Research Master in Public Administration and Organizational Science

MASTER THESIS

THE USAGE OF SCIENTIFIC KNOWLEDGE IN EUROPEAN UNION LEGISLATIVE POLICY-MAKING

DOVILĖ RIMKUTĖ

3443728

Supervisor: **PROF. MARKUS HAVERLAND** (Erasmus University Rotterdam)

Second reader: **PROF. STAVROS ZOURIDIS** (Tilburg University)

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List of Acronyms

EP – European Parliament

EU – European Union

IRA – Independent Regulatory Agencies

QMV - Qualified Majority Voting

DG – Directorate-General of the European Commission

MSSD – Most Similar Systems Design

MDSD – Most Different Systems Design

DG EMPL - Directorate General "Employment, Social Affairs & Inclusion" of the Commission of the European Communities

DG RTD - Directorate General "Research" of the Commission of the European Communities (Research and Technological Development –RTD)

DG SANCO - Directorate General "Health and Consumer Affairs" of the Commission of the European Communities

DG AGRI - Directorate General "Agricultural Affairs" of the Commission of the European Communities

DG JUST - Directorate General "Justice" of the Commission of the European Communities

Abstract

As scientific knowledge is a crucial part of European Union policy-making, this study seeks to investigate how scientific knowledge is used by the European Commission in EU legislative policy-making. The underlying argument in this thesis is that the conditions and the reasons for delegating political tasks to the European Commission are the factors leading to the different usage of scientific knowledge (*technical-instrumental, substantiating and legitimising*). The researcher argues that the logic of delegation (*efficiency* vs. *credibility*) and the indirect control mechanisms (*actors and institutions involved: third parties vs. scientists; one DG vs. several DGs*) shape the usage of scientific knowledge by the European Commission. As this paper is the first attempt to test these theoretical explanations of scientific knowledge usage empirically, multiple sources of evidence (primary documents, questionnaire, and interviews) were used to increase the validity and credibility of the research. The conclusion of this study is based on data collected from a survey and face-to-face interviews with the scientists and academics who have assisted the European Commission in the preparation of a legislative proposal or policy initiative. Furthermore, the propositions about a causal relationship between the variables were tested using the most similar systems design. The study concludes that the *indirect control mechanisms* (*fire-alarm oversights*) have an effect on how scientific knowledge is used by the European Commission. The indirect control mechanisms the *inclusion/exclusion of third parties* or the *inclusion/exclusion of competing institutional actors* shape the way scientific knowledge is used in the preparation of a legislative proposal. However, the explanation based on the logic of delegation appeared not to have an effect. That is, there is no difference in how scientific knowledge is used depending on whether the principals delegate political powers to the European Commission either *to reduce decision making costs* or to *enhance the credibility of policy commitment*. Based on these conclusions the researcher of this study proposes to concentrate on the *indirect control mechanism*s (*fire-alarm oversights*) in the further research in order to provide sound evidence about the causal relationship between the indirect control mechanisms and the usage of scientific knowledge utilisation.

Keywords

EU, scientific knowledge utilisation, legislative policy-making, delegation, the comparative method.

1 Introduction

1.1 Background

> *"Scientific expertise is increasingly becoming a critical element in the design, implementation and assessment of public policies. This means that policy-makers must be able to consult the scientific community. Scientists should have an opportunity to share their concerns and knowledge. This will ensure that decisions are objective and based on sound scientific evidence. However, the current wealth of scientific expertise, from an increasing variety of sources, coupled with the requirement for quick responses from many decision-makers, pose a considerable challenge" (Commission of European Communities, 2005a: 1).*

The quote highlights several issues which are of a particular importance in this thesis. The EU institutions are extensively using scientific knowledge in all policy-making processes. Nevertheless, there are many concerns how to use knowledge more efficiently and increase legitimacy of the EU policy-making which is claimed to be based on sound evidence, rather than political arguments.

The EU Treaties do not include much official rules concerning the use of scientific knowledge and advice in policy-making (Boswell, 2008; Allio et al., 2006). The role of experts is rarely defined in the EU Treaties and secondary legislations. There are no requirements in the EU Treaties to take into account scientific data (there are some exceptions) to base decisions on scientific evidence or to use 'best available science' (Allio et al., 2006: 9). In addition, the existing Treaties do not provide any definitions of the quality of information, which could be used in policy-making. The White Paper on "Governance" (Commission of European Communities, 2001), which states the main guidelines concerning the principal European governance patterns, does not refer to the requirements to base decisions on scientific evidence. There is only a suggestion by the European Commission (Commission) to:

> *"Publish guidelines on collection and use of expert advice, so that it is clear what advice is given, where it is coming from, how it is used and what alternative views are available" (Commission of European Communities, 2001a: 5).*

All this indicates that a coherent policy for the use of scientific knowledge in decision-making does not exist. Nevertheless, experts have a relatively high authority in the EU policy-making (Boswell, 2008). Although experts cannot formally make political decisions, they provide official decision-makers with expert advice and scientific knowledge, which may have a significant influence on choosing certain strategies to approach existing issues against other alternatives.

This situation – low legislation basis and extensive reliance on scientific knowledge in policy-making in practice – makes the phenomenon of scientific evidence based policy-making within the EU an eye-catching research object. As there are no concrete and direct rules how to use scientific knowledge in policy-making, there must be other factors which influence the patterns of knowledge utilisation within the EU. However, research focusing on scientific evidence based policy-making within the EU is scarce. As a result, this thesis is an attempt to find theoretical explanations and empirically investigate those theoretical explanations.

In the following introductory sections, more detailed background information about the usage of scientific knowledge in the EU is discussed and the research approach of investigating this phenomenon is gradually introduced.

1.2 Scientific knowledge utilisation by the European Commission

In policy-making, policy decisions are supposed to be based on scientific knowledge, rationally considered and well-weighted decisions, rather than on ideology, personal opinion or interests (Boswell, 2008). In other words, scientific knowledge utilisation in policy-making refers to the practices in which the sound evidence gained from the various reliable scientific sources is used as a basis for policy decisions.

It is a challenging task to define how scientific knowledge is used in EU policy-making. There is no concrete official definition or common system for providing scientific/expert advice to the EU policy-makers. There are many different mechanisms in using knowledge for policy decisions that differ depending on many factors. This variety clearly indicates that the explicit common pattern of using expert knowledge in policy-making is difficult to capture.

As it is indicated in the report on governance of the working group, there are many sources of expertise at the EU. These include:

- "'In-house' (EU institution's officials' own knowledge in administrative, economic, legal and technical matters; research undertaken by the EC Joint Research Centre extended through networks involving a broad range of organisations);
- Scientific advisory committees;
- European Agencies;
- Member States (who appoint experts to the Commission's 'comitology' committees and Council's working groups);
- 'Stakeholders' (with some prominence of the more resourceful ones, such as industry);
- Expertise developed through the research policy of the EC (which is a unique case of trans-national research policy, with distinct features as compared to international research co-operation programmes);
- Ad hoc expert groups;
- Consultancy studies" (*Commission of European Communities*, 2001b: 7).

From the list of expert knowledge providers listed above, it is clear that scientists and epistemic/scientific communities are the possible providers of expert advice and information among such actors as interest groups, social movements, legislatives, bureaucratic agencies, think-tanks, consultancies, etc. (Haas, 1992). Nonetheless, in this study the distinction between scientific and non-scientific advice is crucial because it focuses only on scientific knowledge utilisation.

Scientific knowledge can be provided by "[…] professionals with recognised expertise and competence in a particular domain and an authoritative claim to policy-relevant knowledge within that domain or issue-area" (Haas, 1992: 3). Scientists are considered to be those who have "a sufficiently strong claim to a body of knowledge that is valued by society" (Haas, 1992: 16). Other expert knowledge providers (e.g., interest groups) also can provide expertise, however, their knowledge is considered to be non-scientific in this master thesis. The distinction between scientific (epistemic communities, representatives from various academic

disciplines and professions) and non-scientific knowledge providers (interest groups and social movements, legislators, bureaucratic agencies and bureaucratic coalitions) is made in this study. The main focus of this thesis will be concentrated on how scientific knowledge, provided by scientists, is used by the European Commission (Commission).

1.3 Scientific evidence and the EU policy-making cycle

There are broad guidelines or, to be more precise, practices how knowledge is used at the different policy-making stages/phases. Mapping the whole policy-making process with the more detailed explanations about the common rules and practices of expert knowledge utilisation in the EU policy-making brings some clarity. This allows the focus of this thesis to be placed in a broader picture. In addition, choices for narrowing down the research object (focus only on one policy-making stage instead of investigated every single stage) are presented in this section.

In view of the fact that the European Commission is very under-resourced and understaffed institution, it has become a very common practise to consult various academics, scholars, national officials, NGO representatives, and other stakeholders in all policy-making processes. The Commission seeks an additional expertise on relevant issue. Therefore, experts representing their countries, organisations and other bodies are invited to provide the Commission's permanent staff with expertise (Morten, 2007: 150).

As van Schendelen puts it "[…] insourcing expertise is likely to be an enduring feature of the EU policy process" (2003: 1). Even though the Commission is clearly overloaded with various tasks, it has a small administration (van Schendelen, 2003). There are several alternatives to solve this situation: (1) to reduce the workload by setting clear priorities and refusing to be an active player in some policy areas, (2) to employ more staff (Busioc, 2010). However, both alternatives are not appealing either to the Commission itself or to the member states. The Commission does not want to limit its discretion by refusing to play a key role in some policy areas. Therefore, the first alternative is completely rejected by the Commission. The second alternative is not appealing to the Member States, since none of them wants to contribute more of their GDP to the maintenance of the EU bureaucratic apparatus. Thus, the new way of dealing with small resource and staff in day-to-day policy-making – the use of external expertise – has been applied (Busioc, 2010).

Van Schendelen's (2003) proposed simplified scheme of decision-making in the EU is used to explain the EU policy-making process and discuss what the common practises of using knowledge at each policy-making stage are (see Exhibit 1). To put it roughly, scientific knowledge is mainly used in two main policy-making stages: policy formulation (design) and policy implementation stages. In a nutshell, at the policy formulation stage the Commission widely consults expert committees and other sources of expertise in drafting a new proposal. When legislation is adopted, comitology committees are assigned to decide on precise policy implementation means. This indicates that in the main policy-making stages the reliance on expert knowledge is extensive. In order to support this point with evidence, these two broad policy-making stages are be discussed in-detail as far as the usage of expert knowledge is concerned.

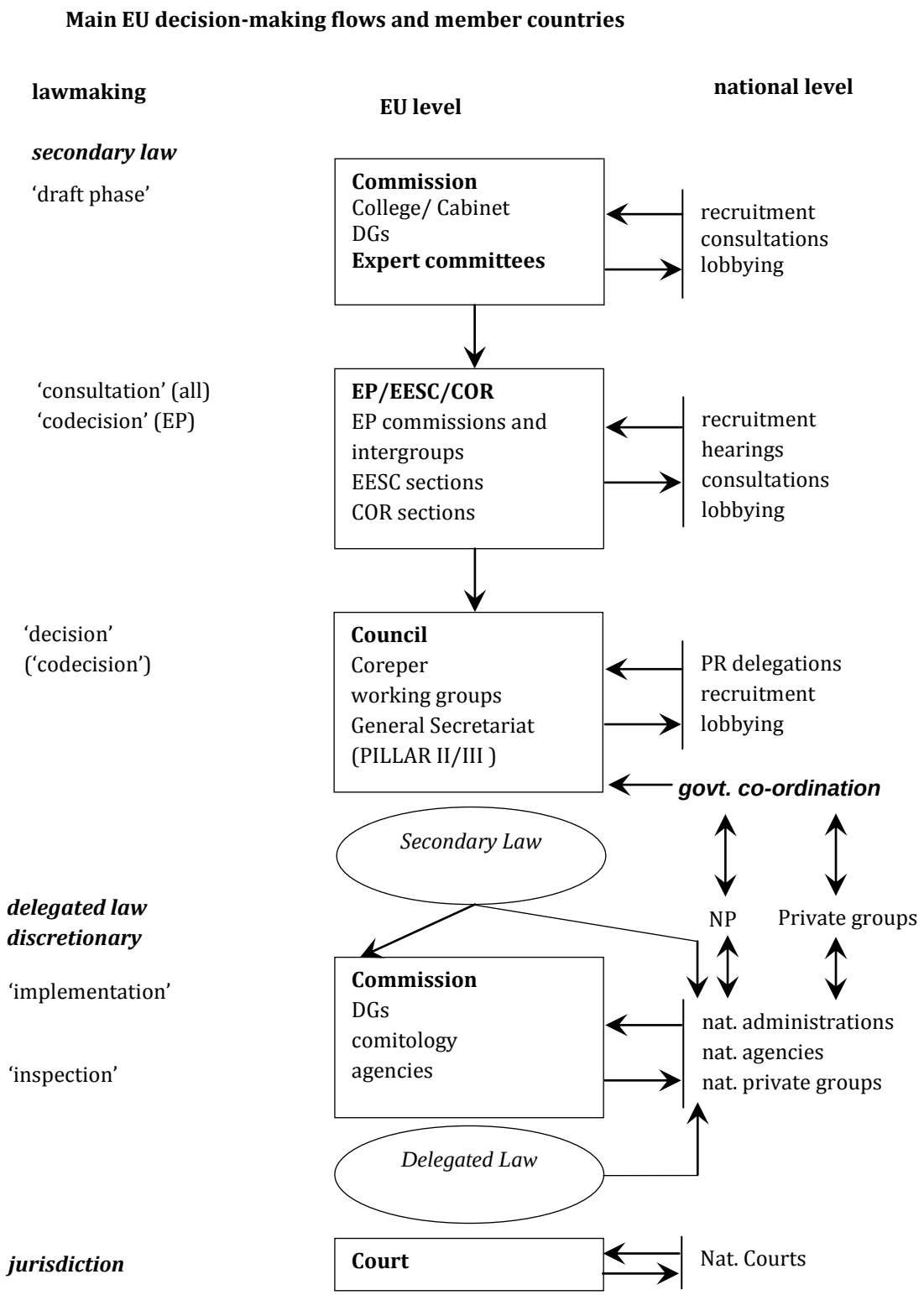

Exhibit 1. Main EU decision-making flows and member countries
Source: Van Schendelen, R. (2003) *Machiavelli in Brussels: The Art of Lobbying the EU.* Amsterdam: Amsterdam University Press. p. 54

1.4 Agenda-setting and legislative bargaining phase

The EU policy cycle starts when the need for changes in a specific policy area at the EU level is identified. In order to find out whether such legislation is relevant and to collect expert advice on a particular issue, before initiating a draft proposal the Commission usually performs a public consultation. If there is a consensus for the need for reform and the *Status Quo* situation is not acceptable, the Commission takes an initiative to draft a new proposal (Hix, 2005).

As it is indicated in the official publicly available documents, "The Commission's proposal is the result of the extensive consultation process, which may be conducted in various ways (impact assessment, reports by experts, consultation of national experts, international organisations and/or non-governmental organisations, consultation via Green and White Papers, etc.)" (Commission of European Communities, 2010) There are many expert committees and other advisory groups, which assist the Commission in drafting up a new legislation. Basically, practical work of proposal drafting in most cases is inconceivable without the external provision of expertise from various types of sources (Morten, 2007). In addition, even though expert committees and advisory groups represent their national states or organisations, they are supposed to provide the Commission with unbiased information and behave as independent experts.

However, the Commission cannot use scientific knowledge and take decision without any restrictions or rules. Under the community method, the Commission plays an agenda setter role and has an exceptional right to initiate a legislative proposal, which implies that the Commission is practically involved in the decision-making phase (Van Schendelen, 2003). Although a proposal can be changed by the European Parliament (EP) and the Council, the Commission has much room for manoeuvre in developing a legislation (Hix, 2005). Moreover, the rules, in some cases, are set so that in order to make amendments in Commission's proposal, a common position and compromise within the Council and the Parliament has to be reached. Therefore, to approve the proposal of the Commission is easier than to reject it or to make amendments. Certainly, the Council and the Parliament can reject a proposal if it is too far from their ideal positions. However, the fact that the Commission is in charge of proposal drafting, makes the Commission a vital player.

According to Van Schendelen (2003), legislation drafting is considered to be the main function of the Commission because the Commission plays a core role here. The Commission gathers information and expertise; it acts as a main negotiator for debates among the stakeholders in the proposal drafting phase. In addition, the Commission proceeds being a negotiator in the further legislative bargaining processes between the Council of Ministers and the European Parliament.

Once the Commission's proposal is tabled, the European Parliament and the Council of Ministers examine the proposal and decide whether to adopt or to reject it (*Commission of European Communities, 2010*). The EP and the Council also employ expert knowledge when they make amendments and from their positions on the proposed draft. In the European Parliament, permanent and much specialised committees are organised to work on analysing the draft and developing their position which is expressed in amendments (European Glossary). The Council of Ministers is also assisted by the committees and working parties which evaluate Commission's proposal and work on suggesting amendments, etc. (European Glossary). These committees consist of the representatives from the Member States and one member from the Commission.

In short, in the policy formulation (design) phase, scientific knowledge utilisation is used extensively, however, there are certain rules how the decisions about the created policy propositions should be made.

1.4.1 Policy implementation phase

When the EU institutions finally agree to adopt legislation, the implementation stage starts. The Commission is in charge of coordination and monitoring of policy implementation at the national level. At this stage, expert knowledge is used to make precise decisions on how to implement certain policies. Comitology committees are established to take the appropriate decisions (European Glossary). These comitology committees consist of experts assigned by the Member States and are generally governed by rules of 'Comitology Decision' which vary depending of each case. In legislations, the scope of the implementing powers imposed on the Commission by the Council is specified (European Glossary). Different comitology committees are assigned depending on how the Council and the EP want to restrict the Commission's discretion in the implementation phase. Comitologies vary from the loosest - advisory committees (providing the Commission with much discretion in coordinating policy implementation at national level) – to very strict ones - regulatory committees with scrutiny (Hix, 2005).

1.5 Research focus

Knowledge utilisation in the legislative policy-making (to be more precise, the preparation of a legislative proposal), in which the Commission has a wide array of political powers, is a centre piece of this thesis. By political powers I mean leadership through proposals for policy and legislation (Hix, 2005: 27). The Commission uses scientific knowledge in the implementation stage as well. However, knowledge utilisation in this thesis is captured in the legislative policy-making stage, since important decisions (using knowledge) resulting in directives and regulations are taken in legislative policy-making. Furthermore, this stage of policy-making is relatively under-researched when compared with, for instance, the implementation stage.

Based on the information presented in the previous sections, it is clear that expert knowledge in EU policy-making is used. However, it seems surprising that the underlying mechanisms shaping the usage of scientific knowledge have remained under-researched. As a result, the phenomenon of scientific knowledge utilisation in the Commission committees is investigated. The complex policy-making process contains formal and informal rules which might promote or impede scientific knowledge utilisation.

The literature on knowledge utilisation in the EU context suggests that an organisation can use knowledge to enhance its outputs and increase a problem-solving capacity (technical-instrumental knowledge), to augment its legitimacy (legitimising knowledge), or to promote its preferences (substantiating knowledge) (Boswell, 2008; Radaelli, 2009; Schrefler, 2010). However, empirical research on why and under what conditions a certain type of knowledge utilisation is likely to be used is scarce and quite fragmented.

In this thesis I argue that the complex policy-making process contains formal and informal rules which might promote or impede scientific knowledge utilisation. Knowledge utilisation phenomenon cannot be investigated outside the internal policy-making arrangements (Gehring,

1999). Therefore, policy-making procedures (formal and informal), which are set when member states delegate political powers to the Commission, play an important role. Member states commonly agree what policy-making procedures should be applied in each policy area, policy-making stage, etc. They also decide what the role of the Commission should be, how much discretion the Commission should be provided with. However, the research investigating how these rules affect scientific knowledge utilisation practices is scarce. As a result, in this master thesis I want to research how scientific knowledge is used by the Commission and whether the techniques to constrain the discretion of the Commission shape the different usage of scientific knowledge.

Schrefler (2010) in her article made a link between the literature on knowledge utilisation and delegation theories by investigating independent regulatory agencies at the national level. The author suggests that delegation theories can help to explain how regulatory agencies use scientific knowledge to promote their preferences. However, various theoretical propositions derived from the literature on delegation lack empirical evidence testing whether these explanations are valid in the real life practices or not. Especially, this is the case in EU policy-making.

In general, there is a tendency in the literature on knowledge utilisation in the EU to concentrate on giving qualitative evidence that expert knowledge by the Commission is used to legitimise decisions or substantiate its preferences against other EU institutions and political actors (Radaelli, 2009; Boswell, 2008). However, these conclusions are based on single case studies and lack an empirical grounding and sound evidence. These studies show that even though the technical-instrumental usage of knowledge is considered to be one of the alternatives, it is usually neglected, since all scholars investigate legitimising and substantiating use of knowledge by the EU institutions.

Furthermore, there is a lack of empirical research defining what conditions lead to a certain type of knowledge utilisation without concentrating on one particular type of knowledge utilisation. Therefore, in line with Schrefler's proposed link between the literature on delegation and knowledge utilisation, I expand this link in explaining all types of knowledge utilisation in the EU context (not on European IRA). Based on Schrefler's proposed link, I argue that the literature on delegation may have an explanatory power in providing evidence why and under what conditions the different dimensions of knowledge utilisation are likely to be used in the EU context.

The main contribution of this master thesis is empirical research in which different hypotheses (delivered from the literature on delegation with the insight on knowledge utilisation) are tested in an attempt to identify which factors determine what type of knowledge utilisation is likely to be used in the different contexts (under the different delegation conditions) of policy-making within the EU. In addition, the comparisons among different types of knowledge utilisation and factors influencing them are made.

1.6 Relevance

1.6.1 Scientific relevance

The idea for this study originated from the need (1) to go beyond dichotomy between using and not using scientific knowledge in policy-making, (2) to fill the gap between theoretical debates and empirical evidence.

Firstly, in the literature on the use of scientific knowledge within the EU policy-making, one can notice the variety of rival explanations when and how scientific knowledge can be used. Some claim that scientific knowledge is used as a means of substantiating the policy preferences of actors (Boswell, 2008). In this case, knowledge is strategically used to give authority to a specific policy alternative. Others state that under certain conditions actors may be interested in achieving common goals in a most efficient way (Scharpf, 1988). In this case, collective-choices derive from discussions about the best way to achieve goals based on scientific evidence (i.e., technical-instrumental use of knowledge). I expect that all indicated types of knowledge utilisation are possible in the EU policy-making. However, what the conditions under which a certain type of knowledge is probable to occur are, are not that clear. In addition to this, at this point a comparative approach can be taken by asking which factors are relatively more important in one type of knowledge utilisation than in the others. The comparative study would contribute to scientific evidence creation in this field of studies.

Secondly, the empirical literature is far behind theoretical explanations and debates. The main puzzle here is untested theoretical explanations and unidentified causal relationships in the case of the EU policy-making. Therefore, this study contributes to the elimination of this gap. There are some academic articles which base their arguments on case studies where researchers choose one particular case and argue that, for instance, the strategic use of knowledge has been used in the EU policy-making. However, there are hardly any studies (to my knowledge) which search for causal relationship and empirically test the relative relevance of competing predictors on different types of knowledge utilisation in the European Commission by taking the comparative approach. As a result, the main contribution of this study is a better understanding of knowledge utilisation in the EU that I am going to study theoretically and empirically. In so doing, the advancement of collective discussions in scientific community between theories and data – scientific relevance – can be achieved (Lehnert, Miller & Wonka, 2007).

1.6.2 Societal relevance

Research investigating the phenomenon of knowledge utilisation within the EU, may be a significant contribution for the improvements of scientific knowledge utilisation by the European Commission. As it is clearly stated below, the problems impeding scientific knowledge utilisation at the institutional level exist:

"There are gaps in the scope of operational guidelines for the inclusion of scientific evidence in the legislative process, the effective use of scientific advisers, information quality, the interpretation of evidence and the reporting of results. And, finally, there is a lack of institutional mechanisms to

ensure the integrity, quality, and effective operation of the scientific advisory system" (Ballantine, 2005: 36).

In-depth analysis of the practices of scientific knowledge utilisation could contribute not only to the academic debates in the field of the EU policy-making, but also could suggest a solution how to improve scientific knowledge utilisation by the Commission. Based on the identification of main factors impeding technical-instrumental use of scientific knowledge suggestions to make improvements can be derived.

1.7 Thesis overview

This thesis unfolds as follows: Firstly, in order to place this study in the existing body of literature, the existing academic literature on knowledge utilisation, delegation theories and the link between them is discussed (chapter 2). Then, I introduce the main theoretical concepts upon which I build the theoretical framework and derive expectations (chapter 3). Subsequently, I present the empirical approach which is taken in order to test the hypotheses (chapter 4). Also, in chapter 4, I briefly introduce the data selection techniques. Finally, the thesis proceeds with the empirical data discussion and analysis (chapters 5 and 6).

2 Literature review and research question

In this chapter, the academic literature which is related to the research object is briefly introduced in order to lay the basis for the theoretical framework of this study. As the link between the literature on scientific knowledge utilisation and delegation literature has not already been explicitly discussed in the context of the EU, the review of the existing academic works is fragmented. Firstly, the mainstream explanations why the phenomenon of scientific knowledge utilisation exists in EU policy-making are presented. Secondly, the body of academic literature on scientific knowledge utilisation and its types is presented in detail. Thirdly, the body of literature discussing the factors shaping the different usage of scientific knowledge is briefly discussed. Finally, the academic literature which makes a link between scientific knowledge utilisation in policy-making and delegation theories is introduced. This chapter only presents the existing body of knowledge in the domain of this thesis, the main focus of this study is elaborated in the chapter of theoretical framework.

2.1 Reasons and explanations for using scientific knowledge in policy-making

For decades political scientists have been interested in the cognitive dimension of politics. The political role of knowledge has been investigated from various perspectives using different theoretical approaches. Different political scientists suggest different reasoning why scientific knowledge is used in public policy. It is important to note, that there are many other explanations concerning the use of expert knowledge in policy-making, however, only mainstream ones are briefly discussed in this section.

There are many arguments in the literature concerning the reasons of the use of scientific/expert knowledge in EU policy-making by non-majoritarian institutions (e.g., the Commission). Non-majoritarian institutions are defined as "those governmental entities that (a) possess and exercise some grant of specialised public authority, separate from that of other institutions, but (b) are neither directly elected by the people, nor directly managed by elected officials" (Thatcher & Sweet, 2002: 2). In this case, the Commission is considered to be a non-majoritarian institution on which this study focuses.

The normative explanation for delegation of political tasks to non-majoritarian institutions is that these institutions use scientifically based evidence, rather than political arguments in the policy-making processes (Hix, 2005). In this line of reasoning, non-majoritarian institutions use technical knowledge and expertise to make efficient policy outcomes and carry out certain tasks. In some particular cases (e.g., regulatory policies), non-majoritarian institutions may be assigned to form policies based sound evidence rather than based on competing preferences/ideologies/interests.

Another reasoning why scientific knowledge is used by the Commission so extensively is proposed by Haas (1992). According to Haas, due to the increasing uncertainty in today's international governance, policy-makers are encouraged to search for different sources of advice for decision-making. International coordination of common issues brings complexity which cannot be longer managed using traditional governance tools because there are more actors involved. In addition, the complexity of technical nature of arising issues is constantly increasing. This ever-widening range of complexity stimulates the use of scientific knowledge in the policy-making processes. As a result, as Haas puts it, non-majoritarian institutions (and the tools which they use to design policies – *knowledge*) become particularly important from the

moment when decision makers decide to delegate some responsibilities to them. However, it is still unclear what the contribution of scientific evidence to policy decisions are and what defines the extent of this contribution.

Furthermore, the functionalist approach to delegating tasks to non-majoritarian institutions could be presented as follows. One of the main responsibilities of the Commission is to propose and develop policies and legislations. Member states have delegated agenda setting authority to the Commission in many policy areas, although there are several policy areas where the Commission cannot exercise this authority (Pollack, 1997). Delegation of agenda setting authority to the Commission is very relevant to the Council of Ministers, since in this case the member states can expect "relatively unbiased and well-informed proposals […], which could otherwise have to rely on the rather unevenly distributed resources of the member states themselves" (Pollack, 1997: 106). Following Moravcsik's (1993) main line of reasoning, intergovernmental negotiations are led by economic and other national interests and the outcome of these negotiations are in favour of those countries which are most influential economically, politically, etc. Thus, according to intergovernmental scholars, delegation of the agenda-setting tasks to the supranational institution relatively diminishes the influence of various national interests and uneven influence of member states on policy outcome (Moravcsik, 1993).

2.2 Usage of scientific knowledge

Scientific/expert knowledge utilisation phenomenon is considered to be a relevant part of the whole policy-making mechanism in the EU. The scientists of EU studies (e.g., Haas, 1992) state that the development of European integration is predominantly grounded in the cooperation among technocrats, external expert knowledge providers and interest groups. According to Andersen and Burns (1996), three types of representation exist in the EU policy-making:

- National representation – national politicians represent EU citizens;
- Representation of interest groups – interest groups represent themselves and, in particular, their interests;
- Expert representation – as expert knowledge (scientific and non-scientific) is relevant in the EU policy-making, it is considered that the body of knowledge is represented by experts in the whole policy-making process (Andersen and Burns, 1996).

These three groups shape collective policy-making within the EU. As expert representation in the EU is considered to be an important feature of the whole European governance and policy-making, a solid body of literature discusses this phenomenon. The phenomenon of knowledge utilisation has been investigated from various angles in an attempt to answer such questions as: How is knowledge used in practice? What types of knowledge are common in the EU policy-policy making? (Boswell, 2008; Radaelli, 1995, 2009), Does knowledge promote learning in organisations (Radaelli, 2009) or policy change (Sabatier, 2007), etc.

First and foremost, it is important to note that Radaelli (1999) lays the basis for the academic debates of knowledge utilisation phenomenon within the EU by indicating that different modes of the politics of expertise in the EU cannot be bundled into the concept of technocracy. The author suggests that the use of knowledge does not refer to technocracy. According to Radaelli, the concept of technocracy is too narrow to encompass all possible

dimensions of knowledge utilization. For this reason, Radaelli proposes different circumstances when (and how) knowledge can be used. The author suggests a classification of politicisation and expertise of knowledge utilisation in the European policy-making process. Consequently, many other scholars make a distinction among the different scientific knowledge utilisation modes when they investigate this phenomenon in the EU or independent regulatory agencies (see Boswell, 2008; Schrefler, 2010). Certainly, the recent scholars use different knowledge utilisation classifications than Radaelli used two decades ago. However, the main idea is that the need to go beyond a plain concept of 'knowledge utilisation' was identified. Consequently, this study relies on the already distinguished types of scientific knowledge utilisation in the EU policy-making, rather than count on the simplified dichotomy of 'use' and 'non-use' of scientific knowledge in EU policy-making.

As the literature on knowledge utilisation in the EU policy-making process reveals that there is no one way of using knowledge within the EU (Boswell 2008; Radaelli 1995, 2009), the concept of knowledge utilisation should be divided into several types/dimensions/modes. This division is based on different theoretical explanations why and under what conditions a particular type of knowledge can be used in policy-making. By breaking this colossal concept into several dimensions, empirical analyses and ***comparisons*** can be made. In this research, Boswell's (2008) and Schrefler's (2010) proposed classification and operationalisation (see chapter 4) of knowledge utilisation within the EU are used, since the distinction proposed by these authors can be applicable for the case of EU policy-making and proposes a systematic way to analyse this phenomenon not only theoretically, but empirically.

The recent literature on knowledge utilisation within the EU distinguishes two rationales behind EU policy-making (Boswell, 2008). Knowledge can be used (1) instrumentally meaning that in this case scientific arguments are highly influential for the policy which is being considered. (2) Knowledge also can be used to justify policy choices against the competing EU institutions (e.g., other DGs involved in policy formulation, the Council, the European Parliament) or other political/non-political actors (e.g., various stakeholders). Based on this, knowledge utilisation can be divided into: technical-instrumental, symbolic substantiating and symbolic legitimizing (Boswell, 2008). *Technical-instrumental knowledge is used when the agent seeks to enhance its outputs and solve existing problems, legitimizing knowledge when the agent seeks to augment its legitimacy and substantiating knowledge when the agent wants to promote its preferences* (Boswell, 2008; Schrefler, 2010). All of these three dimensions of knowledge are briefly introduced, since they constitute the categories of the dependent variables in this study.

Technical-instrumental knowledge is common when the agent has to use scientific knowledge in order to perform some tasks (Schrefler, 2010). Knowledge is used to make choices about the bests solutions to existing problems. The motivation to use technical-instrumental knowledge is based on the need to deliver outcomes, since actors have particular tasks which they receive from their principals. Knowledge is used to find solutions to existing problems, i.e. *problem-solving approach* (Boswell, 2008).

Legitimising knowledge in policy-making is used to gain legitimacy in respect to others (e.g., principles or other competing institutions), rather than to find a solution to a specific problem (Boswell, 2008). In this case, the agency just seeks to convince others (e.g., other DGs, other law-making bodies such as the Council or the EP) about its high competences to make highly specialised decisions (Radaelli, 1995). In this case, the agency uses scientific knowledge to *enhance its prestige, reputation, or power*.

The Commission is multi-lateral organisation consisting of DGs which have competing preferences (Hix, 2005). Insecurity derives from inter-departmental battles and tensions. The

other source of insecurity and need to legitimise ones decisions comes from the external environment. In the legislative bargaining processes, the Commission has to manoeuvre between the strong policy positions of the Council and the European Parliament. In a nutshell, in the recent literature on scientific knowledge utilisation, one part of academics state that the usage of expert knowledge meets accountability and legitimacy demands in EU policy-making, rather than problem-solving demands (e.g., Majone, 1996; Boswell, 2008).

Agents adopt ***substantiating use of knowledge*** in order to justify and support the preferred policy solution against other competing actors acting in the same field (e.g., other stakeholders which have influence on the outcome of policy) (Boswell 2008; Sabatier, 2007; Haas, 2004). In this case, the agent will promote those policy outcomes which advocate its preferred approach. Some authors (e.g., Radaelli, 2009) argue that knowledge in the EU is extensively used for legitimacy-seeking emulation purposes, rather than for increasing policy-making efficiency. Legitimacy of preferences of policy-makers highly depends on the *'appropriate'* use of technical rationale and expertise in the EU policy-making. The Commission has very fragile legitimacy basis and acts under unstable conditions (Boswell, 2008). As a result, the Commission constantly has to justify its activities and decisions.

The last two knowledge types (*legitimising and substantiating*) are related to preferences, however, different kind of preferences. In the case of *legitimising knowledge utilisation*, policy-makers use scientific knowledge to enhance its image against others and build reputation and confidence in what the Commission is doing (Boswell, 2008; Hix, 2005). In the case of *substantiating knowledge utilisation*, policy-makers have clear policy preferences, beliefs and values. Therefore, they use scientific knowledge to justify their choices which are predetermined before the consultation with scientific actors (Sabatier, 2007). Also, in this case, it might be that only those scientific bodies are consulted which agree with the preferences of policy-makers but alternative positions are neglected. In short, the existence of external (reputation, prestige, power) and internal (core beliefs, values, ideology) preferences stimulates the use of scientific knowledge for different purposes (*legitimising or substantiating*). Therefore, it is crucial to capture how (or whether) the Commission promotes its preferences in the legislative policy-making against other lawmakers and stakeholders in order to be able to distinguish between these two types of knowledge utilisation.

2.3 Factors shaping the different usage of scientific knowledge

As the different types/dimensions/modes of knowledge utilisation were identified in the academic literature, the need for search of factors which somehow affect knowledge utilisation practices has occurred. Those who go beyond the simple description of knowledge utilisation and try to identify factors which might have an influence on the different use of scientific knowledge in policy-making, state that there are certain conditions under which knowledge can be used differently. There is no common agreement among scholars what the determinants of the different usage of scientific knowledge exactly are. One of them states that scientific knowledge is probable to be used when uncertainty is high and public awareness about a certain issue is low (Radaelli, 1999). In addition, according to Radaelli, epistemic communities are probable to play an important role in policy-making when uncertainty and salience of specific policy is high. The use of scientific knowledge is politicised in cases where the issues are clear and visible to the public masses. Other authors (e.g., Schrefler, 2010) investigate knowledge utilisation phenomenon using different factors such as the level of conflict in policy-

making and the level of tractability of policy-making by the wider audience, e.g., EU citizens. Schrefler has proposed hypothesis that knowledge can be used efficiently if the level of tractability is high and the level of conflict is low.

In addition to already described probable predictors, Franchino discusses factors what might influence delegation conditions to the Commission. Franchino (2000a, b, c, 2001, 2004) *indirectly* investigates knowledge utilisation phenomenon and argues that whether expert knowledge is needed in a particular policy area (degree of expertise needed) are an important contextual condition defining how tasks to the Commission might be delegated. Alongside already mentioned variables Franchino (2004) adds new variable – *information intensity* (degree of expertise needed). This Franchino idea suggests that delegation conditions and the use of scientific knowledge can be related, since principals delegate tasks to the agents thinking about the degree of expertise needed.

As theoretical and empirical studies concerning the relationship between delegation conditions and scientific knowledge utilisation have never been done, it is unclear how these two are related. In search for explanations why and under what conditions the different types of knowledge are likely to be used, delegation literature comes into the picture. The delegation of policy-making tasks to a non-majoritarian institution is based on certain logic. It is argued that the delegation provides a means to improve the quality of policies (Haas, 1992), since the agents have to use a sound evidence in policy-making. Delegation is supposed to enable the use of scientific knowledge in the policy-making process. However, it is unclear how scientific knowledge is used in the policy and decision-making processes and what kind of mechanism and conditions promote/impede the influence of scientific knowledge.

2.4 Delegation and the usage of scientific knowledge

As it was mentioned in the previous sections, the main focus of this thesis is on legislative policy-making. Therefore, the body of literature explaining the delegation of legislation drafting tasks and legislative bargaining should be briefly introduced.

Recently, Schrefler (2010) suggested that a link between the literature of knowledge utilisation and the literature on delegation can be made. Theories of delegation focus on the reasons why principals delegate tasks to the agents (see Franchino, 2002; Theatcher & Sweet, 2002). These theories explain why aligned or conflicting preferences occur between agents and principals and suggest interesting insights on the operation of control mechanisms. Also, these theories look at the relationship of the 'agent' and 'principal' after powers were delegated to the Commission. Schrefler (2010) argues that literature of delegation can facilitate the explanations of the different use of scientific knowledge, since it provides the concept of fire-alarm mechanisms and its operation. Also, this literature allows investigating the direct link between delegation and knowledge utilisation from two perspectives: principal's and agent's. Principals delegate tasks to the agent and establish constraints how scientific knowledge can be used by the agent. Meanwhile, the agent uses scientific knowledge as a means to respond to the requirements and pressure of the principal.

Schrefler (2010) indicates that delegation theories are able to explain how agents use knowledge in order to substantiate their preferences (substantiating knowledge). She uses different theories (organisational theories) to explain other types of knowledge utilisation in independent regulatory agencies (IRA). Contrary to Schrefler, in this thesis I argue that reasons, conditions and other context factors defining why and how principals delegate tasks to the

Commission may have an explanatory power in determining what dimension of knowledge is probable to be used (not only substantiating knowledge, as Schrefler argues). In this thesis I exclusively concentrate on delegation reasons and conditions in explaining the use of scientific knowledge in the EU. The reasons why 'principals' give considerable authority to the Commission in some policies and what *official and unofficial restrictions* they impose on the agent are argued to have an explanatory power in defining the use of scientific knowledge within the EU.

In the literature on delegation, majority of scholars (e.g., Franchino) concentrate on the executive tasks of the Commission in the implementation stage with distinctive focus on comitology control mechanisms. However, in this thesis the main attempt is to investigate the Commission committees which have a particular importance in the policy drafting phase of policy-making process. This approach has been chosen mainly due to the reason that scientific knowledge utilisation in this phase is under-researched despite the fact that scientists are widely consulted at this stage of policy-making. It is not entirely clear how it is used and what factors can explain the different use of knowledge. There is a lack of theoretical and empirical study in this field investigating how scientific knowledge is used/constrained/promoted in the very beginning of the policy-making cycle.

The main research question of this study reads as follows:

Do different delegation reasons and conditions lead to different usage of scientific knowledge in EU legislative policy-making?

Sub-questions of scientific knowledge utilisation in the legislative policy-making:

1. *Does the long-term policy perspective (credibility logic of delegation) promote technical-instrumental knowledge utilisation?*
2. *Does involvement of third parties (i.e., indirect control) promote the usage of substantiating knowledge?*
3. *Does involvement of conflicting institutions (i.e., indirect control) in the policy drafting phase lead to the usage of legitimising knowledge?*

All these sub-questions are explained in more detail in the following chapter by introducing the main expectations of the study and reasoning behind these expectations rooted in academic literature.

3 Theoretical framework

The main task in this section is to present how the research question and sub-questions are approached theoretically. After the general literature review on this topic, the choices of approaching the puzzles of this research are specified and explained in detail. To be more precise, the main aim of this chapter is to identify the link between two separate literature streams: knowledge utilisation in EU legislative policy-making and various approaches explaining why and under what conditions political tasks are delegated to the Commission. As the literature of scientific knowledge utilisation have already been presented in the chapter of literature review, in this chapter the different usage of scientific knowledge is explain using the literature on delegation, which helps to generate a series of hypotheses about the conditions under which the different types of scientific knowledge utilisation are applied in legislative policy-making. Finally, the conceptual model of this research is introduced.

3.1 Usage of scientific knowledge

The use of scientific knowledge can help to formulate policies. Haas (1992) indicates that the role of scientific knowledge will depend on the reasons for which the advice of scientists is pursued in the policy formation stage. In some cases, policy-makers might search for a scientific evidence to justify their preferences and select only that information which suits their preferences. On the other hand, the scenario in which scientists' arguments convince policy-makers to change their previous intentions may also be possible. All this shows that there are several ways for policy-makers to exploit scientific knowledge. This leads to the contradicting hypotheses and the distinction of several types of knowledge utilisation. The types of scientific knowledge utilisation, which are used in this study, have already been introduced in the literature review chapter.

It is not clear what shapes how knowledge is used in making decisions about policy alternatives. Some authors claim that political and systematic constraints, within which the actors providing scientific knowledge operate, can impede or promote scientific knowledge utilisation in policy-making (Haas, 1992; Hix, 2007). In other words, the extent of knowledge utilisation is influenced by the structural settings. The scene in which the actors involved in policy-making act is defined by the rules which are set when the principal (the Council) delegates tasks to the agent (the Commission). As the principals seek to remain influential in the policy-making, they set the rules and control mechanisms which define conditions under which scientific knowledge can be used.

Official institutional rules must also play an important role in defining how scientific knowledge is being used (Haas, 1992: 11). In some institutional settings, political arguments may have relatively more influence on the policy choices than scientific arguments and *vice versa*. Nonetheless, even though scientific use of knowledge is declared to be used extensively, it is not entirely clear what influences and defines the different usage of scientific knowledge. Therefore, in this thesis, the factors that might have an influence on scientific knowledge utilisation are identified looking at the delegation literature. In this study, the main argument is that delegation conditions and reasons may create obstacles or triggers for scientific knowledge utilisation in defining policy choices.

3.2 Delegation: theories and explanations

Theoretical framework of this study stems from the delegation literature based on two strands: (1) Principal-Agent models and (2) the criticism on the Principal-Agent models proposed by Majone (2001). In this section, a brief introduction of the main assumptions of the Principal-Agent theory (and its criticisms) is made. Then the main reasoning how the reasons and conditions of delegation (e.g., control mechanisms) are related to the different usage of scientific knowledge is presented.

According to Kassin and Menon, "[a]gency relationships are created when one party, the principal, enters into a contractual agreement with a second party, the agent, and delegates to the latter responsibility for carrying out a function or set of tasks on the principal's behalf" (2003: 122). In this study the principals are the member states of the EU because they hold an initial authority to delegate certain political and administrative powers to the Commission (the agent). Member states carefully choose which powers, tasks and policy areas should be delegated to the Commission and how to constrain the discretion of the Commission so that it does not deviate from the ideal policy positions of the member states (Hix, 2005). That is to say, member states depending on various factors define delegation conditions and the level of discretion that the Commission can exercise in policy-making.

Principal-Agent model aims at explaining the relationship between the principals and the agents. The underlying assumptions of the Principal-Agent model are that (1) the principals and the agents have different goals and (2) that the agents have more information about a certain issue than their principals, which causes information asymmetry between these two groups of actors (Waterman & Meier, 1998: 173). This implies that delegation can be risky to the principles because the agents might have a tendency to shirk if they have different goals and are in a better situation information wise. This is the reason why the principals want to control agent's actions by establishing various control mechanisms.

At this point it is important to present what kind of control mechanisms exist in the context of the EU which aim at controlling the Commission. Established control mechanisms help the principals to (1) *monitor* the actions of principals and to (2) *sanction* their agents with positive or negative sanctions (Pollack, 1997: 110-111). In the mainstream literature on delegation, two main control mechanisms are distinguished: *'police-patrol oversight'* and *'fire-alarm oversight'*.

Police-patrol oversight can be defined as an active control of the actions of agents in order to detect deviation from the original goals and preferences of principals (Pollack, 1997: 111). For instance, the agent can be actively monitored by the principals using such means as public hearings, the examination of reports, field observations. Although this control mechanism is quite effective and prevents the principals from agency loss, it requires a very high cost of the principal. Therefore, despite of the fact of being effective control mechanism, police-patrol oversight is quite problematic to apply. Comitology committees and its procedures are considered to be an example of this control mechanism. However, as this exceeds the focus of this study, it is not be further explained and used in this study.

Another more common control mechanism is fire-alarm oversight. As Pollack puts it, this control mechanism "requires less direct centralized involvement by the principals, who instead rely on third parties (citizens, organized interest groups) to monitor agency activity and, if necessary, seek redress through appeal to the agent, to the principals, or through judicial review" (Pollack, 1997: 111). The main advantage of this mechanism is that it externalises all

monitoring expenses to third parties, however, the principals cannot monitor the actions of agents so closely as, for instance, with the police-patrol oversight.

In addition to this, institutional checks are also possible in the EU settings. These include "institutional rules governing who may propose an initiative; the institutional rules governing voting; the institutional rules governing amendments" (Pollack, 1997: 121).

As fire-alarm oversight and institutional checks are highly practiced in the agenda-setting and legislative bargaining stages of policy-making, they are discussed in more depth when introducing the relationship between the conditions of delegation and the usage of scientific knowledge.

However, before engaging in the theoretical explanations how various control mechanism shape the usage of scientific knowledge, some criticism related to the Principal-Agent theory and its assumptions have to be presented. Some scientists (e.g., Majone, 2001) argue that the Principal-Agent theory is not able to explain the relation between the principal and the agent by relying on its assumptions. Majone (2001) states that it is more important to scrutinise why there is delegation in the first place rather than focus on control mechanisms established to eliminate the problems related to information asymmetry and diverse goals. This Majone's criticism is taken into account in this study when explaining the different usage of scientific knowledge.

The further sections of this chapter proceed as follows: as it seems more logical to start with the logics of delegation by explaining the reasons for delegating some tasks to the Commission (Majone's approach), firstly, the criticism of the Principal-Agent theory is discussed and hypotheses are be derived accordingly. Then, the researcher comes back to the initial principal agent arguments focusing on control mechanisms and their influence on the usage of scientific knowledge in order to generate a series of hypotheses.

To summarise, in this thesis several factors derived from the literature on delegation are expected to have an influence on the different usage of scientific knowledge. These factors are:

- Logic of delegation.
- Control mechanisms:
    - Institutional control mechanisms: policy-making procedures;
    - Indirect control mechanism (fire-alarm control): (a) composition of an expert group (b) distribution of preferences.

In the following sections of this chapter, factors which are expected to have an influence on the scientific knowledge utilisation patterns are discussed in detail. In addition, hypotheses are derived and explained in depth.

3.2.1 Two logics of delegation

A brief discussion about the delegation in turn begs the question: *why do member states decide to delegate some tasks/policy areas to the Commission?* According to Majone, member states express their commitment to the European integration process by delegating the powers to initiate some policies independently to the Commission.

Majone argues that there are two different logics for delegation: (1) to reduce decision making costs and (2) to enhance the credibility of policy-commitment (fiduciary relations). As these two logics of delegation in this research are expected to have an explanatory power in explaining how scientific knowledge is used in the EU, they are discussed in detail.

Credibility of policy commitment

In this logic of delegation, member states try to solve 'prisoner's dilemma' and provide the Commission with the powers to act as an independent actor (Majone, 2001). However, this independency can vary depending on seriousness of the credibility problem. According to this logic, principals are not interested in minimising differences between their and agent's positions, since doing this would impede the usefulness of delegation. The agent has to be independent and to have a different position than principals. In addition, principals want to delegate tasks to the independent agent who has pro-integration preferences so that stronger commitment to policy would be established. According to Majone, this logic of delegation is common in long-run policies. The main aim of delegating powers to the Commission is to go beyond the short-term preferences and attempt to assure consistency. Time inconsistency problem can be solved by delegating tasks to the body which has different preferences than principals (long-run vs. short-run preferences). As Majone claims, the main aim of this logic of delegation is "[t]o enhance the credibility of long term commitments or to set up mechanisms for completing incomplete contractual arrangements" (2001: 119). The examples of this logic of delegation can be in the fields such as single market, it also might be applicable in some economic and social policy areas or other regulatory policy areas because countries are willing to create common ling-run policies, which means that they will play this 'game' more than once.

Efficiency in policy-making

Member states delegate some powers to the Commission because they want to reduce their workload and promote efficiency of policy-making. According to Majone (2001), this type of delegation is common in the cases where the preferences of principals and agents are aligned, since principals are concerned that agent's decisions and actions can deviate from theirs. Therefore, to avoid a bureaucratic drift, principals create various control mechanisms to make sure that the agent does not deviate too much from the original ideas and eliminate non-compliance problem. In addition, the policy areas which fall under efficiency logic are oriented to short run negotiations, since member states are interested in short term goals but not in a long-run integration.

Based on these two logics Franchino (2002) develops arguments and tests hypotheses of how different logics of delegation influence further policy-making processes within the EU. In this thesis, these two logics of delegation and the reasoning behind them are integrated in the explanations how a particular logic of delegation leads to a certain type of knowledge utilisation. Franchino argues that depending on a policy area and a case, the Commission can act as a trustee (credibility logic) or an agent (efficiency logic). As a result, the Commission operates under different degrees of discretion. However, in his empirical research Franchino (2002) concludes that the Commission acting as a trustee does not necessary have more discretion than acting as an agent. Therefore, these two factors (two logics of delegation) are considered as the separate predictors defining which type of knowledge is probable to be used. As a result, I

expect that the logic of delegation have a significant influence on how scientific knowledge is used by the Commission.

At this stage the first hypothesis can be derived. If member states delegate tasks to the Commission in order to achieve credibility in policy-making, the Commission is supposed to use knowledge to develop long term goals. In order to plan in advance, the Commission should rely on scientific expertise to assess all risks and take the 'best solutions' (technical-instrumental scientific knowledge utilisation). In other words, there is a need to deliver outcomes, since in this case the Commission has particular tasks which are received from the member states. In this case, the Commission is in charge of the process of reputation building, thus, there should be the visible outcomes and solutions to an existing problem. In order to achieve the visible results, scientifically based evidence should lead to the 'best solution'. Even though each member state has its own policy preferences, they all are interested in 'playing' the game more than once. On the other hand, the scenario of legitimising knowledge utilisation in the long run policies is also possible, since the Commission might want to build its reputation, to increase powers, to prove its competences.

Meanwhile, if member states delegate tasks to the Commission based on efficiency logic (orientation to short term goals), it is very probable that substantiating knowledge will be used. In this situation, each actor seeks to gain as much as possible from the policy short run negotiation processes, which impedes technical-instrumental knowledge utilisation and creates the situation in which everyone wants to win as much as possible. Thus, in such situation it is very probable that the Commission will use knowledge to substantiate its preferences.

Hypothesis 1: The Commission is likely to use technical-instrumental or legitimising knowledge when member states expect the Commission to act according to the logic of credibility, substantiating knowledge – when member states expect the Commission to act according to the logic of efficiency.

3.2.2 Control mechanisms

In this section the control mechanisms which are expected to shape the usage of scientific knowledge are discussed.

Institutional control mechanisms

The Commission has the supranational authority to formal agenda setting (Pollack, 1997). However, member state principals aim at controlling this autonomy by establishing some policy-making procedures (e.g. QVM, unanimity). Formal agenda setting powers of the Commission depend on the institutional rules governing voting and amendments (QMV or unanimity) and the distribution of actor preferences.

According to Pollack, the Commission has the most discretion when "the voting rule is some form of majority vote and where the agenda setter's proposal is difficult to amend - in other words, where it is easier to adopt the agenda setter's proposal than to amend it" (1997:122). Within the EU, three different procedures can be applied – *consultation, cooperation, and co-decision*. These three procedures consist of different voting and amendments combinations. In the consultation procedure, the role of the Commission's agenda setting powers is exclusive. However, amendments or adoption of legislation can be reached only with unanimous consensus among the member states. In the cooperation procedure, the

voting rule is QMV and amendments can be made only by unanimity, which makes amendments to the Commission's proposal quit difficult to make, meaning that the Commission has much discretion. In the co-decision procedure, the role of the European Parliament becomes more important, since similar agenda setting powers are provided to the Commission and the European Parliament. However, in the final reading when 'conciliation committee' are being arranged, the Commission is removed from being an intermediator between the Parliament and the Council. Therefore, under the co-decision procedure, although QMV voting rule and unanimity for amendments is applied here, the Commission loses an exclusive agenda setter power.

In short, the Council (member states), firstly, defines under which conditions it delegates the political powers to the Commission and then establishes policy and decision making rules (Franchino, 2000c). In other words, the Council defines the degree of discretion the Commission can employ in policy-making. I expect that the degree of discretion has explanatory power in defining how knowledge is used by the Commission. Less discretion leads the Commission to manoeuvring and searching for the ways and various arguments (not necessary scientific) to come up with a solution. Also, restrictions may lead to the disturbances of the technical-instrumental use of knowledge. In other words, in order to compensate the lack of discretion the Commission searches for the ways to reimburse it through the substantiating or legitimising knowledge utilisation. The hypothesis in line of this reasoning would be: *The Commission is likely to use legitimising or substantiating knowledge when it has less discretion, technical-instrumental – when it has more discretion.* However, this hypothesis cannot be tested with the empirical data of this study. After the Lisbon Treaty many policy areas were moved from the coordination and consultation decision making procedures to co-decision, meaning that case do not vary after these changes. That is to say, the Lisbon Treaty has introduced the changes which provide a wide array of policy areas with the same levels of discretion in the policy formulation/design stage. Due to this, the above mentioned hypothesis is not approached in this study.

Indirect control mechanism (fire-alarm control)

In this section, two examples of the fire-alarm oversight are discussed: (1) Influence of third groups (stakeholders)/ composition of expert group and (2) Distribution of preferences.

(1) Influence of third groups (stakeholders)/ composition of expert group

In this section, the various informal constraints/control mechanisms, which can be at present in the legislative policy-making, are introduced. Control mechanisms in the legislative policy-making are not as clearly identifiable as, for instance, in the implementation stage (i.e., comitology control). Nonetheless, some control mechanisms exist in the legislative proposal drafting phase as well. Member state principals do not set the conditions under which the Commission may collect information and they do not carry out any checks how the Commission use knowledge mainly due to the reason that this would be quite expensive (Majone, 2001). However, the Commission has a duty of cooperation with national, public and private groups' representatives (third parties), which may act as monitoring bodies of the Commission's actions.

Third parties (e.g., citizens, organised interest groups, national administrations) monitor the activities of the agent and are able to complain and inform the member state principals about the violations (Majone, 2001). This control mechanism is called a fire-alarm oversight. For instance, there are various organised third parties which monitor the Commissions actions by representing national, private, public or other interests in the policy drafting stage.

The Commission's definition of expert/scientific knowledge is broad, since the Commission uses various knowledge sources. Expert committees consist of experts representing the Member States, representatives from private and public interest groups, and independent exerts (Morten, 2007). In the register of Commission expert groups and similar entities[1] such member types of expert groups are distinguished:

- Individual expert appointed in his/her personal capacity
- Individual expert appointed as representative of an interest
- Organisation
- National administrations

According to Pollack (1997), various groups that provide expert advice wear a 'double hat', since the Commission expects: (1) to receive an expert/scientific advice and (2) to gain political support and legitimise its decisions. That is to say, one of the main tasks of the Commission in drafting a new proposal is not only to collect a wide range of information and design a new proposal, but also the Commission has to take into account various opinions of representatives from the scientific communities, private and public interest groups. As Morten (2007) suggests, the inclusion of various stakeholders is necessary, if the Commission wants to receive political support in the further policy-making stages. In addition, various stakeholders are more than willing to volunteer and suggest their knowledge and expertise in exchange of being heard and considered at the very beginning of a new policy formulation stage. However, if various stakeholders are involved in the preparation of a legislative proposal, new issues arise to the scientific knowledge utilisation. Various stakeholders (especially, private interest groups) have their own interests and preferences. Therefore, they put much attempt to push their preferences by giving their arguments which not always are based on a purely scientific reasoning and argumentation.

At this point, the proposition that these third parties might have an influence on scientific knowledge utilisation can be made. The more private and public interest groups there are, the more it is probable that substantiating use of knowledge will be employed by the Commission because various groups have different preferences, which are not always based on the scientific arguments, which put the Commission in a complex situation The Commission has to take into account various positions and manoeuvre between these positions in order to reach a common agreement. Therefore, it might be that in such situations the manipulative arguments overreaching scientific ones become important. Thus, knowledge is very probable to be used to substantiate ones preferences.

[1] http://ec.europa.eu/transparency/regexpert/search.cfm?page=search&resetValues=1

Hypothesis 2a: The Commission is likely to use scientific knowledge for substantiating purposes when the composition of an expert group is mixed, technical-instrumental – when an expert group consists only of academics and researchers.

(2) Distribution of preferences (influence of other institutions: DGs)

The principals can control the agents by delegating the task to draft a proposal not to one agent but to several. This is also an example of a fire-alarm control mechanism, since agents involved in the process of legislative proposal drafting monitor each other's actions.

The legislative outcome can be influenced not only by the institutional rules governing voting and amendments, but also by the distribution of actors' preferences (Pollock, 1997). Each of the EU institutions has its own preferences and an ideal policy position concerning a particular policy area (Hix, 2005). The Commission in consultation with external stakeholders define its ideal position and write it down in a proposal. However, in some cases the Commission does not have a common position because it might be so that two different DGs are involved in the process of proposal drafting. Both of these institutions are supposed to come up with a common position.

If only one DG is involved in the preparation of a legislative proposal, then the DG has much more room to manoeuvre in drafting a proposal than in the cases in which two or more DGs are involved. However, if the distribution of preferences is very diverse, the DGs involved in the legislative proposal drafting have to compete with each other and find the reasonable arguments in favour of their positions. Thus, in this study, it is important to capture the distribution of preferences among the institutions involved in the legislative proposal drafting (DGs).

If the preferences of the DGs are homogeneous (or only one DG is responsible for the process of legislative proposal drafting), the DG is 'allowed' to use expert knowledge to come up with the most efficient solution from the *status quo* situation (technical-instrumental knowledge). If the preferences of agenda setters are heterogeneous (many DGs with contradicting positions are involved), they have to manoeuvre among these preferences either (1) convincing other institutions that they have expertise and can come up with the 'best' solution using scientific evidence and that everybody has to trust their competences (***legitimising knowledge***) or (2) pretending to use knowledge in order to substantiate their preferences (***substantiating knowledge***) (Boswell, 2008).

Hypothesis 2b: The Commission is likely to use legitimising or substantiating knowledge when the preferences of actors in legislative policy-making are heterogeneous (several contradicting DGs involved), technical-instrumental – when the preferences of actors in legislative policy-making are homogeneous (one DG involved).

In a nutshell, I argue that that the reasons why tasks are delegated and the conditions imposed on the Commission in delegating tasks may have an explanatory power in explaining when a certain type of knowledge is used. The use of scientific knowledge (and a type of knowledge utilisation) depends on the logic of delegation, the degree of discretion, the level of conflict. The conceptual model of this study can be seen below:

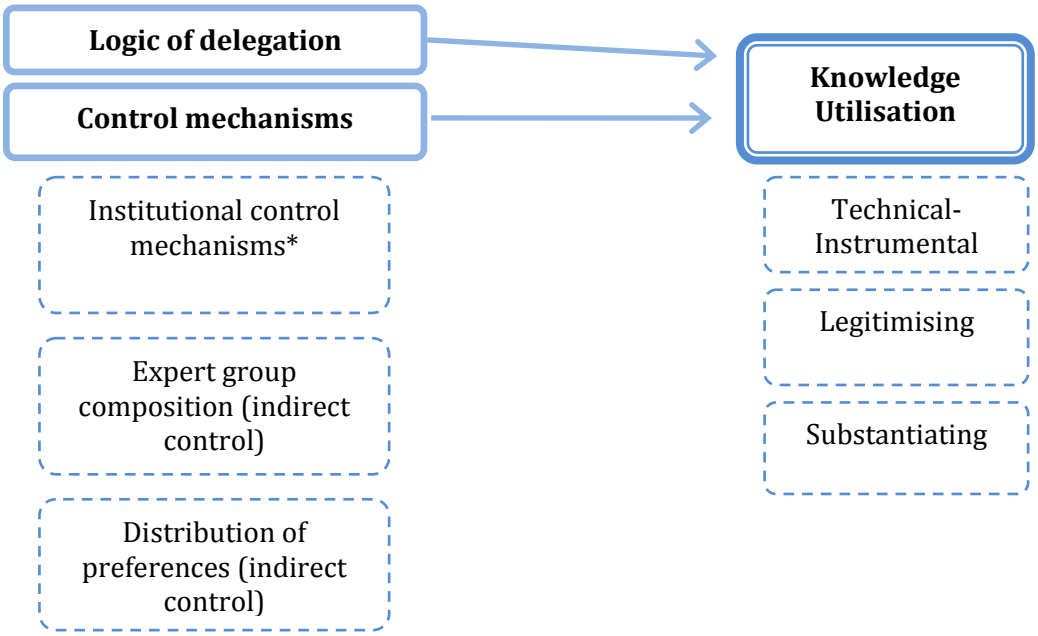

Exhibit 2. Conceptual Framework
*is not tested in this study

This research attempts to capture the causal relationship between specific policy conditions and delegation nuances and tries to identify which of these are relatively more important in a particular type of knowledge utilisation.

I expect that *conditions under which the member states delegate executive powers shapes what type of knowledge is used in the European legislative policy-making process.*

All hypotheses are summarised in the table below. The table reviews the underlining conditions which shape the different usage of scientific knowledge. For example, based on the information provided in the table below, one can see that depending on the different logic of delegation, scientific knowledge can be used differently by the Commission. To be more precise, technical-instrumental or/and legitimising knowledge utilisation is/ (are) likely to be applied when the member states expect the Commission to engage in the long-run policy commitments. Contrariwise, substantiating knowledge utilisation is probable to occur in the cases where the member states expect the Commission to engage in the long-run policy commitments. The same logic of reading the table below applies to the further rows in which other factors (composition of an expert group, distribution of preferences) and their influence on scientific knowledge utilisation are presented.

Table 1. Hypotheses of Scientific Knowledge Utilisation by the Commission

Scientific knowledge utilisation / Factors/Conditions	TECHNICAL-INSTRUMENTAL KNOWLEDGE	LEGITIMISING KNOWLEDGE	SUBSTANTIATING KNOWLEDGE
Logic of delegation	(1) The member states expect the Commission to engage in long-run policy commitment;	(1) The member states expect the Commission to engage in long-run policy commitment;	(1) The member states expect the Commission to engage in short-run policy commitment;
Composition of an expert group (external stakeholders)	(2a) Only scientists are involved in the Commission expert group	(2a) Not relevant	(2a) Various third groups are involved in the Commission expert group
Distribution of preferences (DGs involved)	(2b) Preferences of actors in legislative policy-making are homogeneous: one DG involved.	(2b) Preferences of actors in legislative policy-making are heterogeneous: several DGs involved.	(2b) Preferences of actors in legislative policy-making are heterogeneous: several contradicting DGs involved, ceteris paribus.

Source: Created by the author

4 Research design and methods

In the research design section, the details and reasoning for the specific choices how the research question and sub-questions are turned into an empirical project are presented. Before presenting the research design, the main logic is briefly introduced in order to set the scene for the empirical part of this research.

In this research both quantitative and qualitative research approaches are used. The whole research starts with a quantitative (large-N) estimation how scientific knowledge is used in various policy areas. But in-depth analysis (small-N) is narrowed down to several case studies in order to see whether there is a causal relationship between the factors (independent variables) and knowledge utilisation (dependent variable). All these choices of approaching the research question are discussed in the following sections.

The data about the usage of scientific knowledge were obtained using multiple sources of evidence (questionnaire and interviews). There are two reasons for doing this: (1) as there is little empirical research measuring how scientific knowledge is used, the value of the created measurement is not clear. Therefore, in order to be able to judge which type of scientific knowledge is used, both sources of evidence are needed. In this way, the data obtained in the semi-structured interviews supplement the data obtained in the survey research. In addition to this, (2) as there is not any complete data base containing the legislations in which scientific knowledge was used (the register of Commission expert group provides not complete list of expert groups), it would be too brave to make generalisations based on quantitative findings (survey). Therefore, this study relies on generalisability based on the case studies, rather than statistic generalisability. The researcher aims at generalising the results to the broader theory or theoretical explanations. In order to increase external validity in this study, Yin's suggested specific logics for the case selection procedure (see chapter on Case selection) are applied. In this way the v*external validity* of this study is increased.

Two research methods are applied in this study: *the survey method* and *the comparative study method* (multiple-case study). These two methods have different objectives and contribute to this study differently.

The aim of the survey method is to gain general understanding how scientific knowledge is used in the process of legislative proposal drafting. As there is no empirical data of how scientific knowledge is used by the Commission, the survey revealing some general trends would be useful for the comprehensive picture of this phenomenon. However, mainly the survey method plays only a supplementary role in testing the hypotheses of this study. It serves as a bridge to the further qualitative analysis, rather than a tool to test the hypotheses.

When the general trends of scientific knowledge utilisation are identify, this study proceeds with a multiple case study analysis. Pairwise comparisons are carried out in order to test the hypotheses of this research. Data for the pairwise comparisons was collected using data collection techniques such as document analysis, semi-structured interviews and to some extent survey results. The methods, data collection techniques and objectives they serve in this study can be summarised in the table below.

Table 2. Methods, data collection thechneques and their objectives in the study

Method	Objective	Data collection technique
Survey method	1. Substantial purposes: to obtain information about the usage of scientific knowledge; 2. Complementary purposes: to obtain more information about potential cases and identify potential interviewees for the multiple-case study research.	Internet-based questionnaire
Comparative method	1. To obtain information about the independent variables; 2. To select cases after the identification of the key independent variables.	Primary document analysis
	1. To obtain substantial information how scientific knowledge was used in the selected cases; 2. To conduct pairwise comparisons; 3. To answer the research question and test the hypotheses of this study.	Semi-structured interviews

In this study multiple sources of evidence (in other words, data triangulation) are used to measure the dependent and independent variables and to investigate the relationship among these variables (Yin, 2009). According to Yin, the major advantage of case study approach is possibility to use several sources to collect rich data needed for the study. Data triangulation increases validity and credibility of the research, since multiple ways to capture the same phenomenon is being applied.

Furthermore, mixed methods (methodological triangulation) design is used, since the complicated research question can be addressed in this way (Yin, 2009). In addition, using this approach allows collecting a wider and richer array of data which cannot be done using a single method. Mixed methods are used to capture how scientific knowledge is being used in various settings. As a result, different data collection techniques and mixed methods are applied to be able to identify what kind of knowledge was used.

The empirical data was collected from three main sources:

- Questionnaires
- Documents
- Semi-structured interviews

Data collection techniques and all the choices mentioned above are explained in the following sections.

4.1 Survey method

The survey method is used to identify the general picture of scientific knowledge utilisation and provides substantial information which advances the further research stages. In other words, data obtained using the survey method will provide the research with information how scientific knowledge is used and in this way will advance the qualitative part of this study, which aim at analysing selected cases in more detail.

Furthermore, there are also practical reasons for conducting the survey research prior to the comparative study. As there is no database which could be used as a starting point of this study, the researcher has to collect some basic information which is needed in order to be able to proceed with the further analysis. For instance, data obtained in the survey research helps to identify needed documents for the primary document analysis. In addition to this, this stage of the empirical part also establishes contacts with the potential interviewees for the semi-structured interviews.

The following sections explain how variables are operationalized and which techniques are used to measure the operationalized concepts.

4.1.1 Specification of variables and operationalisation: the usage of scientific knowledge

As Miller (2007) emphasises, the introduction of measurement defines the link between theory and empirical research. Therefore, the section on measurement plays a crucial role in presenting the peculiarities of the whole research design. In what the measurement is concerned, such concepts as validity and reliability have to be discussed. Miller (2007) states that the best way to avoid validity issues are to rely on theoretically well-grounded operationalisation. Due to this reason, the operationalisation of the concepts in this research is rooted in theoretical background as close as possible.

The distinction of three types of knowledge utilisation will help (at least to some extent) to capture what conditions lead to a certain use of scientific knowledge. It is worth to note that one of the most problematic issues concerning the measurement of various types of knowledge utilisation is to operationalise these concepts and find proper indicators.

In order to capture the different types of knowledge utilisation and enhance internal validity, qualitative and quantitative data collection techniques are used. The indicators suitable for the questionnaire and to some extent to semi-structured interviews have to be employed as well. As Miller (2007) indicates multiple operationalisations is a highly recommended practice when measuring complicated social phenomenon.

For this purpose, some of the Schrefler's (2010) identified indicators are used as guidelines to formulate questions (for questionnaires and semi-structured interviews) to scientists who were involved in the legislative proposal drafting stage. However, these indicators are slightly changed and adjusted to the EU legislative policy making, since Schrefler's summarised indicators were used to investigate independent regulatory agencies at national level. Nonetheless, these indicators can be applicable for the EU cases, since, as Pollack (1997) states, in some cases the Commission can be considered as a regulatory bureaucracy.

In addition, the non-use of knowledge in legislative policy-making is not used in this research as a separate type of knowledge utilisation, since the central research unit is scientists providing advice to the Commission, which means that knowledge was used, however, it is unclear how it was used.

Table 3. The Types of Scientific Knowledge Utilisation and Indicators[2]

Type	Indicators (statements in the questionnaire)
Technical-instrumental	1. Scientific knowledge was used to broaden the understanding of existing issues 2. Scientific knowledge was transferred into the legislative proposal: 3. Scientific knowledge was used to solve the existing problems: 4. Scientific knowledge was relevant for the formulation of legislative proposal:
Legitimising	1. Scientific knowledge was used to legitimise the decisions by proving the competences of the DG to the other European institutions (other DGs, the Council, or the European Parliament) 2. Scientific knowledge was used to enhance prestige and reputation of the DG, rather than to create the legislative proposal 3. The presence of scientists and their scientific knowledge was used as a tool to increase DG's powers and influence against other actors (other DGs, the Council, or the European Parliament) 4. I have noticed that scientific knowledge was used to respond to external pressure rather than to prepare the legislative proposal
Substantiating	1. Scientific knowledge was used to justify the preferred and predetermined policy choices of the DG in charge of the legislative proposal: 2. I have noticed that the DG had its own position and searched for the scientific arguments in favour of its position 3. Other experts' advice was prioritized against mine mainly because their position was closer to the DG's position 4. The Commission had a clear vision on what the new policy/legislation should look like and the presence of scientists did not change this vision
Non-use	The non-use of scientific knowledge is not applicable in this study because only those cases in which scientific knowledge was declared to be used are selected.

Created by the author based on Schrefler (2010)

4.1.2 Data collection technique: questionnaire

In this research, an internet-based questionnaire is used to conduct an expert survey. As a database of scientists providing scientific advice for the Commission in the legislative drafting stage exist (the register of Commission expert groups and similar entities), an internet-based survey can be conducted in order to get the information related to scientists' opinions of how their knowledge was used in the legislation drafting stage[3]. The questionnaire (see annex 1) was

[2] Indicators of scientific knowledge utilisation was created by the author based in the literature on scientific knowledge utilisation. Some adjustments were made in Schrefler's proposed table based on Boswell's sugestions. So, the table is not the same as in the article written by Schrefler (2010).

[3] Possible risks and solutions: Data from the Commission's expert group register does not provide contact information of scientists involved in advice groups. However, full name, surname, field, academic status etc. are indicated in the register, which means that the database with the contact information can be created using internet search tools. In many cases contact information can be easily found, since scientists have public home pages in which their contact information is indicated.

Another is risk is that the database with the list of scientists is not complete. It's written that „The register is being reconstructed and does not include all Commission expert groups and other similar entities for the time being". Therefore, only those expert groups which are available for the public use will be inclused in the research.

sent by e-mail to the members of the expert groups who are considered to be scientific knowledge providers.

Scientific knowledge providers in this research are considered to be academics (starting from Ph.D. candidates and going further), since, as it was indicated earlier, the Commission uses many sources of advice, however, not all of them are considered to be scientific in this study. Nonetheless, the distinction between scientific and non-scientific knowledge is relevant in this research.

The use of this data source allows obtaining an understanding on how scientific knowledge is used in the legislative policy-making. Scientific knowledge providers are chosen to be the main evaluators/opinion providers of how their knowledge was used due to several reasons. Firstly, scientists are external actors who should not be interested in hiding how their knowledge was treated and to what extent it was influential for a final legislation. Therefore, external scientists are considered to be the providers of more reliable information about knowledge utilisation than the permanent stuff of the Commission. Secondly, as the Commission does not organise any evaluation feedback sessions on what scientists think of their contribution to the final legislation, although scientists might be personally interested and willing to express their opinions. However, on the other hand, a self-selection problem may occur in this context (De Vaus, 2002), since it might be that only those scientists who are extremely dissatisfied or extremely satisfied with the conditions of how their scientific knowledge and expert advice were treated agreed to fill in the questionnaire. Third, even though the Commission's permanent stuff would be considered as a reliable source of information about the use of scientific knowledge, there are other reasons which encourage taking a decision to exclude them from the survey. The Commission is an interesting research object, as a consequence, it is often 'flooded' with hundreds of questionnaires, which means that a response rate can be extremely low. This is a very dangerous threat, since the response rate of internet based surveys usually is quite low itself (10-20 %).

Furthermore, the flaws of the survey method using the internet-based questionnaires to obtain information have to be taken into account. Alongside already mentioned flaws (self-selection and low response rate), this method of data collection is blamed to be limited in terms of richness and deepness of collected information (van der Velde, 2007). Questionnaires provide a researcher only with limited information, which is gained using predetermined answer choices. Respondents are able to select only those answers which are provided by researchers. In addition, in order to obtain a higher response rate, the questionnaire neither can be long, nor it can consist of the difficult questions. In order to minimise the drawback of this method, in-depth interviews were organised to obtain a deeper grip of the knowledge utilisation phenomenon within the EU.

Information collected using the questionnaire by means of the email was placed in the database and was analysed using statistical software (SPSS) for quantitative data analysis.

4.2 Comparative method

In this master thesis, the derived hypotheses are empirically tested in order to assess the ability of several factors to influence the dependent variable (types of knowledge utilisation). In order to answer the research question/sub-questions and empirically examine which of the independent variables are able to explain a certain type of knowledge utilisation better than the others, a small-N research design is used. In addition, as this research aims at testing which

factors can define which type of knowledge is used, the logic of factor-centric research design is followed in this study. In factor-centric research, researcher aims at explaining causal links between dependent variables and the set of independent variables rather than explaining the phenomenon itself as fully as possible (outcome-centric) (Lehnert, 2007). As factor-centric research design suggests the means to answer the research questions of this research, it is applied in this research (for more information see the chapter on *Case selection*).

The comparative case study method is used in this study because this approach suggests the logic and tools to answer the research question. The comparative method can be defined as:

"[…] the method of testing hypothesized empirical relationships among variables on the basis of the same logic that guides the statistical method, but in which the cases are selected in such a way as to maximize the variance of the independent variables and to minimize variance of the control variables" (Lijphart, 1975: 164).

The method is used in this research due to several reasons. Firstly, as Pierre indicates: "[…] the comparative approach offers excellent possibilities to systematically test hypotheses about causal relationships between different variables" (2005: 447), which is at a vital importance in this research. Secondly, Lijphart discusses the comparative method in relation to other existing methods: "The statistical method can be applied to many cases, the comparative method to relatively few (but at least two) cases, and the case study method to one case"(1971: 691). As it would be difficult to rely on statistical method in this research (because statistical methods provide a means to measure relationships between variables, however, this relationship does not imply causality (Tabachnick & Fidell, 2007)), the comparative method is applied to compare different cases and to identify causal relationships. However, the researcher has to be familiar with the flaws and possible pitfalls of this approach. And one of these dangers is a proper case selection (see chapter 4.2.3).

4.2.1 Logic of comparative study research design

In this section, the internal logic of research design is presented. Firstly, the reasons for choosing an in-depth analysis in which a small-N study is applied to answer the research question are briefly discussed. Secondly, the issues and possible solutions related to validity and reliability of this research are briefly discussed. All of these points enhance the main logic of the initial research design used in this master thesis.

Why small-n research design

There are several reasons why a small-N research design[4] has been chosen in this setting of research. Firstly and most importantly, such research design has been chosen due to methodological objectives to get a grasp of causal relationships (Leuffen, 2007: 148). As the research question suggests an engagement in an attempt to search for the causal relationships

[4] Even though both quantitative and qualitative research techneques are applied in this research, a small-N research design is considered to be underlying because the research question and sub-questions will be answered relying on the qualitative data and analysis. While the quantitative research aproach (large-N) is only suplementary in this research and aims only at disclosing the general treands of the phenomenon of scientific knolwedge utilisation by the European Commission.

between knowledge utilisation and conditions of delegation, a small-N research design allows the identification of the main tendencies which exist in practice. In order to be able to make concluding claims about the causality, techniques allowing the identification of the causality are required. However, as such kind of relationship has never been attempted to identify in previous studies, there is no prior scientific knowledge whether factors/some of the factors can be considered as the causes leading to the different usage of knowledge or not. Even though the regression analysis would be enough to answer to the research question, the statistical methods with the large-N research design cannot be applied alone here, since as Tabachnick & Fidel indicate: "Regression analyses reveal relationships among variables but do not imply that the relationship is causal. Demonstration of causality is a logical and experimental, rather than statistical, problem" (2007: 122). The causal relationship has not been attempted to be uncovered in previous research. As a result, an in-depth analysis with a careful case selection and control of certain variables is applied in this researcher in order to attempt to define whether there is a causal relationship or not. If a causal relationship is identified, the future research will be able to engage in the large-N research design with the extensive use of statistical means to test the influence of competing variables on scientific knowledge utilisation. However, at this point, the first step – identification of causal relationships – has to be made by conducting an in-depth and small-N research.

In addition, the phenomenon of knowledge utilisation in the legislative policy making is extremely difficult to capture, since the legislative policy-making within the EU is not that transparent to reveal all needed information which is necessary for this research. Particularly, a challenging task is to find ways how to figure out that knowledge has not been used instrumentally (as it is supposed to be used), but to legitimise or substantiate policy choices. In case of the legitimising or substantiating use of knowledge, policy-makers will put much attempt to hide traceable evidence proving the existence of this phenomenon. For this reason, a triangulation method including primary document analysis, questionnaires and semi-structured interviews are used to attempt to identify how knowledge is being used. This suggests that doing a large-n study would be very challenging ambition and would require much time, work force and financial resources, which are unthinkable in this master thesis project.

4.2.2 Specification of variables and operationalisation: independent variables

As the identification of the independent variables are crucial in order to select proper cases, the specification and operationalisation of these variables are discussed before presenting the criteria for case selection.

For the operationalisation of the independent variables, indicators proposed by Franchino (2002), Majone (2001) and Pollack (1997) are used to measure the concepts empirically. The table below in a constructive way summarises what indicators are used to measure the independent variables of this study.

Table 4. Independent Variables and Preliminary Indicators

Independent variables	Indicators
1. Logic of delegation: Efficiency Credibility	Logic of delegation: • Efficiency: short-run policy commitment which according to Majone (2001) is most common in the expenditure policies, citizenship freedom and security policies, foreign policies. However, exceptions are possible, therefore, the researcher needs to consult documents in order to be able to make a judgment whether the case has a long-run policy orientation or short-run; • Credibility: long-run policy commitment (more common in the market integration, regulatory policies, economic and monetary union policies).
2. Indirect control (fire-alarm mechanisms)	1. Number of DGs involved (one DG vs. several DGs) 2. Compositions of an expert group (homogeneous vs. heterogeneous)

Source: Created by the author

Data collection technique: primary document analysis

The main information source for the independent variables is primary documents. In this research some of data will be collected from publicly available primary documents such as:

- Data from the Commission's expert group register[5]. The register is a publicly available data-base which contains a broad array of information about expert group characteristics (e.g., responsible DG, policy area, tasks, legal framework and a membership list). The register was created in order to make the use of expert knowledge within the policy-making process transparent. However, this register is not completed and contains only the most recent cases which might still be in the process of policy formulation or legislative proposal drafting.
- Documents (white papers[6], legislative texts, drafts, reports and analyses prepared by the expert groups).

These sources of data provide relevant information and supplement and augment the evidence collected from other sources, such as interviews and questionnaires.

However, these data sources provide only limited information. What is to say, information about delegation conditions (independent variables) can be found in the primary documents. However, information allowing the identification of types of knowledge utilisation cannot be retrieved from the official documents. Primary documents allow accessing only the official structures which exist in the EU policy-making. Consequently, other data collection sources are needed to identify knowledge utilisation types and increase *validity.*

The main possible downside of data collection from the documents is that information provided in the documents can be biased and lead a researcher to the biased conclusions (Yin,

[5] The register of Commission:
http://ec.europa.eu/transparency/regexpert/search.cfm?page=search&resetValues=1
[6] http://europa.eu/documentation/official-docs/white-papers/index_en.htm

2009). However, in this research, primary documents are the main source of information, which contain factual information about the legal policy-making procedures, actors involved, etc. and are considered to be reliable. In addition, variables which are going to be searched in the primary documents are clearly defined and just minimally require researcher's personal interpretations in order to identify the defined variables.

Data gained from primary documents were systematically collected and contained in a database created for this research, which later on was supplemented with the data gained from the other sources (e.g., interviews). This allows qualitative analysis in order to get insights into the relationships between the dependent and independent variables

4.2.3 Case selection

Leuffen (2007) indicates that the case selection in a small-N research design is a demanding task, since there is a particular danger to select biased cases. Selected cases highly influence the answers a researcher gets after analysing these cases. On the contrary to large-n studies, which attempt to gain generalizable results from the representative and random samples, small-N studies select cases based on an intentional logic (Lijphart, 1975; Leuffen, 2007). However, an intentional selection of cases, which is going to be studied in-depth, can lead to manipulation. For instance, cases which confirm a certain theory or propositions can be selected. To avoid these pitfalls, cases in this study are selected according to the logic of the most similar systems design (mssd).

There are two logics to select cases –Mill's method of differences and Mill's method of agreement. The method of difference refers to the mssd, the method of agreement – to the most different systems design (mdsd). The logic of the mssd was chosen in this study mainly because it is closer to the general research logic and provides suitable rationality to examine the theoretical propositions empirically. In addition to this, Haverland et al. (2011) notes that in application of the (comparative) case study, researchers have to be aware of validity problem which are particularly common in small-n studies. For this purpose, the author suggest to "follow a carefully constructed most similar systems design" (Haverland et al., 2011: 14) when it is applicable. As a result, the mssd logic is selected to increase validity.

According to Leuffen (2007), cases are usually selected after the formulation of the research question. However, in this study, in order to answer the research question, several steps have to be taken. As the research question cannot be easily approached, more sophisticated approaches have to be considered.

In this study, the case selection starts from the identification of a wide array of possible cases. The register of Commission expert groups and similar entities provides information which is needed to this research. In this register various expert groups which have provided the Commission with expertise are publicly available. The register is used to select all cases in which experts/scientists:

- Assisted the Commission in the preparation of legislation or in policy definition
- Were appointed in his/her personal capacity
- Hold an academic title (Ph. D., Dr., Prof., etc.).

Based on these criteria, 54 various expert groups (426 scientists/academics/researchers) were found in the register of Commission expert groups (see annex 3). The exploratory research

asking how scientific knowledge was used was sent to 426 scientists. This step is important for the further case selection due to several reasons:

- Without conducting an exploratory research it is difficult to identify the connection between an expert group and the process of legislative drafting legislation in which they were involved. In other words, it is not clear which expert group participated in the preparation of specific legislation. Therefore, exploratory research allows the identification of these links.
- The interviewees for in-depth interviews can be found by asking if they were willing to participate in the interview.

In short, before making the final case selection the link between an expert group and legislation have to be done, the possible interviewees have to be approached.

As soon as this is done, final cases concerning the independent factors influencing different knowledge utilisation types will be selected. Finally, the causal relationship effects will be investigated in cases which coincide with the mssd selection logic. The effect of the key independent variables on different outcomes (technical-instrumental, legitimising, substantiating knowledge utilisation) will be identified.

Selection on independent variables/factors

In this study, the research question on the effect of delegation conditions is factor-centric (Leuffen, 2007). The logic underlying the research question relates to Mill's method of difference. I argue that the logic of delegation/control mechanisms matter in defining how scientific knowledge in the legislative policy-making was used. In other words, these factors affect scientific knowledge utilisation. Therefore, cases are chosen according to the categories of the key causal variables (see Table 4).

Case selection is guided by theory because factors which are assumed to be the causes of different knowledge utilisation have been defined in the section introducing theoretical framework, as Haverland emphasises "[…] concrete selection criteria depend very much on existing theories and hypotheses" (2006: 143) .

In the method of difference, a researcher selects cases that differ on the key independent variables while other independent variables are as similar as possible (Leuffen, 2007; Lijphart, 1971, 1975; Frendreis, 1983) and " [i]f the dependent variable – *ceteris paribus* – varies in correspondence with the key independent variable, we detect a causal effect" (Leuffen, 2007: 149). In this logic, case selection is based on the key causal explanatory variable (in this case on logic of delegation, degree of discretion and level of conflict).

I construct a comparison following the mssd for each of the three which are discussed in the theoretical part (the logic of delegation, direct and indirect control mechanisms), meaning that three pairwise comparisons are analysed in the empirical part in total 6 cases.

Table 5. Categories of independent variables

The key independent variable (for hypothesis which is being tested)	**Other independent and control variables**
Logic of delegation (credibility vs. efficiency)	*all other factors being equal*
Composition of expert group (homogeneous vs. heterogeneous)	*all other factors being equal*
Distribution of preferences (DGs involved) (one DG vs. several DGs)	*all other factors being equal*

Source: Created by the author

In short, Lijphart summarises that "[…] cases that are similar in a large number of important characteristics, but dissimilar with regard to the variables between which a relationship is hypothesized" (1971:159) have to be selected. For instance, in this research, 'Hypothesis 1' states that logic of delegation (efficiency, credibility) defines what type of knowledge is used. Therefore, the selection of cases, with a purpose to detect/not detect the causal effect of 'logic of delegation' variable, is based on two cases (one where efficiency logic is applied, other – credibility logic) while other independent in both cases are kept as similar as possible (ceteris paribus). See exhibit 3 below which indicates the initial logic of case selection in this research.

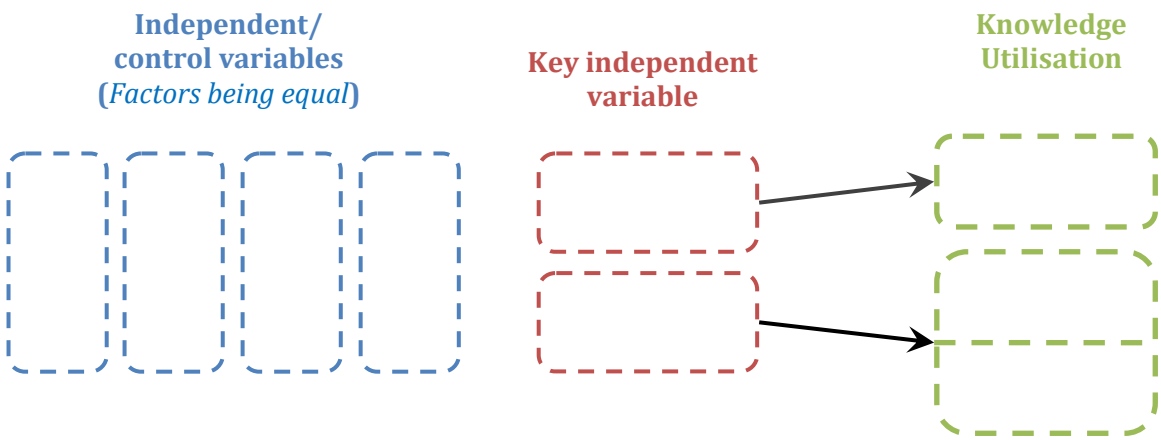

Exhibit 3. Cases Selection Model.
Source: Created by the author

Practical limitations in case selection

Case selection in this study is based on the criteria mentioned in the previous sections. However, some practical issues may cause some discrepancies:

- Cases can be selected only from those cases in which at least one respondent filled in the questionnaire on behalf of all expert group.
- Cases can be selected only from those cases in which at least one respondent expressed his/her willingness to give an interview because for an in-depth analysis more elaborated information is needed.

- Cases can be selected only from those in which respondents who expressed their willingness to give an interview are available. As exploratory research was conducted with scientists/academics/researchers from all EU member states, it would be difficult to arrange interviews in different countries (e.g., Italy, Spain, Denmark, Sweden, Germany, Lithuania, etc.). Therefore, only those who visited Brussels during the fieldwork framework could be interviewed.

Even though cases are selected based on the criteria mentioned in the previous sections, the practical issues mentioned in this section plays an important role in limiting an array of possible choices. However, as long as available cases meet the selection criteria led by the mssd logic, these practical issues does not lead to the biased selection.

These cases were selected for an in-depth analysis of this study when all selection criteria were taken into account:

Table 6. 1st group

Cases / Variables	1a Case	1b Case
Logic of delegation	***Efficiency***	***Credibility***
Composition of expert group	Homogeneous	Homogeneous
Distribution of preferences	One leading DG	One leading DG
Type of scientific knowledge utilisation (*Instrumental, substantiating, legitimising*)	**?**	**?**

It is important to note, that at this stage the dependent variable (how scientific knowledge was used) is unknown.

Table 7. 2nd group

Cases / Variables	2a Case	2b Case
Logic of delegation	Credibility	Credibility
Composition of expert group	***Heterogeneous***	***Homogeneous***
Distribution of preferences	One leading DG	One leading DG
Type of scientific knowledge utilisation (*Instrumental, substantiating, legitimising*)	?	?

Table 8. 3rd group

Cases / Variables	3a Case	3b Case
Logic of delegation	Credibility	Credibility
Composition of expert group	Homogeneous	Homogeneous
Distribution of preferences	***Several contradicting and competing DGs involved***	***One leading DG***
Type of scientific knowledge utilisation (*Instrumental, substantiating, legitimising*)	**?**	**?**

4.2.4 Pairwise comparisons

As soon as the exact cases meeting the selection criteria were identified, interviews with the scientists representing scientific committees/expert groups of these cases were conducted. Data obtained in the interviews are used to identify what kind of scientific knowledge utilisation was used in the selected cases. When the types of scientific knowledge are identified, pairwise comparisons are made and hypotheses can be tested.

As it has already mentioned, the final data concerning the types of knowledge utilisation for pairwise comparisons are obtained by conducting the semi-structured interviews.

Data collection technique: semi-structured interviews

Interviews are considered to be the most important source of data collection in a case study research, since well-informed key actors can provide the researcher with relevant information about the topic which is investigated (Yin, 2009). Interviews in this research are conducted for two reasons: (1) to finalise the identification of scientific knowledge type, which was used in the legislative policy-making and to gain information about the scientific knowledge utilisation phenomenon from those who were directly involved in this process, (2) to gain qualitative evidence that the factor has/has not influence on how scientific knowledge is used. As general and broad information about the use of scientific knowledge utilisation is obtained from the survey, interviews are conducted with a purpose to supplement already gained information with qualitative information. The knowledge gaps about the investigated phenomenon are filled with the information provided during the semi-structured interviews.

In order to get a deeper grip of the phenomenon of knowledge utilisation in the legislative policy-making, interviews with experts who were the members of advisory expert groups were organised. Each interview was conducted using tailored questions which are in line with the hypotheses of this research. As the cases were selected using the most similar systems design techniques, the researcher had in mind what is the underlying factor (in a particular case) which is considered to be important for how scientific knowledge was used. Interviews supplement the quantitatively collected data with rich information, which can provide explanations for quantitative results.

In addition, as semi-structured questions are used, since one of the main goals of the study is comparability (see probing questions of the semi-structured interviews in Annex 2). More or less the same direction of the interview allows comparisons and systematic analysis of the obtained information.

Interviews were conducted at the very last stage of data collection and only in those cases which were selected according to the mssd logic.

Interviews were transcribed and analysed using the MAXQDA software which is suitable for a qualitative data analysis. Using MAXQDA allows analysing rich and dense qualitative data systematically. Systematic comparisons among different cases are feasible using this software.

5 Quantitative data analysis

In this chapter, the data obtained in the survey research (internet-based questionnaire) is briefly introduced. The main focus of this chapter is on the survey results summarising *how scientific knowledge was used by the Commission*. The discussion of the survey results serves an introductory function and leads to the core empirical part – *comparative case study analysis* – of this research.

5.1 Sample

The questionnaire was sent to 424 academics/scientists/researchers who have provided their scientific knowledge in various policy areas. In total, the questionnaire was sent to 54 different expert groups (scientific committees) which were involved in the preparation of legislative proposal (the list of all expert groups can be found in Annex 3).

Data collection started at the 15th of April, the last respondent filled in the questionnaire at the 24th of May. During this period three e-mail letters asking to fill in the questionnaire were sent to the respondents.

142 responses were received (response rate - 33.7%). However, not all of the received responses can be used, since 19 respondents did not finish filling in the questionnaire. Therefore, only 123 responses (response rate - 28.7%) are used for the quantitative analysis.

Commission's expert groups which provided expertise in the process of legislative proposal drafting is considered to be the analysis units (in other words 'cases') of this research. 39 (out of 54) expert groups/scientific committees (cases) are represented in the received responses. Cases for an in-depth analysis and hypotheses testing are selected from these 39 expert groups/scientific committees.

The names of the expert groups are not be revealed because, as it has been already mentioned, scientists currently are engaged in the preparation of a legislative proposal, due to this reason this information cannot be revealed. In addition, some expert groups/scientific committees consist only of one or several scientists, therefore, identification of the expert group would reveal the personality of the expert/scientist. As anonymity and confidential treatment of the provided information was promised to the respondents, the names of the expert groups are not be mentioned in this study.

28.45% (33) scientists who filled in the questionnaire expressed their willingness to share their experiences in an in-depth interview. However, interviews were organised only with those interviewees who meet the case selection criteria (see chapter 4.2.3).

5.2 Survey results

As there is not much empirical evidence on how scientific knowledge is used in the process of legislative proposal drafting within the EU, the empirical part of this thesis starts as a general overview of the answers provided by 123 scientists representing 39 expert groups, 13 DGs, and representatives from almost all Member States[7]. This section provides the reader with the wider

[7] More detailed sample discription can be found in Annex 5.

picture of the phenomenon of scientific knowledge utilisation within the EU before going to the in-depth comparative case study analysis.

5.2.1 Descriptive statistics

As this study is the first attempt to measure how scientific knowledge is used by the Commission, the responses to all statements are presented in order to familiarise the reader with the general tendencies. There were 12 statements asking to agree/disagree on different level (seven-point scale) on various situations measuring three types of scientific knowledge utilisation (*technical-instrumental, substantiating, legitimising*). However, instead of presenting how the respondents answered to the seven-point scale[8], the categories are collapsed (into agree, disagree and neither agree/nor disagree). That is to say, by recoding the seven-point scale into the three-point scale, it becomes clear whether the respondents tend to agree (on different levels) or tent to disagree (on different levels) to the proposed statements (De Vaus, 2002). This shows what the perceptions of the respondents are about their scientific knowledge utilisation.

The vast majority of the respondents tend to agree with all 4 statements measuring ***technical-instrumental knowledge utilisation*** (see table 9). The percentages of agreement with these statements are very high (82 – 97 per cent). This indicates that the vast majority agrees (on a different level) that their knowledge that their scientific advice was relevant to the legislative proposal the respondents were involved.

The agreement with the statements measuring ***substantiating knowledge utilisation*** is not as consistent as in the case of technical-instrumental knowledge utilisation. Respondents mostly agreed (70 per cent) with the statement that their scientific knowledge was used to justify the preferred and predetermined policy choices of the DG in charge of the legislative proposal. However, statements that *the DG had its own position and searched for the scientific arguments in favour of its position* **and** *the Commission had a clear vision on what the new policy/legislation should look like and the presence of scientists did not change this vision* received less agreement by those who filled in the questionnaire. Only 17 per cent of the respondents agree with the statement saying that other scientists' or other members' opinions were considered more than theirs.

The answers about ***legitimising knowledge utilisation*** are distributed similarly as the answers of substantiating knowledge utilisation: One of the statements receives more agreement than the others. The majority (66 per cent) of the respondents agrees that their scientific knowledge was used to legitimise the decisions by proving the competences of the DG to the other European institutions (other DGs, the Council, or the European Parliament). Less than half of the respondents tend to agree (43%) that *the presence of scientists and their scientific knowledge was used as a tool to increase DG's powers and influence against other actors*. However, more radical statements such as '*I have noticed that scientific knowledge was used to respond to external pressure rather than to prepare the legislative proposal*' received only minor agreement (17% agree vs. 56% disagree). In addition, the majority (64%) of the respondents disagree that their scientific knowledge was used to enhance prestige and reputation of the DG, rather than to create a legislative proposal.

[8] 7-point scale: *1 meaning that you* ***strongly agree****, 2 – moderately agree, 3 – slightly agree, 4 – neutral/neither agree nor disagree, 5 – slightly disagree, 6 – moderately disagree, 7 –* ***strongly disagree***

Table 9. Agreement on various types of scientific knowledge utilisation

Statement	Agree	Neither agree/nor disagree	Disagree
Technical-Instrumental knowledge utilisation			
Q1. Scientific knowledge was used to broaden the understanding of existing issues:	97%	0%	3%
Q6. Scientific knowledge was transferred into the legislative proposal:	82%	10%	8%
Q8. Scientific knowledge was used to solve existing problems:	87%	6%	7%
Q10. Scientific knowledge was relevant for the formulation of legislative proposal:	90%	7%	3%
Substantiating knowledge utilisation			
Q2. Scientific knowledge was used to justify the preferred and predetermined policy choices of the DG in charge of the legislative proposal:	70%	14%	16%
Q4. I have noticed that the DG had its own position and searched for the scientific arguments in favour of its position:	43%	26%	31%
Q7. Other experts' advice was prioritized against mine mainly because their position was closer to the DG's position:	17%	27%	56%
Q11. The Commission had a clear vision on what the new policy/legislation should look like and the presence of scientists did not change this vision:	34%	11%	55%
Legitimising knowledge utilisation			
Q3. Scientific knowledge was used to legitimise the decisions by proving the competences of the DG to the other European institutions (other DGs, the Council, or the European Parliament):	66%	19%	15%
Q5. Scientific knowledge was used to enhance prestige and reputation of the DG, rather than to create the legislative proposal:	18%	18%	64%
Q9. The presence of scientists and their scientific knowledge was used as a tool to increase DG's powers and influence against other actors (other DGs, the Council, or the European Parliament):	43%	34%	23%
Q12. I have noticed that scientific knowledge was used to respond to external pressure rather than to prepare the legislative proposal:	17%	27%	56%

5.2.2 Measurement of scientific knowledge utilisation

Reliability means that "[...] the same method is supposed to arrive at the same results for the same phenomenon" (Miller, 2007: 92). In order to test whether the used tool to measure three types of scientific knowledge utilisation, some techniques are applied.

The questionnaire contains 12 statements which measure three different knowledge utilisation types (4 statements for each knowledge utilisation type – see table 9). Firstly, the researcher has to make sure that all 12 statements can be included in the further analysis. For this purpose, Cronbach's alpha coefficient is computed in order to estimate the internal consistency among the statements measuring technical-instrumental, substantiating, legitimising knowledge utilisation (Tabachnick & Fidell, 2007; De Vaus, 2002). Cronbach's alpha coefficient provides researcher with the quantitative estimation of how a set of statements measuring the same phenomenon are related as a group. Cronbach's alpha basically measures the average inter-correlation among the statements.

If a 'high' Cronbach's alpha is obtained (the coefficient equal to .700 and higher are considered to be acceptable in social sciences), a researcher can make a conclusion that the tool is reliable. High correlation means that the group of statements is internally consistent, that is to say, measure the same phenomenon. For instance, if all 4 statements measuring technical-instrumental knowledge utilisation obtain .700 and higher Cronbach's alpha this indicates that all 4 statements are internally consistent and measure the occurrence of technical-instrumental knowledge rather than something else.

In order to estimate whether all statements measuring technical-instrumental / substantiating / legitimising knowledge utilisation are reliable and hold an internal consistency, reliability analysis using SPSS is conducted (see the results in annex 4).

The results show that Cronbach's alpha among the statements measuring ***technical-instrumental knowledge utilisation*** (q1, q6, q8, q10) is relatively high and acceptable (.760).

However, the Cronbach's alpha of 4 statements measuring ***substantiating knowledge utilisation*** (q2, q4, q7, q11) is not acceptable (.631). Due to this reason, one statement (q2), which correlated lowest with the other statements, was eliminated and Cronbach's alpha was computed again. After excluding this statement Cronbach's alpha increased to .700. Consequently, the only 3 statements (q4, q7, q11) measuring substantiating knowledge utilisation contain internal consistency.

The same can be concluded to the statements measuring ***legitimising knowledge utilisation*** (q3, q5, q9, q12), since the Cronbach's alpha is equal to .652. Statement q3 was taken out and the needed internal consistency was reach among the statements q5, q9 and q12 (Cronbach's alpha coefficient .717).

The relatively high Cronbach's alphas (after dropping of statements) suggest that the statements measuring technical-instrumental/substantiating/legitimising knowledge utilisation have a relatively high internal consistency, meaning that they are reliable.

The next step is to see whether the different types of knowledge utilisation are mutually exclusive. For this purpose a correlation among the indexes[9] of instrumental / substantiating / legitimising knowledge utilisation was computed. The results of non-parametric Spearman's rho

[9] The index for each type of knowledge utilisation was computed. Index indicates the mean of all 4 statements (3 statements for substantiating/legitimising knowledge utilisation). The higher the mean, the more respondents disagree with the statements measuring technical-instrumental/substantiating/legitimising knowledge utilisation.

correlation show that only instrumental knowledge utilisation is sufficiently distinct from the substantiating and legitimising knowledge utilisation types, since correlation coefficient between instrumental & substantiating (-.228*) and instrumental & legitimising (-.266**) are relatively low and negative. However, the correlation coefficient between the substantiating and legitimising knowledge utilisation types is relatively high (.629**). Such a high correlation coefficient indicates that these two types of knowledge utilisation appear together meaning it is difficult to make a clear cut distinction between these two types of knowledge utilisation. Only instrumental knowledge utilisation is 'exclusive' from substantiating and legitimising knowledge utilisation suggesting an idea that based on these results it would be easier to divide knowledge utilisation into two types: technical-instrumental and for other purposes than technical (legitimising, substantiating, etc.).

Furthermore, in order to see whether there are any cases in which only one type of scientific knowledge utilisation is present, the researcher looked how many per cents of the respondents agreed only with the statements measuring instrumental knowledge utilisation exclusively. Also, various combinations of different types of knowledge utilisation were looked up (see table 10). As the table below shows, there are not any respondents who agreed with the statements measuring instrumental knowledge utilisation and did not agree with any other statements (measuring substantiating and legitimising knowledge utilisation). 55 per cent of the respondents agree with at least one statement of instrumental and substantiating knowledge utilisation, 46 per cent agree with some of the statements measuring technical-instrumental and legitimising knowledge utilisation, etc.

These results suggest that the combination of the types of knowledge utilisation is quite frequent among the responses. None of the respondents exclusively agreed only with, for instance, the statements indicated that scientific knowledge was used for technical-instrumental purposes. Furthermore, even 36 per cent of the respondents agreed with at least one of the statements indicating all three types of scientific knowledge utilisation.

Table 10. The use of various combinations of scientific knowledge utilisation

Scientific knowledge utilisation	Percentage
Technical-Instrumental	0%
Technical-Instrumental and Substantiating	55%
Technical-Instrumental and Legitimising	46%
Technical-Instrumental, Substantiating and Legitimising	36%
Substantiating and Legitimising	36%

Only those statement were included which correspond with Cronbach's alpha coefficient requirements, meaning that q2 and q3 were excluded from the calculations made in this table.

This suggests an idea that even though the majority of the respondents agreed that their knowledge was used instrumentally, they also agreed with some statements measuring substantiating and legitimising knowledge utilisation. This leads to the conclusion that these three types of knowledge utilisation can appear together. Various elements of knowledge utilisation can be noticed in the proposal making phase.

In addition to this, instrumental knowledge utilisation seems to be dominant. One of the respondents in the open-ended questions indicated: "I could say: sometimes other factors play

rather important role, but not more important role (*than scientific knowledge*)" (5626067, DG AGRI).

These results make it particularly difficult to define what kind of scientific knowledge utilisation was used in a specific case or to define how scientific knowledge was used. For instance, how to interpret such cases in which the respondents agrees with 4 statements indicating technical-instrumental knowledge utilisation, 2 – substantiating and 2 – legitimising. For this reason, the analysis of this study proceeds with scrutinising particular cases and differences among these cases. For this purpose, in-depth interviews were conducted in several selected cases in order to clarify how scientific knowledge was used in the specific cases.

Survey results lay the basis for the further in-depth analysis. It is interesting to see whether the information obtained in the interviews conveys the same message. More nuanced information obtained in the interviews is introduced in the following chapters.

6 Qualitative data analysis

In this chapter, analysis of the collected qualitative data is presented. Firstly, background information about the conducted interviews is briefly described. Then the analysis of the selected cases within three different factor groups (logic of delegation/composition of expert group/DGs involved) is presented separately. In this section, the types of scientific knowledge are identified by providing the reader with the empirical evidence obtained from the conducted interviews.

6.1 Collected data

As soon as the list of available academics/scientists/researchers willing to give an interview was identified, the researcher selected cases which correspond to the main selection criteria (see chapter 4.2.3). Thirteen interviews were organised by sending e-mails to academics and asking whether they are visiting the Netherland or Belgium during the period from May 16th to July 9th. In most cases scientists had expert group/scientific committee meetings in Brussels, others were visiting universities or scientific institutes in Belgium and the Netherlands. Interviews with the scientists took place at various DGs, Universities and informal environment (e.g., cafes). Several interviews were organised via skype because the interviewees had no engagements in Brussels during the fieldwork period.

Even though the researcher conducted thirteen interviews, only five (six) [10] of them are used for the analysis. The reasons for excluding other interviews are:

- Some of the interviewees had more experience in providing their expertise on the national level. However, they have participated only in several Commission expert group meetings and were not able to elaborate on the topics relevant for this research.
- One interviewee was an expert who started working at the European Commission as a civil servant. However, as it was mentioned earlier, this thesis focuses on the external experts/scientists but not on experts working at the Commission.
- Some of the scientists concentrated on different topics which are not relevant to this study. For instance, the scientist from Turkey widely discussed international relations between Turkey and the EU. Also, some scientists concentrated on the content of their expertise, rather on how their scientific knowledge was used by the Commission.
- Some of the experts (even though they indicated in the questionnaire that they were involved in the preparation of policy formulation/legislative proposal drafting) had experience in providing their scientific knowledge in other policy-making stages or for other institutions (Parliament, Council).

Therefore, a deeper analysis proceeds only with those interviews which strictly correspond to the requirements and objectives of this study.

[10] For three different factor groups - logic of delegation, composition of expert group, DGs involved – six cases are needed. However, one case (control group) will be used in two pairwise comparisons.

Interviewees (whose interviews are included in the analysis stage of this research) represent five different nationalities. The respondents were from these countries: Germany, Belgium, Bulgaria, Greece, United Kingdom, and Sweden.

The length of the recorded interviews varied from 25 minutes to 1 hour and 28 minutes depending on the availability of the scientists (e.g., several scientists could devote only one hour for the interview, meaning that with all introductory parts about the research objectives only 30 minutes remained for answering the questions). Some of the interviewees took more time to elaborate on the questions; the others were 'straightforward' and gave their answers within a shorter time period.

As it is indicated in the table below, all cases are divided into three main sections which consist of two different cases: (1) 1a. DG AGRI vs. 1b. DG SANCO; (2) 2a. DG SANCO vs. 2b. DG EMPL; (3) 3a. DG RTD vs. 3b. DG SANCO.

All interviews were organised in the same way. That is to say, all interviewees received the list of the topics to be discussed during the interview (see the list of the topics/questions in Annex 2). All the interviewees could think about the questions in advance. However, during the interviews the researcher also had additional questions which were related to the effect of the factor which is relevant to the specific case. For example, the interviewee representing the case in which the composition of an expert group was mixed was asked whether the composition of the expert group promotes or impedes his/her contribution to the legislative proposal.

Some of the interviewees asked not to mention the exact policy area and expert group name because currently they are involved in the process of legislative proposal drafting and the disclosure of their answers could affect their work in the Commission. Therefore, only the name of the leading DG is revealed and the rest of the information is kept confidential (as it was promised to the interviewees).

Table 11. Information about the interviews

Interview	Date of interview	Case	Length	Place
Interview 1	18th of May	3a. DG RTD	30 min	Brussels
Interview 2	26th of May	1a. DG AGRI	34 min	Brussels
Interview 3	1st June	2a. DG SANCO	25 min	Skype interview
Interview 4	15th of June	1b., 3b. DG SANCO*	46 min	Brussels
Interview 5	20th of June	2b. DG EMPL	1h 28 min	Leuven

*is used twice as a control group

6.2 Multiple-case study analysis: Pairwise comparisons

The core research question *'Do different delegation reasons and conditions lead to different use of scientific knowledge in EU legislative policy-making?'* indicates that the researcher is interested in the effect of delegation conditions/reasons on scientific knowledge utilisation. As it was explained in the previous chapters, various delegation reasons/conditions (*factors*) are expected to have an effect on how scientific knowledge is used (see chapter 3). The effects of these different factors (corresponding with the different research sub-questions) are discussed in the following sections. In the following chapters, each of these sub-questions is answered by giving empirical evidence from the conducted interviews:

1. *Does the long-term policy perspective (credibility logic of delegation) promote technical-instrumental knowledge utilisation?*
2. *Does involvement of third parties promote the use of substantiating knowledge?*
3. *Does the high degree of conflict in the policy drafting phase explain the usage of legitimising knowledge utilisation?*

In a nutshell, the main idea of how the case analyses proceeds can be summarised as follows. In order to be able to prove that a certain factor (*reasons and conditions of delegation*) has a causal effect, other factors have to be controlled for.

As the independent variables (*factors*) of this study are already known and clear only dependent variables (*outcome*) have to be identified. That is to say, firstly, this data analysis stage proceeds as an attempt to identify what type of scientific knowledge utilisation (*outcome*) was used in a specific case. However, this is a particularly challenging task because the researcher has to assess (based on the information provided in the interviews) which type of knowledge utilisation was used. For this purpose, the researcher discusses why a certain and not the other type of knowledge utilisation was assigned to a specific case. To make this process transparent, the researcher gives empirical evidence (e.g., quotes from the transcribed interviews) why a certain decision about the type of scientific knowledge utilisation assigned to the given case was made.

As soon as a data-sheet is completed with all needed independent and dependent variables, conclusions about the effect of the different factors are drawn and interpreted in light of the information provided in the interviews.

In the following sections, three different factor groups - *logic of delegation, composition of an expert group, level of conflict (DGs involved)* – are discussed separately in order to identify how scientific knowledge is used in the selected cases. In the qualitative analysis, in order to give sufficient evidence for the judgments of the researcher about the usage of scientific knowledge, the researcher relies on the quotes retrieved from the transcribed interviews[11].

6.2.1 Scientific knowledge utilisation and the logic of delegation

As it was elaborated in the theoretical chapter, the researcher is interested in identifying whether the logic of delegation (*efficiency vs. credibility*) has an effect on how scientific knowledge is used by the Commission. The hypothesis – *the Commission is likely to use technical-instrumental knowledge when member states expect the Commission to act according to the logic of credibility, substantiating knowledge – when member states expect the Commission to act according to the logic* of *efficiency* – was derived. In order to be able to verify or falsify this hypothesis, firstly, the usage of scientific knowledge has to be identified in the cases in which the logic of delegation is different. Therefore, in the following sub-section two different cases are analysed in-depth in order to assess which type of knowledge utilisation was used.

Two cases were selected to test the hypothesis: 1a - DG AGRI represents the efficiency logic of delegation, 1b – DG SANCO – the credibility logic of delegation. A short explanation why 1a - DG AGRI is considered to be organised according to the efficiency logic and 1b – DG SANCO according to the credibility logic has to be made.

[11] In the quoted fragments ‚I‘ refers to the ideas expersed by the interviewee, ‚R‘ reffers to the text said by the researcher. Each fragment contains the time indications (e.g., 00:21:36) showing, which fragment is quoted from the whole recorded and transcribed interview.

The expert group dealing with 1a - DG AGRI is responsible for the policy formulation in agricultural policies. Agricultural policies belong to the category of expenditure policies. In expenditure policies (according to Majone (2001) and Franchino (2002)) the member states try to solve common problems efficiently and aim at stabilising, redistributing and allocating resources (Hix, 2005). In this policy areas in which the member states try to solve common problems efficiently can be considered to be organised according to efficiency logic. According to Franchino, "[t]he Council takes the most important measures [in the field of agricultural policies]. It sets the target prices for production, marketing and intervention and the threshold prices for each product; it establishes the main guidelines for subsidies and for import and export licences; and it determines the standard qualities, the main intervention centres and the frontier crossing points. The Commission is delegated all the derived and complementary measures to reduce the Council's workload" (2002: 685-686). This is a clear indication that the tasks to the Commission is delegated based on the logic of efficiency. In addition to this, the expert group of 1a - DG AGRI case is called 'expert group for technical advice on x', which indicates that experts have the task to suggest scientific advice to solve technical problems, rather than engage in long-term policy commitments.

On the contrary, the second case (1b – DG SANCO) was selected in the field of social policies in which the member states are willing to engage in the long-term negotiations with each other and, therefore, they act according to the logic of credibility. Furthermore, in this case, scientists are in charge of creating a common European social policy in which certain social issues and common solutions are discussed.

At this point, the analysis of how scientific knowledge is used in these two cases can be introduced. The analysis proceeds by investigating these cases separately and later on by discussing the effect of the logic of delegation on the usage of scientific knowledge.

Type of scientific knowledge utilisation: 1a - DG AGRI

The interviewee (doctor) representing case 1a DG ARGI is a member of the 'expert group for technical advice on x', meaning that he is involved in the expert group which has the precise tasks to provide an advice on how existing problems can be solved efficiently. According to the interviewee, scientists' positions are quite relevant and dominant in the case of 1a - DG AGRI. The interviewee states that independently and permanently working scientists have much influence on the legislative proposal because the Commission has to receive their approval before proceeding with the proposal to the further policy-making stages. In addition, the interviewee mentions that sometimes scientists' knowledge is used too directly without listening to the practitioners. All this implies that scientific knowledge is used instrumentally because scientists' advice is relevant to the formulation of the legislative proposal.

> *"I: The Commission has said: 'Okay, we have a certain topic which is complicated, maybe it would be good to have an expert knowledge. Let's invite 5 or 10 people and then we will talk and we will make a nice report'. And then we go to this meeting. But it is changed now, we have now a permanent expert group and this is another concept. So, it means that the experts are installed as an independent body and by the legislative act they are steadily working committee. They have their own mandates. The Commission can make the proposals but the expert groups have to accept that. And in this case expert group can be more independent because Commission cannot choose this expert group. Well, it's composed by the Commission but at least they are*

independent and they are continuously working. For example, we are working for three years now and this makes our expert group much more independent. 00:21:28

R: And does this mean that in this case your knowledge is used more? 00:21:36

I: (…). It's not absolutely clear how this works but I sometimes had a feeling that expert knowledge was used too directly, because sometimes that might be that it differs from practical knowledge. Theoretically, it can work but it is practical implementation. Therefore, I am sometimes wondering whether it is not too directed translated in the legislative proposals. 00:23:16" (1a – DG AGRI)

However, the interviewee admits that under certain circumstances alongside technical-instrumental knowledge utilisation, some elements of substantiating knowledge utilisation can coexist. The interviewee agrees that different scenarios of scientific knowledge utilisation are possible: knowledge can be used instrumentally, but also in some cases the Commission might feel an urge to draft a proposal quickly without listening what scientists have to say on a particular topic.

"I: Sometimes I recognise that my knowledge or my opinion based on my knowledge directly becomes a part of the regulation. Maybe it's sometimes just because our opinion was absolutely in line what the Commission wanted. I have been doing this work for 20 years and, as I have stated before, scientists can have a lot of influence. And in this policy there are many parts which were firstly formulated in my computer at home. So, we can see the other way round where we were abused, where there were the attempts to influence us from different sides and it happens and the experts were misused for political targets even by the Commission. The industry also puts a lot of pressure on this topic. And then we have to work on this topic because some ministry or important member state says: 'Okay, this has to be solved' and then the Commission feels the pressure and the Commission says: 'Okay, we have to do something. It should be quietly done. We want to organise quietly'. So, even this happens. 00:34:08-6" (1a – DG AGRI)

Another problem (many other scientists emphasised this problem as well) which makes it difficult to judge whether scientific or other arguments were used is that science is not neutral. In addition to this, there is much uncertainty and in some cases the lack of scientific evidence can be present. In such situations there is much room for the substantiating knowledge utilisation.

The quote cited below, shows that the Commission in some cases might want to defend its position and preferences by searching for approval from different sources of expertise. This is a clear example of substantiating knowledge utilisation.

"I: Because we always have this as science is something totally apolitical and only fact oriented. But that's not true, in fact. That's an illusion and we know that. Science is not as neutral as it looks like and the experts are not neutral as they look like. (…) In fact, it happens so that experts come to a certain conclusion and the Commission says: 'We don't like it. Could you explain this? Why you as experts made such a solution?' And then the political game starts. The Commission says: 'Okay. Maybe we have to accept the reports from the experts because they are independent'. But then they say: 'Maybe you from the private sector should look at the report are you satisfied with this because we think that it should be changed'. You can put some political pressure on it because I do not like this, but this happens in the reality that

the Commission takes an opposite decision then the experts proposed. But mainly the Commission like to try the same experts for the same political targets. The Commission try to give some certain directions. 00:11:05" (1a – DG AGRI)

Based on the information provided in this interview, one can conclude that both technical-instrumental and substantiating knowledge utilisation are present.

Type of scientific knowledge utilisation: 1b - DG SANCO

To begin with, the interviewed professor emphasised that very strict rules defining how scientists in this specific scientific committee should provide their scientific advice are applied. The whole process starts from public calls in which the Commission invites scientists in various fields to send their CVs. Then a careful selection of possible candidates proceeds. According to the professor, this selection procedure is very strict and does not seem to be biased. This indicates that the Commission, in order to enhance the output (formulate a good proposal) pays much attention to the selection of competent experts. What is more, selected scientists have to remain active in the field, they have to produce publications and attend international conferences related to health issues.

"R: I should show the people that I am working in the field, which means that I should have scientific publications. So, I should be ready to answer about my scientific expertise, which is very important. So twice a year, we send information about our scientific activity, not only about our relations grants to be independent but how we do our research. 00:31:56
So, we participate as experts, so this is a bit, how to say, new burden to me because as a scientist I have a specific list of conferences I would like to attend, but now I'm obliged to attend at least one or two conferences a year which are related to the health, even if my research at the moment, although it is because I am in Nano science right now, so it is all the related to human health, that's because the product because some of unknown things that's true, but I would never go to such kind of conference if it is just related to my research because I do not have time to think about human health as a scientists but now I should. So this opens another view, which is important... 00:33:15" (1b - DG SANCO)

Furthermore, another indication that in this specific case - 1b - DG SANCO - scientific knowledge is used instrumentally is the fact that the Commission is actively protective against various interests coming from the outside. The professor mentions that the one of the core goals of DG SANCO (in what this scientific committee is concerned) is to protect the committee from various industries and other stakeholders. This implies that in this case DG SANCO puts much effort to increase what in this study is called instrumental knowledge utilisation.

"I: Today I will sign again, every time I come here, sometimes twice a week, I sign the list of conflict of interest, meaning that the specific subject we are going to discuss will not be affected by some people who are around me, my son, my husband, my mother or I am not paid by a company which works in this field. 00:25:00-7 (…)

R: So, the Commission is very strict about scientists' independence. 00:25:40-5

I: It is absolutely strict about this, because they are very much afraid. 00:25:44-9

R: Because this area and every industry want to lobby. 00:25:51-2

I: Absolutely, so in effect that's all their industry would like to influence. So, when we are working on the specific subject we are secret. So, nobody knows what we are working on, what people." (1b - DG SANCO)

In addition, the professor reveals that even though the process of discussions within the scientific committee is hidden from the public, the end result (scientists' opinions) is publicly available. Each scientist in the committee writes down his/her individual position and clearly states what he agrees and disagrees with. This means that the end product is made available to the public and everyone can see what each scientist individually think about an issue. In this way, all contradicting positions are revealed and everybody can see not only the common position, but the positions of individual scientists as well. This implies that case 1b - DG SANCO is transparent in revealing even contradicting positions.

"R: When the thing is ready, it is on the internet. So, anybody could read my name, opinion, I have a minor opinion if I disagree with some decisions I have this right to be in minority there is nothing wrong with this. 00:26:23" (1b - DG SANCO)

The professor emphasises that arguments in the scientific committee should be purely scientific, meaning that if somebody wants to argue, she or he has to have official scientific evidence (reliable studies published in scientific journals). In addition, the Commission seeks to obtain 'unbiased' results from empirical researched and to receive sound scientific evidence. This again in this study is considered to be an indication of technical-instrumental use of scientific knowledge.

Fragment 1

"I: We have very strict rules. If you come to me and say I have a headache because, let's say, of this noise here. This is not enough. You should come here and say, I have signed list of 1000 people and this have been checked by medical doctors from this and this and that and that. And the research of this study has been published all the results should be published. We are not allowed to use private, not publicly checked claims. Even if I know that in the hospital, for instance, there is very good, for instance in X country, I have a very interesting point for a discussion. 00:28:41" (1b - DG SANCO)

Fragment 2

"I: We are not allowed to use results from our own labs. That's another thing, because the result is considered as biased. So, this slows down the process very much, because even if I know that tomorrow I will return in my university I have 3 labs at my own disposal I have very good colleagues, they will do it in 3 days. But there is no way. I am going to tell the secretary what is the idea behind my demand she will discuss that with the directorate, they will open a column on the internet for everybody in EU, every lab is but only my lab is not permitted to be part of this help call because I am there. This is not bad however, it's very slow. 00:30:40-3" (1b - DG SANCO)

The professor mentions another example which indicates that in this case purely scientific arguments are dominant. She emphasises that if somebody wants to change her opinion on a certain issue, they have to provide her with scientific evidence (empirical studies published in scientific journals). The last point and the situations described above clearly show that in this case scientific knowledge is used instrumentally.

> *"R: Yes, in the expert group, experts from other fields could affect me very strongly, for instance a medical doctor would give me a scientific example of something which I have never thought about this as a scientist coming from another field. So, in the sense here, the answer is 'yes'. However, in order to influence me, I need scientific evidence, time, of course, to read by myself, to consult with other people and it happened to me several times to change my initial opinion about the health effects of some, let's say, radioactivity, I'm not sensitive to radioactivity. 00:40:42-8"(1b - DG SANCO)*

In short, from what has stated above and said in the interview, it is quite clear that scientific knowledge in this case was used for technical-instrumental purposes.

6.2.2 Logic of delegation as an effect

At this stage all discussed information can be summarized in a data-sheet and the assessment of the effect of the logic of delegation on scientific knowledge utilisation can be made (see Table 12).

Table 12. 1st group of the cases

Cases / Variables	1a DG ARGI Expert group on technical advice on X	1b DG SANCO Scientific committee on X
Logic of delegation	***Efficiency***	***Credibility***
Composition of expert group	Homogeneous	Homogeneous
DGs involved	One leading DG	One leading DG
Type of scientific knowledge utilisation (*Instrumental, substantiating, legitimising*)	**Technical-instrumental** (in some cases substantiating*)	**Technical-instrumental**

*but not when the logic of efficiency is applied

Based on the analysis conducted above the question '*Does the long-term policy perspective (credibility logic of delegation) promote instrumental knowledge utilisation?*' cannot receive a straightforward answer. It would be difficult to draw a firm conclusion stating that: the logic of delegation cannot be considered as the factor defining the type of scientific knowledge utilisation. As it can be seen in the table, the outcome (scientific knowledge utilisation) is not completely the same when different factors (the logic of efficiency and the logic of efficiency) are present. As in the case of 1a – DG AGRI, some features of substantiating knowledge utilisation could be identified.

So, in order to find out whether the logic of delegation is the factor defining how scientific knowledge could be used, the researcher asked the interviewee to reflect on this and express his personal opinion on the effect of this factor on his contribution of scientific knowledge. The

interviewee stated that in the short-term perspective scientific knowledge might be more influential than in the long-time policy commitments.

> *"R: Have you noticed that your knowledge is used differently in different legislative proposals or different policies in relation to short and long term perspectives? I mean, if it's a short-term perspective, is it true that your knowledge then is used differently? 00:03:12-5*
>
> *I: There are differences (…). So, I think in a way in short-term there are mainly technical aspects, it's neither policy nor decision making processes. It's about materials or technical details about regulations. I think the impact is very high. I always say that the Commission is in a way - expertocracy. It's not about democracy; it's all about expert knowledge. And this is working in short-term aspects very well. So, the Commission has instruments available to really make value and it's appropriate that they use expert knowledge in Europe and make it available and fitting in their decisions. I think, there is a lot of impact. Openly speaking, I sometimes a little bit in the beginning of this expert group I was wandering a bit how directly knowledge is translated and why it comes from the experts to legislative proposals. Because normally there should be democratically-political discussions. However, it was not the case. So, therefore, I like to use the work expertocracy. So, this makes a little bit clear what's going on here. How to say, on more technical level. 00:04:36-9" (1a – DG AGRI)*

At this point, the conclusion that instrumental knowledge utilisation plays a prominent role in what the short-term policy perspective (*logic of efficiency*) is concerned can be drawn. Based on this, the logic behind delegating some political tasks to the Commission in order to (1) *reduce decision making costs* or (2) *enhance the credibility of policy-commitment* has no effect on how scientific knowledge is used. The conclusion can be drawn that the logic of delegation does not define that substantiating knowledge utilisation types are more likely to be used. On the contrary, as 1a DG ARGI revealed, in the short-term policies (the logic of efficiency), scientific knowledge can be even more relevant than in the long-term policies. This leads to the rejection of the first hypothesis of this study. There is no empirical evidence that technical-instrumental (or legitimising) knowledge utilisation is more likely when member states delegate tasks to the Commission in order to *reduce decision making costs (logic of efficiency).*

6.2.3 Scientific knowledge utilisation and the control mechanisms: expert group composition

In this section the effect of the composition of an expert group on scientific knowledge utilisation is discussed based on the empirically collected evidence. Here, the second research sub-questions '*Does an involvement of third parties promote the use of substantiating knowledge?*' is approached.

The researcher expects that *the Commission is likely to use substantiating knowledge when the composition of an expert group is mixed (e.g., representatives of industries and academics), while technical-instrumental is used – when an expert group consists only of academics and scientists*. In order to analyse this effect, two cases have been selected which differ in what the composition of an expert group is concerned but are similar in relation to other factors. All other factors (logic of delegation, DGs involved) were controlled and kept as similar as possible.

Case 2a - DG SANCO was selected to compare with the case 2b - DG EMPL:

- 2a - DG SANCO expert group is composed of non - profit sector; academia; research; science; civil service; public affairs; public relations, etc.
- 2b - DG EMPL expert group consists only of scientists.

Before starting the analysis on whether the mixed composition of an expert group leads to the usage of substantiating knowledge, the identification of the type of knowledge utilisation is made in both selected cases.

Type of scientific knowledge utilisation: 2a - DG SANCO

In this particular case a firm statement that one or another knowledge utilisation type was used exclusively cannot be made. Both instrumental and substantiating knowledge utilisation elements can be identified based on the information provided in the interview. That is to say, the interviewee indicated that his scientific advice (to some extent/in some cases) was taken into account. However, there were also certain factors which more or less constrained his full contribution to the legislative proposal.

It is clear (from the quote cited below) that the interviewee agrees that his advice is relevant to the legislative proposal. Nonetheless, he also mentions that in some cases the Commission is balancing between the suggestions proposed by scientists and non-scientists. The second half of the quote illustrates that not only instrumental, but also substantiating knowledge utilisation type is present. Also, the interviewee indicates that various scenarios are possible. When the Commission balances between the positions, it can decide to favour either scientific advice or non-scientific. The fact that the interviewee admits that this can happen, does not allow stating that in this case scientific knowledge was used purely instrumentally, since some elements of both types – *instrumental and substantiating* – can be recognised.

> *"R: Do you agree with the statement that your scientific advice was taken into account by the Commission in these meetings (expert meetings)? 00:03:46-3*
>
> *I: I would say so. I mean it depends on whom I am taking into account, because if you mean by that that they listen to me and they reflect upon it, I would say that I think the Commission really does that. (…) Usually, there is someone from the Commission following these meetings. We have a direct contact with the Commission staff in that work and that's why I can say that I think that they do listen that is absolutely opinion that I have and they do reflect upon it. That is to say that they don't completely accept or take on board in that piece of work these ideas, I mean, they are clearly balancing various arguments. And, you know, sometimes the balance is in favour of the suggestions that I and others (means scientists) have provided and sometimes not. 00:05:13-2" (2a - DG SANCO)*

Another example illustrating that different scenarios of scientific knowledge utilisation are possible can be seen in the quote below. The interviewee states that in some cases scientists' advice can be more influential than non-scientists', but again he emphasises that the opposite situation is also possible. The cases in which a clear pattern of prioritising among various positions suggest an idea that different positions (scientists vs. non-scientists) are favoured depending on the different circumstances and preferences of the Commission.

"I: In the area where I work, which is x, I would say that the industry has a lot of influence. But to say which one is the most influential it's a bit difficult to really to say… I think that there are some issues where the political side is very determined that they would do something. And then I think scientists have a big influence. Whereas other matters where political support is sometimes strong although the politicians may see the same sort arguments, I would say that the industry has much more of a say. 00:09:23-7" (2a - DG SANCO)

In addition, quite convincing argument that scientific knowledge has not been used as instrumentally as the interviewed scientist would expect is his satisfaction of how his advice was used:

"I: I am not satisfied, but that's maybe just because I am eager to have more of scientific cases in the EU legislation. I think that the Commission to a very good extent do listen to scientific advice and do take it into account. I must say that. I think that this is my reflection, to a good extent. But, you know, this is always good. I mean they could do it more. Absolutely. 00:22:19-6" (2a - DG SANCO)

To summarise, the clear statement that in this case scientific knowledge was used either instrumentally or for substantiating purposes cannot be made because the elements illustrating coexistence of both types can be identified. Therefore, the conclusion that instrumental-substantiating knowledge utilisation was applied in this cases can be drawn at this point.

Type of scientific knowledge utilisation: 2b - DG EMPL

Different from the case discussed above in which the composition of expert group is very mixed and involve various actors (e.g., civil servants from member states, various representatives from NGOs, industries), the composition of the expert group of case 2b - DG EMPL is purely scientific. That is to say, in this case only scientists are involved and this expert group is officially called 'scientific committee'.

Also, the scientific committee on x was established under the Commission's decision. This scientific committee is involved in the preparation of scientific recommendations for the Commission. These recommendations are used to support regulatory proposals. As the interviewee (professor) explained, draft recommendations from this scientific committee also undergo a stakeholder consultation so that interested parties could submit their recommendations as well.

The information stated above is relevant because one of the indicators of instrumental knowledge utilisation is the existence of clearly defined and legalised procedures on how scientific knowledge should be used (Boswell, 2008). Document analysis in this case clearly shows that there are clear and strict rules how scientists should provide their scientific advice and what their relationship with other actors (e.g., stakeholders) playing in the same field is. Therefore, the existing document analysis about this case, in which the official rules for scientific advice provision are concerned, suggests that scientific knowledge is used instrumentally. However, before making the final decision, the information obtained in the interview with one of the members from this scientific committee are analysed in order to identify the dominant type of scientific knowledge utilisation in this case.

The professor emphasised that there is the strict rule to rely on scientific evidence when drafting a proposal. Moreover, the strict definition of what is considered to be scientific data is clearly defined. The interviewee has highlighted that due to these strict rules, scientists can argue their position with social stakeholders easier, of course, if scientific evidence is available.

> *"I: The first thing is to look for scientific data. What is the one of the rules, the one of the basic, very important rules is what data you can use is. Well, data you can use is the results of scientific research. This is very strict. To give an example of the strictness of this kind of regulation, we can in principle work only with data which has been published officially in one or another scientific journal. 00:20:52*
>
> *I: Very big point of discussion is sometimes industry, big industry says 'but we do not agree with your proposal because we have (in our factory in our enterprise) other data. And then we say, 'that's very nice, show the official publication'. And they say, 'no no, that is internal'. Well say, 'sorry, we don't take it into account'. Internal data which are not published, what is a meaning of the word published. The meaning of the word published is very important. That is, I submit my research including working methods, discussion results to the general public discussion, and that is the main reason for publication. And so we say okay, only information which is officially available can be used to discuss this kind of things. 00:22:16 "(2b DG EMPL)*

In addition to this, the interviewee indicated that proposal concerning some issues cannot be made if there is no scientific evidence on how certain issue has to be dealt with. So, scientific evidence is crucial in order to draft a proposal in this case.

> *"I: It has been a proposal from the Commission but not a final proposal. The conclusion at that time in 2007 was 'Sorry, we cannot formulate reasonable proposal about this product, because of lack of data'. I got 4 years later in 2011 the same question, had to revise the document, look for new publications then my conclusions remained the same. Because there are so many products and mostly for this kind, for a lot of these products, we don't have research there. (…) Then we say "Sorry, we have not enough data, we cannot formulate any sensitive proposal for that." And then, of course, the discussion can be re-insisted that's all can be a discussion. 00:40:23-2*
> *(…) The scientific data coming from research projects and publishing articles is an on-going process but sometimes you are surprised, you see values who are already 30-40 years old and nevertheless you don't find enough new data, so you have to say "no, sorry, we cannot do this". And sometimes we, well, some question has to do with the pressure. I hope I have explained that we are relatively well protected from pressure of governments, employers, trade unions. 00:44:09-9" (2b DG EMPL)*

Further, the professor explains how the usual procedure of proposal drafting is organised. This quote indicates that purely scientific and scientifically reliable sources are used to reason certain policy propositions in the proposal:

> *"So, nowadays mostly there are 20 members in the committee and the work is divided, so we are saying who takes this part. (…) We have to bring together basic documentation, articles, (…), but then the basic point is that you must have a first evaluation of the data and that is a critical evaluation of the data based on a number of points which you are applying to each article, is it a good article (…). And then you are looking at the methodology, which is important and then you are looking at the conclusions and the proposals, and then you are bringing this together. (…) And then we are saying 'do we have enough data, scientific data of this health effects'. So, can*

we address very important those effect relation curve, do we have enough reliable data for that. If we do have then we can define x level or y level (…). So that's important, and then you use this as a starting point. If your data are good enough then you say, 'okay, well the value we proposed is just under. If the data for some another reason is not so good, (…), then we say 'Okay, we must apply uncertainty factors that is called uncertainty factor (…)'. And all these rules are indicated in this keynote document of the scientific committee, and then we are extrapolating and saying, 'okay, this value can be used as a start but we are diminishing with the factor 2, factor 10 due to this and this and this reason'. And that is what we call the urge for transparency. 01:00:09-6" (2b DG EMPL)

Finally, when the interviewee was directly asked whether he agrees with the statement that his scientific advice was taken into account by the Commission, he elaborated that scientists advice is taken into account when they (scientists) have scientific evidence. However, in some cases, scientists feel pressure to make decision on issues on which scientific knowledge is not obtained (yet) and does not allow any scientific conclusions. In short, the interviewee indicates that scientific knowledge is used, if there is scientific evidence to make a suggestion for a regulation.

"I: The answer on this question is yes (scientific knowledge is used), but not always 100 per cent. (…) Because science is not, it will not give a final answer, in some cases we are very close to 100% but in some cases we are very low to. That means that if there is a discussion, well, there can be discussions to some extent (…), but there is on the other hand a pressure, because the Commission or the industry says, 'we need a proposal'. Really, because of political reasons or social reasons (…). And then of course some people are saying 'well, yeah we know it is not perfect but why not propose a pragmatic value'. That means as long as we have not, no more information, let us work with this value. But then you have always a very stern discussion and people say, 'You cannot do this, because a pragmatic value is contradiction'. (…). So, the more this base is not 100 per cent sure, the more you have a possibility for discussion and secondly, sometimes there is a strong pressure, arguments from nations or big industries who are pushing to not so much not interfering in this work but are just saying, 'Well, nevertheless take a conclusion, provisionary, pragmatic, because we need that'. And that is a kind of discussion, kind of pressure we could have. 01:06:14-4" (2b DG EMPL)

Based on the information provided in the interview (and desk research), the conclusion can be made that technical-instrumental knowledge utilisation type is dominant in the case of 2b - DG EMPL. The interviewee revealed many details and nuanced examples in which instrumental knowledge utilisation was applied. It is important to note that the interviewee argued that scientific knowledge is not used only in these cases in which there is no (yet) scientific evidence. All this shows, that this case represents technical-instrumental scientific knowledge utilisation type.

6.2.4 Expert group composition as an effect

As it can be seen in table 13, the composition of an expert group has an effect on the outcome (type of scientific knowledge utilisation).

Table 13. 2nd group of the cases

Cases / Variables	2a DG SANCO Expert group on X	2b DG EMPL Scientific committee on X
Logic of delegation	Credibility	Credibility
Composition of expert group	***Heterogeneous***	***Homogeneous***
DGs involved	One leading DG	One leading DG
Type of scientific knowledge utilisation (*Instrumental/ legitimising/substantiating*)	**Technical - instrumental and Substantiating**	**Technical - instrumental**

Slightly different results have appeared between two cases: Technical - instrumental and Substantiating vs. technical - instrumental. Therefore, at this point, some deeper insights and scientists reflections are briefly discussed in order to provide the reader with more nuanced information, rather than just to make a straightforward conclusion that the composition of an expert group has an effect on scientific knowledge utilisation.

When the interviewee (2a - DG SANCO) was asked a direct question whether the composition of expert group plays an important role in defining how scientific knowledge is used, he mentioned that scientific advice could be more relevant if only scientists would be involved in the process. The main argument proposed by the interviewee was that non-scientists were good at giving convincing arguments in favour of their positions which was not necessarily in line with scientific evidence. On the contrary, according to the interviewee (2a - DG SANCO), scientists can have scientific evidence to illustrate their points, however, due to communication skills, they might not be as convincing as non-scientists.

> *"I: I have sort of tried both [provided his scientific advice when the composition of expert committee was mixed and homogeneous] because in extra work it's only scientists. (…). So, I tried both things and I would say that there are, I mean, I would argue that there are advantages and disadvantages of both. It's much easier to come to a consensus and reach a consensus in a group where you can say that this is the scientific evidence if you have a group which is only scientists. So, that is absolutely like that as I see. But on the other hand, you can argue that with the mixture you get a discussion between interests that various NGOs then have and then scientists could argue with them… So, it's a way to come a bit further in the process that you need to have it anyway but my, I mean that it could be a bit dangerous because scientists' skills are in the science and not always in communicating their science and discussing their science with NGOs. Some scientists are good at that and some are not. Maybe it's better to organise that so said a little bit differently. I think it is a weak point in a meet group that you are so much more dependent on the communication skills of parties in that group. And which also implies that you are much more dependent on how the chairperson of that. I see that as a sort of a more, I won't say risky, but a more difficult way of doing like that. 00:15:42" (2a - DG SANCO)*

The interviewee in the second case (2b – DG EMPL) gave the answers regarding the same question supporting the idea that the contribution of scientific advice is more relevant when the composition of an expert group is homogeneous (consists only of academics and scientists). The professor presents two possible ways of giving scientific advice: one-step and two-step approach. By one-step approach the interviewee means that scientists and various stakeholders gather together to take a common position on a certain issue and to draft the proposal together.

While a two-step approach means that scientific position and third groups' position are separated and taken separately in homogeneous settings. That is to say, scientists are invited to develop their scientific advice independently from the stakeholders. The interviewee indicated the two-step approach as better one because, according to him, in this way two positions are clearly distinguished and it is clear what the scientists have proposed and what was proposed by the third groups (e.g., representatives of industries).

> *"I: (…) The first way is what we call one step way, that is the government nominates the commission and in this commission you have some scientists but you have mostly the representatives of what we call the social partners in X country, trade unions and employers. And they discuss, and they write a proposal. The basic problem is that it is quite impossible for this kind of way of working to make a division between the pure scientific logic on the one hand and the social political logic on the other hand. That means if you agreeing on this point, then I will agree on the other point. That is what we call bargaining. And that is very dangerous. And in here (I most probably means commission of experts for the EU proposals) we don't have it. That is very, there are other countries also. What we call a two-step approach, in fact that is three step approach, you have first a proposal which is a preparation purely scientific. This proposal, as discussed in a non-scientific but a social policy and they cannot say science, we are not accepting your science. They have to accept that but they can ask other arguments. For instance, they can say economically it is not reasonable to demand this kind of very complicated method, measurement method because it cannot have it and in practice it is not feasible. They can do this and they have another proposal than that but they can never discuss the science field basis. 00:28:51." (2b – DG EMPL)*

Researcher's interpretation of the provided information would be that there is more flexibility to abuse scientific knowledge in the mixed composition of expert group because at the end the mixed expert group has to reach a common position or draft one proposal in which compromise has to be reached. So, the end product contains both scientifically and non-scientifically based propositions. Consequently, it might be that the presence of scientists in the process of legislative proposal drafting to some extent helps to substantiate and to legitimise the decision (e.g., preferences of interest groups) which is not purely scientifically based.

At this point a conclusion can be drawn that the composition of an expert group could be considered as a relevant factor increasing the likelihood of substantiating knowledge utilisation. Both interviewees have mentioned that if scientists have to argue their opinions with non-scientists this might diminish the relevance of scientific arguments. However, it is crucial to note, that the end product (final legislation) can contain more scientific arguments in case of mixed composition of expert group because as one of the scientists argue, sometimes it is better to deal with non-scientific argument at the early policy-making stage because in this case scientists at least can argue their position. If non-scientific arguments are excluded from the very beginning of policy-making, they might be interfering at the later policy-making stage.

Based on the results presented above, the second hypothesis cannot be totally rejected. There is empirical evidence that the homogeneous composition of expert group increases the likelihood of the usage of technical-instrumental knowledge. The empirical results have shown that when the composition of an expert group is mixed the combination of technical-instrumental and substantiating knowledge utilisation is employed.

6.2.5 *Scientific knowledge utilisation and control mechanisms: distribution of preferences*

In this section, the sub-question *'Does the high degree of conflict among institutions involved in the policy drafting phase explain the use of legitimising knowledge utilisation?'* is approached. The researcher expects that *the Commission is likely to use legitimising and/or substantiating knowledge when the preferences of actors in legislative policy-making are heterogeneous (several contradicting DGs involved), instrumental – when the preferences of actors in legislative policy-making are homogeneous (one DG involved).* In order to test this hypothesis, the cases were selected accordingly. As it was explained in the theoretical part, the involvement of different DGs might mean that there are very different preferences involved because each DG has its own view how a certain problem has to be approached. Also, due to the institutional battle among DGs, DGs want to remain influential and compete with each other. Therefore, it is expected that the involvement of several DGs in the same policy drafting process leads to the usage of legitimising and/or substantiating knowledge utilisation. For this purpose, the researcher selected two cases based on the involvement of DGs. In the case of 3a DG RTD two contradicting DGs are involved in the process of proposal preparation, in case 3b DG SANCO[12] only one DG plays a leading role. All other factors are kept the same in both selected cases (the logic of credibility, homogeneous composition of the expert groups) in order to be able to test whether the distribution of preferences has an influence on the different usage of scientific knowledge.

Type of scientific knowledge utilisation: 3a DG RTD

In case 3a DG RTD[13] two DGs were responsible for the legislative proposal and that is the reason why this case was selected. Furthermore, this case is in the advanced stage of policy-making. This allows assessing the role of several DGs on the usage of scientific knowledge.

The interviewee representing the expert group of this case starts with the agreement that her scientific knowledge is used instrumentally. However, later in the interview the professor elaborates on the situations which indicate that her scientific knowledge by the Commission was used for legitimising and substantiating purposes. This can be illustrated by quoting some parts of the interview.

To begin with, the interviewee agrees that the involvement of several DGs has an influence on how scientific advice is taken into account. Both fragments cited below illustrate that scientific knowledge in this case is used for ***legitimising purposes***.

Fragment 1

> *"R: what about other institutions? Did you have an impression that other institutions somehow impose a pressure on you? Did you have a feeling that other institutions had an influence? In some cases it might be that there is a pressure from the competing DGs because they have different positions. 00:07:51-8*

[12] Cases 1b – SANCHO and 3b – SANCHO are the same. This is the control group case which allows pairwise comparisons and are different from the cases in whic the effect of a certain factor is tested. As the same case meets the selection creteria twice, there was no need in adding addition case with the exactly same factors.

[13] This case is called 3a DG RTD because DG Research and Development played a leading role in the process of new proposal drafting.

I: That was absolutely the case in this particular case that we mention now. There was quite some political influence. 00:08:04-1

R: What do you mean by political influence? 00:08:07-2

I: Political considerations I should say. So, our proposals were only partly taken into consideration. The proposal had been a lot more radical (if it would have been taken into account). 00:08:17-2

R: Why do you think it was like that? 00:08:23-5

I: Well, probably because keeping control of things is very important sometimes. I am even ready to agree that political and administrative skills maybe are important as academic inputs. So, I am not saying whatever academics say it's the only truth and must respect it 100 per cent. 00:08:53-8" (3a DG RTD)

Fragment 2

"R: Concerning the external pressure. Did other DGs play a role in this case? 00:15:01
I: Yes. 00:15:01
R: Because as far as I know each DG has different opinion on certain issues. 00:15:09
I: That very clearly was... It was a confrontation between DG Research and DG Competition. 00:15:16
R: Did this factor make it more difficult for you academics to contribute to the legislation. 00:15:25
I: It was more difficult to contribute mainly more difficult to have our position adapted. Because I think DG Competition has a very very prominent role. In particular, with the previous commissioner. He was a very strong person. He was able to outperform other commissioners. 00:15:56
R: So, it's like a game between personalities and their positions. 00:16:00
I: Absolutely. There again it's not knowledge it's impressions: 00:16:09" (3a DG RTD)

Secondly, the interviewee also elaborated on situations in which her scientific knowledge was used for ***substantiating purposes***. The situations in which scientists are invited to give their scientific advice but are not taken into account can be considered to be examples of substantiating or legitimising knowledge utilisation. Because, the presence of scientists in the expert groups gives an impression that scientific knowledge is used, however, if suggestions proposed by scientists are not taken into account and neglected, this can be considered to be substantiating scientific knowledge utilisation.

"I: To give you an example, in this particular case, we thought that more liberties more freedom should be given to the member states to decide that they do and then keep the possibility to the other member states to address this as an infringement. And this would facilitate the bureaucracy. The Commission wanted to keep some control in certain cases, they reduce the administrative burden but they kept control over certain scenes. And maybe they are right. 00:09:49-9

R: So, in this case, the civil servants (in the Commission) and the academics had different positions. 00:09:57-6

I: Yes, about the degree of control. 00:10:02-9

R: Who was more influential in this case? 00:10:04-7

I: No, no, no. This was the final decision of the Commission. The academics just provided an advice. 00:10:15-0

R: Is this situation common? 00:10:25-2

I: Yes, I guess so. To some extent, I think it's right that it is so. Because it's the Commission's services which are accountable for legislation, not the academics." (3a DG RTD)

Furthermore, a good indicator of the type of substantiating knowledge utilisation can be the biased recruitment of scientists who are going to be invited to provide the Commission with a scientific advice. The interviewee states that the Commission might attempt to invite scientists who have a similar position on a certain issue.

"R: In this particular case, did academics have a common position among themselves? 00:13:53-3

I: The people who were involved had a common position. But it is... This consortia, they are biased because they need to create a consortium to advice for the European Commission to respond to... They create the consortium with people who agree not with people you disagree. So, it's biased 00:14:11-5 "(3a DG RTD)

In short, the interviewee at the beginning (when speaking in general about how her scientific knowledge is used in various cases) states that her knowledge is taken into account significantly. Nonetheless, later on, when the focus was narrowed down to the specific case (3a DG RTD), the interviewee gives examples which indicate that her scientific advice was predominantly used for the legitimising and substantiating purposes.

6.2.6 Distribution of preferences as an effect

As it can be seen in the table below, the involvement of several DGs which have different positions on an issue might be a constraining factor in what the technical-instrumental usage of scientific knowledge is concerned. The outcome of the dependent variable (the usage of scientific knowledge) is different when two cases vary in the involvement of DGs (several DGs vs. one DG).

Table 14. 3rd group of the cases

Cases / Variables	3a DG RTD Expert Group on X	3b DG SANCO Scientific Committee on X
Logic of delegation	Credibility	Credibility
Composition of expert group	Homogeneous	Homogeneous
DGs involved	*Several* ***contradicting and competing*** *DGs involved*	*One leading DG*
Type of scientific knowledge utilisation (*Instrumental, substantiating, legitimising*)	**Substantiating and Legitimising**	**Technical-instrumental**

3a DG RTD case reveals that if DGs with different positions are involved, it is very likely that scientific knowledge might be used for other than technical-instrumental purposes. Thus, at this point the researcher concludes that involvement of several DGs has an effect on the usage of scientific knowledge in legislative policy-making. This leads to the conclusion that *hypothesis 2b* cannot be rejected because there is enough empirical evidence to support it.

6.3 Discussion

In this section, some concluding remarks based on the comparative case study analysis are drawn and briefly discussed. In the section of research design, the researcher explained that statistical tools cannot be applied in this setting of research. Therefore, instead of relying on 'statistical generalisation', the researcher relies on generalisation based on the properly selected cases. In order to be able to do this, a strict selection (see chapter on *Case selection*) and analytic techniques were applied. Consequently, the generalising conclusions were drawn that the composition of an expert group and DGs involved have an effect on how scientific knowledge is used. However, even though strict scientific rules were applied in order to be able to obtain reliable and sound empirical evidence allowing falsification/verification of the hypotheses, the researcher suggests to test these hypotheses with statistical tools in a large-n study which would allow for a firm generalising conclusion to be made in the future research. This study succeeds in capturing the effect of fire-alarm control mechanisms, however, the researcher proposes to scrutinise the effect of these factors in further research.

The empirical results reveal that one out of two rival explanations (derived from the different theoretical streams) receives the empirical evidence confirming its theoretical claims. The main conclusion of the qualitative part of this research is that the indirect control mechanisms restrict agent's discretion by (1) *including third parties* or (2) *competing institutional actors* in the preparation of a legislative proposal. These two factors shape the usage of scientific knowledge utilisation.

In the three sets of pairwise comparisons, the types of knowledge utilisation matched the explanations stating that the indirect control mechanisms (*fire-alarm oversights*) have an effect on how scientific knowledge is used. That is to say, such factors as the composition of an expert group and the involvement of contradicting DGs affect the way how scientific knowledge is used

by the Commission. On the contrary, the rival explanation of why the different types of scientific knowledge utilisation can occur (i.e., *the logic of delegation*) appeared not to have an effect. In other words, there is no difference in how scientific knowledge is used depending on whether the principals delegate political powers to the Commission either (1) *to reduce decision making costs* or (2) *to enhance the credibility of policy commitment*.

The empirical data and case study analysis (using the most similar systems design for case selection) have revealed that scientific knowledge is likely to be used instrumentally if the composition of an expert group consists of scientists/academics/researchers and other stakeholders (interest groups, representatives of national governments, etc.) are excluded from the Commission expert group. If many various stakeholders have to draft a proposal together with scientists it is likely that scientific knowledge will be used for substantiating purposes.

In addition, the data analysis has shown that if a proposal has to be drafted by the several DGs which have strong and contradicting positions on a certain issue (i.e., *the distribution of preferences is wide*) the likelihood of legitimising and substantiating knowledge utilisation increases.

One of the explanations why the usage of substantiating and legitimising knowledge is more common when the strict fire-alarm control mechanisms are applied is that these control mechanisms increase the level of conflict and decreases the level of discretion the Commission has to prepare the legislation, which leads the Commission to manoeuvre among various positions, actors and institutions in order to agree on common final legislation. When the Commission is restricted by the application of the fire-alarm mechanisms (the distribution of preferences is higher *and* the level of conflict is greater), the likelihood of manoeuvring in order to augment legitimacy and justify preferred positions and policy choices, rather than to rely on scientific advice, increases.

All empirical results discussed above are summarised in table 15. The table in a constructive way summarises an effect of the factors on the usage of scientific knowledge.

Table 15. Multiple case study comparisons

	Control cases			Factor cases		
Cases / Variables	1b (3b)DG SANCO Scientific Committee on X	2b DG EMPL Scientific committee on X		1a DG ARGI Expert group on technical advice on X	2a DG SANCO Expert group on X	3a DG RTD Expert Group on X
Logic of delegation	Credibility	Credibility		***Efficiency***	Credibility	Credibility
Composition of expert group	Homogeneous	Homogeneous		Homogeneous	***Heterogeneous***	Homogeneous
DGs involved	One leading DG	One leading DG		One leading DG	One leading DG	***Several contradicting and competing DGs involved***
Type of scientific knowledge utilisation (*Instrumental, substantiating, legitimising*)	**Technical-instrumental**	**Technical-instrumental**		**Technical-instrumental**	**Technical-instrumental and Substantiating**	**Substantiating and Legitimising**

Limitations

Despite already mentioned limitations in previous chapters, there are several limitations which have not been mentioned and have to be discussed in the context of this research. First of all, it is needless to say that by making classifications and defining conditions under which a certain type of knowledge utilisation is likely to occur, the simplification of reality is unavoidable.

In addition, accessibility of information about policy-making in the EU is another limitation. There are only limited information provided by the register of Commission expert groups and similar entities, since this process is not completely transparent in the EU. The register is not completed and only provides a limited list of expert groups/scientific committees which provides the Commission with expert advice. This in turn has limited an array of cases the research could select for a deeper analysis.

Furthermore, even though the researcher selected cases strictly in line with the selection criteria, the self-selection of interviewees could not be avoided. That is, only those who were willing to give an interview, had time, and were visiting Brussels could participate in the interviews. It could be that the motives leading to the participation of this study somehow affected the content of information the interviewees provided.

As far as the research object is concerned, the researcher has noticed that it would be better to do such kind of research with the cases in which the legislative process is finished (legislation has been adopted). In this way experts/researchers/scientists would be more familiar with the end product in which they made their contribution. Several cases had to be excluded from this research because they were in an embryonic stage of the preparation of the legislative proposal, which means that the interviewees were not fully able to reflect on how their scientific knowledge is used. The researcher suggests focusing on already adopted legislations because full information about the usage of scientific knowledge could be more accessible.

Future research

Alongside already mentioned suggestions for the future research, which are (1) development of measurement tools for the identification of the types of scientific knowledge utilisation, (2) a large-N study design to test the hypotheses and make statistical generalisation, the researcher of this study has some additional suggestions for the researchers who are going to continue studying the phenomenon of scientific knowledge utilisation within the EU. Firstly, the researcher suggests investigating the relationship between the indirect control mechanisms ('fire-alarm' oversight) and the usage of scientific knowledge in the future research. Secondly, the researcher proposes to study how scientific knowledge is used using both insiders' and outsiders' perspectives. That is, the phenomenon of scientific knowledge utilisation could be captured better not only relying on the answers/perceptions of experts providing scientific advice, but also observing the process and cooperating with those to use scientific knowledge.

This research concludes that the fire-alarm control mechanisms imposed on the European Commission shape the usage of scientific knowledge. The hypotheses stating that the inclusion of diverse actors impedes the technical-instrumental usage of scientific knowledge have not received empirical support to reject them. Meaning that the distribution of preferences and the level of conflicts are the factors shaping how scientific knowledge is used. The researcher proposes to concentrate on the fire-alarm oversights in the further research in order to provide sound evidence about the causal relationship between these control mechanisms and the usage of scientific knowledge utilisation. Research analysing this phenomenon in-depth could contribute to the scientific knowledge creation in the field of the usage of scientific knowledge by the European Commission.

Furthermore, the researcher proposes to look at the phenomenon of scientific knowledge utilisation not only from the outsiders' position (as it was done in this research by surveying and interviewing external scientists), but also to investigate this phenomenon from the inside. This could be done by cooperating with those who use scientific knowledge, i.e., policy-makers. However, as it was mentioned, this approach is complex because it is extremely demanding to get honest and not socially desirable answers from those who use and sometimes abuse scientific knowledge. Therefore, the researcher proposes to concentrate on the participatory-observation method (by attending expert group/scientific committee meetings) in order to capture the full picture of scientific knowledge utilisation within the European Union. This study focuses only one on possible angle of investigating this phenomenon, therefore, the proposition for the future investigators would be to concentrate on various angles and use mixed methods in order to enlighten this phenomenon.

Conclusions

The idea for the study originated from a need to research scientific knowledge utilisation in the European Union using various theoretical explanations why a certain type of scientific knowledge utilisation can occur. The underlying argument of this thesis is that the delegation conditions and the reasons for delegating political tasks to the European Commission are relevant factors which shape the usage of scientific knowledge by the Commission.

This thesis relies on the already established division of how scientific knowledge can be used. That is to say, a plain dichotomy between using and not using scientific knowledge in policy-making was broken down. Based on the existing body of knowledge in this field, scientific knowledge utilisation was distinguished into three categories: technical-instrumental, substantiating and legitimising.

As there is a lack of the empirical research explaining how scientific knowledge can be used and what the factors defining the different usage of scientific knowledge are, this research sought to test several hypotheses in which such factors as the logic of delegation and indirect control mechanisms were expected to have an influence of the usage of scientific knowledge. Both quantitative (the survey method) and qualitative (the comparative method) research approaches and data collection techniques were applied in order to test the theoretical propositions empirically.

Empirical data from the qualitative part of this research reveals that the most dominant type of scientific knowledge utilisation is technical-instrumental. Scientists involved in the process of legislative proposal drafting state that their scientific knowledge is relevant in this stage of policy-making. However, as the survey results have shown, in many cases technical-instrumental knowledge utilisation is accompanied with the legitimising and substantiating knowledge utilisation types, which suggests that all types of knowledge utilisation are not mutually exclusive and usually appear together.

In the qualitative part of this study, the information obtained in the survey was supplemented with more nuanced explanations about how scientific knowledge is used under different circumstances. Based on the analysis of information obtained in the interviews, the researcher draws conclusions (and proposes to test these conclusions using statistical tools) that such factors as the composition of an expert group and the inclusion of several contradicting institutional actors (DGs) have an influence on how scientific knowledge is used. The core conclusion of this study is that the fire-alarm control mechanisms shape the usage of scientific knowledge by the Commission. That is, the more room to manoeuvre the Commission has (no stakeholders, no control coming from the competing institutions (DGs)), the more it is likely that the technical-instrumental knowledge utilisation type will be applied in the preparation of a legislative proposal.

In the introductory chapter one can find the sentence stating that "in general, there is a tendency in the literature on knowledge utilisation in the EU to concentrate on giving qualitative evidence that expert knowledge by the Commission is used to legitimise decisions or substantiate its preferences against other EU institutions or political actors (Radaelli, 2009; Boswell, 2008)." However, the results from the expert survey and the interviews show that the technical-instrumental usage of scientific knowledge is also possible. Even more so, the survey results reveal that technical-instrumental knowledge utilisation type is dominant. This indicates that scientific knowledge within the EU is used more than it is expected in the theoretical settings. Therefore, the researcher proposes to continue investigating the phenomenon of

scientific knowledge utilisation, since there still is the gap between theoretical explanations and empirical evidence supporting these explanations.

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Annex 1: Questionnaire

Universiteit Utrecht

ERASMUS UNIVERSITEIT ROTTERDAM

Dear Prof./Dr. ……,

As you have assisted the European Commission in the preparation of legislative proposal and/or policy initiative by providing your expertise and scientific knowledge, we are kindly asking you to express your opinion about the role of scientists and scientific knowledge by filling in the questionnaire.

It takes only 6 minutes to complete this questionnaire. We would highly appreciate, if you could devote your time and express your opinion on the role of science in the preparation of new legislation**.**

This questionnaire is part of ***an academic study*** conducted by Markus Haverland (Associate Professor in Political Science at the Department of Public Administration, *Erasmus University Rotterdam)* and research master student Dovile Rimkute (*Utrecht University School of Governance*).

The results from this research will be used as part of a master's thesis, a Ph. D. proposal/project and academic publications.

The information you provide will be treated ***anonymously*** **and** ***confidentially***. Personality identifiers (such as name, surname, country, name of University, etc.) will not appear in any further data analysis and research report stages.

We are kindly asking you to fill in this questionnaire **within one week.**

The information you provide will contribute to a better understanding of scientific knowledge utilisation and the role of scientists and scientific knowledge in the European Union policy formulation, which could lead to a better usage of scientific knowledge by all EU institutions. Suggestions to improve the current institutional structures and policy-making procedures can be made based on the identification of the main factors impeding the use of scientific knowledge.

A report summarizing these research results can be sent to you upon request. Please send an e-mail indicating your interest to: d.rimkute@students.uu.nl

1. Have you ever assisted the European Commission in the preparation of a legislative proposal (Commission's right to initiative)?
    1. Yes
    2. No

2. Which DG was responsible for the preparation of the *legislative proposal* in which you were involved as member of an expert committee?

    If you were involved in the legislation drafting process more than once, please base your responses on the latest experience.

    1. Agriculture and Rural Development
    2. Budget
    3. Climate Action
    4. Competition
    5. Economic and Financial Affairs
    6. Education and Culture
    7. Employment, Social Affairs and Inclusion
    8. Energy
    9. Enterprise and Industry
    10. Environment
    11. Executive agencies
    12. Home Affairs
    13. Maritime Affairs and Fisheries
    14. Mobility and Transport
    15. Health and Consumers
    16. Information Society and Media
    17. Internal Market and Services
    18. Justice
    19. Regional Policy
    20. Research and Innovation
    21. Taxation and Customs Union
    22. Development & Cooperation
    23. Other

3. Please indicate the legislation (or field) in which you have provided expertise and scientific advice.

    If you were involved in the legislative proposal drafting process more than once, base your responses on the latest experience.

    ……

In this section, questions will address the role of scientists in the preparation of ***legislative proposal and policy initiatives (Commission's right to initiative). In particular, we are interested in*** *how scientific knowledge was used.*

To what extent do you agree/disagree with the following	1	2	3	4	5	6	7	8

statements? *1 meaning that you **strongly agree**, 2 – moderately agree, 3 – slightly agree, 4 – neutral/neither agree nor disagree, 5 – slightly disagree, 6 – moderately disagree, 7 – **strongly disagree**, 8 – not applicable.*								
4. Scientific knowledge was used to broaden the understanding of existing issues:								
5. Scientific knowledge was used **to justify the preferred and predetermined policy choices** of the DG in charge of the legislative proposal:								
6. Scientific knowledge was used **to legitimise the decisions by proving the competences of the DG** to the other European institutions (other DGs, the Council, or the European Parliament):								
7. I have noticed that **the DG had its own position and searched for the scientific arguments** in favour of its position:								
8. Scientific knowledge was used to enhance **prestige and reputation** of the DG, rather than to create the legislative proposal:								
9. Scientific knowledge **was transferred into the legislative proposal**:								
10. Other experts' advice was prioritized against mine mainly because their position was closer to the DG's position:								
11. Scientific knowledge was used **to solve the existing problems:**								
12. The presence of scientists and their scientific knowledge was used as a tool to increase DG's **powers and influence** against other actors (other DGs, the Council, or the European Parliament):								
13. Scientific knowledge was **relevant for the formulation** of legislative proposal:								
14. The Commission had a clear vision on what the new policy/legislation should look like and the presence of scientists did not change this vision:								
15. I have noticed that scientific knowledge was used to respond to external pressure rather than to prepare the legislative proposal:								
16. **Other factors played a more important role** in the preparation of legislative proposal rather than scientific knowledge (please indicated which factors)……:								

17. Your comments and reflections on the role of scientists and scientific knowledge in the preparation of the legislative proposal:

18. Can the research team contact you for more detailed information?

    1. Yes
    2. No

19. Would you be willing to elaborate on this topic (your role in the preparation of legislative proposal and policy initiative) in an in-depth interview?

    1. Yes
    2. No

If you have any comments or questions regarding this research, please feel free to get in touch. If you would like to express your opinions on these issues in an in-depth interview, it would be highly appreciated if you could contact us so that we could arrange a meeting.

Contact information:
d.rimkute@students.uu.nl

Thank you for the time you devoted by filling in this questionnaire!

Annex 2: Questions for the semi-structured interviews

Topics/questions:

1. Brief description of the legislation in which you have provided your scientific/expert knowledge and advice.

2. Brief description of your role in the provision of your scientific knowledge. How did you contribute to the legislation?

3. Do you agree with the statement that your scientific advice was taken into account by the Commission? Was your advice integrated/incorporated into the legislation? Why? Why not? What were the main factors which promoted/impeded the use of your expert scientific knowledge into the legislation or policy formulation?

4. Are you familiar with the final legislation? Would you be able to say that your contribution in the final legislation is substantial? Or, do you think that your contribution (advice) was minimised in the further policy-making stages (e.g., in the legislative bargaining between 3 law-making bodies – *Parliament, Commission, Council* – made amendments which are distant from your suggested advice)?

5. Did scientists in your expert group/committee have a common position?

6. Did other members (not scientists) of the expert group somehow affect your contribution to the legislation? Did scientists and non-scientists (other stakeholders) have a common position? If not, whose position had more importance in the final legislation?

7. Did the Commission and the expert group have a common position? If not, whose position had more importance in the final legislation?

8. Was there any external pressure from other institutions (other DGs, the Parliament, or the Council) which somehow affected your contribution to the legislation?

Annex 3: Cases

Name
1. Advisory Expert Group on International Cooperation
2. Advisory Group Environment "including Climate Change"- Expert group
3. Animal welfare education
4. Comité scientifique en matière de limites d'exposition professionnelle à des agents chimiques
5. Commission Expert Group on climate policy for international maritime transport under the European Climate Change Programme
6. Commission Expert Group on the attachment of bank accounts
7. European Cluster Policy Group
8. European Group on Ethics in science and new technologies (High Level)
9. European University Council for the Jean Monnet Programme
10. Expert Advisory Group for the FP7 People Programme
11. Expert Advisory Group Nanosciences, Nanotechnologies, Materials and new Production Technologies - 7th FP
12. Expert Group - Advisory Group on Food, Agriculture and Biotechnologies
13. Expert Group - Advisory Group Theme Health
14. Expert group - European Statistical Advisory Committee
15. Expert group for technical advice on organic production
16. Expert group on a Common Frame of Reference in the area of European contract Law
17. Expert group on arbitration and civil justice
18. Expert Group on Demographic Issues

19. Expert Group on Food and Health Research
20. Expert Group on Hemispheric Transport of Air Pollution
21. Expert Group on ICT for Energy Efficiency
22. Expert group on Intelligent transport systems and new technologies within the framework of the TEN-T
23. Expert group on Legal issues and non-financial instruments for Trans-European Networks Transport Implementation
24. Expert Group on Marine Research Infrastructure
25. Expert group on Methodology for TEN-T Planning
26. Expert Group on occupational diseases
27. Expert group on TEN-T Financing
28. Expert group on the policy needs for data on crime and criminal justice
29. Expert group on trafficking in Human Beings
30. Expert Group on Women in Science and Technology: the business perspective
31. Expert group to identify the best follow-up to be given to the analysis of the first 10 years of EU activities on Women in Science and Technology.
32. Experts Working Group on Accidents and Injury
33. Export group on Integration of transport policy into TEN-T planning
34. Financial Services User Group
35. Food Chain - Biological Safety Legislation
36. Forum européen de l'énergie et des transports
37. FP7 Expert Advisory Group on SMEs
38. FP7 Expert Advisory Group on theme 8: Socio-Economic Sciences and the Humanities

39. GÉANT Expert Group
40. Group of experts on the property consequences of marriage and other forms of union ("PRM-III")
41. Helsinki expert group on Women and Sciences
42. High Level Advisory Group of Political Analysis
43. High Level Advisory Group of Societal Policy Analysis
44. High Level Group on Literacy
45. Marine Observation and Data Expert Group
46. Network of experts in employment and gender equality issues
47. Network of experts in gender equality, social inclusion, health and long-term care
48. Network of nongovernmental experts in the fight against poverty and social exclusion
49. Presidents of European Community Study Associations
50. Reflection group on the future of EU company law
51. SCIENTIFIC COMMITTEE ON CONSUMER SAFETY
52. Scientific Committee on Emerging and Newly Identified Health Risks
53. SCIENTIFIC COMMITTEE ON HEALTH AND ENVIRONMENTAL RISKS
54. The Scientific, Technical and Economic Committee for Fisheries (STECF)

Annex 4: Reliability tests

Reliability Statistics: Technical-Instrumental (q1, q6, q8, q10)

Cronbach's Alpha	N of Items
.760	4

Reliability Statistics: Substantiating (q2, q4, q7, q11)

Cronbach's Alpha	N of Items
.631	4

Reliability Statistics: Substantiating (q4, q7, q11)

Cronbach's Alpha	N of Items
.700	3

Reliability Statistics: Legitimising (q3, q5, q9, q12)

Cronbach's Alpha	N of Items
.652	4

Reliability Statistics: Legitimising (q5, q9, q12)

Cronbach's Alpha	N of Items
.714	3

Annex 5: Sample description

The most responses in the survey were received from the member states such as Germany (8.3 %), Italy (9.2 %), the UK (6.7 %), Spain (5.8 %) and Belgium (5.8 %). The majority of the respondents (66 %) were from the old member stated of the EU.

Table 16 Distribution of the New and Old Member States in the survey

	Frequency	Valid Percent
Non-EU country	12	9.8
Old Member State	82	66.7
New Member State	29	23.6
Total	123	100.0

Table 17 Distribution of countries in the Survey

EU countries	Frequency	Valid Percent
AT	2	1.7
BE	7	5.8
BG	4	3.3
CZ	6	5.0
DE	10	8.3
DK	6	5.0
EE	1	.8
ES	7	5.8
FI	4	3.3
FR	5	4.1
GR	5	4.1
HU	4	3.3
IE	2	1.7
IT	11	9.1
LT	2	1.7
LU	1	.8
LV	2	1.7
MT	1	.8
NL	6	5.0
non-EU	12	9.9
PL	4	3.3
PT	2	1.7
SE	3	2.5
SI	4	3.3
SK	2	1.7
UK	8	6.6
Total	121	100.0
Missing	2	
Total		123

As it is indicated in the figure below, the questionnaire was filled in by the scientists who were invited to give their scientific advice in various DGs. The majority of responses were received from the scientists representing DGs such as DG Employment, Social Affairs and Inclusion 26.2 per cent (32), DG Maritime Affairs and Fisheries 16.4 per cent (20), DG Research and Innovation 13.9 per cent (17), DG JUST 12.3 per cent (15), DG Agriculture and Rural Development 11.5 per cent (14) and DG Health and Consumers 9.8 per cent (12).

Table 18 Distribution of DGs in the survey

DG	Frequency	Valid Percent
Agriculture and Rural Development	15	12.2
Competition	1	.8
Economic and Financial Affairs	1	.8
Education and Culture	2	1.6
Employment, Social Affairs and Inclusion	32	26.0
Enterprise and Industry	3	2.4
Environment	1	.8
Maritime Affairs and Fisheries	20	16.3
Health and Consumers	12	9.8
Information Society and Media	1	.8
Internal Market and Services	1	.8
Justice	15	12.2
Research and Innovation	17	13.8
Other	2	1.6
Total	123	100.0