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# A PROCESS PERSPECTIVE ON REGULATION

## A GROUNDED THEORY STUDY INTO REGULATORY PRACTICE IN NEWLY LIBERALIZED NETWORK-BASED MARKETS

JOLIEN UBACHT\*

### **Abstract**

*The transition from a former monopolistic towards a more competitive market in newly liberalized network-based markets raises regulatory issues. National Regulatory Authorities (NRA) face the challenge to deal with these issues in order to guide the transition process. Although this transition process is widely studied, an integral view on the regulatory process itself remained absent. This raises the research question how NRAs deal with the regulatory issues while aiming for competition engineering. By following a Grounded Theory approach we analyzed the regulatory practice of three NRAs in newly liberalized mobile telecommunications markets during a five-year period. Our study reveals a high variety in procedural activities that represent the complexity of the regulatory process. Insight into these activities is informative for regulatory processes that need to determine the appropriate governance arrangements in complex, dynamic markets in which the institutions and technology go through a continuous co-evolutionary process. Firmly based in empirical data we present the theoretical concept of mixing and matching which represents the way in which activities are mixed during the regulatory process and matched with the issue that requires a governance arrangement. Further research into regulatory practice in other newly liberalized network-based markets will lead to a formal theory of regulatory practice as a process. This study contributes to the domain of regulatory studies by focusing on the procedural aspects of regulatory practice in newly liberalized network-based markets.*

**Keywords:** competition; grounded theory; liberalization; mobile telecommunications; network-based market; process of decision making; regulatory practice

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## 1. THE INSTITUTIONAL FRAMEWORK OF LIBERALIZATION

In recent decades liberalization and privatization in network-based sectors such as the energy, post, and telecommunications sectors led to a major reform of the institutional frameworks for regulation and operations of networks and services in the European Union (and beyond). This regulatory reform meant a shift from a principal/agent planned governance of these formerly monopolistic sectors towards the regulation of the relationship between privately owned competitors in a liberalized sector. New regulatory frameworks that entailed a transposition of European Directives into national laws had to be designed for the restructuring of the sectors. Moran and Prosser (1994) state that deregulation is in many issues not the same as the retreat of the State. Deregulation can also require ‘the creation of new institutions and the development of newly elaborated rules’ (Moran & Prosser, 1994, p. 9). Likewise Hancher mentions that “[l]iberalisation is certainly not the same as de-regulation” but has led to “the steady growth of detailed, complex regulation” (Hancher, 2003, p. 221). Part of these new regulatory frameworks was the installment of independent, sector-specific national regulatory authorities (NRAs) that had the role to translate the formal frameworks into the practice of regulating the newly liberalized sectors.

Mansell et al. characterize this challenge for governments as ‘the need to navigate a route between the Scylla of monopoly power, network integration and political interference, and the Charybdis of free market competition, network fragmentation, and government indifference to social consequences’ (Mansell, Davies, & Hulsink, 1995). By their very task and nature, national regulatory authorities are one of the major decision makers in selecting the route from public utilities sectors that were organized as state monopolies towards competitive markets in which private parties offer services that are labelled as essential for society.

Over the years, researchers from many disciplines studied these independent sector-specific regulators. The primary orientation of their studies was on the institutional design of regulation (Eyre & Sitter, 1999; Melody, 1997a), the use of (mainly economic) instruments for regulation (Cave, Majumdar, & Vogelsang, 2002; Hood, 1983; Levy & Spiller, 1996; Noam, 1994; Sappington & Weisman, 1996; Spiller, 1996), the juridical-political aspects of regulators (Gutiérrez, 2003; Martimort, 1999), performance assessment of regulation (Booker, 1999; Bouckaert, Hoet, & Ulens, 2000; Gasmi, Laffont, & Sharkey, 1999) or comparative studies on the NRAs effectiveness of their operations and the overlap between their jurisdictions (Ahdieh, 2006). In these studies the regulatory process is mainly taken as a given, and never the focus of analysis itself. Empirical research into the actual regulatory process is limited; the way in which NRAs actually executed their task of competition engineering and monitoring of the newly liberalized markets received limited attention. Exploration of

this regulatory process is the basis for gaining insight into the way the regulatory process contributes to support the transition process and it reveals the way in which governance arrangements are developed. Our study aims to unravel the complexity of regulation by NRAs by closely analyzing their decision making process on the level of dealing with regulatory issues on their agenda during the transition phase from monopoly to liberalization. Our leading research question is: *what does the decision-making process of National Regulatory Authorities in newly liberalized network-based markets look like when dealing with the complexity of regulatory issues that enter their agenda, during the first years of liberalization?*

In this article we first present the Grounded Theory approach that we chose to study regulatory practice in section 2. As domain of study we selected the five years period from 1997 to 2002 in which the mobile telecommunications market was fully liberalized in the United Kingdom<sup>1</sup>, the Netherlands and France. The liberalization of the mobile telecommunications market was complex due to the high stakes for former monopolists and new entrants. In combination with dynamic technological advances in networks and services, this led to a high level of uncertainty in market development. Therefore this domain offered rich empirical data for our exploratory study into regulatory practice as a process. We closely analyzed and coded the regulatory activities of the involved national regulatory authorities in 61 dossiers. These regulatory dossiers are summarized and presented in section 3. Subsequently, in section 4, we show how the empirical data analysis indicates that regulatory practice in dealing with the regulatory dossiers is dominated by procedural activities and how these activities can be characterized. In section 5 we take the analysis a step further by looking at the diversity in procedural activities and characteristics of the regulatory process itself. This leads to the presentation of our core theoretical concept of mixing and matching in section 6. Our overall conclusion is that regulatory practice mainly consists of procedural activities that support the formulation of a matching regulatory arrangement along the way. This conclusion is presented in section 7, together with future research questions.

## 2. GROUNDED THEORY APPROACH

To explore the way in which NRAs dealt with the complexity of regulation in a multi-actor setting with high stakes, uncertainty in market development and in which technological advance is an important factor, we followed a Grounded Theory

<sup>1</sup> In the United Kingdom, the mobile telecommunications market was liberalized earlier and thus had a longer tradition in competitive mobile markets. In May 1983 two operators were licensed to install and operate analogue land-mobile networks. These licenses were issued under the 1981 Telecommunications Act. The competitors were Cellnet (60% BT and 40% Securicor, later O2) and Racal-Vodafone (later Vodafone) [Long, 1995:p. 26; Thompson & Toker, 1992:p. 172]. Still, after full liberalization in 1997, OFTEL had similar issues as the other NRAs included in our study to further competition in the mobile telecommunication market.

approach. The Grounded Theory approach was first presented in the seminal work by Glaser and Strauss *The Discovery of Grounded Theory: Strategies for Qualitative Research* in which they presented an exploratory approach to study real life situations in order to develop theoretical constructs (Glaser & Strauss, 1967). They characterized it as an interpretive analytical approach which entails “a nonmathematical process of interpretation, carried out for the purpose of discovering concepts and relationships in raw data and then organizing these into a theoretical explanatory scheme” (Strauss & Corbin, 1998). Starting with empirical data (observations, documents, quantitative as well as qualitative data, etc.), an open coding scheme is applied. Open coding entails that no preliminary codes are used for analysis, instead, through several (possibly overlapping) phases of data collection and systematic coding of the empirical data, and by continuous comparison of the data, the codes emerge and develop from fine grained variables into higher level codes. This process ultimately allows for interpretation and conceptualization to take place. The goal of a Grounded Theory approach is to discover core concepts that can be linked to each other and that represent the relationships between the observed phenomena. A Grounded Theory approach aims at theory development firmly based in empirical data. As such, this approach is chosen in domains of research in which either theoretical concepts are not readily available or in which the aim is to reconceptualize and review previously developed theory by exploring a phenomenon anew (Charmaz, 2006).

In our study the goal was to develop a theoretical framework for regulatory practice in newly liberalized network-based markets. With this framework we want to show the complexity of regulatory practice in a holistic way, which is lacking in previous studies into regulatory authorities in such complex domains. We defined the concept of regulatory practice as “the consecutive activities that a sector-specific regulatory authority undertakes in dealing with an issue on its regulatory agenda” and we set out to explore what these activities entail.

The mobile telecommunications sector was chosen as a starting point for theory development in regulatory practice. We went through the stages of data gathering and coding in the several phases of the Grounded Theory approach, which consist of open, axial and selective coding with the aim to develop a theoretical core concept for regulatory practice. We name this core concept ‘the process of Mixing and Matching’. The concept shows that a regulator is continuously assessing the type of regulatory issue at hand, considering the state of affairs in the newly liberalized market (in terms of competition as well as technological advances), and contemplating the impact of a regulatory intervention. Along the way, in a process of interaction and communications with other parties involved, the regulatory authority develops a regulatory arrangement to solve the issue. The majority of the regulatory issues requires a longitudinal process which is characterized by the alternation of procedural activities with the use of enforcement tools (such as financial regulation, directives to market parties or fines), the consideration of alternatives to formal top-down regulation (such

as self- and (enforced) co-regulation) and networking with other regulatory organizations (such as the Competition Authority or the European Commission). In this article we focus on the procedural activities to unravel the way in which a regulator deals with complexity in its decision-making process. In the next section we introduce the regulatory dossiers that we analyzed as a means to do so.

### 3. THE REGULATORY DOSSIERS

Following the phases of a Grounded Theory approach as explained in section 2, we coded five years of regulatory dossiers that were dealt with by three NRAs in EU Member States, in the mobile telecommunications sector over the period 1997–2002. These are the first five years of full liberalization of the (mobile) telecommunications markets within the EU Regulatory Framework<sup>2</sup>. By its very character of opening up former state dominated markets, this period is informative to study what regulatory practice in a phase of enhancing competition in a network-based market entails. Such a phase of competition engineering can be illustrative for other newly liberalized network based markets and thus offers a basis for further study and theory development in the domain of regulatory studies.

#### 3.1. RECONSTRUCTING THE DOSSIERS

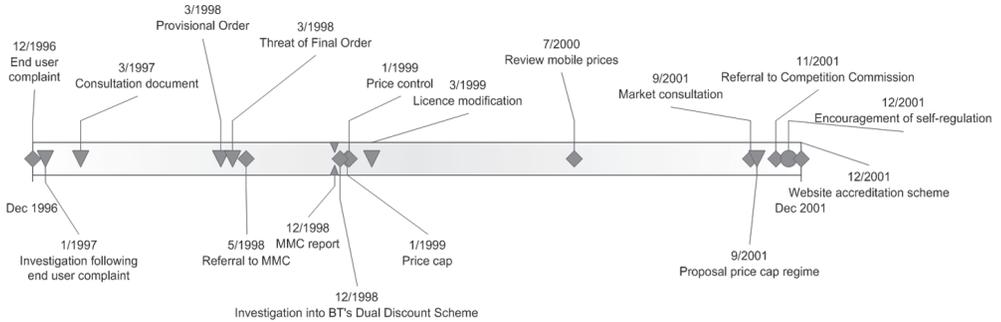
By means of a detailed reconstruction of 61 dossiers dealt with by the regulators for the telecommunications sector (at that time) OFTEL in the United Kingdom, OPTA in the Netherlands and ART in France, all regulatory activities were coded. The reconstruction was done by closely scrutinizing all formal documents that were published by the selected NRAs pertaining to the dossiers. We created timelines and meticulously entered every sort of activity that was mentioned in the documents. An example is provided in Figure 1. This is the example of the dossier on Mobile Termination Tariffs in the United Kingdom, as dealt with by OFTEL. This is how the timeline should be read: the dossier was started by a complaint from an end user in December 1996, an investigation and consultation with market parties followed. In March 1998 OFTEL issued a provisional order and so on. The analysis of the dossier is terminated in December 2001 with a referral to the Competition Commission, by an encouragement of self-regulation and the development of a website for an accreditation scheme. We made these timelines for all 61 dossiers and we entered the descriptive

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<sup>2</sup> The mobile telecommunications market was liberalized by the Commission Directive 96/2/EC of 16 January 1996, amending Directive 90/388/EEC with regard to mobile and personal communications (Official Journal L 020, 26/01/1996, pp. 59–66). Full liberalization of the telecommunications market followed by January 1998 with Commission Directive 96/19/EC of 13 March 1996, amending Directive 90/388/EEC with regard to the implementation of full competition in telecommunications markets (OJ L 074, 22/03/1996, pp. 13–24).

data into Atlas.ti, a software package for qualitative data analysis. Atlas.ti was used to support the coding in several phases of the Grounded Theory approach (Friese, 2012).

**Figure 1. Example of the reconstruction of regulatory activities into timelines. This case: Mobile Termination Tariffs in the United Kingdom, as dealt with by OFTEL**



### 3.2. CHARACTERIZING THE DOSSIERS

Our analysis of the 61 dossiers shows that in the first five years of the EU Regulatory Framework for the newly liberalized mobile telecommunications sector, the focus of the regulators was on the formation of the institutional context. They did so by interpreting the formal framework and by regulating the relations between former monopolist (mobile) telecommunications operators and new entrants to the market such as mobile operators, mobile service providers and retailers in the market. We termed this the *economic domain of regulation*, 43 of the 61 dossiers (70%) pertained to this domain. In this *economic domain of regulation*, the issues that were dealt with were targeted at ensuring compliance with the rules of the new regulatory framework, competition engineering via dealing with dispute settlements between market parties, developing the market conditions on the infrastructural level (such as setting and enacting rules for interconnection, national roaming and infrastructure sharing between mobile network operators) and to enable or support the adoption of new technologies or services (such as regulating indirect access to mobile services and unbranded airtime for service providers).

The other 18 regulatory dossiers (30%) were targeted at issues that aimed at what we term as *consumer-oriented regulation*. These dossiers concerned safeguarding of consumer interests such as the handling of consumer complaints and the safeguarding of public interests, for example creating favorable terms for the usage of mobile services like number portability, reasonable mobile retail tariffs and building in guarantees for the quality of the mobile service provision for consumers. In the next section we present our analyses in which we explored and coded the regulatory activities that were documented within the regulatory dossiers.

## 4. THE REGULATORY ACTIVITIES

We subsequently analyzed the reconstructed regulatory dossiers, looking for activities that were performed by the NRA. The definition of an activity was kept open to allow for each and every action taken by any actor that is involved in the regulatory process and to allow for conceptualization of the activities as closely related to the actual empirical data as possible. After the meticulous reconstruction of all these activities, we coded them following the open, axial and selective coding phases according to the Grounded Theory approach. In total we retrieved and coded 525 activities within the 61 dossiers, which led to the formulation of the following four major categories of regulatory activities:

**Procedural activities (302 instances coded, representing 58% of all activities):** the communal character of these activities is that they represent the process of dealing with an issue. These activities are either the reason that an issue enters the regulatory agenda (e.g. a complaint or dispute settlement request), or they are the supporting activities that are needed to assess the issue thoroughly (investigating, analyzing) or to close the case at the end of the regulatory process;

**Enforcement activities (120 instances coded, representing 23% of all activities):** the enforcement activities represent the decisions that the NRA takes to deal with a regulatory issue. They are preceded by the procedural activities to analyze the issue at hand and to explore the choice for a type of enforcement activity that fits with the character of the relevant issue and the intended effect of enforcement. Enforcement activities are: behavioral directions to market parties such as the designation of market parties as having significant market power, monitoring activities to check on compliance with decisions and rules, wholesale or retail tariff regulation, fines/penalties and license adaptations.

**Strategic activities (46 instances coded, representing 9% of all activities):** in the category of strategic activities, we found three options that the regulatory authorities chose in order to refrain from a top-down regulatory approach (as represented by the enforcement activities above) in solving an issue on its agenda. The regulators considered strategic alternatives to deal with an issue at hand such as:

- choosing for enforced co-regulation;
- refraining from intervention and, instead, to rely on market forces to deal with the issue or
- allowing for a form of self-regulation in the market.

**Networking activities (57 instances coded, representing 11% of all activities):** the networking activities are those activities that either another national or international regulatory authority performs within an NRA dossier, or the other way round: the activities that an NRA performs for other regulatory organizations. We labelled this

category as networking activities because they show the regulatory arena in which other regulatory authorities, besides an NRA, are active in the regulatory process. In some situations this networked cooperation is formalized, e.g. the cooperation is laid down in a formal statute. This is for example the case if an NRA and the National Competition Authority (NCA) align their way of working within the sector governance by means of a formal statute for cooperation.

In the remainder of this article we focus on the category that represents the highest number of occurrences: the procedural activities. These procedural aspects of regulatory practice are mainly taken as a given in other studies into regulatory practice, whereas this aspect of regulatory practice is instrumental in finding the balance between encouraging competition in the newly liberalized market on the one hand and safeguarding the public interests that are served by telecommunications networks on the other hand. In the next section we give a characterization of the procedural activities as found in the dossiers.

## 5. PROCEDURAL ACTIVITIES IN REGULATORY PRACTICE

Our coding of the empirical data shows that dealing with regulatory issues in a newly liberalized network-based sector is foremost a matter of procedural activities, as 58% of the total number of 525 activities were coded as such (note that we only coded for the occurrences of activities, not the duration of activities). For the NRAs, these procedural activities are the vehicle for exploring the space for a regulatory response and for determining the appropriate arrangement for dealing with an issue at hand. The NRA performs procedural activities to analyze new issues in depth at the very beginning, and next, to explore the space and possibilities for a response and to formulate this regulatory response in interaction with all actors involved in several, subsequent phases. This way of working can be characterized as an exploratory process: the regulatory response is developed along the way.

In this section we present several characteristics of the procedural activities. First, we look into the diversity of the procedural activities themselves, ranging from investigation towards case closing. Second, we present the way in which they are mixed during the timeframe of a regulatory dossier. Third, we explore the aspect of duration and the way the procedural activities represent a phased approach within the dossiers. All of these aspects show the complexity of the regulatory process, on which we reflect in the last paragraph of this section.

### 5.1. DIVERSITY IN PROCEDURAL ACTIVITIES

When an issue enters the agenda of the NRA, either initiated by a third party (such as a request for dispute settlement or a complaint from a market party or consumer) or

on the NRA's own initiative, a mix of procedural activities is triggered. In Table 1 the dimensions of this category of activities are presented, we explain them in the same order below.

**Table 1. The dimensions of the category of regulatory procedural activities and their percentage of occurrence within the total number of procedural activities**

	Short description of the activity
Investigation (16%)	Determining the character of the issue
Information gathering and sharing (31%)	Gathering information and checking intermediate analyses on a case by means of an interactive process with relevant parties
Analysis (7%)	Primary and secondary data analytics by means of desk research for internal use
Procedural step by third parties (27%)	Dispute settlement requests or complaints by market parties and end users as well as lodging objections to NRA decisions
Referral to other organizations (2%)	In case an NRA is not authorized or able to take a decision, the case can be referred to another regulatory organization
Closing the case (17%)	Case is (provisionally) closed

The first procedural activities are aimed at *investigation* of the issue at hand, in order to arrive at a more precise detailing of the issue that requires a regulatory response. This part of the process is aimed at an optimal characterization of the issue. Issues are predominantly triggered by a complaint from a market party or end user, but the NRAs also initiated investigations into market issues themselves. As such the investigative activities take place at the very start of the regulatory process.

The ensuing activities of *information gathering and sharing* represent the majority of the procedural activities. These are characterized by an interactive process with other actors involved, which takes place for example during a round table with market parties or within market consultations. Also public and private hearings in case of a dispute settlement are part of this dimension. More intrusive means of gathering information in the form of searching the premises of market parties are used less common, but did occur. Part of the interactive process is the sharing of information with market parties and consumers. As such it is a way to support checks and balances within the decision making process: the NRA analyses the information that is gathered, presents it to a wider public and receives feedback on its intermediate conclusions before going to a next stage of decision making. More informal ways of information gathering and sharing that are not reported in the formal NRA documents are not included in our study.

The dimension of *analysis* refers to the NRA's own activities for market analyses. Primary and secondary data analysis is done by means of desk research or is retrieved by means of commissioned studies. Examples of data analysis activities are market research and end user surveys. The difference with the information gathering and sharing dimension is that these activities are not subject to sharing with others but are aimed at internal use at the NRA.

The number of *procedural steps by third parties* comes second in ranking. These activities are mainly about the dispute settlement requests by market parties and the complaints of market parties and end users that enter the regulatory agenda. As such these are agenda setting activities as they often are the start of the regulatory process. In addition, third party procedural steps also contain the activity of lodging an objection to an NRA decision<sup>3</sup>.

The *referral to other organizations* is representative for the fact that, within a dossier, the NRA is not able or authorized itself to take a decision and therefore referred the case to other regulatory organizations, such as for example the National Competition Authority or, when a dossier required an international approach, to the European Commission or the European Regulators Group for Electronic Communications Networks and Services (ERG, now BEREC).

The last dimension in the category of procedural activities is what we term as "*closing the case*". This closure can take the form of a regulatory intervention/enforcement or, on the contrary, a decision to refrain from intervention. Occasionally a regulatory issue is merged into another dossier. In addition, the withdrawal of a request for dispute settlement or a complaint can also terminate the regulatory dossier. In cases in which the regulatory decision is contested, we see a provisional closure. The contestation can lead to a re-appearance of the issue on the regulatory agenda or a subsequent court case when an actor wants to continue to challenge a decision after a denial on his objection with the NRA itself<sup>4</sup>.

In this paragraph we presented the diversity in procedural activities by presenting the dimensions that we coded according to the Grounded Theory approach. In the next section we look at the way these activities were mixed along the way to develop a regulatory response or governance arrangement.

## 5.2. PROCEDURAL ACTIVITIES APPLIED

Although a high level prescriptive format (e.g. protocols) for dealing with a regulatory decision making process may be available, our study reveals that every regulatory issue is rather unique. Analyzing the 61 dossiers on a detailed level shows that the

<sup>3</sup> When a third party lodged a complaint against an NRA decision with the NRA itself (which is in general the very first step), it was included in our analysis. However, when the third party was not satisfied with the NRA decision on this complaint and subsequently went to court, then the activity was not included in our analysis.

<sup>4</sup> These court issues were not included in our study.

diversity in procedural activities is high. This represents the complexity and the fine tuning that takes place during the decision-making process.

Some dossiers that triggered *ex post regulation*, such as compliance cases, dispute settlement requests and end user or market party complaints led to a regulatory process with a limited number of procedural activities in a more or less standardized order before a decision was taken. In these cases, the decision making process is predominantly restricted to a couple of months and a relatively standard protocol for the decision making process can be discerned.

In contrast, in those issues that aimed at developing the institutional context in order to allow for the stimulation of competition in the market in the early years of liberalization, the procedural activities are higher in number and the variety of types of procedural activities is greater. These dossiers were initiated by the NRAs themselves and can be labelled as *ex ante regulation*. They led to a longer duration of the decision-making process, it is not uncommon that they lasted for more than a year before a decision was taken. Especially the dossiers in which *ex ante regulation* is explored in order to support services innovation that will enhance the competition in the sector, were long in the making. These dossiers centered on creating an arrangement for new service providers to offer services over the networks of the mobile network operators.

We illustrate this by the example of enforcing indirect access, which would allow independent service providers access to the networks of the mobile operators for delivering value added services to end users. The issue raised a multitude of questions such as whether or not the NRA was authorized to lay such an obligation of providing access upon a mobile network operator. Also the definition of the service, and whether or not the EU *Interconnection Directive* was applicable were points of discussion. These questions led to a longitudinal, exploratory dossier with many procedural activities. Our analysis of these longitudinal dossiers for *ex ante regulation* show that the uncertainty of the effect of regulatory intervention on the market structure, on the investments in mobile networks and the lack of insight into the technical details of indirect access made the NRAs rather reserved to develop and impose a regulatory arrangement.

Another example to illustrate the complexity of *ex ante* dossiers shows that regulatory uncertainty such as waiting for EC policy guidelines or developments such as the auction for the third generation of mobile networks contributed to the fact that in several issues the NRAs refrained from *ex ante regulation* while continuing to monitor the market and awaiting the development of these external influences.

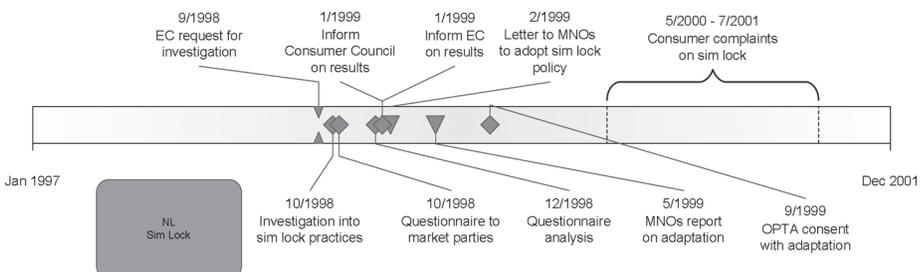
From the analysis of the regulatory dossiers it appeared that in those issues in which the creation of market conditions on the infrastructural level were the major aim, the role of the European Commission and National Ministries was relatively prominent. These issues were top-down evoked by EC Directives or Communications and adaptations in national telecommunications law that applied to the entire mobile market. In these cases it is informative to see the effect of the learning process within

regulatory practice. For example, the issue of setting the rules for infrastructure sharing amongst *second* generation mobile networks (2G) was longitudinal before a regulatory arrangement could be agreed upon. However, the ensuing issue of infrastructure sharing in *third* generation mobile networks (3G) took less time. The role of regulatory learning is evident: once a comparable issue has been dealt with, a similar follow-up issue can be dealt with faster and with less procedural steps.

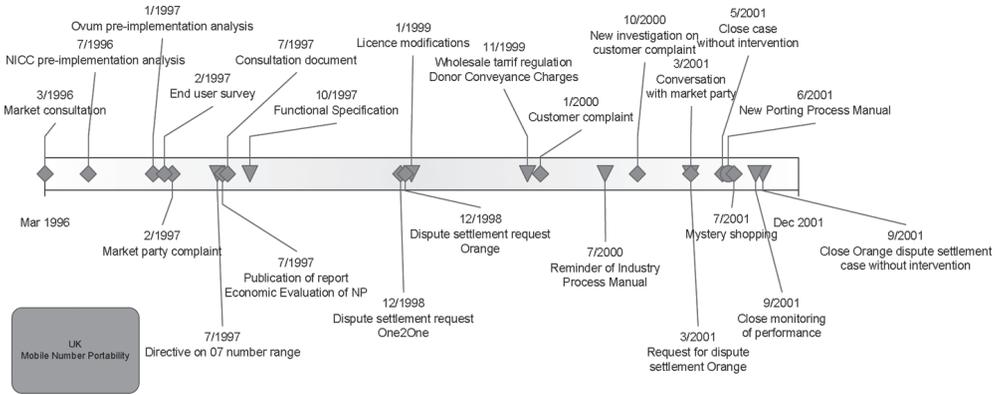
The domain of consumer-oriented regulation (as opposed to the domain of economic market regulation above) shows yet another pattern of regulatory arrangements. Most of the issues in this domain are initiated by the NRA itself or are a direct consequence of an EU Directive or a request from the European Commission for investigation. These consumer-oriented issues are about the quality of service, the transparency of end user terms and national mobile network coverage. The regulatory arrangements in these issues consist of continuous, repetitive activities such as annual public reports on the quality of service and regular publications targeted at the end users to raise their awareness of choice, quality, tariffs, their rights and ways to complain.

Nevertheless, the same domain of consumer-oriented regulation also includes some of the most longitudinal and most exploratory issues with the highest number of activities within the dossiers. These are the controversial issues such as the regulation of end user tariffs (i.e. mobile termination tariffs, on- versus off-net tariffs and the high costs for international mobile roaming) and the regulatory measures to empower end users to make a choice of service provider (i.e. the lifting of the sim locks on mobile phones that prohibited an end user to switch from service provider for a fixed period of time, and the introduction of mobile number portability). All of these public interest issues required a prolonged decision-making process with either a few (procedural) activities such as the elimination of the sim lock on mobile phones in the Netherlands (see Figure 2) or a high variety in (procedural) activities, such as the introduction of mobile number portability in the United Kingdom (see Figure 3). The contrast between these two dossiers shows that the process of *ex ante* regulation is dependent on the characteristics of the issue that is being dealt with by the NRA. In the next section we make the connection between the mixing of procedural activities with the issues at hand.

**Figure 2. Example of a regulatory dossier with relatively low complexity, with few activities, but an extended timeframe (from September 1998 till July 2011): lifting the sim lock on mobile phones in the Netherlands**



**Figure 3. Example of a regulatory dossier with high complexity, a high number of activities, and an extended timeframe (from March 1996 till December 2011): the introduction of Mobile Number Portability in the United Kingdom**



### 5.3. MATCHING ACTIVITIES WITH ISSUES

The overview of procedural activities within the regulatory decision-making process shows that not only the mixing of the activities is required but also the matching with the issue at hand. Particularly those issues that are put on the agenda by other parties that require an ex-post regulatory response (such as requests for dispute settlement and complaints) follow a more or less standard protocol. This can be explained by the fact that in most of these issues it is about regulating the relationship between the complainant and one other market party or one single consumer. Those issues that the NRA itself initiates and that are aimed at ex ante regulation for the entire market or for the relationship between a group of market parties (e.g. the mobile network operators with significant market power) and the other market parties or consumers, are dealt with in a more complex decision-making process. This type of process contains many procedural activities before arriving at a regulatory arrangement and closure of the case. Lastly, in addition to the more or less standardized and complex decision-making processes, another type of process is visible in the domain of consumer-oriented issues: these are the continuous regulatory interventions such as annual reports and regular awareness campaigns.

In conclusion we discerned three major types of decision-making processes in the regulatory dossiers: a more or less standardized process (especially in ex post cases of regulation), exploratory and complex with a mix of procedural activities (especially in ex ante cases of regulation) and continuous regulatory processes (especially in consumer-oriented issue).

The complexity in the exploratory, ex ante longitudinal cases with many procedural activities led us to take a closer look to explain why some regulatory dossiers took an extended period of time, taking one to several years before a regulatory decision is taken. Looking at the issues themselves, we can say that these were the cases that

influenced the business models of the dominant mobile network operators and the new market entrants the most and thus were highly controversial. However, analyzing the empirical data also shows that apart from the domain of regulation, the duration of the regulatory decision making process was also dependent on the:

*Degree of technological uncertainty:* the mobile telecommunications market is characterized by a high degree of technological innovation. This leads to uncertainty for regulators because of the difficulty to assess an innovation on its effects on the market.

*Complexity of the process due to multiple stakeholders:* as indicated above, regulation is an interactive process that is embedded within a regulatory framework that needs to be interpreted by the NRA. For this interpretation, the NRA gathers and analyses information in interaction with stakeholders such as market parties, end users and other regulatory organizations. During this process the NRA shares its interpretations with other parties in order to explore the solution space for solving the issue. The stakes in competition engineering in newly liberalized markets are high and regulatory decisions were often challenged on legal grounds. This leads to a higher level of complexity in the regulatory process.

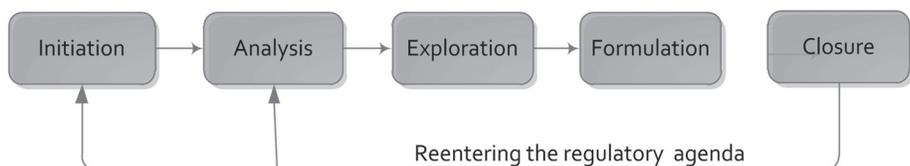
*Uncertainty related to the effects of regulatory intervention on the market:* the process is further complicated in those issues in which the assessment of the effect of the regulatory intervention is difficult to make. This leads to uncertainty, which is counterbalanced by an extension of the regulatory process by means of a sequence of procedural activities. This was illustrated by the example in the previous section on the introduction of indirect access on mobile networks.

*Uncertainty in regard to the regulatory framework:* in the early years of liberalization of the telecommunications market, NRAs had to work within newly developed regulatory frameworks. Market parties could challenge the formal authority of the NRA to deal with an issue at all. But also uncertainty was created by waiting for new EU directives to be formalized and translated into national laws.

#### 5.4. PHASED APPROACH

We not only looked at the duration of the decision making process, we also looked closer into the phases that can be discerned. The regulatory process can be split up into five phases, but the order in which the phases occur is not a straightforward process. The regulatory process is rather exploratory and iterations and overlap between phases occur. However, five high level phases are evident and can be characterized by distinctive features, they are depicted in Figure 4.

Figure 4. The phases of the regulatory process of an NRA dealing with an issue on its agenda



In the *initiation phase* the issue is put on the regulatory agenda. The majority of the issues (38%) in our study were put on the agenda by market parties, either by means of a request for dispute settlement or by lodging a complaint. But also the NRA by means of its own investigation and initiatives has an agenda-setting role (in 31% of the issues). The remainder of the issues is a reaction to (changes in) the regulatory framework (on the EU level: 15% and on the national level: 10%). And lastly public interests or end user complaints can be agenda-setting too (7% of the issues). These sources are presented in Table 2.

Table 2. Sources/initiators for regulatory agenda-setting

The issues were initiated by:	% of cases
Market party or third party by means of lodging a complaint or dispute settlement request	38%
National Regulatory Authority's own initiative	31%
Request from the European Commission	15%
Initiated by the Ministry or following a change in national law	10%
Public interests or end user complaints	7%

In the *analysis phase* the NRA makes a first assessment of the issue at hand, the actors involved, the market context and the technological features of the issue. In this phase the procedural activities are aimed at gathering information from a multitude of sources, such as market reviews, but also the interaction with market parties involved through requests for information to leverage the information asymmetry. The aim of this phase is an initial analysis of the regulatory issue at hand. The investigative activities are predominant in this phase.

In the subsequent *exploration phase* the NRA continues its information gathering & sharing activities in a broader, more open process. In this phase the interpretation of the issue is discussed with market parties by means of market consultations, hearings, workshops or round tables. The aim of this phase is to explore the solution space to solve the issue: potential regulatory interventions/arrangements are explored and tested.

In the *formulation phase* the actual regulatory arrangement is developed. This is, again, done through a dialectical process with market parties and other regulatory authorities (such as the National Competition Authority or the European Commission). The objective of this process is to develop a draft arrangement that is evaluated iteratively before it is finalized.

Lastly, in the *closure phase* the NRA presents the regulatory arrangement as an answer to the issue at hand to all parties involved. The outcome can be a decision on an intervention or, on the contrary, to not intervene but leave it to the market to solve the issue. Sometimes an issue is transferred into another dossier or referred to another

regulator. In addition, withdrawal of a request of dispute settlement by the market parties themselves can also lead to a closure of the regulatory issue. Monitoring after the closure phase is common. Appeals and new developments in the market or new complaints on the same issue can lead to re-entering of the dossier on the regulatory agenda, with a subsequent new phased process.

## 5.5. SYNTHESIS ON PROCEDURAL ACTIVITIES

In this section we presented the main characteristics of the procedural aspects of the regulatory process that we found by means of our Grounded Theory approach to investigate regulatory practice. Considering the diversity in procedural activities, NRAs could choose from an elaborate toolbox to design a regulatory process. The dossiers that we analyzed show that this design cannot always be formalized beforehand but it is dependent on the issue at hand. Especially in *ex ante* regulation aimed at the economic domain of regulation, complexity is rooted in the degree of technological uncertainty, the number of stakeholders involved, and the uncertainty related to the effect of interventions on the newly liberalized market that needs to evolve into a more competitive market. In these cases the regulatory process can be characterized as an exploratory process that is developed along the way, leading to the development of a suitable governance arrangement that takes this complexity in decision making into account. We reflect on the way these observations lead to the core category of our theoretical model for regulatory practice in the next section.

## 6. MIXING & MATCHING AS A CORE CATEGORY

In the final phase of our Grounded Theory approach we aimed at developing the core category for regulatory practice in newly liberalized network markets. In section 2 we defined regulatory practice as “the consecutive activities that a sector-specific regulatory authority undertakes in dealing with an issue on its regulatory agenda”. Based on the empirical data from 61 dossiers in the early days of liberalization of the mobile telecommunications market in the United Kingdom, the Netherlands and France, we see that there is no standard response from the regulator on the issues that enter its agenda. On the contrary, regulatory practice is dependent on the domain of regulation (economic versus consumer-oriented) and within that domain dependent on the type of issue.

Based on the coding of the empirical data and the search for dimensions and categories of regulatory activities, we come to the formulation of our core category. The core category within a Grounded Theory approach accounts for the dominant pattern(s) of the studied phenomenon. We term our core category “the Process of Mixing & Matching in Regulatory Practice”. This core category accounts for the dominant pattern in the regulation of newly liberalized network-based markets:

**Mixing** refers to the alternation and variety in different types of regulatory activities (apart from procedural activities, we also discerned the use of enforcement, the consideration of alternatives to formal top-down regulation (such as self-regulation) and networking with other regulatory organizations (which are beyond the scope of this article);

**Matching** is about choosing the suitable regulatory response towards the issue at hand. As illustrated by the examples in section 4, mixing and matching occur simultaneously, at each and every moment during the decision-making process towards the development of a suitable arrangement/response. The regulator applies this mixing & matching along the way, which requires a process design that allows for exploration, interaction with market parties, other regulatory organizations and consumers and a phased approach towards developing the governance arrangement.

## 7. CONCLUSION & FUTURE RESEARCH

National Regulatory Authorities in newly liberalized network-based markets face the challenge to determine appropriate governance arrangements. Especially in the first years after liberalization, regulatory issues are presented in a highly dynamic context with technological uncertainty and high stakes for former incumbents as well as the new market entrants. Also public and consumer interests need to be taken into account in the transition from a (state controlled) monopolistic market towards a more competitive one. The central question in this article was: *what does the decision-making process of National Regulatory Authorities in newly liberalized network-based markets look like when dealing with the complexity of regulatory issues that enter their agenda, during the first years of liberalization?*

Because of the absence of previous studies into the process of regulatory practice, we followed a Grounded Theory approach with the aim to develop a substantive theory of regulatory practice. The objective is a theoretical conceptualization of regulatory practice as a process. To firmly base the theory in empirical data, we reconstructed and analyzed five years of regulatory practice in three National Regulatory Authorities in EU Member States in the mobile telecommunications market over the period of 1997–2002 (the United Kingdom, the Netherlands and France). The research process of coding and constant comparison of the empirical data led to the formulation of the core category of “the Process of Mixing & Matching in Regulatory Practice”.

The procedural activities contribute to choosing a matching regulatory governance arrangement for the issue at hand as it makes a difference whether the NRA needs to develop a governance arrangement for an ex post case in compliance or dispute settlement cases or needs to deal with ex ante regulation to develop the market conditions on an infrastructural level or to support competition on the services level. Yet another type of issue is in ex ante regulation of consumer or public interests,

which predominantly requires a continuous approach to take care of issues. Each type of case requires a different approach, this is conceptualized by the core category of mixing and matching in regulatory practice.

The scientific contribution of our Grounded Theory study is in unravelling the process to deal with complexity in regulatory practice in newly liberalized network-based markets. The concept of mixing and matching is an approach that adds to existing frameworks for regulation by making them more dynamic as the process is the carrier for formulating regulatory response. For instance, regulatory studies that focus on regulatory performance tend to take the regulatory process as a given, whereas insights into the process shows how the performance is influenced by restrictions, complexities and trade offs in governance arrangements in the preceding regulatory process.

Our study is complementary to previous studies into the role and function of regulatory authorities by taking a process-oriented approach. This is lacking in regulatory studies that focus either on the use of regulatory instruments, the institutional aspects of the regulators themselves or the assessment of their performance. For example the well-known and often referred to pyramid of responsive regulation (Ayres & Braithwaite, 1992) lacks the dynamics of the process of regulation and does not comply with regulation of dynamic markets that are in a transition phase from monopoly to competition. The concept of responsive regulation is suited for more stable markets. Further theoretical comparison with other regulatory theories is required to see how the concept of regulatory practice as a process can enhance existent theoretical frameworks for regulation.

Whereas the conceptualization of the regulatory process was done by means of empirical data from the mobile telecommunications sector, the idea of regulatory practice as a process of mixing and matching extends to other newly liberalized network-based markets in which competition engineering is required. In a Grounded Theory approach, the next step is to continue with the substantive theory of regulatory practice by analyzing regulatory processes in other newly liberalized markets, such as for example the energy, postal or railway sector. This continuation leads to a formal theory of regulatory practice as a process.

The design of institutional frameworks for regulation in complex, developing markets that share characteristics of newly liberalized network-based markets tend to focus on the regulatory instruments that can be used for the stimulation of competition in the market. Our concept of regulatory practice shows that such frameworks should not only include regulatory instruments; they should also pay attention to the procedural activities that are available to a regulatory authority to develop a governance arrangement for issues on its agenda. Our empirical data shows that regulatory authorities that operate in newly liberalized network-markets need flexibility in the process design, because factors such as the degree of technological uncertainty, the strategic behavior of multiple stakeholders, uncertainty related to the effect of their decisions on the market and uncertainty in regard to the regulatory framework and the actual authority of regulators require an exploratory approach in

dealing with regulatory issues. We presented a theoretical concept of regulatory practice firmly based in empirical evidence, which offers a process-orientation in the research domain of regulatory studies in the liberalization in network-based markets.

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