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**Agenda Setting and Decision Making in the European Union:
The Case of GALILEO**

Thesis in the Executive Master of Public Management (EMPM) Programme

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Thesis in the EMPM Program of the Hertie School of Governance, Berlin, Germany

**Agenda Setting and Decision Making
in the European Union:
The Case of GALILEO**

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Executive Summary

This thesis deals with the application of agenda setting and decision theories to a concrete case of European policy making: The case of the European satellite navigation system GALILEO.

Focusing on March 2002, the date when the final decision on the realization of GALILEO was made by the European Council in Barcelona, the thesis elaborates on the geopolitical, economic and financial engineering background of the Council decision. While the geopolitical situation since the late 1990s was in favor of GALILEO, significant fiscal pressures in important EU member states were preventing the issue to gain momentum on the EU agenda.

With the background of the decision described, the thesis turns to theories of agenda setting and decision making that allow for a systematic analysis of the decision situation and decision process. The agenda setting part introduces a high and a low politics route and stages of issue careers as issue specification, expansion and entrance. The decision making part provides theories of bounded rationality, incrementalism, garbage can and a policy window approach.

With these frameworks introduced, the case of GALILEO can be attributed to a high politics route and issue career stages can be applied to situations of GALILEO's way through the European decision process. Decision theories enlighten the decision made by the Council and as a key turning point emerges the presentation of a new study with different fiscal and economic projections concerning GALILEO in end 2001. This study allowed to readjust policy makers their previous negative assessment of the economic perspectives of the project and to give the "go ahead". With a different perspective, this new study could be interpreted as a seemingly objective justification for political leaders to decide in favor of the project, although many doubts about the financial feasibility of GALILEO remained. This situation fits well with the theoretical approach of Kingdon's policy window and has characteristics of the garbage can model as well.

Content

1.	Introduction	4
2.	GALILEO Europe's Satellite Navigation System	7
2.1	Purpose and State of Play	7
2.2	Geostrategic Assets	8
2.3	Economic Perspectives	9
2.4	Financial Engineering	11
3.	Agenda Setting and Decision Making from a Theoretical Perspective	13
3.1	Agenda Setting	13
3.1.1	High Politics and Low Politics	14
3.1.2	Issue Specification	15
3.1.3	Issue Expansion	15
3.1.4	Issue Entrance	15
3.1.5	Empirical Expectations	17
3.2	Decision Making	17
3.2.1	Rational Decisions and Bounded Rationality	18
3.2.2	Incrementalism	20
3.2.3	Garbage Can	21
3.2.4	Policy Window Approach	23
3.2.5	Empirical Expectations	23
4.	Agenda Setting and Decision Making: The Case of GALILEO	25
4.1	The Agenda Setting of GALILEO	25
4.1.1	GALILEO in High Politics and Low Politics	26
4.1.2	Issue Specification, Issue Expansion, Issue Entrance	26
4.2	GALILEO as an Act of Decision	28
4.2.1	Rational Decisions and Bounded Rationality	27
4.2.2	Incremental Aspects of GALILEO	30
4.2.3	Garbage Can and Policy Window: The Window of Opportunity for GALILEO	31
5.	Conclusion	35
6.	References	37

1. Introduction

“Europe has finally taken the political decision to launch this strategic [satellite navigation] program. Today we are seeing the creative side of Europe,” declared Ms Loyola de Palacio, the Commission Vice-president responsible for transport and energy. “This is good news and it shows the European Union's capacity to carry out an ambitious industrial project that will create 150, 000 highly qualified jobs and generate income of some 10 billion EUR a year. It will help Europe to maintain its autonomy, its sovereignty, its technological capacity and control of its knowledge,” she concluded (Commission of the European Union, 2002) This statement followed the sober words of the Barcelona European Council that only a couple of days before decided to ask the Transport Council “...to take the necessary decisions regarding both the funding and launching of [the GALILEO] program” (Presidency of the European Union, 2002)

2009 was supposed to be the year in which the world's most sophisticated global satellite navigation system, named GALILEO in the astronomer's honor, would be fully operational. Four centuries after Galilei looked into the sky to understand our place in the universe, 30 state-of-the-art satellites should have been looking down on us, their powerful beams offering answers about where we are now and how to get where we want to go next.

Instead, 2009 started – just as it will end – without a single one of the 30 satellites of the GALILEO constellation in orbit. At one point in 2007 the whole program seemed set to fail, following the collapse of the private consortium of aerospace and telecommunication companies that had been selected to build and operate the rival to America's GPS system.

Obviously, this highly complex prestigious technology project faces, seven years after the enthusiastic decision cited before, severe problems and is far from running smoothly. And, even when many problems that emerge today were foreseeable in 2002, the European Council made the decision to launch the project.

The questions this thesis will deal with are that of a political agenda setting and decision process: Why has GALILEO finally been launched, although many obstacles hindered a

positive decision on the project for many years? What was the “critical mass” to get the go-ahead for the process? What were the circumstances that allowed for the launch?

Why March 2002 as the time point of decision on Galileo? While it is true, that the project has been discussed over many years in advance of the final decision in March 2002, it has never been entirely clear, that the project would go beyond the status of feasibility studies and definition works. Clearly, the political interest in the case was latent – pushed by mighty lobby groups. At the same time, the overall constellation was not in favor of the project in particular the fiscal stance in many important EU member states was tight in the late 1990s and early 2000s. And, in order to focus the scope of this paper, the council decision of March 2002 was chosen as the key point of reference for this paper. The developments since then, will be only shortly been outlined in parts of chapter 2.

In detail, this paper will be organized as follows:

Chapter 2 will **present Europe’s satellite navigation system** to the reader and will elaborate on the situation in the run-up of the Barcelona European Council of March 2002, i.e. the geopolitical situation. Also, the key economic, fiscal and financial engineering aspects will be touched.

Chapter 3 will present **theories of agenda setting and decision making**, that will help later (in chapter 4) to analyze and understand the specific political process of decision making in the case of GALILEO. **Theories of agenda setting** will help to reflect the critical time of pre-2002 in the light of a high politics and low politics route and in view of issue specification, issue expansion and issue entrance. These categories will provide a systematic framework to understand GALILEO’s way on the EU agenda. The **decision making theories** will provide the necessary theoretical background to analyze the process of decision making from the actors perspective, i.e. in view of rationality of the decision, its incremental aspects and that of a garbage can situation and policy window in March 2002.

Chapter 4 will **apply the theories** to the case of GALILEO, chapter 4.1 will deal with the agenda setting issue, while chapter 4.2 will analyze aspects of a more micro-based decision making of actors and will deal with the application of garbage can and window of opportunity to the case of GALILEO.

Chapter 5 will try to **assess** if presented theories fit the case of GALILEO and provide suitable sources of interpretation of this specific complex case of policy making. Also, it will be interesting to see, if, given the specific case of GALILEO, it seems possible to transfer some of the findings to other cases of European policy making.

2. GALILEO - Europe's Satellite Navigation System

The following chapter will draw a rough picture of the specific aspects of GALILEO and what the circumstances of decision making were in 2002. In the four subchapters, aspects dealt with, are: What is GALILEO, what are its purposes and what where stages of project development and what is the state of play (2.1); a description of the geostrategic background underlying the decision in favor of GALILEO in the late 1990s and early 2000s (2.2); economic projections attributed to the launch of the project, not only in the industries primarily concerned in delivering the necessary satellite and ground module hard and software, but to the creation of a lead market in application tools (2.3); finally, questions of financial engineering, presenting a key in understanding the agenda setting and decision process of the GALILEO project (2.4).

2.1 Purpose and State of Play

The GNSS (GALILEO) satellite navigation project is part of the critical infrastructure policy of the EU and refers to active and intended market adjustment intervention to ensure that large-scale, technology-intensive infrastructures of vital interest are developed and maintained. As such, the GALILEO system is able to:

- strengthen European transport infrastructures (aviation, land transport, and maritime) and the functioning of other structures
- create positive macro-economic effects, user benefits, industrial competitiveness and employment
- increase Europe's strategic control and ownership, strengthening its position in the world (Lechner; Baumann, 2000).

At the end of the deployment phase, currently planned at 2011, the system will comprise a fleet of 30 medium-Earth-orbit satellites. Also, Europe wants to begin operation of GALILEO before the US next-generation Global Positioning System (GPS) III is launched, as it is scheduled to be in 2011 (Conti, 2009).

There will be three main navigation services available:

- The **Open Service** (OS) will be free for anyone to access. Receivers will achieve an accuracy of less than 4 m horizontally and less than 8 m vertically if they use both OS bands.
- The encrypted **Commercial Service** (CS) will be available for a fee and will offer an accuracy of better than 1 m.
- The encrypted **Public Regulated Service** (PRS) and Safety of Life Service (SoL) will both provide an accuracy comparable to the Open Service. Their main aim is robustness against jamming and the reliable detection of problems within 10 seconds. They will be targeted at security authorities (police, military, etc.) and safety-critical transport applications (air-traffic control, automated aircraft landing, etc.), respectively (Mowthorpe, M., 2005).

Phases of the Project: Originally, the GALILEO project has been developed jointly with the European Space Agency and EU as a civilian and commercially oriented radio navigation system under private-sector operational control. The **definition and development phases** ran from 2000 to 2009 and were financed through bilateral national contributions to an ESA program and EU budget means.

Today, the **deployment phase** is organized as a fully EU-run and financed operation, where the EU budget provides 3.4 billion EUR within the current financial perspective until 2014. The first tenders for the project are due to be terminated mid 2009 and are also organized by the EU Commission.

The operator model for the **exploitation phase**, due to begin in 2012/2014 and to cover the whole 30 year life cycle of the system is not agreed upon yet.

2.2 Geostrategic Assets

Designed in the 1970s by the US Department of Defense, the Global Positioning System (GPS) was in the late 1990s and early 2000s - and is still so today - the only fully functional global positioning system. While its original purpose was strictly military, a less accurate level of GPS has been freely available for worldwide civilian use since the constellation reached full operational capability in 1995. The United States, through its provision of the GPS is able to promote its national interest by maintaining the system

as an international public good. The benefits of providing such a system include international prestige, technological leadership, economic competitiveness and security (Larsen, 2001).

In contrast to GPS, GALILEO has been conceived as a civilian system (Mowthorpe, 2005). One of the main arguments in its favor is that it will give Europeans independent and guaranteed access to a service currently provided by a foreign power. The risk that – especially in times of war – the US might decide to jam certain GPS signals and therefore compromise the integrity of civil applications is thought to be low. At the heights of the 1999/2000 Kosovo conflict, US president Bill Clinton ordered that this capability of the system be turned off. With no own positioning information available, European military participating in the operations were at that point relying on information provided by the American forces.

Yet, even if Europeans could be certain that America's GPS signals would never be interfered with, having two suppliers of satellite navigation data would be tremendously valuable from an operational point of view. No matter how benign the US Department of Defense is, in systems of the grade of complexity of a satellite navigation system, a backup system is always advised in questions of life-and-death. Parallels with the situation before the launch of the Airbus program are evident (Lungu, 2004)

The GALILEO program represented an attempt by Europe to promote critical infrastructure in an arena where Europe has no natural comparative advantage, but where international competition is being advanced through governmental intervention (Gleason, 2006). The promotion of the European navigation and positioning system, along with its associated infrastructure, can be seen as an attempt by Europe to become an effective strategic partner, or, as a memo of the US Pentagon suggests, that Europe would begin to challenge US dominance in a strategically important technology.¹

2.3 Economic Perspectives

Since Europe, unlike the United States' GPS System, *guarantees* part of the signal, GALILEO may be used for air traffic control, financial transactions and other applications

¹ Letter of Paul Wolfowitz, Vice Secretary of Defense, to the EU Ministers of Defense of December 1, 2001

involving legal liability. GALILEO should have a communication payload to transfer navigation information. This would enable income to be generated from airliner, truck, taxi and bus fleets.

But besides immediate economic effects through the construction of the system and generated income from its users, the main driver for the installation of a second satellite navigation system with superior services is to create a lead market in a technology field that is deemed to be of utmost strategic importance for the European technology industry, i.e. application hard and software linked to the GALILEO system.

The cumulative economic and social benefits of GALILEO to Europe were estimated at the end of the 1990s up to 2020 conservatively at 24 billion Euros, with a total investment cost of 6 billion Euros. France, Germany, Italy, and the UK each have a 17.3% share in the program, with Spain's share 10.13% and Belgium's 4.79%. EU estimates showed that GALILEO would create 100,000 jobs.²

A 2001 PricewaterhouseCoopers study³, estimated the economic perspectives of GALILEO as follows:

- GALILEO is economically justified: the cost-benefit analysis shows a strong case for public sector commitment to the project. The business plan developed in this study shows a very positive cost-benefit ratio. It is substantially higher (almost double) than for comparable large publicly funded transport infrastructure projects (e.g. motorways, airports or highspeed railways). The study estimates the total benefits at € 17.8 bn (nominal price value) at a total cost, including operation of the system, of only € 3.9 bn (which implies a cost-benefit ratio of 4.6). This ratio should ultimately be even higher as for this study, only the benefits for the transport sectors were taken into account.
- The study underlines the huge potential benefits of GALILEO in terms of applications for a wide range of sectors starting from all transport modes, to

² UK DTLR, Department of Transport, Local Government and the Regions, Consultation on a European Commission's Communication on GALILEO – Involving Europe in a New Generation of Satellite Navigation Services, 1999

³ PriceWaterhouseCoopers: Inception study to support the development of a business plan for the GALILEO program TREN /B5/23-2001

personal communication and location, police, fire and civil protection operations, energy exploration and transport, insurance, agriculture and fisheries. Although more difficult to quantify, the study also shows that social benefits are significant, notably for the protection of the environment, employment and European technological development.

- The study identified two major sources of market revenue: royalties from chipset sales and revenues from service providers. Projections showed that GALILEO would achieve positive operating cash flow already as from 2011 onwards (only three years after beginning operation).

2.4 Financial Engineering in Early 2002

The stages for the carrying out of the program and the respective financing were defined at the end of 2001 as follows:

- a definition phase, nearing completion 80 million EUR, already financed by ESA contributions and funding from the EU budget; supposed to run until 2001
- a development phase, that was at that time set to last from 2001-2005 with public financing of 1.1 billion EUR to 1.3 billion EUR, already programmed within the budgets of the European Union and the European Space Agency. The larger part of it (60 percent) were financed by the ESA, that is through bilateral financial contributions of ESA members.
- A phase of deployment of the satellites (2006-2007), with financing 2.1 billion EUR,
- An exploitation phase as from 2008, with maintenance expenses of about 220 million EUR a year (Commission of the European Union, 2001).

However, against the backdrop of an increasingly difficult fiscal situation in most of the EU countries in the early 2000s, in particular in France and Germany, neither a direct budgetary support for the deployment phase through an additional ESA program was possible, nor did the net contributors to the EU budget agree upon additional public funding for the deployment phase. The rather vague promises of additional growth ef-

fects through the expected development of a lead market in Europe alone did not suffice to overcome immediate budgetary constraints.

At this stage of the discussion, a new PwC⁴ study confirmed in end 2001 previous estimations on the costs of GALILEO: 3.6 billion EUR to complete the infrastructure of the system, on the assumption of a « worst case scenario » that includes significant contingencies and spare satellites.

Also, as a key finding, the study elaborated on the feasibility of a Public Private Partnership for deployment and exploitation phases of the project: These two phases were supposed to be funded essentially by the private sector. The private sector would be compensated with the revenues coming from the operation of the system after its full launch, i.e. through user fees for high quality services, and on a quasi-tax on terminals sold. Revenues generated should allow paying for an interest on the equity invested by the public sector, to service debts issued by the private sector to gather additional capital and to pay for the maintenance costs of the system.⁵

⁴ PriceWaterhouseCoopers: Inception study to support the development of a business plan for the GALILEO program TREN /B5/23-2001

⁵ Additional means were foreseen in the EU budget, but only to guarantee a timely launch of the deployment phase, not as a substantive and lasting contribution to the program.

3. Agenda Setting and Decision Making from a Theoretical Perspective

While the political, economic and financial settings in the run-up of the final decision were discussed in the previous chapter, the paper now turns to questions of theoretical frameworks that allow for a systematic analysis of the situation and the process of agenda setting and decision making in the case of GALILEO. Part 3.1 of this chapter will provide an overview of the theory of agenda setting, in particular in view of the European Union. A distinction between a high politics and a low politics route will be introduced. In sequence, the stages of issue specification, issue expansion and issue entrance will be presented. Agenda setting has been chosen as starting point of the theoretical part of this paper as discussions and power play in the run-up of the final decision on GALILEO in March 2002 can be well explained with this agenda setting framework. Part 3.2 will present decision making theories that will allow an assessment of the characteristics of the specific decision making process of GALILEO, in particular motivations for actors to decide. Also, this chapter will present theories that allow for some insight as concerns the advancement of the project in the political process, i.e. incrementalism, garbage can and policy window approach.

3.1 Agenda Setting

The literature (Cobb, Elder, 1972) understands ‘agenda’ as the list of issues that receive serious attention in a polity. Depending on who is giving this attention, several types of agenda may be discerned, such as the political agenda (the list of issues that receive serious attention from decision-makers), and the public agenda (the list of issues that receive serious attention from ‘the general public’) (Kingdon, 1995).

In the context of the EU, the distinction between public and political agendas is less likely to be relevant, as public involvement in EU decision-making is very limited. Political protest plays a much smaller role at the EU than at the member state level (Imig, Tarrow, 2001). Moreover, the existence of an EU ‘public sphere’, a pre-condition for having an EU public agenda, is questionable to begin with (Princen, Rhinhard, 2006). A

focus on political–public agenda dynamics is therefore less relevant in an EU context than it might be in other polities.

3.1.1 High Politics and Low Politics

As shown, the difference between publically set agenda and politically set agenda and is of lesser interest in the case of the EU. However, a similar distinction may be made between types of agenda processes in the EU, creating a double logic between ‘high politics’ and ‘low politics’ in the EU (Caporaso, Keeler, 1995); (Peterson, Bomberg, 1999).

Ideal-typically, issues can come on to the agenda in one of two ways and the logics behind are quite different:

- either they are placed on the agenda ‘from above’ by the political leaders in the European Council (the ‘high politics’ route). This means, that the high politics route is primarily a political one. In the high politics route, issue initiation is driven by high-ranking political figures assembled in the European Council. The reason for placing an issue on the agenda is the occurrence of a shared political problem, often highlighted by a symbolic event.
- or they are placed on the agenda ‘from below’ by experts working together in Commission Expert Groups or Council Working Parties (the ‘low politics’ route), with other words, the low politics route is primarily a technocratic one. Hence, issues will arise as a result of professional concerns among people working in the same issue area, which operate as an ‘epistemic community’ in the sense described by Haas.(Haas, 1989). Convergence around a given approach may occur gradually, as different points of view grow closer to one other (Princen, Rhinard, 2006).

To give a deeper insight on how the two routes evolve, Rochefort, Cobb (1994) developed four stages of ‘issue careers’: issue initiation, issue specification, issue expansion and issue entrance. The issue initiation stage defines if a subject is dealt with in the “the high politics route” or the “low politics route”. The following stages will develop as the following elaborations and Figure 1 show.

3.1.2 Issue Specification

Issue specification has to do with the further elaboration of a general issue into a set of specific demands (i.e. proposals). This is closely related to the process of framing, which is central to much of the agenda-setting literature (Rochefort, Cobb, 1994) The way an issue is framed is intimately linked with the specific venue in which it is discussed (Baumgartner, Jones, 1993). In the high politics route, the European Council will normally limit itself to defining the broad outlines of a common approach, leaving the details for lower level institutions to work out. In the low politics route, on the other hand, expert groups and working parties will seek to formulate specific, technically sound proposals on a given issue before sending them out into the broader decision-making system. Issue specification in the low politics route is likely to reflect the sectoral biases and technical frames of the groups and working parties from which they emerge (Princen, Rhinard, 2006). In the case of the European Union's institutional framework, this could mean discussions that differ in its objectives and outcomes in the Budgetary Working Group in contrast to working groups of other sectors and Council formations.

3.1.3 Issue Expansion

Issue expansion describes the way issues are moved beyond the initial actors in specific venues to a wider set of participants. In the high politics route, issue expansion typically takes place from the European Council to lower level institutions that have the power to adopt formal decisions, such as the Council of Ministers and the European Commission. In the low politics route, issue expansion takes place towards the higher level institutions that eventually have to decide on proposals (Princen, Rhinard, 2006).

3.1.4 Issue Entrance

As issue entrance the literature (Princen, Rhinard, 2006) describes when an issue gains access to the formal agenda of EU decision-makers. In both routes, this is normally not the same venue as where the issue was initiated. The two processes present distinct opportunities and risks in terms of agenda entrance. The main opportunity inherent in the high politics route is that it may overcome political and institutional inertia by

creating a large amount of political impetus for change. The main risk, however, lies in the watering down or return to inertia that may occur when attention shifts to new issues and the political impetus fades. The main opportunity of the low politics route lies in the creation of a self-sustaining dynamic and reaching a ‘point of no return’ by gradually expanding EU activity on a given issue. Yet the main risk of this route is that issues may be blocked or ‘hijacked’ once they move outside the confines of low politics institutions and the circle of participants is widened.

Stage in issue career	High politics route	Low politics route
Initiation	By political leaders due to politically salient event	Out of professional concerns in epistemic communities
Specification	Formulation of political consensus on an EU response in the European Council	Formulation of specific and technical policy proposals in Expert Groups and Working Parties
Expansion	Towards lower levels of decision-making in the EU	Towards higher levels of decision-making in the EU
Entrance	By creating political momentum	By gradually building impetus

Table 1: Characteristics of the two agenda setting routes⁶

In reality, the two routes will most likely not occur in their ‘pure’ forms, however, the two routes may be linked in a number of ways, as Princen and Rhinard (2006) rightly point out:

- agenda-setting processes around certain issues can occur somewhere in between; for instance, with issues being initiated at the intermediate level of decision-making by permanent representatives.
- issues may change character over time and thus lead to changing agenda dynamics. An issue may originate as a low politics issue, but suddenly gain political momentum due to a focusing event or convergence of thinking at the high poli-

⁶ Princen, S. and Rhinard, M.: Crashing and Creeping: agenda setting dynamics in the European Union, *Journal of European Public Policy* 13:7, September 2006, 1119-1132

tics level. The reverse is also possible: an issue may begin as a high politics issue but then recede into obscurity, only to be taken up again by lower level officials.

- the two processes might be unfolding simultaneously (or nearly so), each having a reciprocal effect on the other. Issue initiation may occur primarily through the high politics route, for instance, while issue specification is influenced more by low politics agenda dynamics.

3.1.5 Empirical Expectations

This theoretical framework gives rise to some empirical expectations. Institutional structures will play an important mediating role as an issue's agenda career unfolds. This will also most likely be the case with GALILEO. In the stages of initiation and specification, institutional constraints will largely determine which frames are feasible and effective. Legal limitations to the EU's competences, for instance, will constrain issue initiation and shape how an issue can be specified, in particular if the project has been originally launched as a inter-governmental project in the ESA-framework, not as a EU project. Moreover, the multiplicity of EU venues means that several different 'issue specifications' may emerge from low-level processes. In the expansion stage, the complexity of EU institutional structures will offer opportunities for actors to steer proposals into certain venues, and to call upon sympathetic expert communities to build support. Many rounds of Council working groups and respective opportunities for the Commission to intervene in the process, will most likely in a complex case as GALILEO play an important role in this regard. The arrival of new actors and new venues can present problems to those who desire the placement of an issue on the EU agenda in a particular form. This, in turn, may affect the prospects for entrance of an issue on to the EU's political agenda.

3.2 Decision Making

Decision making can be regarded as an outcome of cognitive processes leading to the selection of a course of action among several alternatives. Every decision making process produces a final choice (Reason, 1990). The output can be an action or an opi-

nion of choice. Human performance in decision making terms has been the subject of research from several perspectives. From a psychological perspective, it is necessary to examine individual decisions in the context of a set of needs, preferences an individual has and values they seek. From a cognitive perspective, the decision making process must be regarded as a continuous process integrated in the interaction with the environment. From a normative perspective, the analysis of individual decisions is concerned with the logic of decision making and rationality and the invariant choice it leads to (Kahnemann, Tversky, 2000).

In decision making also a line has to be drawn between individual decision making and collective decision making. While individual decision making comprises only one individual being forced in a situation of decision to sort out its preferences and then apply its decision to a reality setting, collective decisions are more complex and the interests of different actors (be them their self individuals, or collective actors in the form of corporate actors, coalitions, movements, clubs or associations) must be aligned in a more or less systematic way to reach a decision (Hardin, 1982; Olsen, 1965). Newer publications (Thaler, Sandstein, 2008) point to the limited horizons of individuals and that individuals are restricted in their own world of choices.

3.2.1 Rational Decisions and Bounded Rationality

Some models of human behavior in the social sciences assume that humans can be reasonably approximated or described as "rational" entities (see for example rational choice theory). Many economic models assume that people are on average rational, and can in large enough quantities be approximated to act according to their preferences. The basic idea of rational choice theory is that patterns of behavior in societies reflect the choices made by individuals as they try to maximize their benefits and minimize their costs. In other words, people make decisions about how they should act by comparing the costs and benefits of different courses of action. As a result, patterns of behavior will develop within the society that result from those choices.

The main problem with rational-comprehensive approaches is that it is often very costly in terms of time and other resources that must be devoted to gathering the relevant information. Often the costs and benefits of the various options are very uncertain and

difficult to quantify for rigorous comparison. The costs of undertaking rational-comprehensive decision-making may themselves exceed the benefits to be gained in improved quality of decisions (Johnsen, 1994).

The concept of bounded rationality revises this assumption to account for the fact that perfectly rational decisions are often not feasible in practice due to the finite computational resources available for making them.

The term is thought to have been coined by Herbert Simon. In *Models of Man*, Simon (1957) points out that most people are only partly rational, and are in fact emotional/irrational in the remaining part of their actions. In another work, he states "boundedly rational agents experience limits in formulating and solving complex problems and in processing (receiving, storing, retrieving, transmitting) information". Simon describes a number of dimensions along which "classical" models of rationality can be made somewhat more realistic, while sticking within the vein of fairly rigorous formalization. These include:

- Limiting what sorts of utility functions there might be.
- Recognizing the costs of gathering and processing information.
- The possibility of having a "vector" or "multi-valued" utility function.

Simon suggests that economic agents employ the use of heuristics to make decisions rather than a strict rigid rule of optimization. They do this because of the complexity of the situation, and their inability to process and compute the expected utility of every alternative action. Deliberation costs might be high and there are often other economic activities where similar decision making is required.

Kahneman (2003) proposes bounded rationality as a model to overcome some of the limitations of the rational-agent models in economic literature.

Gigerenzer and Selten (2002) argue that most decision theorists who have discussed bounded rationality have not really followed Simon's ideas about it. Rather, they have either considered how people's decisions might be made sub-optimal by the limitations of human rationality, or have constructed elaborate optimizing models of how people might cope with their inability to optimize. Gigerenzer instead proposes to examine simple alternatives to a full rationality analysis as a mechanism for decision making,

and he and his colleagues have shown that such simple heuristics frequently lead to better decisions than the theoretically optimal procedure.

3.2.2 Incrementalism

Because an exhaustive analysis of the costs and benefits of every conceivable option for dealing with a problem in public policy is often unduly time-consuming and expensive, large organizations (and often individuals) may resort to a practical shortcut in deciding on possible improvements of existing programs. Only a few of the many possible options are seriously examined, and these tend to be ones that involve only small changes in existing policies or procedures rather than radical innovations. Changes are thus made only "at the margin." (Johnsen 1994)

Lindblom (1959), the original author of the theory of incremental decision making essentially says that a rational technical approach is not possible, and he offers an alternative — or at least an explanation of why the despised political maneuvering of administrative decision making may not be as bad as it appears.

Lindblom's perspective is seen in two other areas related to public administration: Wildavsky's "Incrementalism, and Defense Budgeting: A Bibliographic Essay" applies the incrementalism theory to military budget issues" (Wildavsky, 1994) and political structure, while Dahl (2003) to the theory of pluralism. In economics it is related to Nobel Prize-winner Herbert Simon's (1957) work on limited rationality. The core elements of the Lindblom's theory are:

- Ends and means are intimately intertwined, i.e., we often know our ends only from consideration of the means we are contemplating.
- Only a few means are considered ... [Assumes that managers have limited time and other resources (including information) to decide, so they can only do non-comprehensive analysis.]
- ... and only those which don't represent too much of a departure from the status quo. (Thus the name, "branch method", where each policy branches off to another.)

- Evaluation of the means is crude, in that many consequences are ignored. (This ignoring of consequences often occurs because a full analysis is not possible.)
- Choice among the means is determined by agreement among interested parties rather than by summary indicators arising from the analysis.
- Agreement is the only empirical indicator of virtue, because values are not usually clear-cut or even shared.

3.2.3 Garbage Can Model

The garbage can model was developed Cohen, March and. Olsen (1972) in reference to "ambiguous behaviors", i.e. explanations/interpretations of behaviors which at least appear to contradict classical theory. The garbage can model was greatly influenced by the realization that extreme cases of aggregate uncertainty in decision environments would trigger behavioral responses which, at least from a distance, appear "irrational" or at least not in compliance with the total/global rationality of "economic man" (e.g. "act first, think later"). The garbage can model was originally formulated in the context of the operation of universities and their many inter-departmental communications problems.

The garbage can model tried to expand organizational decision theory into the then uncharted field of organizational anarchy which is characterized by "problematic preferences", "unclear technology" and "fluid participation". The theoretical breakthrough of the garbage can model is that it disconnects problems, solutions and decision makers from each other, unlike traditional decision theory. Specific decisions do not follow an orderly process from problem to solution, but are outcomes of several relatively independent stream of events within the organization."(Cohen, March, Olsen, 1972). Four of those streams were identified in Cohen, March and Olsen's original conceptualization:

- **Problems** require attention, they are the result of performance gaps or the inability to predict the future. Thus, problems may originate inside or outside the organization Traditionally, it has been assumed that problems trigger decision processes; if they are sufficiently grave, this may happen. Usually, however, or-

ganization man goes through the "garbage" and looks for a suitable fix.... called a "solution".

- **Solutions** have a life on their own. They are distinct from problems which they might be called on to solve. Solutions are answers (more or less actively) looking for a question. Participants may have ideas for solutions; they may be attracted to specific solutions and volunteer to play the advocate. Only trivial solutions do not require advocacy and preparations. Significant solutions have to be prepared without knowledge of the problems they might have to solve.
- **Choice opportunities** are occasions when organizations are expected (or think they are expected) to produce behavior that can be called a decision (or an "initiative"). Just like politicians cherish "photo opportunities", organization man needs occasional "decision opportunities" for reasons unrelated to the decision itself.
- **Participants** come and go; participation varies between problems and solutions. Participation may vary depending on the other time demands of participants (independent from the particular "decision" situation under study). Participants may have favorite problems or favorite solutions which they carry around with them.

Why "garbage can"? It was suggested that organizations tend to produce many "solutions" which are discarded due to a lack of appropriate problems. However problems may eventually arise for which a search of the garbage might yield fitting solutions (Kilduff, Angelmar, 2000)

Probably the most extreme view (namely that of organizational anarchy) is that of the Carnegie School. Organizations operate on the basis of inconsistent and ill-defined preferences; their own processes are not understood by their members; they operate by trial and error; their boundaries are uncertain and changing; decision-makers for any particular choice change capriciously. To understand organizational processes, one can view choice opportunities as garbage cans into which various kinds of problems and solutions are dumped. The mix of garbage depends on the mix of labeled cans available, on what garbage is currently produced and the speed with which garbage and garbage cans are removed (March, Olsen, 1979).

3.2.4 Policy Window Approach

Kingdon (1995) describes the process of opening a policy window as involving three convergent streams: the **problem stream** involving problem identification and recognition often based upon indicators or focusing events; the **policy stream** populated by disparate policy communities producing alternatives and proposals; and the **political stream** incorporating shifts in public opinion, administration changes, and interest groups. These streams, all flowing independently with a life of their own and driven by differing forces, are coupled by policy entrepreneurs at critical points in time in an effort to influence agenda setting and advocate policy alternatives. A policy window then opens “because of change in the political stream or... because a new problem captures the attention of governmental officials and those close to them,” thereby providing the opportunity for action in the form of policy proposals and alternatives (Kingdon, 1995)

In essence, a policy window opens in either the political stream, or the problem stream leading to coupling efforts on the part of entrepreneurs and a place on the decision agenda. If, however, coupling does not occur when the problem or political streams set the governmental agenda, there is little chance an item will rise on the actual decision agenda on which action is to be taken, as the streams by themselves are not capable of setting decision agenda items. Thus, when a problem is identified and the political environment favorable, it is vital that the policy stream produces viable alternatives. Otherwise, the risk of an item fading from the decision agenda is vastly increased.

3.2.5 Empirical Expectations

Like the theoretical framework of agenda setting, the framework of decision making creates some empirical expectations. While complex institutional structures may blur many single decisions, they nevertheless provide for some ground for rational choices: the length of the processes, the number of persons involved and the many checks and balances in the course of an issue through the EU procedures lay ground for a solid base of information and hence, a rational decision. At the same time, many particular interests have an impact on the single decision and the outcome may appear much less ra-

tional than the years of information gathering and computational sort-out of variations would suggest.

Incrementalism is certainly a theory with some empirical evidence, however, transferred to a “big-bang” one-time decision like a go or no-go for a large-scale, highly politicized project, may not add much insight. Incrementalism would be more easily to detect in a sequence of EU Council working groups where projects are dealt with on an expert level.

Garbage Can and Policy Window seem to have a high degree of practical evidence. Many projects are in the air without making it either to the agenda – they are kept down by parties with the respective interest in low-level policy streams – or do not reach sufficient high level support until some significant background variables changes and the projects can take off.

4. Agenda Setting and Decision Making: The Case of GALILEO

In this chapter the frameworks and theories presented in chapter 3 of this paper will be applied to the concrete case of GALILEO. The chapter begins with the application of the agenda setting theories and then turns to the application of the theories of decision making. With regard to agenda setting, the paper will discuss GALILEO's routes through high and low politics, issue specification, issue expansion and issue entrance. Concerning decision making, theories of rational and bounded rationality, incrementalism, garbage can and Kingdon's policy window approach will be applied to the case of GALILEO, so as to provide a deeper insight of the decisions made in March 2002. Both sub-chapters, 4.1 and 4.2, have the same period - that is the run-up of March 2002 and the following months - as reference, but offer a different theoretical perspective.

4.1 The Agenda Setting of GALILEO

Since the mid-1990s, the idea of setting up a European satellite navigation system draw increasingly attention (Munsberg, 1999). Being a highly technical issue, and, at the same time an issue that involves space and national prestige, discussions in both channels of attention, were gaining momentum, in the public sphere and in the political sphere. It is right to assume, that in the EU context the public sphere is underdeveloped and, hence, might not be the central playground for the discussion on GALILEO (Imig, Tarrow, 2001). Nevertheless, the public sphere contributed to the discussion, if not on a concrete level of development/deployment/exploitation, but in some member countries, in particular in France, the public opinion included anti-American resentments, fostering the wish and the vision to set up a European counterweight to GPS.⁷ At the same time, a number of charismatic political leaders that were at that time at the pinnacle of their power, choose to put forward the satellite navigation issue in the highest political spheres, that is the European Council and in bilateral high level meetings.

Also, representing an issue that comes with a high profile, multi-billion Euro tender volume, the European space industry was since many years actively pursuing the

⁷ Le Monde, Article: Bruxelles a su resister aux pressions americaines, March, 27, 2002

project, gathering support from political decision makers in military and business administrations.

Hence, GALILEO made its way de facto on both agenda, the public and the political, which is rather unique, given the technical complexity of the subject.

4.1.1 GALILEO in High Politics and Low Politics

The idea that GALILEO's main stream is to be found at the political route, fits to the definition developed by Caporaso and Keeler (1995). The actual issue initiation is a political one that is, the actual go-ahead for the project came in March 13-14, 2002, when the European Council decided unanimously to start the project and advised their Transport Ministers to enact the release of 450 million EUR in order to fund the starting of the development phase of GALILEO.

In contrast, the route of low politics is not crucial for that one point in time, March 2002, that the project has been launched. While in many working party sessions models of development and respective financing have been discussed, no clear agreement could be made on working party level. At best, technocratic and professional concerns among people working in the area of transport, satellite, and military went into the direction that it might be positive for Europe to have a satellite navigation system of her own. At the same time, opposition came from those professionals working on the financial side of the project, as in 2002 it was clear that a fully funded project- in particular not a fully funded deployment phase - would not be possible within the given financial framework(Commission of the European Union, 2001).

4.1.2 Issue Specification, Expansion and Entrance of GALILEO

Following further Rochefort's and Cobb's (1994) issues career, issue specification, expansion and entrance, GALILEO's case comprises comparatively little surprises.

As to **issue specification**, the frame provided for the issue is the European Council, as a project of this size, its financial and budgetary implications but also its political brisance, could only be dealt with at the highest political level. As Rochfort and Cobb (1994) suggest, the European council limited itself in the case of GALILEO to defining the board guidelines of a common approach, leaving the details for lower level institu-

tions to work out. It is true, that also in the case of issue specification, a certain degree of preparatory work has been carried out in TREN-working groups, in the Budget Committee and, of course in the COREPER. At the same time, the lower levels of political decision were not able to overcome the specific problem of the lack of funds for the deployment phase. Any council formation, as ardent as promoter of the satellite navigation system they might have been, knew that a failed and discontinued investment, would be politically not feasible. The differing degree of promoting the project within different levels and formations of working groups and COREPER, fits well in Rochefort's dictum of sectoral biases: While the Budget Committee was fairly reluctant to go ahead with the deployment phase without having a hammered-down contract with the private sector consortium in order to have a clear and reliable funding scheme for the deployment phase, other sectoral formations were less hesitant to go ahead, in particular the TREN working parties.⁸

In **issue expansion**, the dominant high policy route of GALILEO is once more stressed, as the following communication from the council indicates: "Following on from the unanimous conclusions of the Barcelona European Council on 13-14 March 2002, the Council of Transport Ministers today released the €450m needed to develop GALILEO, Europe's satellite navigation and positioning system, and at the same time adopted the regulation establishing the joint undertaking responsible for operating it." This statement proves that the high policy route is quasi model-like followed as the European Council empowers the subordinate Transport and Energy Council to proceed with the program and to release 450 million EUR following the TREN Council session of March 26, 2002.

Finally, **issue entrance**: that is according to Caporaso and Keeler, when an issue gains access to the formal agenda of EU decision makers. Here, again, the dominance of the high politics route can be observed. With many TREN council sessions before March 2002 and a number of occasions where the European Council discussed GALILEO⁹, the

⁸ Euractiv.com: Transport Council adopts GALILEO program, March 27, 2002

⁹ The European Council came closest to a positive decision on GALILEO in its Stockholm meeting in March 2001, when the lack of sustainable funding from the side of the industry put the project again on hold.

issue made a clear entrance on the high policy route. A certain backing from the technocratic low-level route can also be detected as many working party and COREPER sessions worked on feasibility studies etc.¹⁰ At the same time, the key question of a political judgment of industry support for the project could have never been made by any other formation than the European Council itself, keeping in mind the enormous political prestige of the project (and the risk of failure) and the considerable budgetary obligations involved.¹¹

4.2 GALILEO: Decision Making

At this juncture, it makes sense to reiterate, that decision making can be regarded as an outcome of cognitive processes leading to the selection of a course of action among several alternatives. Every decision making process produces a final choice (Reason, 1990). The output can be an action or an opinion of choice. In the case of GALILEO, obviously the interest lies on a choice of action that is, to decide to launch the satellite navigation system in March 2002. As the decider is in this case the European Council, it is clear that we deal with an act of collective decision making.

4.2.1 Rational Decisions and Bounded Rationality

As outlined in chapter 3 of this paper, many economic models assume that people act rationally, and can in large enough quantities be approximated to act according to their preferences. In the multi-player, multi-layer environment of the European Union, this large enough quantity is present, as the sheer number of processes, decisions rounds and the number of smart players involved account for a high degree of statistical reliability with little variance.

Simon (1957) argues in *Models of Man* that limits in formulating and solving complex problems and in processing (receiving, storing, retrieving, transmitting) information

¹⁰ PriceWaterhouseCoopers: Inception study to support the development of a business plan for the GALILEO program TREN /B5/23-2001

¹¹ In addition, a long-term liability that is necessary to launch, deploy and operate a project like GALILEO (i.e. a 30 years horizon) is, from the legal perspective, slippery ground in the EU budget law. The longest reaching financial outlook the EU has at its disposal is the seven year framework – considerably less than the life span of a satellite navigation system. Also, the EU budget is not allowed to draw on credit financing, limiting further the possibilities to fund long-term projects.

severely limit the base for a rational decision and leads to a bounded rationality. While this might be the case in more individually driven processes, EU decision making offers its players usually months of preparation with considerable man power and financial means involved to direct technical studies to raise the level of expertise. Also, many rounds in working groups, COREPER and Council sessions allow for a large setting to exchange views on any aspect of a subject.

Seen from outside, it seems more, that the main problem is to understand all rationales behind decisions and voting patterns on all levels of EU decision making of all players in a complex case like GALILEO, then that players act according to a bounded rationality.

- Actions of representatives in working groups in Brussels might not be consistent with their own opinion but might be a watered-down compromise found within their own government's coordination processes. Ministries of Finance naturally put a greater emphasis on the financial engineering of such a large scale, long running project, like GALILEO, in particular when budgetary law restricts legal possibilities of long term financing and sustainable funding options are elusive. Line Ministries, like TREN Ministers would care more for the technical feasibility and economic second-round effects of satellite navigation. The position a member state finally presents in Brussels, in particular in the European Council, will have to strike a balance between these different positions within one government.
- Or, a position presented in Brussels in the case of GALILEO might not be that of the member state's governance at all, it might have been the outcome of a compromise with another government in exchange for support for another issue in a completely different context.

Without sufficient information on all rationales of all the players, on all levels, it will not be possible to fully draw a map of rational decision, but, given the facts mentioned before, it seems realistic that rational decision making is highly relevant in EU processes:

- The geostrategic and military playing field seems to offer little explanation for an alternation of a rational decision in March 2002 to opt in favor of GALILEO,

as parameters were clear after the Kosovo crisis and the “turn-off of GPS through the US executive.

- However, after a change of some parameters of the overall estimation of the economic outlook for GALILEO, in particular the expected financial contribution of the private sector to the system, and the feasibility of a PPP, the setting for the decision were altered in the “last second” before the meeting in a way that pressure to vote pro GALILEO became too great to resist for decision makers, even if their former rational analysis of the situation told them to vote against.¹² **On the basis of the new study, a rational decision was made possible.**

4.2.2 Incremental Aspects of GALILEO

In contrast to decisions made by rational reflections, the incremental approach seems to offer little insight for a high profile decision in one single European Council session, like the decision on GALILEO.

Incremental practices are more likely to be found in decision preparatory working groups and line-ministry Councils like the TREN council. Therefore, it is true, that incremental practices also play a role in high profile cases, such as GALILEO. A unique single point decision whether or not to launch a large scale project is, however, not to be characterized as an incremental decision. The role of incrementalism might be seen in parallel to the high politics route and the low politics route, discussed earlier in the agenda setting section of this paper: A pure form of a rational one-point-in-time-decision is as little likely to be found, as a pure high politics route case of agenda setting. Nevertheless, the incremental route can be called, at best, a preparatory route, forming, with its gathering and weighting of information and proposing little variances to a subject, the ground for a rational decision. Lindblom’s case criteria for incremental changes do not fit to the case of GALILEO, in particular, the idea that only those ideas can be chosen by deciders that do not deviate too much from the status quo (Lindblom, 1957).

¹² PriceWaterhouseCoopers: Inception study to support the development of a business plan for the GALILEO program TREN /B5/23-2001

4.2.3 Garbage Can and Policy Window: The Window of Opportunity for GALILEO

The **garbage can model** fits fairly well to a case of high profile policy making, such as GALILEO. The four streams identified by Cohen, March and Olsen (1972) are easily to extract from this specific case:

- The problem stream is the result of a performance gap, in this case the lack of a European Satellite navigation system. The problem triggered the search for a suitable solution, and the EU came up with the project concept of GALILEO.
- The solution stream would see the satellite navigation system as a challenging and interesting technical project that would be a nice-to-have. So, it is the solution that is having a life of its own and that is being advocated actively and for a long period of time by pressure groups, e.g. the European space industry, but also discussed in academic and military circles. This solution is looking for the fitting problem that can be solved.
- The EU Council meeting in March 2002 can be seen as the choice opportunities stream: Political pressure on participants to come up with a solution, that is to give Europe an independent satellite navigation system, was high; and the public, at least the well informed public, expected a decision to be made.
- Finally, the participants stream is, in the case of GALILEO, that in March 2002, those Council members, that were highly in favor of the project were at the pinnacle of their power. In particular, freshly reelected President Chirac of France with the important French space sector behind him was a most ardent promoter of the project. The French side was particularly strong as its steadily reiterated argument that space intelligence would have to be independent from the US became more credible after the US compoment in the Kosovo crisis.

Ultimately, **Kingdon's policy window approach** assumes that a policy window opens in either the political stream, or the problem stream leading to coupling efforts on the part of entrepreneurs and a place on the decision agenda (Kingdon, 1995).

In the case of GALILEO, this would suggest a shift in public opinion or a shift in the opinion of the administration due to a specific external event, which is comparatively easily to identify as the Kosovo crisis. However, a certain time-lag has to be attested: The event of the Kosovo crisis and the US imposed shut-down of GPS data for European military and intelligence happened in early 2000.

Obviously, a counter weight stopped the window to open immediately after the trigger event. Here, the financial engineering played the major role. Against the backdrop of tight fiscal situations in major EU countries, Budget Committee and ECOFIN resisted for a long time the launch of GALILEO, as no sufficient funding was available for the deployment phase and no sustainable concept for the exploitation phase was found either (Presidency of the European Council – ECOFIN, 2001).

Only with the new numbers presented in the PwC study it became possible to alleviate reservations footing on financial reasons. Fiscal challenges were presented in a more manageable way with higher revenues and a more front loaded revenue profile. Costs were deemed comparatively stable and reinforced previous calculations. Also, with public funds scarcely available, the idea was brought up to provide private funds for the deployment and exploitation phases of the project.

- On the revenue side, the PwC study came up with significant higher returns and with a more front-loaded revenue profile. Overall revenues were estimated at 951 million EUR until 2020, while previous studies estimated revenues at 640 million EUR or 625 m EUR.
- On the costs, the PwC study came up with higher numbers than previous ESA and EC estimates. However, cost increases were comparatively smaller than the additional revenue estimated by the PwC study and were in part due to the fact that the PwC study came out as the last estimate, where cost overruns in the development phase already materialized.
- Also, the study advocated the feasibility of a PPP project, so that the public side would be liberated from the financing of the deployment phase, in exchange for the concession of the rights to generate revenues to be transferred to the private sector, once the system is operational.

Euro m (2001 prices)	PwC			Geminus Study ¹³			GALA Study ¹⁴		
	2010	2011	2012	2010	2011	2012	2010	2011	2012
Service Revenues	6	70	200	65	125	165	25	80	305
Purchase Revenues	60	300	315	10	60	215	30	75	109
Total	66	370	515	75	185	380	55	155	415

Table 2: Revenue Comparison PwC Study v. Previous Studies¹⁵

Euro m in 2001 prices	Development			Deployment			Total		
	PwC	ESA	EC	PwC	ESA	EC	PwC	ESA	EC
Ground segment	423	341	903	354	471	1,840	777	812	2,743
Space segment	562	485		1,270	979		1,832	1,464	
ESA costs	99	83	98	55	48	62	154	131	160
Contingencies	166	91	99	170	150	198	336	241	297
Other	127			180	50		307	50	
TOTAL	1,377	999	1,100	2,029	1,698	2,100	3,406	2,697	3,200

Table 3: Cost Comparison Development and Deployment Case Studies, PwC Study v. other Studies¹⁶

¹³ Dutton, L., Brami, S., Pasquali, R., & Haro, P: The GEMINUS Galileo Service Definition in: Proceedings of the International Symposium GEOMARK 2000, Paris, France, 10-12 April 2000.

¹⁴ European Project GALA was the prior study of the global architecture of the Galileo system, realised by several companies and institutes in the European Community, for ESA (European Space Agency).

¹⁵ PriceWaterhouseCoopers: Inception study to support the development of a business plan for the GALILEO program TREN /B5/23-2001

¹⁶ As before.

In sum, the presentation of the PwC study in late 2001 strengthened the assumption that the GALILEO project would be financially viable. Together with the positive signals from the private sector to agree on a PPP for deployment and exploitation phase, and hence with the assumption that additional expenses for the public side could be avoided, the chorus of those doubting the viability of the project was significantly weakened.

With the financial engineering reservations diminished and the political argument, that Europe could not allow herself to stay in the hand of foreign powers in view of satellite navigation, produced the necessary shift in the political stream to finally launch GALILEO: the policy window opened.

5. Conclusion

This paper applied theories of agenda setting and decision making to a concrete case of European policy making: The launch of the European satellite navigation system GALILEO.

The key point of reference for agenda setting and decision making is the Barcelona European Council of March 15 and 16, 2002. While discussed in many sessions before, in this specific session the Council decided to ask the Ministers of Transport to make the necessary follow-up decisions regarding both the funding and launching of this program and the setting up of the operational unit contracted with the organization of the project, the Joint Undertaking in cooperation with ESA.

The theoretical framework for analysis of agenda setting and decision making helped to sort out a number of observations that could be extracted from the political process in the case of GALILEO:

1. While it is not possible to purely attribute this case of political agenda setting to either Corporaso's high or low policy route, the agenda setting of GALILEO is obviously more characterized by the high politics route. Rationale: high public visibility, prestigious technology involved, and the question if Europe is able to emancipate herself from US dominance. Also the other issue career stages, such as issue specification, expansion and entrance show the characteristics of a high policy route.
2. With regard to decision making, the overall policy process in a complex negotiation issue, as GALILEO with its many layers of national and then Brussels circles of decision making, allows for a rather rational approach to decision making. Over the preparatory period of many years, many studies were conducted and expert rounds were held, so the empirical base for decision making was fairly solid. In particular, this holds true, when acknowledged that the studies closer to the positive decision on GALILEO provide a more positive perspective concerning costs and expected revenues. At the same time, the decision on GALILEO, seen from outside - and in particular in retrospective where many obstacles emerged that were latently known at the time of the decision - might not

seem rationale. This is due to the fact that from outside not all relevant decision-determining aspects on all layers between all players are known. The emergence of a new PwC study, readjusting expected revenues and burdens for the public budgets, allowed for a different, that is positive, rational decision, than in the period before. Seen from a different perspective, the PwC study could also be seen as a justification for deciders to decide in favor of GALILEO, even if significant doubts about the feasibility of the project remained.

3. The question, why GALILEO made it to the agenda and finally passed the Barcelona council session, leads to the application of the garbage can and policy window theories. Here, the political stream of Kingdon's policy window approach came to a point where the retarding element of unsecure financing became less important, as, in the pretext of the summit, a new PwC study came up with more optimistic estimates concerning the expected financial revenue of the program and the viability of a PPP for the deployment and exploitation phases. At the same time, the political situation, that is the assessment of main European policy makers and the informed public, that Europe would have to become more independent from US satellite navigation, did still provide for some strong arguments in favor of GALILEO. While the political stream was too weak, when only the geopolitical argument was on the table, the pivotal change in the assessment on the finance side allowed for the launch of the project in March 2002.
4. The possible broader implications of the findings of the case of GALILEO are extremely difficult to assess: The uniqueness of the project (highest European and international political stakes, financial dimension, budgetary implications, expected lead market and associated industry political interests) make for a fairly singular position of GALILEO in contrast to other, more usual technology policy projects. However, the findings on decision making, i.e. the rationality of the EU decision making process and the power of one single study (that comes against the backdrop of an overall favorable political assessment and high lobby group pressure) to turn around a discussion might also be transferable to lower-profile cases.

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