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Law in Conflict.

The Regulation of Genetically Modified Food in Germany and in the United States

Dissertation zur Erlangung des Doktorgrades (Dr. phil.)

von

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Abbreviations

AgV	Arbeitsgemeinschaft der Verbraucherverbände
APA	Administrative Procedure Act
APHIS	Animal and Plant Health Inspection Service
BSE	Bovine Spongiform Encephalopathy
BgVV	Bundesinstitut für gesundheitlichen Verbraucherschutz und Veterinärmedizin
BfR	Bundesinstitut für Risikobewertung
BFS	Bundesverband der Filialbetriebe und Selbstbedienungs-Warenhäuser e.V.
BFVA	Bundesforschungsanstalt für Viruskrankheiten der Tiere
BIO	Biotechnology Industry Organization
BLL	Bund für Lebensmittelrecht und Lebensmittelkunde e.V.
BMG	Bundesministerium für Gesundheit
BML	Bundesministerium für Ernährung, Landwirtschaft und Forsten
BMVEL	Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft
BMWi	Bundesministerium für Wirtschaft und Technologie
Bt (Toxin)	Bacillus thuringiensis toxin
BVL	Bundesverband des Deutschen Lebensmitteleinzelhandels
BVL	Bundesinstitut für Verbraucherschutz und Lebensmittelsicherheit
CAC	Codes Alimentarius Commission
CJD	Creutzfeldt-Jakob Disease
rDNA	recombinant Desoxyribonucleid Acid
DIB	Deutsche Industrievereinigung Biotechnologie
EC	European Commission
EDF	Environmental Defense Fund
EP	European Parliament
EPA	Environmental Protection Agency
EU	European Union
FDA	Food and Drug Administration
FDCA	Food, Drug, and Cosmetic Act
FTC	Federal Trade Commission

FOIA	Freedom of Information Act
GEA	Genetic Engineering Act (GenTG = Gentechnikgesetz)
GMA	Grocery Manufacturers of America
GMO	Genetically Modified Organism
HDE	Hauptverband des Deutschen Einzelhandels
LMBG	Lebensmittel- und Bedarfsgegenständegesetz
NGG	Gewerkschaft Nahrung-Genuss-Gaststätten
NFR	Novel Food Regulation (=NFVO)
NFVO	Novel Food Verordnung (=NFR)
NLV	Neuartige Lebensmittel- und Lebensmittelzutaten-Verordnung
OECD	Organisation for Economic Co-operation and Development
OSTP	Office of Science and Technology Policy
RKI	Robert Koch-Institut
SPS	Application of Sanitary and Phytosanitary Measures
TBT	Technical Barriers to Trade
UCS	Union of Concerned Scientists
USDA	United States Department of Agriculture
VDOe	Verband Deutscher Oelmühlen e.V.
VZBV	Verbraucherzentrale Bundesverband
WHO	World Health Organization
WTO	World Trade Organization

Introduction*

In 1975 Christopher D. Stone stated that "there is no simple answer to why existent legal mechanisms so often seem less than satisfactory when it comes to coping with business corporations" (Stone 1975: 1). This statement still holds true and not only with regard to business corporations but for all organizations. The 'regulation' of organizational behavior – understood as the attempt to achieve a desired, favored behavior by means of legal rules – often not only produces unintended side effects and the like, but also maneuvers the *law in conflict*. This latter statement contains an obvious ambiguity as it can be read in at least two different ways. Firstly, as law in *conflict*. Here law implicitly seems to be invoked as a conflict-solving resource. Secondly, as *law* in conflict. In this case, the law itself appears as the source of a conflict. These interpretations are not as exclusive as they might be at first glance but hold true both since legal norms often become the trigger of a new conflict while trying to solve another conflict. Quite often this was – and still is! – seen as a token for the law's failure, its inability to fulfill its task: the stabilization of normative expectations (Luhmann 1993) and, consequently, the prevention or settlement of conflicts.

In the context of the present study instead, such an event is not understood as pathological but is rather be described as the normal case. Thus, it is based upon the assumption that the law cannot help but transform a societal conflict into a legal conflict. Each legal reformulation of a societal conflict therefore has to be understood as a legal distortion (Teubner & Zumbansen 2000). Consequently, the legal regulation of a societal conflict must remain *inadequate* in a non-normative sense. Law's inadequacy in dealing with societal conflicts is not seen as a deficiency that could be resolved, but rather refers to law's rationality and the fact that the legal system perceives conflicts in its environment through its distorting lens.

Although this inadequacy is inherent in each legal rule, it often lies quiet. But, the more contested the empirical matter, the more likely it is that the legal regulation will meet with open or hidden opposition in the field, which it was originally designed to regulate. In such cases, the legal rule itself runs the risk of becoming the trigger of a new conflict. It is thus uncontested that the degree,

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* The present study was conducted between 1999 and 2002; references, cited laws and guidelines reflect the status quo of March 2003.
To avoid misunderstandings or distortions, citations of the interviews in Germany have not been translated. Names of agencies and associations are either given in their established English form together with the German version in parentheses or are left uninterpreted. Quotes from sources other than English are my own translations.

to which a legal rule will meet with opposition in its field, depends upon the empirical matter that is to be regulated. The next section therefore is dedicated to an overview over the plurality of perspectives, from which genetically modified foods can be observed as relevant.

Approaching the Matter in Question: Genetically Modified Food

Since the mid 1990's genetically modified food (*GM Food* hereafter)[1] has taken over an increasing prominent role in public debates surrounding the risks and the chances of the application of modern biotechnology in food production. Consequently, GM Food also became a popular subject for research in most various contexts such as science (e.g. biology, food chemistry), ethics, economy, jurisprudence, and the social sciences. Unsurprisingly, numerous studies have been published that deal specifically with the technology, its background, scientific methods, and the safety aspects of such products (e.g. Koschatzky & Maßfeller 1994; Gassen & Katzek 1998; Belton 1999). These studies not only provide an insight into the scientific debate and thus give an idea of what is seen as a problem with GM Food in this context. Most notably, these studies demonstrate the contestedness of the issue already in the scientific community.

Unsolved scientific questions also have triggered studies that aim to capture the implications of such products from an ethical perspective (e.g. Thompson 1997; Mieth 1999), arguing that "(w)hichever perspective one takes, there appears to be an ethical issue lurking here somewhere" (Thompson 1997: 1). Even though ethical questions often appear more pressing in contexts such as cloning, for instance, new methods for the production of foods also have raised questions such as *in which ways do new products hurt religious food taboos?* (e.g. Mettke 1999) or *who has the right of altering food?*.

Especially the latter question leads over to the complex of problems connected with presumed risks of GM Food and the consequences thereof. Given the fact that unsolved questions concerning, for instance, the potential allergenicity of GM Food have led to a widely consented perception of GM Food as risk-technology, a vast numbers of studies and articles have been issued that most appropriately must be described as located at the interface between economy, jurisprudence and psychology (e.g. Streinz 1995; Hoban 1996; Anwander Phan-huy 1998; Gath 1998; Wahl 1998; Mc Gaughey et al. 2000; Meier 2000; Kraus 2001). Following a risk-centered approach to GM Food, these studies deal with questions of lacking consumer-acceptance – or how this can be achieved – and with the possibilities of risk management by considering legal

[1] Within the present study the term *GM Food* is applied to foods and food ingredients containing or consisting of genetically modified organisms and to foods and food ingredients produced from but not containing genetically modified organisms.

and economic instruments as appropriate means for an adequate way of dealing with GM Food.

Not only the characterization of GM Food as a risk-technology but also the increasing globalization of the food supply make it a challenging endeavor for policy makers to put such products under a legal framework that is capable to react to the problems that evolve with the introduction of the products into the market in a socially most accepted way. This complex of problems has been the subject of a host of legal studies. More specifically, these studies have dealt with the application of the precautionary principle in the realm of food law (e.g. Hufen 2000), with the question of labeling (e.g. Meyer 1998), with the product approval of GM Food (e.g. Gross 2001), with administrative competence and legal protection (e.g. Gärditz 1998) and with the relation between information and liability (e.g. Meyer 1996). In addition, questions concerning possible tensions between separate legal spheres (e.g. Schlacke 1996), between European and international agreements (e.g. Spranger 2000) and between the German and European level (e.g. Wahl & Gross 1998) have been tackled.

Last but not least several studies have been dedicated to the contestedness of GM Food and its consequences for society (e.g. Behrens et al. 1995, 1997; Wiesenthal et al. 2001), to the issue's representation in the media (e.g. Kohring & Görke 2000) and to the perception of GM Food in national and international perspective (e.g. Hampel & Renn 1999; Gaskell et al. 2001a).

Comparative perspectives on the issue to which the both last mentioned studies are cited as an example have shown striking differences between Germany and the United States, for instance. These differences have been spotted in a variety of phenomena such as the public discourse, media coverage or just the (pure) number of modified products available on the market, which in their total have been assessed as a "transatlantic divide on biotechnology" (Gaskell et al. 2001b: 96). But the most tangible difference between Germany and the United States seems to be found in their respective regulative approaches to GM Food, letting the legal regulation evolve as "the significant locus of difference" (ibid.: 99).

The observation that different countries tend to regulate seemingly identical issues in disparate ways is not new but has triggered a wide range of research, which became popular under the concept of 'national styles of regulation' (e.g. Vogel 1986). Within this context, national differences are asserted while the concept remains silent as to the question of how exactly these differences can be grasped. In order to achieve a more adequate understanding of these observable differences, the regulatory process itself has to be closer examined.

Aim of the Study

The present dissertation therefore aims to add a new perspective on GM Food in that the *relation* between the applicable legal framework and those to be regulated is put in the fore in the analysis. By asking how this relation between a given legal regulation and those to be regulated can be grasped most adequately, a genuine socio-legal question is raised. Instead of presuming that the law 'guides' the behavior of its addressees in a rather naive sense of the word, or that the law instead is guided by its addressees in return, the claim is made that this relation has to be understood in a more complex way, that cannot sufficiently be described in terms of impact or influence. In order to do justice to the complex and mutual constitution of both, the law and its addressees, the concept of *legal endogeneity* is invoked, reflecting the idea that the specific content and meaning of a legal regulation is shaped by those to whom it was originally addressed and, further, that this meaning shapes social relations in return (Edelman et al. 1999). Consequently, law shapes social relations as well as it is shaped itself throughout these ongoing social relations.

Thus, the respective legal frameworks are considered as only *one* side of a medal, while their addressees are conceptualized as its complement. In order to achieve a comprehend understanding of the regulatory process, organizations as well as their environments become the focus of analysis. Based upon theoretical assumptions derived from modern systems theory and the new institutionalism a concept of organizations is introduced, that conceives organizations as norm followers and as knowledge-generating systems. In so doing, organizational sensemaking and enactment processes are taken into account, which are responsible for the mobilization of the respective legal regulations in the context of GM Food in the both countries.[2]

Finally, the *central aim* of the present study is the achievement of an appropriate description of the differences that can be observed in the societal way of dealing with GM Food in the United States and in Germany. The central question to be tackled reads: *Can the observable differences be described as expressions of fundamental national differences or have they to be understood rather as the outcome of interorganizational dynamics that have unfold around the respective issue GM Food?*

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[2] In order to avoid any misunderstandings, the legal regulation of the introduction of GM Food into the German market comprises *European* regulations and *domestic* rules. Problems that therefore are expected to arise for the comparative design of the present study, are addressed in chapter 3.1.

Scope of the Study

The first chapter *Genetically Modified Food: Law in Conflict* is dedicated to the problems the law encounters in the regulation of a so-called risk technology. Most obviously, these problems arise out of the impeding structures of the law on the one side and risk on the other, leading to a regulatory dilemma. This regulatory dilemma, which has not only emerged with the regulation of GM Food, has triggered a variety of legal developments that can also be seen as law's reaction to changing societal conditions. Since these problems are not limited to individual countries but can rather be observed as global phenomena, the question arises, if not only differences are to be found between the individual countries but also, most notably, how these differences can be adequately described. In this context, the national styles of regulation-approach is discussed rather as stating such differences – instead of revealing what is hidden behind these admittedly observable differences. Therefore, the chapter concludes with the suggestion to shift attention to the level of organizations.

The momentous consequences for the understanding of the regulatory process itself then are the subject of the second chapter *Regulation within an Interorganizational Network*. This chapter aims to bring together theoretical assumptions that stem from modern systems theory and new institutionalistic approaches to organizations. In so doing, the organizations' functioning as well as their embeddedness in their environments is conceptualized, thus delivering the foil for the relation between organizations and the law as legal environment, which comprises not only the legal rules but also societal norms and the culture surrounding the law. Given that organizations are treated as knowledge-generating systems of interpretation, which make sense of the legal environment surrounding them on the background of their foregoing wisdom, 'regulation' emerges as a dense social act that results in regulatory structures. Most notably, these structures are treated as contingent and dependent upon the empirical matter in question.

The third chapter *Securing Food Safety: The Legal Frameworks* turns to the 'empirical realities' of GM Food in that the particular legal regulations of GM Food in Germany and in the United States are introduced. In addition to a pure description of these frameworks, moreover their implications are discussed, whereby emphasis is laid upon the definition of GM Food and thus upon the problem that is to be regulated. These definitions are considered as momentous for the design of the regulatory instruments employed in the both contexts as well as decisive for what is going to happen when they are introduced into their respective networks.

Thus, while the third chapter is dedicated to law-on-the-books, the fourth chapter turns to law-in-action. Under the title *From Norm to Action: Organiza-*

tional Responses, the organizations' sensemaking and enactment processes of the organizations involved are introduced. Throughout the description of these organizational responses to what the organizations had perceived as legal environments convergences in the normative orientations but divergences in the cognitive orientations between the organizations in the American and in the German network will become obvious. In that it will become revealed how the organizations perceived themselves as constrained or enabled by their respective legal environments as well as they themselves shaped the actual meaning of the legal rules, which were originally designed to regulate them.

The observations made in the fourth chapter are discussed in the fifth chapter *Unpacking 'National Styles': Discussion*. As already indicated in the chapter's title, it is dedicated to the description of the observable differences in the German and in the American approach to GM Food. This description is contrasted with assumptions made in the context of the national styles-approach and, by discussing the varying regulatory structures that could be observed in the both networks, reveals what is hidden behind the talk about 'national differences'. The chapter results with a rejection of the national styles-approach since differences in the individual countries' approach to regulation no longer are considered as the result of specific *national* idiosyncrasies that can be found regardless the matter of regulation. Instead, the conclusion is drawn that each empirical matter will 'produce' its own network wherein regulatory structures occur that are likely to differ in various national settings.

The sixth chapter finally is dedicated to a more common conclusion regarding regulatory processes. Under the title *The 'Regulatory Dilemma' reconsidered: Outlook* the concept of regulation will be reexamined. Here, the focus lies on questions such as which legal mechanisms can be considered as appropriate in a conflict that is characterized foremost by the underlying cognitive uncertainty of the issue in question? How can the regulatory process be carried out under such conditions? Moreover, what can be seen as the law's role in the regulation of such conflicts? By raising these questions, the problems that have been fanned out in chapter 1 become readdressed and discussed under the impression of the empirical findings of the present study.

"If you don't know for sure what will happen,
but you know the odds, that's risk,
and if you don't even know the odds
that's uncertainty"
(Frank Knight, 1921)

1 Genetically Modified Food: Law in Conflict

The development of GM Foods brings into being a new category of food that combines two sensitive social topics: *genetic engineering* and *food*. Even before the development of GM Food, both these areas have been contested – although to differing degrees. Therefore one can assume that the specific problems that arise with the development of GM Food and its introduction into the market to a certain extent can be traced back to GM Food's 'antecedents'.

The area of genetic engineering[1] undoubtedly has to be described as highly controversial. The technology has had its proponents and its opponents from its beginnings[2] and the conflicts over an appropriate way of dealing with this technology are still not yet resolved and, one might add, maybe never will. The problems society faces in the course of the implementation of genetic engineering can be considered as typical for contemporary society that is increasingly confronted with the consequences of its own technological developments, but is not able to cope with them adequately. Technological developments like nuclear energy, information and communication technology and genetic engineering have created new hazards not only for specific groups, individuals or organizations, but also for the whole society and for future generations. Thus, the reach of decisions made within the context of these technologies has become incalculable and unpredictable. This unpredictability of possible harmful consequences for environment and human health has triggered broad protests

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1 The term 'genetic engineering' within the present study only refers to *green* biotechnology, which are all applications of agricultural biotechnology. It is distinguished from *red* biotechnology, which refers to biotechnological applications in medicine.

2 A pivotal point in the public debate over rDNA-techniques was the 'Asilomar' Conference (known officially as the 'International Congress on Recombinant DNA Molecules') in February 1975. At that meeting scientists working in the field discussed the issue and came to the conclusion that most rDNA work should continue, but appropriate safeguards in the form of physical and biological containment procedures should be put in place. Whether this instance is interpreted as a landmark of social responsibility and self-governance by scientists or as an attempt to 'just' get in ahead of planned government's regulations, it is uncontested that the Asilomar Conference made the technique and its possible hazards public to a greater auditorium (Radkau 1988).

against such technologies. Further, the fact that possible hazards can be attributed as the consequences of a certain decision has opened up a divide between the decision maker(s) and those affected by the decision. In a case like genetic engineering, this divide has boosted social explosive forces which became manifest in various acts of resistance such as, for example, the destruction of crop trials with genetically modified plants.

Although to date no serious environmental damage has been reported[3], the conflict over genetic engineering still circulates around suspected risks related to the technology and the societal need for the technology. The proponents of the technology claim environmental as well as economic benefits for the farmers that grow genetically modified crops; a (predicted) reduced use of pesticides may lead to an enhanced harvest, which therefore is expected to have positive effects on the soil and the ground water (e.g. AgrEvo et al. 1998). The opponents argue that these benefits cannot compensate the risks of the technology that they see not only in a possible irreversible damage for the environment and for human health (e.g. the danger of unrestricted spread causing increased herbicide resistance and having an unknown impact on the ecological balance), but as well in social and ethical consequences that "may prove to be even more disruptive than their ecological effects" (Tokar 2001: 6). Although the public debate has become less intense compared to the early 1990s, there are still expressions of resistance like crop destructions reported from various parts of the world.[4] Additionally, public attention has to some degree shifted away from agricultural biotechnology and focused stronger on applications of the technology in medicine, as demonstrated by the recent debate over stem cell research.[5] But here again, even though public acceptance of the so-called 'red biotechnology' is supposed to be higher as several studies indicate (e.g. Hampel & Pfenning 1999) genetic engineering, its applications and its possible (medical as well as social) consequences becomes hotly contested. In sum, genetic engineering can - for the time being - be described as a prototypical

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[3] In May 1999, a communication in the journal *Nature* (Losey et al. 1999) on negative impacts of transgenic pollen on monarch butterflies triggered not only an extensive debate over potential environmental effects of GM Crops but also several follow-up studies. In February 2002 the results of a study launched by the USDA were published, claiming that transgenic pollen is not considered as a threat to monarch butterflies (Kaplan 2002). This issue has gained more public attention in the United States than in Germany where the Monarch Butterfly is not very well known. In contrast, in the United States the Monarch Butterfly holds an outstanding position as the "Bambi Of Insects" (Reiss 1999).

[4] For a cross-national overview over resistance to genetic engineering see Gaskell & Bauer 2001.

[5] This debate is reflected not only in the report of the Commission of Inquiry [*Enquete Kommission Recht und Ethik der Modernen Medizin*] (Deutscher Bundestag 2002) but most notably in the vast number of articles published in German newspapers over the last years.

example of a *risk* technology that is characterized by an insuperable disagreement concerning its potential benefits and hazards.

In contrast, the production of food usually is not described as a risk technology. Food generally is still regarded as safe; its production is expected to be based on established knowledge and longtime experience. But even though, due to several high-profile food scares such as dioxin eggs or sewage sludge in animal feed, an erosion of consumer confidence into food and food safety can be observed. Lately with the UK's BSE crisis it became obvious that the realm of food production is also marked by imperfect knowledge and unpredictable hazards: since the late 1980s the British Government and its advisers had repeatedly stated that the transmission of the cattle disease to humans was impossible. In 1996 the government had to announce that ten cases of Creutzfeld-Jakob disease (CJD) in human patients had been identified as most likely to be caused by exposure to the related cattle disease (Jasanoff 1997). The BSE crisis spread throughout Europe in the late 1990s, leading to a growing public distrust in the mechanisms of food production. As a result, the system of food production not only in Great Britain but in several European Member states has undergone public, scientific, and political scrutiny, which has led to restructurations of government departments (e.g. in Germany) and, in parts, to the introduction of new or revised regulation.[6]

These former and recent food scares have given rise to a variety of alternative food production and marketing approaches as well as to a still growing demand for organic products (Belasco 1993). Food has thus become a social issue that entered the political agenda not only in terms of scarcity but also increasingly in terms of safety (e.g. Maurer & Sobal 1995). Even though the production of food still is usually not described as a risk technology in the classical sense, the increasing occurrences of food scares in modern societies are home-made: they have less, or only on a very concrete level, to be considered as signs of the weakness of an industrialized food production.[7] Moreover, on a more abstract level, they are to be understood as one expression of the growing relevance of knowledge production within all societal fields. The increasing amount of food scares can therefore be described as the somewhat paradoxical result of a growing demand for food safety (e.g. Erlinger 2002).

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[6] The most prominent and momentous consequence is the *White Paper on Food Safety* that was issued by the European Commission in early 2000 (EC 2000). It introduces new systems of consumer protection and makes way for the establishment of a European Food Authority to which the American Food and Drug Administration (FDA) serves as a role model.

[7] This is a common argument by the critiques of industrialized agriculture and food production.

Mixing Biotechnology and Food

Taking into account that these problems set the context for the introduction of GM Food into the market, this can be expected to be a potentially conflict-laden project as the difficulties society faces with genetic engineering and with food production are likely to become multiplied when both these fields are merged. For instance, the gap between the claimed benefits and the feared potential hazards is even more important since no consumer-ready biotech-products, which are available to date, provide tangible direct benefits to consumers. Therefore, although these *first wave products*[8] are claimed to provide environmental benefits as well as economic advantages for farmers, the consumers only perceive these advantages as quite indirect. On the other hand, the potential hazards of GM Food (e.g. the introduction of unknown allergens or antibiotic resistance) are experienced much more imminent by the consumer since food is essential to life. Further, as many studies in the field of food consumption have shown, eating and food are highly social and of symbolic significance (e.g. Hoban 1995; McIntosh 1996; Beardsworth & Keil 1997). Anthropologists have claimed that attitudes towards food are culturally determined and that words such as 'natural' or 'organic' have connotations that have more to do with ritual cleanliness than with actual content. They are more expressions of the consumers' worldview or lifestyle than of scientific assessments of nutritive value (e.g. Counihan & van Esterik 1997; Weiner 1994). Thus, food evokes many images that can be changed by new food technologies. The introduction of new inputs or new products therefore has the potential to violate one or another food norm or taboo.

But beside these more normative-based reasons for the rejection of, or, more moderately, the unease with new food products, another reason is to be found within the cognitive dimension. As Lee (1989) has pointed out, reasons for fears related to new foods, so-called *food neophobia*, involve the fact that many consumers know very little about chemistry and view new food technologies as artificial and dangerous. Although this might hold true, this argument has to be reformulated in a more radical manner. As presented by Lee it seems to be a problem of the distribution of information, leading to the (false) conclusion that *food neophobia* can be cured by more and better information

[8] So-called *First* and *Second Wave Products* are distinguished with regard to their consumer health benefits. Second Wave Products ought to provide direct consumer health benefits such as reducing cholesterol or help people with iron deficiency. The most prominent example for a second wave product is 'golden rice', which contains vitamin A. Proponents of GM Food often cite this product as enhancing the health of undernourished populations in third world countries (e.g. Potrykus & Beyer 2001). For their at least asserted beneficial effects the acceptance of Second Wave products is expected to be higher than the acceptance of First Wave Products. But, as Second Wave Products are not available on the market yet, this assumption will have to be proven.

for the consumer. But this conclusion has to be questioned because the tensions that arise in the field of food production (and especially in the production of new foodstuffs) can be traced back to the same dilemma that has already led to the description of genetic engineering as a *risk* technology: it is this the dilemma between the necessity to make a decision and the increasing awareness that this decision will be based upon an insufficient knowledge base. This 'insufficient knowledge base' does not refer to a lack of knowledge that can be caused by various factors and in principle is resolvable. In fact, it relates to an even more fundamental problem that lies at the heart of contemporary society: the increasing relevance of *non-knowledge* as a consequence of knowledge production.

Knowledge, Non-Knowledge, Uncertainty

Non-knowledge does not only refer to a lack of knowledge but has rather to be understood as knowledge about yet still unknown knowledge (e.g. Luhmann 1993a, Japp 1997). Therefore, it does not point to deviant, 'untruthful' or simply wrong knowledge. Moreover, the relation between knowledge and non-knowledge must be considered as symmetrically as they not only emerge simultaneously but also are constitutive for one another. The awareness that all available knowledge refers at the same time to non-knowledge has also questioned the predominant role of science in society. Science now seems more likely to produce further open questions than answers (e.g. Luhmann 1990), thus more uncertainty than certainty. This precarious status of science on the one side led to a revaluation of knowledge[9] that is produced within all societal fields on the other side. Consequently, the status of scientific knowledge became even more questioned and instead the in-context mode of knowledge production was strongly emphasized. This development became more popular under the buzzword *Mode 2* (e.g. Gibbons et al. 1994). While problem-solving according to the so-called Mode 1 "is carried out following the codes of practice relevant to a particular *discipline* […] problem-solving which is organized around a particular *application*" (Gross 2002: 19-20, emphasis added AE) is referred to as Mode 2. Thus, problem solving is carried out in a process in which varieties of actors from different societal fields partake in, leading to a result that stems from a broader range of considerations. However, this must not be misunderstood in the sense that the various existing forms of knowledge such as religious, economic, political or legal knowledge can easily be exchanged or be transformed from one form to another. Moreover, one can assume that the hinted negotiation processes among these various actors are car-

[9] The notion of knowledge invoked here refers to an epistemological concept of knowledge that is not limited to *scientific* knowledge but embraces all forms of cognitive reference to a system's environment (Bora 2002: 256, N. 5).

ried out in a probably conflict-increasing process (e.g. Bora 2002), that in the end may lead to transdisciplinary knowledge[10].

Hence, as knowledge production can be observed in all societal fields, so can the production of non-knowledge. Science, but also the political, the legal and the economic system increasingly have to deal with non-knowledge as the downside of an increasing knowledge generation in these fields.

Non-knowledge can be subdivided into *specific* and *unspecific* non-knowledge, whereas in the present context only specific non-knowledge is further examined (Japp 1997). Specific non-knowledge refers to an imperfect knowledge base with regard to something familiar. For instance, the still unsolved question if GM Food triggers allergies refers to specific non-knowledge; whereas human health is the familiar variable, the possible harmful consequences of GM Food are the unknown variables. This cognitive uncertainty can be 'resolved' by referring to established knowledge (certainty) or to risk. By referring to established knowledge, cognitive uncertainty evolves as a scientific problem that can be solved by scientific methods (e.g. hazard identification and management). By referring to risk, cognitive uncertainty in shape of unspecific non-knowledge is invoked. Unspecific non-knowledge often is communicated in terms of catastrophes throughout society. Thus, the description of genetic engineering as risk technology is only *one* possibility to deal with the underlying cognitive uncertainty of the issue. The distinction between specific and unspecific non-knowledge explains why non-knowledge, i.e., cognitive uncertainty, only becomes problematic in cases where this uncertainty is communicated in terms of *risk*. And it also clarifies that every description in terms of *risk* must be traced back to cognitive uncertainty.

Having said this, the conclusion can be drawn that the developments, which characterized the 'risk society' have been radicalized within knowledge society. The more the distinction between knowledge and non-knowledge becomes the center of attention in contemporary society, *knowledge society* increasingly replaces risk society (e.g. Weingart 2001; Willke 2001). It can be considered as one outstanding characteristic of knowledge society that a 'risk' increasingly is described as a social construction which but points to a fundamental cognitive uncertainty as a ubiquitous phenomenon. Dependent upon several factors, this cognitive uncertainty can cut both ways – it can be resolved by established knowledge that has been defined as suitable and ade-

[10] Here, Gibbons et al. (1994) draw the conclusion that "knowledge will not be produced unless and until the interests of the various actors are included" (4). Even though this might hold true, it is unlikely that this precondition can be fulfilled in everyday-practice. Thus, it is more likely that these negotiation processes sooner or later will be decided by power – although this might be organized differently. For further inquiries of this problem see below, chapter 2.

quate, and, by so doing, be turned into *certainty* or, if no knowledge can be distinguished as appropriate in a given case, this places emphasis again on cognitive uncertainty that is then likely to be communicated in terms of 'risk'.

This overall development also has had consequences for the regulatory process. The more scientific knowledge has become the central basis of control and regulation, the more this basis becomes precarious as science loses its position as epistemological authority.[11] Therefore, legal decisions increasingly run the risk of being unmasked as based upon an imperfect knowledge base and thus as *illegitimate*.[12] This may be the case in the legal regulation of GM Food: this issue is marked by a cognitive uncertainty that has not yet been resolved by scientific knowledge. For instance, questions concerning its potential to trigger allergenicity have not yet been definitely answered. Until to date, no such case has become public. But even though this last statement might not be uncontested among those who are concerned with this issue, it is the law's function to establish the normative expectation that GM Food is safe to eat.

In the remainder of this chapter first of all the regulatory dilemma will be outlined, that occurs in cases where the law has to provide certainty under conditions of cognitive uncertainty. This description is then followed by the introduction of legal developments in this area, i.e., law's efforts to adapt to the problems it is increasingly faced with in knowledge society. Given the fact that a number of these problems no longer can be understood as limited to territorially bordered entities, not only the regulatory dilemma but also the legal reactions to this dilemma will be put into the broader context of world society. By so doing, attention will be called to the observable fact that seemingly identical technologies are regulated differently in various countries, which leads over to the 'national styles of regulation' approach. This model will be introduced as the prevailing but insufficient model for the explanation of differences between regulatory approaches. Instead of following this line of research, this chapter ends with the proposition to shift attention to the level of organizations, in order to overcome shortcomings of prevailing assessments, and thus making way for an adequate description of observable differences.

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[11] For the complex and problematic relation between science and the law see also Jasanoff 1995.

[12] Here it might be added that *each* regulation is to a certain extent based upon an insufficient knowledge base without causing further problems for its legitimacy. On the contrary, a certain degree of uncertainty has to be considered as essential for a legal system, as, like Bora (referring to Popitz) points out, "[k]ein Normsystem kann sich einer perfekten Verhaltenstransparenz aussetzen (…), denn umfassende Information über das Ausmaß abweichenden Verhaltens ruiniert die Geltung von Normen durch den Nachweis ihrer empirischen Unwirksamkeit" (Bora 2002: 254).

1.1 Introducing the Regulatory Dilemma

In cases where decisions may have potentially harmful consequences usually the law is invoked for several reasons. Firstly, the law is considered to be an instrument which can avoid potential damage, or, that at least is seen as a guarantor for security. However, the protection against threats to public safety is only one of the law's tasks that usually are invoked by those affected by a decision that might have harmful consequences. Another task is to provide a structure for the planning and the promotion of a technology. Thus, the law can be seen as *enabling* as well as *constraining* the implementation of a technology. In addition, it has to fulfill both these tasks in a way that meets the majority of societal expectations most adequately, in order to prevent or avoid societal conflicts.

But under conditions of cognitive uncertainty as they become not only obvious but most notably problematic in the realm of a technology like GM Food, law's capacity to combine the fulfillment of both these tasks has to be questioned. In cases where a contested technology like GM Food is to be put under a legal framework, quite often not only the technology itself but even its legal regulation becomes contested: in some cases already the process of the development of the law is ridden with conflict, but, as will be pointed out further below, at latest the problems arise with the implementation of the law. In the context of risk regulation, the law is thus being driven into a *regulatory dilemma* because it has to provide certainty under conditions of ubiquitous and apparently indissoluble uncertainty. The reason for the law's difficulties in the regulation of risk is to be found in the impeding structures that characterize risk and law and which can be put in a nutshell with the contrast of *uncertainty* versus *certainty*. This becomes even more obvious if law's function is explored more thoroughly.

Law's Function

Law's *function* refers to the function the law has to fulfill for society at whole and it thus has to be distinguished from law's *performance*, which describes the relations between the law and other social subsystems. Implicitly these have already been mentioned; besides permitting planning, demanding prevention, providing a structure for the resolution of conflicts, it also provides several services like the regulation of conduct and the legitimation of the social order.

Nevertheless, these services can only be provided if law's societal function is fulfilled, the stabilization of social expectations. Expectations that are backed by the law are called *normative* expectations since they are upheld even if they do not become fulfilled. Normative expectations thus differ from *cognitive* expectations since the latter are adapted or changed in the case of deviant

behavior. Cognitive expectations can be considered the basis for learning processes. The disappointment of a normative expectation on the contrary will be sanctioned as a breach of law. By so doing, the expectation will become reconfirmed as 'expectable'. Hence the law's function for society at whole is to stabilize certain expectations over *time* – what accounts today as legal will still be legal tomorrow – and over *facts* – with regard to certain facts it can be expected (normatively) that these facts will be treated as legal resp. illegal. Finally, this applies for *everyone*: the law selects and stabilizes a certain behavior as (normatively) expectable behavior for everyone (Luhmann 1987a, 1993). Thus, it provides legal security with regard to certain expectations throughout society. Hence, the law chooses certain social expectations as to be resistant against deviant behavior, which will be legally sanctioned. In so doing, legal security in the temporal, the factual, and in the social dimension is achieved throughout society, leading to certainty, or, more precisely, *legal* security.

Risk's Structure

It is this societal function of the law that impedes the structure of *risk*. Scholarly assessments in the field of risk provide two differing concepts of risks, an information-based understanding and a decision-based understanding. The first considers 'risk' as a problem of lack of information that therefore should be possible to resolve by more information.[13] Although this concept of risk is the basis for legal risk management, the decision-based understanding of risk provides a more general approach to its very structure. This concept has been developed in the domain of modern systems theory and shows that *every* decision is afflicted with the problem of uncertainty and insufficient knowledge. In this perspective, the problem of risk cannot be resolved by more information since decisions have to be based on knowledge that is available at the time of the decision. Therefore, "(r)isk [...] is understood as the tension between the temporal dimension and the social dimension of decision making." (Bora 2001: 8482)

This concept of risk hence refers to the temporal as well as to the social dimension. Within the temporal dimension, risk refers to possible damages, which might arise in the future and are therefore uncertain (Luhmann 1993a). But while such damages formerly have been conceived of as natural phenomena, in contemporary societies these damages are attributed to decisions. This observation distinguishes the concept of risk from the concept of *danger*. Thus, risk refers to a potential future damage that can be attributed to one's own or somebody else's decision whereas danger refers to a possible damage that cannot be attributed to one's own or somebody else's decision (ibid.). The attribu-

[13] Within this concept 'risk' "was defined as the probability of the occurrence of some event causing damage, multiplied by the degree of the damage anticipated" (Bora 2001: 8480).

tion of decisions and with this the distribution of accountability relates to the social dimension in which the difference between the decision maker(s) and those affected by the decision becomes increasingly relevant. Those affected by possible harmful consequences of a decision will perceive these as *danger*, whereas the decision makers will perceive these as a *risk* they chose to take. Moreover, the more the potential damages are expected to be irreversible – as often is claimed in relation with genetic engineering – the more critical becomes the difference between the decision maker and those affected by the decision. In such cases, this difference can trigger social conflicts. In sum, this concept of risk points to imperfect knowledge which underlies every decision and thus to a fundamental uncertainty.

Against the background of the outlined structures of the law itself on the one side and of risk on the other, their divergence has been emphasized. Risk refers to the need for decision-making and at the same time to an imperfect knowledge base, which underlies each decision. This relates to possible damages that might follow this decision in the future, but which are therefore uncertain in the present. In addition, this uncertainty impedes the societal function of the law: to provide certainty with regard to certain behavioral expectations, thus legal security.

In cases where cognitive uncertainty can be resolved by established knowledge, the imperfect knowledge base does not question the legal decision. However, the growing awareness of non-knowledge in contemporary society intensifies the regulatory dilemma since the law increasingly is confronted with decisions that cannot be resolved by established scientific knowledge. Finally, their unconcealed uncertainty threatens law's legitimacy.

1.1.1 Legal Developments

In threatening law's legitimacy, the regulatory dilemma also affects the reach of law. Law's ability to manage risk with traditional legal instruments has already been questioned by several scholarly assessments, which in the majority come to a skeptical conclusion (e.g. Jasanoff 1995a, 1999; Bora 1999a). As society becomes aware of the ubiquity of uncertainty, the law is increasingly confronted with the risks of other social subsystems. Conflicts, which are centered on risky decisions within the subsystems, are 'exported' to the legal system, where they are turned into legal conflicts that can only be resolved by risky decisions for the law. This impedes the societal expectation that the law can regulate risk, e.g. prevent even the most hypothetical dangers. Under conditions of cognitive uncertainty, law therefore cannot or only to a certain extent fulfill its societal function. Moreover, this also affects its *performance* – as mentioned, law's ability to solve a conflict that is triggered by a 'risky decision' has been proven limited. The same holds true for the prevention of risk –

even if food safety is a normative expectation it does not protect the consumers against salmonella, BSE or dioxin-eggs. Finally, this also points to the regulation of conduct: in cases where a legal rule is based upon insufficient knowledge, those affected by the rule may not obey it since they prefer to rely on their own knowledge – and not on scientific knowledge that is provided by the rule: "A legal norm can be obeyed or not obeyed as it provides information for instance regarding hazards […] in environmental law and then be not obeyed, because the rule's addressee has more trust in its own knowledge instead of knowledge, which has been provided by the rule" (Luhmann 1993: 134).

Scientific knowledge increasingly loses its legitimizing function and so do the legal rules and decisions that rely on it. Within knowledge society legitimating through expertise no longer accounts as a guarantor that a legal rule will be obeyed. Consequently, the law increasingly is confronted with its own *failure*[14]: beside unintended side effects, denial or avoidance of regulations and the breach of the aimed effect of the regulation, the law itself is likely to trigger a new conflict.[15] Thus, instead of avoiding or resolving a conflict, the law itself often becomes the source of conflict (e.g. Bora 1998, 1999, 1999a; Bora & Epp 2000). Hence it not only fails in the guidance of social behavior and thus in its conflict-solving task but also introduces another socially disruptive issue into an already tense field – itself!

In order to overcome these difficulties, law has tried to adjust to these changing societal conditions. As a reaction to a growing societal demand for the regulation of risk on the one side, and the law's limited capability of managing risk on the other, a dense network of regulatory mechanisms has evolved that embraces traditional legal instruments such as proscription and sanction as well as new forms of cooperative law and voluntary agreements. These developments are not unique to the context of risk-regulation but must rather be seen as part of a broader trend. Instead of going into the details of a debate that became well known under buzzwords such as *cooperative state* (Voigt 1995) or *negotiating state* (Scharpf 1991) only recent developments in the area of environmental regulation shall be mentioned. In this context, especially *deregulation* and *substitution* play a central role. While deregulation aims to reduce prescriptive [*ordnungsrechtliche*] instruments on the legislative level, substitution strives for a replacement of elements of the environmental law (Knopp 2001). As these forms of 'soft' law comprise *temporal* and *social* openings of the law, they also lead to a *factual* opening in some respect.

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[14] The term *failure* here is invoked to refer to the circumstance that law does not penetrate as it intends to or as society expects it to and must not be misunderstood in a normative sense.

[15] These difficulties have been the subject of research on implementation. In view of the great number of studies, the reader is merely directed to the classical study on implementation by Pressman & Wildavsky (1973).

Temporal openings of the law can be observed in temporary limitations of legal rules, i.e., rules that contain their own 'expiry date'. In this way, the law tries to react to the ongoing scientific progress and to base its decisions on the most recent available scientific knowledge. Temporary limitations can take different shapes. Especially in the context of technology and environmental law, vague legal terms [*unbestimmte Rechtsbegriffe*] such as 'state of the art' [*Stand der Technik*] and 'state of the scientific and technical knowledge' [*Stand von Wissenschaft und Technik*] function as the interface between law and science. These terms make way for a periodical revision of a legal rule or decision whereby the exact date depends upon the development of the scientific progress. The rule is thus valid 'until further notice'. This feature is not new but is characteristic to the classical (technocratic) model of expertise, in which the law has reverted to scientific knowledge.[16] A second, and more recent development, can be seen in the aforementioned 'expiry date'. In this case, a legal rule is enforced for a defined period where after it has to be revised or replaced by a new rule.

A social opening of the law can be observed in various forms of institutionalized public consultation procedures as well as in more or less informal negotiations between the original regulator and the regulatee that might lead to voluntary agreements between both these parties. The outstanding characteristic of social openings of law is to be seen in the inclusion of actors that do not explicitly belong to the legal system, but either stem from those spheres to which the particular rule is addressed to or that are affected (or define themselves as being so) by the subject matter of the legal regulation in a more indirect way. This development has been described as a critical reaction to the technocratic model of expertise, drawing on the limits of expertise and the inappropriateness of scientific knowledge in dissolving problems that affect society as a whole.

Both developments that have an impact on the very structure of law can be described in sum as a process of adaptation to changing societal conditions and expectations. Nevertheless, this process of adaptation has become a 'risk' for the law itself in a double sense. Firstly, at the same time as the law strives for the ability to learn in order to adjust to the temporal horizon of risk, it runs the risk to lose its stabilizing function (e.g. Hiller 1993). In addition, as it is a constituting characteristic of law to stabilize expectations over time the adjustment to a temporally limited horizon threatens the law's very function.

Secondly, in both these cases legal decisions are based not only upon legal knowledge but also upon knowledge that is generated in the law's societal

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[16] This construction is also well known as the legal concept 'legitimating through expertise' [*Legitimation durch Sachverstand*] (Nicklisch 1988).

environment. Consequently, also a factual opening of the law can be observed. With regard to the developments within knowledge society and the increasing relevance of non-scientific knowledge, one can also assume that knowledge, which is generated in those societal fields that later become the addressees of a legal rule, is likely to become part of the basis for decisions within the legal system. This again points to an increasing de-legitimization of science; the more science loses its dominant role in the production of knowledge within society, the more the law seems to depend upon knowledge that is generated within the particular societal fields it was originally designed to regulate.

1.1.2 Regulation 'Beyond' the Law

Given this analysis, the question arises not only how the regulatory process under conditions of uncertainty can be performed but also how the process of 'regulation' itself can be described in an adequate manner. The above outlined developments are embedded in a considerable intellectual debate over the efficacy of alternative approaches to state regulation. These approaches shall for the time being referred to as *regulation 'beyond' the law* since they are characterized by a reduction of prescriptive instruments on the legislative level, thus by deregulation.

It is the guiding assumption of this debate that a desired behavior of those to be regulated can be achieved if regulatory instruments are applied, which correspond to the prevailing rules of the given context. This approach is especially in the anglophone context known as 'responsive regulation' (Ayres & Braithwaite 1992), a regulation that is "responsive to industry structure in that different structures will be conducive to different degrees and forms of regulation" (Ayres & Braithwate 1992: 4). Consequently, "(g)overnment should also be attuned to the differing motivations of regulated actors" (ibid.).

Even though this approach offers a perspective in that the official law of the state is no longer conceived as an uncontested means for guiding social behavior, it can at the same time be easily misread as overemphasizing law's "historical extraordinary responsiveness to the economic system" (Teubner 1992: 1461). In so doing, this approach insinuates that the law in being responsive merely responds to economy's demands. The underlying connotation of this interpretation can thus be put in a nutshell by the (radical) formula that the *market will replace the state*.

In the present study instead, the idea of legal 'responsiveness' is understood as corresponding to that concept of 'legal pluralism' within which the relation between law and society is characterized by operative couplings to the

multiplicity of all social discourses (Merry 1988; Teubner 1992).[17] These couplings are qualified as *productive misreadings*, in that "the legal discourse is not only perturbated by processes of self-production, but law productively misreads other social discourses as 'sources' of norm production" (Teubner 1992: 1447).

Against the background of these assumptions, it has to be argued that the law (and the regulatory process) is accompanied, if not penetrated, by *power* and increasingly by *knowledge*. With regard to power, this statement sounds neither new nor very surprising, but rather old-fashioned. At first sight the notion of law as a political instrument seems to become revived. Nevertheless, although it is this notion of the connection between law and politics, which will be challenged in this study, it is not to deny that there is a strong connection between law and politics. The law has to be enforced by politics ever since and is thus relying on political power by definition. In this respect, power evolves as a resource by which means certain behavioral expectations become distinguished from others as *normative* expectable. By so doing, power absorbs uncertainty as it leads to an elimination of possible behavioral expectations.

As with power, also the connection between law and knowledge is not new, even though it has so far referred to law and *scientific* knowledge in the first place (see above). However, against the outlined understanding between law and its societal environment it appears reasonable to assume that the law

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[17] As with many other concepts, there is no unanimous agreement as to exactly what *legal pluralism* refers to. That the concept often is used in an entirely different sense becomes apparent by phrases such as "classical and new" legal pluralism (Merry 1988) or "rethinking legal pluralism" (Teubner 1992), for instance. As applied in the present study it follows Griffiths' broad but basic assumptions (1986) in that it defines legal pluralism in opposition to a *legal centralism* that understands law as "an exclusive, systematic and unified hierarchical ordering of normative propositions" (3). Legal pluralism instead shall "refer to the whole aggregate of governmental and non-governmental norms of social control, without any distinction drawn as to their source" (Moore 2001: 11).
Despite these distinctions Moore (2001) has identified at least *five* different applications of this concept, wherein 'pluralism' refers to "(1) the way the state acknowledges diverse social fields and within society and represents itself in relation to them; (2) the internal diversity of state administration (…); (3) the ways in which the state itself competes with other states in larger arena (the EU, for instance); (4) the ways in which the state is interdigitated (…) with non-governmental, semi-autonomous social fields (…); (5) the ways in which law may depend on the collaboration of non-state social fields for its implementation." (10-11). Moore itself dissociates her own approach from that applied in the present study as "(t)o deny that the state can and should be distinguished from other rule-making entities for many practical purposes is to turn away from the obvious."
Given that there is no space to discuss this objection against the above outlined concept of legal pluralism intensely, this statement nevertheless has to be questioned since it seems to be based upon a misunderstanding of 'legal pluralism' as denying social phenomena such as power, pressure, and coercion. That this is not the case will become apparent also throughout the present study.

draws not only upon scientific knowledge but also increasingly upon knowledge that has been generated within the social fields the law was originally designed to regulate. Thus, norms that stem from other social realms than the legal one are likely to become part of the law, resulting in what is called 'plural norm-setting'. In more abstract, 'societal' knowledge appears as a new tool in the law's efforts to absorb uncertainty.

Consequently, as the law in knowledge society increasingly is confronted with non-knowledge, thus cognitive uncertainty, that cannot be solved by traditional legal instruments, its fundamental legitimacy will be challenged. But – and this is one *hypothesis* of the present study – this challenges can be overcome if the law applies instruments that acknowledge the autonomy of its addressees in that it does not try to subject them to deterrence based, prescriptive regulations but instead encourages the development of in-context solving strategies, that may prove helpful for the law. In that context, the state is expected to retreat from its active role in the planning of certain societal arenas as well as in the solution of conflicts and rather functions as guarantor of protective services in the background. This idea about the state's role is discussed as the 'shadow of leviathan' [*Schatten des Leviathan*] (e.g. Treiber 1998) in German-speaking contexts while its anglophone equivalent can be found in the 'benign big gun' (e.g. Ayres & Braithwaite 1992), representing severe sanctions in the arsenal of regulatory and state officials (Shover et al. 2001). In the shadow of a state that merely exists in the back, new modes of regulation are expected to evolve, which in their total can be subsumed under the label of regulated self-regulation (e.g. Schneider et al. 2001). These new modes of regulation are considered to improve the implementation of policies, as they are more likely to correspond to the context of the rules' application.

Thus, in becoming aware of the various forms of 'societal' knowledge, solutions for problems that tend to overtax the law are likely to be designed, such as the problems that arise with the development and implementation of new technologies. Given that power as well as knowledge *both* serve as media by which means uncertainty can be absorbed, their distribution "is orchestrated by the definition of the problem that has to be resolved." (Willke 2001: 23). The degree to which law will be accompanied by either knowledge or power will therefore depend upon the given issue that has to be regulated. However, as modern society increasingly is faced with uncertainty in unexpected places so far, law will increasingly (have to) draw upon societal knowledge resources, in order to restore resp. gain its legitimacy. In sum, against the background of the outlined theoretical considerations the phrase 'beyond the law' has now to be corrected to 'beyond' the *official law* of the state while other social norms and knowledge resources, thus non-governmental sources for law, appear as

promising means for dealing adequately with the endeavor of regulating in knowledge society.

1.2 Globalization of Uncertainty

The complexity of problems that comes along with the implementation of new technologies is rooted in the fact that a variety of societal spheres is affected by it. Furthermore, these technologies (and their problems) can no longer adequately be described as territorially limited, as knowledge society is fulfilled within an increasing globalized context. This also challenges prevailing understandings of legal regulation in that field.

In order to point out what this means in detail, first a clear-cut understanding of what *globalization* is about has to be achieved. Within the mushrooming literature on globalization, several understandings of what this issue is about can be distinguished. The majority conceives globalization as a development, which primarily is marked by an increasing spatial expansion (*delocalization*) of events that formerly have been limited to local contexts (e.g. Robertson 1992). Here, the underlying premise is the existence of *several*, different societies.

This is contrasted with a conception of globalization that considers the worldwide relevance of social events within a simultaneously evolving context of a world-societal unity as its key feature (e.g. Kuhm 2001). This concept is common to all world-systems theories, which assume a *single* social system that is termed world-system (e.g. Wallerstein 1974), world-polity (e.g. Meyer 1980) or world society (e.g. Luhmann 1971), depending on the theoretical context. Their shared assumption is that all social events occur within a horizon that is determined by the existence of a single, global world society.

In addition to this line of difference and to a certain extent transversal, different understandings as to the question whether world society has to be described in terms of *polycentricity* or in terms of *uniformity* are to be found.[18] While representatives of the latter case stress fundamental differences between various countries (e.g. Friedman 1994; Wallerstein 1974), representatives of the first emphasize the increasing similarities that are to be found among various countries (e.g. Robertson 1992; Lechner 2000). That these conceptions are not exclusive but both hold true to a certain extent comes into sight if one subscribes to an understanding of world society as it has been developed within the domain of modern systems theory (e.g. Luhmann 1971; Stichweh 2001). In this understanding, globalization is defined with respect to the single social

[18] Within the present study the terms *polycentricity* and *uniformity* are used interchangeably with the concepts of *homogeneity/heterogeneity* and *isomorphism/variation*.

subsystems such as the law, economy, or politics, to name but a few. Each social subsystem employs a specifically codified form of communication, for example, legal decisions, collectively binding decisions and payments. Enclosed in this communications is world society, since the possibilities to communicate as well as the employed symbolic media are not limited to national boundaries. Thus, 'globalization' can be understood as the mechanism by which world society is established within *each* social subsystem not only on the local, regional, national and transnational level (e.g. Bora 1998a; Stichweh 2001) but also on the *organizational* level (e.g. Albert & Hilkermeier 2001). In this context, national boundaries can no longer be seen as constitutive for society, but merely form lines of its internal differentiation (ibid.). In sum, globalization is characterized by the worldwide perceptibility of communication and the worldwide relevance of events, which implies that a plurality of observers refers to the same world in different ways (e.g. Bora 1998a). Due to this plurality of worldviews, one can assume that world society to a greater extent is marked by polycentricity than by uniformity. With regard to the aforementioned distinction between homogenization and heterogenization as *alternative* trends within the process of globalization, now a somewhat different assumption can be made: homogenization *as well as* heterogenization can both be considered as trends that are observable in the development of world society.

Such an understanding of globalization has implications for the regulation of issues whose insufficient knowledge base cannot easily be resolved by invoking established, scientific knowledge. In fact, these complex cases are likely to challenge the law's capacities to establish 'consented' rules for these issues' handling. The problems that probably come along with such an endeavor are the following ones.

Firstly, problems that once had been perceived mainly within the borders of an individual country develop worldwide relevance. In taking the abovementioned notion of globalization seriously, this is not due to the border-crossing movement of for instance poisoned goods, air and water pollution or radioactivity but to the worldwide diffusion of *communication*. In this perspective, not a material medium contains a risk, but risk is the result of meaningful observation. As risk passes national boundaries within the medium of communication (Tacke 2001), the 'dissolving' of cognitive uncertainty can cut (at least) two ways, because communication is not unique throughout the world but dependent upon the context. If any globalization of uncertainty requires its local appropriation (ibid.), an 'uncertain' issue not necessarily will be observed and communicated in terms of risk. Dependent upon the observer, it can also be communicated as unproblematic as in that given perspective an established knowledge base seems available. Therefore, it can be assumed that the risks attributed to a specific issue and thus its underlying cognitive uncertainty will

be constructed differently within the varying contexts. As world society is for the abovementioned reasons characterized by a plurality of perspectives one can therefore assume that it will embrace a plurality of interpretations, i.e., communicative constructions of a given issue, which are at least competitive if not mutually exclusive.

Secondly, due to this worldwide variety of interpretations that root in a globalization of cognitive uncertainty[19], the need for a regulatory framework, which reaches beyond the level of the classical nation-state becomes pressing. In certain fields this need has already resulted in the establishment of legal norms and other regulatory instruments on a transnational level, thus suggesting an emerging 'global' (e.g. Teubner 1997; Voigt 1999/2000) or 'transnational' law (e.g. Albert & Lehmkuhl 2002).

This again draws the attention to law's ability to deliver adequate solutions to complex problems. With respect to the 'globalization of uncertainty', several obstacles for global regulatory frameworks can be identified that fall into line with the already outlined difficulties on the 'national' level.

Firstly, transnational organizations like the World Trade Organization (WTO) or the Codex Alimentarius Commission (CAC) establish legal norms and regulatory instruments that urge national legislation to adapt to their requirements [*Harmonisierungsdruck*]. Nevertheless, as with EU-Law, these transnational norms are likely to collide with national legislation (e.g. Merkle 1994). Similar to the problems within *one* country, these collisions root in different definitions of what the regulated issue and its problems are about. Consequently, these regulations can be expected to become a new source of conflict instead of providing solutions for existing conflicts. Thus, the problems the 'regulation of uncertainty' already faces on the national level are likely to become repeated on the international level.

Secondly, the instruments of risk regulation, which have been available to the classic nation-state, do not seem to meet the requirements of a globalized risk regulation, since for instance the possibilities of legal sanction still are limited for transnational organizations (e.g. Shelton 2000). Therefore, non-legal forms of regulation or 'soft law' that focus on cooperation and learning may arise as probably more suitable in that context. But then again the consequences for the law itself that have been outlined further below have to be taken into account.

This leads to the fourth and last point, since another possible obstacle for a global regulation of risk presumably can be found within the differences that can be observed in the various regulatory approaches of different countries.

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[19] With regard to BSE Tacke speaks of a "globalization of risk" (Tacke 2001: 294).

Even though these differences can be traced back to probably varying definitions of the regulated issue this last point will be investigated more thoroughly as this statement touches the one central question of the present study: *why does an apparently identical problem become differently regulated within varying national contexts?*

1.2.1 National Styles of Regulation

The observation of different regulatory approaches is nothing new and has been subject to a variety of scholarly assessments, although they differ in their overall interest. Firstly, one branch of comparative studies is bound to look for common ground in a certain field. Here the literature in the context of the abovementioned *world polity* can be seen as one example. It aims to explain an increasing conformity between different countries with regard to, for instance, the expansion of the nation-state model around the world (Meyer et al. 1997). But although the establishment of the nation-state as a formal structure around the world is an undeniable fact that could be interpreted as a proof for an overall tendency towards homogenization and equalization, one has to take into account that formal models and rules are not constant throughout various contexts (may they be regional, local, or organizational, to name but a few). In fact, their appropriation will differ contingent on the given context, thus confirming a fundamentally given 'heterogenization'.

Therefore, another branch of comparative studies has to be taken into account that seems to do more justice to identifiable *differences* between various countries in certain fields. This approach has been one of the dominating accesses in the assessment of regulatory approaches in the field of environmental risks. In this field especially the control of chemicals (e.g. Brickman et al. 1985), the management of hazardous waste (e.g. O'Riordan & Wynne 1987) and the regulation of nuclear power (e.g. Hellström 2000) have been thoroughly investigated. The field of biotechnology has also been the subject of several comparative studies that aim to explain why this technology is treated differently among various countries (e.g. Baark & Jamison 1990; Linneroth-Bayer 1995; Behrens et al. 2000; Lynch & Vogel 2000). The shared assumption of these studies is the existence of 'national styles of regulation'[20], which serve as the explanatory variable for the observable differences. As this concept is central to a majority of the assessments in the field of comparative research on regulation, its capacity to provide an adequate understanding of the differences will be explored.

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[20] This term has been coined by Vogel (1986) and is used interchangeably with terms like *regulatory style* (Linneroth-Bayer 1995), *governing style* (O'Riordan & Wynne 1987), *regulatory context* (Krücken 1997) and *policy culture* (Hellström 2000), which all refer to a state's overall approach to regulation.

The concept of 'national styles of regulation' is usually applied to describe a state's overall treatment of a particular issue. The underlying assumption of this concept is that various countries have cultivated certain styles in their regulatory approaches. These regulatory styles are conceived of as the result of the interplay of different political, legal, and scientific cultures. In the scope of this approach different countries have been characterized as corporatist (e.g. Germany), adversarial (e.g. United States), consensual (e.g. Great Britain), or authoritative (e.g. France).

As the subject matter of the present study contains a comparison of the American and the German approach towards the legal regulation of GM Food, the key features of their particular approaches to regulation as described in the context of 'national styles' will be outlined. The American approach to regulation is usually described as *adversarial* or as *confrontational* which is one characterization of an often-stated *American Exceptionalism* (e.g. Vogel 1986; Jasanoff 1990). This statement of an *American Exceptionalism* in the realm of risk regulation refers to special features in the political, legal and scientific sphere. The interplay of these spheres often is described as *adversarial*.

Jasanoff (1990) argues that the political environment for risk regulation can be characterized by *competition*, which refers to competition among interest groups, between Washington and the states, and among the branches of federal government. This competitive environment has led to some major changes in the American legal realm, regarding the legal recognition of public concerns. Public concerns are seen as receiving attention, firstly under the *Freedom of Information Act (FOIA 1966)* as this law gives American citizens the right to access the records and proceedings of federal agencies (e.g. Bruch 2000). In addition to this broad *right to know*, public concerns are also considered as represented in the policy-process by institutions subsumed under the term 'public interest litigation', such as the *citizen suit* and *class action suit*. These institutions refer to *standing* [*Prozessführungsbefugnis*], i.e., to the question of who has "standing to sue" (e.g. Orren 1976). Relevant for standing is the so-called *injury in fact* and the so-called *zone of interest*, which refer to the injured interests of the plaintiff and the interests, the rule is originally supposed to protect (e.g. Wegener 1998: 154-155). Consequently, public interest litigation has become an established instrument in the sphere of environmental policy.

This broad legal access has also strengthened the role of the courts in policymaking. The effects of this influential role of the courts on administrative decision-making are the following: Firstly, a review by the courts delays decisions related to risk as these would be thoroughly reinvestigated. Secondly, the character of decision-making itself will be influenced by the anticipation of judicial review since the administration has taken steps to satisfy demands for

'reasoned decision-making' and a 'hard look' (Jasanoff 1995: 75-78) at the evidence. This also, has led to a way of decision-making that is often estimated as more transparent and open to the public than in Europe. Finally, even the scientific sphere is described as differing from those in other countries by showing a pluralism of participants. This stresses primarily the point of the emergence of 'public interest science' and its influence on the policy process. Both, the *Clean Water Act (CAA, amended 1977)* and the *Clean Air Act (CAA, amended 1990)* bear witness to this growing public influence on legislation. Public interest groups mobilize science as a resource in political debates since for instance they cite critical expertise, which opposes the 'official' scientific opinion. In so doing, critical expertise increasingly has undermined the position of the established academia and provided support in lawsuits and, more fundamental, in the process of legislation.

Even though those developments took place in the late 1960s and the early 70s and since there have been two major waves in the criticism of regulations[21], arguing for deregulation, Jasanoff (1990) claims that "some of the factors that prompted the earlier 'exceptionalism' of the United States remained very much alive" (72).

In contrast, the common characterization of the German approach to regulation is as *corporatist* or *neo-corporatist* (e.g. von Alemann 1981; Streeck 1994). Corporatism is found where powerful groups have mutual advantage in acting collectively. Regarding the realms of politics, law, and science, the certain common features are linked with corporatism.

The political sphere here is described as marked by the close cooperation of influential associations and state agencies, which makes it difficult for interest groups to influence political decisions and, consequently, legislation. In this description it seems reasonable to trace back the, at least asserted, little 'legal' visibility of public interest groups to the more static structures of a corporatist state. Regarding the legal sphere, it is stated that there is less legal access in Germany for public interest groups than in the US. Until recently, class action suits were merely to be found in thirteen out of sixteen federal states, while it had not been implemented on the level of federal legislation. With the enforcement of the amended German Nature Conservation Act [*Bundesnaturschutzgesetz – BnatSchG*] in April 2002, class action suits have been adopted as a legal institution at the federal level (e.g. Calliess 2003). To what extent

[21] The first wave of criticism on regulation became popular as 'Drug-Lag'-discussion and focused on the drug approval process, which - due to its requirements and length - was held responsible for the death of more than 1200 people (see the study by Wardell 1973). The second wave of criticism is linked with the Aids crisis. Here interest groups claim less precaution and a more 'lean' approval process (Kessler & Feiden 1995).

this instrument will have an impact on environmental policy making has to be proven in future.

Another aspect, which might be interpreted as an incident that public concerns in Germany are not taken as seriously by the law as they are in the United States, is the lack of a functional equivalent to the *Freedom of Information Act*. Even though the *Umweltinformationsgesetz* (UIG), which is effective since 1994, does not go that far, but is seen as an important step towards a more open administration (e.g. König 2000). In addition, a planned Consumer Information Act [*Verbraucherinformations-Gesetz – VIG*] could not be established but was rejected by the German Bundesrat in 2002 (e.g. Lebensmittel Praxis 2002).

These features of the legal sphere can be regarded as having their roots in the influence of the industry on the jurisdiction through their strong ties to state agencies. Concerning science in a corporatist context, according to O'Riordan and Wynne (1987) this "is established in a strongly hierarchical way which consolidates almost a monopoly role for experts in science and technology decision making" (404). Therefore, the conclusion is drawn that science is less contested and that critical expertise is less influential than in a more adversarial context.

Although these descriptions are quite sketchy, they point to the differences that have been stated between the two countries in the context of national styles of regulation.

1.2.2 Some Problems with National Styles of Regulation

At first glance, these characterizations sound quite reasonable, as they seem to explain the observable differences between Germany and the United States. However, once they are considered more carefully, several problems that are associated with these assessments come into view.

For example, though there seems to be agreement that there are obvious differences in the regulatory styles of different countries, there is little agreement on what those differences are. These difficulties in grasping the differences point to problems, which are to be found at the theoretical as well as at the empirical level.

At the empirical level, it is noticeable that there is no unanimity among the descriptions of the various styles. On the contrary, the presented scholarly assessments are to some extent contradictory, or at least incoherent, as has also been stated by Meidinger (1987), who points out that "scholars and analysts picking up on the idea [of regulatory cultures, AE] tend to use it in diffuse, inconsistent, and often simplistic ways" (355). This incoherence comes into sight if one compares the literature on national styles of regulation; what seemed to be quite uncontested – like the statement of an *American Exception-*

alism, for example – becomes blurred more and more. Specifically, as will be outlined, scientific pluralism and the policy debates surrounding biotechnology contend the generalizations made about national styles of regulation.

The scientific realm in the United States has been characterized by pluralism among participants, while science in Germany has been described to be organized in a strong hierarchical way. This apparent contrast loses credibility if one considers another description whereupon „(t)he adversarial approach to expert enactment (typically found in the *German* context) shows an *open* forum where different players *compete* for political and social influence in respective policy arenas." (Hellström 2000: 508, emphasis added, AE). Not only is the scientific pluralism as an outstanding feature of the *American Exceptionalism* but also the description of the German approach as *corporatist* questioned by this assessment.

Recently also one of the most popular scholars in the field of comparative research on regulation, David Vogel (2001), questioned the prevailing portrait of an American exceptionalism as "[i]n a number of important respects the 'American Style of Regulation' is no longer confined to the United States: it has also emerged in Europe, though with respect to different issues." (21). This conclusion falls into line with Behrens' et al. (2000), who distinguish between different sectors like the public health system and the educational system. These systems are described as corporatist, in contrast to policy concerning biotechnology: "In comparison to sectors like the health and the educational system the biotechnology-policy is not marked by corporatist structures, whereby the interest groups who are involved in the conflict over genetic engineering would have had influenced the administrative decision-making processes" (166). To differ between the objects of regulation seems to be a step in the right direction but still cannot explain *why* different objects of regulation are characterized by different styles.

Against the background of these inconsistent findings, it requires many additional assumptions to substantiate these characterizations. Here the notion of the *ideal type* is quite popular: policy cultures "are by necessity ideal types, that is, they represent useful analytical categories rather than 'natural' kinds, and they may appear as intermingled with other unstated forms of policymaking (...)" (Hellström 2000: 507). O'Riordan & Wynne (1987) claim "that these four comparative typologies [adversarial, consensual, authorative, corporatist, AE] should be regarded as *ideal types*, none of which exists in pure form in any system" (404).

Even though this might hold true, within the present study the claim is made that these inconsistencies have their source in a methodological problem, pointing to a deeper rooted, conceptual problem, which is underlying the concept of national styles of regulation as such. The methodological problem re-

fers to difficulties that arise if one compares national styles of regulation since here the *comparative* framework remains unclear. As even O'Riordan & Wynne (1987) state "that in many cases it is very difficult to compare regulations in a meaningful way" (406), it will be the aim of the next section to investigate the conceptual problem of the presented approach. As a reaction to this problem, an approach for the comparison of regulatory frameworks will be outlined by which means a more fully and adequate understanding of the observable differences can be achieved.

1.2.3 Beyond 'National' Styles

Within the domain of the 'national style of regulation' approach, terminological inconsistencies with regard to the characterizations of the various countries became apparent. Instead of considering this merely a dispute over names, it has been claimed that these difficulties in grasping the differences between the regulatory approaches of the various countries point to a deeper problem that underlies the notion of 'national styles of regulation'.

This problem appears to be related with the level of analysis employed in the given context. The level of analysis remains somewhat unclear, since *national* styles refer to nation-states, but the notion of the 'state' is not further defined. This vagueness at the core of the concept has consequences for an appropriate understanding of the regulatory process, and, consequently, for the reach of statements made within the context of national styles of regulation.

One central reason for the conceptual fuzziness that can be detected within the literature on national styles of regulation appears to be related with the term of the 'nation-state'. Since national styles are taken as characterizations of the (nation-)state's overall treatment of a particular issue, 'state' and 'society' seem to be used interchangeably – the state's overall approach is (mis)taken as the all-societal approach. Nevertheless, this viewpoint undermines the important distinction between state and society that has been emphasized within the domain of modern systems theory (e.g. Luhmann 1987). Invoking this distinction means calling attention to the fact that with the increasing differentiation of modern societies the state has become merely *one* part of the political system, which is confronted with various political parties and associations (Luhmann 1998). Hence, the state has to be understood as an organization of the political system that equips the system with the ability to communicate. As the state is primarily associated with politics, the state's overall treatment now emerges as the *political* treatment of a particular issue. Against this background, using the rhetoric of nation-state, national style, or national culture means applying a specific political term to an all-societal treatment of a

particular issue, thus reflecting an inadequate politicization.[22] Statements made within the national styles-approach therefore can be marked as incomplete since they reflect the *political* approach of a country but leave out the many other forces that partake in the regulation of a specific issue. Consequently, the concept of national styles seems to conceal more than it explains.

In sum, national styles of regulation tell us something about the *political* treatment of a particular issue, but they leave out the fact that political organizations have to be considered as just *one* part of the regulatory process besides others. Especially with regard to the regulation of risk such a limited understanding of the regulatory process seems inadequate. In the domain of risk regulation classical legal instruments seem to have become obsolete, and an increasing development towards new forms of 'soft' law and non-legal instruments can be observed, which question the 'classical' understanding of regulation in terms of 'command and control' (e.g. Baldwin 1997). Within the processes of law's adjustment to the regulation of risk a temporal as well as social opening has been claimed which gives reason to consider the regulation of risk as a complex social act and not as a limited legal one. It gives also reason to assume that those involved in the regulatory process will differ dependent upon the issue that has to be regulated.

Thus revealing the limitations of the concept of national styles of regulation, the conclusion can be drawn that this concept does not have the capacity to explain the differences that occur in the regulation of risk in an adequate manner. Since it cannot fully explain the differences among various countries, it also cannot explain the differences that occur within the global regulation of risk. As it considers the regulatory process to be a limited legal and political act, it cannot observe the various dynamics that unfold between the legal regulation on the one side and the plurality of those affected by the legal rule on the other (see above chapter 1.1). Additionally, national styles do not provide an instrument by which changing constellations within the regulatory process can be observed (and explained) that are contingent on the issue that has to be regulated. As will be outlined further below, it is not at least the perception of this issue that structures the regulatory process. Therefore, the subject matter of regulation and its specific characteristics – or those that are attributed to it – have to be taken into account if one aims to explain why *seemingly* identical phenomena are regulated differently in various countries. This research interest obviously demands for an approach that takes not only political and legal actors but also *all* social actors into account, which partake in the regulatory process.

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[22] Luhmann (1997: 1088, n. 356) criticized this instance as "die Aufblähung politischer Begriffe zu einem die Gesamtgesellschaft übergreifenden Format."

1.3 Outlook: Turning to Organizations

The present chapter was dedicated to the outline of the problems that are related with the legal regulation of GM Food. The regulation of GM Food can be taken as an example for the law's dilemma to provide certainty under conditions of cognitive uncertainty. In trying to do so, the insuperable contrast between the desire for absolute certainty as an anthropological constant on the one side and the in part unmasked uncertainty that underlies decisions made in this context on the other becomes obvious.

This contrast has been circumscribed as a *regulatory dilemma* thus pointing to law's limitations. It could be shown that law's ability to cope with cognitive uncertainty in an adequate manner has to be questioned, with respect to its function as well as to its performance. Obviously the law's capacity to stabilize normative expectations is limited if the object of a legal rule is afflicted with an open and complex cognitive uncertainty. Consequently, this also has a negative effect on law's ability to regulate conduct as well as on its conflict-solving capacities. Additionally, the law not only is increasingly confronted with the breach of its rules, but also becomes itself the source of conflict.

Given that there may be considerable conflict about the very existence of a problem, the law cannot solve this conflict by means of traditional legal instruments. These traditional legal instruments often rely on scientific knowledge, but the more science and, concurrently, scientific knowledge becomes delegitimized within contemporary society, so do these instruments. Thus, the law has to adjust to changing societal conditions that can be characterized by an increasing focus on knowledge as well as on non-knowledge, thus revealing a fundamental cognitive uncertainty. By so doing, a temporal as well as a social opening of the law can be observed, which in turn affects the law itself. Here the question arises, in how far the temporal and social opening also leads to a factual opening of the law and what this means for the very structure of the law. At first sight, law's function and thus its performance seems to be threatened by these openings. If the law can no longer provide certainty over an open period, it becomes unable to stabilize normative expectations that are but one precondition for the resolution of conflicts. Further, if the law increasingly bases its decisions upon knowledge that is generated within its societal environment, does it not run the risk of loosing its 'identity'? Alternatively, to turn the question around, what becomes the very notion of law if is not (or no longer) the distinction between legal and illegal? What happens to the law if the meaning of this distinction increasingly is defined by recourse not only to scientific but also to 'societal' knowledge? And again: which role will and can the law play in the regulation of a technology that is foremost marked by cognitive uncertainty as is the case with GM Food?

In order to answer these questions, a theoretical approach was invoked that calls attention not only to law's autonomy but also to its addressee's autonomy. Therefore, "(i)f private law's reliance on social autonomy and structural coupling is applied not only to the economic system but also to the multiplicity of social discourses, it may become a model for new ways in which law, instead of relying solely on its political legitimation and its economic efficacy, opens up to the dynamics of 'civil society'" (Teubner 1992: 1462), or one might add, to the dynamics of *knowledge society*.

As world society increasingly becomes established, the search for a socially acceptable way of dealing with complex and to varying extents contested issues like GM Food can no longer be described as the unique problem of a single country. These issues traverse territorial borders in a double sense, as material as well as in the medium of communication, thus demanding for regulatory solutions beyond the single national regulatory frameworks. However, as the legal regulation of these complex issues also faces difficulties on the national level, it can be expected that these difficulties will become repeated on a transnational level. The limits of such a transnational regulatory framework are – beside other factors – to be found within the different regulatory approaches that have evolved in the various countries. For the time being, the conclusion can be drawn that one has firstly to derive an adequate explanation of these observable differences among national regulatory approaches in order to fathom not only the *possibility* of transnational regulations as such, but rather the overall *design* of such regulations.

In order to grasp these differences, the concept of national styles of regulation has been introduced as a – at first sight – promising approach. Nevertheless, at second sight, this approach seems to conceal more than it reveals; national styles have moreover to be considered as black boxes as they do not tell us anything about what the differences between the various countries are about. Moreover, these explanatory problems of this approach seem closely related to the somehow undefined *level of analysis*. These shortcomings of a prevailing concept for the explanation of differences in regulation have led to the conclusion that an approach is needed that does not focus on nation-states as designated level of analysis. Moreover, the claim was made that, under the circumscribed conditions of knowledge society, an understanding of the regulatory process is needed that does not merely focus on legal and political actors but that invokes *all* actors, which are concerned with the regulated issue. Within the present study, it will therefore be argued that it is more fruitful to shift the attention away from national styles to *organizations*. In so doing, this study aims to show that explanations for the observable differences between the regulatory approaches of various countries can be found on the level of *organizations*. They are considered as the essential part of a regulatory approach and

therefore as being responsible for differences between various national approaches. Thus, not differences between countries will then evolve as relevant differences, but differences among the involved organizations, their composition and their interplay will occur.

This shift in perspective has to be understood as a double movement: firstly, the attention is shifted from the societal to the organizational level and hereby simultaneously from the political to other, equally important social realms like law, economy, and science, which partake in the regulatory process. Therefore, an understanding of the regulatory process that limits this to the political realm can no longer be upheld against the distinction between the state and the society, since by emphasizing this distinction the central components of the regulatory process are taken into account: not just political ones but also organizations of other social realms gain attention as the central units of analysis.

With regard to the subject of the present study, GM Food, an organizational-based approach to regulatory processes seems to provide an understanding for the (different) ways, in which organizations communicatively construct the given issue and, therefore shape the respective legal regulation. It thus reveals how organizations set the context for the construction of GM Food for instance as certain, uncertain, risky or dangerous. This again points to the advantages of an organizational-based approach, since within a nation-state centered understanding of what regulation is about, the construction of 'risk' is subordinated to one national culture (e.g. Wynne & Dressel 2001). If instead organizations are taken into consideration, "the irreducible heterogeneity of social constructions of risk within society" (Tacke 2001: 297) comes into sight. Moreover, one might add, not only of risk in the first place, but also of the issue itself. These heterogeneous constructions will not only have an impact on the *development* of the legal regulation but foremost on the process of its *implementation*. This process of implementation is then likely to develop different regulatory structures as the implementation of a legal rule always is accompanied by either *power* or *knowledge* while their distribution depends upon the definition of the problem that has to be resolved.

In sum, this approach makes way for a more appropriate understanding of national differences in the way of dealing with a seemingly identical issue, as can be observed in the regulation of GM Food in Germany and in the United States. These differences seem to root within different definitions of what the issue, its scope and its problems, are about. As this definition has to be considered as the outcome of the occurring dynamics among those concerned with the issue, it is this definition that at the same time determines how the regulatory process will be fulfilled, i.e., how the interplay between law, knowledge and power will be fulfilled by the organizations of a given field.

"Regulation occurs
in many locations, in many fora:
there is 'regulation in many rooms'."
(Julia Black, 2002)

2 Regulation within an Interorganizational Network

In order to overcome the shortcomings of prevailing concepts of regulation, the organizational dimension was invoked as central for an appropriate understanding of the regulatory process. It will be the aim of this chapter to outline a theoretical conception of how this process is performed by organizations and what kind of regulatory structures occur throughout this process. In so doing, a perspective will be taken that tries to disclose the processes at the shop floor level of regulation, where a legal rule meets with its addressees, the organizations of a given field.

As each legal regulation provides a solution to a conflict, or, more moderately, to a dispute, it aims to guide social relations by establishing and securing stabile normative expectations. The previous chapter was dedicated to what – from a certain perspective – could be described as law's 'failure' in its attempt to secure expectations under conditions of cognitive uncertainty. Even under 'normal' conditions the regulation of organizational behavior – understood as the attempt to achieve a desired, favored behavior by means of legal rules – seems to produce unintended side-effects and the like, contradictory effects at worst. Quite often this is seen as a token for law's inability to fulfill its task: the stabilization of normative expectations and, consequently, the guidance of social behavior. These difficulties are sharpened if normative expectations are to provide security regarding an issue that is ridden with cognitive uncertainty. In these cases, the solution provided by the law increasingly is perceived as only one among other, at best competing, at worst mutually exclusive solutions to a particular problem.

The legal solution depends upon the initial definition of the problem to which it reacts to and it can be observed that this definition is increasingly contested among those involved in the dispute, the less scientific knowledge is capable of solving the cognitive uncertainty of the matter. The legal solution to a problem can therefore only be considered as one part of the regulation whereas its implementation that comprises its interpretation, concretization and thus *mobilization* has to be considered as the other, equally important part. Legal rules hence are only *one* part of the regulatory process since "the content

and the meaning of law is determined within the social field that it is designed to regulate" (Edelman et al. 1999: 407). In this perspective, organizations come into sight not only as objects of regulation, but also as regulators themselves since they are the ones, who interpret, concretize and, in so doing, *mobilize* the law. In this context, the 'regulation' of a certain problem must be understood as a social process in which a broad range of actors from various social realms are involved and not as a limited legal act.

Thus, regulation can so far be described as 'more than law'. In its attempts to guide social behavior, the law therefore does not stand alone. In the previous chapter, the claim was made that in the process of regulation the law is accompanied by *power* as well as by *knowledge*. Whereas power has been law's longtime companion, the more recent characterization of contemporary society as knowledge society has seen knowledge increasingly as another influential resource in the guidance of social behavior. However, the degree to which both power or knowledge will accompany and by so doing *shape* the implementation of a legal rule, depends upon the definition of the problem that has to be resolved. Furthermore, as organizations have been invoked as central parts of the regulatory process, they *perform* this complex interplay of law, knowledge and power into which a legal rule becomes interwoven as soon as it is introduced into its field.

In order to grasp this process most adequately, a concept of organizations will be applied that does not focus on content but rather provides an understanding of the organizations' functioning which holds true for all types of organizations. By so doing, the organizations' *embeddedness* will also come into view, calling attention to the fact "that the behavior and the institutions to be analyzed are so constrained by ongoing social relations that to construe them as independent is a grievous misunderstanding." (Granovetter 1985: 482) Thus, not only organizations but also their relations to other types of social systems that are perceived as relevant by the individual organizations – their environments – are taken into account. These interrelations among organizations and their environments will be described as an interorganizational *network* that develops specific patterns because of the organizations' interplay among 'their' legal rules, knowledge and power. In sum, this chapter aims to present an outline of the regulatory process that does justice to the occurring processes between a given legal rule and its original 'addressees'.

2.1 On Organizations

Organizations have been assigned an outstanding role not only in society but also, more specifically, in the regulatory process, thus affirming Scharpf's question "Does Organization Matter?" (1977). The reasons for this invocation

of the organizational dimension have been manifold. For instance, Perrow (1989) claimed that organizations have replaced society, since society has been incorporated by organizations. Laumann and Knoke (1988) invoked "The Increasingly Organizational State", indicating the, in their opinion, growing influence that organizations have in the political life, in stark contrast to the increase in state autonomy. In addition, as a representative of the jurisprudence, Schmidt-Preuß (2001) recently argued that organization has to be considered as a dimension that could enrich and further the debate over regulation. As one aspect of regulation requires that it has to be understood as a reaction to a conflict, or more moderately, to a dispute, organizations are considered as playing a central role since they "help shape what constitutes a dispute and what the nature of the dispute is" (Edelman & Suchman 1999: 977). They have the ability to do so since they are expected to gain control over the construction, implementation and the impact of law, not only within their boundaries but also throughout their social field. Legal regulations in this perspective can be understood as the outcome of a construction by the legal system about the nature of the conflict that has to be settled. This construction after all is influenced by the organizations involved. Therefore, the organizational dimension overall has been considered central for the *production* as well as for the *resolution* of societal conflicts (Gergs et al. 2000).

However, even though all these considerations might hold true, they do not provide a stable, theoretically derived argument for the relevance of organizations. Even if a societal increase in organizations can empirically be observed, this 'fact' on its own does not serve as a sufficient reason for taking organizations as decisive social actors into consideration. Moreover, to focus on particular organizations such as political, legal, economic and the like in the first place, distracts from the basic modi operandi that are to be found at the core of each organization. Therefore, an approach is needed that provides a more systematic argument for establishing organizations as a decisive constant in research on regulation as well as providing an understanding of organizations that does not focus exclusively on content. Both these tasks can be solved if the categorical assumptions of *modern systems theory* are taken into account.

Organizations as Social Systems

Even if modern systems theory is not (yet) conceived of as an 'organizational sociology' it provides a rich understanding of organizations, that makes this theoretical approach increasingly attractive for organizational studies.[1] Instead of focusing on a specific type of organization, the basic modi operandi which

[1] This is indicated by several recent publications that are based upon a systems theoretical approach to organizations (e.g. Kämper 1999; Albert & Hilkermeier 2001, 2001a; Tacke 2000, 2001, to mention but a few).

are to be found at the core of *each* organization are investigated, i.e., how do organizations constitute and reproduce themselves and how do they operate? Such an approach towards organizations makes way for an understanding that does not focus on content. Thus, it does not conceptualize organizations as being political, legal or economic organizations in the first place. On the contrary, by defining organizations as organized social systems (Luhmann 1988a) an understanding of organizations is achieved which holds true for *all* organizations throughout different societal realms.

As *organized* social systems, organizations emerge within function systems through the process of an increasing differentiation.[2] This differentiation is backed by the principle of *membership* that underlies the formation of organizations as social systems. By linking membership to specific conditions, which make entrance and exit dependent upon such conditions, organizations define their boundaries towards their environment (Luhmann 1982: 75). The rules of membership specify *roles* and regulate the recruitment of *personnel*. Inscribed into these roles are the organization's behavioral expectations that have to be fulfilled by the holder of a role. If these expectations become repeatedly disappointed the membership becomes invalid. Thus, rules of membership can be considered as endogenous normative expectations of an organization that are upheld even in the case of non-fulfillment. By so doing, organizations secure their boundaries and thus, their identity.

Another feature that is responsible for the emergence of organizations is the function that each organization fulfills within 'its' function system. Tentatively formulated, organizations fulfill the function systems' operations and implement their functional primacies (Luhmann 1997: 841) as they are due to their 'organization' capable of processing external information internally. Consequently, they are the only social systems that have the ability to communicate with systems in their environment (Luhmann 1997). Hence, they facilitate function systems with the ability to communicate and enable structural couplings between the systems. Even though structural coupling cannot be understood as a function of organizations, organizations are a sine qua non for this sort of connection between the function systems. Given that structural coupling occurs where one function system takes for granted special services provided by its environment, organizations are responsible to 'communicate' this service from one system to another – otherwise the scientific system would not even

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[2] This is not to say that organizations necessarily 'belong' to function systems. For the difficulties regarding the degree to that organizations can on a theoretical level be described as 'belonging' to function systems see Tacke 2001a. The present study follows Luhmann (1990: 678), in that it is assumed that while the *majority* of organizations can be classified as aligned to specific function systems, also organizations can be observed, which cannot be clearly assigned to one specific function system.

'know' that money has been transferred - and would thus function differently (Luhmann 1993).

However, to avoid misunderstandings it is necessary to call attention to the fact that organizations do not 'implement' the function systems' decisions in the classical sense – in fact, organizations decide because of their internal construction of their environment and its demands and expectations. Here, the organizations functioning and mode of action comes into sight: organizations can be described as social systems that are constituted by *decisions* (e.g. Luhmann 2000). An outstanding characteristic of social systems is their self-referentiality: each organization's decision refers to a former decision of the organization. Thus, every present decision becomes the premise for future decisions. By so doing, organizations, like all autopoietically-closed systems, reproduce themselves by their own constitutive elements, decisions. These decisions are programmed through the code of the function system wherein the organizations emerge. Thus, on the level of organizations the code of the function system 'reappears' as *decision premises*, which also cover the decision program (ibid.). This decision-program defines the conditions for the factual correctness of a decision (ibid.: 257). Therefore, every decision is foremost based upon information that is perceived as relevant for the fulfillment of the decision-program. More broadly, only such information is perceived as relevant that 'fits' with the functional primacy of the function system. Organizations can thus be considered as *normatively* closed.

Multireferentiality

However, although the majority of organizations emerge within one function system and thus implement its functional primacy one must not overlook the fact that the concept of functional primacy does not exclude other functional relevances. Besides their functional primacy, each organization's programming reflects a mixture of references: here one has to distinguish between a goal-oriented program [*Zweckprogramm*], and a conditional program [*Konditional-programm*]. The former is used as a rule for selecting causes that can bring about a desired goal that is taken as invariant. The latter holds a particular cause to be constant, triggering a particular type of action whenever it occurs (Luhmann 1982: 110-113, 1993: 165). In conditional programs, the normative closure can be (and is!) combined with *cognitive* openness, which means that organizational decisions, which refer to the law in the first place also take external information like financial or political restrictions into account. Therefore, organizations to a certain extent have to be described as 'in between' the law, politics, science, economy etc.[3] Given that organizations are normatively

[3] For instance, public administrations can be seen as organizations which refer to the law *as well as* to politics (Bora 2001a).

closed as well as cognitively open, they can further be understood as *multi-referential* since they base their decisions on information that refers to more than *one* functional primacy (Wehrsig & Tacke 1992; Bora 2001a). In so doing, they might function as *linkage institutions*, thus as specific institutions that shape the duration, quality and intensity of the relations between the given social subsystems (Teubner 1992). Thus, the aforementioned interrelatedness of organizations that is observed as structural coupling on the level of the function system also becomes qualified.

This status, in combination with the organization's key features, is reason enough to consider organizations as central elements of the regulatory process: on the basis of their internal construction they make decisions at the interface between the various function systems which they refer to and by so doing provide a kind of direct impact.

Organizational Scripts

Organizational behavior is thus shaped by normative as well as by cognitive rules[4] that in their totality form the organizational *script*. A unitary application of the concept cannot be observed since the concept *script* refers to a field of research that has to be described as more or less uncoordinated. Instead it is used synonymously, to name but a few, with terms like 'frames', 'prototypes', 'schemes', 'stereotypes', 'cognitive maps' and 'implicit theories' (Luhmann 1997: 110). Nevertheless, behind this Babel of terms a concept is hidden that has been considered helpful for the study of organizational behavior.

As applied in the present study, it is understood as entailing firstly the *normative* rules of a given organization. Those rules refer to constitutive norms that encompass the organization's goal-oriented program, the rules of membership, statutes and articles of incorporation as well as rules of procedure. In so doing, they define which types of organizations come into existence, which roles and procedures are provided inside these organizations and what types of organizational activity gain formal recognition. Most importantly, they function as the 'rules of appropriateness' (March & Olsen 1989).

Secondly, the script encompasses the organization's *cognitive* rules, which refer to the interpretation of the normative ones. They define the performance of the organizations, of the roles provided for therein, and the actual application of procedures. Cognitive rules also define the application of vague terms and concepts, they define what accounts for as legitimate and what in the end will be regarded as formal recognition in the context of a given organization. As the cognitive frame, they guide the actual 'fulfillment' (or adaptation)

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[4] This distinction between normative and cognitive rules replaces the formerly applied distinction between *explicit* and *implicit* rules (Epp 2002).

of the normative rules, for instance, what it means to follow an economic rationale in a given context.

In their totality, both these types of rules constitute a complex script, wherein linkages are made e.g. between past and future (futurities) or causes and actions (Tacke 2001a). An organizational script can thus be described as "a combination of meanings that serve society [or, as in the given case: *organizations*, AE] in developing a memory, which can forget nearly all its own operations while recalling some operations as schemes in order to reproduce them" (Luhmann 1997: 111). It functions as the foil for the creation and fulfillment of organizational practices, routines and coping strategies as well as the memory, which saves the *organizational knowledge* that becomes manifest in these routines and practices. Thus, scripts contain condensed knowledge that is recalled soundlessly. As long as an organization does not perceive normative or cognitive dissonance, the script remains unreflected in its actual application (Tacke 2001a: 151).[5] If an organization perceives dissonance, (organizational) knowledge becomes scrutinized and, as the case may be, revised. The confrontation with differing routines and the like therefore may lead to new or revised knowledge on part of the organizations, i.e., to learning (Willke 2001; see below chapter 2.2.2.).

Sensemaking

Organizational knowledge is at the same time the outcome as well as the basis for organizational sensemaking processes. Given that organizations are exposed to an 'information' environment that is equivocal insofar as information has the potential for multiple interpretations, organizations are forced to 'choose' from this surplus of information in order to maintain their capacity to act, thus *decide*. On the background of its foregoing knowledge, the organization *makes sense* of its environment; equivocal information is turned into certain, unambiguous information that can further be processed internally by decision-making. This sensemaking process can be understood as necessary "for organizational members to understand and to share understandings about such features of the organization as what it is about, what it does well and poorly, what the problems it faces are, and how it should resolve them" (Feldman 1989: 20 cited in Weick 1995: 5). By taken established, institutionalized organizational knowledge into consideration, the organization distinguishes between relevant information and noise, thus building a model of itself as well as of its environment, which becomes the basis for further action. Moreover, since an

[5] For purpose of clarity, scripts cannot be applied *and* reflected at the same time. In order to observe an organizational script, a second order observation is needed. While a first-order observation describes what is happening, a second-order observation is a description of a system's own description.

organization's basic mode of action has been described as decision-making each decision made by an organization is based upon premises that consist in the organization's *taken for granted* assumptions about itself and its environment. In terms of modern systems theory this process is described as *absorption of uncertainty* that takes place "if decisions are accepted as decision-premises, thus becoming the basis of further decisions" (Luhmann 1993a: 299). The sensemaking process can therefore also be described as the absorption of uncertainty, by which means the organization turns an unknown environment into a known environment (ibid.). In sum, sensemaking is *the* central activity in the construction of both the organization and the environments it confronts (Weick 1995: 69).

This underlines the organizations' embeddedness in an environment: organizations define themselves in difference towards their environment, they reproduce themselves by considering 'external' information (regardless how this information is processed internally) and they have an impact on their environment (regardless how this 'impact' is designed). This leads to the conclusion that organizations cannot be understood independently of their environment, or, to put it more radical, the concept of organizations can apparently "only unfold itself in a difference to an environment" (Albert & Hilkermeier 2001: 11).

2.1.1 Organizational Environments

The relevance of organizational environments has been the subject of a variety of scholarly assessments. Despite modern systems theory especially the population ecology approach (e.g. Hannan & Freeman 1977), the resource dependence approach (e.g. Pfeffer & Salancik 1978) and new institutionalism (e.g. Powell & DiMaggio 1991) have highlighted the complex relation between organizations and their environments, though with quite different premises and results regarding the nature of the environment(s). Tentatively, the environment can be considered as something independently given or as something that is dependent upon a particular observer. Both, the resource dependence approach as well as the population ecology approach tends to conceive 'the environment' as an independently given fact that surrounds the organization and to which the organization is committed. In this perspective, organizations have to deal internally with an environment that confronts the organizations with a scarcity of resources and a surplus of information.

However, this conception of environment as an objectively existing fact has at least implicitly been challenged already by the abovementioned concept of sensemaking that revealed organizations as "knowledge-generating systems of interpretation" (Hiller 2001: 19). In this perspective, environment, or more precisely, environment*s* necessarily have to be considered as dependent upon a

particular observer (the organization) by whom it is rather *constructed* than *discovered*. This notion of environment is shared by modern systems theory and underlies the sociological *new institutionalism*[6]. Although sociological institutionalism is also applied to fields other than organizations (Jepperson 2001), it has more recently been described as "the leading perspective among organizational scholars in the U.S." (Mizruchi & Fein 1999: 678), as well as being influential in Europe (Hasse & Krücken 1999). Even though it lacks a substantial definition of organizations, it provides helpful insights concerning the organizations' embeddedness in their environment, which enable as well as constrain organizational behavior. In coping with a plurality of at times contradictory expectations, organizations 'adjust' their internal structures to meet these expectations (Meyer & Rowan 1977). Hence, the environmental influence on the internal organizational structure becomes obvious. At the same time, an understanding of organizations as rational, independent actors[7] is called into question, letting them appear as historically developing cultural rule-followers (Edelman & Suchman 1997). Thus, not only organizational environments but also organizations no longer can be understood as independently given but as constitutive for one another.

It is this assumption that in addition to their shared turn against voluntaristic models of explanation as well as against underlying assumptions of objective rationality reveals the positive common ground of modern systems theory and the sociological new institutionalism (Albert & Hilkermeier 2001).

Enactment

In order to understand how organizations construe their environments, and, by so doing, cope with these environments, the concept of *enactment* (Weick 1969, 1977) that is closely linked with the already introduced process of sensemaking will be outlined. In the course of this introduction, an understanding of *environment* has been adopted that firstly and foremost refers to the flow of information perceived by the individual organizations, which encompasses other organizations, their behavior, rules, expectations and the like. Nevertheless, this flow of information is perceived through the distorting lenses of the

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[6] The sociological new institutionalism can only to a lesser extent be described as a *theory* but must rather be understood as a conglomerate of heterogeneous, theoretical concepts, hypotheses and classifications (Tacke 1999; Luhmann 2000). Their outstanding *common* characteristic is a reorientation from the normative dimension of the 'old'-institutionalism towards the cognitive dimension ("cognitive turn") (e.g. Vollmer 1996).

[7] By so doing, both the systems theoretical and the new institutionalist notion of 'organization' can be distinguished from a variety of popular understandings of what organization is about. Most obvious, organizations are not considered to be rational actors which strive for the maximization of profits by means of a minimum of costs. Organizations rather are construed as interwoven into ongoing social relations which at the same time are considered as enabling as well as constraining structures.

organizations' own cognitive frames. The cognitive frame is based upon the organization's binary oppositions and it determines what information is perceived as relevant in the organization's terms. In so doing, organizations construe an image of their environment that is based upon the organization's experiences and that will become the foil for their further actions. This "enacted environment is the output from an episode of sensemaking" (Weick 1977: 279): organizations enact their environment based on their internally generated knowledge. In so doing, they interpret their environments' expectations and demands on the background of their cognitive frame and construe their own meaning about what is to be understood as demand and expectation or as legitimate and appropriate behavior in a given situation. As cognitive frames guide the organization's perception and the subsequent action, they also 'constitute' the focal issue itself (e.g. Hiller 2001: 19-20 referring to Weick 1985: 223). By observing other organizations, their way of dealing with the issue around which they emerge and their interpretation of the normative rules using cognitive rules, the meaning of the issue itself is constituted. The organizations adopt these rules – or what they perceive as 'these rules' – and this, in turn, becomes the object of observation for another organization. Since organizations have to be considered 'black boxes' for one another, they react to a relatively limited and biased perception of the environment that is based upon "a frame of mind about frames of mind" (Weick 1995: xii).

As an enacted environment also consists of other organizations that enact their environment because of their cognitive frames, each organization itself is part of other organizations' environment and becomes the subject of these organizations' sensemaking and enactment processes. This calls attention to the fact that the enactment of an organizational environment not only depends upon the organizations' responsiveness towards their environment but also upon the *dominance* of that environment. There are in fact environments that are more dominant than others, e.g. law and politics. In addition, even though this is not to say that organizations are hopelessly constrained by legal rules or political decisions, the claim is made that the extent to which an organization can resist the environment's expectations and demands depends upon the organization of *power* – inside the enacting organizations as well as in the enacted environment.[8]

In the process of enacting, organizations hence create new features of their environments that did not exist before and which will have an impact on the organization's behavior in the future. Nevertheless, even though organizations may enact their environment, coin new labels and take undefined space,

[8] Hiller (2001: 22-24) has criticized Weick for his neglect of these limitations to the enactment process.

the relevant question remains in how far they may *succeed* with their enactment. Organizational knowledge, which becomes manifest in organizational practices, routines and problem-solving strategies, is confronted with knowledge generated in the organizations' environment, i.e., other organizations. Therefore, 'success' is a question of under which conditions new labels, practices and routines as well as problem-solving strategies become institutionalized, thus becoming part of an environment which subsequently has an impact on the organization. If, due to the distribution of power, organizations do not have the ability to enact their environment, i.e., do not succeed, they in turn become enacted since they are a part of other organizations' environment, who enact their environment and so on. Organizations then to varying degrees will be forced to take over other organizations' interpretations. Most likely, they will adapt their actions to the more powerful environment's expectations and routines in one way or the other. Depending upon the organization's ability to adapt to these expectations perceived as pressures and constrains, the organization will not only revise its decisions but rather its *decision premises*, and thus learn. In the process of enactment, organizations thus "respond to an environment that consists of other organizations responding to their environment, which consists of organizations responding to an environment of organizations' responses" (DiMaggio & Powell 1983: 149).

The outcomes of these responses are a variety of organizational environments that comprise not only different meanings of legitimacy, compliance and success but also different meanings of the focal issue itself. Each organizational environment differs with regard to the *relevance* of specific demands and expectations: since the organization's cognitive frame functions as a filter, usually only such demands penetrate that are perceived as relevant against the background of this frame. However, given that organizations may also be confronted with opposition to their own routines and interpretations, demands that have so far not been perceived as relevant may also penetrate. These demands gain attention when they become perceived as a threat for the organization's goal – and these need not concern monetary resources but may also concern public legitimacy. Only these processes of sensemaking and enactment should not be regarded as intentional processes: organizations do not 'decide' what they observe and what they leave out. In fact, they cannot observe their own cognitive frames.

Having said this, the conclusion has to be drawn that as each environment only exists in the eye of the beholder, the environment in turn becomes the beholder's mirror.

2.1.2 Organizational Formations

In the previous section, it has been strongly emphasized that organizations cannot be understood independently from their environments and vice versa. Organizations are embedded in their environments and they depend upon their environments for reasons outlined above. Organizations are thus interwoven into a tight net of interrelations among their environments. They maintain relations to other organizations because they provide a particular service for a given organization or a group of organizations. This type of relation has above been described as structural coupling.

Despite this sort of permanent relation that can also be described in terms of service and exchange, another type of relation can be observed among organizations. Organizations also maintain contacts to other organizations because of the common perception of a particular event as *relevant* based on their goal-oriented program. Given this *overlapping membership* of an event (Teubner 1992) the organizations become related to one specific issue[9] in one way or the other e.g. as producers, retailers, consumers, researchers, regulators to name but a few possible 'relations'. Although not each particular organization keeps contact with every other organization that is related to that focal issue, they can be described as being part of the same field. Because of the activities of a diverse set of organizations, which assemble around a focal issue, a field emerges that refers to a sphere beyond the individual organizations. In this field, organizations adhere to a common definition of 'their' issue, tying them together. At the same time, they may differ as to how this issue should be understood, assessed and, consequently, appropriately treated. Such discrepancies are due to the abovementioned fact that each organization creates its own environment whereby a plurality of perspectives towards a specific issue comes into being. Therefore, struggles, conflicts and discrepancies must not be misunderstood as (pathological) exceptions that prove the rule but have rather to be considered as the rule itself. Such struggles 'only' reveal the fundamental ambiguity of any given event.

Organizational Fields

This notion of 'field' as it is introduced here refers in part to the concept of field as it was developed by Bourdieu (1988) and successfully adopted by sociological new institutionalists like DiMaggio and Powell (1983). A field encompasses "the relations among the totality of relevant individual and organizational actors in functionally differentiated parts of society, such as education, health, law, and politics" (Aggestam 2002: 6). This notion of organiza-

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[9] That, according to the theoretical presumptions of the present study, has to be understood as a *communicative* event.

tional field has been the conceptual background of a variety of studies in most differing contexts such as hospitals (Starr 1980) or schools (Tyack 1974). But even if the concept of organizational fields[10] has proven to be quite useful for the analysis of the interwoven processes among organizations and their environments, other labels have also been coined in order to refine this concept such as *societal sectors* (e.g. Scott & Meyer 1991), *organizational domains* (e.g. Tacke 2001) and *regulatory field* (e.g. Aggestam 2002; Hedmo et al. 2001). The latter concept has been invoked in order to do more justice to the processes of regulation. An analysis in terms of a regulatory field puts "the regulations, regulatory actors and regulatory activities to the fore in the analysis" (Hedmo et al. 2001: 8). However, by so doing, the role of state activities is likely to become overemphasized. In conceptualizing regulatory activities as *state* activities in the first place, one runs the risk of reviving an understanding of the regulatory process that relegates regulation to the political sphere. Moreover, this distracts from an approach towards regulation in which "regulation is not just the function of control as performed by the state, but is the function of social control performed by others as well" (Black 2002: 18).

Rather than the – at least asserted – disregard of regulatory activities by the field concept, the more pressing question in that context concerns the *location* of an organizational field within society. Under the assumption that society comprises function systems, organizations and interactions (e.g. Luhmann 1975), the question arises where a formation like a 'field' can systematically be situated. The invoked formation of interrelations among organizations obviously cannot be described as a new form of a function system since its boundaries remain blurred and it therefore cannot be expected that such formations will develop their own codes.[11] Something similar holds true for organizations; network-like formations cannot be described as organizations since they are not regulated by membership. A similar problem can be observed with the location of *regions* (e.g. Kuhm 2001) as is discussed in the debate over globalization and a global society. Like fields, regions are conceived of as formations that traverse the function systems and, like fields, they cannot be described as systems themselves but have to be clearly distinguished from systems. It seems that the term region is used to describe interrelations whose unity cannot be clearly grasped thus pointing to another commonness with fields: an unitary application of the term 'field' cannot be observed throughout the broad research on such formations which gives reason to assume a conceptual unease and dissonance. Within the case of regions, it was attempted to solve these

[10] This concept has also been applied in an earlier stage of the present study (Epp 2001, 2002, 2002a).

[11] Only if a network defines clear cut boundaries and a story that is useable in recursion, it can become a social system (Luhmann 2000: 408).

problems by defining regions as "a formation of unstable, secondary order" (Kuhm 2001: 17) on the level of global function systems. Transferring this definition to organizational fields those can be described as an unstable formation on the level of organizations. By so doing, a definition is invoked that usually accounts for networks, which gives reason to assume that not only regions but also fields can more adequately be described as *interorganizational networks* (e.g. Powell 1990).

Interorganizational Networks

The concept of interorganizational networks has originally been developed within the field of economics where it was applied to describe relations between individual companies. Powell (1990) identified a shared common focus among the literature on organizational practices and arrangements that are network-like in the "lateral or horizontal patterns of exchange, interdependent flows of resources, and reciprocal lines of communication" (296). This notion of networks was considered to do more justice to observable interrelations among economic organizations than the traditional market-hierarchy continuum (ibid.).

But as not only economic organizations but also organizations from all societal realms maintain relations to other organizations like the ones described by Powell, the emergence of network-like forms cannot necessarily be restricted to a specific system of society. Moreover, the emergence of interorganizational networks can be expected not only between organizations of one system but also between organizations of different systems. By invoking a concept of organizations that does not focus on content but that stresses specific features which are common to organizations as such, it becomes possible to create a similar concept in describing interorganizational relations. In so doing, a more abstract, formal concept of networks is attained. In following Kappelhoff (2000), social networks can be described as a set of actors and the interrelations among them. If these actors are organizations, the network can be described as an interorganizational network.

This formal definition makes way for an analysis of interrelations among organizations that falls into line with the aforementioned research on organizational fields. In addition, recalling the notion of organizations applied in the present study, an interorganizational network emerges *unintentionally* as a net of organizations and their particular environments around a focal issue. This focal issue serves as the decisive criteria by which one interorganizational network can be distinguished from another as well as its thematic boundary (Bora 1999b: 656). Since an interorganizational network's boundaries are not regulated by membership (even though the organizations' are!) it has to be consid-

ered as always incomplete and constantly changing. Therefore, it cannot be described exhaustively.

In this context, an interorganizational network is not to be understood as pursuing any goals or serving a specific purpose. In contrast, the individual organizations are pursuing goals and purpose in the network. The binding tie among the organizations is to be found in their shared common definition of a focal issue. However, due to the plurality of organizational perspectives a plurality of perspectives concerning the focal issue may arise throughout the field, which at worst are mutually exclusive. Taking further into account that an interorganizational network consists in more dominating organizations in central positions as well as in more peripheral organizations it can be expected that the latter will seek more influence and challenge the more central organizations and their perspectives. Therefore, it can be expected that organizations will (strategically) strive for more influential positions and, by so doing, try do dominate their network. On the other hand, they will also *unintentionally* try to dominate their network. That is, because organizations interpret the focal issue through their distorting lenses and, consequently, decide based on this interpretation what accounts as an appropriate way of dealing with the issue. In so doing, they even push forward their interpretation in their everyday proceedings *without* striving consciously for a dominant position.

For the development of an interorganizational network, this means that organizations do not consciously decide to form such a network. By observing a specific issue as a part of their relevant environment, they join instead more or less by chance.

2.1.3 Interorganizational Network Configurations

The previous section has conceptualized interorganizational networks as consisting of various types of organizations (and their environments) that gather around a focal issue. The present section is dedicated to the more abstract but most important and momentous characterization of the network and the organizations involved, regarding their *uniformity* as well as their *polycentricity*. Both these features refer to the normative as well as to the cognitive orientation of an organization that affect its perceptions – of its environment, thus of the given network and, in so doing, its formal and its informal structures as well as its concepts of legitimacy.

Many scholarly assessments claim that organizations within a given network tend to become similar, thus arguing for an inescapable isomorphism among the involved organizations. For example, DiMaggio & Powell start their classical paper *The Iron Cage Revisited* (1983) with the question “What makes organizations so similar?” and state “(o)nce a field becomes well established, however, there is an inexorable push towards homogenization” (148). Al-

though this might hold true to a certain extent, a second, probably even more important feature of networks, known as *polycentricity*[12] among the organizations within a particular field, has to be taken into account. Hence, instead of voting for one or the other as the decisive feature, the claim is made that an interorganizational network *by definition* shows both features.

As interorganizational networks are formed by organizations that operate based on their own cognitive frames, every organization describes its environment differently and therefore has its own perception regarding its relevant environment. Consequently, a plurality of differing perceptions of a given network comes into existence that encompass not only the question as to which other organizations are at all perceived as part of the network but also as to what their 'common' focal issue is about; if and what problems are associated with it and how they should be resolved. This falls into line with Meyer and Rowan's (1977) observation, who state that "(i)nstitutional environments are often pluralistic and societies promulgate sharply inconsistent myths" (356). These institutional environments appear as pluralistic first because organizations *construe* them as being so. They do so since they make sense of their environment on the background of their own institutionalized organizational knowledge. In addition, it is the outcome of these sensemaking processes that becomes the basis for the organization's enactment of its environment. Organizations are not only enacted by their environment, i.e., regulated, guided, forced into something, put under pressure etc., but also enact their environment as well (Weick 1969). Thus, organizations might differ in their sensitivity and their responsiveness to their environments (Edelman 1990, 1992) as well as their environments might differ with regard to their dominance.

Against this background, it seems reasonable to assume that the processes, which predominantly are made responsible for isomorphism also have to be made responsible for variation. These processes have been assembled in the influential trichotomy of *coercive*, *mimetic* and *normative* processes (DiMaggio & Powell 1983: 150).

Coercive isomorphism results from pressures that are put on organizations by other organizations upon which they are dependent and by cultural expectations within society. Powerful, dominating actors such as regulatory agencies might have the ability to impose sanctions for noncompliance, which can be expressed by, for instance, a penalty or the denial of further monetary

[12] Here D'Aunno, Sutton & Price (1991) can be mentioned who propose that in response to conflicting demands organizational units will adopt "apparently conflicting practices" (636) and hence also focus on variation. But since they follow up a population ecology approach and thereby underestimate the active role of organizations, their research can only in part serve as an example.

support.[13] However, given that an organization usually depends upon more than one organization and that the various organizations formulate different and possibly opposing agendas, the extent to which powerful organizations will succeed by employing pressure will vary. The same holds true for cultural expectations; organizations see themselves as being confronted by a plurality of societal expectations that, at worst, can be mutually exclusive. Nevertheless, organizations do not perceive all these organizations, their demands and expectations as relevant – if they perceive them at all. Against the background of each organization's cognitive frame, only particular demands and expectations will receive attention.

The *normative* process by which isomorphic change is caused roots primarily in a professionalization that implies two aspects: firstly, the existence of a cognitive base, which incorporates norms about formal education and legitimation produced by university specialists and secondly, the existence and growth of professional networks that span organizations and by which new models are transferred. By these mechanisms, organizations overtake and, to various extents, internalize the ethics and outlooks of other organizations. Again, given that organizations generate different scripts that function as the foil for what counts as value or as norm, not all values and norms are perceived as such or are considered necessary. Even more importantly, although there may exist mechanisms by which models and ethics are transferred from one organization to another, these models and ethics will become locally applied in the given organization. It is thus likely that they will become redefined in this process of their application.

Finally, *mimetic* isomorphism can be understood as an organizational reaction to uncertainty: in the case of uncertainty, organizations tend to model, unintentionally or intentionally, themselves on other organizations. This form of isomorphism arises for example when there are clear-cut goals, but uncertainty about the achievement of these goals. In such case, organizations will copy the practices of other organizations. Organizations serving as a role model in a field are those that are perceived as legitimate or successful by the other organizations. But as each organization has generated its own concept of legitimacy and has based its operations on an internally generated benchmark for success, quite different organizations may be perceived as legitimate or successful and gain the status of a role model – but only in certain aspects and only for a part of their network. Thus, which organizations are to be considered as legitimate or successful depends upon the cognitive frame that each organi-

[13] The expectation that organizations do not produce their products by child labor might serve as an example for a cultural expectation which asserts pressure on organizations; if they do so and it becomes public they would have to assume that they will be boycotted by their buyership.

zation has developed and whereby the perception of the environment is filtered. Furthermore, even if organizations model themselves on other organizations, they can only do this because of their own – and therefore limited – perception of the behavior of the other organization.

Having said this, the conclusion has to be drawn that as coercive, normative and mimetic processes always are fulfilled by cognitively biased organizations, these processes first of all lead to *variation* and only in a derived sense – but not to a lesser extent – to *homogenization*. Therefore, homogenization as well as variation will be reflected by the organizations' cognitive structures as well as by their normative structures, and last but not least, by the focal issue around which they emerge. Different meanings concerning this issue will arise throughout the network, which may lead to considerable debate – if not conflict – about the leading interpretation of the given issue. In observing, describing and thus dealing with the focal issue, the organizations of a network shape the meaning of the issue itself: how it is treated and what rules will be considered as appropriate in its handling – these questions are subject to an ongoing and probably conflict-laden process among the organizations of a given network. However, how this process will be fulfilled in detail depends upon several, concomitant factors one of which is the network's shape that is the individual organizations' relations among each other. An interorganizational network's shape that can range from a non-hierarchical, lateral to a hierarchical shape (Scharpf 1993), results from the focal issue, the composition of the individual organizations and the distribution of power among them. It is the shape of the network, which will have an impact on the process in which not only the issue but also the network itself will be defined, that will sooner or later lead to a dominant interpretation: at least over a transitory period this interpretation will govern the cognitive and with this the normative rules. This can lead to a 'hegemonic characterization' of a network, which then itself becomes contested again and replaced by another 'tale'.[14] Nevertheless, if, when and to what extent this happens and how this new tale will be told depends upon the composition of the organizations and, consequently, upon the dynamics in the particular network. Therefore, this process of interpretation and re-interpretation has to be described as an ongoing process that is never complete.

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[14] This characterization refers to the dominating self-description of the field. For the notion of 'hegemonic tales' see Ewick & Silbey (1995) who understand hegemonic tales as "(n)arratives that are likely to bear the marks of existing social inequities, disparities of power, and ideological effects" (222) but which as particular and personal – or organizational – narratives "partake of and reproduce collective narratives" (ibid.) and by this "provide openings for creativity and invention in reshaping the social world" (ibid). But, dominating characterizations can also be imposed by an external observer, as Hiller (2001) has demonstrated in the case of East-German administration.

The introduction of a legal rule into 'its' network will now be examined closer against the background of these processes occurring among the organizations of the given network. As organizations have been conceptualized as knowledge-generating systems that enact their environments based on this knowledge, this also holds true for legal regulations as a decisive part of that environment. Transferring Weick's (1977) statement that "organizations often impose that which subsequently imposes on them" (267) to the legal environment means that organizations are not only shaped by the law but also shape the law themselves.

2.2 On Law and Organizations

A common understanding of the relation between law and organizations as its addressees is based upon the assumption that the legal rule guides the behavior of its addressees and, by so doing, shapes social relations. However, this understanding can no longer be upheld against the outlined concept of an interorganizational network that has to be considered as the *scene* of the regulatory process. Thus, it is the place where the interplay between law and those to whom it is addressed to can be observed, i.e., the interplay between a legal rule and the organizations it was designed to regulate. In this interplay law appears as something organizations are confronted with, that is designed to guide their behavior but which, in order to do so, runs the risk of becoming shaped by the organizations in return. When it enters the network it was designed to regulate, a legal rule, its meaning of the social conflict and, consequently, its problem-solving strategies, are likely to meet with a plurality of interpretations, practices, and thus probably with competing problem-solving strategies that have been developed within the particular organizations of the network. Therefore, it can be expected that the legal solution often will not be adapted as the lawmaker originally intended it. Instead, the process of norm setting will be reopened, in which the legal rule becomes interpreted and mobilized by its original addressees. Throughout this process of mobilization undefined space, time, and action is taken, lines are drawn, categories are established and labels are coined that create new features of the environment that did not exist before (Weick 1995). Nevertheless, these categories and labels do not necessarily have to be those provided by the legal rule but can also stem from the organizations of the given network.

By invoking organizations as the central parts of the regulatory process, law is conceptualized as part of their environment, i.e., as *legal environment* of organizations. This perspective calls attention to the fact that organizations do not deal with the 'things' of the world but rather with 'information' about these

things.[15] It is this perspective that not only has consequences for the notion of law but also for the very understanding of the *relation* between law and organizations.

Given that law refers to the organization's environment, it is not 'the law' that affects organizational behavior but the 'information' about the law. As this 'information' depends upon the cognitive frame of the particular organization, one can assume that each organization will have a very biased understanding of what 'law' is about. This understanding of the relation between organizations and law renders an instrumentalist understanding of law obsolete – as organizational environment, and thus as *equivocal* environment that has to be turned into an unambiguous environment by means of organizational sensemaking processes, it must fail if it is expected to steer organizational behavior. Organizations can only react to *what they perceive* as legal obligation and not to the legal obligation as it was originally intended by the lawmaker. Recalling further what has been said about the relation between organizations and their environment leads to the conclusion that organizations not only observe the law, but also *produce* it. And vice versa: since organizational environments and organizations are constitutive for one another, the legal environment also constitutes as well as constraints organizational behavior (Scott 1994a).

In order to avoid the misunderstanding that 'law' is used synonymously with 'social control' and thus answering Merry's (1988) question *"(w)ere do we stop speaking of law and find ourselves simply describing social life?"* (878), the claim is made that *law* has to be conceived of as all social communication that is formulated with reference to the law (Luhmann 1982, 1993). This understanding of a 'legal' action (in contrast to a mere 'social' action) brings clarity into the concept of legal pluralism, which "*is then defined no longer as a set of conflicting social norms in a given social field but as a multiplicity of diverse communicative processes that observe social action under the binary code of legal/illegal*" (Teubner 1992: 1451). Law is thus not restricted to the legal and/or political realm but is to be found all over society while it remains observable as itself.

For the time being, the relation between law and organizations shall be described as an "endogeneity of both organizations and their legal environments, arguing that organizations construct and configure legal regimes even as they respond to them" (Edelman & Suchman 1997: 484). They do so by sensemaking and enactment processes, as will be outlined in the following.

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[15] The citation by Weick (1977, referring to Thayer 1967) that "(i)t is not the 'things' of the world – material or nonmaterial – with which we deal" (284) but rather "with 'information' about these things" (ibid.) reveals another parallel with Luhmann's understanding of communication not as a single act but as a trichotomy of *information*, *message*, and *understanding* (e.g. Luhmann 1984, chapter 4).

Making Sense of Law

As it is a central characteristic not only of legal but of organizational environments as such, that they are not *discovered* but rather *constructed* by their beholder, organizations produce and reproduce the law in responding to it. They do so *unintentionally* because of sensemaking and enactment processes as well as trying to do so *intentionally* based on the outcome of such processes.

As organizational environment, law has in the first place to be understood as an equivocal environment. Regardless of organizations want to obey or avoid the law, of they want to use it strategically or challenge the categories provided by it – at first they have to create an interpretation of law that becomes the basis for their further action. Thus, because the law does not contain any information regarding its interpretation, organizations are forced to make sense of law. Therefore, sensemaking is necessary not only because "most forms of law regulating organizations often use broad language" (Edelman et al. 1999: 407) that leads to uncertainty on part of the organizations. It becomes necessary because each legal rule is charged with a fundamental uncertainty that can be traced back to an ambiguity that is inherent in language.

By making sense, this fundamental uncertainty is turned into a (relative) certainty. In this process, organizations interpret legal obligations, categories and problem-solving strategies against the foil of their organizational script – and the knowledge saved therein. This organizational knowledge determines what is seen as information and thus as *meaningful* in the context of the given organization. As it is organizational knowledge that becomes the basis for the organization's (intentional) enactment processes of a legal rule, this knowledge will guide how the organization deals with regulatory demands and (legally) provided paradigms.

2.2.1 Enacting the Legal Environment

Conceptualizing law in terms of environment(s), this appears in a threefold manner as facilitative, regulative, and constitutive (Edelman & Suchman 1997). Organizations therefore come to face the law as a set of instruments, as a constraint of their behavior and as a set of rules that determines, which classes of organizations come into existence, for instance.

However, as *constitutive* environment, law also provides a set of categories and definitions that establish and structure social relations (e.g. the concept of marriage). As it is to be expected that these categories and definitions are not uncontested among those who are concerned with them, law in so doing provides "paradigms for arguments" (Powell 1996: 963). Organizations are likely to have generated their own 'meaning' of what a given social relation is about and they will interpret the legal definition on this background. Dependent

upon the 'gap' between such definitions, one or the other definition will become challenged, among others by a set of routines that are also provided for by the law (Edelman & Suchman 1997).

These routines such as lawsuits become strategically used by organizations in order to push forward their interpretation and interests. Thus, in its *facilitative* aspect, law is conceived as an organizational tool.[16] In mobilizing law as a means to their ends, organizational actors shape the law directly by lobbying, drafting legislation or virtually dictating the laws that govern practice in their arenas (Scott 1994a). They have an impact on the scope of the law, on the definitions provided by it and consequently on the dynamics that occur in the process of its implementation. By challenging dominating paradigms and thus coining new labels and categories, social relations become (re-)structured and new issues are likely to come into being. Even though it is still expected that these strategies will be carried out most successfully by organizations more influential[17], the strategic use of law can also be observed by less dominating organizations. In these cases, law becomes mobilized as a means of challenging the more dominant organizations and their interpretation of a given issue, in order to make a less popular interpretation more audible.

As *regulative* environment, law confronts organizations with demands in order to guide their behavior. In this case, organizations may obey the law – or what they perceive as such – or they may avoid it. These alternatives, compliance and deviance, become manifest in different shapes that depend upon the nature of the regulation and upon the organization, its will and possibilities, and thus its *responsiveness* in adapting to legal demands. Nevertheless, both these alternatives will be fulfilled on the organizational interpretation of what the legal demand is about. Thus, in trying to obey the law the organization may fail as its understanding of compliance differs from the 'original' legal understanding. The same may happen, if the organization tries to avoid the law. Whether in order to obey or to avoid the law, organizations model themselves on what they perceive as legal constraint, thus creating law-like rules and procedures – to effect control, to protect rights, to delay settlements, to enhance legitimacy, and for many other reasons (ibid.). Consequently, they tend to become *legalistic* in that their mode of governance is infused "with the aspirations and constraints of the legal order" (Selznick 1969: 8**)**. It is these legalistic

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[16] For an early approach that takes law as an organizational tool into account see Borosage et al. (1970), especially 1087-1088, where the role of lawsuits filed by organizations in the process of legal and social change is addressed.

[17] For the mechanisms that lead to the 'success' of (already) 'successful' organizations in legal contexts see also Galanter (1974) and a reappraisal of the subject in a special issue of the Law & Society Review (*Do the "Haves" Still Come Out Ahead?* 1999).

features that can be (mis-)read under the code legal/illegal, making organizational practices and actions a 'new' source of law.

Recalling one of the central questions of this study the following assumptions can made: when a legal rule enters the field it was designed to regulate, it becomes the object of the organizations' sensemaking and enactment processes, thus *productive misreadings* (see also 1.1.2). In the course of these processes, those to whom the rule is addressed fill its categories and definitions, its obligations and demands with meaning. The rule therefore meets to differing degrees with open and hidden opposition and a process is re-opened in which either one or another of the interpretations becomes the dominating one. To what degree this is going to happen and how conflict-ridden this process will be, depends upon the issue that functions as the regulatory trigger.[18] As each issue will produce its own interorganizational network, the composition of organizations will differ and so will the dynamics occurring among them. The legal definition of the respective issue, the definition of its scope and its problems, prepares part of the ground for what is going to happen when the rule enters this network. Due to this definition, different organizational problem-solving strategies will become employed thus shaping the interorganizational network and the *initial* problem. However, as definitions and categories are charged with a fundamental ambiguity that makes a plurality of interpretations possible, this ambiguity – and thus uncertainty! – has to be resolved.

This ambiguity regarding the identity/nature of the regulated issue can be solved by two, already invoked media that is *power* and *knowledge*. Both these media have to be considered as means of shaping social relations even though they do so *differently*. In short, while power absorbs uncertainty by reducing the scope not only for the interpretation of the given rule but also for the interpretation of its regulatory trigger, the employment of knowledge broadens this scope by generating even more interpretations that are reasonable as well as questionable at the same time.

This leads back to the aforementioned configurations that characterize interorganizational networks. These configurations can now be connected with the implementation process of a legal rule into a given network. As organizations will try – unintentionally as well as intentionally – to dominate their network, i.e., the meaning of its focal issue, they will also try to dominate this implementation process. Nevertheless, the degree to which they will succeed depends upon the distribution of *power* and *knowledge* throughout the network. Therefore, 'success' in this context refers to the question in how far new labels,

[18] The relevance of the empirical matter for the subsequent regulatory processes also is demonstrated by the observation that the process of implementation in the majority is fulfilled uncontested.

practices as well as problem-solving strategies that have been generated in the respective organizations of the network will become institutionalized, thus infiltrating the rule by enacting it. By enactment processes, law is crafted by organizations operating creatively under certain constraints, which calls attention to the fact that the enactment of an organizational environment not only depends upon the organizations' responsiveness towards their environment but also upon the *dominance* of that environment. That is to say that the distribution of power and knowledge among an interorganizational network affects the individual organizations' ability to enact their environment – by *delimiting* as well as by *supporting*. Which organization is thus likely to 'succeed' in this sense of the term depends upon the question which of both these media will dominate the implementation process of the given rule.

A legal rule can define its regulatory trigger as a *normative* or as a *cognitive* problem. In the first case, this is meant in the very literal sense of the term 'normative' and refers to the question, which norms have to be established as the applicable law in a given case. If the regulatory trigger is defined from the outset as a cognitive problem, its insufficient knowledge base is put in the fore by the regulation. In this latter case, knowledge and organizational knowledge-based strategies will become employed in the process of the law's mobilization, whereas in the first case power and organizational power-based strategies will dominate the mobilization process. Thus, a legal rule will become accompanied by either power or knowledge when it is introduced into its network. The organizational employment of either power or knowledge will shape the network since "changes in environmental conditions reconstruct individual organizations, changes in organizational behavior reciprocally reconstruct fields" (Edelman & Suchman 1999: 945). Consequently, the interplay among those to whom the rule is addressed to, the rule itself, as well as the focal issue in their total will lead to different *regulatory structures* throughout a network.

2.2.2 Regulatory Structures

Since power and knowledge have been invoked as media that accompany the implementation process of a legal rule, these concepts will shortly be introduced. As a generalized medium of communication (Luhmann 1988) *power* can no longer be solely assigned to the political sphere but figurates in various shapes throughout society. This means that power cannot only be understood as *political* power but becomes converted: options to control or exert influence on the condition of one medium are used to gain control on the condition of another medium (e.g. monetary influence) (ibid.: 101-102). In so doing, power has to be considered as fragmented and dispersed among social actors (Black 2002), i.e., organizations that employ power in more or less 'disguised' modes.

Within organizations, power evolves as a "simplified mode of observing future, the fixation of uncertainty" (Luhmann 2000: 112) that becomes manifest in the instruments of hierarchical order such as instruction and control. By employing these instruments, organizations reduce uncertainty as to what they are about, what their goals are about and how internal problems are to be resolved. These instruments distinguish certain practices and routines (or, in terms of modern systems theory, *decisions*) as *conform* to the dominating self-description of the organization whereas others become abolished as *deviant*. In so doing, organizations also eliminate the various, possible interpretations that are contained in the flow of information organizations are charged with by their environment(s).

Among the organizations of a network, power becomes relevant as it serves as a means for pushing forward the individual organization's interest. Therefore, power has to be understood as a means to restrict other organizations' scope – as well as their scope might become constrained by other organizations' employment of power. That is, because organizations are conceptualized as part of other organizations' environments and thus as objects of their enactment processes. This again indicates that enactment processes can become constrained by hierarchical authority (Hiller 2001). In sum, power absorbs uncertainty by reducing and thus *narrowing* the scope not only for the interpretation of the given rule, but also for the interpretation of its regulatory trigger.

However, the implementation of a legal rule can (and often is) also be accompanied by knowledge. As the present approach focuses on organizations as social actors, *knowledge* is defined as a communicatively constituted and confirmed organizational practice that is based upon the experience of the various organizations (Willke 2001). In so doing, organizational practices and routines that have been developed not only by scientific but by legal, economic, political, thus by organizations of *any* given societal field are taken into account. Considering organizational knowledge as a resource in the guidance of social behavior leads to its revaluation and 'desecrates' the notion of 'knowledge' as something sacred that has been reserved for *scientific* knowledge so far. The hegemonic position of scientific knowledge has led to the neglect of knowledge stocks[19] that have been build up in the various societal realms, without being further noticed. Nevertheless, as scientific knowledge becomes increasingly delegitimized, these knowledge stocks evolve as equally valuable. In this perspective, an epistemological authority of scientific knowledge can no longer be claimed. Instead, *every* organizational practice is considered as

[19] These knowledge stocks can be considered as part of a reservoir, in which the various organizational knowledge stocks pour in.

knowledge-production. As the outcome of organizational practices, like the result of an organization's way of dealing with its environment, knowledge also is described as the result of sensemaking processes (see 2.1.2).

Organizational knowledge has been conceptualized as responding to an environment that consists of organizations responding to an environment of organizations' responses. However, due to the plurality of organizations, also a plurality of contradictory meanings of the focal issue will arise within the network and so a plurality of organizational practices will be developed. These differing interpretations and the subsequent differing practices and routines in the way of dealing with the focal issue will meet within the network. Dependent upon the respective definition of the issue's meaning, they will interact or collide. If these definitions converge, they are more likely to interact, whereas if they diverge, they are more likely to collide and thus to compete with each other. As the case may be, these practices will have to prove their capability of providing an adequate way of dealing with the issue. If they prove to be suitable, they may succeed in that they may become the dominant interpretation and practice throughout the network. In this case, inferior organizations will be forced into learning. Nevertheless, this accounts only for 'simple' cases in which one individual organization is capable of designing an adequate solution for a problem. In cases more complex, an individual organization is incapable of generating an adequate solution for a network that is constituted by a variety of differing organizations. In this case, the organizations of a given network will – eventually – depend upon cooperation. However, until this happens, the network will be characterized by friction if not conflict, as the involved organizations will push forward their own interpretations. The absorption of uncertainty by means of knowledge therefore is fulfilled by multiplying possible interpretations (and so *meanings*) of the focal issue and its related problems that will be reduced in a probably conflict-ridden trial-and-error process. Thus, instead of eliminating possible interpretations and narrowing the scope as power does, knowledge *broadens* the scope for interpretations and subsequent actions.

Power-based Structures

If a legal rule defines its trigger primarily as a normative problem and thus aims to subsume a given case under existing norms, power will become employed in the mobilization of this rule. This is the common problem of legal practice and as each law has to be enforced by political power, this power reappears as legal power in the disguise of legal instruments such as sanction and control. In so doing, the legal rule acquires a seemingly outstanding position as political and legal power (still) are surrounded by the aura of superiority. Nevertheless, as the political system in modern societies no longer can be described

as society's center (e.g. Luhmann 2000a), political power and, consequently, legal power come to face other forms of influence. Power therefore may not be reduced to *political* power but has to be understood as a medium that takes on varying shapes. Moreover "while recognizing the importance of legal environments in constituting and constraining organizations, it is important that we also recognize the power of actors to shape institutional rules" (Scott 1994a: 13). Thus, even though in a hierarchical-shaped network law is likely to become enacted by other organizations – that are also powerful – it cannot be taken for granted that law will be on top of the hierarchy.

These enactment processes will be fulfilled intentionally as well as unintentionally. *Intentionally* control quite often happens in the early stages of the development process of a legal rule through the self-interested lobbying efforts of organizations (Edelman & Suchman 1997). This process becomes influenced by powerful organizations who maintain well-established relations with political organizations. In so doing, they may have coined new labels and practices in the process of the development that reappear as legal definitions when the rule is introduced into the network. Having participated in their creation, they are thus able to comply with legal obligations before these are issued. Even if they have not partaken in the development process, due to their informal contacts with the competent authorities they may be informed sooner or better than less powerful organizations. Therefore, they may gain an advantage with regard to compliance as well as to non-compliance.

Although powerful organizations might become role models without striving for this position, they are also more capable of establishing themselves as role models throughout the network if they want to. As they have means such as control and subordination, they can put less powerful, probably dependent organizations under pressure. In so doing, less influential organizations will be forced to take over other organizations' interpretations as the basis of their own actions, and thus implement practices, routines, problem-solving strategies that are generated within the more dominant, powerful organization(s). Instead of enacting their environment, these inferior organizations in turn become enacted as part of the environment of more powerful organizations.

But even if they fail in their efforts to control the law, powerful organizations also often come to shape the law 'merely' through their collective sensemaking activities (Weick 1995), thus *unintentionally*. Powerful organizations often have well-established relations not only with politics but also with the media, which provides them with access to a more prominent position within their network. By 'just' dealing with the regulation, a powerful organization therefore is capable of coining an interpretation of the regulation and the definitions contained therein, that sets a precedent for other, probably less powerful

organizations. In so doing, they are likely to become a role model for other organizations without even striving for this position. Less powerful organizations will model themselves on the more visible and audible organizations because they might perceive them as leading ones in their network – and probably as better informed ones (even if they are not!). These sensemaking processes also affect the legal regulation because they add the *missing link*: by making sense, the organizations generate an instruction manual for the application of the rule. Thus, the more powerful organizations may 'succeed' in that their interpretation of the legal rule becomes the applicable interpretation throughout their network.

Against the background of this outline, one can now assume that the aforementioned coercive, mimetic and normative processes lead to homogenization among the organizations of a given network if this network is dominated by power. Given that one interpretation of the focal issue becomes the center of reference for the legal regulation, deviant perceptions, interpretations and routines will be sanctioned. Thus, alternative interpretations do not fully vanish but for at least a period are 'condemned' to lead a shadowy existence in the niches[20] of the network or inside a few individual organizations. As the case may be, these inferior meanings bear the potential of flaring up whereby the hegemonic interpretation is likely to become challenged. In sum, the employment of power in the mobilization process of a given rule is likely to conceal at least the irreducible plurality of interpretations of a given issue – but it may not extinguish these alternative interpretations completely.

Knowledge-based Structures

If a legal rule defines its trigger as a *cognitive* problem in the first place and thus emphasizes its insufficient knowledge base, knowledge is likely to be invoked in the mobilization of this rule. This is, because by referring to an applicable, already established knowledge base the legal rule does not claim superiority in the solution of its regulatory trigger. Instead, it admits more or less implicitly its incapability of resolving the problem as there is no experience-based knowledge available the regulation could fall back on. In so doing, it – whether intended or not – encourages the organizations of the given network to 'fill' this cognitive gap by contributing their experiences with the given focal issue.[21] This 'point of departure' for the introduction of a legal rule will affect the subsequent processes quite differently if the rule invokes power.

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[20] This notion of *niches* roots in the population ecology approach of organizations (e.g. Hannan & Freeman 1977; Aldrich 1979).

[21] This is not to say that the insufficient knowledge base of the focal issue can be resolved but rather that the underlying cognitive uncertainty of the issue can be adequately handled.

As the rule may not at all or only in a much reduced sense introduce a substantial definition of the focal issue, one can assume that instead of reducing the irreducible plurality of definitions, such definitions will instead exist equally side by side. Each organization will try to make its own interpretation the ruling one, which is likely to result in competition, debate and probably conflict throughout the network. This competition cannot be easily 'decided' by any superior authority as the insufficient knowledge base and the complexity of the focal issue is evident. Under these conditions, no individual organization can hope to gain an outstanding position, as it is also evident that no individual organization will be capable of resolving this problem on its own. In this case, each organization within a given network may succeed irrespective of whether this organization would commonly be defined as powerful or less powerful: if the network is ridden with cognitive uncertainty that cannot be resolved by either science or any other 'traditional' authority, organizations who have been perceived as less powerful or successful so far, are now likely to also contribute their experience to the solution of the cognitive conflict.

In so introducing internally generated knowledge into the network, this knowledge will be confronted with competing interpretations and, consequently, competing problem-solving strategies. This 'confrontation' is likely to induce the revision of established knowledge or the generation of new knowledge on part of the individual organizations.

In comparing, adjusting, and revising, organizations come to learn in an environment of learning organizations (Levitt & March 1988). As the complexity of the problems this study has in mind will overtax an *individual* organization's problem-solving capacity, organizations are increasingly forced to cooperate with each other in order to cope with the focal issue. In this process of cooperation, the various perspectives will be measured and tested, leading to revisions, re-interpretations and so to new perspectives.

In this process of reciprocal learning, organizations are more likely to succeed which can adapt to the ever-changing character of an issue that is ridden with cognitive uncertainty. As the issue will permanently be shaped and reshaped – at least for a period – the individual organizations of a given network will have to adapt to these changes. These adaptation processes can be described as learning. However, here one has to distinguish between the *adaptive* and the *self-organizational* type of learning.[22] While the latter is characterized by the system's ability "to question the appropriateness of behavior" (Grabher 1993: 266), the learning abilities of the former are limited "as the system can maintain only the course of action determined by the operating norms and

[22] This distinction falls into line with the one between *single-loop* and *double-loop* types of learning (Argyris & Schön 1978).

standards guiding it" (ibid.: 265). It is however not able to question these guiding norms, and thus to consider them *reflectively*. Therefore, these types of learning can also be distinguished by referring to the system's ability to reflect not only on its own operations but also on the underlying assumptions and, if needed, revise them. For these reasons, it seems more appropriate to speak of *learning* processes if the system's cognitive structure is rebuild whereas 'unreflected' changes in organizational behavior have to be described as *adaptation*. With regard to the outlined situation, organizations thus may adapt to this interpretation. By so doing, they will change their actions according to this interpretation without changing the assumptions, or more precisely the decision premises, that guide their behavior. In this case, they may become unable to correct their direction even if they are confronted with negative outcomes. This might happen since the organization may have *mis*interpreted the changes in its environment. Lacking flexibility to adjust to environmental demands may in the end lead to the 'death' of an organization or at least threaten the organization's survival.

The flexibility of an organization depends upon its internal structure. Research in this field has shown that organizations, which are described as *loosely coupled* are more flexible whereas *tied coupled* organizations more easily run the risk of being 'crushed' between contradictory demands and expectations (Kämper 1999). While the latter are less capable of decoupling their active parts from their less active parts, the first tend to *pretend* that they have learned. This pattern of behavior also has been described by referring to the distinction between *talk* and *action* (Brunsson 1989). Dependent upon its flexibility, an organization is thus more likely to adjust to external demands by *decoupling* its loosely coupled talk and action segments (ibid.). Although it may be confronted with negative outcomes of its responses to environmental demands, it is able to react to these 'failures' by questioning repeatedly the underlying assumptions that led to these failures. In so doing, it continuously monitors its behavior and its effects thus becoming able to adjust constantly to a changing environment without being forced into a revision of its decision premises.

'Success' in this context means that an individual organization's internally generated knowledge becomes one part of the network-wide accepted interpretation and routine. In so doing, it will infiltrate the law – and the legal rule itself has activated the generation of a knowledge base among its original addressees. The legal rule will therefore build upon a knowledge base that refers not to an individual organization's knowledge but to a variety of interpretations that have been coined in the organizations of 'its' network.

2.2.3 Outcome of Enactment Processes

Dependent upon the dominance of one or the other medium throughout the network, the interplay among the given legal rule and the organizations will lead to quite different regulatory structures throughout the given interorganizational network.

Outcome of a power-shaped mobilization process

At the surface of a network that is predominantly shaped by power-based organizational strategies, a *homogeneous* picture of the focal issue will be presented. This is, because alternative interpretations have been abolished not only as deviant, but also as unlawful or simply 'wrong'. Therefore, the characteristic homogeneity also extends to practices and routines in the way of dealing with this issue, which have been singled out as the *applicable* routines throughout the network.

This shape of the network can now be considered as the outcome of a power-based mobilization process of the legal rule. In this process, law has been infiltrated with meanings of the focal issue that have been generated within the powerful organizations of the given network. In so doing, the legal rule became the 'cue ball' of these powerful organizations, a means to their ends, in order to push forward their interests. Law thus became mobilized as an instrument of control and influence [*Herrschaftsinstrument*] that distinguished one meaning of the focal issue as the *only* valid and correct meaning.

However, this is not to say that other, equally possible meanings have vanished or been completely extinguished. As organizations have various options to cope with a dominant environment, not all organizations will abolish their meaning of the focal issue. Moreover, even though these alternative interpretations have been 'sorted out', they still are likely to linger on inside individual organizations or niches of the given network. In these hidden places, the potential for conflict and opposition thus smoulders and is likely to flare up as soon as a *window of opportunity*[23] opens up. In this case, the dominant interpretation will become challenged and the process of competing, defining and abolishing will be re-opened. This sketch of a power-shaped network leads back to the aforementioned network configurations. Even though a hierarchically organized network seems at first sight to be homogeneous, this picture increasingly turns into an illusion if it is examined closer.

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[23] A *window of opportunity* or *policy window* occurs "when actors in the political arena manage to bring together (perceived) problems and (perceived) solutions and force these through a decision-making process (…). During such phases, regulatory regimes are constructed or altered, after which it typically takes some time before they reappear on the agenda of political institutions again" (Halffman 2003: 9).

By employing power, various contradictory interpretations of a certain issue have been abolished as deviant whereas only one interpretation was institutionalized as the dominant one. In so doing, the plurality of perspectives that are inherent to an interorganizational network have been 'merged' into one perspective or at least it seems so. Competing interpretations have increasingly been made invisible and unheard, thus reducing opportunities for opposition, friction and conflict. Therefore, the conclusion can be drawn that the establishment of a legal rule, which has been accompanied by power and powerful accessories, is likely to pacify an interorganizational network – in the short run.

Nevertheless, at the same time as a powerful rule and its definition becomes established, countervailing power is likely to be produced. This is, because the plurality of perspectives has not been solved but rather cut off. Thus, they still linger on, even though at the periphery of the network. But even though their possibilities to become more vocal and visible are restricted by the more dominating organizations who have already taken the influential positions, they must be considered as a potential for conflict and opposition. Inferior perspectives also might try to mobilize the law for their interests as well as using various types of influence (e.g. consumer boycotts). Therefore, the expense of a tight coupled, homogeneous network wherein opposition has been muzzled to the greatest possible extent is to be found within the risk that these contradictory and deviant voices will try to challenge the hegemonic interpretation. In so doing, a seemingly pacified network may *in the end* be turned into a conflict-ridden network. The peaceful and homogeneous picture that is presented as the outcome of a power-shaped mobilization process therefore has to be understood as a delusion, which hides the network's original polycentricity and unrest.

Outcome of a knowledge-shaped mobilization process

A network that is predominantly shaped by knowledge-based organizational strategies is likely to present a more *heterogeneous* picture. While in a power-shaped network the plurality of perspectives has been concealed by mechanisms such as control and sanction, a knowledge-shaped network is characterized by the parallelism of various, differing interpretations of the focal issue. Thus, dependent upon the range of these interpretations, first of all conflict is likely to occur within the network. Even though this is not to say that the network will only and unchangeable be ridden with conflict, the plurality of interpretations will not lie quiet but lead a more or less tense coexistence.

This shape of the network can be considered as resulting from the knowledge-shaped mobilization process of a legal rule. Instead of binding the loose ties of an interorganizational network together, and thus establishing *one* interpretation of the focal issue as well as applicable routines, the rule moreover

encouraged its addressees to generate varying interpretations of the issue. In so admitting its own incapability of producing a solid knowledge base that normative expectations could refer to, the rule rather 'decided' to rely on knowledge that is generated within the network it was designed to regulate. Thus, the cognitive uncertainty is not resolved by abolishing alternative interpretations but rather by widening the scope for possible interpretations. This re-opening of the norm-setting process will at first lead to a generation of interpretations that are likely to compete in order to become institutionalized, thus to become the guiding interpretation throughout the network. But as the complexity of the problem will ask too much of an individual organization they are likely to turn to cooperation, thus 'exchanging' their own experiences with the focal issue in order to generate a knowledge base that lies beyond that of each single organization.

In this process, the legal rule is only one of a variety of 'drafts' in the network, and, like any other draft, will be tested and probably become abolished – in its 'original' sense. Moreover, as the organizations of the given network will have to learn so will the legal rule. Instead of being mobilized as an instrument of control and influence, it can rather be described as an incentive for the in-context production of knowledge regarding an appropriate way of dealing with the issue in question. Consequently and with regard to the 'original' function of a legal rule – that is, to secure expectations – a weak rule in the sense described above will not be able to establish one interpretation to be the dominant one throughout the network. Therefore, it will not provide security for those affected by the rule but will rather leave them to their own devices.

On the side of the addressees, it has to be argued, that even if they 'descend' to cooperation, these organizations will not adopt the specific definition of the focal issue that has been coined in their environment in a one to one relation. They will rather subscribe to a *productive misreading* in that they design a mode of handling for the given issue, that can be described as the least common denominator but which at the same time acknowledges the autonomy of the parties involved. Therefore, the expense of a heterogeneous network wherein contradictory interpretations coexist is to be seen not only in a more conflict-ridden interaction but also in a loss or a lack of certainty. In sum, the heterogeneous picture that is presented as the outcome of a knowledge-shaped mobilization process has to be understood as less comfortable but at the same as probably more appropriate regarding the fundamental ambiguity of the issue in question.

2.3 Conclusion: Revisiting the Regulatory Process

As this chapter was dedicated to the outline of an organizational-based concept of the regulatory process, an understanding the regulatory process was invoked in which neither the law nor the organizations as its addressees were conceptualized as dependent or as independent. Instead, the endogeneity of law was emphasized, thus calling attention to the fact that the law not only has an impact on organizational behavior but also is impacted on by the organizations itself. When a legal rule is introduced in 'its' network it is not applied as it was originally intended to, but becomes mobilized by its addressees, the organizations that constitute an interorganizational network around a focal issue.

In so invoking organizations as the central parts of the regulatory process an understanding of this process was abolished that mistook law as an instrument in modifying organizational behavior. Instead, organizations were introduced as actively partaking in the regulatory process by making sense and enacting the legal rule. Consequently, they reproduced the law by interpreting it. This happens unintentionally as well as intentionally. In their relation to the law, organizations tend to become *legalistic*, even though this depends upon the single organization's responsiveness to its environment as well as upon the environment's dominance. In responding to their legal environment, organizations overtake to varying degrees legalistic features such as an increased use of formal, standardized policies and procedures that reflects the legal emphasis on due process and formalization. Organizations also internalize litigious models of conflict resolution and overtake law-like decision criteria. Finally, organizations may also increasingly use legal rhetoric that can be considered as both a manifestation as well as an intensification of the other aspects of organizational legalization (Sitkin & Bies 1994: 22-26). But in so doing, organizational actions can be observed under the binary code legal/illegal, making them 'meaningful' from the law's perspective. Therefore, at the same time as the law tries to modify organizational behavior, it will therefore become modified itself by its original addressees.

How can these observations regarding regulatory processes now be brought in line with the everyday observation that 'regulation' takes place since organizational behavior *does* become modified and legal rules *are* applied? What is needed here and what this chapter has developed is an understanding of the regulatory process that, by embracing and so *recognizing* organizational enactment processes, makes way for an understanding of regulation as a dense, social act in which a plurality of social actors partake in. By doing so, the idea of 'regulation' itself does not become completely abolished but redefined. As organizations have been introduced not as isolated, closed entities but as strongly interwoven with their environments, they can now be considered as linkage institutions "that bind law to a multitude of functional

subsystems" (Teubner 1992: 1448). They open up the possibility for an increased responsiveness of the law as they "bind law to diverse social discourses much more closely than politics or social sciences suggest a 'resonance' of law with civil society" (ibid.: 1444). This is not to say that law overtakes norms and routines, which have been developed in its societal environment on a one to one basis. As the law, or more precisely, legal organizations are conceived as cognitively limited as any other organization, they also depend upon sensemaking processes. Thus, they filter the 'noise' their environment(s) charges them with through their distorting lenses. Moreover, as organizations tend to become legalistic, they develop norms and routines that seem to 'fit' with legal communication. Thus, the law more or less "productively misreads other social discourses as 'sources' of norm production" (ibid.: 1447), resulting to varying degrees in a 'societal infiltration' of the law. In this process the law incorporates rules, norms etc. that stem from other social realms and which in turn impose as legal norms the realms from which they originally stem from. The degree to which this is going to happen depends upon several factors one of which is the design of the legal rule itself.

Contingent on that design, and thus on the definition of the initial regulatory trigger and the (legal) instruments provided for an adequate way of dealing with this 'trigger', the implementation process into the network that is to be regulated will result in different regulatory structures. In introducing a specific definition of the issue that is considered as its regulatory trigger, the rule prepares part of the ground for what is going to happen in its mobilization process. Consequently, with regard to the subject of the present study, the next chapter is dedicated to the introduction of the respective legal regulation of GM Food in the United States and in Germany.

"Different cultures and attitudes influence the legal determination of when there is a food safety risk and how to respond to such a risk"
(Marsha Echols, 1998)

3 Securing Food Safety: The Legal Framework

Each regulation is triggered by a problem to which the regulation proposes a solution. This solution will depend upon the law's perception of the problem and, consequently, on law's conception of what will account as an adequate way of dealing with the particular issue in the future.[1] Within the given context, this issue is the introduction of GM Food into the market in a most socially acceptable way. How this aim can be achieved depends upon the problems that are attributed to GM Food, its causes and its scope. As mentioned in chapter 1, GM Food can be depicted as a mixture of biotechnology and food, which makes way for differing interpretations of the issue. GM Food thus can be defined as *food* or as a *genetically modified organism* in the first place and it is this definition that makes a difference with regard to the chances and problems, which are attributed to it. Therefore, one can assume that a variety of definitions exist throughout the network, which has emerged around this issue. Depending upon the respective definition, different understandings of the problems related with GM Food and, consequently, different understandings of the applicable problem-solving strategies will occur within the network. Those definitions are likely to compete with each other in order to become the dominating one throughout the network.

In order to establish 'secured' expectations the legal rule aims to establish one definition as the prevailing one. By so doing, a consistent body of rules, practices and routines is brought into being that will be distinguished as henceforth *applicable* from other, deviant definitions and routines. Nevertheless, as has been mentioned above, it is likely that these definitions will linger on and affect the implementation of the legal rule in one way or another. In order to understand the dynamics that unfold when a legal rule becomes im-

[1] This conception itself has to be considered as the result of a preceding negotiation process between a plurality of actors. But, for purpose of this study, the current legal regulations are taken as the starting points of analysis. By so doing, they are (tentatively) discussed as stable. For a comprehensive report on the development of the NFR see Behrens et al. 1997: 105-134; Rücker 2000.

plemented, the first step is to investigate the definition of the problem as it is provided by the rule. This definition determines the distribution of power and knowledge within an interorganizational network. According to the definition of the problem thus either power-based or knowledge-based solving strategies will dominate the network. As each regulation has to be understood as a reaction to a problem, the rule itself is based upon its definition of this problem. Consequently, the rule prepares part of the ground for what is going to happen when it will be introduced.

That the legal regulation of any given issue does make a difference can be clearly observed in the regulation of GM Food in Germany and in the United States. The introduction of GM Food has caused differing amounts of resistance in both these countries; while in Germany the introduction has been accompanied by expressions of public resistance such as consumer boycotts, it had not caused a comparable broad public debate in the United States. Scholarly assessments of these apparent differences in the overall attitude to GM Food have concluded, "that there is no *one* cause of the transatlantic divide" (Gaskell et al. 2001b: 113, emphasis added AE). Instead, a complex interplay of mutually interrelated aspects of the public spheres in the US and in Europe has been made responsible for the observable differences (ibid.). However, although this might hold true to a certain extent, the present study claims that the significant locus of difference is to be found within the (legal) regulation of biotechnology, and specifically of GM Food.

The differences in the regulation of biotechnology which can be observed between the United States and Germany usually are explained as an expression of different regulatory styles, namely a *product-based* (US) and a *program-based* (Germany) approach (Jasanoff 1995a). These characterizations aim to grasp the differences by focusing on the fact that in the United States 'only' the modified *product* is subjected to legal regulation whereas in Germany the overall relation between technology and society became the center of attention. Although these descriptions hold true, they do not fully grasp the differences and must therefore be considered as only *one* part of the explanation. As the deficiencies of the national styles of regulation approach have already been addressed in chapter 2, they will not be repeated here. Nevertheless, the claim is made that the explanation for these observable differences between both these countries is to be found within the interplay of the legal regulation(s) on the one side and those to whom it is addressed to – the organizations – on the other. As the legal rule shapes this interplay – as well as it will be shaped in return – the respective regulations have to be examined more thoroughly in order to unpack the first part of what the black box 'national style' is about.

Further insights may be gained that are helpful for the understanding of *transnational* processes. Even though these processes are not the focal topic of

the present study, they cannot remain unmentioned as GM Food must be understood as an example for the globalization of risk and thus as an issue that demands for a regulatory frame beyond individual countries. GM Food can be considered as an example for the 'globalization of risk' since firstly, worldwide communication over GM Food in terms of risk and danger can be observed[2]; secondly, several events that occurred in the realm of GM Food developed worldwide relevance[3]; and thirdly, the plurality of perspectives under which GM Food is observed as well as constructed and that explains part of the controversies surrounding the issue, is no longer limited to national boundaries. Similar to many other fields, attempts can be observed to put GM Food under a transnational regulatory framework even though the global regulation of 'risk' faces similar problems like risk regulation within national boundaries.[4] Moreover, law's difficulties to regulate a so-called risk-technology become repeated and to a certain extent radicalized on the international level. For instance, the 'clash of perspectives' is repeated on a worldwide level, as an anticipated 'transatlantic trade war' over GM Food indicates (e.g. Krenzler & MacGregor 2000; Gillis & Bluestein 2003). The existence of a plurality of transnational agreements like those of the World Trade Organization (WTO) and the Codex Alimentarius Commission (CAC) thus pay witness to the need for regulation.[5]

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[2] This can be observed not only in the existence of international agreements as the ones cited further below (note 5) but also in the border-crossing organization of critical groups such as Greenpeace and Friends of the Earth, to name but a few.

[3] The probably most popular 'scandal' related with GM Food was triggered by *Arpad Pusztai*, at that time a researcher at the Rowett Research Institute (Aberdeen/UK) who conducted a study on genetically modified potatoes. In August 1998 he reported in an ITN 'World In Action' documentary that genetically altered potatoes fed to rats resulted in retarded growth and reduced immunity. Not only did Pusztai hurt a fundamental rule in science – he presented results to the public before discussing them within the scientific community – but he also presented a result that up to the present remains controversial. In the aftermath of Pusztai's contested statement several studies were launched in order to prove or disprove his findings. But beside the scientific discussion a cross national debate set off that led for instance in Great Britain to a turnaround in the public opinion to GM Food: while Great Britain had been the European spearhead in the introduction of genetically modified products in the mid 1990's, it was now confronted with outbreaks of public resistance such as demonstrations in front of grocery stores and front page headlines on "Frankenstein Food Faces Supermarket Ban" *(Sunday Telegraph* January 26, 1999). See also for a detailed chronology on the case *www.transgen.de* (last visited January 15, 2003).

[4] See only the *OECD GM Food Safety Conference* (officially known as "GM Food Safety: Facts, Uncertainties, And Assessment. The OECD Edinburgh Conference on the Scientific and Health Aspects of Genetically Modified Foods") that was hosted by the U.K. government in Edinburgh on 28 February – 1 March 2000. It was one aim of the conference to fathom the possibilities for the achievement of cross national consistent standards and criteria for assessing food safety. For further details see: www1.oecd.org/media/release/nw00-16a.htm (last visited January 15, 2003).

[5] Agreements over food safety measures are laid down in the WTO-Agreements on the *Application of Sanitary and Phytosanitary Measures (SPS)* and on *Technical Barriers to Trade (TBT)*. Within the scope of the SPS-Agreement the CAC has been officially recog-

These agreements have been established in order to prevent or settle conflicts that are due to the differing perceptions of the issue GM Food. Again, as these agreements may collide with different national regulations, they themselves are more likely to become the source of a new conflict rather than to settle an existing one (e.g. Spranger 2000; Burchardi 2001). Therefore, one major reason for the difficulties that unfold in the domain of a transnational regulation of risk is to be found within different, contrasting regulatory approaches of the various countries. As will be pointed out in the following, each transnational agreement has to be applied in a local context that is marked by dynamics that unfold in the interplay of the specific regulatory framework, those to whom this framework is addressed to and last but not least the regulated issue itself.

Within the given context, Germany as well as the United States has to deal with a seemingly identical problem: to establish the expectation that GM Food is safe to eat, even though the issue is ridden with cognitive uncertainty. By providing a legal framework for behavioral expectations concerning GM Food both these countries try to resolve the problem of cognitive uncertainty that can be considered as the fundamental characteristic of the issue. However, as will be outlined in the following sections, even though both these frameworks aim to establish the expectation that GM Food is safe to eat, they mobilize different means to this end. By so doing they introduce different meanings of the issue into the field, thus communicating the cognitive uncertainty whether in terms of risk or in terms of certainty.

Methodological Remarks

In the present study, the claim is made that the observable relations among the involved organizations are to a certain extent determined by the legal regulation of the issue GM Food. In addition, even though the regulatory frameworks concerning GM Food will differ in both countries, any regulatory framework concerning GM has to be considered as one *type* whereas any particular national legislation concerning GM Food has to be considered as a *token* of that type.[6] Each of the both national legislation thus reacts to an identical problem: the regulation of a phenomenon that is characterized by cognitive uncertainty. For purpose of clarity, this does not contain any information about what follows from this uncertainty yet, but this problem has to be taken as the *shared* initial point for the development of even differing regulatory frameworks.

As will be outlined further below, the legal regulations concerning GM Food in Germany and in the United States show striking differences with regard to form and content. Since they have been developed within different le-

nized as the authoritative body with regard to international standards, directives and recommendations in connection to food safety measures (Fuchs & Herrmann 2001).

[6] A *type* is a category, while a *token* is an individual instance or exemplar of some category.

gal systems – common law resp. civil law – this is not surprising and has to be seen as a problem only in the comparison of legal institutions. But the present comparison must not be misunderstood as a comparison of laws – the legal regulations are considered as only one part of the comparison. This calls attention to the theoretical background in which the regulatory process has been defined as a complex social act and not as a limited legal one. Instead, within the present study the differences between the respective regulatory frameworks are treated as remarkable as they have been established in order to fulfill the same societal function: the stabilization of the normative expectation that GM Food is safe to eat. By doing so, – or better, by *trying* to do so – societal conflicts that may be triggered by GM Food shall be prevented or be resolved. Therefore, both these regulatory frameworks can be described as functional equivalents and can thus be compared with regard to the question of how they cope with an initially identical problem in different ways.

In the following section both these regulatory frameworks will be introduced whereby special attention is called to their respective definitions of the initial problem that is to be regulated. Given that at least three ways of reading legal texts have been identified – a *jurisprudential*, a *naive* and a *hermeneutic* way (Bora 1999: 126) – the description of the legal framework has followed the last way.

3.1 Germany: "Novel-Food-Verordnung schafft mehr Verwirrung als Klarheit"*

In the beginning, the claim was made that GM Food has to be considered as a mixture of two, already tense issues, biotechnology and food. Although several food scares have led to public distrust in the mechanisms of food safety regulation in Germany, the implementation of biotechnology has caused broad and bitter resistance in the early 90's that in its radicalism can only be compared to the protests against nuclear power. Moreover, similar to the debate over nuclear power[7], public debate over biotechnology has from its outset been (and to a certain extent still is) a debate over the impact of technology on society. In this context not only the technology as such but also the legitimacy of decisions had been questioned, which would impose possible, unknown risks on society. Thus, the overarching question of the debate was *who is supposed to decide legitimately over the implementation of a so-called risk technology?* Consequently, a societal debate was opened up wherein the relation between society and technology was broadly negotiated. As a result, in 1984 the German Parliament decided to establish a Commission of Inquiry [*Enquete Kom-*

* Süddeutsche Zeitung, May 15, 1997.

7 See for this somewhat hackneyed parallel Radkau 1988.

mission] in order to investigate the need for and the possibilities of a biotechnology regulation. The Commission issued its report "Opportunities and Risks of Genetic Engineering" [*Chancen und Risiken der Gentechnik*] (Deutscher Bundestag 1987) that questioned the safety of biotechnology and recommended a five-year moratorium on environmental release. Although the moratorium was subsequently rejected it expressed a cautious approach that became manifest in a technology-specific, cross sectoral 'gene law'. Thus, the Act on Genetic Engineering [*Gentechnikgesetz – GenTG*] came into force in 1990, establishing a regulatory system for biotechnology products.[8] This approach towards biotechnology has been characterized as 'programmatic' (see above) since not only the technology as such but the more general relation between technology and society was in the focus of public discussions. Even though one intention of the act was to overcome the vital public controversy (e.g. Gill 1996), its ability to do so has widely been questioned (e.g. Bora 1998). Biotechnology in the German context still has to be described as a contested issue and it is this conflict-laden history that sets the context for the introduction of GM Food.

When the German debate over the introduction of GM Food started in the mid-1990s[9], the debate that had accompanied the development of biotechnology throughout the 1980's was repeated to a certain extent. Again, a programmatic approach dominated the debate: not the product as such was the focus of attention; moreover the question was (and still is!) discussed, if such food is *needed*. This was mainly reflected in the (extensive) debate over the *societal need* for GM Food and therewith in the repeated demand for the implementation of a 'fourth hurdle'[10]. Usually the societal need does not account as a relevant criterion for the introduction of food, instead *food safety*, *taste* and *nutrition* of the product are essential (e.g. Meyer 1998a). However, in cases where a product may be harmful to public health or environment, the hazards of a product have to be weighed up against its possible benefits. With regard to genetic engineering in general the implementation of a needs-demands analysis [*Bedarfsprüfung*] has been widely rejected by legal scholars. The lawmaker's decision to accept the general legitimacy of the technology leaves no room for an assessment of the question as to whether or not there is a societal need for genetic engineering (Hirsch & Schmidt-Didczuhn 1991). Although this interpre-

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[8] The Act on Genetic Engineering (Gentechnikgesetz – GenTG) came into force on 1 July 1990 and was amended in 1993 (published in its present amended version in the Federal Gazette on 21 December 1993).

[9] The debate was triggered to great parts by shipments of not segregated mixtures of conventional and genetically modified soy and corn in late 1996 (e.g. GID 1996).

[10] The 'fourth hurdle' is a legal concept that is discussed not only in the domain of food but in *all* cases where possible risks of a product have to be weighed against the possible benefits for society.

tation is not uncontested (e.g. Winter 1992), the demand for the implementation of a fourth hurdle in the case of GM Food has been rejected so far.

Between 1996 and 1999 several genetically modified products like spinach burger, which contained genetically modified soy, or the 'popular' candy bar *Butterfinger*[11] were introduced into the German food supply. The introduction of these products was accompanied by the resistance of a broad coalition of consumer groups and non-governmental organizations (NGOs hereafter) (Behrens et al. 1997). Therefore, this resistance can be considered as responsible for the withdrawal of labeled, genetically modified products from the German market throughout 1999.[12] As this was only the beginning of a low point in the debate over GM Food, in the following years recipes were changed and food producers distanced themselves from GM Food.[13] Nowadays, one will hardly find any labeled, genetically modified products at the 'point of sale' in Germany. This is not to say that genetically modified products disappeared from the market; until recently customers had to presume that the majority of soy products were manufactured with soy that to a certain extent has been genetically modified since it stems from mixtures of modified and non-modified commodities. Based on a study by Stiftung Warentest (Stiftung Warentest 2002) the public was informed that the majority of foodstuffs available in the German food supply are no longer intermingled with genetically modified soy or corn.[14]

Finally, this tense situation set the background for the development and the implementation of a regulatory framework for GM Food not only within Germany but also throughout all Member States of the European Community. Even though due to different events and on different reasons the resistance to

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[11] *Butterfinger*®, a peanut butter candy bar, was the first and most prominent product in Germany that was labeled for containing genetically modified corn. The candy bar was imported from the United States and became a symbol in the resistance against GM Food.

[12] For illustrative purposes see only the following headlines: "*Aus für Butterfinger"* (July 14, 1999, www.transgen.de); "*Aus für den Genfood-Riegel 'Butterfinger' – Greenpeace ist zufrieden"* (July 14, 1999, Berliner Zeitung); *"Handelsketten setzen zunehmend auf gentechnikfreie Lebensmittel"* (July 21, 1999, www.lifescience.de).

[13] See only *„Ein Kniefall vor seiner Majestät, dem Kunden. Der Markt funktioniert gegen die Intention der Industrie: Genveränderte Produkte verschwinden aus den Regalen.*" Frankfurter Rundschau, August 20, 1999.

[14] A study that was conducted by *Stiftung Warentest* in 2000 (Stiftung Warentest 2000) lead to the conclusion that more than one third of the tested (unlabeled) food contained up to 20% genetically modified corn or soy. This study was repeated in 2002, concluding that these contaminations nearly completely disappeared from the human food supply (Stiftung Warentest 2002). But this development together with the prohibition of meat and bone meal has lead to an increased amount of soy in animal feed. And since no labeling requirements for animal feed exist so far in Europe, one can only assume that this soy is genetically modified to a certain extent (Burger 2002).

GM Food spread throughout the whole of Europe.[15] For instance, even Great Britain, which once had been the European spearhead[16] in the introduction of GM Food, was confronted with a growing public resistance that was even amplified by the BSE-crisis in 1996 and reached its climax in 1998, because of the Pusztai-Scandal (see note 3 in this chapter). Similar tendencies could also be observed in several Member States and underlined the need for a pan-European regulatory framework.

Despite public unease with GM Food, also the increasing penetration of the food production chain and the establishment of the internal market made a legislation concerning these new products seem necessary for the following reasons. Firstly, the existing different national laws relating to novel foods or food ingredients were observed as potentially affecting the frictionless functioning of the internal market. Secondly, in order to protect the public health, it was seen as inevitable to create a single safety assessment for novel foods and novel food ingredients through a Community procedure before they were placed on the market.

However, in the realm of food law it had to be considered that national food law is determined by national traditions and eating habits. Thus, efforts to harmonize food law within the European Union have often been perceived as an offense towards national eating culture. In 1985 the European Commission therefore decided that European legislation should provide only the following, general services: the protection of public health, consumer's information, the unhindered cross-border trade within the community and a system of public control [*System öffentlicher Kontrollen*]. By so doing, a unitary legislative framework should be made possible that did not constrain the culinary plurality of the single member states (EC 1985). Moreover, the various community's forms of action like regulations, directives, decisions, recommendations, and opinions equip the European lawmaker with a host of instruments that provides for a mixture of European *and* national legislation.[17] Consequently, European requirements on the one side and national claims on the other can be measured.

Until the enforcement of the European framework, GM Food was in principle subjected only to the national legislation on the deliberate release of genetically modified organisms (GMOs hereafter) into the environment (EP 1990, 2001).[18] The current legal framework under which GM Food is regulated

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[15] For a comprehensive review of the European situation see Gaskell & Bauer 2001.

[16] The UK was one of the first European countries to introduce GM food products to the market between the early 1990s and 1996, e.g. 'vegetarian cheese' (made of chymosin derived from GM yeasts) and 'GM tomato paste'.

[17] These forms of action are laid down in Article 249 (189) of the EC Treaty (ECT).

[18] Different from regulations, *directives* have to be put into national legislation whereby national law is adapted to the objectives laid down in the particular directive. Despite this dif-

in Germany comprises *European* statutes as well as *national* legislation. Concerning the European level, the lawmaker voted for a *regulation*. While 'community laws' regulations must be complied with fully by those to whom they are addressed (e.g. organizations, individuals), regulations do not have to be put into national legislation but apply directly in all the Member States. Thus, they serve to ensure a uniform application of Community law throughout the Member States. Even though the dominant part of the legislation concerning GM Food comprises community law, the interpretation and implementation of European regulation still varies a lot, dependent upon the national environment under which it is applied (e.g. Kamann & Tegel 2001). This is due to national regulations and administrative provisions that are provided for in the particular regulation. Additionally and even more importantly, national idiosyncrasies (e.g. the administrative structure) are likely to shape the application of community law.

The regulation of GM Food therefore can only be described to a certain degree as a pan-European regulation – its concrete application is to a great degree fulfilled within the local contexts of each Member State.[19]

3.1.1 GM Food as 'Novel Food'

The key document for the regulation of GM Food in Germany, the *Regulation (EC) 258/97 on Novel Foods and Novel Food Ingredients* (hereafter *NFR*) (EP 1997) subsumes GM Food under the term 'novel food'. This is a term of art that has been newly created but which lacks a substantial definition: "Neither exists a legal definition of 'novel food' nor a concept in practice or in literature that could be referred to" (Huber 1996: 277). Therefore, ample room is left for a plurality of interpretations and thus several implicit assumptions. The application of the term as it is introduced by the NFR has to be considered as only one possibility among others.

As GM Food is referred to as 'novel' it is defined as being "of a kind not previously known" (*Oxford Advanced Learner's Dictionary of Current English* on '*novel'*), or as "not resembling something formerly known or used" (*Merriam-Webster on 'novel'*). Thus, the implicit claim is made that there is no experience-based knowledge available that could be mobilized to assess the safety of GM Food. The legal regulation therefore cannot assure the safety of GM Food by referring to already established scientific knowledge. Furthermore, new knowledge – scientific as well as every other available knowledge –

ference, directives are binding since they must be transposed in the form of binding national legislation.

[19] This is not to say that the local context is the only important level of implementation; the mobilization of transnational law like the pan-European Regulations can also be (and has been!) investigated on the level of transnational institutions (e.g. Schlacke 1998).

has to be generated to achieve an appropriate handling that will have to stand the 'test of practice'.

Secondly, by emphasizing the insufficient knowledge base of its object, the legal rule defines the regulation of GM Food as a *cognitive* problem in the first place. As the lawmaker has opted for a definition of GM Food that moves this near the realm of GMOs, the cognitive uncertainty that underlies GMOs is (communicatively) extended also to the application of modern biotechnology in the realm of food production. This can also be observed as an example for a 'remembrance of the context'. As the lawmaker had to categorize a so far undefined concept, he mobilized an already familiar concept that – in his perspective – appeared 'suitable'. In so doing, the lawmaker also implicitly admitted that there is a considerable lack of knowledge that demands for a cautious approach to these new products.

As with GMOs, the establishment of a new legal sphere thus seems to be unavoidable since GM Food as *novelty* could at least not be subsumed under existing food law. Consequently, an in-context production of knowledge is encouraged in order to develop a reliable foundation for future decision-making within the context of GM Food. This categorization of GM Food as a cognitive problem in the first place thus pervades its succeeding regulation.

3.1.2 Establishing a New Legal Sphere

The NFR as unitary European framework for the commercial distribution of novel foods was enforced in May 1997.[20] In its present form, the NFR is applied to six categories of foods whereof only two categories (Art. 1.2 a & b) refer to foods that contain, consist of or are produced from GMOs.[21] Thus, in combination with additional European Legislation[22] the regulatory framework

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[20] The development of this regulatory framework has been quite contested among the various Member States as well as within the Member States, mainly with regard to its application area and to the question of labeling (Droz in Behrens et al. 1997). While the German Federation of Food Law and Food Science (BLL) and Martin Bangemann (European Commissioner at that time) voted against a general labeling of GM Food, not only Consumer and Environmental groups demanded extensive labeling but also did the relevant union *Nahrung Genuß Gaststätten* (NGG) and the German Government (ibid.).

[21] The remaining four categories refer to foods and food ingredients with a modified primary molecular structure (Art. 1.2 c); to foods and food ingredients consisting of or isolated from micro-organisms, fungi or algae (Art. 1.2. d); to foods and food ingredients consisting of or isolated from plants and food ingredients isolated from animals (Art. 1.2 e) and to foods and food ingredients to which has been applied a production process not currently used (Art. 1.2 f).

[22] In addition to Regulation (EC) No 258/97, the Commission Regulations (EC) No 49/2000 and No 50/2000 refer to the implementation of labeling which is provided by No 258/97. For a detailed listing of the relevant legislation see Appendices Section B.

provides procedural rules on the approval of GM products and substantive rules, e.g. on labeling, that are valid throughout whole Europe.[23]

Although the NFR does not have to be put into national legislation, additional *national* regulation was issued since the NFR did not contain any information regarding its implementation at the Federal level. The "Novel Foods and Food Ingredients Order" [*Neuartige Lebensmittel- und Lebensmittelzutaten-Verordnung – NLV hereafter*] (BMG 1998) closes this gap by substantiating the NFR in several sections. It firstly nominates two novel food assessment authorities that oversee the marketing of novel foods in Germany. The *Robert Koch Institute* (RKI)[24] acts as the competent authority for the official approval of the deliberate release of GMOs into the environment as it is required by Directive 90/220/EEC in Germany. Therefore, it is responsible for the assessment of *all* products that consist of or contain GMOs. The second assessment body for the safety evaluation of novel food until recently[25] has been the Federal Institute for Health Protection of Consumers and Veterinary Medicine (BgVV) [*Bundesinstitut für gesundheitlichen Verbraucherschutz und Veterinärmedizin*][26]. It was responsible for assessing foods, which are produced from GMOs but do not contain GMOs. For the final assessment of GM Foods both these bodies have to include reciprocal consultations [*sich ins Benehmen setzen*]. Since January 2001 the newly created Federal Ministry for Consumer Protection, Food and Agriculture – BMVEL [*Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft*][27] is competent for legislation

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[23] Even though some products were already approved in certain Member States (e.g. paste made from one variety of tomato in Great Britain), no labeling provisions were required.

[24] The RKI is the sectoral planning agency [*Fachbehörde*] that is responsible to the Federal Ministry of Health – BMG [*Bundesministerium für Gesundheit*].

[25] With effect from November 1, 2002, the BgVV has merged in the Federal Institute for Risk Assessment – BfR [*Bundesinstitut für Risikobewertung*], the Federal Institute for Consumer Protection and Food Safety – BVL [*Bundesinstitut für Verbraucherschutz und Lebensmittelsicherheit*] and the Federal Research Centre for Virus Diseases of Animals – BFVA [*Bundesforschungsanstalt für Viruskrankheiten der Tiere*]. But as those changes have taken place after the empirical fieldwork was completed, they shall only be mentioned here on a purely informative basis.

[26] The BgVV is finally directly responsible to the Federal Ministry for Consumer Protection, Food and Agriculture – BMVEL [*Bundesministerium für Verbraucherschutz, Ernährung und Landwirtschaft*].

[27] Until January 2001, the competence was with the Federal Ministry of Health – BMG [*Bundesministerium für Gesundheit*]. But then the BSE scandal has led to the resignation of the Minister of Health, Andrea Fischer (Green Party) and a new division among the tasks of the Ministry of Health. All consumer and food related issues have been moved to the newly named BMVEL whereas the competence in the area of releases of GMOs in the environment (Directive 90/220/EEC, now Directive 2001/18/EC) remained with the BMG. The BMVEL is the result of a merge between the former Federal Ministry of Food, Agriculture and Forestry – BML [*Bundesministerium für Ernährung, Landwirtschaft und Forsten*], one division of the Federal Ministry of Health – BMG [*Bundesministerium für Gesundheit*] and

and for the authorization for marketing GM Foods. The final decision for or against the marketing of a GM Food is based on the scientific opinions of the two novel food assessment bodies.

The NLV also provides additional labeling provisions and regulates the use of the term 'without gene technology' [*ohne Gentechnik*] which is the only authorized wording in Germany for products produced without the use of genetic engineering.[28] Finally, it links the infringements of the different areas of the NLV (e.g. wrong labeling, misuse of 'without gene technology' claims) to prosecution measures described in the basic German Law on Foods and Commodities – LMBG [*Lebensmittel- und Bedarfsgegenständegesetz*] of 1974.

The two most important features of the legal framework under which GM Food is regulated are, firstly, the requirement for an *official approval* before it can be placed on the market and, secondly, the *mandatory labeling* of GM Food. Thus, the regulation of novel food follows the regulation of GMOs and not the regulation of traditional food even though both possibilities have been discussed (e.g. Huber 1996). The German gene law acts on the assumption of the necessity of a preventive prohibition system [*präventives Verbotsprinzip*] that serves as a means of averting a danger whereas the German food law is based upon the principle of the freedom of the market. With the requirement for an official approval for the marketing of certain kinds of food, the NFR established a novelty in legislation on food. Usually, food is regulated under an abuse control system [*Mißbrauchsprinzip*] (Spelsberg et al. 2000: 15). This system allows for the manufacturing and the introduction of food into the market without any official approval. The manufacturers alone are responsible for the fulfillment of the provisions of the food law. Thus, they have to secure the safety of the food they produce.

In the case of foodstuff that is subsumed under the term 'novel food' instead, the lawmaker has opted for the prohibition system in order to prevent against possible risks that have been insinuated by the legal definition to the introduction of GM Food into the market. Although the lawmakers could have opted for an abuse control system as it is applied in the realm of food law, they voted for a system that is usually applied to GMOs (see above). By so doing, the initial definition of the (cognitive) problem as a risk is reconfirmed since GMOs already had been defined as potentially dangerous. Furthermore, not only GM Food is thus defined as potentially dangerous but so became food that

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some services of the Federal Ministry of Economy and Technology – BMWi [*Bundesministerium für Wirtschaft und Technologie*] dealing with consumer and market research.

[28] The conditions that products must fulfill to use such a term in the label include that no GMO-derived product is used during production and that no GM-derived feed, additives or drugs are used in animal products seeking the label. EU legislation on the use of 'GMO-free' type of claims in food labels is to be drafted.

not until the enforcement of the NFR would have been defined as related with a risk, like imported, exotic fruits or nuts, for instance.[29]

By establishing a preventive prohibition system, GM Food can only be introduced into the market if it is formally permitted. A formal permit for the commercial distribution of food that is subsumed under the term 'novel food' is granted if the food does not

"present a danger for the consumer, mislead the consumer and differ from food or food ingredients which they are intended to replace to such an extent that their normal consumption would be nutritionally disadvantageous for the consumer" (NFR, Art. 3, para. 1).

To ensure that these requirements are met before a novel food enters the market, two procedures are provided by the NFR, a 'light' notification procedure (NFR Art. 5) and a 'heavy' authorization procedure (NFR Art. 6).

In order to decide whether one or the other procedure is applied, the concept of 'substantial equivalence' is invoked.[30] It has been developed by the WHO and the OECD (WHO 1995; OECD 1993) in order to cope with particular, scientific difficulties[31] in the safety assessment of new food.[32] The concept is based on the idea that traditional foods can serve as a basis for comparison when assessing the safety and the nutritional value of food or food ingredients that have been modified by modern biotechnology. Thus, a novel food is considered substantially equivalent to its traditional counterpart

"if the genetic modification has not resulted in intended or unintended alterations in the composition of relevant nutrients and inherent toxicants of the organism, and that the new genes and proteins have no adverse impact on the dietary value of the food and do not therefore pose any harm to the consumer or the environment" (Schauzu 2000: 2)

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[29] As a consequence, several exotic products were not approved for consumption (e.g. EC 2000c). Another illustrative example is the often heard opinion that, according to the provisions of the NFR, nowadays kiwi fruits would not be approved for marketing, due to their well-known potential to induce allergic responses.

[30] The European Commission has based its *Commission Recommendation of 29 July 1997 concerning the scientific aspects and the presentation of information necessary to support applications for the placing on the market of novel foods and novel food ingredients and the preparation of initial assessment reports under Regulation (EC) No 258/97 of the European Parliament and of the Council* on the principle of 'substantial equivalence' (Spelsberg et al. 2000: 37)

[31] For instance, traditional, toxicological testing as in the case of food additives can only be applied to a certain extent since whole food is consumed in larger amounts than are food additives.

[32] Originally both, the term and the concept are borrowed from the US Food and Drug Administration's (FDA) definition of a class of new medical devices that do not differ materially from their predecessors (Miller 1999).

Even though the concept is not uncontested (Millstone et al. 1999; Schenkelaars 2002) it is internationally accepted as a useful tool for food producers and government regulators.

Application Procedures

According to the NFR, a novel food that is substantial equivalent to its traditional counterpart can be placed on the market by the *notification* procedure. With regard to GM Food, the procedure applies to foods or food ingredients that are produced from but *do not contain* GMOs (e.g. refined oil derived from herbicide tolerant rapeseed lines). The notification procedure requires that the applicant informs the Commission of the placing on the market of a novel food when he does so. This notification has to be accompanied by a scientific opinion delivered by the competent authority of the Member State, which in Germany has been the abovementioned BgVV[33]. A copy of the notification will be forwarded to all Member States within 60 days and, upon request, a copy of the statement of the substantial equivalence. If one Member States objects to the notification, the food will be introduced into the authorization process.

The outlined notification procedure does not apply to foods that contain or consist of GMOs (e.g. genetically modified tomatoes). Even if their substantial equivalence has been proven by scientific evidence provided by the producer or by the competent authority, the *authorization* procedure is mandatory in these cases. It requires that the applicant submits a request[34] to the Member State in which the product is to be placed on the market for the first time. This request will be forwarded to the Commission and, within 60 days, to all Member States. The competent authority of the first Member State then has to prepare an initial assessment report. This has to happen within a period of three months and aims to decide whether the food or food ingredient requires additional assessment. The concerned Member State forwards the final report to the Commission, which forwards it to the other Member States. In the case of foods and food ingredients that are a GMO or are produced from a GMO, they can only be authorized by the council (Schauzu et al. 1998). The council, under assistance of the Standing Committee for Foodstuffs, will finally decide about an authorization for the food or food ingredient. If no comments or objections

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[33] To carry out the pre-marketing assessment of GM Foods the BgVV had formed a 13-member advisory committee. The members of this committee stem from the fields of food chemistry, toxicology, microbiology, veterinary medicine, medicine and nutrition. The committee meets at least four times a year but members may be consulted when needed.

[34] "This request shall contain the necessary information, including a copy of the studies which have been carried out and any other material which is available to demonstrate that the food or food ingredient complies with the criteria laid down in Article 3 (1), as well as an appropriate proposal for the presentation and labeling, in accordance with the requirements of Article 8, of the food or food ingredient. In addition, the request shall be accompanied by a summary of the dossier." (NFR Art. 6 (1))

are made, the concerned Member State has to inform the applicant that he may place the food or the ingredient on the market. This application accounts for the entire internal market.

Labeling

The definition of GM Food that contains or is made of GMOs as (in principle) not substantial equivalent also has consequences for the labeling policy. The NFR requires special, mandatory labeling for novel foods that are deemed not equivalent to their traditional counterparts:

"In this case, the labeling must indicate the characteristics or properties modified, together with the method by which that characteristic or property was obtained; (b) the presence in the novel food or food ingredient of material which is not present in an existing equivalent foodstuff and which may have implications for the health of certain sections of the population; (c) […] of material which is not present in an existing equivalent foodstuff and which gives rise to ethical concerns; (d) […] of an organism genetically modified by techniques of genetic modification, the non-exhaustive list of which is laid down in Annex I A, Part 1 of Directive 90/220/EEC." (NFR Art. 8, 1).

These requirements have been specified by at least two regulations that were issued in 2000 and which contain the detailed information about the embodiment of this requirement (e.g. the wording of the label) (EC 2000a, EC 2000b). Those regulations provide for the labeling of foodstuffs and ingredients containing additives or flavorings derived from GMOs and entail the labeling requirements of foodstuffs derived from two GMOs[35], which were approved in the European Community prior to the enforcement of the NFR. At present, all products have to be labeled that contain more than one percent of a genetically modified ingredient. The basis for the labeling requirement is the quality of the particular product and not the process by which it was produced. Therefore, a product label is applied, instead of a widely demanded production methods label (PPM), as it is common in the realm of organic agriculture, for instance.

3.1.3 Mobilizing Knowledge

The outlined regulatory framework assigns GM Food a special status in contrast to traditional food by communicating its insufficient knowledge base as a source for possible hazards. By so doing, the legal rule defines its trigger as a *cognitive* problem in the first place. The broad legal definition of GM Food as something previously unknown consequently implies that there is no experience-based scientific knowledge available on which the regulation could fall back on. Furthermore, to establish stabile, normative expectations, the production of (new) knowledge is necessary in order to provide a reliable basis for future decision-making.

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[35] In 1996 and 1997 products from two GM-plants, the 'Roundup Ready soy' and the 'Bt-176 corn', were authorized for food EU-wide (EC 1996, 1997).

This lack of established scientific knowledge is also reflected in the instruments and mechanisms provided for by the outlined regulatory framework. The framework comprises a mixture of traditional legal instruments such as proscription and sanctions, when it comes to the application procedures. However, although the rules that constitute the framework have legal status and are consequently subject to legal sanction, the key document of the regulatory framework, the NFR, can be characterized by its temporal limitation. Instead of introducing a reliable, i.e., invariant over time, instruction for the 'use' of GM Food and, by so doing, establishing normative expectations as to the safety of the issue, a rule is introduced that contains its own expiry date and demands for a monitoring of its implementation as is indicated by the following citations:

"1. No later than five years from the date of entry into force of this Regulation and ***in the light of experiences gained****, the Commission shall forward to the European Parliament and to the Council a report on the implementation of this Regulation accompanied, where appropriate, by any suitable proposal.*

2. Not withstanding the review provided for in paragraph 1, the Commission shall ***monitor the application of this Regulation*** *and its impact on health, consumer protection, consumer information and the functioning of the internal market and, if necessary, will bring forward proposals at the earliest possible date." (NFR, Art. 14, emphases added, AE)*

In doing so, the rule introduces itself into the field as a first draft of how to handle GM Food. Further, instead of binding future and thus absorbing uncertainty – whether by the employment of power or knowledge – the rule encourages knowledge-generation among those, to whom it is originally addressed. Thus, it admits its own incompleteness and relies on practices and routines, i.e., knowledge that is produced in its environment. Consequently, the rule is likely to incorporate norms, routines, practices that stem from its societal environment. Here, a factual opening of the law can be expected.

As the rule introduces itself as one draft among others it will therefore have to prove itself in practice – in its confrontation with practices and problem-solving strategies that have been developed by the organizations of that field. Moreover, it will probably be forced to take over their definitions and routines.

In sum, this rule introduces the regulation of GM Food as a cognitive problem into the given network. Instead of absorbing uncertainty, this rule is likely to open up a new norm-setting process in which course not only the implementation but also the definition of the issue GM Food, its scope, its problems and appropriate problem-solving strategies become the object of another negotiation process among the organizations involved. In so doing, *knowledge* becomes employed as the medium that accompanies the introduction of this rule into its field. One can assume that the German interorganizational network

will be dominated by knowledge-based problem solving strategies as the legal regulation strongly emphasizes the insufficient knowledge base it is built upon. This regulatory framework now can be contrasted with the legal requirements that must be met for the introduction of GM Food in the United States.

3.2 U.S.: "Biotech Food Products Won't Require Special Rules, FDA Decides"*

Different from Europe, the United States have faced lesser resistance towards the implementation of biotechnology. The overall resistance towards the new technology was by no means comparable to the public uproar in Europe, and especially in Germany. Apart from some exceptions like the Union of Concerned Scientists (UCS) and the Environmental Defense Fund (EDF), GMOs were simply not on the radar screen of most American consumer and environmental organizations throughout the 1980s and the greater parts of the 1990s.[36]

While the German debate was marked by the question *if* there ought to be techniques like genetic engineering at all, the focus of the American debate has been on the question of *how* these techniques could be applied in a socially acceptable way. The technology itself has thus never been fundamentally questioned; the overall critique has been less radical than in Germany.

Simultaneously, the United States opted for a range of sector-specific policy-making instead of a cross-sectoral 'gene-law'. The outline of this policy is laid down in the *Coordinated Framework for Regulation of Biotechnology* (hereafter *the 1986 Framework*) that was issued by the Office of Science and Technology Policy[37] in 1986 and remains the key US document on biotechnology to date (OSTP 1986). In the scope of this framework, the government laid down that on the assumption that "the recently developed methods [genetic manipulation technologies, AE] are an extension of traditional manipulations" (OSTP 1986: 23302), the safety of products derived through these new technologies could be ensured under existing statutes:

"Upon examination of the existing laws available for the regulation of products developed by traditional genetic manipulation techniques, the working group concluded

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* The Washington Post, May 26, 1992.

36 At least two events can be mentioned that often are cited as trigger for a somewhat broader public debate over genetically modified crops and, consequently, over GM Food, namely the aforementioned communication in Nature over potential lethal effects of GM Crops on the larvae of the monarch butterfly (see chapter 2, note 3) and the growing mistrust in Europe.

37 The Office of Science and Technology Policy (OSTP) is part of the Executive Office of the White House and serves as a source of scientific and technological analysis and judgment for the President with respect to major policies, plans, and programs of the Federal Government.

that, for the most part, these laws as currently implemented would address regulatory needs adequately." (OSTP 1986: 23303).

Moreover, it specified the agencies that share responsibility for regulating biotechnology. The Food and Drug Administration (FDA) as the primary federal agency responsible for ensuring the safety of food and food additives consequently became responsible for foods produced by new methods, such as recombinant DNA techniques. On food safety matters, FDA works closely with the Animal and Plant Health Inspection Service (APHIS) of the US Department of Agriculture (USDA) that regulates meat and poultry products, and with the Environmental Protection Agency (EPA) that regulates pesticides.[38] These agencies were requested to submit their proposals about how they would integrate future new products into their existing statutory and regulatory framework.

Another decisive document for the development of the biotechnology policy in the United States was a report submitted by the National Research Council (1989) that confirmed the product-based approach to regulation: "[T]he *product* of genetic modification and selection constitutes the primary basis for decisions (...) and not the *process* by which the product was obtained." Thus, a product-based approach towards biotechnology became the basis of the American policy (Jasanoff 1995a; Vogel 2001).

As with biotechnology in general, for the most parts an unagitated debate also accompanied the introduction of the first genetically modified consumer-ready food to the market in the United States in 1994. The marketing of the Flavr Savr™ tomato that was produced by Calgene remained nearly unnoticed by the greater public and in the following years, further genetically modified products silently entered the food supply.[39] Nowadays about 60 to 80 % of the American food supply is estimated to be genetically modified or to be produced by genetic engineering and, one might add, without gaining greater public attention. Finally, in September 2000, GM Food became a 'hot issue' when an article in the Washington Post claimed, that a genetically modified corn ('StarLink') was found in the food supply ('Taco Shells') which had not been

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[38] APHIS regulates the environmental release of transgenic plants that contain plant pest components. The EPA registers pesticides that are produced in transgenic plants and establishes pesticide tolerances for residues in food. These two agencies together established procedures to review and approve field tests.

[39] Calgene's Flavr Savr™ tomato was the first genetically engineered food product that was approved by the competent authority, the Food and Drug Administration (FDA). This approval opened the way for commercial marketing of the Flavr Savr™ tomato. But due to the bad quality of the tomato (it bruised easily and was less firm than expected), the commercialization of this tomato failed. In 1997, one year after Monsanto had bought 49.9% equity stake in Calgene, the Flavr Savr™ production was stopped and Monsanto started moving the technology into 'premium tomato hybrids' (Martineau 2001).

approved for human consumption but only for animal feed (Kaufman 2000).[40] As a result, in the following months the media coverage on GM Food became more extensive and critical groups became more vocal in the public debate.[41] Additionally, although no harm to human health has been reported[42], this occasion has led to the first product recall of a genetically modified product ever and resulted in several lawsuits filed by consumer groups and farmer associations. Even though one class-action lawsuit from consumers was settled in 2002 for 9 million dollar (Pesticide and Toxic Chemical News 2002), this so-called 'StarLink-Case' did not become a turning point in the *overall* debate.

Again, as the American 'nonchalance' towards modern biotechnology in general also is mirrored in the public debate over GM Food a manifest contrast in comparison to the German and the European situation at large has to be asserted (Gaskell et al. 2001b; Sassatelli & Scott 2001). This contrast is also reflected in the legal regulation of GM Food that can be considered as a logical continuation of the overall biotechnology policy.

3.2.1 GM Food as a 'New Variety'

The predominant product-based approach towards biotechnology is repeated in the US-regulation of GM Foods, as the following citation indicates:

"Congress has provided FDA authority under the act and the Public Health Service (PHS) Act to regulate ***products*** *regardless of how they are manufactured" (OSTP 1986: 23310, emphasis added AE).*

By so doing, the product-based approach already in a very early stage was extended to the application of modern biotechnology in food production, thus deeming a technology-specific regulation like the European NFR as unnecessary. Only with the increasing readiness for the market of GM Food, the abovementioned *1986 Framework* had to be specified for the marketing of GM Food. Currently, GM Food is regulated under the following two documents, the *Statement of Policy: Foods Derived From New Plant Varieties* (hereafter *Plant-Derived Foods Policy*), which has been released in 1992 by the FDA (FDA 1992) and the *Proposed Rule: Premarket Notice Concerning Bioengi-*

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[40] For an extensive coverage of this 'scandal' see: *StarLink: Lessons Learned*, a special report prepared by the editors of *Food Traceability Report* (2001) that explores the marketing, legal, ethical, and technological issues raised by StarLink.

[41] This growing of awareness of genetic engineering as a problematic technology is also increasingly reflected in the academic context, which is indicated by a special issue of the American Behavioral Scientist (2001) that was dedicated to the social implications of agricultural biotechnology.

[42] Although there had been reports about allergic reactions after eating corn tacos that contained StarLink corn, a study by the federal Center for Disease Control and Prevention could not link these reactions to the consumption of the genetically engineered corn (e.g. Kaufman 2001).

neered Foods (hereafter *the Proposed Rule*) (FDA 2001) that does not overrule but amend the 1992 policy. Both these documents follow the line of *the 1986 Framework* in rejecting a substantial novelty of GM Food. Instead, genetic engineering has been defined as an extension of traditional breeding methods. This momentous decision has had consequences for the definition and the succeeding regulation of GM Food. By defining genetic modification as "the alteration of the genotype of a plant using any techniques, new or traditional" (FDA 1992: 22984, N. 3), FDA concludes that "(m)ost, if not all, cultivated food crops have been genetically modified" (ibid.). Thus, by issuing the Statement of Policy,

"FDA's implementing regulations, and current practice, utilizing an approach identical in principle to that applied to foods developed by traditional plant breeding" (FDA 1992: 22984).

Consequently, already existing established knowledge that was generated in the regulation of traditional food becomes mobilized; not only existing practices but also scientific facts and established categories can be applied in the regulation of GM Food. Hence, it is the task of the regulation to establish this already existing knowledge as the 'valid' knowledge base in the realm of a new food variety. It is finally this intention that is reflected in the legal framework that regulates the introduction of GM Food into the market.

3.2.2 Extension of Existing Norms

At first glance, GM Food in the United States seems to be regulated under a less dense regulatory network than in Germany.[43] This impression is due to the fact that it comprises a plurality of administrative regulations that are of a lesser binding nature than the community and national laws that are relevant in Germany. However, as the United States did not opt for the establishment of a new legal sphere but subsumed the new subject under already existing legal norms instead, this first impression shall be revised on the background of a closer examination.

The issue GM Food has been defined as not differing from traditional food so that the current regulatory framework has to be understood as a specification by the competent agency about how the existing food law applies specifically to GM Food. The relevant legal provisions for traditional food are laid down in chapter 4 of the *Federal Food, Drug, and Cosmetic Act* (hereafter FDCA). Similar to Germany, food is regulated under a system of abuse control.

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[43] This opinion is quite popular and is not limited to GM Food but takes the regulation of GMOs at whole into account. It is shared by scholars (Lynch & Vogel 2001) as well as by politicians. For instance, a British Labor MEP and European Parliament Rapporteur described the revised European Directive 2001/18/EC as "the tightest GM laws in the world" (Fletcher 2001).

As it is the responsibility of the producers to evaluate the safety of a new food, every new food product can be marketed without official approval. Consequently, this system leaves the responsibility for food safety with the manufacturers.

This system is also applied to GM food and the abovementioned administrative rules clarify how its application is fulfilled. Concerning the legal status of these rules, four forms of administrative action[44] can be discriminated that differ in their binding nature: *rulemaking* and *adjudication*, formal and informal at each case (Brugger 2001). In the given context, the relevant form of action is rulemaking that can further be subdivided into *substantive rules*, which have binding force and "interpretive rules, general statements of policy, or rules of agency organization, procedure or practice" (ibid.: 234) that can be issued without legal authority [*rechtliche Ermächtigung*] and without a formal procedure.

Both key documents regulating the introduction of GM Food are seen as forms of rulemaking but are of different binding nature. As statements of policy in general have to be considered as declarations of intent that have no binding force but aim to inform about the future behavior of the particular agency (Jarass 1985), the *1992 policy* is not binding. It contains information regarding FDA's interpretation of the FDCA and provides guidance for potential producers of GM Food for conducting safety evaluations.

Different from that, the *Proposed Rule* that was issued in early 2001 by FDA has to be considered as informal rulemaking. Informal rulemaking is one of three procedures[45] by which substantive rules are issued that, with regard to their binding effect, resembles German statutory orders. However, substantive rules are issued by the particular agency and not by government, as is the case in Germany (ibid. 1985). The typical elements of informal rulemaking are the announcement in the *Federal Register*[46] that a regulation for a certain problem is to be issued. This announcement is followed by whether written or oral comments by those to whom the rule is addressed.[47] The procedure of rulemaking closes with the final, internal decision-making of the agency and the publication in the Federal Register, which must be accompanied by a precise declaration of the agency regarding the basis for decision-making and the purpose of

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[44] These forms of action are laid down in the *Administrative Procedure Act (APA)*.

[45] Substantive rules have to be issued by a formal procedure which depends upon the subject. Apart from informal rulemaking, *formal* and *hybrid rulemaking* are provided (Jarass 1985: 384).

[46] The *Federal Register* is the official daily publication for Rules, Proposed Rules, and Notices of Federal agencies and organizations, as well as Executive Orders and other Presidential Documents.

[47] For this reason, this form of action also is called *notice-and-comment-rulemaking*.

the rule. In sum, the procedure for informal rulemaking provides a great degree of flexibility for the particular agency whereas the addressees of the given rule can influence the agency by making comments[48] and have to rely on later legal protection otherwise (Brugger 2001: 235).

Different from a comparable setting in Germany, this regulatory scheme can only be understood completely as backed by a product liability legislation that strongly protects consumers' interests. Further, the *Federal Trade Commission (FTC)*, an independent federal agency oversees consumer protection and issues rules and guidelines in order to support the consumers. The *standing* of the consumer becomes manifest firstly in legal institutions such as class actions and public interest litigation that enables not only consumer associations but also an ad-hoc group of consumers to file a lawsuit (see also 1.2.1). As an effect of both, product liability legislation and the aforementioned legal institutions, it is also expressed in the enormous size of compensations that have been paid for damages in the United States. On the side not only of manufacturers but also of any other party that provides services for customers this has led to a widespread fear of being sued – a development that has been captured by the handy buzzword 'litigaphobia'[49]. The subsequent outline of the regulations that are applied to GM Food thus have to be read against the background of these 'premises'.

As GM Food is regulated according to the legal provisions that are applied to traditional food, a producer does *not* have to seek legal approval before the placing on the market of such food. This follows from FDA's assumption that

"(t)he established practices that plant breeders employ in selecting and developing new varieties of plants (...) have proven to be reliable for ensuring food safety" (FDA 1992: 22988).

Thus, "FDA has not found it necessary to conduct, prior to marketing, routine safety reviews of whole foods derived from plants" (ibid.). This assumption has also been applied to foods derived from new plant varieties because the substances that are likely to become a component of a new food, are considered to be "substantially similar" to substances commonly found in food, such as proteins, fats and oils (FDA 1992: 22985). As this formulation indicates, the concept of 'substantial equivalence' also underlies FDA's safety assessment of GM food, even though the term is not explicitly mentioned. Regarding the

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[48] In contrast, the procedure of formal rulemaking is characterized by far reaching participatory rights for those to whom the rule is addressed. These rights are reflected by a procedure that resembles a legal proceeding. Therefore, this form of rulemaking also is called *on-the-record rulemaking* (Brugger 2001: 235).

[49] This neologism originally has been coined by Brodsky (1988) in order to describe the widespread fear of being sued among mental health professionals.

transferred substances (e.g. nucleic acids) within a new food variety those are potentially subjected to food additive regulation since food additives broadly encompass any substance that has an intended use in food. Food additives in the United States are subsumed under a two-step definition. In a first step, any substance that is intended to become a component of a food is considered a food additive. In the second step, such substances are excluded from the definition of food additive that are GRAS (*G*enerally *R*ecognized *a*s *S*afe)[50]. Those substances can be marketed without passing a mandatory premarket safety review. A substance is accorded GRAS status, if it is generally recognized by experts qualified by scientific training and experience to evaluate its safety, as having been adequately shown through scientific procedures or experience based on common use in food to be safe under the conditions of its intended use. And as the

"transferred genetic material (nucleic acids) are present in the cells of every living organism and animal used for food by humans and animals (...) such material is presumed to be GRAS" (FDA 1992: 22990).

Thus, GM Foods can be lawfully marketed without requiring premarket approval by FDA. Nevertheless, as FDA traditionally encouraged producers of new food ingredients to consult with FDA, a consultation procedure has also been recommended by *the 1992 policy*.

Consultation Procedure

The consultation procedure is intended to assist producers in evaluating the safety of a new food variety or a new food ingredient. It is described in Section VII of *the 1992 policy* and has been concretized in the *Guidance On Consultation Procedures. Foods Derived From New Plant Varieties* (FDA 1997) that was issued in October 1997 upon request from producers of GM Food.

Even though the consultation procedure can be considered as a more informal procedure, one can distinguish between stable elements of the procedure such as the initial and the final consultations. *Initial* consultations are conducted in the development phase of a product to resolve safety, nutritional, and regulatory issues in an early stage of the production process. *Final* consultations are taken up when the producer has gathered enough information to ensure that the product is safe and complies with the legal provisions of the FDCA. By then, the producer can conclude an ongoing consultation with FDA.

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[50] This regulatory category was created for a group of food additives that were exempted from the more rigorous regulatory requirements for food additives in the 1958 Food Additives Amendment to the Food Drug and Cosmetics Act of 1938. On the basis of the GRAS exception of the food additive definition it is possible that 'familiar' ingredients such as salt, pepper, vinegar, vegetable oil and the like can be lawfully marketed without being the subject of food additive regulation.

To inform FDA about GM Foods the producer submits a summary of the safety and nutritional assessment to FDA. The information provided in the summary are reviewed by the agency scientists and, if necessary, discussed with the developer. This summary should contain

"(t)he name of the bioengineered food and the crop from which it is derived […], (i)nformation concerning the sources, identities, and functions of introduced genetic material […], (a) discussion of the available information that addresses whether the potential for the bioengineered food to induce allergic response has been altered by the genetic modification, (a)ny other information relevant to the safety and nutritional assessment of the bioengineered food" (FDA 1997, chapter II.B).

By following this consultation procedure, the developer makes sure that he complies with the legal provisions laid down in the FDCA. However, as this procedure does not conclude with an official approval by FDA it must be characterized as notification. While the *1992 policy* merely recommended "producers can informally consult with FDA prior to marketing new foods to ensure that the safety and regulatory status of a new food is properly resolved" (FDA 1992: 22985), in its *Proposed Rule*

"the agency has tentatively concluded that, prior to initiation of commercial distribution in the United States of a bioengineered food, FDA must be notified of the intent to market such food. […] Therefore, the agency is proposing that the notification program […] be mandatory" (FDA 2001: 4712).

Although the process of rulemaking is not finished yet[51], in future the described consultation procedure will be obligatory and FDA will have to be notified at least 120 days prior to the commercial distribution of genetically modified food in the United States.

Labeling

The definition of GM Food as not substantially different from its traditional counterparts also has affected the labeling policy. To date the United States have no regulation in place that requires special mandatory labeling of food, which consists of, or which is made of GMOs. The absence of mandatory labeling provisions that are based on the production process is justified by FDA that it does not have the legal authority to label because these products do not differ from conventional products:

"For this reason the agency does not believe that the method of development of a new plant variety (...) is normally material information within the meaning of 21 U.S.C. 321(n) and would not usually be required to be disclosed in labeling for food" (FDA 1992: 22991).

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[51] That the procedure of rulemaking is not yet finished is due to the change in government in 2000 (see *US biotech policy issues remain in limbo* in Nature Biotechnology, Vol. 19, 2001, 496).

Special labeling of GM Foods is only required if these are considered to have a significantly different nutritional property or if they include allergens that consumers would not expect to be present based on the name of the food. Otherwise, no special labeling is required since foods developed by new techniques are not considered to present any different or greater safety concerns than foods developed by traditional plant breeding. This policy has been confirmed in the scope of a lawsuit against FDA, which has been thrown out, arguing that

"it is doubtful whether the FDA would even have the power under the FDCA to require labeling in a situation where sole justification for such a requirement is consumer demand" (Alliance for Bio-Integrity et al. v. Shalala et al., Civil Action No. 98-1300 CKK, D.C. Cir. 2000, 20).

Nevertheless, even though FDA does not have legal authority to label GM Foods and can therefore not demand mandatory labeling, it drafted guidance for industry on *Voluntary Labeling Indicating Whether Foods Have or Have Not Been Developed Using Bioengineering* (FDA 2001a). This guidance facilitates developers of GM Food to label a food as being genetically modified without being misleading. However, to date, none of the developers used this opportunity to label their food as *genetically modified*. In so doing, they resist a well-known societal demand for labeling among great parts of the American Public.[52] But even though no requirements for mandatory labeling of GM Food have been established in the United States so far, already in 1998 new guidelines for an organic label were set up, that would not allow food to be labeled 'organic' if it was irradiated, grown in soil fertilized with sewage sludge or genetically engineered. These new guidelines at least have been interpreted as "bowing to the wishes of consumers" (Pear 1998) even though it can be questioned to what extent those really will be perceived as the answer that the public has expected.

3.2.3 Mobilizing Power

Against the background of the outlined framework, its regulatory trigger can now be reformulated more abstractly: to which problem does this regulatory framework propose a solution? Instead of emphasizing an insufficient knowledge base that underlies the issue GM Food, the United States defines the regulation of GM Food as a *normative* problem in the first place. As genetic engineering is conceived as an extension of traditional breeding methods, foods derived by genetic engineering evolve as a new variety of *traditional* food. The underlying cognitive uncertainty is thus turned into certainty by drawing on available, traditional scientific knowledge: already existing norms, i.e., institu-

[52] A *Time* magazine poll in 1999 reported that 81% of those surveyed supported the mandatory labeling of GM foods (Samuel 1999: 46).

tionalized, experience-based knowledge becomes the basis for the regulation of this issue.

This is also demonstrated in the instruments and mechanisms that become employed in the regulatory framework: the practices that are applied to traditional food also are mobilized in the regulation of GM Food. By so doing, also established scientific knowledge is invoked to ensure the safety of a new food. The safety assessment carried out within the scope of the described notification procedure therefore is based upon experiences made with traditional food. As a result, the underlying knowledge base does not appear as precarious as is the case within the German context.

Within the US-context, the problem that has to be dealt with is the extension of these already existing norms to a new food variety. This new case has to be subsumed under an already existing, powerful legal framework. These existing norms have proven to be capable of securing food safety in the past[53] and now become employed in order to ensure the safety of a new variety of food. Possible difficulties could thus be presumed in the act of extending the existing norms to the realm of GM Food. However, given that the outlined regulatory scheme exists in the shadow of strong, powerful laws such as consumer protection laws as well as product liability legislation, it can rather be expected that those involved with the manufacturing of traditional food will extend their already well-established routines and strategies to the realm of GM Food.

Therefore, as the introduction of GM Food into the American food supply will be carried out in the 'shadow of leviathan', power-based strategies are expected to dominate the network. Against the background of a rule that not only provides a clear cut definition of its empirical matter but that also is backed by the power of deterrence based laws, less room will be provided for 'alternative' interpretations, subsequent routines and challenges of the hegemonic interpretation.

3.3 Conclusion: Implications of the Regulations

This chapter started with the statement that each regulation is triggered by a problem to which the regulation proposes a solution. The establishment of normative expectations regarding the safety of GM Food has been defined as the shared regulatory trigger of the legal frameworks in Germany and in the United States. In both these cases, the cognitive uncertainty that is underlying the issue has to be resolved, if certain, stabile behavioral expectations are to be

[53] As a proof for the success of this regulatory scheme, often the lack of such high-profile food scares as BSE in the American food supply is cited.

established. Nevertheless, both these regulatory frameworks differ in their ways of dealing with the cognitive uncertainty and, thus introduce different 'solutions' to the fields that they are designed to regulate. These differences can tentatively be traced back to the disparate definitions of the issue GM Food that pervade the succeeding regulation as well as the instruments provided thereby.

Germany

Within the German context, the nature of the conflict – or, more moderately, the problem – that has to be solved by the legal regulation of GM Food, has been defined as *cognitive* conflict. Consequently, knowledge-based problem solving strategies have been invoked to solve this problem. But since the rule does not provide a substantial definition of the issue itself, it leaves broad room for interpretation among those to whom it is addressed. Thus, it is left up to the field to fill the phrase 'novel food' with meaning. Despite this lack of a substantial – and thus probably guiding – definition of the issue, the regulatory scheme in Germany is not backed by as powerful consumer protection laws as the ones provided for in the United States.[54] In addition, German industry does not fear litigation as the US industry does since the instruments for public interest litigation are not as established in Germany as they are in the United States (see chapter 1.2.1). Therefore, the rules regulating the introduction of GM Food into the German network have merely to rely on their own 'force', i.e., the force that is derived from its status as official law of the state (and the sanctions build into it). But as the rule remains ambiguous about its very character and at the same time is likely to enter a field in which a variety of definitions of the issue and, consequently, practices and routines for its handling, compete with each other in order to become the dominating, appropriate routine it is unlikely that this regulation has the capacity to establish the expectation that GM Food is – if not uncontested – but at least safe.

Consequently, as the rule offers itself as only *one* draft of how to handle the issue GM Food it is likely that the rule will be accompanied – if not resisted or avoided – by knowledge that is generated by the constituents of the field, throughout their attempts to cope with the issue. Thus, it will be confronted with other 'drafts' and will have to stand the 'test of practice'. Instead of providing an even possibly contested answer to the abstract question of the network *what is considered as an adequate way of dealing with the issue GM Food?* the outlined regulatory framework asks this question in return. In doing so, it opens the network for a variety of answers that can be expected to com-

[54] This is not to say that German consumers are not protected by legal obligations but the German system of consumer protection has increasingly been criticized as still neglecting the aspect of precaution, for instance (Hippel 2001).

pete with each other, in order to become the dominant one throughout the network. Thus, in the German case a conflict ridden, 'untilled' field is likely to evolve and – the legal rule itself has prepared the ground for it.

United States

Within the American context, a different picture was presented: the regulatory framework here introduced a very precise definition of what has to be understood as 'GM Food' into the field. By referring to institutionalized and tested knowledge, a very precise framework for an appropriate way of dealing with the issue could be provided. The problem that has to be resolved in this case is the subsumtion of a new case under existing categories, an endeavor that in the given case is backed by the existence of strong laws in the background. It is thus likely that the (normative) expectation of food security can be established throughout the network – at the cost of abolishing, suppressing or neglecting interpretations, which are not in tune with what the rules have proposed. Thus, the regulatory framework in the United States can be expected to be accompanied by power in the first place. In sum, the American field 'GM Food' can in contrast be expected as a tilled field wherein categories are coined, tested strategies are employed and less opportunities for friction are provided.

In sum, to take up the discussion at the beginning of the present chapter, the particular regulatory framework prepares part of the ground of what is going to happen when it is introduced into the field it was originally designed to regulate. Against the background of the outlined regulatory approaches of both these cases, the assumption can be made that these will affect the relations among those to whom the rules are addressed to as well as their relations and the particular issue GM Food. It will therefore be one aim of the next chapter to analyze in what ways the respective organizations that constituted the networks have responded not only, or not exactly to these regulations but to what they have *perceived* as their respective legal environment and the expectations, constraints, pressures and chances contained therein.

"When you make policy that way you really run the risk that when it becomes a matter of public discussion you won't have asked or answered the questions that the public has and I think that has happened."
(Interview #14#/USA)

4 From Norm to Action: Organizational Responses

While the previous chapter was dedicated to the description of the respective regulatory schemes that have been issued in order to guide the introduction of GM Food, the present chapter aims to fathom what has become of their 'original' normative meanings throughout the processes of rereading, reobserving, reinterpreting, thus throughout organizational responses to these norms?

One decisive claim of the present study is that the role of organizations in the regulatory process is underdeveloped or at least underestimated and that by focusing on organizations as social systems a more appropriate understanding of the regulatory process can be achieved. This argument has been developed against the theoretical background of modern systems theory and a new institutionalist approach that focuses on organizational studies. On this theoretical level, several reasons could be identified for considering organizations when one wants to investigate what happens when a legal rule becomes implemented into its field that is characterized by cognitive uncertainty. These theoretical considerations concluded with an understanding of the regulatory process as the interplay of law, knowledge and power that is orchestrated by the problem, which has to be resolved and fulfilled by the organizations of the given network. Depending on the case, the legal rule will be accompanied either by power or by knowledge in the first place. This interplay between law, knowledge or power and the organizations will become manifest in specific *regulatory structures*, that evolve as decisive characteristics of a given interorganizational network. As each issue will develop its 'own' network, such structures will differ contingent on the problem.

This approach is expected to contribute to the domain of comparative research on regulation, especially to the question of what exactly is hidden behind a so-called *national* style of regulation. Even though the prevailing understanding of national regulatory styles employs those as explanatory variable, it remains fairly unexplained what they are about. By focusing on organizations instead, these 'black boxes' can be unpacked, as organizations have to be understood as the central parts of the regulatory process. Thus, the ground floor

level of regulation becomes revealed as the various organizations' perceptions of their legal environment(s) are addressed. These perceptions are likely to impact on the organization's particular way of dealing with the issue GM Food, in that they determine what will be understood as 'appropriate', 'rationale' and 'sensible' in the context of a given organization.

Here, one has to distinguish between the normative and the cognitive rules, which in their total as its *script*, guide the organization's operations (decision-making). While the normative rules are fed by the organization's respective function system, the cognitive rules are fed by the organization's perception of its environment. Therefore, a given organization will make sense on the background of its normative orientation and then operate because of this knowledge, thus *enact* its environment. It is in this phase, that an organization is confronted with its environment, thus not only with norms and expectations but also with other organization's knowledge, interpretations, strategies and the like. As discussed in chapter 2.1, organizational scripts function soundless and unreflected as long as they are not confronted with opposition. If organizations observe a deviation from their own description, this becomes scrutinized and, dependent upon environmental pressures, constraints and possibilities, it will become revised or upheld. Dependent upon the dominance of that environment, the organization can thus uphold its normatively derived interpretation or it is forced into a revision of its (decision-) premises. Therefore, as confronted with an environment, the question arises to what extent an organization can uphold its interpretation of the focal issue and the subsequent strategies against the challenges of what it perceives as 'reality'. In sum, this embeddedness determines which organization(s) gain the power of definition throughout their network. Against this background, the observable differences in the way of dealing with GM Food in Germany and in the United States are now put in a new perspective.

Firstly, given that world society is defined as being enclosed in each single social subsystem's communication, a similarity between the German and the American network can be expected in that each 'national' GM Food-network is likely to be constituted by the same types of organizations. At the surface, there will be legal, economic, scientific, political, and probably religious organizations that (at least) in the first place interpret GM Food based on the functional primacy of their respective social subsystem. Decisions concerning the issue will follow a scheme – or a decision-program – that are guided by distinctions such as legal/illegal, payment/nonpayment or truthful/untruthful. Therefore, one can assume that the organizations' perceptions in Germany *as well as* in the United States will be guided by these same distinctions. At this stage, and without any specification of the context, it cannot be claimed in a meaningful way what the decisive characteristics of, for instance, a specific

'American truth' would be, in contrast to a German, Italian or French truth. Instead, homogeneity among the organizations of the given networks is likely to occur.

However, as has been claimed in chapter 2, this is not the entire 'truth' about world society, or, more specifically, about the processes by which it becomes established. Importantly, this perspective does not explain the observable differences in the societal way of dealing with a *seemingly* identical issue such as GM Food in differing national contexts like Germany and the United States. These differences (or, world society's *heterogeneity*) come into sight if one considers that each organization has not only to be described as normatively closed but also as cognitively open at the same time. In so doing, it can be expected that its actual embeddedness into its respective environment will affect the organization's *perception* and thus on its subsequent way of dealing with the issue. Further, the aforementioned binary oppositions are filled with meaning only throughout their application in varying organizational contexts. As they cannot be considered as ontologically given but moreover as dependent from an observer, they also cannot be considered as existing beyond all contexts. Consequently, the meaning of the distinction between legal and illegal cannot be taken as a constant but rather as dependent variable. By taking into account that the actual meaning of superficial identical terms and concepts depends upon the context of their application, a perspective is taken that reveals the hidden, fundamental differences behind these terms and concepts.

Consequently, it will become obvious that the fundamental differences are not to be found between an 'American regulatory culture' and a 'German regulatory culture', thus between *national* approaches to GM Food. Instead, it will be argued that the decisive differences lie between the embeddedness of the single organizations of the various societal subsystems that not only constitute the interorganizational network(s) but that also traverse countries. Therefore, both these networks are in a very fundamental sense characterized by a heterogeneity that follows from a plurality of organizational perspectives on the focal issue.

The present chapter therefore is dedicated to the presentation of the various organizational responses as manifestations of the organizational scripts. By reconstructing and describing organizational responses, the rules are made explicit that guide the single organization's perception of its environment and consequently its perception of 'its' network that has emerged around the focal issue. Finally, but most notably, also the perception of this issue is guided by the script and will become explicit in the given organizational response.

4.1 Methodological Remarks

When conducting comparative research on organizations, firstly the basis of the comparison has to be clearly defined. The guiding question of the present comparison is *to what extent have the organizations under the effect of their respective legal environments revised their normative assumptions regarding the nature of the issue GM Food and, consequently, adjusted their decisions according to these revisions*? As the legal environments in Germany and in the United States are likely to be perceived differently by the various organizations of the network, different regulatory structures are expected to unfold at the respective network's surface.

Consequently, not only the 'naked' legal regulations (that is, *law on the books*) but also rather the legal environments (that is, *law in action*) are conceived of as one part of the explanation for the observable differences whereas the organizations to whom the regulations were addressed to must be understood as their 'complement'. They mobilize the regulation and, in so doing, not only shape the law but also the actual meaning of the focal issue.

As the present study considers organizations as the central parts of the regulatory process it has to be understood as a comparison not of two countries but of interorganizational networks within two countries. That this does make a difference has already been elaborated in chapter 1, where the claim was made that observable differences in the regulatory approaches of various countries can be traced back to the involved organizations, their composition and their interplay. It has further been argued that each issue will develop its own interorganizational network, thus creating its very own legal environment wherein not only the respective laws but also societal expectations, norms, and demands are inscribed.

Since these networks are thus regarded as the units of analysis, they have to be defined with regard to their constituents as well as to their boundaries. Like organizational fields, interorganizational networks are not just "investigators' aggregative constructs but are meaningful to participants" (DiMaggio 1991: 268). Thus, their boundaries cannot exactly be defined a priori but firstly and foremost are to be found within the descriptions of the particular organizations that form a network. Nevertheless, as each organization constructs its own environment, one can assume that the organizations' descriptions of a given network and its boundaries will differ. Moreover, the boundaries will remain somewhat blurred, at least until one has examined the organizations involved. Even then can an interorganizational network not be considered as a fully definable entity; it rather has to be understood as fluent and marked by constant appearances as well as disappearances of particular organizations. In this context, one has to draw the conclusion that a given network such as the

one that emerges around the issue GM Food cannot be completely described, at least not *concretely*. However, in defining it in a more *abstract* manner, unvarying units can be defined that set the foundation for the comparison, i.e., in statistical terms, the independent variable. Within the given context of an inter-organizational network, the constituting organizations can be considered as the independent variable(s), i.e., a group of unvarying units. This does not refer to particular organizations but to *types* of organizations that are likely to constitute a network that emerges around a certain issue. Before the network 'GM Food' in the both given countries will be portrayed in detail, the way the data have been collected is addressed.

Data Retrieval

The research interest of the present study focuses on the interplay between the legal regulations and its original addressees, the organizations that emerge around GM Food. The assumption that guides research is, that this interplay will depend upon the nature of the regulatory framework as well as upon the organization's perception of the issue GM Food. Although an organization's perception of its environment is expressed also in its publications[1], for purpose of this study *interviews* with representatives of the particular organizations have been chosen as empirical database. Even though interviews are a common instrument of data generation within organization studies (e.g. Hiller 2001; Tacke 2001), also a systematic reason can be derived from the theoretical considerations on organizations as they have been outlined in chapter 2.

In the scope of that chapter, organizations have been defined as social systems that emerge within function systems by increasing differentiation. The underlying principle of the formation of an organization is membership, i.e., each organization provides a formal procedure by which its members are chosen. By so doing, they regulate their boundaries by membership. However, by defining roles of membership, organizations also formulate behavioral expectations within the organization. A person who takes over a role within a formal organization subscribes to the expectations attributed to this role and thus has to fulfill them. Otherwise the membership becomes invalid since a continuing non-recognition or a non-fulfillment of these expectations is incompatible with the continuation of a membership (Luhmann 1995: 38).

These theoretical implications of the concept of membership make it plausible to conduct interviews as a method of data generation in organization studies. Persons that hold a membership role within an organization now have to be considered as representatives of 'their' particular organization. Addition-

[1] These comprise press releases as well as all sorts of documents which are developed, processed, and circulated inside an organization like protocols, file records, and the like.

ally, they function as addresses within an organization. In fulfilling their role of membership, they have to a certain extent taken over the organization's view – of the organization itself as well as of its environment. Against this background, the conclusion can be drawn that the protocol of an interview with an organization's representative contains the organization's perception of its environment in a condensed manner. Such a protocol can then serve as the basis for the empirical analysis.

The empirical database of the present study consists of 38 semi-structured interviews that have been carried out with representatives of the relevant organizations in Germany and in the United States.[2] These organizations have been identified by observing the public debate[3] over a period of one year (1999), with high profile organizations in the debate having been considered relevant. The interviewees then have been chosen by a snowball-system in which course the representatives of the particular organizations have been interviewed and been asked for further organizations that are considered as relevant in their point of view. By this procedure, a comprehensive sample of organizations was gained. This procedure was applied in both countries.

By observing the public debate also a deeper insight into the field was provided that was helpful for the design of the questionnaire. The questionnaire thus has been developed against the background of theoretical considerations but has also considered public debate. Except for some marginality, the questionnaires applied in Germany and in the United States were almost identical. They contained questions concerning the organization's perception of the issue GM Food, the perception of the legal regulation as well as the perception of the network itself.[4]

Composition of the Sample

As mentioned before, the interviewees were chosen from a variety of organizations that form the network within both countries. Moreover, since an interorganizational network is not an isolated entity that can be fully described, the samples do not claim completeness but can be regarded as representing the relevant *types* of the networks' organizations.

The German sample comprises a total of 21 interviews, the US sample a total of 17 interviews that are distributed among the several groups as follows. In Germany, three interviews have been carried out with representatives of regulatory agencies whereas in the United States one interview has been carried out with a representative of a regulatory agency and two interviews with

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2 All interviews lasted approximately one hour. They were recorded on tape and fully transcribed. For an overview see Appendix Section A.

3 This comprises the observation of the print media as well as e-mail lists.

4 For the questionnaires see Appendix Section B.

state representatives. Within the field of industry, this has been subdivided in crop producers, food processors and food retailers. In addition, whereas in the US five interviews have been conducted with representatives of this group, in Germany eleven representatives of this group have been interviewed. Turning to consumer groups, four interviews in the US have been conducted, compared to two interviews in Germany. A total of five interviews have been carried out with representatives of critical groups, three interviews in the US and two interviews in Germany. In both these countries one interview representing scientific expertise could be conducted. In order to avoid any misunderstandings it also has to be mentioned that not all these interviews have been analyzed in the strict sense of the word but rather functioned as background information.

Further, this oversight in its total reveals some variation within the sample that is due to several factors.

Variation within the Sample

The variation within the sample that became evident in the detailed overview can be explained by the following factors.

First of all the preconditions for the data generation differed in both countries. While the German sample was generated over a period of nine months, all 17 interviews in the United States were conducted during a research stay in October and November 2000. Due to this tight timeframe some potential interviewees had to be canceled, thus explaining part of the imbalance between the samples. Additionally, also the current situation during the period of the data generation has to be taken into account. Since the introduction of GM Food is a sensitive issue for most of the groups involved, some potential interviewees refused the request for an interview. Such a declining attitude was not limited to a particular group but could be observed throughout all groups even though the particular reasons for the refusal differed among the groups. For instance, in the German case one representative of a prominent, worldwide food processor refused the request for an interview because the organization considered the issue GM Food no longer an interesting field for industry due to the lack of consumer acceptance. Even though they did not fully reject, a very vocal critical group in Germany was quite skeptical about an interview as they considered the researcher a part of the network and thus as a potential adversary. In the United States in contrast, neither the critical groups nor industry played ‘hard to get’ but were rather approaching. Here, the competent authorities turned out to be quite skeptical about interviews and one interview was refused as the organization did not feel responsible for the issue GM Food, even though it was involved in GM Crops.

However, apart from these ‘logistic’ problems, the variation also is due to peculiarities of each of the fields. For instance, the prevalence of consumer

organizations within the US sample bears witness to the fact that consumer groups have been more vocal in the American debate than in the German debate. Further, there are no state representatives to be found within the German sample which is due to a lesser party political engagement in the German GM Food network. And even though these differences that to a certain extent are due to political traditions do not fully explain the differences within the regulatory approaches, but have rather to be considered as the outcome of the dynamics unfolding in the both networks. Therefore, the revealed variation within the samples does not render them as incomparable but gives a first impression of the differences between the both networks.

Data Interpretation

The protocols of the interviews have been interpreted by means of a hermeneutic method.[5] An interview with a representative of an organization provides at least two different ways of reading it, firstly as an interview with a *representative* of an organization or, secondly, as an interview with a representative of a given *organization*. While in the first case the role of the representative is the object of research, the latter case focuses on the organization and its views. In this case, the representative functions as the organization's mouthpiece (see above). The analysis of the interview therefore does not focus on personal motivations and the like but upon the organization's view.

As each interpretation of empirical data is guided by theoretical assumptions those have to be made explicit in order to point out in how far these assumptions converge with the theoretical background of the study. In the given case, the linkage between the theoretical assumptions and the empirical research design has to be taken even more serious since large parts of the theoretical assumptions draw on modern systems theory. Within the context of systems theory no unique method has been developed, which has frequently led to the conclusion that modern systems theory and empirical research exclude each

[5] There has been (and still is!) considerable debate about the question if this method can also be applied in the analysis of interviews as it has originally been developed to analyze non-standardized data (e.g. Oevermann 2000: 67). Two reasons can be offered that may question these doubts. Firstly, the generation of non-standardized data may be impossible for reasons that are to be found within the object of research, so that the researcher is forced to generate standardized data such as interviews (e.g. Reichertz 1996). Secondly, the so-called case structure [*Fallstruktur*] is to be found in the structure of the interaction between the interview and the interviewee as well as in the report of passed actions (e.g. Schneider 1988). If interaction is defined as a social system that emerges through a face-to-face communication, thus invoking the distinction between presence and absence as the constitutive difference (e.g. Luhmann 1975), no obvious reason can be given to distinguish between an 'artificial' and a 'natural' interaction. As with non-standardized data, the opening of the interaction remains the important starting point of the analysis, the point from which the case structure can be reconstructed.

other. This conclusion has not only been disproved by a growing number of empirical studies, but can also be rejected on theoretical grounds, as will be outlined in the following.

A common assumption of modern systems theory and the sociological new institutionalism, both of which have been (in parts) applied as the theoretical background is that 'meaning' is generated unintentionally. Meaning is something that evolves beyond the single organization even though each single organization partakes in this process of generating meaning. Insofar 'meaning' can be described as *objective* as it does not refer to the subjective meaning of a single actor (organization). Moreover, it is this understanding of 'meaning' that is shared by the method *objective hermeneutics*.[6] Both, the talk about *objective* meaning as well as *objective* hermeneutics roots in the assumption that the rules by which 'meaning' is generated have to be conceived of as "emergent structures of the social system" (e.g. Schneider 1995: 141).that cannot be reduced to individual structures of the mind. In the context of this method, it is therefore not referred to a speaker's intentions [*Sinnintentionen*] but to socially generalized expectations.

As the research interest of the present study focuses on the reconstruction of the organizations' perception of the issue GM Food as well as of its legal regulation, this method appears to deliver appropriate findings, i.e., an adequate understanding for the observable differences in the regulatory interplay surrounding GM Food in Germany and in the United States. Analyzing the protocols by means of hermeneutics opens up the opportunity to reconstruct the organizational rules of interpretation of the given issue and its legal rules.

4.2 Organizational Responses

Although national boundaries no longer can be described as constitutive for society, they pervade (world) society with lines of demarcation. Beyond these lines, processes of internal differentiation can be observed that become manifest not only in the actual design of the legal norms (see chapter 3) but also in the organizational *responses* to these norms. This is not to say that the responses differ simply because the respective regulations differ – which would not only be a circular argument but would also insinuate a legalistic understanding of the regulatory process. If one takes into account that the relation between organizations and law has to be understood as complex as described in chapter 2.2, one has to assume that organizations answer to their respective legal environment that includes "laws, public policy, societal norms and the

[6] This is not to say that objective hermeneutics is the only method. There have been several propositions to consider the ethnomethodological conversation analysis as a further appropriate or useful method for systems theory (e.g. Schneider 1996).

culture surrounding the law" (Edelman 1992: 1536, n. 31). Therefore, in responding to the legal environment, organizations will respond to a variety of (perceived) expectations and norms that in their total (and *only* in their total!) make a difference between the United States and Germany. Thus, although at first sight the focal issue GM Food pretends to be identical in both networks, its *fundamental diverseness* will become revealed throughout the interplay of given legal environments and the organizations' responses to them, hence the regulatory process itself.

Turning to the constituents of both networks, at first sight quite a similar picture is presented. Both, the interorganizational network in the United States as well as the network in Germany are for reasons mentioned at the outset of the present chapter constituted by the same *types* of organizations such as the single links of the GM Food supply chain, crop developers, food processors, food retailers and their associations. In the United States as well as in Germany representatives of the so-called 'agribusiness'[7] like *Monsanto*, *Novartis*[8] and *Aventis* can with regard to GM Food not only be observed as the major developers of the gene constructs that genetically modified products are based upon but also as the major suppliers for the food processing industry. Companies such as *Unilever/Bestfoods*[9], *Nestlé* and *Kraft* here take an outstanding position as they have gathered the majority of the world's most popular food brands and have thus to be considered as decisive constituents of the GM Food network in both countries.

As with the variety of economy branches also a variety of associations could be identified, that represents these branches in the policy process. Thus, they often try to influence the process of lawmaking, if necessary by mobilizing the public, for instance. Consequently, they are considered as participating "simultaneously in the world of politics and in their specialized fields within society" (Teubner 1993: 557). These industry associations can thus be described as situated at the intersection of economy and politics, where they advocate the economy's need for collectively binding decisions to the political system and also function as the economy's addressee for the political system. In the given GM Food network in Germany one of the most vocal associations has been the *German Bund für Lebensmittelrecht und Lebensmittelkunde e.V. [BLL/German Federation of Food Law and Food Science]*, a so-called um-

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[7] For purpose of clarity, the term 'agribusiness' is applied to the pharmaceutical-chemical-agricultural corporations. Even though these corporations often are referred to as *Life Science Industry*, this term does not appear appropriate any longer as in recent years several corporations have retreated from this 'model'.

[8] In 2000 the *Novartis* Crop Protection and Seeds sectors and *AstraZeneca*'s agrochemicals business merged into *Syngenta*.

[9] In fall 2000 the separate companies *Unilever* and *Bestfoods* merged into one company, *Unilever/Bestfoods.*

brella organization that covers three types of members, associations such as the *Verband Deutscher Oelmühlen e.V. [VDOe/Association of German Oil Mills]*, high-profile, global companies such as *Unilever*, *Bestfoods* and *Nestlé*, and also self-employed individuals. In the United States its corresponding complement is the *Grocery Manufacturers of America (GMA)*, a trade association that also hosts the American settlements of the mentioned food companies and numerous other, national as well as international companies such as *Kraft* or *Gerber Food*. Another group of the networks' constituents are the food retailers, which have been more vocal in the German than in the American network, partly because they have been confronted with public unease about GM products directly as there have been products on the market that were labeled as containing genetically modified ingredients. The food retailing industry in Germany is represented by several associations, two of which were the former *Bundesverband der Filialbetriebe und Selbstbedienungs-Warenhäuser e.V. [BFS]*[10] and the *Bundesverband des Deutschen Lebensmitteleinzelhandels [BVL/National Association of German Grocers]*. The developers of GM Crops, such as the already mentioned Life Science Industry, in Germany are represented by the *Deutsche Industrievereinigung Biotechnologie [DIB/German Association of Biotechnology Industries]* and in the United States by the *Biotechnology Industry Organization (BIO)*. Although those organizations have to be considered as the original addressees of the above outlined legal norms, they must not be misconceived as living in splendid isolation from their environments. In fact, they 'coexist' with consumer associations, environmental groups, scientific organizations and regulatory agencies, which all are differently related with the issue GM Food and thus constitute the given network as well.

As *consumer associations* are located at the intersection between the political system and the consumer as part of the economic system, they understand themselves as the mouthpiece for a societal group that, due to its heterogeneity, is difficult to organize. In order to represent their interests to the political system and – at the same time – function as addressees for the political system, consumer associations have taken over an advocative mode of representation. Regardless the issue, these associations' aim at consumer well-being [*Wohl des Verbrauchers*]. Beside topics such as financial services, health and safety care, also the field of food and agriculture are of vital importance to consumer associations. Thus, consumer associations have to be considered as essential parts in both, the American and the German network. In the United States the *Consumer Federation of America (CFA)*, the *Consumer's Choice Council (CCC)* and *Consumer's Union (CU)* have to be mentioned. The consumer group working on the topic GM Food in Germany has been the *Arbeits-*

[10] The BFS has merged in the *Hauptverband des Deutschen Einzelhandels* [HDE].

gemeinschaft der Verbraucherverbände e.V. [AgV/Working group of consumer associations][11].

Environmental associations see their function as nature's advocates, or as nature's lobby. Thus, they can be described as communicating nature's rights to the political system while they not necessarily serve as nature's addressees in the view of the political system. If and to what extent they are perceived as such, depends upon the 'willingness' of the political system (e.g. Brodocz 1996). As with genetic engineering in plants, a variety of environmental associations have centered around the issue GM Food, such as the *National Environmental Trust (NET)*, *Friends of the Earth (FoE)*, *Greenpeace (US)* as well as its German counterparts *Greenpeace Germany*, and the *Bund für Umwelt und Naturschutz (BUND)*, which is the German section of FoE.

Although *scientific* associations are situated between politics and science, they represent a special case as they do not advocate science's interests to the political system. These so-called 'counter experts' rather observe science and ask critical questions, while the experts 'practice' science and answer the questions (Daele 1996). Consequently, an inside/outside-distinction is drawn, distinguishing the established scientific community and the scientific 'underdogs'. Conflicts over technologies such as GM Food are characterized not only by a focus on the criteria for an adequate risk-assessment but also by a focus on the 'scientific facts' that might serve as the basis for the assessment.[12] Consequently, experts as well as counter experts were likely to become constituents of the GM Food network. In the United States the *Union of Concerned Scientists (UCS)* can exemplarily be mentioned as an organization that has constantly questioning the 'established' scientific positions on the technology. In that, it can be compared to *Öko-Institut [Institute for Applied Ecology]* that has taken this position in the German debate.

Finally, another group of organizations has to be mentioned as constituting part of the networks that can be labeled as *public interest groups*. Those groups have also been described as part of a "left-labor movement" (Reisner 2001) that formerly included socialists, unions and communists. The critique of genetic engineering of the more recent groups such as the *Public Interest Research Group (PIRG)* in the United States falls into line with traditional left-labor concerns, that is "vertical control and monopoly capital issues" (ibid.: 1397). Although they also mention health and environmental issues, the German *Gen-ethisches Netzwerk [GeN/Genetic Engineering Network]* and the

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[11] In 2001, the AgV has merged with the newly founded *Verbraucherzentrale Bundesverband e.V. [VZBV/Federation of German Consumer Organisations]*, which is now the parent organization of 35 German consumer associations.

[12] This has also been described as a "politicization of the cognitive" [Politisierung des Kognitiven"] (Daele 1996: 299).

Verbraucher Initiative [VI/Consumers' Initiative], which describes itself as the association for critical consumers, can be subsumed under that label.

A last group of organizations that can be considered as a crucial part in the both networks are the *regulatory agencies* that have been authorized by the given legal regulations. As already insinuated in chapter 2.1, public administrations are – as are organizations – situated at the intersection between at least law and politics (Bora 2001a). Although those agencies have been introduced already in chapter 3.1.2, they may shortly be mentioned for purpose of completeness. In the United States the responsible agency for overseeing food safety is the *Food and Drug Administration (FDA)*, an independent agency[13], that can be compared in its function with the German *Bundesinstitut für gesundheitlichen Verbraucherschutz und Veterinärmedizin [BgVV/Federal Institute for Health Protection of Consumers and Veterinary Medicine]* and the *Robert Koch Institute (RKI)* both of which function as the assessment bodies for the safety evaluation of novel food in Germany.

Given presumably varying legal environments, the question is raised to what extent the original addressees have put the outlined legal norms into action or, in contrast, to what extent they themselves have been put into action under the effect of their respective (legal) environment. As organizations have been described as normatively closed one can firstly assume that the addressees as economic organizations in the first place will perceive the issue in accordance with their binary opposition *payment/non-payment* as a good that has to be sold. In order to cope with GM Food as an unfamiliar issue, the organizations are expected to reason on a variety of in their contexts familiar analogies, thus linking the *unknown* with the *known*, i.e., making sense of the issue upon their past wisdom. Moreover, as sensemaking also depends upon the organizations' normative orientations, a certain *homogeneity* among the economic organizations can be expected, irrespective their national background.

However, since organizations have also been described as *cognitively open*, their normative orientation only tells one part of the story. As outlined in chapter 2, this normative closure only counts with regard to an organization's goal-oriented program [*Zweckprogramm*] whereas the organization with regard to its conditional program [*Konditionalprogramm*] has to be understood as cognitively open. While economic organizations all aim at refinancing themselves by selling goods (Luhmann 1988b), the conditional program of the single organization determines *how* this aim can be achieved. Thus, it is the conditional program that in the given perspective will determine what accounts as cost or as benefit, as a good or as market. Consequently, external information

[13] 'Independent' in this context means that the agency is not responsible to one department. Even so, the head of FDA is appointed by the President of the United States.

will be seen as relevant, if the organization perceives this whether as useful and enabling or as hindrance and constraint for the achievement of its goal.

Given that these organizations are embedded in differing environments, one has to assume that these environments will affect the organizations' decision making in that their normative rules (decision premises) will be confirmed or questioned under the effect of the organization's perceptions. Further, in confrontation with an environment that is perceived whether as enabling or at least confirming the organizations' normative rules or as constraining and questioning those rules, the organizations in order to achieve their goal will tend to revise or cling to them – dependent upon the perception of the environments' dominance. Thus, the ultimate meaning of an economically sensible decision in the given field of GM Food will be designed throughout an organization's maneuvering in the network and the support or opposition it comes to face therein.

In order to make these enactment processes visible, firstly the normative rules of the respective organizations and the outcome regarding the 'meaning' of GM Food will be introduced. This description is followed by an outline of the cognitive rules that is the perception of the legal environment. Finally, these responses are reconsidered with respect to the extent to that the organization's cognitive rules have followed the normative rules or vice versa. Dependent upon which orientation has dominated the organizations' decision making processes, one can say that the single organizations have expected either *cognitively* or *normatively*, thus leading to different coping strategies within their respective network.

Although organizations have been described as located *in between,* they are normatively closed in that they align their decisions with the distinction of 'their' functional primacy. The original addressees of the outlined legal norms have thus to be described as economic organizations in the first place in that they all – whether in Germany or in the United States – have transformed their function system's binary opposition payment/nonpayment into a specific decision program. Thus, as economic organizations reproduce themselves by payments their foregoing knowledge has to be described as a knowledge about economic coherences, i.e., knowledge as to the question of which decisions in the past have led to the desired outcome, given that these decisions had turned out to be economically wise?

Consequently, GM Food at the very outset has been observed as an economic event and thus been described in economic terms. But as the single links of the GM Food supply chain follow different decision programs (*which* goods are sold to *whom*?) they have ascribed different meanings to the issue.

4.2.1 Agribusiness

Germany

By referring to their foregoing knowledge, agribusiness organizations in *Germany* have conceived of GM Food as a product. In so doing, they remained in accordance with the binary code of their function system since a 'product' in an economic context must be understood as an item that has been manufactured for the purpose of being sold, thus to serve the organization's goal: *„wir sind Industrie, wir sind angetreten mit der Zielsetzung mit den Produkten Profite zu machen."* More specifically, and with regard to the given network, this means that the organizations *„machen Freisetzungen um ein Produkt zugelassen zu bekommen, um es letztendlich dann auch für die Verwendung in der Futtermittel- und Nahrungsmittelkette einzusetzen."* Thus, agribusiness organizations have conceived GM Food as part of a broader network that is the field of agricultural biotechnology. Under this assumption, GM Food was seen as one part of the field beside other parts such as seed and animal feed. Therefore these organizations understood GM Food as an issue that they were not bothered by directly, since they described themselves as being in the business of rather supplying (genetically modified) commodities to large food processors than developing GM Food themselves: *„weil X per se hat bis heute ja mit Lebensmitteln nichts zu tun, sondern ist Vorlieferant der Lebensmittelindustrie"*. Consequently, it is rather the market for agricultural products that these organizations had in mind than the food market.

As developers of agricultural products, agribusiness organizations have embraced genetic engineering as a more efficient extension of traditional breeding methods *„ich habe eine sehr elegante, sehr effiziente Methode mit der Gentechnik an der Hand, das Genom zu analysieren und meine Züchtungskandidaten in sehr frühen Entwicklungsstadien zu selektieren. Ich spare nicht nur Zeit dadurch, sondern der Züchtungsprozeß an sich wird sehr viel effizienter"*. Thus, the technology perfectly seemed to fit with the overall goal of an economic organization that is to achieve a maximum of benefit by a minimum of costs. Further, in so linking the new technology of genetic engineering with established breeding methods, also a reliable scientific knowledge base became invoked as breeding was referred to as a well known practice.

As a result, GM Food in that perspective did not appear as ridden with cognitive uncertainty but rather as carried by a certain (secure) technology that lets GM Products evolve as an economic chance rather than a health risk in the first place.

United States

Turning to the United States, a very similar picture is presented. As with the German case, the developers of gene constructs have referred to genetic engi-

neering as an extension of traditional breeding: *"it's the introduction of DNA and we've done that forever".* Thus, a proven record of scientific experience became invoked. In so subsuming the technology under an already existing category, existing scientific knowledge was invoked as the exclusive basis for organizational decision-making.

Although these organizations admitted that there might be open questions regarding the technology, this uncertainty was communicated in terms of chances: *"The things we don't know about biotechnology and the possibilities for its long-term advantages for the population are probably only in the imagination of some really good young scientists."* Instead of 'dissolving' the underlying uncertainty of the issue towards a description in terms of risk, the observed uncertainty rather was reflected as a yet unknown advantage inherent in this technology's products.

In sum, these organizations have conceived of GM Food as products that not only are safe but that even bear great potentials. Consequently, possible risks were considered as negligible in the context of these observations.

Given these assumptions, the question is raised if, under the effect of their respective legal environments, the organizations have either clung to these assumptions or rather revised them.

Germany

In coming to face their legal environment, the organizations in Germany observed themselves as confronted with a legal norm that was phrased in too broad a language: *„was ich im Moment sehe, (...) ist, daß die Richtlinien so vage sind, daß die Durchführungsverordnungen wirklich ein Auslegungsproblem haben."* Consequently, they observed their own conception of GM Food and in that their understanding of its adequate handling as neither clearly confirmed nor clearly rejected. The organizations rather perceived themselves in an uncertain situation: *„Für uns ist es im Prinzip ein Sachverhalt, der die Industrie im Unklaren läßt. Ein solcher Sachverhalt ist genauso schlecht wie ein Sachverhalt der Gentechnik völlig ablehnen würde, weil sie gibt Ihnen keine Planungssicherheit."* Nevertheless, as outlined above, planning reliability is a sine qua non for each organization in order to uphold their operations and reproduce itself. It is thus not surprising that the organizations claimed for a probably more rigorous but at the same time less ambiguous regulation: *„deswegen ist für die Industrie vielleicht eine schärfere, klare Verordnung eher akzeptabel, als eine schwammige, nicht durchführbare."* In that perspective a less ambiguous norm was expected to deliver at least a clear rejection or a clear allowance of GM Food. Both these options could then function as the basis for further planning.

The reason for the law's ambiguity was detected in its inadequacy given the organization's understanding of the issue and its problems. In fact, they perceived the rules as designed 'in theory': *„das Ganze ist so weit gespannt und mitunter so weit weg von der Praxis, daß die Praxis, die Vorfälle in der Praxis, die müssen nachher immer wieder lehren, was überhaupt machbar ist."* In that perception, this lack of practical orientation naturally has to result in difficulties: *„es gibt ja nichts Schlimmeres als ein Gesetz, das am grünen Tisch gemacht wird und nicht praktikabel ist, das führt ja immer zu Problemen."*

Consequently, while trying to market GM Food, these organizations came to face several difficulties. Firstly, they perceived that not even the regulatory agencies could cope with applications filed under the NFR: *„(w)eil die sogenannten Competent Bodies, die in den Mitgliedstaaten zuständig sind für Novel Food nicht wissen, wie sie mit so'm Antrag umgehen sollen."* This incapability has resulted in a situation, where, although applications had been filed, none of those had undergone a full application procedure: "*und es gibt einige Firmen, unter anderem auch wir, die schon mal 'nen vollen Antrag gestellt haben, aber noch niemand hat diesen Prozeß bisher bis zu Ende geschafft"*.

Secondly, they observed that this uncertainty in the administrative branch has rather sharpened public opposition than pacified it: *„und diese Tatsache ist natürlich für den besorgten Bürger, der in der Hoffnung darangegangen ist, tatsächlich mit der Kennzeichnung nun unterscheiden zu können, GVO/nicht GVO, ist so nicht erfüllt worden."*

Given these observations, the organizations have not observed themselves as walking on solid legal ground nor as being backed by governmental power. Although they could not see a prohibition of GM Food, they could also not perceive that the introduction of GM Food accordant to their understanding, would be in tune with legal obligations as those were perceived as too ambiguous.

This uncertainty was even emphasized as the organizations were confronted with protests against their products: *„(e)rst als die Produkte unterwegs waren und man realisierte: Moment mal, es regt sich dort erheblicher Widerstand von Seiten bestimmter Gruppen aber auch aus der breiten Öffentlichkeit, hier müssen wir Rede und Antwort stehen, das heißt hier müssen wir tatsächlich Informationen weitergeben und die auch vermitteln um Akzeptanz zu schaffen."* And in observing themselves in a rather weak and insecure position these organizations could not help but admit that other, more critical organizations had taken the role of opinion leaders in the network: *„in Deutschland (...) spielen sie* [Greenpeace, AE] *glaub ich die erste Geige."*

In being thus confronted with an apparently not illegitimate resistance against their 'products', the organizations were forced to question two of their

decision premises, the first of which was that their clientele exclusively consists in farmers and commercial buyers. Apparently, not only commercial consumers and farmers but also private consumers had perceived themselves as affected by the marketing of genetically modified agricultural products. All of a sudden, the organizations thus saw themselves in a position they had, in the light of their experiences gained so far, not been expected as they were *„gezwungen, nicht nur mit unseren eigentlichen Kunden, den Landwirten, zu sprechen, zu kommunizieren, ihnen die Vorteile darzulegen, ihnen die Technologie darzulegen, sondern wir sind natürlich auch gezwungen uns mit dem Konsumenten der Produkte auseinanderzusetzen, das heißt letztendlich der gentechnisch veränderten Lebensmittel und daher hat XY eine Kommunikationsabteilung, die sich ausschließlich mit diesem Thema beschäftigt, das heißt Akzeptanzschaffung wenn Sie so wollen im Bereich grüne Gentechnik.“* Obviously, they had to revise their self-description as only addressing the market for agricultural products, and thus a limited circle. In fact, they found themselves as being addressed as a stakeholder in the food market.

The second premise was that genetically modified products are equivalent with traditional products. Nevertheless, in being confronted with an ambiguous legal definition of the issue and public unease towards genetically modified products the organizations at least concluded that these products had to be conceived of as differing from traditional products. Obviously their up to that point in time unquestioned practice of marketing agricultural products no longer seemed to ‘fit’ these new products. Being positive about these products while at the same time being faced with resistance against them, the organizations concluded that these difficulties had to be traced back to a malpractice in the way of dealing with GM Food: *„der Nutzen für die Umwelt ist da (...), aber es ist nicht gelungen in Europa diesen Aspekt ‘Umwelt’ dem Konsumenten zu vermitteln.“* Since the products’ benefits could not get across to the potential buying public, obviously an interpretation of GM Food had become dominant that rather emphasized the unsolved questions and thus the potential hazards.

The consequences of this situation in view of these organizations became manifest in the refusal of GM Products by the potential buyership: *„deswegen werden Produkte der ersten Generation auch strikt abgelehnt beziehungsweise das lernen wir aus dem Verhalten der Nahrungsmittelindustrie und wahrscheinlich des Handels, die uns lehren, daß sie solche Produkte nicht absetzen können, also werden sie auch nicht produziert.“* As these organizations had concluded that in the case of GM Food they would have to take into account the food market as relevant for the achievement of their goals, a threat for food industry now became observed as a threat for agribusiness as well.

Since government for instance has not provided guidance for this difficult situation, the organizations consequently saw themselves forced to look for

orientation in their more dominant environment. As they found themselves as dependent upon the food processing industry, agribusiness revised part of their basic assumptions concerning an appropriate way of dealing with GM Food in accordance with what they had perceived as the food industry's handling: *„Zwischenzeitlich, so nehmen wir das wahr, ist die Lebensmittelindustrie den Argumenten der Kennzeichnungsforderern durchaus offen (...). Sie sagen, sie sehen die Notwendigkeit, man muß kennzeichnen und auch XY kann jetzt offen sagen: (...) wenn das die einzige Möglichkeit ist ein Produkt auf den Markt zu bringen, okay dann werden wir auch für die Kennzeichnung eintreten."*

Further, the organizations *decoupled* their more active from their less active parts by establishing public relations departments for instance, that deal exclusively with agricultural biotechnology. This strategy seemed to provide a solution for the quandary the organizations have found themselves in since as an economic organization they had to adhere to the basic assumption that GM Products are essential for their survival: *„also ein Produkt X von dem wir im Prinzip leben, würden wir nicht aufgeben, zumal wir denk' ich ganz gute Argumente dafür haben, daß das Produkt verglichen mit anderen Produkten ein ganz gutes Profil abgibt"*. However, in being confronted with a situation wherein the absence of clearly normative protected definitions, rules and guidelines has resulted in a hostile climate for GM Food, they rather observed their essential goal endangered and thus came to question their original conditional program. Decoupling therefore has paved the way for clinging to their normative calculus and at the same time adjusting to societal demands for a debate over these products that does not merely focus on scientific facts: *„Wir* [waren, AE] *seinerzeit der festen Überzeugung, daß das Problem grüne Gentechnik und die mangelnde Akzeptanz ... das der nur zu begegnen ist mit einer ich nenn's mal emotionslosen, durch wissenschaftliche Daten und Fakten getragenen Diskussion. Und das hat uns natürlich inbesondere die Bevölkerung mehr als übel genommen."*

United States

When the American organizations came to face their respective legal environment in introducing GM Products to the market, their impression was most different than that of their German counterparts in that the United States have *"not seen a major public outcry about genetically modified foods"* which in other terms means that these organizations have not been confronted with a cognitive dissonance in their environment. The reason that there *"has not been a major claimer in the US by the population in general about GM Foods and their safety"* was perceived as an effect of the little interest that in this organization's perspective is paid to food overall by the public, since *"people in the US eat to do something else"*. Even more important, these organizations have observed farmers as their original clientele as *"very very supportive of the*

technology".

As neither food nor the consumers were thus understood as an important environment, this branch of industry did not consider the food industry as potentially threatening. Consequently, also the buying public was not perceived as relevant stakeholder in the network.

But even though *"there are people who are concerned about the potential allergenicity"*, this unrest was not observed as a reason to reconsider these organizations' original premises as they had observed these premises as not only backed by a vast majority of the population but rather as supported by the (legal) regulatory process: *"when I look at the process I don't have any concerns about the regulation of biotech derived crops"*. And this process most notably was observed as being fulfilled under a rigorous food safety legislation: "*even though the consultation process for biotech derived crops was not mandatory – it is mandatory that you follow the law and that you do not introduce foods into our food system that are unsafe, so that's the part of the law"*.

The regulation for GM Food therefore was not perceived as relevant, in terms of having an effect on the organizations' decisions. Thus, although there have been "*discussions about making the consultation process mandatory, as far as I'm concerned it doesn't matter. We won't do any work any differently whether people have a statement that says it's mandatory or not because we supply all the data to FDA anyway, for their process, for their review*". In that perspective, the organizations perceived their decisions (that is their way of dealing with the issue) as backed by the legal statutes.

Consequently, not only the regulatory process as such was observed as well established and working but so were GM Products: *"biotechnology is not gonna go away, it's been here in cheese production (...), it's been in wine production, it's been in insulin production forever or since its possibilities were here"*. Thus, as GM Products were conceived as an integral part of the food supply, these organizations did not perceive their paramount goal of refinancing themselves by selling GM Products as endangered by the admittedly observed little public unrest.

Further, as these organizations observed themselves in perfect compliance with legal obligations in *"doing probably as much or more than would normally be required to ensure the safety of our products before we introduce them"* they could not even observe themselves as being responsible for public unease nor could they in a meaningful way interpret the observation *"that the image of XY is awful and if that's the case then we did something wrong – I don't know what it was"*. Thus, this perception can be described as an irritation that does not resonate inside the organization, or, that was perceived 'only' as noise that will die away since the organizations could not make (any) sense of

it: *"we don't understand what we've done"*. Because, one might add, in adhering to the law, they had not done anything 'wrong'.

In fact, they had observed the reason for public unrest in the regulatory agencies' malpractice: *"I think I would take more time as a regulator to explain to the public why I was doing what I was doing and how I was ensuring the safety of the food."* Thus, while they had observed their duty in adhering to the legal obligation of introducing only food that according to scientific criteria was safe, they had perceived the state's duty in educating the public about these processes and criteria.

Finally, and in contrast to its German counterparts, these organizations had clung to scientific facts as the only valuable basis for the assessment of GM Food and, consequently, for legal decision making and subsequent labeling policies: *"There have been studies show.. that have shown that people are firmly convinced that organic food is safer and more nutritious and there is absolutely no data in the world that shows that. That's the implications you get into when you're talking about labeling foods, so as long as they can put the criteria in place that is honest, scientifically defensible, then they gonna make it a voluntary label or a mandatory label"*

Interim Result

Against the background of these responses, some preliminary remarks will be given on the impact of the respective legal environments on the organizations' original decision premises. As has been outlined, in both Germany and the United States, agribusiness organizations have conceived of GM Food as a product that is based upon reliable scientific knowledge since it has been linked with traditional breeding techniques. Therefore, GM Food was not understood as 'novel' but rather as 'new' in that it could be parallelized with well-known products. Consequently, the introduction of these products into the market has been understood as rather a normative problem in that already existing rules would have to be extended to these products. It was finally this understanding of GM Food that became the basis for the agribusiness organizations' maneuvering in the network in Germany *and* in the United States.

But in so doing, these organizations came to face quite disparate legal environments. In *Germany*, the organizations neither perceived their own description of GM Food as normatively secured and thus as dominant over other, probably unsecured descriptions nor did they perceive a clear-cut alternative interpretation. In fact, the German organizations found themselves in a normatively open situation wherein various interpretations and practices existed in parallel, so that their own understanding of GM Food became increasingly challenged. Because of this perception, the organizations were forced to revise their way of dealing with GM Food since they increasingly were faced with

opposition against their decisions without being supported by governmental power, for instance. Consequently, this opposition no longer was observed as 'just' providing alternatives but rather as threatening the organizations' paramount goal in the network: to sell genetically modified ingredients to the food processing industry. In so observing the environment as a constraint that in the long run could hinder the organizations from reproducing themselves, those revised their behavior in the network, and thus their approach to GM Food.

In the *United States* in contrast, agribusiness organizations observed their understanding of GM Food as normatively secured against other, deviating interpretations of GM Food. In addition, they did not perceive themselves in the midst of broad and bitter controversy (like their German counterparts) and this again has been observed as an effect of a 'successful' institutionalization of the expectation that food is safe – whether or not it contains GM ingredients. Therefore, these organizations have not felt to be threatened by observed public unrest as such doubts were found to be inferior against the dominant interpretation. Consequently, they did not question their way of dealing with GM Crops but rather upheld their original premise and subsequent decisions.

These at last disparate maneuvers in the network became most evident in the organizations' way of dealing with the *'labeling-issue'*. While in Germany the organizations originally have not seen the need to label GM products as they were found to be safe according to the available scientific knowledge, they revised this conclusion. In being confronted with public demands for mandatory labeling and a legal norm that on the exclusive basis of scientific knowledge had proven to be unable to assure a safe food supply to the consumers, the organizations instead came to vote for mandatory labeling. In so doing, they observed themselves as yielding to public demands in order to gain at least acceptance for their products in the end. In the United States instead, the organizations also from the outset have seen no need for an obligatory, positive labeling of GM products, as according to the law's interpretation, such products were not conceived of as differing from traditional. To label GM products in their perspective has been observed as a breach of the dominant interpretation and in that although not as a legal offence but as deviation from 'the rule' that therefore could have been perceived as a warning by the consumers. In sum, to abide by their goal oriented programs, these organizations have employed different conditional programs, in that they came to *support* and, in contrast, to *reject* mandatory positive labeling as an economically sensitive decision.

4.2.2 Food Processing Industry

Germany

In order to make sense of the issue GM Food, food processing organizations in Germany have referred to established scientific knowledge in that genetically derived ingredients have been regarded as derived by traditional breeding method: *„man hat ja sehr unkontrolliert in vielen Jahren auch Pflanzen miteinander verbunden, gekoppelt, gezüchtet, wie auch immer, nichts anderes ist das ja eigentlich auch, da hat man ja Gene miteinander verschmolzen in irgend'ner Form, das war ja viel viel langwieriger und heute kann man's sehr gezielt, sehr präzise machen"*. These products thus appeared to serve these organizations' goal in providing the 'same' ingredients by a less *costly* procedure in the double sense of the word – less costly in terms of time *and* money. Because of this, reduced production costs have been anticipated in this perspective, leading to a positive assessment of these products: *„vom Unternehmen her stehen wir eigentlich der Gentechnik absolut nicht negativ gegenüber, wir sehen darin sehr gute Chancen, wir sehen durchaus auch sehr viele positive Aspekte."* Consequently, the potential benefits of these products were put in the fore in this way of understanding the issue.

However, in conceiving of genetic engineering as an extension of traditional breeding methods also an established knowledge basis was claimed as breeding refers to an established, well-known and widely accepted technique. In so doing, cognitive deficits that could hide a hazard had been clearly rejected: *„Das da gesundheitliche Risiken drin wären, ist einfach lachhaft, davon kann überhaupt nicht die Rede sein."* But at the same time these organizations also described themselves as selling brands to the consumers and by so doing they saw consumer demands as decisive information for their decision making processes: *„Wir möchten dem Verbraucher nichts aufzwingen, was er nicht haben will"*

Finally, in order to achieve their paramount goal of selling brands and products that meet consumer demands and expectations, these organizations demanded for clear cut rules that would provide not only guidance but also a secure framework for economic competition *„Ich meine Start- und Chancengleichheit im Markt ist oberstes Gebot und wenn man also Gesetze macht und Verordnungen, dann muß man von Seiten der Behörden dafür sorgen, daß sie auch eingehalten werden, damit also nicht wieder.. dieses System – der Gutmütige, der kennzeichnet, ist der Dumme dabei – herauskommt. Das ist also die Hauptforderung, die eigentlich die Lebensmittelwirtschaft stellt."*

These organizations in sum have conceived of GM Food as a product that under conditions of a reliable, clear cut legal framework bears the potential to increase their assets.

United States

Like the food processing industry in Germany, these organizations in the United States have described themselves as being in a business that serves the consumers and consequently they *"don't want to have bad things happen and we're in a business of selling brands and products and the worst thing in the world that can happen to you is to have something negative happen to a consumer that implicates your product."* In that they differed from agribusiness since from the very outset they had focused on the food market as their original market and, secondly, were dealing not simply with products but rather with brands. In so doing, they had been affected much more imminently with the 'problem' (or 'non-problem') of introducing GM Food than agribusiness since brands not only say something about the function of the product but rather refer to entire lifestyles, that the consumers identify themselves with and that they trust in to remain identical.

But even so, the food processing industry in the United States conceived of GM Food first of all as new food ingredient that could be introduced into their products like traditionally derived ingredients without being harmful to the identity of their brands. This understanding of GM Food as not differing and thus as *safe* also was observed as confirmed by reputable scientific organizations, saying that *"there is simply too much data from too many reputable world organizations that support the safety of these foods and ingredients"*.

In trusting science, the food industry not only conceived of these products as safe but rather as bearing a potential for future benefits: *"(T)he promise of the science is that someday we will be able to deliver tremendous benefits to consumers as a result of this technology"* and, one might add, consequently benefits for the food processing industry in terms of money. Therefore, the understanding that *"there is no direct benefit to us in the food industry from biotech crops and there's nothing that we can at this point in time sell to a consumer, saying 'your product is enhanced in this way'"*, was rather communicated as chances as such potential benefits were perceived as already signaled in products like the above cited 'golden rice', which contains vitamin a, thus in products that already bear a tangible benefit for the consumers of food. Those promises of science were thus seen as *"very exciting and very positive and we look forward to getting there"*.

In sum, the food processing industry has rather embraced GM ingredients and not conceived of their introduction as a problem at all. In fact, first wave

products were understood as an important intermediate step towards products that appear to promise *saleable* benefits for consumers.

Given these understandings of the issue GM Food and the more or less implicit subsequent conceptions of what an appropriate way of dealing with GM Food would be, it will now be pointed out to what extent the *perception* of the respective legal environments has affected these organizations' actual behavior (decision-making) in their given networks. And as the normative orientation of these organizations must be described as an *economic* rationale, the question is raised, if and to what extent these premises could be upheld or if they became 'overruled'.

Germany

The Food industry's perception of the public and its opinion in Germany has led to the withdrawal or to the avoidance of GM ingredients from the very outset: *„(G)leichwohl haben wir uns entschlossen keine Produkte auf den Markt zu bringen, weil die Akzeptanz beim Verbraucher schlicht und ergreifend nicht da ist und als Markenartikelhersteller sind wir drauf angewiesen, daß die Leute unsere Produkte mögen, kaufen, sich damit identifizieren und da war's einfach nicht möglich."* Thus, although the organizations originally admitted potential (future) benefits of these products, due to their perceptions of the environment they had decided against the marketing of these products. In so doing they retreated from their 'original' position since *„ein großer Teil der Bevölkerung bei Lebensmitteln Vorbehalte hinsichtlich der Anwendung gentechnischer Verfahren bei der Herstellung oder aber vor allen Dingen auch bei der Erzeugung von landwirtschaftlichen Produkten, die dann in die Nahrungsmittel Eingang finden, hat"*.

This yielding to their environment's demands can be traced back to their perception of the legal norm. Even though the letters of the NFR can be read as explicitly allowing for the use GM ingredients in food, these organizations perceived that GM Food is not conceived as safe but rather unwanted among their clientele, the consumers of food. NFR's incapability of establishing and securing the expectation that GM Food is safe in this perception first of all was traced back to an increasingly precarious public status of science and a loss of its standing as uncontested epistemological authority. But since NFR is based upon scientific knowledge, these organizations rather observed that science's loss of credibility also had infected NFR's legitimacy: *„Ich glaube das Vertrauen in Regulierungen, in behördliche Maßnahmen ist nicht mehr so unumstößlich und so groß wie es vielleicht noch vor 30 oder 40 Jahren gewesen ist, da hat man einfach darauf vertraut, daß es in Ordnung ist und daß unsere Wissenschaftler das schon richtig machen werden und soviel Wissen haben und die Behörden darauf achten."* In so observing scientific knowledge as insufficient

to equip a legal rule with legitimacy, the NFR in its actual design rather became observed as inadequate to meet public expectations, because *„da ist auch sehr viel Emotionales enthalten und Emotionalität mit Recht zu bekämpfen.. gerade in diesem Fall, also ich glaube, daß es nicht die wissenschaftlichen Aspekte sind, die diskutiert werden, nicht nur die rechtlichen Aspekte sondern im Vordergrund steht die Emotionalität"*. Thus the implicit claim was made that not only scientific criteria can serve as exclusive basis for decision making but that, in order to restore public trust in the safety of food, means and mechanisms have to be mobilized that adequately take account of 'soft' criteria like consumers' demands and fears.

Since the legal answer to public demands in that perspective missed to dispel public's doubts and reply adequately to questions public has had on GM Food, it rather had led to misunderstandings and uncertainty: "*Und da glaub ich ist auch sehr viel unverstanden worden, also Unwissen, nicht Unverstand sondern Unwissen, ich kann die Ängste irgendwo verstehen, wenn ich nichts weiß hab ich Angst, aber deshalb sagt man lieber ‚nee'"*. This perceived lack of trust into the legal regulation and the existence of other, dissenting voices (both of which have to be considered as constitutive for one another) has even heightened the smoldering uncertainty throughout the network: *„sondern man hört auch auf andere Stimmen, auf Gegenstimmen und die Verunsicherung ist allgemein da und da nimmt man vielleicht auch sowas gerne auf und sagt ‚dann lieber nicht'."*

In order to uphold their short-term proceedings in the network while at the same time not losing sight of their paramount goal of reproducing themselves by selling goods and brands, these organizations decided for a double strategy. On the one side, they felt that since public has not trusted in the safety of these products due to a lack of transparency and information, trust and thus acceptance could be (re-)established by equipping the public with broader (thus 'objective') information on these products: *„Ich würde eher befürworten, daß man von allen beteiligten Seiten, sei es jetzt von der Industrie, (...)von der Regulierungsbehörde, wie auch immer, daß man da einfach mehr Wert auf Aufklärung der Bevölkerung, der Schüler, der Hausfrauen, der Menschen insgesamt, daß man da versucht, bessere, objektive Aufklärung zu betreiben, um Verständnis dafür zu kriegen"*. Even more importantly, as neither science, nor the regulatory agencies and also industry itself were not observed as credible in the public's eye (*„traditionell hat die Industrie ja oft nicht so'n gutes Image"*), this challenge ought to be fulfilled in a *„konzertierten Aktion, (...) gemeinsam"*, thus in cooperation.

But as organizations cannot simply stop their ongoing proceedings, food processing industry on the other side reached out for mechanisms that would enable them to do both: assuring their consumers the safety of their products

and consequently uphold their economic transaction, which is selling. Since the food processing industry had found itself as the main target of pressure groups they thus aimed at the avoidance of GM ingredients: *"jeder Hersteller ist weitgehend bemüht zu vermeiden, solche Produkte in Verkehr zu bringen, die er deklarieren muß, weil dann aus der Kennzeichnung etwas hervorgeht und dann kommt Greenpeace oder entsprechende Institutionen und üben Druck auf den Hersteller beziehungsweise auf den Handel, der solche Produkte führt, aus, damit er das unterläßt und das sind eben genau die Konsequenzen, die von vielen Unternehmen als gefährlich angesehen werden, weswegen sie weitgehend vermeiden, diese Produkte einzusetzen."* Consequently food processing industry made use of the labeling provisions contained in the NFR. Those had originally been welcomed as a means for supporting competition *„(w)as die Kennzeichnung angeht, das ist ja durchaus auch im Sinne eines fairen Wettbewerbs, wenn es Regeln gibt die durchaus auch gewisse Spielräume lassen, aber die einen Rechtsraum regeln, die da Vorgaben geben, kann das ja durchaus auch zur Fairness beitragen, daß also nicht jeder machen kann, was er will."* Under the conditions they came to face in their environment, that is that GM Food is unwanted, food processing industry had perceived these mandatory labeling provisions as a means for assuring their consumers that their products are *GM Free*. In order to avoid a positive label, and thus guarantee the absence of GM ingredients in their products not only to their consumers but also to avoid mislabeling for which they could be held liable, these organizations saw themselves in a position where they themselves had to install a system that would provide them sufficient unaltered ingredients to uphold the production.

Consequently, the food processing industry established a system of certifications beyond the applicable rule NFR: *„man hat ja jetzt die beiden Alternativen geschaffen, entweder man hat praktisch eine mit entsprechenden Papieren versehene Garantieerklärung der Vorlieferanten, daß die Produkte keine GMO enthalten (...). Wenn Sie aber ein solches Zertifikat nicht bekommen, weil kein Lieferant bereit ist, es Ihnen zu geben, dann müssen Sie selbst, wenn Spuren vorhanden sind, das deklarieren."* In order to adhere to their paramount goals, food processing industry finally came to the conclusion that only by contracting a guarantee could be provided that their products do not contain gm ingredients. And since this condition was laid down by a contract, it also became normatively secured whereby the organizations also discharged the risk of being held liable for unintended 'contaminations'.

United States

Different from their German counterpart, the food processing industry in the United States had perceived GM Food as a *"non-issue for the public"*. Moreover, even though also dissenting voices were observed in the network, those were not considered as a threat: *"I would say that a number of activist groups*

are trying to make this an issue in the United States without much success". In fact, these dissenting voices were perceived as a *"minority point of view in this country"*.

In so perceiving a rather indifferent environment these organizations came to conclude that their original understanding of GM Food as based upon sound science and thus as not differing from traditional food, was in accordance with the dominant interpretation throughout the American network, that they observed as characterized by trust in science: *"the American people in general are very comfortable with science and very favorably inclined towards science and technology"*. Consequently, they also observed the regulatory agencies as credible in the public's eye in that there is *"a great deal of trust and faith in the regulatory agencies in this country, in the FDA, in the USDA, to protect the public health"*.

Against the background of a credible agency and a policy that is based upon trusted science, these organizations have not only observed their understanding of GM Food as based upon a broad societal consensus but also their subsequent way of dealing with the issue since they *"feel that having a science-based regulatory system is very rigorous and that there is a huge amount of testing done, there is a huge amount of data that's looked at."* The food industry thus had regarded scientific knowledge as sufficient *and* exclusive basis in legal decision making: *"when you hear the National Academies of Sciences all over the world, saying that they're finding that these products are not a threat to health or human safety, that means something you know, you know if we're not going to believe this National Academies of Sciences all over the world then whom are we to believe."*

In so observing their own conception of GM Food in perfect accordance with established science and in fully compliance with a science based regulatory process these organizations felt that they were walking on solid legal ground as the legal statutes referred to that same science base. Consequently, these organizations *"don't see ourselves in the midst of a controversy"*. Since the regulatory process was perceived as based upon scientific criteria, food processing industry had felt *"very positive about the regulatory system in this country and I don't think that it's just a policy statement, I think it's highly regulated and companies have to go through a great deal of rigor in order to get their products approved."*

But even though food processing industry in the United States has not found itself in a controversy, they *"know there's some controversy"*, which they observed as caused by misconceptions in the public since *"the thing that's not well understood by the public is the number of field tests and trials and all kinds of things go on for years and years before these products are approved"*.

Even though these organizations had described themselves as being in a business that must be understood as highly sensitive, even these rather weak signs of public unease had resonated within the food processing industry. In order to maintain the trust they need to sell their products they had perceived it as their duty *"to help to educate the general public about this issue and get information out because there are questions and often times that people have their questions answered they may feel very comfortable. But if their questions are never answered than it becomes more and more mysterious"*. In so doing, they had followed their self-description that *"we're in the business of serving the consumer, if the consumers don't buy, we're out of business"*. However, educating the public only has been one of their strategies in replying to public expectations.

Most notably, *"food industry has been very closely with the regulatory agencies to move forward and to improve the situation"* in that they went to the regulatory agencies and asked for changes[14] in the regulatory process: *"the food industry itself has urged the FDA to require mandatory consultation."* In so doing, the food industry had aimed to infiltrate the legal norms with their 'hands-on' knowledge that has been generated throughout their maneuvers in the network. In addition, they *"want to see specific criteria for* [voluntary, AE] *GM-free labeling so the consumers are not mislead and industry knows what to do to respond"*. As neither positive nor negative labeling of GM Food is mandatory in the United States so far, any labeling that refers to genetic engineering is an exception (or rather a supplement to) from the rule, that therefore has to be specified. Even so, food processing industry did not see the need to urge for mandatory labeling as mandatory labeling had been observed as a probable threat to the organizations' paramount goal. Since labeling in the United States is only required if the product on the background of scientific criteria has proven to be significantly different and in that bearing a potential threat to human health (e.g. by containing substances that are well known for having an allergenic effect), mandatory labeling was rather perceived as potentially 'startling' the consumers from their everyday habits: *"The one reason that we are so opposed to mandatory labeling is that when consumers see new labels on products that they used to buy everyday, I mean everyday grocery items, that is not a positive message to them"*. More importantly, in so doing, the dominant interpretation of GM Food as not differing from traditional food and thus as safe could become challenged. Therefore mandatory labeling from the perspective of the food industry would not only be a threat to their proceedings but was also observed as unnecessary as they conceived the current situation as

[14] These changes refer to the above outlined changes whereby the consultation process has been made mandatory and more precise rules for voluntary labeling were issued (see 3.2).

well regulated: *"I don't think that we need any legislation in this area at present, I think the regulatory agencies are doing their job, they have been empowered to do and they have the jurisdiction to do."*

Interim Result

Both, the American and the German food industry have made sense of GM Food based on scientific knowledge. In doing so, genetic engineering evolved not only as a refined but also rather as a more efficient traditional breeding method. Consequently, genetic engineering was understood as a technology that bears the potential for faster production of a greater amount of goods for less costs – and thus appeared as perfectly fitting with these organizations' paramount goal: reproducing themselves by selling goods. Most notably, as these products were understood as based upon a reliable knowledge base, their introduction into the respective market was considered a normative problem – if a 'problem' at all. Therefore, the food industry in Germany and in the United States have shared a common interpretation of GM Food as beneficial and wanted that has become the premise for their subsequent maneuvers in their respective networks.

However, these respective networks have been perceived as most varying by the organizations in both these countries. In Germany, the food processing industry was faced with opposition to its original understanding and rather perceived GM Food as characterized by an insufficient knowledge base. Therefore, not only GM Food itself had evolved as potentially harmful for human health but also the legal rule in exclusively referring to scientific knowledge has proven unable to properly cope with the complexity of the problem, that is to adequately reply to public demands for a socially acceptable way of dealing with the issue. Consequently, even if the organizations have observed their own understanding of GM Food in accordance with the legal rule, they had to conclude that this understanding, exclusively based on scientific knowledge, could not be established as normatively secured. As a result, food processing industry came to question at least their decisions regarding GM Food, and thus adapted to what they had perceived as public demands.

In the United States instead, food processing industry has not observed itself as faced with noteworthy opposition to its original understanding of GM Food. In fact, these organizations have perceived their interpretation in accordance with the legal interpretation and, most notably, this interpretation of GM Food as not differing from traditional food has been observed as accepted in the public's eye. This 'felicitous' institutionalization of the expectation that GM Food is safe was observed as the outcome of a science based regulatory process on the one side and the existence of trust into science among the greater parts of the public on the other side. Therefore, scientific knowledge

was regarded as sufficient basis for legal decision-making. Because of that, these organizations felt that their interpretation was backed by powerful legal statutes and thus normatively secured while alternative interpretations rather had to be abolished as wrong or untruthful. In that, food processing industry in its self-description has taken in a powerful position that also 'prevented' these organizations from questioning their decision premises.

Consequently, these differences in the organizational responses to their various legal environments became most evident in the way the organizations' went about the labeling of GM Food. Given that in the United States exclusively scientific criteria not only serve as sufficient but also as the only valid basis for legal decision making and the legal rule only allows for a positive label if GM Food has proven to be substantially different than its traditional counterpart, mandatory labeling of GM Food rather became observed as unlawful. Thus, in order to maintain the 'calm' status quo, food processing industry in the United States strongly rejected mandatory labeling as not necessary. Throughout their perception of their environment, the decision for a positive mandatory labeling of GM Food has turned out as an economically unwise decision in that it could have caused uncertainty about the safety of GM Food even more. In Germany instead, food processing industry had to conclude that scientific knowledge no longer accounts as sufficient basis for legitimate decisions, that is for decisions that will be accepted in the future. Thus, even though mandatory labeling in their opinion does not refer to a difference of GM Food in a strong scientific sense, it rather refers to their perception that GM Food are understood as differing from traditional food throughout the food processing industry's relevant environment. Consequently, they came to support mandatory labeling as a means to assure their product's safety by avoiding GM ingredients by establishing as systems of certifications that would be seen as guarantee for GM-free ingredients. Finally, throughout this disparate strategies the food processing industry in Germany and in the United States have employed, the notion of what has been considered as an *economically rationale* decision-making became defined differently.

4.2.3 Industry Associations[15]

As those associations refer to politics as well as to the economy it can be expected that they will to a certain extent share the (normative) persuasions (expectations) of their members that are based upon an economic rationale but, at the same time, also refer to politics since the quest for political influence is inherent to any kind of associations.

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[15] The term *associations* has been chosen as it seems to have a less normative connotation than often used terms such as 'pressure groups' or 'interest groups', to name but a few (Brodocz 1996).

Germany

As representing the potential beneficiaries of GM Products, industry associations in Germany have aligned their understanding of these products with one established scientific opinion that genetic engineering as scientific method cannot be regarded as differing from traditional methods: *„ich denk mir, man muß immer weiter forschen, denn man weiß als Wissenschaftler natürlich nie alles, aber das ist bei Gentechnik nicht anders als bei anderen Sachen auch“*. In fact, products derived by genetic engineering rather were conceived as probably safer than conventional products in that they have undergone thorough safety assessments: *„Sie können sicherlich bestimmte gentechnisch veränderte Produkte, wo Sie auch mehr so 'ne Historie in der Sicherheitsbewertung jetzt schon haben, vielleicht einfacher bewerten, als wenn Sie so'ne Nuß haben, die jetzt bewertet werden muß.“*

In so making use of scientific knowledge for their purpose to support these products, their benefits also were regarded not only as weighing out potential but unknown hazards but rather as justifying the application of these products: *“...in vorgelagerten Bereichen, ich find das ist ein absolut legitimer Nutzen, (...) natürlich ist es auch legitim, wenn beispielsweise die landwirtschaftliche Seite oder der Enzymproduzent 'n Vorteil mit dem Einsatz gentechnischer Verfahren verbinden können”*.

GM Food had thus been understood as a product that did not pose more open questions than any traditional food. In so doing, the benefits the technology bears in agriculture had been regarded as justified even though at that point in time the products did not provide tangible benefits for food processing industry: *„der Nutzen dieser Produkte ist im Moment in den Bereichen, die jetzt der Lebensmittelindustrie und dem Lebensmittelhandel selbst eigentlich nichts bringen.“* But even so, potential benefits in form of more nutritious basic commodities such as rice for consumers and thus for food processing industry were conceived as potentially provided by the current first wave products: *„wenn sie so etwas haben, was sie dem Verbraucher dann anbieten können, dann wird wahrscheinlich das Interesse der Industrie wachsen oder auch wenn sie Produkte haben, die bestimmte Verfahren im industriellen Fertigungsprozeß erleichtern oder optimieren.”*

In sum, GM Products were regarded as bearing potentials for agribusiness as well as for food processing industry and thus were supported in principle by these associations. Since these products also had been conceived of as based on reliable scientific knowledge, their introduction into the market was rather seen as a normative than a cognitive problem in the first place.

United States

Industry associations also in the United States had regarded GM Food as rather bearing positive potential than posing a risk to human health in that they *"believe there are great benefits in biotech foods and we believe that the promise of biotechnology needs to be allowed to play out"*. These potential benefits for consumers were understood as insinuated by already 'existing' benefits in that *"as a matter of fact, the environment has been improved by this because the farmers have less run off by using less water, they're using fewer pesticides"*. In citing these science based assessment, the American associations had used scientific knowledge in order to categorize GM Food not only as another new product but rather as potentially enhanced products that therefore were expected to bear a competitive advantage. Thus, since *"science if you really look at it, is on the side of pro-biotech folks"* these associations understood GM Food as products that sell, as they also had to take consumer demands into account: *"We can't give consumers what they don't want, our brands are too important to us."* Moreover, given that these products had appeared as advantageous in the food market, *"the food industry would argue you let the market decide."*

As a result, industry associations in the United States had conceived of GM Food as products that seemed to fit their member's underlying economic rationale. By doing so, the introduction of GM Food had rather evolved as a normative problem since no noteworthy knowledge lacks were observed that could function as an entrance for risk and hazards. In addition, these organizations had also regarded the existing rules of the market as a reliable and sufficient basis for their members' guidance in the network.

Therefore, at this stage, the introduction of GM Food into the market was considered a normative problem that has or can be solved by the application of power. Given this background, in the following it will be outlined to what extent this interpretation was upheld by the given organizations, or at least modified due to perceived environmental constraints.

Germany

In being confronted with its environment, industry organizations in Germany came to conclude that *„(w)ir hatten sicherlich vor zwei bis drei Jahren eine positivere Einstellung auch von Seiten der Industrie, der Landwirtschaft und des Handels. Das hat sich im Laufe der letzten Monate etwas gewandelt."* The cause for this 'climate change' in these organizations' perspective was an increased public pressure *„weil der Druck bestimmter pressure groups oder sogenannter Umweltorganisationen wie Greenpeace auf einzelne Unternehmen sehr stark geworden ist"*. And since industry associations from the outset had conceived of GM Food as based upon reliable scientific knowledge, the observed controversy was rather understood as political (normative): *„Das ist*

hauptsächlich ein politischer Konflikt, also ich sehe wenig wissenschaftliche Fakten hinter dem Konflikt".

The fact that these organizations have perceived public pressure groups as vocal and influential in the debate can only be fully understood, if industry associations' perception of German administration and their role in the network is taken into account. Neither administration (*„(d)er Deutsche hat ein grundlegendes Mißtrauen gegenüber Behörden"*) nor industry were observed as being credible in the public's eye: *„es gibt ja so schöne Meinungsbefragungen, wem man traut und wem man nicht traut und da steht eigentlich zwischen den Zulassungsbehörden, den deutschen und der Industrie ist da gar nicht mehr so viel Platz, also wir stehen eigentlich beide relativ hinten"*. Therefore, the science based regulatory agencies were observed as incapable of dispelling doubts about the safety of GM Food: *„wenn jemand sagt, das ist sicher, dann kann das auch das BgVV sein oder so, dann glaubt er* [the citizen, AE] *das erstmal nicht"*. In that, these organizations observed that their original understanding of GM Food as safe could not be established as a normative expectation throughout the network, although they observed this interpretation as accordant with the 'official' opinion. Nevertheless, due to the perceived weakness of this official opinion, other alternative interpretations of GM Food as uncertain and therefore posing potential hazards to human health could establish themselves in the network as equally legitimate interpretation. Consequently, these associations' members were driven into a quandary by the advocates of this 'deviant' interpretation: *„die Schwierigkeit ist nur, daß derjenige, der jetzt diese Produkte einsetzt und letztendlich dann im Supermarkt anbietet, keinen Nutzen, sondern nur Probleme hat, indem er sich gegenüber Greenpeace rechtfertigen muß, indem er die Verbraucheranfragen oder die Medienanfragen erhält und indem er eine Kennzeichnung aufbringen muß. Und das ist das Dilemma, vor dem wir stehen".*

In this situation, also the introduction of the NFR had not been perceived as helpful for the organizations' way of dealing with the apparently contested issue GM Food throughout the network. In fact, *„je länger wir mit der Novel Food-Verordnung leben, desto mehr sehen wir die Schwierigkeiten, die jetzt auch hier in der Anwendung sind"*. Thus, the rule did not provide tangible guidance for organizational behavior but rather had proven to be nonpractical in its actual implementation: *"was sich vielleicht auf dem Papier ganz nett anhört, aber wenn man das dann in die Praxis umsetzen will, tauchen sehr sehr viele Fragestellungen auf und diese Fragestellungen müssen einfach gelöst werden, um ein reibungsloseres Funktionieren überhaupt möglich zu machen".* As a result, these associations' members found themselves in a situation wherein neither the legislators nor the administration were able to build or restore public's believe in the safety of GM Food nor had industry itself been equipped

with a regulation that would have enabled them to develop unambiguous practices in the way of dealing with these products. In so observing their original understanding of the issue as normatively unsupported, they rather adapted their behavior to what they had perceived as dominant environment and at least tried to retreat from GM Products. This decision in retrospect was observed as a failure by the industry associations: *„denn so durch ihr Verhalten, durch den Rückzug oder den scheinbaren Rückzug aus der Gentechnik muß man sagen, ist auch den Verbrauchern, der Öffentlichkeit suggeriert worden: ah ja, da ist ja irgendwas Schädliches dran und warum sollte ich als Kunde mich dafür einsetzen, wenn schon mein Produzent, der die Lebensmittel produziert, das Zeug nicht haben will.“* Instead, industry associations would have voted for a more aggressive way of dealing with the issue that in their perspective could have assured the consumers of their products' safety: *„wenn sich die Lebensmittelindustrie und der Lebensmittelhandel hinter die Produkte gestellt hätten (...), dann hätten auch die Verbraucher hier nicht so negativ reagiert, wie das immer befürchtet worden war.“* But this has not happened as the food processing industry had perceived itself neither as walking on solid legal ground nor as observing a majority for their original interpretation of GM Food but rather as the main target of pressure groups in the network: *„XY, die da sehr geschickt steuern und sich da die Lebensmittelindustrie und Handel als Zielobjekt ausgesucht haben.“*

As a result, not only the food processing industry but also the industry associations came to question their original position in observing their members' strategies in the network, that is the emergence of 'alternative', GM-free markets: *„Und andererseits vertreten wir natürlich (...) die Position der Lebensmittelwirtschaft zur Gentechnik nach außen und wir äußern uns nach wie vor positiv, wenn wir auch natürlich darauf hinweisen, daß wir im Moment eine veränderte Marktsituation haben, daß sehr viele Unternehmen versuchen, gentechnikfreie Rohware zu verwenden und daß sich dafür auch Märkte im Moment schaffen, also Märkte entstehen“.*

United States

The industry associations' perceptions in the *United States* differed in contrast to their German counterpart in that *“(t)hey're* [people, AE] *worried about schools, they're worried about taxes but they're not worried about biotech.”* Most notably, even food was not perceived as important to the American consumer, instead *“food is something you eat for fuel”*. Although critical voices against GM Food had been perceived in the American network, those were not regarded as having an impact on the public's opinion since these voices rather had a bad public reputation, for instance *“Greenpeace is not credible in the United States, so their efforts to create concern about the issue have failed, just the opposite has happened”*. In addition, this holds value not only for Green-

peace but rather for all NGOs: "*NGOs? – In the United States they're marginal*".

The fact that industry associations came to observe pressure groups as marginal in the GM Food network, has to be understood as constitutively interrelated with the associations' observation that *"the government has said: biotech foods are safe, biotech foods are no different from traditional foods, if there was danger we would label it but in the absence of a danger there's no need to label it and there's no need to ban it. People have accepted that"*. Consequently, these organizations had not only observed themselves in perfect unanimity with the 'official' opinion (or, more precisely, with the *letters* of the law) but more importantly they had found this opinion to be normatively supported, thus as accepted by its addressees. The cause for this 'success' was traced back to the public standing of the respective regulatory agency in the network FDA: *"probably the most important single reason in the world is that there is trust and confidence in the Food and Drug Administration"*. In perceiving themselves backed by legal statutes and 'side by side' with a credible agency, these organizations had perceived themselves as part of a powerful alliance. Moreover, it was this perception that gave them ample room for replying to critical voices.

As their members not only depend upon monetary resources but also upon trust in their brands and thus public credibility (that is, *legitimacy*), industry associations observed themselves in a superior but not invulnerable position. Therefore, they came to decide that they would have to respond to public demands for more transparency and information in order to stay trustworthy in their consumers' perceptions. But due to its self-description as having 'friends in high places' they had perceived themselves as legitimized to at least dictate the rules for confrontation with critical voices: *"Our issue in the food industry is how we gonna resolve that? We wanna have a reasonable debate in this country, we wanna have a reasonable discussion about biotech, we wanna hear all the issues, we wanna have platforms where we discuss them. We don't want street theatre, we don't want the decision being made by mobs in the streets."* Having the decision being made by the 'mobs in the street' would be synonymous with an irrational decision in that such a decision would not be based upon scientific criteria but rather made by *"mobs who know nothing about science dictating how we move forward"*. In contrast, industry associations had observed their own decisions (and those of their members) as based upon reliable scientific criteria: *"what's on the side of the other side that opposes biotech is uncertainty and the unknown but we do risk-benefit analysis with science."*

Thus, instead of yielding to opposition these organizations rather had felt that they should undertake confidence-building, or, more precisely, actions that

would maintain the perceived business and science confidence in order to dispel any doubts about their products' safety and allow the market rules to be played out. Therefore, *"food industry asked FDA to create the* [new, AE] *guidelines, so that when we label 'non-biotech' or 'biotech-free' we know what percentage that is otherwise one company might say 'we're non-biotech' and they have 1% biotech and an other company might say 'well I got 2% biotech, but that's biotech-free' and they put that on the label. We want a standard-guideline so consumers know what it is when the labels goes on."* In doing so, not only transparency would be achieved but rather the market rule of equal opportunities for each market participants became (re-)secured. Something similar had been the case with the voluntary consultation process that has become mandatory: *"because of the sensitivity of biotech they* [agribusiness, AE] *do it anyway, it's de facto, they check, it might as well be mandatory. But we feel, the food industry that we should make that mandatory so consumers know that under law they do have to check first before bringing it to market. So it goes to the transparency issue."* In sum, by urging FDA for new guidelines, industry associations had followed a double strategy in that the rules necessary for their members' paramount goals were re-adjusted to a slightly changing environment while at the same time these new guidelines also supported the consumers trust into the regulatory process by making this process more transparent.

Consequently, like their members, industry associations had rejected mandatory positive labeling since in their view this would have been perceived as an exception from the rule that therefore could have startled consumers – as the associations had observed in other contexts: *"we are for the kind of responsible voluntary labeling we have now. And let me tell you why: in this country as in most countries when the government mandates a label consumers interpret from that 'there's something wrong with the food otherwise why would the government put a label on it?'"* In fact, industry associations had observed existing regulations not only as sufficient but rather as successful in securing the expectation of food safety: *"the reason government's there is to safeguard consumers, to make sure that we have standard laws to protect everyone and that's why you have food safety."*

Interim Result

As could be shown, American as well as German industry associations in the beginning had conceived of GM Food as products that, based on a sufficient, scientific knowledge base, would bear competitive advantages for their members, the food processing industry. This assessment had been achieved by the mobilization of established scientific knowledge for their means, that is, finally to sell these products. Consequently, they had based their subsequent decisions upon the premise that as GM Food does not differ from conventional products,

the established rules of the market, which are secured by a broader legal framework, would account as sufficient to guide the organizations in their way of dealing with these products.

However, in the light of the perceptions of their respective environments, industry associations in Germany and in the United States had adopted different strategies. While the *American* associations was faced with an environment that not only has confirmed their premises but rather has let them perceive themselves as part of a powerful alliance with regulatory agencies that were observed as trustworthy by the public, these organizations were not forced to revise their premises or at least their members' behavior. In fact, even though they had observed alternative interpretations of GM Food and some public unease, they decided to take action that would enable their members' to uphold their usual business and, on the other side, account as a gesture of goodwill towards the perceived demands for more transparency. Therefore, these associations had urged the responsible agency to adjust the current regulations to these demands by singling out the consultation process as mandatory and laying down precise guidance for the voluntary labeling of products as GM-free. But both these changes had not really affected their members' habits as the consultation procedure throughout its long-term implementation nearly had become mandatory and, even more importantly for food processing industry, since these organizations concluded that each labeling connected with GM would be perceived as a warning, even a GM-free label would be an exception from the rule so that organizations who want voluntarily label as GM-free would have undergone a more costly procedure than rather stuck to the established rules.

In *Germany* instead, industry organizations came to face an environment wherein neither the science based regulatory agencies nor industry itself was observed as credible in the public eye. Therefore, their own premise that GM Food is safe was observed as not normatively secured throughout the network but rather as challenged by competing interpretations as characterized by an insufficient knowledge base that probably hides risks for human health. Industry associations thus have observed their members as put under pressure by critical groups since they could not rely on legal statutes as those have not been accepted as assuring food safety. In finding themselves in an unsupported and normatively uncertain situation, they retreated from GM products thus adapting their decisions to what they had perceived as public demands. Since the reference to law and scientific knowledge had been observed as useless in their efforts to achieve acceptance for GM Products, industry associations rather had observed the emergence of private governance regimes that would ensure food industry GM-free ingredients.

These disparate maneuvers in the respective networks have again become most apparent in these organizations' approach to labeling. Industry organizations in Germany came to conclude that mandatory labeling would be necessary in order to respond adequately to public demands. As in Germany alternative markets had evolved, positive mandatory labeling was observed as an instrument to restore public confidence in food safety by on the one side guarantee GM-free ingredients through contracting and, on the other side, refer to the legal obligation that GM Food would have to be labeled as such. To be supportive of mandatory labeling had evolved as an economically wise decision in that only by clear cut rules food processing industry's goal in the network would not be endangered. In addition, mandatory labeling thus became enacted as a trigger for the avoidance of GM products in the German food supply. Instead, industry associations in the United States had rejected positive mandatory labeling as such labels would not be scientifically legitimated and thus be based upon knowledge that had not been considered as reasonable for decision making. Further, as scientific knowledge and criteria had been observed as sufficient and trustworthy basis, a labeling that thus would not refer to science exclusively would break the dominant rules in the network. In that, so the industry associations' reasoning, it could be perceived as a warning signal by consumers and subsequently sow distrust in these widely accepted products so far. Finally, the notion of decisions that are based upon an economic rationale in theory, became differently filled with meaning throughout these organization's perceptions of and maneuvers in their respective environments.

4.3 Preliminary Conclusion

While the previous chapter was dedicated to the legal frameworks that aim to assure a safe food supply to consumers in Germany and in the United States, in the present chapter it has been outlined what became of their 'original' normative meaning. As these norms not only have put their addressees into action but rather have been put into action themselves, the 'regulation' of GM Food in both these networks was fulfilled quite differently. Part of this difference can be explained by the legal norms in that they rested upon differing understandings of what the nature of the issue is about and how it should be dealt with adequately. By doing so, they also mobilized different means to the end of stabilizing and securing the normative expectation that GM Food is safe. In that, they had prepared part of what was going to happen when they finally entered their respective network. However, another, equally important part of the explanation is to be found within the networks themselves. Here, in Germany as well as in the United States crop developers, food processing industry and their respective associations have been the rule's original addressees, but also far more 'addressees' felt affected by the issue GM Food and thus took part in the

regulatory process in shape of the organizations' environment. In doing so, the most of all *economic* organizations were confronted with disparate environments, which to varying degrees were consequently perceived as more or less constraining these organizations' maneuvers in their network. Consequently, the organizations 'responded' differently to their respective legal environments. Moreover, throughout these responses not only the notion of economic decision-making but also the meaning of the legal rules themselves became filled with meaning. In that, finally also the 'nature' of GM Food became more or less ultimately defined.

The most striking differences in that context could be observed in the perception that a science based regulation in the United States was considered as sufficient to deal with GM Food since by referring to scientific criteria, doubts regarding the safety of these products could be dispelled. In contrast, in Germany, the legal rule has been observed as inadequate to deal with the observed conflict since scientific knowledge no longer was observed as fully grasping the doubts public has about these products. Consequently, also science based regulatory agencies were observed as not credible since public rather demanded for an assessment of GM Food that is not solely based on scientific but rather soft criteria such as the *need* for these products. These perceptions have led to different coping strategies in the both networks and imprinted different meanings to the issue itself.

While the dominant interpretation of GM Food in the United States was that it is rather a 'normative' problem – if a 'problem' at all – in the German network the prevailing interpretation became that GM Food is a cognitive problem since it cannot sufficiently be assessed by scientific criteria. In fact, 'knowledge' has to be taken into account that stems from all affected spheres in order to achieve an appropriate way of dealing with these products. Therefore, the distinction invoked at the outset of the present study now reappears in that in the case of cognitive uncertainty (as observed in the German network) knowledge became acknowledged as the outstanding medium to solve this uncertainty in a more adequate way than power. Power in contrast, became invoked in the American network, since GM Food here has predominantly be characterized by a normative uncertainty – if there have been observed uncertainties at all (see more below chapter 5).

In addition, these findings can now be re-married with the abovementioned assessment of the disparate approaches to biotechnology in Germany and the United States, thus to the distinction between a product based approach (US) in contrast to a program based approach (Germany). This distinction can be integrated into the outlined distinction between a normative and a cognitive problem in that the definition of GM Food as a cognitive problem has led to a revaluation of so far neglected knowledge stocks (that is, societal knowledge)

in that those were found to provide more appropriate criteria for the ultimate design of coping strategies in that context. Thus, in whether intentionally or unintentionally not only triggering but also enabling a societal debate over the pros and cons of GM Food (thus, over the *societal program* for its handling), criteria evolved as relevant, that are not exclusively based on science but rather on everyday practices and experiences by those affected from these products. In contrast, in predominantly understanding GM Food as characterized by normative uncertainty as happened in the United States, first of all power in shape of legal rules that are backed by scientific knowledge became invoked, that merely focused on the products and no longer on the process by which they were derived nor on probably implicated societal impacts. Thereby, the 'naked' *product* was put in the fore in that approach.

While the present chapter was dedicated to the organizational responses to the legal regulation of GM Food in both Germany and in the United States, it will thus be the aim of the next chapter to point out to what extent these results may account as the empirical proof for the implicitly claimed superiority of the organizational-based approach developed in this study over nation-stated centered models of explanation for observable differences between the German and the American network 'GM Food'. Most notably, it will also be examined which regulatory structures have evolved within the both networks as an effect of the interplay among the respective legal norms and the subsequent organizational responses.

"Macht bedeutet den Luxus,
nicht lernen zu müssen, um ein Problem zu lösen,
weil das Problem normativ geregelt ist.
Wissen bedeutet den Luxus
etwas gelernt zu haben, was ein Problem löst,
für das keine normative Erwartungsbildung
zum Zuge gekommen ist."
(Helmut Willke, 2001)

5 Unpacking 'National Styles': Discussion

Against the background of the findings presented in the previous chapter, an often made assumption regarding the reasons for the observable differences between Germany and the United States in their societal way of dealing with GM Food can be rejected: that is the assumption that with regard to the definition of GM Food there will be less dissent in the United States than in Germany. This assumption can no longer be upheld as in both these networks disparate definitions of GM Food could be observed. The differences that occurred at the societal 'surface' could thus not be traced back to a fundamental different understanding of the issue itself, that would in the given case be a typical *American* or *German* understanding of GM Food.

At the outset of chapter 4 the claim was made that, under conditions of world society, organizations will constitute the network that base their decisions upon distinctions such as legal/illegal, true/untrue or payment/non-payment. Thus, in both these networks organizations were to be expected that could roughly be characterized as scientific, legal or economic organizations in the first place. In this generality, no difference between Germany and the United States could be claimed in a meaningful way as on either sides of the Atlantic those distinctions, or more precisely, *binary oppositions* count as the functional primacies of the respective subsystems law, science, and economy. For this reason, homogeneity has been expected as a GM Food network will be constituted by legal, political, scientific, and economic organizations regardless the national background. In addition, as demonstrated, this expectation was fulfilled in that the original addressees of the legal rules observed themselves as surrounded by regulatory agencies, social movement organizations and various kinds of associations that in their total have constituted the networks in the United States *as well as* in Germany. Given that organizations make sense of their environment partly based on these binary oppositions it could be observed

that the most of all *economic* organizations in Germany as well as in the United States had defined GM Food as a product that can be sold in order to make profit with it. In that, a *homogeneity* regarding the issue's definition could be observed among the legal rules' original addressees that criss-crosses territorial borders.

Nevertheless, as organizations are not only conceived of as normatively closed but also as cognitively open, it was expected that as soon as the organizations introduced their respective definitions of the issue into the network, they were likely to meet with opposition. As organizations that constitute part of their environments also had – accordingly to *their* normative orientation – defined GM Food and arranged their strategies in accordance with what from their point of view appeared as an appropriate, rational handling, this plurality of sensemaking processes apparently resulted in multiple, conflicting or at worst contradicting meanings of what GM Food is about. Therefore, instead of conceiving of GM Food as a seemingly *identical* issue it rather has to be described as a member of various organizational environments, which has been embedded in differing contexts and thus been ascribed differing meanings.

Since it is one expectation society charges the law with that it solves conflicts, which arise within and between the various social subsystems and which are triggered by different understandings of an appropriate way of dealing with a given issue also in the case of GM Food the law was invoked in order to ultimately decide which definition accounts as the valuable, legitimate definition throughout the network. As outlined in chapter 3, this task has been fulfilled differently in Germany and the United States. While the American legal framework has provided a definition of GM Food as not differing from conventional food the German (European) framework did not provide a clear cut definition but rather defined GM Food as 'novel' and in that as formerly unknown. By doing so, both these legal frameworks defined their regulatory trigger as a normative problem (US) or, in contrast, as a cognitive problem (Germany). Consequently, either power or knowledge was expected to accompany the mobilization process of the legal rule in the given interorganizational network. Moreover, given that these processes of mobilization by means of either power or knowledge have been carried out by the organizations that have emerged around the issue, their power or knowledge based strategies were likely to shape not only the legal rule and the issue itself, but also the overall appearance of the network. Thus, in confrontation with their legal environment and contingent on the *perceived* dominance of that environment, organizations were forced whether to adjust to that environment, which is to learn, or rather themselves forced other organizations to adjust to their very interpretation that is to cling to their own original premises. Consequently, one or the other tendency was expected to imprint the respective network with its seal. Finally, what

could be observed was that although the most of all economic organizations had defined the issue identically in both networks, contingent on the perceived 'environmental' impact, they had developed different coping strategies, thus reappearing as *national differences* at the surface of the network.

Therefore, instead of claiming a *German* or *American* understanding of GM Food, the observable differences between both these investigated interorganizational networks in the following will be discussed as an effect of the complex interplay among the organizations as the networks' constituents, their respective legal environments, and, finally, GM Food as the issue in question.

5.1 The German Case: 'Corporatism'?

The introduction of GM Food into the German market has been described as accompanied by resistance and protest. Although this opposition could not fully prevent the penetration of these products into the food supply, it has at least triggered a broad public discussion that neither industry nor politics could evade and which also demanded concessions in form of withdrawals of GM Foods. In contrast to what would have been an explanation in terms of 'national styles', these findings cannot adequately be described as the outcome of a typical 'German' corporatism.

In fact, the interorganizational network GM Food in Germany has not shown any signs of 'corporatism'. On the contrary, in the context of this issue groups have been perceived as having taken the lead that usually are not characterized as established associations, which have strong ties with the government and can thus rely or participate from governmental power. However, recalling the characterization outlined in chapter 1.2.1, this would be one outstanding feature of a presumed 'German' regulatory style.

Instead, the German network has been dominated by the influence of pressure groups, whereby Greenpeace has been observed as taken over an outstanding position as opinion leader. Also probably well established relations among industry and the regulatory agencies have in this given case not been observed as an advantage as both, industry and the agencies were perceived has having no credibility in the public's eye. Instead, public interest groups were observed as credible in the public debate. Consequently, a probably close cooperation of influential associations and state agencies in the given case has not been observed as helpful to overcome the perceived public unrest with GM Food.

As with the visibility of public interest groups, also the assessment has to be rejected that science in Germany is established in a hierarchical way. The perception of the respective organizations in the German network has instead been that science was characterized not only by plurality, but also by a decreas-

ing legitimacy. Organizations have rather observed that decisions, which were solely based upon established scientific knowledge would not be adequate answers to the public's demands and expectations. Thus, established science experts have in this case no longer been ascribed a monopoly role in the decision making process while critical science has rather been observed as offering more appropriate even though not unambiguous answers.

Thus, instead of clinging to the national styles approach, the overall appearance of the GM Food network in Germany can more adequately be described on the background of the theoretical assumptions outlined in chapter 2. In that perspective, the central claim was that the overall appearance of a network can be traced back to the legal regulation of the issue in question. With regard to GM Food, one can now say that the original addressees of the legal norms in the German network in their total have not perceived the existence of clear-cut normative expectations throughout their network. In that, they had been forced to expect cognitively, thus running the risk of being disappointed at any time. Consequently, they had two options: whether to adjust constantly their own expectations to ever-changing environmental circumstances or to establish reliable rules themselves. The first option clearly has to be discarded as organizations depend upon a minimum amount of planning reliability in order to uphold their operations in the short run and thus to achieve their goals in the long run. As a result, in the German network the emergence of rules could be observed that established a system of guidance and governance beyond the official law of the state that is a private governance regime.

The overall impression of a conflict-ridden situation thus has in the light of these findings be reconsidered as the effect of negotiation and trial-and-error processes among the constituents of the network and their legal environment(s), consequently not only of the respective laws but also of the *culture* surrounding them.

5.1.1 Activating instead of Settling: NFR as legal environment

The introduction of the NFR into its networks has to be described as a re-opening of the norm-setting process. Instead of marking the closure of a foregoing societal debate, the introduction of the regulatory framework re-opened this process not only among its original addressees but rather among *all* organizations that have evolved as constituents of the interorganizational network GM Food in Germany, thus producing further paradigms for arguments.

Here, at least two interrelated reasons for this re-opening could be identified, the first of which was that the rule could not be applied in practice as it was perceived as phrased in *too broad a language*. The rule has provided ample room for its very interpretation in introducing not only vague legal terms such as a "significant degree" [*nennenswerter Umfang*] in Article 1 NFR (e.g.

Berg 1995: 116) or "equivalent" [*gleichwertig*] in Article 8 NFR (e.g. Unland 2003) but also vague demands as to what data are needed for the application procedure. This is also remarkable as at first sight it seemed to be narrowly drawn and, in contrast to its American counterpart, providing a "more detailed regulatory scheme" (Echols 1998: 533). But as it became introduced into its field, the rule was perceived as weak in its wording and, irrespective the exact number of rules and directives that constitute the regulatory framework in its total, as not capable of preventing or settling the public unrest with GM Products by establishing one dominant and thus *legitimate* interpretation of what GM Food is about, consequently to secure the expectation that GM Food is *safe*.

However, this 'failure' has been observed merely as an effect of a second and more central problem of the NFR, which is the perception that it has been designed 'in theory' [*am grünen Tisch*]. As a result, the rule was observed as lacking a hands-on knowledge for its original addressees in a double sense. Firstly, with regard to the organizations' paramount goal of selling GM Food in the German market, the rule did not provide guidance in that it neither clearly allowed for the marketing of these products nor did it clearly forbid the marketing. Secondly, with regard to the organizations' perceptions of their societal environment, the rule also was perceived as inappropriate in referring to *scientific* knowledge as exclusive basis for decision-making. In fact, the organizations' perceptions had been that science alone did not provide adequate answers to their environment's expectations and demands. Solely following NFR's obligation has rather been perceived as illegitimate and consequently as unwanted.

Therefore, the rule has rather *activated* an in-context production of knowledge whereby disparate interpretations of the issue as unnecessary versus beneficiary, thus as safe versus dangerous, consequently as wanted versus unwanted not only were acknowledged but also were perceived as equally legitimate. Since the rule was not capable of singling out one of these interpretations as the only valid interpretation in the future, this ultimate decision process has been left to the various organizations partaking in the network.

Thus, in the aftermath of NFR's introduction a debate was triggered that can now be described as making up for missed opportunities in the past, to at least try to fathom what could be accepted as an appropriate way of dealing with GM Food.[1] In this debate, not only GM Food and the way of dealing with

[1] It seems that society has 'learned' as for instance the process of lawmaking for stem cell research has been accompanied by a broad (although mass media centered) debate wherein the various facets – possible benefits as well as disadvantages of the issue – have been thoroughly fathomed (see chapter 1, n. 6). To what degree this debate will prevent future

it became questioned but also the regulation and its ability to assure the safety of these products. The perception that the rule was not accepted by the potential buying public and its representatives even amplified its weakness as its original addressees (again) came to the conclusion that decisions based upon that rule would not be accepted or rather be perceived as illegitimate in the network. In view of an unsettled legal environment, the organizations thus observed themselves in an uncertain situation concerning the question of how to deal with the issue – thus, whether or not to introduce and whether or not to label – and if, in what manner. The legal environment, as it has been perceived by the addressees of the rule, has charged the organizations with an amount of uncertainty that has rather paralyzed instead of encourage them to introduce GM Food into the German food supply. Finally, while in its original normative meaning the rule aimed to provide guidance for the *introduction* of GM Food into the market, throughout the organizational coping strategies it rather became enacted as guidance for the *avoidance* of GM Food.

5.1.2 Organizational Maneuvers in the Dark: Decoupling and Avoidance

The developing, processing and retailing industry as original addressees of the outlined regulatory framework, have conceived of GM Food as a *normative* problem in the first place. This definition was the outcome of their sensemaking processes wherein they had categorized GM Food under the familiar category of (traditional) food. In so doing, the cognitive uncertainty of the issue has been made invisible by the invocation of an established scientific knowledge base. Still remaining open questions concerning GM Food then were considered as a negligible risk in contrast to the (economic) benefits, thus *chances* that have been ascribed to the issue. This is consistent as far as these organizations originally have described themselves as decision makers concerning the question whether or not these products will enter the market. Based upon the premise that GM Food bears more benefits than risks - for them - those organizations have decided to market these products like any other products.

Nevertheless, as outlined above, in confrontation with their legal environments, the organizations found themselves in the midst of a controversy they had not anticipated, thus not built into their premises. More importantly, they perceived themselves in an unregulated situation in that the applicable legal regulation NFR has not been capable of providing a reliable normative basis by distinguishing *one* interpretation as the valid one. Consequently, they faced a situation in which their interpretation of the issue was only one among other, alternative interpretations. As they did not observe themselves backed by legal statutes, the opposition against their interpretation of GM Food as safe

conflicts in that field cannot be assessed yet, but from that point in time it appears as one step into the 'right' direction (see more below, chapter 6).

and beneficial was observed as a threat to their paramount goals that is selling these products in order to refinance themselves. In so observing their means for survival endangered and at the same time unsupported by the law, they developed their own strategies in order to cope with their environment's demands.

Those coping strategies can now be described as contingent on the individual organizations' self-descriptions as to their 'distance' to GM Food. This description has determined the organizations' *flexibility* to their environment's demands in that agribusiness organizations have described the food market and thus the GM Food market as only *one* part of their circle of clientele (beside the market for agricultural products). Even so, under the effect of the attitude of the food processing organizations, they observed themselves as forced to take even food consumers as relevant clientele into account. Consequently they yielded to public demands in a way that they had observed not only as an appropriate answer to these demands but also as a possibility to uphold their identity as the producer of genetically modified crops, thus by *decoupling*. In contrast, food processing organizations have described private food consumers as their ultimate clientele, thus observing themselves as highly dependent upon the (GM) food market. In that, they perceived themselves as less flexible than agribusiness, and under the effect of the network's dominant interpretation of GM Food as unwanted and illegitimate they came to adhere to this interpretation by *avoiding* genetically modified products.

Decoupling

By establishing public relations departments that exclusively deal with green biotechnology, agribusiness observed themselves as answering to public demands, which in their perception has been more information and transparency. As GM Food has not been perceived as bearing an insufficient cognitive basis, the perceived resistance could only be observed in a meaningful way as the outcome of misinformation. Therefore, the problem appeared to be resolvable by 'better' ways to educate the public about the 'real' benefits and possible risks, which is by information meetings, for instance.

However, in so changing their policy of disclosure in order to meet public demands and finally gain acceptance for their products on the one side, agribusiness could also hold on to their original meaning of GM Products as bearing a competitive advantage. In that, they abided by their paramount and thus *long-term* goal to convert this advantage into monetary resources while at the same time adapting to the probably short-term demands of an ever-changing environment (e.g. Meyer & Rowan 1977).

Thus, by establishing a new department and in so changing their internal structure, the organizations decoupled their action segments (the production of gene constructs and genetically modified seed and crops) from their less active

parts (the talk about these products). Consequently, by decoupling the organizations achieved the ability to do contradictory things at the same time: loosely coupled talk and action (Brunsson 1989).

Avoidance

On the background of their perception of their respective legal environment, food processing organizations concluded that the introduction of GM Food is unwanted by their clientele, the food consumers. In addition, as these organizations understood themselves as depending upon the food market, they decided to avoid GM ingredients since they had to perceive the public unease as a threat to their paramount goal and thus their survival.

But as the legal regulation for GM Food has not provided clear guidance for the introduction as well as for the labeling of such products, food processing industry in order to ensure GM-free products chose to fall back upon established economic practices such as a system of certification and contract farming[2] [*Vertragsanbau*], thus on *contracting*.

By setting up a *system of certifications* food processing organizations aimed at establishing rules that would guarantee not only GM-free commodities but that would also be resistant to factual disappointment. In a system of certifications, each distributor has to proof by a certificate that his commodities have not been genetically engineered. The distributor can hence be held liable if this expectation becomes disappointed, thus if it turns out that his commodities have been intermingled with GM soy, for instance. The establishment of a system of certification was expected to produce document trails that in the end would account as a functional equivalent for the normative expectation that 'GM-free' does mean that products labeled as such do not contain *any* GM ingredients, an expectation that so far could not be established by the applicable legal regulation. In that, food processing organizations also discharged the risk of probably being held liable for wrong labeling.

Another way to ensure GM-free products has been *contract farming*. Contract farming aims at exacting a standard of quality, in the given case the absence of genetically engineered products. Usually, contract farming is applied in order to ensure a certain amount of goods that hold certain characteristics, such as the absence of herbicides, or, in the given case the absence of genetic engineering. By contract, the distributor thus obliges to cultivate a given amount of goods while the purchaser obliges to take delivery. Such a purchase

[2] In order to prevent misunderstandings it has to be mentioned that while the German term *Vertragsanbau* refers to a purchase commitment, the translated term *contract farming* seems to refer to *farm management systems* at least in British English.

commitment provides the necessary planning reliability that allows for longer horizons in economic planning.

Both these outlined coping strategies now can be described as contracting and thus as an economic transaction for the efficient allocation of resources such as GM free ingredients. However, contracting also *contrafactually* secures the expectation that these resources are delivered in that a breach or non-fulfillment of the contract is legally sanctioned. By establishing these contract systems, food processing organizations have generated rules that bind future and thus provide planning reliability. Consequently, by contracting these organizations developed a strategy whereby they could adequately answer to their environments' demands for GM Free products in avoiding[3] genetically modified ingredients. In making use of the normative power of the legal institution 'contract', they aimed to establish the expectation that their products are GM-free and thus *safe*. On the other side, in so doing, they also established a framework under which they could uphold their operations of producing saleable goods in order to reproduce themselves, thus to survive.

In more abstract, these coping strategies can now be described as the results of organizational *learning processes*. As could be shown, although these organizations clung to their original decision premise – that is, that GM Food is based upon a sufficient knowledge base and has thus to be considered as safe – they came to question the appropriateness of their subsequent decisions when they were faced with opposition in their respective environments. Since they observed their premise as not normatively secured, they were rather forced to expect cognitively. Consequently, even though they could not question their original premise[4] they questioned their behavior and corrected it in accordance with what they had *perceived* as appropriate instead, thus rebuilding their cognitive frame.

To conclude, one can now say that in being confronted with their environments the original addressees of the NFR came to question their original decision premises in that they observed dissenting interpretations of GM Food. These interpretations of the issue as ridden with cognitive uncertainty and thus as probably hazardous had to be taken into account as relevant as the organizations perceived their own interpretations as not being backed by the legal statutes. Thus, these organizations found themselves as left to their own devices and designed coping strategies beyond the legal framework in order to uphold their proceedings. Contingent on their self-descriptions as more or less depending upon the market for GM Food, they made use of strategies that would en-

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[3] For responses to food safety regulation in general see Henson & Heasman 1998.

[4] They *could* not because this would have threatened not only their paramount goal and thus their survival but, more importantly, it would have threatened the identity of these organizations as *economic* organizations in the first place.

able them to uphold their economic actions in order to reproduce (that is, *refinance*) themselves by selling goods (Luhmann 2000: 467) *while* at the same time yielding to their environment's demands since both these requirements in the given context have been perceived as constitutive for one another. Nevertheless, in view of the absence of clear legal guidance the organizations were forced to mobilize 'indigenous' knowledge, thus knowledge that most of all stems from their specialized realm economy. This knowledge about economic coherences, the perception of lacking legal support and resistance towards their products in their total have then led to above outlined strategies. Given these strategies, the network GM Food in Germany has now to be re-examined anew.

5.1.3 The Network Revisited: Regulation *beyond* the Shadow of Law

The observations outlined in the previous two sections demand for some corrections in common assessments of the German approach to GM Food in that the network no longer sufficiently can be described as ridden with conflict. What has appeared as a conflict at the network's surface is rather the outcome of the interplay among the NFR, its original addressees and their perception of their legal environment whereby the legal norm must be assigned an outstanding position.

Instead of preventing or settling the smoldering conflict over the introduction of GM Food into the German food supply, the NFR for reasons outlined above, was not perceived as providing guidance, neither in allowing nor in forbidding the introduction of such products. Thus, no unambiguous definition of the issue has been observed as normatively supported nor has the expectation been observed as established, that GM Food is safe to eat. In fact, the organizations came to perceive their own definitions of GM Food 'merely' as one definition among other, equally legitimate definitions. As a result, the debate over GM Food, its nature, its problems and how they should be solved properly was re-opened not only among the original addressees of the legal norm but rather among all organizations that have felt affected by GM Food. Those groups have taken part in the regulatory process since they suddenly were observed as relevant constituents of the respective organizational environments. In that *normatively unsettled* situation, the original addressees of the rule found themselves in a situation where they were forced to revise if not their original definition of the issue but their decisions that have followed from this definition. In being confronted with obviously equally legitimate but dissenting interpretations of GM Food and thus varying understandings of its appropriate handling, the organizations rebuilt their cognitive structure, thus *learned*. As an outcome of these learning processes, they also established *contracting* as (self-) regulating mode that enabled them to uphold their proceedings under the conditions of an uncertain environment.

Regulating by Contracting

As the organizations in the German network observed themselves as left to their own devices they established their own private governance regime beyond the official law by contracting. But while contracting has so far been discussed as a means that secures economic transactions and thus as an *economic* event, contracting also has to be understood as a *legal* event in that special conditions are singled out as normatively secured, thus as legal (vs. illegal). Although this time binding function of contracting is one characteristic, the most decisive feature lies within the fact that a contract acknowledges the autonomy of the contractors in that it not only establishes normatively secured conditions but rather in that it leaves the actual definition of these conditions to the parties involved (Luhmann 1987a: 75).

In so doing, knowledge stocks become activated that otherwise are easily overlooked. In the given case, this has been the organization's knowledge not only about economic coherences but, most notably, about the GM Food network in Germany in that the organizations have perceived the introduction of GM Food as unwanted. It is this 'knowledge' that is incorporated into the systems of contract farming and the systems of certification. And even more importantly, these economic events could also be observed as legal events in that the law was enabled to productively misread the event *contract growing* as marking the introduction of GM Food as *illegal* in this network.

Recent legal developments on the European level that have to be traced back to development in the various European member states, thus seem to pay witness for such a misreading (e.g. Fuchs & Herrmann 2001). For instance, the European Commission in 2001 launched a *Proposal for a Regulation of the European Parliament and of the Council on genetically modified food and feed* (EC 2001) that aims at a consistent and solid regulation of genetically modified crops all over Europe. This contains some qualitative changes that can now be read as a reply to the observations made in the present study in that not only the NFR and its subsequent regulations will be amended by this new regulatory framework[5] but also some major changes will be made. Even though this framework still seems to contain conceptual inconsistencies, with regard to the question of labeling it aims to set up a more consistent and transparent system in that not only a *process and production methods label (PPM Label)* will be imposed but also a traceability system will be established. In doing so, information provided on labels become controlled through a traceability system that helps to trace back potentially modified products throughout the distribution network to their origin. As a result, food processors will be enabled to clearly

[5] This holds true (beside others) for Regulation (EC) No 258/97, for Commission Regulation (EC) No 49/2000 and for the Commission Regulation (EC) No 50/2000.

distinguish between conventional and genetically modified crops and avoid the latter ones if they perceive this as expected by their relevant environment. This system thus seems to reflect the certification systems set up by the organizations in the German network. Consequently, the organization's knowledge about the German network in that became the law's knowledge about what accounts for as an appropriate way of dealing with GM Food throughout the network.

By setting up contract systems to keep their products GM-free, the organizations have established a private governance system beyond the official norm that has made use of so far neglected knowledge stocks. In so doing, 'thicker' knowledge was mobilized that did not exclusively focus on scientific 'facts' but rather on context-sensitive knowledge. By contracting this knowledge was translated into the norm producing logic of the law, that, as demonstrated re-appeared as the law's tacit knowledge in shape of legal norms.

Contracting in that has led to the production of legal rules out of the societal conflict over GM Food. Those rules finally bear the potential to reply at least more appropriately to this conflict, even though perfect adequacy can, due to the sensemaking and enactment processes outlined in the present study, not be reached. In its total, contracting can now be described not only as a means to ensure economic transactions but rather as *the* decisive mode of regulation in the German network.

Conclusion: Expenses and Opportunities of Loose Ties

The outcome of the above outlined regulatory processes has become most evident at the point of sale as the German food supply at present has to be considered as GM-free. Moreover, this outcome is as ambiguous as the issue GM Food itself since it has to be considered as achieved at expenses while at the same time new opportunities were opened up – contingent on the respective perspective.

Given that the original aim of agribusiness and food processors in the network has been to make profits with GM Food and presumably have invested resources into the development and the processing of these products, they would have to conclude that the regulation of GM Food has been costly, in terms of money and time and in the end not 'successful'. In being confronted with their environments, they came to revise their original decisions and had rather to install mechanisms to avoid GM products. In that, economic organizations found themselves in an inferior position in the network whereby the observation is confirmed that the economic system does not take a central role in modern society. Even though it is the only system that can provide money and ensure the willingness to adopt money, its organizations not only depend upon money but also upon legitimacy. Therefore, assigning them a 'natural' superior

role has rather to be rejected as an optical distortion (Luhmann 2000: 46). In fact, in the German GM Food network, their original interpretation of GM Food became overruled by the alternative interpretation of these products as unsafe and thus unwanted. In addition, if the intention of a legal rule is seen in its ability to guide social behavior and, in so doing, prevent or solve a conflict, also the introduction of the NFR into its field has in the light of the results presented, to be described as a 'failure'. For the reasons outlined in the present chapter, the rule was not capable of providing guidance, nor could it solve the conflict over GM Food. Instead, it triggered a new conflict-ridden debate over these products wherein not only these products but also itself was targeted.

However, the findings presented here have on the background of the outlined theoretical framework to be understood as less pessimistic. Even tough the NFR has proven incapable of dealing with the complexity of the introduction of GM Food adequately, it has triggered not only a new conflict but rather encouraged the establishment of a regulatory mode that probably is more capable of replying to the difficulties that have occurred in the network. In 'failing' to secure the expectation that GM Food is safe and by so doing, distinguishing this interpretation of the issue as the only valuable, it has at the same time opened up the opportunity for alternative voices to be heard. These divergent interpretations were regarded as equally legitimate as none of them had been singled out as valuable. Consequently, attention was called to the irreducible heterogeneity of the network. Those organizations that had perceived of GM Food as characterized by normative uncertainty that thus appeared to be resolvable by the employment of political and economic power, were forced to revise their premises, thus to learn.

In that normatively unsettled situation, power no longer appeared the adequate medium to pacify the open conflict over GM Food. Instead, the organizations fell back upon established economic knowledge, thus setting up a heterarchical contracting system wherein the social autonomy of those involved was acknowledged. Throughout the subsequent negotiation and trial-and-error processes a regulatory structure was achieved that is based upon 'thicker strategies' in that it takes into account the plurality of interpretations and practices that, as a result of these processes, appeared to be legitimate. Consequently, not only economic but also the economic organization's knowledge about the 'informal' rules of the network has been inscribed into these contracting systems, which was translated then into the norm producing logic of the law. Therefore, rules could be derived that seem to be more responsive to the network's demands since they have appeared to be closer to the 'reality' of the multiple perspectives, which exist throughout the network. And since rules have been based upon the assumption that GM Food is rather been characterized by cognitive uncertainty, knowledge that had been neglected so far,

came to evolve as a resource by which a more adequate handling seemed possible, thus as a medium of social guidance.

Finally, the GM Food network in Germany no longer can only be described as ridden with conflict but rather as a loosely coupled network wherein the variety of existing interpretations of the issue appeared to be equally legitimate. In sum, this untilled field has *in the end* led to cooperation among those who had observed themselves as affected by GM Food. Consequently, the 'regulation of GM Food' now must rather be understood as regulation *beyond* the shadow of law than a regulatory failure. And in this respect, society has filled the meaning of what accounts as legal resp. illegal action with regard to GM Food, in that confirming the statement that "it is society that controls law and not the reverse" (Cochrane 1971: 93-94).

5.2 The American Case: 'Exceptionalism'?

The interorganizational network in the United States has been described as comparatively 'calm' in the way of dealing with GM Food. Even though there have been protests in the process of the introduction of GM Food and occasionally thereafter, these protests have not proven to be as socially explosive as in Germany. Nevertheless, in the light of the findings presented so far, this national disparity no longer can be explained as the effect of a typical *American* regulatory style, i.e., an American 'exceptionalism'.

As with German corporatism, the talk about an 'American exceptionalism' in the realm of the regulation of risk technologies has lost its plausibility against the background of the presented results. If one wants to invoke these distinctions, one would now have to argue that the GM Food network in the United States is rather characterized by what has been called 'corporatism' than by signs of 'exceptionalism'.

Given that strong ties could be observed between influential associations and state agencies, the chances for pressure groups to influence the decision making process on GM Food have been dramatically diminished. Although there is broad legal access to the courts for pressure groups, as demonstrated by the existence of legal institutions such as public interest litigation and class action suits, these possibilities have not proven supportive for such groups – as has admittedly been the case in the context of the *Clean Air Act.* These legal institutions in this context have rather become edgeless instruments for two reasons. Firstly, suits against the state agencies such as FDA have been observed as a common event that is not perceived as a threat for the superior organizations' goals. Secondly, also administration has adapted to legalistic expectations of openness and transparency by rather burying critical groups in a flood of data than obscuring key information, those have difficulties to work

through due to their scarce resources not only in terms of money but also in terms of staff. Consequently, the institutions of *broad legal access* and the *freedom of information* in the context of GM Food have become impeded. In fact, they have become edgeless instruments as regulation has rather taken place in the shadow of the official law of the state.[6]

Something similar can also be stated for the claimed scientific plurality as a characteristic in an at least asserted American regulatory approach. Instead of scientific pluralism, the scientific realm has been perceived much more uniform than in the German network by assigning established science a monopoly role in the debate. That is not to say that critical expertise does not exist in the United States, but in the given case of GM Food this has not been perceived as relevant for decision-making.

Again the national styles approach does not seem to grasp these findings adequately. As with the German case, they seem rather the result of the interplay among the respective organizations and their perceptions of the legal environment, thus encompassing not only the respective law but rather the whole host of expectations, pressures and opportunities inscribed into it. In contrast to the German case, the original addressees have unanimously observed the existence not only of clear-cut rules for organizational guidance but also the existence of stabile normative expectations that have provided a convenient framework for economic action. As the organizations have perceived themselves in fully agreement with these contrafactually secured expectations, they were not forced to adapt to deviant interpretations or demands in their environments. In fact, they did not even perceive those alternative demands as relevant.

The overall impression of a rather settled and pacified network more adequately has to be described as the 'successful' establishment of one dominant interpretation throughout the network, which at the same time has led to the neglect of alternative interpretations.

5.2.1 Threatening and Responding: Plant Derived Foods Policy

Different from Germany, the *Plant Derived Foods Policy* as the applicable regulation for the introduction of GM into the American market has established reliable normative conditions for organizational decision making in that it contrafactually secured the expectation that GM Food is safe to eat. In contrast to the first impression, this is remarkable as far as the regulatory scheme appeared to be weak in its enforcing power as it is 'merely' a declaration of intent and thus does not provide legal sanctions in case of non-compliance. Consequently, a common impression is that "the U.S. regulatory approach permits a great deal

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[6] For a critical assessment of class action litigation see Parmer 2002.

of industry self-regulation" (Echols 1998: 533). However, although this impression holds true, based on the findings presented in the previous chapter, it has to be revised, or at least modified. In merely stressing the 'self-regulative' aspect of the regulatory approach to GM Food in the United States, one easily overlooks that this self-regulation is fulfilled under a 'benign big gun' (see chapter 1.1.2). In the given case of GM Food, these sanctions refer to the compliance not only with the aforementioned FDCA but also to strict product liability legislation and extensive consumer protection laws. And even though it has been questioned to what extent product liability legislation would act as a deterrent in the realm of biotechnology (e.g. Stovsky 1992) the amount of consumer related legal action as well as the already mentioned size of compensations can be regarded as in their total having created a climate wherein biotech-related companies are likely to avoid a breach of these rules. Therefore, the 'successful' application of the *Plant Derived Foods Policy* in the light of the outlined organizational responses and under the aforementioned premises can now be traced back to the following, interrelated factors.

The most central cause for the perception of a highly regulated network is to be found in the organizations' perceptions that the policy has rather been designed *in practice* than in theory. This has become most obvious as they have described themselves as regulators[7] in that they urged FDA to adjust existing guidelines to what they had perceived as necessary in order to uphold their routines while at the same complying with the broader legal framework. For instance, the additional and more precise guidelines for the voluntary labeling of GM Food as well as the change from a voluntary to a mandatory consultation process both were described as encouraged by the food processing industry. Consequently, these organizations came to recognize their own definitions – most evidently, the definition of GM Food as not differing from conventional – and practices as contrafactually secured not only by the *Plant Derived Foods Policy* and their amendments but also by the *benign big gun*. Unsurprisingly, the organizations have perceived the rules as precisely and narrowly drawn and thus as a guidance that seems to reply adequately to the organizations' circumstances in the network. In addition, the rules also were observed as being based

[7] These perceptions can also be supported by some background information over the development process of the policy since its 'original' stimulus was given by Calgene in the late 1980s. As mentioned, Calgene was the first company to produce a genetically modified consumer-ready food (the *Flavr Savr™ tomato*) and in order avoid the risk of being held liable for non-compliance with food safety and consumer protection legislation, Calgene formally asked the FDA for guidance of GM Food. Consequently, the *Plant Derived Foods Policy* was issued as a result of Calgene's initiative and is therefore likely to have introduced definitions and practices that have been coined by Calgene in original. But as the development of the policy falls beyond the period of time examined in the present study this is rather an assumption than the result of a thorough analysis.

upon scientific criteria, and thus upon the same criteria that they themselves have regarded not only as exclusively valid but also as sufficient to assess the safety of GM Products.

The *Plant Derived Foods Policy* and its amendments in sum have been perceived as highly corresponding to the organizations' original definitions and applied practices. Since it functions in the shadow of powerful, deterrence based laws, the policy was regarded as 'successful' in that it not only provides adequate guidance but also has had the *power* to assure the consumers of a safe food supply. In that, it had established the necessary conditions for the organizations' basic economic actions that rely on certainty and planning reliability. In more abstract, this outcome was achieved by a regulatory framework that was built upon two mechanisms. On the one side it threatened its addressees with severe (e.g. monetary) sanctions in the case of a breach of their basic duties, that is to secure the safety of their foods, while on the other side it provided a highly responsive structure for them to achieve the goal of food safety by instruments and mechanisms that rather seem to be 'borrowed' from them. As a service in return, the organizations were from dealing with conflicts since the administrative branch provided the infrastructure for the settlement of conflicts. This was demonstrated for instance by public meetings on GM Food, which FDA has held in November and December 1999 (FDA 1999) and which aimed at the information of the public about the FDA policy for assuring the safety of GM Foods.

5.2.2 Organizational Maneuvers on the 'Safe' Side: Confidence Building

Like in Germany, the original addressees of the outlined regulatory framework have regarded GM Food as not differing from conventional products, thus rather as a *normative* problem – if a problem *at all*. This understanding of the issue was achieved by the employment of scientific knowledge that was made use of in order to emphasize the potential benefits while neglecting possible risks. In so doing, GM Products were conceived of as promising products that serve the organizations' paramount goal in being less costly in their developing processes and, with regard to food processing industry, provide cheaper ingredients. Consequently, GM Food was understood as a product that has been derived by a refined, more effective breeding method, which therefore should be dealt with like its conventional counterpart.

In basing its subsequent decision upon that premise, the organizations came to face an environment wherein their interpretation of the issue not only was confirmed by the letters of the law but rather contrafactually secured throughout the network. Since they found the legal definition of GM Food as not differing from conventional as widely accepted by the consumers throughout the network they came to conclude that their subsequent practices and

strategies of the issue is accepted as the adequate way of dealing by their relevant environment. Moreover, they observed themselves side by side with accepted, trustworthy regulatory agencies whereby they claimed a superior standing in the network in being 'on the right side'. In addition, they had perceived a 'division of labor' in that they more or less implicitly agreed in guaranteeing the safety of their products (by, for instance, the establishment of company-owned laboratories) while the administrative branch was held responsible to cope with probably arising conflicts.

By so doing, they were set in a position most differing from that of their German counterparts. Because the American organizations have observed not only the law, but also a *powerful* and *accepted* law on their side, the perception of alternative interpretations and opposition to their own understanding could in a meaningful way only be regarded as untruthful and wrong. In so institutionalizing themselves as epistemological authority with regard to the issue itself but also with regard to the public's demands, they saw no need to take deviant interpretations of GM Food as unsafe, risky or simply unwanted serious, since these voices could endanger their paramount goals. In fact, the organizations have not observed it as their own duty to deal with public unease over these products but rather as the government's very own task. It is this understanding of themselves and of their environment that becomes reflected in their maneuvers in the American GM Food network.

Confidence Building

Even so the organizations have observed themselves on the 'right' side and thus upheld their normative premises, they also had perceived themselves as dependent upon consumer's confidence in the technology to go forward and thus upon confidence in their brands and products. While at the same time being convinced of the harmlessness and the use of their products but observing even though weak signs of public unease with these products, that became most manifest in the demand for mandatory labeling, the organizations have felt that action should be taken to dispel these doubts. By strongly adhering to the scientifically confirmed opinion that GM Food does not differ from conventional food, the organizations could only make sense of these doubts by explaining them as an effect of the public's misinformation. Consequently, in order to countersteer these tendencies of growing unease, they made use of what had been observed as a division of labor and formally asked for changes of the current practice.

The first change to be made was making the voluntary consultation procedure mandatory. So far, the developers of GM Food were recommended to consult with FDA prior to the marketing of these products although the marketing of these products without consultation would not have been a legal offence.

After these changes, that is according to the *Proposed Rule* (see also above 3.2.2), this consultation procedure became mandatory in that developers now were obliged to consult with FDA at least 120 days prior to the commercial distribution of their products. The second change was that FDA issued guidelines for the voluntary labeling of GM Food that would enable the processors to label their products as being developed by or not by the use of genetic engineering (FDA 2001a). These changes were considered as confidence building in that – by referring to these legal rules – consumers could be assured that every GM Product would have to undergo the consultation procedure. In addition, even though mandatory labeling of GM Food was considered not only as unnecessary but rather as misleading by the organizations, voluntary labeling was regarded as an instrument whereby the public's demands for transparency could be answered while the organizations could uphold their established routines in the network. These changes were considered to demonstrate the public that the introduction of GM Food is highly regulated. In sum, these changes were expected to maintain the observed confidence in GM Products.

Nevertheless, even though these changes were triggered by the organizations as an effect of their perception of their relevant environment they have not led to revisions of the organizations' original premises and not even to a revision of their subsequent decisions, thus their actual way of dealing with GM Food. This is only natural since both these proposed changes were anticipated not to impact on the organizations' ongoing practices. As each label connected with genetic engineering – whether positive or negative – was considered to be perceived as a warning by the consumers, organizations concluded that no organization would dare to label its products. Even though there would at least be precise guidance for this, each such label would be an exception from a well-established rule and therefore would require additional reasoning. In addition, this assumption has proven true so far, as to date no such *labeled* products have entered the American food supply.[8] Something similar can be stated for the consultation procedure since by urging the FDA to make the voluntary procedure mandatory rather an already well-established practice among the organizations of the field was turned into a legal rule. Because of that, it was made visible for the public and in that could be 'sold' as a reform by which the regulatory process has been made stricter.

Thus, in contrast to the organizations in the German network, their American counterparts were not forced into adapting or rather *learning* since they had observed their premises and subsequent decision as backed by powerful legal statutes. Consequently, they did not even have to reply to public de-

[8] Even though this would go beyond the scope of the present study, it would be interesting to see if these labeling guidelines will become a *boomerang* as soon as the first labeled product enters the market.

mands for more transparency but delegated these problems to the administrative branch instead. In so doing, they reproduced an already observed division of labor in that they guaranteed the safety of their products while the state provided for conflict-solving mechanisms, in case such conflicts occur. In sum, this also answers Wildavsky's (1988) question "Why is everyone acting as if they are being regulated?" (170). Even though the legal regulation of GM Food in the United States has not followed a simply deterrence based approach to regulation and thus does not built upon prescriptive instruments that would unambiguously be described as 'regulation', the introduction of GM Food into the American market has nevertheless to be described as highly regulated. But this only became visible on the premise that 'regulation' is not only understood as the function of control and power as performed by the government, but is also understood as the effect of powerful organizational responses to governmental power and control.

5.2.3 The Network Revisited: Regulation *in* the Shadow of Law

Against the background of the observations presented in the previous two sections, the common assessment of the American GM Food network as 'calm' and indifferent towards the issue has to be revised. What has appeared as a *homogeneous* network concerning GM Food rather has to be described as the effect of the interplay between the legal statutes applied to these products, their original addressees and these organizations' perceptions of their legal environment. And even though not all of these legal statutes such as the *Plant Derived Foods Policy* were powerful themselves, they were backed up with the threat that regulatory pressure will be increased if the more self-regulative approach of the policy would not deliver the desired outcome. In so being backed by enforcing power, not only its original addressees but most of all the majority of the public has perceived these rules as trustworthy and capable of assuring the safety of GM Foods as they already did in the past with conventional food. Consequently, by establishing the dominant interpretation of GM Food as not different from its conventional counterparts, also the expectation could be established that these new foods were safe.

Different from the German network, the interplay among the rules, its addressees and their environment in the United States has thus resulted in the felicitous subsumtion of a new case under existing legal statutes, whereby the definition of GM Food as not differing from its conventional counterparts became established as the dominant interpretation throughout the network. In so doing, an open normative problem was settled even before a broad public debate could start. Most notably, by singling out one clear-cut interpretation of GM Food as the only valuable, thus as contrafactually secured definition, alternative interpretations of GM Food as different from traditional, therefore un-

certain and probably unsafe, have been rendered as deviant and inferior. In addition, as the dominant interpretation of GM Food exclusively rests upon scientific criteria, the definition of GM Food as not differing from conventional food is not only the *valid* definition in the legal sense but has also been accepted as the *true* ('right') definition in the scientific sense. Consequently, alternative interpretations also became observed simply as wrong.

Since the developing and manufacturing industry as the original addressees both have observed their own interpretation of GM Food in fully concordance with the normatively secured definition they did not have to revise their premises, even though they came to face with opposition in their environment. However, given that normatively *settled* situation, the organizations felt no need to adapt to these demands since they had observed their own definition as the *right* one. In being confronted with more or less weak signs of public unrest, the organizations fell back upon a well-established division of labor between themselves and the administrative branch, in that the economic organizations formally asked the regulatory agency to adjust the current rules to perceived public unrest while at the same time delivering the knowledge about what changes would be adequate. This event has made visible what accounts for as 'regulation' in the GM Food network in the United States.

Cooperative Regulation

The organizations in the United States have found themselves in a situation where their rules for the assessment of GM Food nearly were identical with the legal rules. This observation now can be described as a result of the cooperative regulation as the decisive regulatory mode in the American network.

Cooperative regulation is distinguished by shared responsibilities between the administrative branch and its original addressees since both these parties agree upon a clear-cut division of labor that is considered as advantageous for both of them. In the observed case, FDA and the developers and manufacturers of GM Food have shared their responsibility not only for the safety of these foods but rather for the securing of the expectation that these foods are safe. This *division of work* in the given case became manifest in that the companies run their own laboratories that assess the safety of the products before they are marketed. Although FDA does no safety assessment itself, that is no chemical or toxicological analyses, it relies on the safety of these products since both parties involved 'know' that they act in the shadow of powerful laws. FDA therefore implies the soundness of the organizations' investigations and, in so doing, avoids running costly laboratories itself. This arrangement on side of the organizations must be regarded as advantageous as they 'only' have to guarantee the safety of the products. Nevertheless, they are free to achieve this goal by instruments that they consider to be most efficiently, thus by

means that are attuned to their self-descriptions as *economic* organizations in the first place. Consequently, their autonomy has been acknowledged by this arrangement. By conceding a greater degree of freedom to the organizations, those are likely to develop knowledge for the way of dealing with GM Food that is close to the 'reality' of the issue.

It is this *hands-on knowledge* that the regulatory agencies in the end can benefit from in their normative way of dealing with GM Food, thus disclosing the administrative branch's task in this agreement. Since part of the protective services have been privatized by assigning the responsibility for scientific safety testing of GM Food to the manufacturing companies, the regulatory agencies on the other side have taken over the responsibility to secure the safety of GM Food contrafactually. They have to built or maintain the public expectation that these products are safe by building confidence. Consequently, they also have to provide instruments for the settlement of probably arising conflicts or disputes. By so doing, they keep the companies' backs covered. In order to respond to public demands in what they perceive would be an adequate manner, they are enabled to fall back upon knowledge about the issue in its practice. Thus, they can re-attune their instruments for the settling of conflicts or measures for confidence building to insights about the nature of the GM Food as well as about realizable changes in its handling (e.g. the question for instance, if a processing method label would be practicable at all). This mechanism of being reciprocally dependent upon the services of the other party involved became manifest in the outlined changes to the current regulatory practice in the United States since the observable changes concerning the labeling guidelines and the consultation procedure both could be traced back to the companies' notions of a desired way of dealing with GM Food.

In sum, one can now say that the economic organizations in the American GM Food network have influenced the law intentionally by drafting proposals for changes of the regulatory process but also unintentionally in that their practices in the network became the distinguished foil for legal guidance since they were based upon the *legal* definition of the issue. Thus, interpretations could be observed as *legal* actions by the law and thus unintentionally 'infiltrate' the law and the labels contained therein.

As with the German case this finally can be described as an example for legal pluralism as rules and practices that 'originally' have been designed by those to whom the legal norm was addressed to, have become legal norms themselves by enacting the original norm. However, different from Germany, in the latter case these observed *misreadings* between law and its relevant societal field have rather re-affirmed the traditionally tight couplings between the legal and the economic system instead of making the law more responsive for the plurality of perspectives on GM Food. In fact, as an effect of these tight

couplings and the dominance of one interpretation of GM Food throughout the network in the United States, alternative interpretations rather became suppressed.

Conclusion: Assets and Expenses of Strong Ties

As the regulatory process was carried out differently in the United States than in Germany, also the actual market situation has turned out disparate in that GM Food extensively has penetrated the American food supply. Nevertheless, similar to the Germany case, this 'manifest' result of the regulatory process refers not only to assets that have been achieved but also to expenses that were accepted – intentionally as well as unintentionally.

Given that the paramount goal of the manufacturers and the processing industry in the network has been turning GM Products to tangible profits in terms of money, these organizations would have to conclude that the implementation of the legal rule and the subsequent mobilization process has been carried out most 'successful'. In being confronted with their legal environments these organizations found themselves in a superior situation as they observed their original premises as normatively secured by accepted legal rules. Therefore, these organizations were not forced to adapt their behavior to their environment's demands but rather delegated the way of dealing with occurred public unrest to the administrative branch. By doing so, they reproduced a well-established division of labor and thus strengthened their ties with the regulatory agencies. Further, if 'regulation' is understood according to the classical technocratic model wherein scientific knowledge takes in a monopoly role as basis for decision making, the outlined observations could account as an example for the properly fulfillment of such a regulation. Based on scientific knowledge, the *Plant Derived Foods Policy* was capable of providing guidance and, by so doing, prevents a socially explosive conflict by establishing the expectation that due to the sound scientific criteria GM Foods are as safe as conventional food. Nevertheless, as such an understanding of the regulatory has been rejected as obsolete and insufficient to grasp the complex dynamics that occur when a legal rule enters its field, the observations made in the American GM Food network shall rather be reflected as another piece that adds to the mosaic of regulatory processes themselves.

The interorganizational network GM Food in the United States finally has to be described rather as a tightly coupled, hierarchical system wherein one interpretation of GM Food has turned out to be the dominant interpretation. The assets of such a tight-coupled network could be observed in the 'fact' that legal certainty and secured expectations were achieved, thus providing a reliable framework for the economic organizations' way of dealing with GM Food. In this situation not even the StarLink-Case could unfold the force of a

policy window since no science-based arguments for the hazardousness of these products could be mobilized. Thus, the established definition of GM Food was not challenged even though there had been several StarLink-related lawsuits. In fact, throughout these lawsuits the dominant interpretation rather became reaffirmed than upset. Consequently, the introduction of GM Food was carried out in an unambiguous environment, thus in a less costly process than in the German counterpart: less costly for the respective economic organizations but also less costly for society at whole. The marketing of GM Food had not stopped ongoing procedures nor has it challenged or questioned the applicable legal regulations. As a result, this overall process has appeared as less conflict-ridden than in Germany.

However, as there is a downside to everything so there is one to this picture. Given that 'only' one single interpretation of GM Food has been taken seriously throughout the introduction process of these products while on the other side alternative interpretations had been observed as deviant throughout the network, the chance was missed to fathom to what degree these alternative interpretations probably rested upon criteria that could add to so far neglected aspects to that interpretation. Most striking, this accounts for the perceived demands for mandatory positive labeling of such products. These demands could have functioned as a vehicle for basing the assessment of GM Food on a more comprehend, thus robust knowledge than scientific knowledge could turn out to be in the future. This leads over to potential conflicts since the repeated neglect of alternative interpretations has led to a – at present – sufficient knowledge base that could turn out as vulnerable in the future, should resistance to these products mount (e.g. by perceived growing resistance in Europe). In that case, the current definition that is most of all the result of economic interaction with the issue, could become observed as based upon knowledge, which is too 'thin' to lead to more adequate coping strategies in the end.

Yet another observation could be made that refers to the adequacy of exclusively legally based instruments as tools in a societal debate like the one surrounding GM Food. While on the one side strong ties bear the risk of neglecting if not suppressing the plurality of existing interpretations, on the other side the potential for socially disruptive conflict and opposition to the dominant interpretation still remains in its shadow. In the given case it could be observed that the dominant interpretation has been tried to challenge by lawsuits against FDA that finally were thrown out and not even perceived as relevant by the economic organizations in the network. In that, this instrument of suing FDA rather could be regarded as an edgeless instrument in the quest for the appreciation of differing interpretations of GM Food. If this observation is reformulated, the somewhat bold conclusion can be drawn that in strong tied, hierarchical networks, the legal systems increasingly becomes overtaxed with con-

flicts that emerge in the various social systems because of the tight coupling. The subsequent utilization of legal instruments to solve these conflicts thus may lead to decreasing chances for the more inferior voices in the debate to be heard since these instruments do not affect the 'core' of what is really going on, but rather remain at the periphery. Nevertheless, even though from that point of time, there are no signs for this, these insinuated 'signs of wear' in the legal instruments could turn out as a boomerang for the more superior organizations if their leading interpretation should once be attacked. Given these remarks, neither the description of the introduction of the legal regulation into its field in the United States as 'successful' nor as 'failure' has thus seemed to grasp adequately the implications of processes observed.

Finally the conclusion has to be drawn, that in this given case, power has become mobilized as the adequate medium to keep smoldering opposition to GM Food in check while knowledge has 'only' become relevant in terms of scientific criteria and economically based coping strategies. In addition, those strategies have built upon power on the one side but to the same extent upon trust in these power-based practices.

5.3 Conclusion: Trust versus Contract

In thus having 'unpacked' national styles of regulation, the question is solved where the differences in the regulation of GM Food in Germany and the United States are to be found and how they can be grasped sufficiently. These observed differences in the way of dealing with GM Food as a seemingly identical issue have been discussed based on the findings gained in the two last chapters. This discussion has drawn on theoretical assumptions outlined in chapter 2 that in their essence have claimed an understanding of regulatory processes, which acknowledges organizations as social systems as the central parts of these processes. In so doing, organizations were conceived of as not only normatively closed but also as cognitively open, and thus as knowledge-generating systems of interpretation. Consequently, a double movement has been made as, firstly, the claim was made that under conditions of world society both these networks will be constituted by legal, economic, scientific and political organizations that align their decisions with the binary oppositions of their respective function systems, thus pretending *homogeneity*. However, secondly, it was further argued that *as* organizations are cognitively open, their respective legal environments would be perceived differently in the given networks, thus leading to *heterogeneity* between these territorially bordered entities.

The focus of significant difference between these countries has thus been located in the organizations' perceptions of the legal environments that comprise not only the laws but rather societal norms and the culture surrounding it, thus

expectations and demands that in their total have created a more or less constraining, or, in contrast, enabling legal environment. These differences in the *dominance* of the respective legal environments have finally resulted in the observable disparate ways that Germany and the United States went about GM Food. These ways are rather characterized by the distinction between trust and contract than merely by the contrast between product and program. This latter distinction has not to be rejected but can more sufficiently be understood as the outcome of the outlined regulatory processes in both these networks by now. These regulatory processes can be characterized as self-regulation in that trust and contract both are modes of self-regulation, which finally have led to differing results, as demonstrated in the this chapter.

On the background of these results, it has now to be questioned to what extent the general talk about 'national' differences in regulatory approaches can be upheld in a meaningful way if the respective empirical matter remains unspecified. As demonstrated, the network GM Food has not shown any signs of 'corporatism' in Germany nor of an 'American exceptionalism' in the United States. Instead, elements of what has been defined as an 'American exceptionalism' could be identified in the German network while corporatist features were detected in the United States. This observation is in tune with Vogel's observation of an increasing convergence between Germany and the United States (Vogel 2001). However, since his analysis remained in the prevailing scheme of the national styles it could not provide an adequate explanation for these observations. In addition, in the scheme of the national styles-approach, these observations were rather treated as exceptions from the rule than as an independent result.

The findings of the present study instead are treated as the empirical proof for the theoretically claimed superiority of an organizational-based understanding of regulation. Consequently, the general talk about a *national style of regulation* has to be rejected, which is not to say that there are *no* national differences in regulatory approaches. Nevertheless, such differences can only sufficiently be explained if the empirical matter of regulation is also taken into account in the analysis. This calls attention to the fact that each issue will produce its own *interorganizational network*, thus its own interplay of law, societal norms, and the organizations as 'original' addressees. These 'variables' in their total will result in a *regulatory structure* that can then be observed as typical for the regulation of a given issue in its given organizational context.[9] In

[9] For another example see *Special Report: Abortion in America. The war that never ends* (The Economist, January 18, 2003). The major claim made in this article is that the way the Americans went about legislation on this issue has divided the country "bitterly as ever"(24). As the United States declared abortion a constitutional right, so the authors reasoning, a controversy was stirred up since "opponents were furious about being denied their

sum, one can now say that there is a German and an American approach to GM Food – but what is hidden behind these approaches has been outlined in this chapter.

The next chapter will now be dedicated to final considerations on the theoretical implications of these findings by referring to the difficulties that have been outlined at the very outset of the present study

say" (ibid.) while "supporters had to rely on the precarious balance of power on the Supreme Court" (ibid.). In its total, "(l)egislation did not have the legitimacy of majority support" (ibid.) but rather rested upon "a highly controversial interpretation of the constitution" (ibid.). Thus instead of resolving the controversy, this legislation has "trapped America in a clash of absolutes" (26). Resting upon this assessment, the conclusion is drawn that the "one safe prediction is that the issue will continue to shape the conflict between left and right for years to come" (ibid.). For a comparative study on this topic see also Gerhards & Lindgens 1995.

"Differing cultural ways
can provide adequate solutions
to the same problem."
(Paul Bohannan 1995)

6 The 'Regulatory Dilemma' Reconsidered: Outlook

At the outset of the present study, the law was described as being *in conflict* when confronted with the regulation of a so-called risk technology such as GM Food. Moreover, as could be shown, the law indeed has to be considered as 'in conflict' in that it inherently is incapable of providing adequate solutions to societal conflicts. Each solution the law offers has been created against the background of the law's construction of that conflict and has thus to be perceived as the legal *re*construction of a social conflict, i.e., the juridification of a social phenomenon (Teubner 1992: 1455). That this legal distortion [*Rechtsentfremdung*] (Teubner & Zumbansen 2000) is no extraordinary or pathological but rather the normal case has become obvious by the focus on organizations as central parts of the regulatory process. This shift in perspective has clarified that the legal solution to a social conflict always has to be considered as inappropriate in a non-normative sense and this has challenged the classical notion of regulation. Stating the fundamental inappropriateness of regulation does not necessarily imply that there is *no* regulation, but that the regulatory process is fulfilled by organizational sensemaking that becomes the basis for their unintentional and intentional enactment processes. As each legal regulation will be perceived as inappropriate by its original addressees it will inescapably become interpreted and in so doing, redefined.

The extent to that the legal norm will enact its addressees or be enacted by its original addressees itself does not only depend upon the rule itself but rather upon the legal environment, i.e., what the organizations perceive as *information* about the law. Each legal rule and consequently each empirical matter will create an idiomatic legal environment that entails not only the letters of the law but rather societal norms, conventions, expectations that in their total can be perceived as dominant and contradictory at the same time. Therefore, organizations adopt differing strategies in order to reply to these demands and expectations on the one side while pursuing their original goals on the other. In addition, as legal environments not necessarily have to be perceived as in contrast to the organization's decision premises, these processes of adaptation will be carried out contingent on that very perception. Consequently, these enact-

ment processes between a legal rule and its original addresses will finally determine, to what extent a regulatory goal can be achieved, that is to what extent the concerns of the respective network are met in the end. However, the manner in which these enactment processes will be carried out depends upon the design of the legal rule, its definition of the regulatory trigger and the organizations that observe themselves as affected by this trigger. Contingent on the instruments the law provides on the one side and the perception of the organizations' environments on the other, the organizations to differing extents will become whether the objects or the subjects of regulation in the first place. Especially in the latter case, the organizations will employ different modes of self-regulation and by so doing, base the regulatory process on their knowledge that they have generated in their way of dealing with the original regulatory trigger. Consequently, these modes of self-regulation can be productively misread by the law as legal actions, thus as actions that are distinguished as being legal or, in contrast, illegal. Throughout these productive misreadings of organizational decisions as *legal* decisions, organizational norms are translated into legal norms, leading to plural normsetting. In addition, these norms in turn impose on the organizations in future as legal norms. But which organizations are most vocal and visible and employ 'law-like' strategies is determined by the legal rule itself, by the organizations' flexibility and capability of dealing with probably contradictory environmental demands and finally by the issue in question.

Given these remarks, regulation no longer is understood as only between the state as regulator and industry as regulatees, but rather turns out to be a dense social act that to various degrees is accompanied by either knowledge or power.

The quest for an adequate understanding of 'regulation' has also resonated in comparative research on regulation in that prevailing concepts about the causes for observable national differences in regulatory approaches became questioned throughout the present study. As organizations have been conceived of as normatively closed but cognitively open at the same time, the conclusion had to be drawn that every organization will perceive its respective legal environment differently. Moreover, this does not only depend upon the normative orientation of the organization and upon the empirical matter but also upon the respective local conditions. Not only will each empirical matter constitute a different network but this network is also likely to differ within a territorially bordered entity not because of a national culture, but most of all because of the interplay that will occur among the legal rules, their addressees, and their perceptions of what is considered as information about the legal rules. This understanding of the regulatory process must also be conceived of as momentous for transnational developments since it insinuates limitations for legal frameworks

to be translated from one context into another as well as for emerging transnational law and its locally restricted implementation.

Finally, an understanding of regulatory processes and variations among those had to be abolished that follows a *one size fits all* understanding of legal regulations. In fact, such an understanding of regulation ignores variations in local conditions and in the conditions of the respective empirical matter. Therefore, in the remainder of this final chapter the two main lines will be re-married that have pervaded the present study, in that the revision of the concept of regulation under conditions of knowledge society and a revision of fundamental understandings regarding the 'nature' of national disparities in regulatory approaches will be highlighted in their interrelatedness.

6.1 A New Production of Legal Knowledge?

At the very outset of the present study implicitly the question was raised to what extent scientific knowledge still can function as a legitimate basis for legal decision making in the regulation of risk technologies, given the increasing awareness of non-knowledge. In the light of the findings presented in the present study, the assumption became confirmed that legal rules that exclusively are based upon scientific criteria no longer account as a guarantee for their legitimacy. In contrast, in the German case, scientific knowledge was observed as inadequate to deliver a basis for solutions to the observed problems in the network. Consequently, the law runs the risk of being increasingly overtaxed with the deliverance of socially accepted solutions to complex problems. Those problems can be characterized not only by a lack of reliable, scientific knowledge but rather by the fact that not one single actor (the law, for instance) has all the information necessary to solve these problems. In these cases, law's legitimacy becomes undermined, thus rendering the law itself illegitimate.

In order to avoid this loss of legitimacy, the law has to adapt to these changing societal conditions that in their total are characteristics of knowledge society. If the law wants to stay attuned to these conditions it will have to take account of societal knowledge stocks that have been neglected so far, or exclusively led a shadowy existence in the respective societal realms wherein they were generated. In the present study, these knowledge stocks were distinguished as *organizational* knowledge since organizations by sensemaking and enacting generate knowledge that is produced in the respective relevant context. Therefore, this knowledge can be conceived of as potentially more adept to the specific difficulties that arise in the way of dealing with a given empirical matter.

Nevertheless, those knowledge stocks can only be taken into account as a basis for legal decision making if certain conditions are fulfilled, one of which

is the acknowledgement of the parties involved. This refers to the range of actors that are taken into account as relevant as well as to the way in which the acknowledgement is carried out specifically. Thus, the law has to install mechanisms by which a variety of possibly affected actors and their particular perspective on the issue in question are made detectable. In addition, those mechanisms at the same time have to be attuned to these actors' autonomy, in order to encourage and enable an in-context production of knowledge. Recalling the findings of the present study, these conditions had been fulfilled differently in that in the American case the autonomy of those who had been regarded as affected by GM Food had been acknowledged, thus leading to a strong bias on economic organizations and their perspective. In contrast, in the German case although more by chance than intentionally, the law has provided a framework that made way for a variety of interpretations to emerge as equally legitimate. Consequently, organizations in both these networks have evolved as agents of *change* (Galanter 1974) or *resistance* (to change).

6.1.1 Organizations as Agents of Change and Resistance

The broader context into which these remarks are embedded is that of legal pluralism and plural normsetting. As organizations have been conceived of as the central parts of the regulatory process, they can be considered not only as knowledge-generating but also as norm-producing systems. In so doing, attention is called to the fact that "the debate that surrounds legal pluralism is not just an argument about words, but is often a debate about the state of the state today, one that asks where power actually resides" (Moore 2001: 11). In the light of the findings presented one has to resume that power as well as knowledge and, consequently, control is fragmented among the constituents of an interorganizational network. In being confronted with a given empirical matter, organizations on the background of their understanding of the matter design coping strategies, coin new labels, and thus take undefined space. However, as this organizational knowledge is confronted with knowledge generated in the organizations' environment the question arises in how far an organization may *succeed* with its interpretations and subsequent practices. Therefore, "no single actor can dominate the regulatory process unilaterally as all actors can be restricted in reaching their objectives not just by limitations in their own knowledge but also by the autonomy of others" (Black 2002: 5). These conditions in their total finally determine to what extent organizations are able to cling to existing legal norms and, by so doing, confirm these rules or become the driving force in legal changes.

Contingent on how the regulatory process is carried out in particular, interorganizational networks evolve whether as loosely or as tight-coupled systems. Given that organizations observe themselves in accordance with power-

ful legal rules, they are not forced to change their definition of the issue in question. In being backed by legal statutes, they rather observe themselves as part of a powerful alliance. Consequently, tight couplings between these organizations and the regulatory agencies can be expected which in turn will lead to a *hierarchical* structure of the given network. If on the contrary no powerful alliance can be forged since no dominant interpretation of the issue in question could be distinguished and contrafactually secured, a loosely coupled, *heterarchical* network is more likely to evolve.

Both these shapes of networks will provide different opportunities for securing established dominant interpretations or for challenging these interpretations by coining new labels. While hierarchical networks will rather tend to affirm already well-established relations and therefore also confirm established coping strategies, it is difficult for alternative interpretations of the respective issue to be heard and acknowledged throughout the network. In fact, a hierarchical network nearly only can be undermined if a policy window opens up, that for a short amount of time provides the necessary structures for less vocal organizations to state their case from a more visible, superior position. In contrast, a heterarchical network is rather supportive for alternative interpretations to be heard since no single interpretation has yet become institutionalized as the only valuable throughout the network. Moreover, as heterarchical, loosely coupled networks "create opportunities for sharing the learning experience of cooperating partners that results from their exchange relations with third parties" (Grabher 1993: 271) their learning capacity is increased. In addition, since "one of the key advantages of loosely coupled networks is their ability to disseminate and interpret new information [they, AE] are particularly adept at generating new interpretations" (ibid.: 272).

While hierarchical networks tend to support regulation that is mainly between the state and the regulatees, heterarchical networks encourage 'regulation' that is rather the product of interactions between those affected by the issue than the exercise of the formal, constitutionally recognized authority of government (Black 2002). Under such conditions, organizations act as regulators themselves (e.g. by contracting, or by forcing other organizations into something or bar them from doing something). In so doing, not only is an in-context production of knowledge encouraged but also the likelihood is increased for this 'thicker' knowledge to be productively misread as a source for legal norms. But even so, also in hierarchical networks organizational knowledge is a source for legal norms since the powerful organizations not only influence the law by lobbying, drafting legislation and the like but rather by becoming legalistic themselves as they have the resources to establish not only

their own scientific laboratories but also their own legal departments[1]. Thus, in this latter case the law almost exclusively receives information through the cost-benefit calculations of economic organizations.

In sum, organizations can be considered as institutions of the legal pluralism in that their knowledge can be considered as 'new' source for legal norms. But even so, it still has to be taken into account that it depends upon the design and implications of a legal rule itself, in how far not only organizational knowledge in this generality will become the law's tacit knowledge but also *which* organizations' knowledge. Consequently, at the same time as "legal pluralism rediscovers the subversive power of suppressed discourses" (Teubner 1992: 1443) it also bears the risk of reaffirming powerful discourses.

6.1.2 Understanding Regulation as Revaluation of Knowledge Stocks

Since an understanding of regulation as an "attempt to alter the behavior of others according to defined standards or purposes with the intention of producing a broadly identified outcome" (Black 2002: 21) has been rejected, the question is raised how regulation can be conceptualized after all. Given that the regulatory process rather has to be understood as the outcome of *productive misreadings*, what are the in- and outputs of the regulatory process?

In the previous section, organizational knowledge that is generated in the organizations' interactions with the empirical matter in question, has been described as law's potential tacit knowledge. By so focusing more or less implicitly on all organizations that constitute a network, the fundamental plurality of perspectives on the matter is acknowledged, thus calling attention to the cacophony and heterogeneity that can now be expected among each interorganizational network. In that perspective it becomes obvious that in the regulation of 'uncertain technologies' conflict, or at least disputes, seem inescapable. In fact, as plurality and heterogeneity must be taken for granted in the regulatory process, throughout this process differences should not be understood as threats but rather as possible enrichments. But in order to achieve such an understanding and by so doing reevaluate so far neglected knowledge stocks, mechanisms and instruments must be provided that enable the law to take account of this knowledge. Thus, even though "the context talks back" (Nowotny 1999: 13), the law has to develop sensory organs to detect these responses.

In the present study *cooperative regulation* and *contracting* as an example for a private governance regime have been observed as mechanisms which, although to differing extents, have acknowledged the autonomy of those involved in the regulatory process. By doing so, those parties whether intention-

[1] See especially for the latter Powell (1996), who, in following Galanter (1974), claims the important mediating role of in-house staff in interpreting and implementing the law.

ally or unintentionally were enabled to produce their own coping strategies that were observed as more attuned to the conditions in the given networks than legal rules that had been designed in theory (i.e., in the German case). These strategies in turn became observed as referring to the law's functional primacy legal/illegal, thus providing an opportunity for the law to benefit from these strategies by translating them into legal norms. Consequently, legal norms were produced that seem more likely to deliver adequate solutions to the difficulties in the respective networks since they were finally designed based on knowledge generated within the field.

The application of regulatory instruments that correspond to the prevailing rules of the context to be regulated also is called "second order reflexivity in regulation" (Bora 1999: 387, Bora 2002). This mode of regulation is expected to increase the societal capacities for trouble shooting since knowledge becomes mobilized which was produced in confrontation with the given issue's 'reality'. Nevertheless, such knowledge stocks can only be turned into societal useful knowledge if new ways managing knowledge are provided by legal instruments. In that perspective, the NFR can now be described as a stroke of luck for society in the German context, since it has unintentionally activated the knowledge production among its original addressees in being rather half-hearted. But this half-heartedness or, more precise, indecisiveness of the rule also has to be criticized as it cannot really function as a role model for rules to be created in the future since it has led to expectations it could not fulfill and thus to uncertainty in the early days of its existence. Here the question may be raised if a rule would have 'worked' better that had not appeared as strict law at first glance but that already by its design could have left the actual solution of the problem to those involved with the issue. Such a rule could have functioned rather as a framework in the background while the organizations involved from the very beginning could have by negotiating and cooperation created a solution more autonomously.

Such an understanding of the law's role in societal conflicts – which is in other theoretical contexts also discussed as *regulation at a distance* (e.g. Rose 1999) – must reject the problem solving nature of regulation. Instead of reducing possible interpretations of a problem and the consequences thereof, a legal framework that rather leaves the solution to the respective network is likely to produce more conflict in the short run since various alternative interpretations will have to be 'tested' in a complex and possibly conflict-ridden deliberation (e.g. Bora 2002: 268). The outcome of this process finally can function as a foil for legal interpretations, and thus are expected to become legal knowledge.

In so providing a framework that acknowledges the autonomy of those involved in a conflict, their knowledge can become converted into a powerful resource under conditions of knowledge society. Thus, it seems more appropri-

ate to talk of the *revaluation of knowledge stocks* that have been neglected so far than of a new production of knowledge. Finally, the function of regulation no longer may be found in preventing or settling conflicts but rather in its *activating* character.

6.2 On Comparing Regulatory Approaches

The findings of the present study have also to be regarded as momentous for comparative research on regulatory approaches in that commonly presumed national styles to regulation have to be rejected if the respective context of regulation remains unspecified. Just as little as there is a specific German or American Science there also is nothing like a specific German or American regulatory style. As already mentioned before, this is not to say that there are no differences in the regulatory approaches of various countries. In fact, as has been demonstrated by the regulatory approaches to GM Food in Germany and in the United States, there has been considerable variation as to the definition of the regulatory trigger as well as to the subsequent proposed coping strategies for its adequate handling. However, as interorganizational networks have been distinguished as the relevant entities for the analysis, the specific difficulties that arose with the given (and only with this!) issue were taken into account. In that, the issue itself was taken into regard as the *decisive* part of the subsequent regulatory processes since it determines which organizations perceive themselves as partaking in its regulation. Consequently, it could be shown that there is something like a German and an American approach to GM Food whereby the emphasis lies on 'GM Food' – and not on 'German' or 'American'!

This rejection of rather unspecified claims for *national* styles of regulation as well as the analysis that has finally led to this conclusion must be considered as relevant for both, comparisons of regulatory approaches within territorially bordered entities as well as for the assessments of emerging transnational regulatory frameworks. Especially the latter become manifest in attempts to install worldwide measures to secure food safety and – at the same time – limit the influence of culture on food safety measures by international agreements such as the abovementioned SPS Agreement (see chapter 3, note 5). Although this agreement encourages reliance on a standardized, international, science-based approach to regulation, in the light of the results of the present study, it has to be argued that every invocation of science will be locally applied, thus leading to variation. Moreover, it is this example that is at least loosely related to the subject of the present study, which points to the fact that an increasing number of problems modern society is faced with have to be understood as problems that no longer are confined to territorial borders. Especially this border-crossing quality of certain events adds to the complexity of a

problem and increasingly demands for 'solutions' beyond the single countries capacities.

6.2.1 Overcoming the 'Territorial Trap'*

In order to fathom how possible solutions to border-crossing problems can be achieved, insights gained in the present study may be helpful in that an organizational-based approach to regulation seems to provide a perspective that limits the analysis not to territorial boundaries. By doing so, also an understanding of organizations can be invoked that seems more appropriately to correspond to the conditions of world society as they have been outlined in chapter 2 in that organizations no longer are understood as German, American, Greek and the like. Instead, organizations first of all must be conceived of as legal, scientific and economic organizations that are embedded in a respective local context. In addition, it is this local context that no longer must necessarily be understood as a *national* context.

As this study has suggested shifting the attention to the respective empirical matter, a 'local context' must rather be understood as the interorganizational network that emerges around the matter than the country the organizations probably are located in. In so taken a perspective that first of all focuses on a specific problem, interorganizational networks, organizational fields or regions will evolve as the sites where the regulatory processes take place. Moreover, as insinuated above, none of these formations must be understood as limited to a territorial entity but rather traverse national boundaries. Therefore, the increasingly border crossing quality of problems can more adequately be grasped if the border crossing quality of organizational relations is emphasized in the analysis.

Consequently, a *methodological nationalism* (Albert & Hilkermeier 2001) can be avoided since in that perspective also organizations can be taken into account that first of all are characterized as transnational organizations (e.g. United Nations). Therefore, this perspective is considered as helpful for the analysis of increasingly evolving transnational regulatory processes.

6.2.2 Regulatory Processes in World Society

Under the effect of growing global relations as well as global reciprocal influences it does not seem to make much sense to think of 'society' as linked with the notion of nation-state as a territorially bordered entity. This corresponds to the widely consented observation that an increasing number of problems modern society is faced with no longer are restricted to individual countries. Therefore, instruments mobilized by individual countries in order to cope with cer-

* This term has been coined by Agnew (1994).

tain problems no longer seem to fit the complexity of these problems. As an effect, in various fields attempts can be observed that aim to install regulatory frameworks beyond the single countries' legal regulations. And given that world society as it has been conceptualized in chapter 1.2 is most of all characterized by a plurality of at least disparate perspectives and thus by heterogeneity, the development of a transnational regulatory framework that mirrors this plurality of perspectives can expected to be a most demanding endeavor.

Given the findings of the present study, now the question must be raised under which conditions such a transnational regulatory framework can provide adequate solutions to border crossing problems. As shown in the previous chapters, each legal norm becomes applied locally by those to whom it was originally designed to regulate. Therefore, it can be assumed that each transnational regulation will become implemented differently in the context of the various countries that are to be regulated by the given rule, since its process of implementation will be accompanied by locally generated knowledge or by locally relevant power. With regard to the original regulatory trigger, disparate outcomes can be expected. Even though this is not to say that transnational regulatory frameworks hopelessly are constrained by the dynamics that unfold in their local application, limitations to transnational regulations have to be assumed. Given the description of the dynamics that unfold when a legal rule enters its original field, those dynamics to a certain extent can be anticipated also in the case of transnational rules. In addition, given the relative 'distance' of these rules to their respective fields one can assume that the effect of distortion will even be stronger in these cases. Therefore, it seems wise to invoke the understanding of regulation as a knowledge practice as helpful in the quest for more appropriate transnational regulations – more appropriate in that these regulations are likely to be attuned to its various local contexts' demands. Nevertheless, since the development of a full-fledged conception of transnational regulatory frameworks would go beyond the scope of this study, the following concluding remarks have to be considered as preliminary.

On the premise that the conflict-solving function of regulation increasingly has to be rejected, also the function of transnational regulatory frameworks can be defined as 'activating' in the first place. Thus, what has been considered as relevant for national legal rules also counts for transnational legal rules in that those have to provide mechanisms by which a most broad range of actors can be taken into account. However, while these actors on the side have to be acknowledged, on the other side their autonomy must be secured in order to enable them to develop their own coping strategies. Only if this condition is fulfilled, attention is called to the fact that knowledge not only is produced in the context of applications (Nowotny 1999) but also that it can be turned into a useful societal resource. In this case of transnational regulatory

frameworks the respective 'actors' are the single countries, or, more precisely, the organizations of the single countries that feel affected by the given empirical matter. Consequently, the autonomy of the single countries must be upheld if solutions should be provided that correspond to these countries' realities.

This autonomy finally must be conceived of as sine qua non if the importance of local knowledge under conditions of globalization should become a resource for the solution of present and future border crossing problems.

6.3 Conclusion: Coping with Uncertainty

At the outset of the present study, the claim was made that the increasing relevance of non-knowledge and uncertainty in modern society challenges law's fundamental legitimacy. The traditional instruments of the law to secure certain conditions have become obsolete under the effect of a decreasing legitimacy of scientific knowledge. Therefore, the law tends to produce norms that no longer are accepted as such and that thus do not establish a certain horizon. On the other side, modern societies increasingly must be characterized by a development towards knowledge society in that society becomes aware of uncertainties in various societal realms. Consequently, the societal demand for protective services will increase. This situation has driven the law into a quandary, since it is faced with growing demands for certainty while on the other side it has to admit its own uncertainty. In addition, this quandary has been observed as a threat to law's basic function that is to secure certain expectations contrafactually and thereby prevent or settle conflicts. Given these altered societal conditions, the question was raised, how law's role can be adapted to these conditions and what this role would be. Some of these adaptation strategies as well as the 'new' risks for the law that arise with them have been outlined and been described as a *regulatory dilemma*.

However, in the light of the findings presented in the present study this dilemma has to be revisited in order to offer a less pessimistic view on these developments. In both cases presented, the law has retreated from its function to deliver a reliable normative base for the way of dealing with GM Food. While in the United States shared responsibilities between the state and the regulatees (here: industry) could be observed in that protective services have been privatized, in Germany the law has – probably unintended – activated a knowledge generation among those to whom the original rule was addressed to. In both cases finally regulatory structures evolved that whether functioned in or beyond the shadow of the law but that in their total can be described as different modes of self-regulation. In so doing, it was finally not the law that by providing narrow and precisely drawn rules has guided the organizations' maneu-

vers in the respective networks, but the organizations' maneuvers in turn became the guiding principles for the law.

Irrespective the concrete outcome, these developments also are instructive for law's possible future role in knowledge society. Instead of clinging to ... the law in both cases has acknowledged the autonomy of those involved in the regulatory process. In so doing, the regulatees (and those who felt affected by the issue) were given the opportunity to develop coping strategies that they had considered as appropriate, given their respective perception of the network. Consequently, they could design practices that seem to fit the demands of the network as well as the regulatees aim in the networks. However, this autonomy especially in the German case has been 'bought' at the expense of certainty. As in the German case the legal rule has mobilized a so far unusual self-responsibility, the organizations had to go through a long and therefore costly process in order to finally achieve the certainty that was needed and on the other hand, adequately respond to their environments' demands. This retreat from traditionally legal services points to an arrangement whereby not only the law but also the potential regulatees are assigned a new role in that the law 'only' defines goals of a regulation while the organizations themselves define the performance program to achieve this goal. These programs can then draw on more heterarchical arrangements like contracting and cooperating, thus acknowledging their autonomy. The law on the other side no longer runs the risk of being confronted with the avoidance of the breach of its rules, as is often the case since these rules seem to be based upon knowledge that does not seem to fit with the 'realities' of the given empirical matter. Thus, the law discharges itself with the need to regulate and the 'risks' contained therein (Luhmann 1987).

The drawback of this arrangement finally is to be found within a loss of certainty that gives expression to another feature of knowledge society. Its novel dependence on knowledge and non-knowledge has to be 'bought' at the expense of a destabilization of so far stabile institutions and rules and thus must lead to the development of new governance regimes and other 'experiments', which are effects of an increasing 'regulatory competition' (Willke 2001). But from that point in time, such an understanding of how 'regulation' can be fulfilled given the societal conditions, seems to be the less risky option for the law in that uncertainty is rather socially acceptable than is illegitimacy.

In sum, this understanding of regulation can be brought into line with the conception of society as a laboratory (Krohn & Weyer 1994) in that 'regulation' than evolves as a model of *experimental* decision-making. By doing so, regulation is carried out while at the same being aware of its insufficient knowledge base and thus its problems to control behavior and prevent or settle conflicts (Bora 2002). In that sense, the present study has presented neither evil

tidings nor a promise of salvation but rather stressed the various ways that can lead to accepted outcomes under the effect of cognitive uncertainty. Finally, in the opening chapter of the present study the assumption was made that private law's reliance on social autonomy and structural coupling could become a model for the new ways in which law opens up to the dynamics of 'civil society'. Given that modern society increasingly has to be described as knowledge society, the conclusion can now be drawn that the outlined processes of regulation can be described as the law's way to cope with the increasing relevance of non-knowledge and uncertainty.

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Appendices

A Organizations

A.1 Germany (March – September 2000)

- Bundesinstitut für gesundheitlichen Verbraucherschutz und Veterninärmedizin (BgVV)
- Robert Koch-Institut (RKI)
- Bundesministerium für Gesundheit (BMG)
- Bund für Lebensmittelrecht und Lebensmittelkunde (BLL)
- Bundesverband des deutschen Lebensmittelhandels (BVL)
- Bundesverband der Filialbetriebe und Selbstbedienungswarenhäuser (BFS)
- Verband Deutscher Oelmühlen (VDOe)
- Arbeitsgemeinschaft der Verbraucherverbände (AgV)
- Transgen/Verbraucherinitiative (VI)
- Greenpeace
- Gen-ethisches Netzwerk (GeN)
- Öko-Institut Freiburg
- KWS Kleinwanzlebener Saatzucht AG
- Unilever
- Bestfoods
- Monsanto
- Aventis
- Novartis
- Bremke&Hoerster (Supermarktkette Famila)

A.2 United States (October – November 2000)

- Food and Drug Administration (FDA)
- Mitarbeiter von Congressman Dennis Kucinich (D-Ohio)
- Mitarbeiter von Senator Richard Durbin (D-Illinois)
- Grocery Manufacturers of America (GMA)
- American Corn Growers Association (ACGA)
- National Corn Growers Association (NCGA)
- International Food Information Council (IFIC)

- Consumer's Choice Council (CCC)
- Consumer's Union (CU)
- Consumer Federation of America (CFA)
- Center for Science in the Public Interest (CSPI)
- Public Interest Research Group (PIRG)
- Friends of the Earth (FoE)
- National Environment Trust (NET)
- Union of Concerned Scientists (UCS)
- Monsanto
- Bestfoods

B Questionnaires

B.1 Germany

A. Formales

1. Sie sind Vertreter/in welcher Organisation?

2. Was sind die Aufgaben dieser Organisation?/Was sind die Ziele Ihrer Organisation?

3. Was sind Ihre Aufgaben innerhalb der Organisation? (Tätigkeitsbereich?)

B. Genfood allgemein

4. Wie würden Sie das Klima gegenüber der Gentechnik in Lebensmitteln in Deutschland beschreiben?

5. Woran, glauben Sie, entzündet sich der Konflikt in Deutschland?

6. Welche Rolle spielt aus Ihrer Sicht das Recht in diesem Konflikt?

7. Wie beurteilen Sie den Nutzen/die Potentiale/Gefahren von Gentechnik in der Lebensmittelherstellung?

8. Wie schätzen Sie die Chancen für die Markteinführung von Genfood ein?

9. Welche Konsequenzen hat Ihre Organisation aus dieser Debatte gezogen?

10. Wer sind die relevanten Akteure in dem Konflikt um Genfood in Deutschland?

11. Stehen Sie in Kontakt zu anderen Akteuren aus dem Konfliktfeld Genfood? Wenn ja, mit wem?

C. Regulierung von Novel Food: Die Einführung gentechnisch veränderter Lebensmittel wird in Europa seit 1997 durch die Novel Food-Verordnung geregelt.

12. Was wissen Sie über den Entstehungsprozeß der NFVO?

13. Haben Sie auf die Regulierung Einfluß genommen? Wenn ja, wie? Wenn nein, warum nicht?

14. Was sind für Sie die wichtigsten Bestandteile dieser Verordnung?

15. Ist die NFVO aus Ihrer Sicht eine ausreichende/nicht ausreichende Regulierung?

16. Kommt die Novel Food Verordnungen Ihren Interessen entgegen? Inwiefern? Wenn nein, warum nicht?

17. Was hat sich für Ihre Arbeit durch die NVFO verändert?

18. Wie geht Ihre Organisation mit der Regulierung um?

19. Welches Verhalten beobachten Sie bei den Behörden/Unternehmen/anderen relevanten Akteuren?

20. Stehen Sie in Kontakt zu der relevanten Behörde (BgVV)? Wenn ja, wie sieht dieser Kontakt aus?

21. Sollte an der Regulierung etwas verändert werden? Wenn ja, was?

22. Sind die rechtlich vorgeschriebenen Sicherheitsmaßnahmen aus Ihrer Sicht ausreichend/nicht ausreichend? Wenn nein, warum nicht?

23. Wie beurteilen Sie die Kennzeichnungsvorschriften?

24. Glauben Sie, es gibt einen Zusammenhang zwischen der Art der Regulierung und der Konflikthaftigkeit des Themas Genfood?

25. Wie beurteilen Sie den Zusammenhang von Kennzeichnung und Akzeptanz?

26. Welche nationalen Unterschiede in der Handhabung der NFVO gibt es?

D Rechtspolitisch

27. Können rechtliche Regulierungen zu einer Entspannung der Debatte um Genfood beitragen? (Recht als Konfliktlösungsinstrument?)

E Schlußfragen

28. Weitere Ansprechpartner? USA?

29. Fällt Ihnen noch etwas ein, über das wir bislang noch nicht gesprochen haben?

B.2 United States

A Introduction

1. Could you please introduce yourself?

2. What are your main areas of responsibility in the organization?

3. What is the aim of your organization? Which function does it have?

B GM-Food

At first I'd like to put some general questions on the GM food issue:

4. How would you describe the current public opinion towards GM food in the U.S.?

5. Has there been any public debate when GM food was first released to the market in 1994? If yes – why? What was the issue? If not – why not, what do you think?

6. Have there been or are there any special campaigns against GM food and what do you know about these campaigns?

7. How would you assess the risks/benefits of genetic engineering in food production?

8. Is there still a market for GM food in the US?

9. Has there been a change in the attitude of your organization towards GM foods?

10. Who are the relevant actors in that conflict?

11. How would you describe the relationship among these actors (you included)?

C Regulation of GM Food in the US.

There's no such thing as a genetic engineering act, but in the case of food there is the FDA Statement of Policy of 1992 and new guidelines for labeling, coming out this fall.

12. What do you know about the development of the statement of policy?

13. What do you know about the new FDA-Guidelines for Labeling?

14. What do you think about the „Genetically Engineered Food Right to Know Act"?

15. Did or do you have any influence on the regulation? If yes, in which way? If not, why not?

16. What is – from your point of view – the most important part/task (exercise) in the regulation of GM food?

17. Do you think the regulation of GM food in the US is sufficient/not sufficient?

18. How do you think, the public perceives the regulation?

19. And how do you think, the people, who are confronted with the regulation in their practical work perceive the regulation? (e.g. food processors?)

20. Is the legal regulation of GM food promotive for your work? To what extent? If not, why?

21. How does your organization deal with the regulation?

22. Are you in touch with the responsible agencies? What sort of cooperation is this?

23. Has there been a change in the behavior of this agencies?

24. If you could change the regulation – what would you change?

25. Do you think labeling should be mandatory or voluntary?

26. Does labeling have any impact on consumer's acceptance?

27. From your point of view, is there any connection between the way in which GM food is regulated and the way, in which the actors in that field deal with the issue?

28. Does the regulation have any impact on the debate over GM food and how would you describe this impact?

29. May legal regulations be a contribution to the relaxation in the debate on GM food? In what way?

D Ending

30. More contact persons?

31. Is there anything left, that might be important, but what we haven't talked about yet?