

**sofia**

Sonderforschungsgruppe  
Institutionenanalyse

**Compact Guidelines:  
Practical Procedure in Interdisciplinary Institutional  
Analysis**

*Kilian Bizer und Martin Führ*

sofia-Diskussionsbeiträge 15-4, Darmstadt 2015

ISBN: 978-3-941627-45-1

Sofia-Diskussionsbeiträge  
zur Institutionenanalyse  
Nr. 15-4

ISSN 1437 - 126X

ISBN 978-3-941627-45-1

## **Compact Guidelines:**

### **Practical Procedure in Interdisciplinary Institutional Analysis**

Kilian Bizer and Martin Führ

These guidelines compactly describe how an interdisciplinary institutional analysis is to be implemented in practice: Which steps of analysis and control have to be taken? Which research questions are important and which role do empirical results play in the analysis?

The description will be based on the requirements that the legislator has to fulfil with regard to the estimation of effects (as it is regulated in § 44 of the Joint Rules of Procedure of the Federal Ministries (Gemeinsame Geschäftsordnung der Bundesministerien, GGO) and in the guidelines of the European Commission).

The steps of analysis and examination outlined in this paper can be equally used in relation to institutional design problems in companies (like the adjustment of determining factors regarding 'Governance, Risk Management, Compliance' – GRC), associations or authorities.

At the end of the compact guidelines, key terms of institutional analysis will be explained in a [glossary](#). The glossary further contains recommendations on [secondary literature](#).

Göttingen and Darmstadt, July 2015

## CONTENTS

<b>1 Solving Design Problems by Institutional Analysis.....</b>	<b>3</b>
<b>2 The Seven Basic Steps of Institutional Analysis (Delta Analysis) .....</b>	<b>4</b>
<b>3 The Stage Heuristics of the HOI in Institutional Analysis .....</b>	<b>9</b>
3.1 Embedding the Stage Heuristics in Institutional Analysis.....	9
3.2 The Seven Steps of Stage Heuristics (Incentive and Impediment Analysis) .....	11
<b>3.2.1</b> Preliminary Clarifications .....	11
<b>3.2.2</b> Further Steps of Examination in Stage Heuristics .....	11
<b>4 Empirical Basis: From Field Analysis to Field Experiments.....</b>	<b>14</b>
<b>5 Conclusion: Prospective Estimation of Behavioural Effects of Design     Options .....</b>	<b>17</b>
<b>Appendices .....</b>	<b>18</b>

# 1

## Solving Design Problems by Institutional Analysis

The legislator is confronted with an unsatisfactory situation which he intends to improve by imposing a new law. We call this a *regulatory choice problem*. Institutional analysis helps the legislator with systematically identifying and comparing alternative *design options*. Laws—like all other rules, standards, etc.—aim at influencing people's decisions, which is why both the analysis of the present situation and the analysis of possible changes have to focus on the actors' behaviour.

This is equally applicable to organisations; be it a public institution (authority, university) or a private company. In these organisations, too, the systematic analysis of the actors' behaviour, including *incentives and impediments*, reveals various possible solutions and allows for the development of a strategy that effectively and efficiently targets the design problem.

Institutional analysis consists of seven *basic steps* (paragraph 2). Basic step 4 contains an incentive and impediment analysis which, in turn, comprises 7 *steps of examination* (paragraph 3) so that we are presented with a 7-7 pattern. A complete institutional analysis contains an empirical part (paragraph 4) which makes use of the entire array of methods of the social sciences. The concluding paragraph 5 will offer a short outlook.

Institutional analysis results in design options with comparable outcomes, and facilitate a concrete assessment of objectives and corresponding expenditure ('benefits'/'costs'). If the objectives are clearly defined, these options can reveal valuable recommendations for design.

## 2

### The Seven Basic Steps of Institutional Analysis (Delta Analysis)

The subjects of economic sciences, political sciences, sociology and law are all concerned with the analysis of institutions. This paragraph provides an overview on the procedure of an interdisciplinary institutional analysis including the analysis of instruments that influence human behaviour. The procedure consists of seven basic steps (see table 1)<sup>1</sup>.

Table 1: Interdisciplinary Institutional Analysis: Seven Basic Steps (following Bizer/Gubaydullina 2007)

1. Framing an objective (normatively): politically defined or deduced from legal standards (Basic Law (Grundgesetz, GG), EC Treaty etc.)
2. Identifying relevant actors: Who, and in which constellations/contexts? With which emphasis?
3. Defining contributions of behaviour to the achievement of the regulatory aim: What has to be done by whom? With whom to cooperate? ('target')
4. Analysing preferences, incentives and impediments concerning the actual behaviour and thereby explaining it ('actual') --> [\*applying the HOI to stage heuristics\*](#)
5. Determining the delta (target/actual comparison: step 3 minus step 4)
6. Develop design options to minimise the delta: changing the institutional framework (responsive regulation)
7. Where appropriate: estimating remaining delta (3-4+6)

---

<sup>1</sup> The table and the following description explain the procedure using the example of the legislator. Basic step 1 is different for organisations: in this case, the specification of the objective results from the aims of the organisation which, in turn, has to comply with legal requirements (compliance). See also: Bizer/Gubaydullina 2007: Das Verhaltensmodell der interdisziplinären Institutionenanalyse in der Gesetzesfolgenabschätzung, in: Führ, M./Bizer, K./Feindt, P.H. (eds.), Menschenbilder und Verhaltensmodelle in der wissenschaftlichen Politikberatung - Möglichkeiten und Grenzen interdisziplinärer Verständigung, Baden-Baden.

The seven basic steps—the sequence of which we also call ‘delta analysis’—can be described as follows:

1. Step 1 is a normative description of the objectives that is either politically motivated or deduced from legal regulations and that can, ideally, be transformed into verifiable criteria.<sup>2</sup> Implicitly, deviation has to be taken into account: it has to be examined whether a noticeable difference exists between the target and the actual (deficit in achieving objectives). Only if this is the case, action is required.<sup>3</sup>

#### Example for a Deficit in Achieving Objectives: Affordable Housing Space

**Normative description of objectives** (from public services) of the local authority: sufficient provision of the population with ‘affordable housing space’.

**Observation:** At the moment, rents are immensely increasing, wherefore, on the one hand, appropriate housing space cannot be afforded by many (especially by families with children). On the other hand, many properties are vacant. Furthermore, no new housing space is provided. Hence, we can

2. In the second step, the relevant actors are to be identified: Whose behaviour does play a central role? Who are the actors that can significantly contribute to the achievement of the objectives? At first sight, these questions might seem trivial but as soon as companies or intermediaries such as consultants or banks are addressed as actors in decision processes, we can clearly see that the organisational form of the actors is important. Eventually, the actor that forms an individual decision cannot be easily identified. At the same time, those actors have to be excluded that are not central in the further process. Reasons can be: their—comparatively—small contribution to the achievement of the aims defined in step 1 or limited resources for research (in empirical studies).

<sup>2</sup> For a structured approach see the “KORA” method (Concretisation of Legal Norms for Technical Design Suggestions, *Konkretisierung rechtlicher Normen zu technischen Gestaltungsvorschlägen*) in Hammer/Pordesch/Roßnagel, Betriebliche Telefon und ISDN-Anlagen rechtsgemäß gestalten, Berlin, Heidelberg, New York u.a., 1993.

<sup>3</sup> In the field of commissioned research the result of this analysis is in most cases predetermined: the call for proposals for a research project (or the choice of topic during study) is based on the political assumption that the actors’ actual behaviour does not lead to the socially desirable target. Defining this target is a normative step. To complete this step science can develop bases of decision-making but it cannot perform the assessment.

**Actors:** In the example given above, these would firstly be landlords who raise their rents. Investors should also be taken into account since they could extend the offers of housing. To do so, they depend on communal offers of general residential building areas by development plans for which the actors in the communities are responsible. Moreover, the investor might need banks or other financial intermediaries to be granted credit.

Depending on how the relevance or the available resources, respectively, are estimated, a choice has to be made among the actors that are to be considered.

3. In the third step, we concretise the behaviour that the actors, as identified in step 2, have to show in order to reach the objectives that have been formulated in step 1: Who has to do what and when? With whom to cooperate? With reference to the individual actors, a behavioural target is preset for the normative objectives to be reached.

**Behavioural 'target':** For the normative aim to be reached, the investors must offer more housing space—in collaboration with the intermediaries and with the actors in the communities and at terms that possibly meet the demands of tenants.

4. The fourth step is a behavioural analysis based on the *homo oeconomicus institutionalis* ('stage heuristics'; see paragraph 3) and analyses the factors that influence the actors' individual behaviour. In addition to the preferences (and therefore the intrinsic motivations) the (extrinsic) incentives and impediments for a specific mode of behaviour, if possible on an empiric basis (and where this is not possible: on the basis of plausible, theoretically founded assumptions).

We also have to establish the institutional context for the behavioural contributions to the achievement of the regulatory aim: actors do not make decisions independently of the conditions that surround them (e.g. in the respective organisations). Formal and informal rules play a vital role in companies and public authorities and must be imposed to determine their influence. The same is valid for laws, regulations, guidelines or contracts.

What matters is the question what cannot or no longer be assessed.

Characterising the **actors' preferences**: Tenants look for a good quality of living (as appropriate, they have to be classified into groups) for a cheap price; landlords demand a high income return for their properties (as appropriate, classify the landlords into groups: urban public housing association vs. pension fund).

Characterisation of **incentives and impediments**: Are the tenants willing to pay more rent for a higher standard of living (renovation)? Given changed personal circumstances, are tenants willing to move house and therefore vacate housing space (mobility of living)? Do landlords indeed demand income returns that are as high as possible and do they constantly raise rents to the extent that is possible on the market?

[Application of stage heuristics based on these questions \(see below\)](#)

The **institutional context** can play a major role: currently, investors have to take measures of thermal insulation when building new houses. This raises the costs of construction which have to be covered by rents on a long-term basis. Investors in real estate can come from abroad wherefore the foreign regulations might influence the returns there and hence affect the extent of investments here.

5. The fifth step consists in the delta analysis of the individual actors: this analysis determines the difference between the 'target' (step 3 ) and the noticeable 'actual' (step 4) of the actors' behaviour. It furthermore shows which actors have to be addressed in order to reach the target. The delta analysis is actor-specific, which means that it reveals those contributions and the corresponding actors that are needed in order to achieve the goal.

**Actor-specific delta analysis**: If—in the example chosen here—the significant incentive was the highest return possible—the analysis would have to start with the landlords as actors. It would have to ask if they possibly deliberately deny investments to keep the price level high. If building areas are offered to a limited extent because communities are afraid of the corresponding risks, communities are the relevant actors and the small residential building area is the delta.

6. In the sixth step, the design options for the actor-specific delta are developed on the basis of behavioural analysis. Different interventions can be used for this development, e.g. imperatives and prohibitions, prices (dues, certificates), liability law, standards for transparency, informal cooperation among actors (e.g. in associations or voluntary commitments) or moral appeals. It remains to be checked—based on the assumptions of behaviour



from [stage heuristics](#) (paragraph 3)—to which extent the design options would reduce the delta. By employing the prohibition of excess<sup>4</sup>, a suggestion for design has to be framed.

For a close examination, following design options can be considered:

- rent control
- reduction of dues/tax incentives for investors
- mitigation of restrictions for newly constructed buildings
- incentives for communities to offer development areas or empty sites, or to mobilise urban abandoned areas according to planning law

7. In step 7, we have to estimate to what extent the suggested design options can decrease the deficit in achieving objectives. This results in a statement concerning the remaining deficits<sup>5</sup>.

---

<sup>4</sup> See fn. 6 below.

<sup>5</sup> From a company's perspective it can be concluded that appropriate instruments of risk management shall be established, such as samples, evaluation of the results after a certain amount of time, finding indicators that indicate a fresh extension of the delta. Based on constitutional law, the legislator has to perform his duty of observation; legislation is therefore required to watch the actual development ('monitoring') and, if necessary, consider supplementary measures.

## 3

### The Stage Heuristics of the HOI in Institutional Analysis

It is for the stage heuristics of the HOI to capture the factors that (particularly) influence the actors' behaviour. Based on institutional and other frameworks in the status quo and on assumptions about the preferences and other influencing factors (see paragraph 3.2), institutional analysis aims at developing design options to more effectively and efficiently solving the design problem.

#### 3.1

##### Embedding the Stage Heuristics in Institutional Analysis

The HOI approach constitutes a methodical framework that is applicable to different disciplines (economy, law, sociology, political sciences) because it combines corresponding explanatory attempts and because it allows researchers to discuss assumptions about the actors' behaviour (that are often only made implicitly). This approach is advantageous because institutional analysis and stage heuristics demand a systematic and therefore comprehensible procedure; at the same time, the approach is receptive to various strategic focuses. As a consequence thereof, different influencing factors are brought into focus, resulting in—as opposed to disciplinarily constricted approaches—a vast variety of design options.

At the same time, the HOI is 'only' a methodical framework for analysis that has to be performed according to individual cases and that has to be specifically tailored to the actors and situations. Hence, it is not an automatism that solves the problem by itself. The HOI rather leads the researchers to a number of questions that (if possible) have to be empirically answered to find—based on 'good arguments'—a 'gentle'<sup>6</sup> solution' for the design problem, i.e. a solution that contains as little interventions as possible.

---

<sup>6</sup> The HOI thereby supports the legal examination of the question if the legislator has sufficiently considered the criterion of 'necessity' within the framework of the prohibition of excess (=principle of proportionality); see Bizer, Die Ökonomik der Verhältnismäßigkeitsprüfung. Sofia-Diskussionsbeiträge zur Institutionenanalyse no. 99-1, Darmstadt 1999 and Führ, Eigen-Verantwortung im Rechtsstaat, Berlin 2003, pp. 257.

**The 7 Basic Steps of Delta Analysis:**

- (1) Framing an objective (normatively):
  - politically defined or
  - deduced from Basic Law (*Grundgesetz*, GG), EC Treaty etc.)
- (2) Identifying relevant actors
- (3) Defining contributions of behaviour to the achievement of the regulatory aim ('target')
- (4) Analysing preferences, incentives and impediments concerning the actual behaviour and thereby explaining it ('actual')
- (5) Determining the delta: 'target'/'actual' (comparing steps 3 and 4)
- (6) Develop design options to minimise the delta by changing the institutional framework (responsive regulation)
- (7) Where appropriate: remaining delta

**Basic Step 4 – Stage Heuristics:**

- (0) Describing the *institutional context* (formal/informal); characterising the *preferences* (self-interest) of the individual actors
  - (1) At first: assuming behaviour that is *situatively maximising utility*
- If the behaviour cannot be adequately addressed by (1), then check*
- (2) *Cognitive limits*
  - (3) *Rule-bound behaviour*
  - (4) *Habitual (unreflected) behavioural patterns*
  - (5) *Emotional/instinctive behaviour*
  - (6) *Social preferences*
  - (7) *Engogenous preferences*

Figure 1: Methodology of Interdisciplinary Institutional Analysis (following Bizer/Gubaydullina, in Führ/Bizer/Feindt 2007)

The HOI uses the classic *homo oeconomicus* as a starting point for analysis but takes into account the fact that the assumptions made during analysis often only insufficiently explain the behaviour and therefore have to be complemented by additional information. The HOI contains a picture of the factors that typically influence human behaviour, with stage heuristics describing a generally valid systematic approach that asks the following questions:

- Which factors influence the key actors' behaviour?
- Why do they behave as can be observed?
- Which factors (motives, expectations, routines, emotions, instincts) trigger the behaviour?
- Which technical, organisational and other systemic conditions are relevant?
- How does the actor balance their alternatives of behaviour (consideration)?
- What, in addition to their own—probably small—behavioural contribution, would the actor have to do differently in order to contribute to the decrease of the deficit in achieving objectives?
- Under which conditions can we expect the actor to change their behaviour accordingly?
- Why do they not behave as would be necessary?
- Which influencing factors (institutions and their effect on incentives/impediments) could possibly be changed to achieve a reduction of the delta?

## 3.2

### The Seven Steps of Stage Heuristics (Incentive and Impediment Analysis)

The incentive and impediment analysis starts with two aspects that have to be preliminarily clarified: On the one hand, the institutional context that surrounds the actor and on the other hand, the preferences that can be assumed for each individual actor.

#### 3.2.1

##### Preliminary Clarifications

Actors do not make decisions irrespectively of the conditions surrounding them. The status quo of the *institutional and other contexts* has to be described at the beginning of the analysis. This description includes both formal and informal institutions but also further technical, organisational and systemic conditions. The following points have to be considered:

- Formal institutions comprise the recently valid legal regulations, contracts, internal instructions on behaviour in written form (administrative instructions, directives, standard operating procedures (SOP)).
- The informal institutions contain the unwritten ‘instructions’ of a trade, a company, a department, an association etc.; for example the approach to new tasks, internal and external communication and cooperation (also: ‘corporate culture’).
- Technical, organisational and other systemic conditions can result in restrictions concerning behavioural options but they also reveal new options, e.g. by expanding systemic limits.

Both formal and informal rules in companies and public authorities play a major role and have to be described to determine their influence (and to be empirically supported during further research, where appropriate). The other conditions (only) have to be considered to the extent that is relevant for the respective scientific field.

With regard to their *preferences* each actor has to make plausible assumptions (for some, the income is most important, others emphasise the respect received by their peer group; both are ‘self-interested’ preferences). If further analysis results in divergent results (e.g. by relying on empirical data in literature or on one’s own surveys), the assumptions about the preferences are to be modified. Furthermore, we have to consider the question if the structure of preferences can be shifted by changing the institutional context.

#### 3.2.2

##### Further Steps of Examination in Stage Heuristics

The further steps of stage heuristics can be shortly summed up as follows: generally, we have to assume that the actors maximise their personal utility

according to their preferences. If the behaviour cannot be completely explained on the basis of this fundamental assumption, further influencing factors have to be found and examined. This search and the examination are to be conducted gradually:

1. Utility-oriented Behaviour

In the option of situative utility orientation, the actor balances the respective costs and the benefits of their decision, trades them off against all relevant alternatives and then opts for the alternative that promises the highest net benefit.

*If the actor's behaviour cannot be sufficiently explained by (1), then we have to analyse step by step if the following assumptions explain the observed behaviour ('actual') more adequately.*

2. Cognitive Limits

In the next step, we have to gather information about the actors' cognitive limits and deficits. These include particular ways of perception which have been developed on the basis of preliminary experiences, including educational and professional influences.

3. Rule-bound Behaviour

In this step, the actors' behaviour can be explained by assuming that the actor, in a situation that is perceived as confusing or precarious, looks for simple decision rules to manage this complexity.

- a) The rules are often based on a rough cost-benefit analysis which has been made at an earlier point of time. From that point on, the actor adheres to this rule without challenging it in the concrete decision situation.
- b) However, it is possible that the actor—without having ever made a cost-benefit analysis according to their preferences—follows a rule because they intuitively deem it reasonable.

4. Habitual Behaviour

It is possible that the actor behaves habitually and follows a rule that they freely adapted from others at an earlier stage without making a cost-benefit analysis. For example, they may have observed particular behavioural patterns during their education or their professional life, which they now unconsciously follow. By doing so, the actor assimilates to their surroundings, avoids dealing with the decision situation and ensure that they do not deviate from the behaviour of their environment.

5. Emotional or Instinctive Behaviour

In some situations human behaviour is affected by emotional or even instinctive components. A good index of this effect is the promptness of the decision: very fast decisions are often made emotionally—rational decisions need more time.

6. *In some situations social preferences can influence the decision but they can only be indirectly deduced from behaviour because such preferences cannot be directly observed. In many situations, individuals are guided by procedural or material fairness<sup>7</sup>—even if this orientation puts them to expense.*
7. *Endogenous preferences are, in turn, influenced by political instruments. While economics mostly assumes stable (exogenous) preferences which are independent of the surrounding institutions, it is absolutely reasonable in some regulatory contexts to reflect the effects of the institutions according to the actors' mentality, meaning their personal values and preferences. This is why a certain tax policy could change the preferences for sincerity concerning tax payments.*

The last two aspects are put in italics because we have to be careful when interpreting the observed behaviour on the basis of social or endogenous preferences. Steps 6 and 7 should only be taken if the other steps do not sufficiently explain the actors' behaviour. Eventually, this would modify the preliminary assumptions made in step 2.

The actor can be portrayed as an individual (see figure 2) that makes decisions within the institutional framework that is relevant for their behaviour. In doing so, cognitive or informational 'mindcuffs' (can) influence their perception.

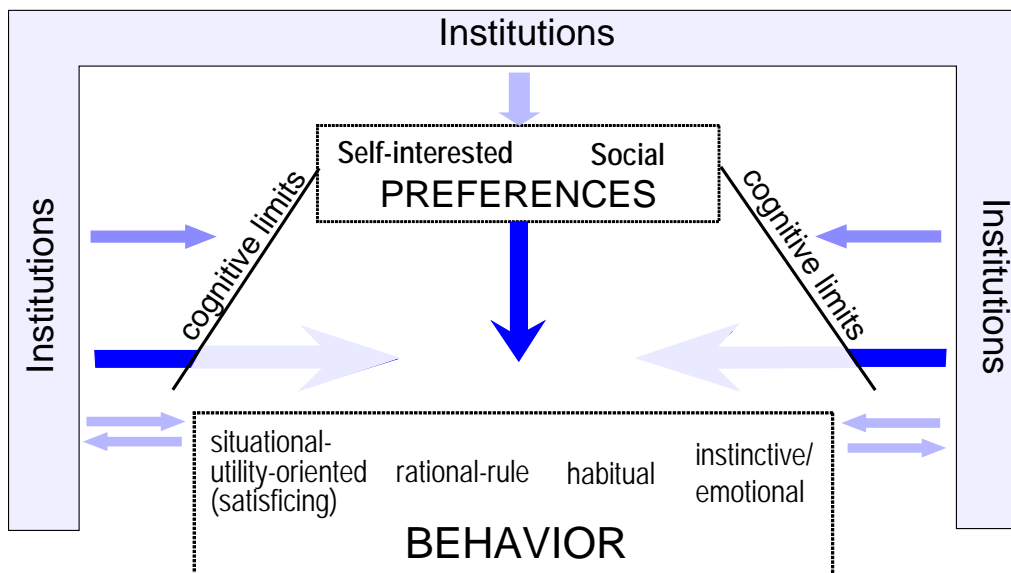


Figure 2: The Actor and the Factors Influencing their Behaviour in the Institutional Context

<sup>7</sup> Using rules of fairness (like the 'golden rule') can therefore also be explained as an obligation to rules and hence can be assigned to the third step (see above step 3b).

## 4

### Empirical Basis: From Field Analysis to Field Experiments

Institutional analysis is based on empirical data.<sup>8</sup> The entire range of empirical social sciences is used for analysis which should mirror the real actors and their behaviour. In addition to this 'field analysis', 'field experiments' can be implemented; meaning the simulation of changed patterns of behaviour and forms of interaction involving real actors.

Empirical evidence which combines the following elements has proven successful:

- a) If possible, data about the *actual behaviour* should be collected. This is most easily achieved on the basis of existing, otherwise published data (e.g.—as in the example used at the beginning—rent indices). Furthermore, the researcher should examine whether existing data can provide evaluations concerning their research questions (socio-economic panel, longitudinal and cross-sectional data).

If the interaction with public authorities is part of the research, the *access to documents from administrative procedure* (application documents, permits, environmental impact assessment etc.) has to be examined; access might be granted on the basis of legal regulations concerning the freedom of information or the accessibility of environmental information (Law on Environmental Information (*Umweltinformationsgesetz, UIG*)).

- b) Further empirical evidence usually begins with simple *questioning* of the actors, which have to be evaluated qualitatively. The evaluation will result in data concerning the actors' self-perception but also in data about other actors' behaviour.

On the basis of the hypotheses (semi-standardised) questionnaires are to be compiled that are completed by the actors either verbally (in direct conversation or via telephone/skype) or in written form (also online or as PDF) and can be quantitatively assessed.

---

<sup>8</sup> Within the scope of a paper it generally is not possible to collect one's own empiric data. Alternatively, the argumentation is based on research presented in literature, on actors' statements (in interviews, websites) and on plausible assumptions. In some cases, minor inquiries by questionnaire—e.g. of friends or acquaintances—can be used to mirror the examination steps of stage heuristics.

- c) The direct questioning of actors can be supplemented by the acquisition of expert knowledge, hence people with special experience in the field of research. It is often conducive to research to combine the perspectives of different experts. By doing so, various perceptions, assumptions and evaluations can be established and compared; for example by using elements of a 'consent workshop' that shows on which points the experts agree (consent) or disagree (dissent).  
In a workshop design options can be explained to the actors so that they regard the process from a (future) regulatory situation. Ideally, the expected behaviour can be better gauged under the new conditions. In many cases, spontaneous reactions will occur that bear on the design option in the perspective of each individual actor or their organisation, respectively ("I/we like/do not like").
- d) At this point, 'simulation games' have proven a reliable instrument for research. Simulation games reflect a real context of action in a simulated situation where the administrator is able to (gradually) change the legal and other institutional frameworks. This is a way to mirror a competition among numerous actors from value chains (from the producer of the basic materials via the producers of a product via retail through to the consumer). Not only the actors' reactions to the changed conditions can be simulated but valuable insight into their interaction and the corresponding dynamic (market) powers can be gained. A simulation game needs to be thoroughly prepared; the roles of the actors need to be described and the 'impulses by the administrator' need to be predefined. It is important to integrate the participants of the game (in the best case 'real' actors) into the preparation as early as possible to gain their acceptance for the method and to develop a simulated situation that is as real as possible. Furthermore, the communication among the 'players' needs to be documented to later understand and analyse the effects of changing conditions.
- e) With concrete alternatives for regulation (which possibly have been tested in a simulation game), their effect can be examined in the highly abstract environment of a *laboratory experiment*. This method clearly results in higher control of disturbing factors and also allows for the isolated variation of singular parameters for decision. Individual design options can be alternately or sequentially simulated, thus revealing behavioural differences and testing them for their stability.
- f) A *participating observation* is conceivable although it surely contains the most detailed (and costliest) coverage of environmental factors but also implies comparatively little control and replicability. If own impulses can successfully be integrated into the actors' behaviour (e.g. new ways of perception, types of behaviour, mechanisms for cooperation), then we can speak of a '*field experiment*'; meaning the virtual transfer of a constellation from a simulation game to real action.



In a sense, every change of the regulatory framework is a form of field experiment that is accompanied by learning processes and behavioural changes of the actors, which, in turn, affect their real actions.<sup>9</sup>

Figure 3 summarises the six empirical elements whereas the circular depiction does not imply that *all* elements—and in that particular order—have to be completed. Depending on the empirical design, other combinations are possible.

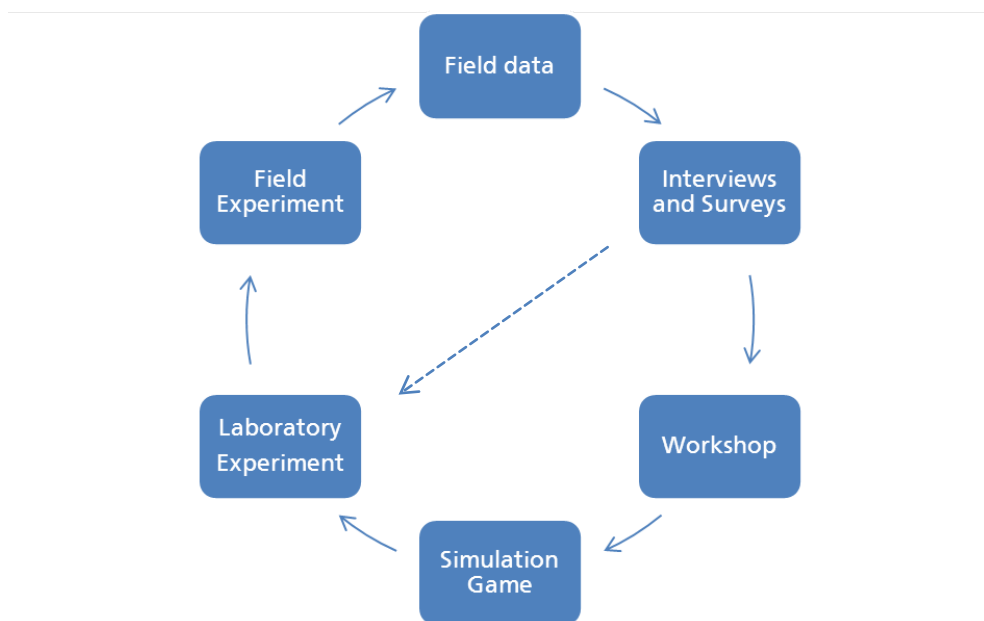


Figure 3: Empirical elements

It is vital for empirical orientation that it is undertaken in a problem-related way alongside the ‘central question’ of the research project. What does the regulatory problem comprise? When does the ‘delta’ occur? What exactly is supposed to be regulated? What has to be known about the actors’ behaviour?

The ‘researcher’ is not methodically determined by stage heuristics but invited to develop empirical evidence that is tailored to the problem and pragmatically conceived to provide the basis for the choice of design options.

<sup>9</sup> Being bound to the constitutional duty of observing legal effects, the legislator has to collect empirical data concerning the effects of a legal novelty (*ex post* evaluation), thereby taking a step to the (repeated) question whether further adjustments of legal and other institutional framework is commendable or not (*ex ante* evaluation’ with regard to further design options).

## 5

### **Conclusion: Prospective Estimation of Behavioural Effects of Design Options**

The investigative design presented here, including the seven basic steps of the delta analysis and the seven steps of stage heuristics, comprises 14 steps in total. The interdisciplinary institutional analysis and the stage heuristics simplify the regulatory choice problem to a great extent, for the search for better design options not only has to follow a certain (simple) logic (the first seven steps) but it has to be grounded in behavioural science so that better design options can be established (the seven steps of stage heuristics).

This is the reason why the stage heuristics in institutional analysis not only is an appropriate guidance for a researcher in the social sciences but also for the '*Legist*' (the Austrian term for a consultant in a ministry), who is supposed to develop design options and simultaneously—maybe at first only implicitly or excursively—estimates the effects of legal instruments.

Institutional analysis has proven reliable when prospectively estimating the effects of design options as it is required within the framework of the estimation of regulatory impact assessments (*Gesetzesfolgenabschätzung*, GFA) or of an Integrated Impact Assessment (IIA) on EU level. On this basis, existing regulations can be evaluated with respect to the influence of these regulations on the actors' behaviour and can therefore result in the objectives that were intended by the legislator.

## Appendices

### Glossary

**Basic steps:** An institutional analysis consists of seven basic steps.

**Behaviour** describes all visible processes of human action (conduct, bearing or forbearance), including the respectively preceding—conscious or unconscious—processes of perceiving the situational context of action and its classification (according to one's own preferences and to the impulses from the institutional framework) with regard to the decision between alternatives of action.

**Design option:** Changing the actors' situation concerning their incentives and impediments with the aim to contribute to the solution of the design problem.

**Design problem:** The achievement of (normatively preset or self-imposed) aims is perceived as deficient. By changing the institutional framework (= design options) the deficit can be reduced.

**Governance** is any societal or organisational attempt to systematically influence patterns of behaviour; including enhancing "learning processes" on all levels of decision making (macro, meso, micro). Governance can include different social mechanisms or combinations of social mechanisms, such as hierarchical power, legal norms, monetary incentives, social norms, (generating and disseminating) information, or reputation. Governance approaches are using both formal and informal institutions which facilitate or restrict actions and interactions of natural persons, organisations and public bodies.

**HOI – homo oeconomicus institutionalis:** This approach describes an examination with seven steps concerning the question which factors influence an actor's behaviour and are therefore significant for incentive and impediment analysis; see paragraph 3.

**Incentive and impediment analysis** is a systematical description of factors that influence the actors' behaviour; ensuing from the institutional context and the assumptions concerning the preferences based on the stage heuristics of the HOI.

**Institution:** Here to be understood in a social-scientific way and meaning formal and informal instructions in their entirety (including the mechanisms for positive and negative 'sanctions' [=consequences of actions]). This definition does not refer to 'political institutions' like the German Bundestag, the federal government or the European Commission (those are 'political entities' [of the state]). Also not included in the definition are 'institutional' investors on the financial markets like pension funds or insurances; these can rather be defined as organisations.

**Organisation** can be described as a number of people who—e.g. in a company, an association or a public authority—act in a certain formal context (Inc., Ltd., corporation, registered association) and who have an agenda; given varying individual interests (e.g. interests of departments, locations, parts of the company etc.). Organisations can also be regional corporations, meaning all federal entities on municipal level from federal states and the national level to supra-national institutions.

**Regulation** is any attempt to influence the [economic] behaviour of actors - by creating an institutional framework (using all kinds of formal institutions, such as laws, implementing ordinances, administrative guidelines. Regulation is thus a specific mode of governance.

**Responsive regulation:** This approach takes into account the incentives and constraints relevant for the behaviour of actors and uses both formal and informal institutions, with an emphasis on the importance of "learning processes" and the proactive cooperation of actors.

**Stage heuristics:** A method of examination that contains seven steps which help to make plausible assumptions regarding the factors that are (especially) relevant for the actors' behaviour; see paragraph 3.2.

**Steps of examination:** Basic step 4 of the institutional analysis contains an incentive and impediment analysis which, in turn, is divided into seven steps within the framework of stage heuristics (see paragraph 3.2.2).

## Introductory Literature about the Approach of Interdisciplinary Institutional Analysis

Gesetzesfolgenabschätzung in der Anwendung – Perspektiven und Entwicklungstendenzen. Hensel, S./Bizer, K./Führ, M. (eds.), Baden-Baden 2010 (Nomos), Interdisziplinäre Studien zu Recht und Staat Bd. 48

The European Impact Assessment and the Environment. Bizer, K./Lechner, S./Führ, M. (eds.), Berlin, Heidelberg 2010 (Springer), Ökonomische Analyse des Rechts / Law & Economics

Menschenbilder und Verhaltensmodelle in der wissenschaftlichen Politikberatung - Möglichkeiten und Grenzen interdisziplinärer Verständigung. Führ, M./Bizer, K./Feindt, P.H. (eds.), Baden-Baden 2007 (Nomos), Interdisziplinäre Studien zu Recht und Staat Bd. 43

Responsive Regulierung - Beiträge zur interdisziplinären Institutionenanalyse und Gesetzesfolgenabschätzung. Bizer, K./Führ, M./Hüttig, C. (eds.), Tübingen 2002 (Mohr-Siebeck)

Sustainable Behavioral Governance: Responsive Regulation for Innovation. Führ, M./Bizer, K.; in: Beckenbach, F./Kahlenborn, W. (eds.): New Perspectives for Environmental Policies through Behavioral Economics, Berlin 2015 (Springer) (forthcoming)

**Examples related to practice can be found on:**

*<http://sofia-darmstadt.de/forschungsansatz.0.html>;*

**see in particular:**

### **Environmental Impact Assessment (EIA)**

[UVP \[= EIA\] Survey](#) (with broad empirical data based on 105 standard case studies and on additional detailed case studies)

- contribution in the journal [UVP-Report](#) about the methodology of the research project
- Evaluation des UVPG des Bundes - Auswirkungen des UVPG auf den Vollzug des Umweltrechts und die Durchführung von Zulassungsverfahren für Industrieanlagen und Infrastrukturmaßnahmen, Führ, M./Bizer,

K./Mengel, A./Dopfer, J. et al., [sofia Berichte](#) 01, Darmstadt 2009 [[Berichtsfassung](#)]

- See also, based on the methodology developed in the UVP project, Evaluation von Gebrauch und Wirkung der Verbandsklagemöglichkeiten nach dem Umwelt-Rechtsbehelfsgesetz (UmwRG), Führ, M./Schenten, J./Schreiber, M./Schulze, F./Schütte, S., [UBA Texte 14/2014](#), Dessau-Roßlau; see also the essay in Neue Zeitschrift für Verwaltungsrecht (NVwZ) 2014, 1041-1046.

### Safety of Chemicals

- Risikominderung für Industriechemikalien nach REACH - Anforderungen an eine Arbeitshilfe für Hersteller, Importeure und Stoffanwender, Führ, M./Krieger, N./Bizer, K. et al., published as UBA-Texte 05/06, Dessau.
- REACH as a paradigm shift in chemical policy -responsive regulation and behavioural models; Führ, M./Bizer, K., in: Journal of Cleaner Production (JCLP), 15, 2007 (4), 327-334, Elsevier, Exeter (UK).

### Nanomaterials

(with data collection, an expert workshop and an experiment concerning the question which instruments legislators should use to react to the risks of nanomaterials)

- Schenten, J./Führ, M.: Law and innovation in the context of nanomaterials: Barriers to sustainable development? Results of an empirical study, in: [elni Review 2/2012](#), pp. 83-91.
- Schenten, J.: Recht und Innovation bei Nanomaterialien: Zwischenergebnisse einer juristisch-empirischen Untersuchung, StoffR - Stoffrecht für Praktiker 2/2012, pp. 79-87.

### Empirical Instruments

#### Experiments

- Camerer, C. F. 2003: Behavioral Game Theory: Experiments in Strategic Interaction. Princeton University Press.
- Eilers, R. 1980: Experimentelle Heuristiken in der Wirtschaftsforschung: Methodologische Grundlagen unter besonderer Berücksichtigung d. Einsatzmöglichkeiten (u. -grenzen) offener Planspiele in der Tarifverhandlungsforschung, Reihe Wirtschaftswissenschaften vol. 206, Frankfurt.
- Golombiewski, B. 1995: Steuerliche Planspiele: Anforderungen, Leistungsvermögen und Eignungsprüfung steuerlicher Planspiele als Instrument

steuerlicher Ausbildung; Forschung und Planung sowie Entwicklung eines anforderungsgerechten Referenzmodells für die Planspielkonstruktion, Bielefeld.

- Helfferich, C. 2011: Die Qualität qualitativer Daten. Manual für die Durchführung qualitativer Interviews, 4th ed., Wiesbaden.
- List, J. A./Sadoff, S./Wagner, M. 2011: So you want to run an experiment, now what? Some simple rules of thumb for optimal experimental design. *Experimental Economics* 14(4), 439-457.

### **Surveys (Interviews/Questionnaires)**

- Backhaus, K./Erichson, B./Plinke, W./Weiber, R. 2011: Multivariate Analysemethoden. Eine anwendungsorientierte Einführung, 13th ed., Berlin.
- de Leeuw, E. D./Joop, J. H./Dillman, D. A. 2008: International handbook of survey methodology, New York.
- Dillman, D. A. 2007: Mail and internet surveys: The tailored design method, 2nd ed., Hoboken, New Jersey.
- Schnell, R./Hill, P. B./Esser, E. 2011: Methoden der empirischen Sozialforschung.