Taking Table 2 as a point of departure, the next step in the idealized process requires a more exact specification of the primary measures. According to the selected WP-initiatives, one policy option from the list could be a measure promoting the replacement rate of

[7] A more detailed description of the causal mapping method using an example for the detection of intended and unintended effects can be found in Givoni et al., 2013. The Annex to the White Paper provides further recommendations on qualitative approaches for impact analysis (EC, 2009b, p. 61-65).

inefficient and polluting vehicles (nr. 4). An even more precise definition would be a scrappage scheme that offered a financial subsidy for the purchase of new (cleaner, non-conventionally-fuelled) cars. It is important to mention that at this point the framework suggests selecting merely a handful of primary measures, and to subsequently build a package by successively adding ancillary measures to these. Following this logic, and related to Stage 3 of the process, this measure should then be subject of a profound assessment involving the analysis of intended and unintended effects.[8]

Also in case of the example 'Scrappage Scheme' it can be assumed that both positive and negative effects would be detected. For example, purchases of newer vehicles and the disposal of older vehicles might result in a short-term economic stimulus, improved safety standards, and decreased emission levels. However, unintended effects might involve a decline in business for the auto-repair industry, and an increase in the total vehicle stock as driving becomes cheaper with newer cars consuming less energy than older vehicles per distance travelled. Indeed, this latter point may contradict other policy objectives relating to increasing the non-motorized modal split in urban areas.

To mitigate unintended effects, or to reinforce intended effects, the process suggests incorporating additional measures and otherwise modifying the initial package (Stage 4 of the process). Naturally, different additional policies can augment the effectiveness or enhance policies' acceptability. At this point additional information to that provided by the WP is required, as ancillary measures able to cope with negative externalities of the primary measure have to be defined. The comprehensive list of WP-initiatives again can serve as inventory of measures where some of the measures listed are appropriate as ancillary measures. Table 3 summarizes a set of possible ancillary measures targeted at improving the policy package performance.

Possible additional measures accompanying the primary measure (Scrappage Scheme) → Ancillary Measures	1.	Stagger the subsidy (i.e. the scrappage scheme) by vehicle efficiency classes
	2.	Implement the measure successively over a longer time period
	3.	Introduce an urban pricing scheme that favors cleaner vehicle technologies
	4.	Apply the scrappage scheme to vehicles of public transport

Table 3: Possible ancillary measures

This short (and non-exhaustive) list of possible additional measures indicates that within the policy package, these measures are supposed to fulfil different functions. Measure 1 focuses on the package's efficiency by adding an incentive of allocating a greater subsidy for cleaner vehicles; measure 2 addresses the aspect of acceptability by easing eventual negative effects; measure 3 enforces the effectiveness by granting additional privileges to cleaner cars; and measure 4 addresses public acceptability (public transport also benefits from the policy) but can also serve to improve efficiency and effectiveness.

According to the process for designing a policy package, the now more complex package (Scrappage Scheme plus ancillary measures) returns to the assessment Stage 3. Naturally, the extended package increases the requirements for assessment methods. For instance, considering the additional measures in Table 3, the single application of a car-ownership model as mentioned before is not sufficient. At this stage both structurally open and closed methods need to be applied (see Stage 3). The question of when to apply different

[8] At this point possible assessment methods are not discussed in detail. In the example of a scrappage scheme, e.g. the application of a car-ownership model is an option, also the design and application of a survey that evaluates users' acceptance of a scrappage scheme and accompanying measures.

assessment methods along the policy packaging process is discussed in Justen et al. (this issue).

This short example highlights the necessity of analyzing WP-initiatives (or more concrete policies derived from them) in more detail, and in combination with other measures, as unintended effects are likely to occur. The careful and stepwise amendment of ancillary measures leading to a coherent policy package supports efforts at coping with these externalities and raises the probability of successful implementation.

Stages 5, Implementation and 6, Monitoring: After iterations between Stages 2, 3 and 4 of the framework, and once a policy package is assumed to be able to achieve the objectives and targets set, the next step concerns its implementation. Aside from its functional complexity, the implementation stage of a policy package is no different to implementation of one or more measures in isolation, and may be even easier to coordinate given the attention placed on designing the package around the criteria of efficiency and acceptability. Nevertheless barriers to implementation of a package are still to be expected, requiring adjustment of the package (iterations between Stages 2-4).

With regard to the WP, the IA states that "a proper monitoring and evaluation of the implementation of the White Paper is a key element" (EC, 2011b, p. 87). The EU Commission plans to evaluate the realization of WP-initiatives and overall goal achievement after 5 years. To track the progress of policy implementation, the EU also set an intermediate goal, where GHG-emissions should have declined in 2030 by 20% below 2008 levels. The monitoring pursued by the EU is twofold: first, there is the more general evaluation of the entire WP after 5 years by an intermediate review. Second, the implementation of WP-initiatives is accompanied by a monitoring process described in the Impact Assessment Guidelines (EC, 2009a). There is thus a proper consideration of monitoring of the WP-initiatives put into practice, although this refers to the monitoring of single measures and their effects, not of policy packages as a whole.

4 Ideals and realities in the process of designing a policy package

The exercise of comparing an idealized, heuristic model of policy packaging with a given policy reality, illustrated by the EU White Paper, reveals some interesting insights. Several aspects are dealt with in a similar fashion, for instance the definition of objectives and targets and the creation of an inventory of measures. However, major gaps between heuristic ideals and practice can be observed in relation to the combination of measures into a package. Policies in the WP are presented individually and they generally lack the degree of specification necessary to support the packaging process. An initial observation is that substantial analytical work would be required to convert listed WP-initiatives into concrete sets of primary measures.

Due to the WP's broad policy scope with initiatives of different types and covering all transport modes, the WP cannot be regarded as, or implemented as, one single policy package. An important observation is that each WP-initiative may represent a core policy, i.e. primary measure, and the starting point for the creation of multiple policy packages. Hence, the framework can serve as guideline where specified WP-initiatives are complemented by ancillary measures that tackle the packages' effectiveness, efficiency and acceptability, and help in the mitigation of unintended effects.

It is recognized that actual processes may be quite different from what this framework suggests. Policy realities, in the EU or otherwise, will rarely pursue a step by step, ideal design process for policy packaging. However, the prescriptive character of the framework implies that it may be used to develop alternative strategies and choices in policy making

situations. For instance, in the analysis of primary measures (i.e. WP-initiatives) making use of causal mapping exercises may improve and expand collective understanding of possible intended and unintended effects. In this sense the framework can inspire policy makers to draw on at least some of the stages, if not follow the process in every detail. It is acknowledged that what is of vital importance is not necessarily the process itself, but the output (the content and inherent measures of the policy package) and the outcome (the effects of these measures in the transport system). One conclusion is that following – at least partially – the design process increases the probability of reaching intended combinations of measures and intended outcomes. An evaluation of combined policies implemented in reality has provided support for this conclusion (Optic, 2011), but it has also shown examples of policy packaging processes that in several respects differ from the proposed framework.

Without doubt many challenges remain in reducing the gap between ideals and realities in policy packaging. For instance, there is a need for a more detailed analysis of case studies (i.e. best/worst practices of policy packages), either ex-ante or ex-post. The proposed process and its stages can serve here as references to analyze to what extent stages were pursued in real world examples of policy packaging. Running carefully through Stages 2, 3 and 4 of the process is resource-intensive; hence, there is a need to develop tools and/or methodologies that assist the design of policy packages. For instance, tools supporting the classification and structuring of policy effects allow for a ranking of policy packages. Another topic requiring for further research concerns the measurement of policy interactions, i.e. the identification of synergetic/contradictory effects occurring as a result of policies applied in combination. As stated in Section 2, Stage 3, to some extent inter-measure interaction can be analyzed by applying sophisticated transport models. However, given that packages are likely to involve complex mixes of different measure types, the possibilities of a detailed analysis on these effects are limited. Again the careful, empirical analysis and monitoring of the effects resulting from policy packages put into practice is perhaps the key to gaining a better understanding of the complicated interdependencies that characterise policy effects.

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