

# The Design of Modes of Governance; with an Application to the Health Care Sector

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## Abstract

*A rigorous foundation for governance in the non-profit and public sectors is presented by separating values to be realized from the instrumental institutions. The framework obtained is applied to a health care sector. The integration is achieved by a common space on which both societal values and organizational institutions are defined. That space is a graph in which networks are hierarchically clustered into closed, internally dependent team, called a stratified society. The framework allows for defining precisely the concepts of rule-feasibility and rule-efficiency of a mode of governance. A finer distinction describes the emergence of types of values from the interaction between teams, respectively, the emergence of modes of governance from types of transactions.*

*Next, various types of welfare policies in the health care sector are analyzed. It also brings forward a new type of government failure, viz., the inconsistency between a desired welfare policy and the mode of governance enacted to implement this policy.*

Keywords: Modes of Governance; Non-Profit Sectors; Health Care  
JEL codes: H75, L31, L51, I18, K12, L33.

## 1 Introduction

The European Union has been established to develop a common internal market for the member states in order to enhance welfare of its citizens. For that reason it has, among others, developed law to promote competition by correcting market failures, viz., the occurrence of cartels and a dominant position in a market. The legal problem of defining and identifying unlawful behavior has shown to be quite difficult. A closer cooperation between lawyers and economists in the recent past to overcome these serious difficulties has not brought the positive effects one hoped for, mainly because economists have a hard time answering the questions that lawyers were asking.

Consider, for example, the definition of an ‘enterprise’. The European Court of Justice holds that the nature of an activity exercised by an entity determines whether that entity is an enterprise, not the legal form or status of that entity. So it considers an enterprise to be an entity that performs *economic* activities. But it defines an activity to be *economic* if it is concerned with the supply of goods and services on a specific market in competition with other suppliers<sup>1</sup>. Now problems arise, because the Commission uses an institutional element such as ‘competition’ and ‘market’ to describe the ‘nature’ of an economic activity, while the characterization of the nature of an economic activity should precede the institutional arrangements by which it is realized. So the enterprise criterion contains to a circular argument that makes it ineffec-

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<sup>1</sup> See case C-35/96 (Commission/Italy) or C-180/98 (Pavlov a.o.).

tive for making a distinction between, for example, a service of general interest (SGI) and a service of general economic interest (SGEI).

This problem is aggravated in the context of health care. Is a hospital an enterprise in the above sense, performing economic activities? If the services provided by a hospital have internalized specific services of general interest, does the supply of these hospital services still define an economic activity for Competition Law? If the relevant market for some hospital services does not generate market prices, is that market still a market for economic activities according to Competition Law? Are these services a Service of General Economic Interest (SGEI)<sup>2</sup>? These questions belong to the realm of the Competition Authority (CA), which has to implement Competition Law. They cannot be answered in the context of neoclassical economics, but require an approach that separates the welfare creating nature of activities from the modes of governance that manages and realizes those activities. The mission of the CA is to increase social welfare by removing market failures.

The other view is to consider health services as services of general interest (SGI)<sup>3</sup>, which are provided by charitable or non-profit organizations. For those organizations, competition is considered subordinated to cooperation with other organizations that have similar or complementary missions. In order to contain the macroeconomic costs and microeconomic quality of the health services, a system of regulation and supervision has to be built, which I call the Health Authority (HA). Its mission is also to increase social welfare, not by the performance of an economic system, but by government control. Both modes of governance, supervised by the CA and the HA, may be complementary, but are contradictory on many issues. We need an analytical framework to investigate the conditions for a fitting coordination between the two.

In this paper, however, I use framework, introduced in Ruys (2005) that is based on the full separation of the values that a service generates – its nature – from the institutional conditions – its governance – necessary to manage and realize that service in the societal context. The approach of separating values from governance is comparable to Lancaster's (1966) approach of separating the desirable properties of an option from the carrier of these properties, the option itself. Here, the carrier of desirable properties is the contract by which the properties are exchanged. Valentinov (2006) has a similar intuition when he proposes to compare – in a linear continuum – the extent of common interest as perceived by interacting agents with the extent of common interest foreseen by the adopted governance mechanism.

The next three sections present the analytical framework. Section 5 applies this framework to the Dutch health care sector. Section 6 concludes.

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<sup>2</sup> Services of general economic interest are commercial services of general economic utility, on which the public authorities therefore impose specific public-service obligations (Article 86 of the EC Treaty, formerly Article 90). Transport, energy and communications services are prime examples.

<sup>3</sup> The EU describes "General-interest services" as services considered to be in the general interest by the public authorities and accordingly subjected to specific public-service obligations. They include non-market services (e.g. compulsory education, social protection), obligations of the State (e.g. security and justice) and services of general economic interest (e.g. energy and communications). Article 86 of the Treaty (former Article 90) does not apply to the first two categories (non-market services and state obligations). This may be compared with Definition 3.2 in this paper.

## 2 Values and power in a stratified society

### 2.1 *The need to generalize standard economic concepts*

The standard option space in neoclassical economics is an  $n$ -dimensional vector space in which a vector – called a bundle of options – specifies a quantity for every one of the  $n$  distinct options. This approach has proven to be very effective for economic analysis. These bundles can be ordered by individual consumers or producers; they can be measured and added to obtain total demand or supply. They can be valued by market prices. An option has user value and is a source of utility for a consumer. These advantages turn also in disadvantages: services are not easily described as measurable objects, independent from the person who produces or consumes the service. That restriction may not be too harmful in times of relative scarcity, when basic needs had to be met, irrespective of the person who provided these needs. At such times, persons are replaceable and its labor is a substitute for physical force with a negative utility for the person. So persons are anonymous and belong to types of labor with a characteristic productivity. The basic value at a time of scarcity ‘more is better’ has been incorporated in the concepts of neoclassical economics.

Today, we live in a much more complex society, where scarcity is related to personal characteristics of options and where the interdependence of individual actions and group formation increase beyond imagination. We live in a service economy, where it is acknowledged that the interaction between a service performer and a service receiver generate value, not only for the user but also by the user and for the performer. Value is a relational concept. Helpfulness is not identical any more to servitude or dependence.

The first step required for analyzing such a society is the design of a stratified option space that generalizes the neoclassical option space. Graph theory allows us to specify relations between people and group formation among people. These properties are generalized by matroid theory, by which a distinction can be made between independent and dependent sets in a society, each having a distinct function in the design of a personalized option space, and by which that space is ordered.

### 2.2 *The stratified society*<sup>4</sup>

A society consists of a set,  $N$ , of members who are in many ways related to each other. Some are closely interrelated; others are independent from each other or related on a distant. Such a *network* can be described by a graph, in which the nodes are people and the nodes are relations. A sequence of people that are pairwise connected form a *path* in the graph. If the initial person of a path is connected with the last one, that path is called a *circuit*. Those are the people that are closely related; they form a *dependent* subset. A set of relations is *independent*, if it contains no circuit. A set of relations that is not independent is dependent. We are interested in the smallest de-

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<sup>4</sup> This section contains an informal introduction to the concept of a stratified society and its option space. The formal exposition and definitions are given in the Appendix.

pendent set that still contains a circuit. When we interpret a relation between two persons as an interaction between the two, then a circuit is a set of persons (directly or indirectly) interacting with each other. A minimal dependent set contains all and only people that interact with each other and called here a *team*. A community may be such a team, as well as the employees of a firm, the members of a family or the citizens of a country. The *rank* of a team is equal to the size of the largest independent set in the society to which the team belongs. When decision making is the option, a team of rank 1 implies complete *centralization* of a decision; a set of teams of rank  $n$  implies complete *decentralization*. A *stratified society*  $S(N,n)$  in a society with  $n$  members is a set of teams that are ordered according to their rank,  $r = 1, \dots, n$ :

$$(1) \quad S(N) = \{S^1, S^2, \dots, S^n\} = \{S^r\}_{r=1, \dots, n}.$$

Since the number  $n$  may be prohibitive large, a selection of layers is chosen that corresponds with the needs of the model, which are called levels. A *stratified society*  $S(N,m)$  with  $m$  levels is a selection of  $S(N,n)$ , where the levels are ordered according to their rank.

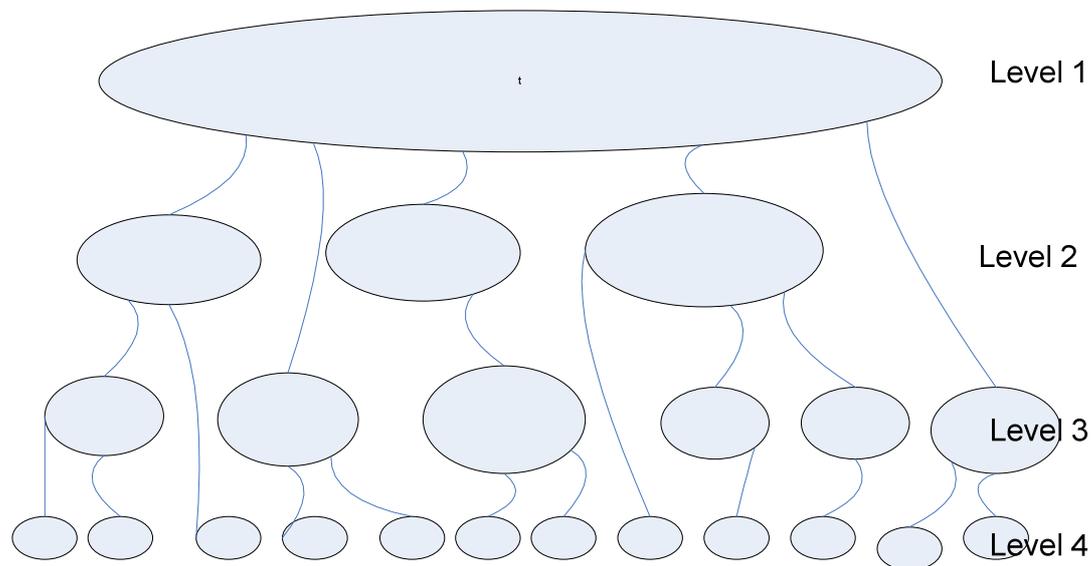


Diagram 1: Teams of various Levels in a Stratified Society

Teams may be connected, both horizontally on the same rank, and vertically between ranks, to form *networks*. The horizontal network at some rank is a tree (may be a star) of the same rank, or – if it contains a circuit – it becomes a team (a dependent set) on a higher rank. If the network connects teams vertically, it is a tree. The analysis in this paper is built in the novel concept of a stratified society, which is a network between teams (minimal dependent sets).

When we consider choice behavior of people, that behavior depends on the specific situation, but also on the size or scale of the team. We neglect all aspects except for the size of a team. So if a team of lawyers and a team of medical doctors behave identically in arriving at a decision, these teams are not distinguished. To make the analy-

sis tractable, we assume that the properties of a team – a team internalizes by definition all its external effects and contains exactly all interacting agents – depend on the size of a team and that all teams of the same size have the same properties. That assumption results in a *type of a team*, which represents a set of teams of the same rank. It follows that we will distinguish only a small number of categories, with the largest team – that is the whole society if interdependent on the specific subject – on the highest level and the smallest teams – the individuals – on the lowest level.

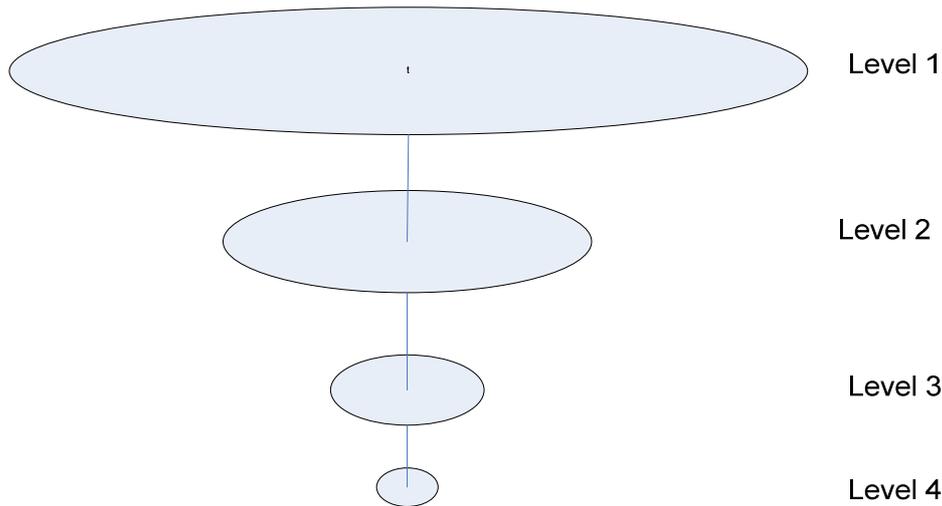


Diagram 2: Types of Teams in a Stratified Society with 4 levels

In the next two sections, two properties will be assigned to this stratified society, viz., a type of value, which is a driving force in each team, and a capacity (power), which enables the team to realize that value.

### 2.3 Values derived from acts and rules

Next we associate with each type of team a set of values,  $U^r$ , for rank  $r$ . These values are - at each level - aggregates from values at a lower level. At the lowest level, values are specific and suited for single persons; at higher levels, values are clusters, such as hospital services. At the highest level,  $r = 1$ , values are comprehensive services that have to be ordered by one preference relation: a social choice problem; at the lowest level there are as many preferences as there are agents, which requires again an adequate decision mechanism

The carrier of a value, which people may choose to attain value or utility, may be both an act and a rule that generates value for persons. The extent of this carrier determines the size of the team that corresponds with the value. So with each team in a stratified society a type of value can be associated by a mapping from the stratified society on the value space:  $S(N) \rightarrow U$ , where

$$(2) \quad U(N) = \{U^1, U^2, \dots, U^n\} = \{U^r\}_{r=1, \dots, n}.$$

The value with a rank that is equal to the number of members in society,  $U^n$ , represents the standard neoclassical consumption space:  $U^n = \{X^i, \prec^i\}_{i=1, \dots, n}$ , where  $N = \{1, \dots, n\}$  is the set of independent agents in the society

The map  $U(N)$  is called the *stratified value space* for the stratified society  $S(N)$ . If we can connect the various team-related values in a society from a low level to higher levels, according to the subsidiarity principle, we get a *vertical value chain*. An individual may choose such a value chain in the stratified value space from the alternatives offered to her (see Diagram 1). Implicitly she chooses a series of teams generating the corresponding values, or equivalently, the corresponding carriers of values.

Level	The Stratified Society	Types of Value	Types of Services (reciprocal)
1	Global groups	Principles for Survival, Identity, Stability	Containment
2	National groups	Infrastructural values Normative values: Equal Access, Equal Treatment <sup>5</sup> , Mobility, Equity,	<i>Communal services</i> , Design of rules, of Welfare Policies; Public Goods;
3	Specific groups	Interpersonal values: Altruism, Care, Brotherhood, Solidarity, Fairness	<i>Social Services</i> , Sector (Health) Policies; Cohesion;
4	Many small groups with external restrictions	Personal values: Individual Freedom, Fitness, Efficiency, Beauty, Multiformality	<i>Private services</i> , Self-services Specificity

Table 1. The vertical value chain<sup>6</sup>

The ranking in Table 1 implies the principle of subsidiarity: from comprehensive values with a large extent, to specific values with a small extent. Individual values cannot flourish without the social, higher level values being realized.

<sup>5</sup> Internal stability requires fairness: equal treatment of equals; external stability requires flexibility: no greater unfairness than equal treatment of unequals!

<sup>6</sup> The European Values Study (2005) identifies long-term values such as the value of family, work, friends, religiosity, tolerance, solidarity, confidence, obedience and work ethos, post-materialism, et-cetera. These values are aggregated into two independent dimensions: normative/religious and personal autonomy / individual freedom. Since values are rather stable over time, they can characterize a country on the cultural map. These two dimensions can be transposed into the two independent dimensions I present here. Huppert e.a. (2008) have developed measures of well-being and measured these across European countries. They further distinguish in the interpersonal and personal values mentioned under level 3 and 4 'Feelings', referring to 'having and being', such as belonging (3) and satisfaction (4) and 'Functioning' related to 'doing', such as caring (3) and competence (4).

Examples of vertical value chains are:

- The services of the health sector, going from specific individual services (values) on the lowest level, via local and regional services, to comprehensive national services on the highest level;
- A sequence of markets, going from to composite and comprehensive values or services to specific values or services, such as from a national public transport system to a simple bicycle ride;
- A chain of values, from communal values, such as equality or basic human dignity for all, via social values, such as solidarity and care, to personal values, such as being the best or the strongest.

The specification of values depends on the chosen context, of course. One may include time as a dimension, in which case evolutionary processes can be described. Or one may choose other types of societies, be it animal or physical. The common principle is separation from above, which consists of increasingly subdividing dependency in relations, and integration from below to a higher level.

#### 2.4 Power as a stratified option; implementation

Let *power* be the capacity of a team of people to induce – directly or indirectly – specific behavior on its own team or another team of people. This capacity, specific at any rank, is required in order to realize an act or a rule that generates a value. A power that is uniform for all teams at the same rank is called a *type of power*. So with each team in a stratified society a set of types can be associated. Formally, it is a mapping from the stratified society on the capacity space:  $S(N) \rightarrow Z$ , resulting in:

$$(3) \quad Z(N) = \{Z^1, Z^2, \dots, Z^n\} = \{Z^r\}_{r=1, \dots, n}$$

This contains the types of power for each rank in society (see Table 2), going from primitive forms of power to sophisticated ones, called a *vertical power chain*. When we approach the concept of power by its consequences on the value space,  $U(N)$ , power is specified by demarcating the choice set for each individual and for each rank. That is a constraint on the options space for each level and defines the *vertically stratified choice set*, given a vertical value chain and a vertical power chain:

$$(4) \quad B(N) = \{B^1, B^2(B^1), \dots, B^n(B^{\leftarrow n})\} = \{B^r(B^{\leftarrow r})\}_{r=1, \dots, n} \subset U(N)$$

Each lower level empowerment depends on its higher level empowerment. Given an individual's preference ordering over the stratified option space and given her vertical empowerment chain, she can decide which vertical option chain to choose.

The ranking in Table 2 follows the principle of increasing extent and complexity: from primitive forms of power with a large extent to sophisticated ones with a small extent. Private forms of power cannot flourish without higher forms being realized.

A vertical empowerment chain contrasts with a *horizontal allocation of power*, such as the distribution of choice sets to agents. A type of allocation mechanism that allocates specific powers to roles that people perform and specifies for each rank the allocation of choice sets is called a *mode of governance* for that type of value. A sophisticated choice set is the budget set in a market economy, which is based on voluntary exchange of resources with the same transaction value. This market mechanism is a

mode of governance that is suited for a private goods exchange economy, so for small independent teams with a high rank.

Level	The Stratified Society: Extension of the internal interaction	Types of Power	Types of Transactions; Mode of Governance (game form)
	Community- wide, global groups	The Rule of the Strongest	Coercion mechanisms, Systems of Submission,
2	National groups	Rule of Attraction, Ballot Box Power,	<i>Public Transactions</i> , Administrative Rules of Power-Transmission
3	Specific groups	Rule of the Elite, Empathy, Meritocracy	<i>Social Transactions</i> Ex- change mechanisms In- centives
4	Many small groups with external restrictions	Rule of the Best, Power of Vitality	<i>Private Transactions</i> , Market mechanisms Pri- vate ownership

Table 2. A vertical power chain with increasing extent

Piccione and Rubinstein (2007) have designed a mechanism for a private goods economy, which they call a jungle economy, in which the law of the strongest holds. They show that the results of a standard exchange economy, viz., the existence and the efficiency of a competitive equilibrium, also apply on a jungle-equilibrium in the jungle economy. In the example below I adapt their model to fit in the vertically stratified option approach introduced above.

### Example 2.1: The Jungle Economy

Consider a stratified society  $S(N)$  with a vertical value space,  $U(N)$ , that is defined as follows. Let  $X^r$  be the consumption set of the member with rank  $r$ , bounded from above by a vector  $w^r$ . Let  $w^1 > w^2 > \dots > w^n$ , and let the total available resource  $w$  be smaller than the sum of these bounds, but larger than the sum of these bounds except for the last upper bound, leaving nobody with empty hands<sup>7</sup>.

The *power distribution* in the stratified choice set (1) is specified as follows. At rank 1, the highest level, there exists an individual,  $a$ , and a dependent set of all other

<sup>7</sup> Formally,  $\cap X^r = X^n$ , and  $UX^r = X^l$ . for  $r = 1, \dots, n$ .

agents, a team, such that the individual dominates the others. At rank 2, there exist two agents,  $a$  and  $b$ , dominating the others, and so forth. So agents are linearly ordered according to their ability to appropriate goods belonging to the other agents in the society: *the rule of the strongest*. At each rank  $r$ , the choice set is equal to the choice set of the highest ranked agent minus the bundles chosen by all the higher ranked agents:

$$B^r(B^{\leftarrow r}) = \{x^r \in X^r \mid x^r \leq w - \sum_{j=1}^{r-1} z^j\}.$$

The choice made by all agents in this stratified society is a feasible allocation, because it adds up to the available bundle; it is efficient, because no agent can improve on the best bundle she has chosen in her choice set without changing the power distribution. That bundle is called a *jungle equilibrium*, which exists by virtue of its construction. ||

This jungle economy in which the strongest rules, is undoubtedly a realistic representation for many situations, although most of them are considered immoral. However, Rubenstein observes that “the jungle provides incentives to develop power (physical, intellectual or mental) which is an important social asset.” Piccione and Rubinstein (2007).

The content of this personalized option ‘power’ is not specified; it may be brutal force, such as destructive weapons, or sophisticated force, such as a principal-agent technique, an administrative mechanism, or some social-psychological artifact. They are needed to impose or to manage the values that a society wants to realize. For power to exist there has to be some advantage, some positive externality in institutional team formation. Gersbach and Haller (2008) have analyzed three notions of power in teams (households) in a competitive environment and with free exit. (i) Utilitarian power is the weight of an individual’s utility in the team welfare function. (ii) Bargaining power is the weight of an individual in the team’s Nash-bargaining decision. (iii) Real power is the additional utility an individual can achieve in a team in comparison with exit. So individual power exists when performing within a team (i), and when the individual threatens to quit the team (iii). These notions of power compare a team performance at a certain level with individual performer, i.e., a single element team at the lowest level, and identify power with the value added it creates. Similarly, the power of rules or institutions may be measured by the value added it creates – or value losses in the case of infeasible rules or institutions.

## 2.5 Feasibility

The concept of feasibility applies to the relation between ends and means, or between values and power in the model introduced here. The common denominator of the various types of values and types of power is the stratified society on which both the value chain and the power chain is defined. The concept of feasibility is generalized in the sense that it does not refer to an allocation, but to a rule that generates an allocation for a given type of value.

A mode of governance in a stratified society is *rule-feasible* for a type of value (a welfare policy), if the power-level of that mode is at least as high as the value-level of the type of value. A mode of governance is *rule-efficient* for a type of value if it is rule-feasible and if there does not exist a rule-feasible mode of governance at a lower

power-level that is also rule-efficient for that type of value. The coercion mechanism (power-level 1) in the jungle economy (Example 2.1) is therefore rule-feasible, because it generates an equilibrium allocation; it is also efficient within the context of power-level 1, because the agent 1 will be harmed by the solution of the market rule, a competitive equilibrium allocation, and will therefore block the market rule (with power-level 4). However, although the coercion mechanism at power-level 1 is rule-feasible, it is not rule-efficient for personal values at value-level 4, because there exists a mode of governance, the market rule at power-level 4 for personal values that is rule-feasible (and rule-efficient) for these values.

A rule-efficient mechanism therefore economizes on the use of power needed to attain a value-level. The centrally controlled communist system, for example, is rule-feasible for standard personal values, but it is not rule-efficient for these personal values. The communist system can, however, be rule-efficient for higher value-levels, whereas the market system is not rule-feasible for those levels. Section 3 elaborates on feasibility for more complex modes of governance.

## 2.6 *Rationality*

Behavioral values that are imposed on members of a group are judged by the doctrine of **rule-utilitarianism**, which specifies norms or rules of behavior that maximize group utility or group fitness. These rules apply on classes of acts and may be neglected by individual members of the group who may decide on the basis of **rule-rationality**, which concept has been proposed by Aumann (2008). Aumann sees it as a positive concept, which describes how people *do* behave under a certain rule and for a whole class of decision scenarios. Under **act-rationality**, agents choose an act that yields maximum utility among all acts available in that situation. Aumann observes: "In contrast, under rule-rationality, people do not maximize over acts, but they adopt rules, or modes of behavior, that maximize some measure of total or average or expected utility, taken over all decision situations to which the rule applies; then, making a decision, they choose an act that accords with the rule they have adopted." So the value-level of a rule according to the value chain determines the power-level required to implement the rule. If chosen, however, it restricts behavior on a power-level that is lower than the level required establishing the rule.

The possible inconsistency between rule-rationality and act-rationality is solved in the framework of the stratified society. A *team* behaves rule-rational if these rules are evolutionary selected to maximize fitness of the team. An *agent* behaves rule-rational if it adopts the rules of the team, just as Aumann proposes, but that may also be the best choice in a given situation if the net costs of deviating are higher than the net costs of complying. Then the agent is also act-rational. The costs of deviating from rule-rationality include punishment by the team for deviating behavior (see Example 2.3). Other things being equal, people are happier if their society follows rules so people know what types of behavior they can expect from others in given situations. On this way utilitarians justify a system the reasoning: "Keep to the rules unless there is a strong reason for breaking them."

The legitimacy of a rule in a society depends on the efficacy with which individuals who trespass rules are punished. The journal NRC of 13-01-09 presented the following report about an experiment on a species of ants.

**Example 2.2: Observing and oppressing unruly behavior in an ant colony**

An example of the enforcement of rule-rationality by repressing act-rationality is given by an ant colony. In “Enforcement of altruism in a social insect (an ant society)”, Smith, A.A., B. Hölldober and J. Liebig (2009) report the result of an experiment on an ant population. It was expected that enforcement of reproductive altruism (policing) in ant societies is a major force in maintaining high levels of cooperation. In order to be able to enforce altruism, ants need to identify reliably the reproductive cheaters. The authors mimicked reproductive cheaters by applying a compound typical of fertile individuals on nonproductive workers. This treatment induced nestmate aggression in colonies where a queen was present. It failed to do so in colonies without a queen where workers had begun to reproduce. So the hydrocarbon biosynthesis in the cuticle of an ant gives reliable information about the reproductive physiology of an ant, because it cannot be suppressed by the individual. ||

Social behavior may be deep-rooted, as the following example shows:

**Example 2.3: Internalized rule-rationality in the presence of act-rationality**

In “Hierarchy and opportunism in teams”, van der Heijden, Potters and Sefton (2009) report the result of the following experiment. They compare two institutions for allocating the proceeds of a team production. Under revenue-sharing each team member receives an equal share of team output; under leader-determined shares, a team-leader has the power to implement her own allocation. Both arrangements are vulnerable to opportunistic incentives; under revenue-sharing team members have an incentive to free-ride, while under leader-determined shares leaders have an incentive to seize team output. They find that most leaders forego the temptation to appropriate team output and manage to curtail free riding. As a result, compared to revenue-sharing, the presence of a team leader results in a significant improvement in team performance. ||

However, when designing a rule-feasible arrangement for some social classes, one apparently needs to include punishment, as is shown by the following example:

**Example 2.4: An infeasible rule: act-rationality dominates rule-rationality**

“The federal bailout is a windfall to bankers, if not to borrowers”. This headline appeared in the New York Times of January 17, 2009. Congress approved the \$700 billion rescue plan (the Treasury’s Troubled Asset Relief Program, TARP) with the idea that banks would help struggling borrowers and increase lending to stimulate the economy. But many banks that have received bailout money so far are reluctant to lend. An overwhelming majority of bankers at a conference saw the bailout program as a no-strings-attached windfall that could be used to pay down debt, acquire other businesses or invest for the future. For the banks the use of the bailout money comes down to self-preservation. Two of the most often cited priorities were hanging on the money as insurance against a prolonged recession and using it for mergers. ||

Apparently there is today a problem in detecting and punishing unruly bankers, a problem that has been solved by the ant-colony in Example 2.4. Thanks to that solu-

tion, the species of ants belongs to the longest surviving species of insects in the world.

The two stratified options, value and power, interact: no value can be realized without power, and power without value is vacuous. A mode of governance is required to get desired outcomes and an adequate power-level is required to impose the mode of governance. The focus in this paper is on rule-rationality, which concerns the fit of a type of value with a type of rule. A correspondence between the two can be derived from feasibility conditions mentioned above and elaborated below.

### 3 Polar roles in the generation of values and enforceable contracts

In the previous section, the stratified society,  $S(N)$ , has been associated with types of value options, resulting in the stratified value space,  $U(N)$ , and with types of power options, resulting in the stratified power space,  $Z(N)$ . The fit between a type of value and a type of power is determined by the rank condition introduced as a feasibility condition in Section 2.5. These types, however, are not specific enough to determine a strategic governance policy. In this section a type of value, as well as a type of power is determined as a result of the interaction between any two teams in the stratified society. Introducing interaction between teams generates a huge network in the stratified society. That number is reduced by considering interaction only between various types of teams, as is done in the Diagram 3. This forms the framework for the specification of the concepts value and power.

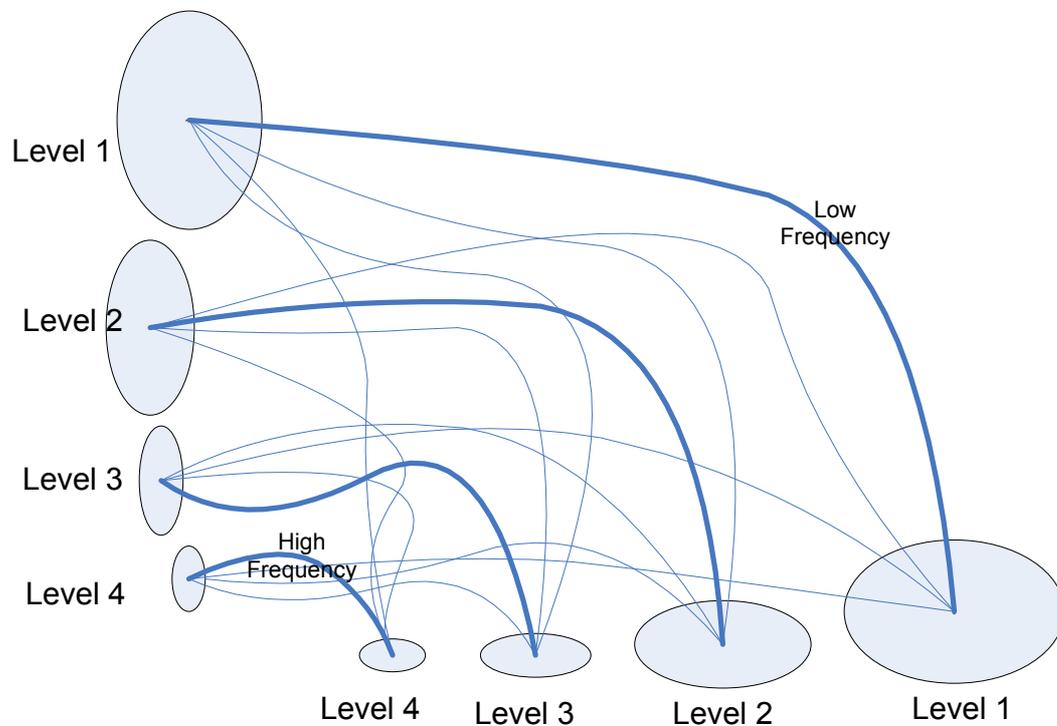


Diagram 3: Interactions between various Types of Teams

The frequency or multiplicity of the various relations depends on the size of the both teams. Two large teams in a given context have multiplicity one, whereas a relation between two small teams may occur frequently.

In the next sections, each of the *two poles of a relation* will be given the interpretation of a *role in a typical interaction relation*. Since both value and power are relational concepts, their performance is generated by the bipolar interactive relation between two people. These relations have their roots in the interaction between a pair of *actual* people and are aggregated to relations between a pair<sup>8</sup> of *roles* of people in types of teams, whose interaction generates the same generic result.

### 3.1 Value creation by services: the polar roles of teams

Value is created by the interaction between a pair of people in some team and in some role. For example, the interaction between a medical doctor and a patient, both member of a team in the stratified society, is a personal medical service generating value both for the patient and for the doctor. When teams are institutionalized and have socially recognizable roles, then we may observe that there exist two polar roles in this relation: the role of a performer and the role of a receiver. A *service* is defined to be a value-generating relation between two teams of people, one team assuming the role of receivers of the service, the other team assuming the role of performers of the service<sup>9</sup>. A *type of service* is service that abstracts from the content and from individual membership; it is characterized by a two-dimensional index representing the rank or the size of both teams. The value generated by a service is called its *interaction value*.

Every person in a society may choose to be a receiver or a performer of any service. The service concept allows that these two roles are not necessarily of the same rank. An individual teacher (a performer with a low rank) may teach a class of students (receivers with a higher rank); or a medical team (performers with a higher rank) may perform an operation on a patient (a receiver with a lower rank): see Diagram 3.

For analyzing welfare policy in the health care sector, we need a minimum of three levels. Table 3 presents a 2-dimensional table<sup>10</sup> containing all types of services up to three levels. On the diagonal one finds service generated by groups on the same level: level 1 (society wide, communal values), level 2 (social values) and level 3 (private, individual values). The bottom row in Table 3 represents individualized and heterogeneous receivers-needs of level 3 that are met by performers of level 1 to 3.

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<sup>8</sup> In Gilles e.a. (2008) it is shown that a bisection of a society in two roles is a necessary condition for a stable allocation of matchings.

<sup>9</sup> Formally, if  $V$  is the set of receiver capabilities and  $W$  is the set of performer capabilities, then the space of stratified services it is a mapping from the stratified society set  $S(N)$  on  $V \times W$ .

<sup>10</sup> One may observe that the order of levels on the horizontal axis in Table 3 is reversed compared to Diagram 3. That is due to the default notation of a Table and to the meaning of the diagonal in the Table.

<b>Performers</b> <b>Receivers</b>	Community-wide performance (Level 1)	Specific group-performance (Level 2)	Small, specialized performers (Level 3)
Community-wide needs (Level 1)	Community values	Socially performed public services (SGI)	Individually performed public services (SGEI)
Group-specific needs (Level 2)	Community performed social services	Social values (SSI)	Individually performed social services
Small, independent needs (Level 3)	Community performed individual services	Socially performed services for individuals	Individual values

Table 3. Interaction values generated by 3 different levels of teams

The top row in Table 3 represents uniform, community-wide needs that can be met by either (1,1) a community-wide performance (such as a fair income distribution); or (1,2) a performance by specific groups (such as the validation standards of business reports by the accountancy profession); or (1,3) a performance by an individual firm (such as the validation of a business reports by an accountant, or the construction of a public road by a firm). The cell (1,2) defines a *Service of General Interest (SGI)* as a type of service in which the receiver is a whole community and the performer is a team of social professionals with a relatively large extent in the community (interdependent in competence, time, and/or place). Substitution of such a team is difficult because there are no or only a few comparable counterparts in the relevant community. The cell (1,3) defines a *Service of General Economic Interest (SGEI)* as a type of service in which the receiver is a whole community and the performer is a relatively small team of professionals. Substitution of teams is a viable option<sup>11</sup>. The SGEI is called economic because there exist a multiplicity of performers that may be organized competitively, implying that they are submitted to the economic rules of the market. The second row contains social services as Services of Social Interest (SSI) and Services of Social Economic Interest (SSEI).

### 3.2 Power containment in contracts and transactions: the polar roles of teams

The analysis of power-levels in Section 2.4 can be extended to power-relations between teams, as represented in Diagram 3. The jungle economy in Example 2.1 fits the framework of Diagram 3, because it results from coercion on the highest level on subsequent lower levels. In the sequel, however, only voluntary relations between

<sup>11</sup> As mentioned in the Introduction, a problem arises when specific services are defined with institutional concepts. Article 86(2) of the EC Treaty provides a special rule for SGEI, that is to say, for the undertakings entrusted with the operation of SGEI. These have to abide the competition rules in so far as the application of those rules does not obstruct the performance of the particular task assigned..” See also Thiry (2007) and Sauter (2008).

teams are covered, which implies a form of power containment. Coercion *within* a team is allowed, but the relation *between* teams is based on a voluntary transaction defined in a contract.

A **contract** is a voluntary agreement creating and defining the obligations between the two teams, also called *parties*. In our context there are two parties, called the **procurer** and the **provider**, each representing a team of people. The provider has the obligation of providing a specific service according to the specification given by the procurer; the procurer has the obligation of paying remuneration in exchange. The parties must have the necessary **capacity to contract**, which includes the procurer's power to levy the necessary funds and resources on his constituency. For the provider it means the power to obtain *externally* (from the other party) and to manage *internally* (in its firm) those means for delivering the service. Each team is an element of the stratified society (Section 2.2). A **type of power** is an element of the vertical power chain at some rank (Table 2); it abstracts from the content and from individual membership; it only considers the size of interacting membership. *Public powers* refer to elements of a higher level; *private powers* refer to elements of a lower level.

We assume that (i) the level of coercion required for internal cooperation in a party is *proportional to the size of the contracting party* and (ii) each party is empowered by and commits *all and only* its members, so each party internalizes all its external effects. These assumptions correspond with the stratified framework and allow for splitting up transaction parties and for identifying and ordering types of transactions. So contracts are distinguished and ordered according to the internal power they require to implement the contract. Since this power is institutionalized, one may identify the type of power with the institution carrying that type of power. The exercise of external force by a party on another party – as happens in the jungle economy – is not considered because contracts are assumed to be voluntary.

For analyzing sector governance we need a stratified society with a minimum of three levels of institutional power for a transaction party. This is presented by the contract-map in Table 4. The levels are selected from the vertical power chain in Table 2; the transactions corresponding to these types of power appear on the diagonal of Table 4. These bilateral transactions on the diagonal of the table are characterized by a **level playing field**, since both partners possess the same level of power when entering into a transaction.

The field (1,1) describes political transactions, referred to as the government. The concept of such a 'social contract' between the people and the sovereign originates from Rousseau (1762)'s *Du contrat social*. It belongs to the political domain. Experience shows that the idea of a level playing field is much easier to formulate than to realize! A level playing field is a value that has to be constructed and managed, as will be elaborated upon in the next sections.

In the bottom row in Table 4 transactions are situated that involve independent and small procurers (level 3). These may be voters in a direct democracy electing an executive on the highest level (cell 3,1). The relation between a corporation (level 2) and its members (level 3) is based on a transaction of type (3,2), as well as voters in a city, or customers on a monopolistic market. The notion of social choice belongs in field (3,1) and a local public good belongs in field (3,2) because they aggregate independ-

ent opinions to a collective outcome. When two partners with the same power at the lowest level find a match between their individual supply and demand, they enter into a transaction of type (3,3).

In the right column of Table 4 transactions are situated that involve independent and small providers (level 3). These may be small entrepreneurs who are agents in a Principal-agent relation. The principal may be the central government, in which case the procurer is a public entity serving as a principal for small firms as agents in mode (1,3), such as public-outsourcing transactions. Or it may be an organization on a lower level, such as a city or a corporation in a transaction relation of type (2,3). Together, the gray fields in Table 4 refer to types of power of groups at the lowest level that have a relatively limited extent: the independent individual person. These fields belong to the realm of *methodological individualism* and form the backbone of neoclassical economics.

Provider group: Procurer group:	Centralized executive power with comprehensive tasks (Level 1)	Task organizations with specialized executive power (Level 2)	Decentralized, specialized private firms (Level 3)
Centralized legislative, comprehensive power (Level 1)	(1,1) Public transactions	(1,2) Government – specialized agency transactions;	(1,3) Public-Private transactions (PPP); outsourcing
Organizations with stakeholders' power and interests (Level 2)	(2,1) Stakeholders' - public transactions	(2,2) Social transactions	(2,3) Stakeholders' transactions
Decentralized, independent, small owners of rights (customers, voters) (Level 3)	(3,1) Private-Public transactions; ballot box democracy	(3,2) Private task organizations; monopolies	(3,3) Private transactions (money)

Table 4. The contract-map for 3 different levels of power

The fields (2,1), (2,2) and (1,2), which are situated between (one-sided) private transactions in the grey fields, and the political transactions in field (1,1), constitute the core of the *social economy*, or the non-profit sectors.

### 3.3 *The relation between interaction value and transaction value*

The relations in field (3,3) of Table 5 are specified in Diagram 5. **Interaction value** is created by the interaction between service receivers and service performers on the front-positions. **Transaction value**, on the other hand, is established between the provider (supplier) and the procurers (demanders) on the top-positions, as determined by the mode of governance in force. When this modes changes, for example when the firm is a cooperative or an insurer, the procurer shifts to field (2,3) in Table 5; when the firm is nationalized, the procurer shifts to field (1,3) in Table 5. However, when

the service remains the same, it may change the transaction-value, but the interaction-value of the service remains invariant for those changes.

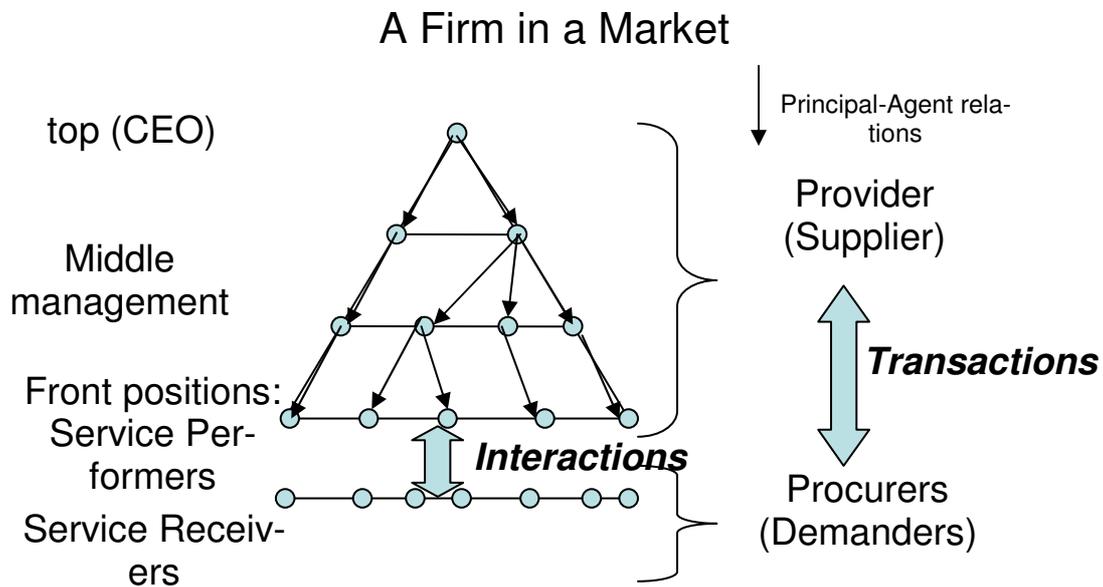


Diagram 5: Interactions and Transactions by a Firm

### 3.4 Feasibility of a mode of governance for a type of service

In Section 2.5, a mode of governance in a stratified society has been defined **rule-feasible** for a type of value (a welfare policy), if the power-level of that mode is at least as high as the value-level of the type of value. A mode of governance is **rule-efficient** for a type of value if it is rule-feasible and if there does not exist a rule-feasible mode of governance at a lower power-level that is also rule-efficient for that type of value.

Those definitions apply also here, with the understanding that the ordering of levels is not one-dimensional, but two-dimensional. So a mode of governance with level  $(x,y)$  is **rule-feasible for a type of value** (a welfare policy) with level with rank  $(r,p)$ , if  $(x,y) \leq (r,p)$ , i.e., if its power-level at least as high as its value-level. A mode of governance is **rule-efficient for a type of service** if it is rule-feasible and if there does not exist a feasible mode that requires less power, i.e., and there does not exist a  $(x',y') \leq (r,p)$ . such that  $(x,y) \leq (x',y')$  with  $(x,y) \neq (x',y')$ . So the mode (1,1) in Table 3 is feasible for all types of service, whereas the mode (3,3) is feasible only for the type of service (3,3).

## 4 The Institutionalization of Value Creation and Contract Formation

### 4.1 Modes of governance

Governance is understood as the process of decision-making and the process by which decisions are implemented; an analysis of governance focuses on the formal and in-

formal actors involved in decision-making and implementing the decisions made, and the formal and informal structures that have been set in place to arrive at and to implement the decision. That purpose serves the framework presented here.

The structure follows from the frequent repetition of interactions and transactions leading to institutionalization at the various levels. An institute contains procedures for arriving at a decision on the individual organizational level using social norms and symbols, both at the micro and macro level. Each type of transaction requires a legal environment, a kind of ‘constitution’ to specify behavioral rules and balancing procedures, in short, governance. One may think of allotting voting rights and designing voting procedures, or the protection of ownership rights, and/or the prevention of abusing market dominance. Such a constitution contains procedures for arriving at a decision on the individual organizational level using social norms and symbols, both at the micro and macro level. These provide for legitimacy and helps organizations, for example, to cope with uncertainty by imitating their peers, as observed by DiMaggio and Powell (1983). In their line, we assume that organizations under a given constitution are homogeneous in functions and roles, as they are shaped by a broad set of similar institutional influences. This is the mechanism of *institutional isomorphism*, which is effective through the influence of the macro norms and symbols. So there exist only a finitely many modes of governance, which satisfy conditions analogous to the discrete alignment principle developed by Williamson (1975, 1991) in his Transaction Cost Economics. From economizing on transaction costs the comparative efficacy of alternative generic forms of governance can be determined and can an efficient contracting hypothesis be tested. Williamson focuses on the production side of the economy. The introduction of modes of governance for various types of public, nonprofit and consumer organizations extends his approach. Since these legal characteristics and the social norms and symbols belong to distinctive institutions that are finite in number (North, 1981), only discrete changes in governance are assumed. The institutionalization of transactions of a certain type is identified here as a mode of governance.

A **Mode of Governance** for a characteristic *type of transaction* is an institutional framework aimed at facilitating the smooth processing of transactions of that type. It specifies the competences and behavioral rules of the people involved, and it ensures the imposition of these rules.

A mode of governance is defined irrespective of the type of value that it is processing, because the question ‘which mode fits best for a given welfare policy?’ requires a separation between the two. For example, both the communist governmental system and the market system can process the allocation of private goods, but they are not equally effective and efficient in performing this task. Table 5 presents the Modes of Governance for 3 levels, mostly in the context of a national society. Most of these modes are still under construction or in development.

Provider group:	Centralized executive power with comprehensive tasks	Task organizations with specialized executive power	Decentralized, specialized private firms
Procurer group:			
Centralized legisla-	(1,1) Government	(1,2) Government	(1,3) Public

tive, comprehensive power (the people)	systems	agency systems; public enterprises	outsourcing systems (PPP), Auctions
Funding organizations with stakeholders' special interests	(2,1) Federative and indirect political systems; NGOs	(2,2) Social enterprise system; non-profits	(2,3) Stakeholders' organizations; cooperatives
Decentralized, independent, small owners of rights (customers, voters)	(3,1) Direct democracy; legitimizing systems	(3,2) Private task organizations; monopolies	(3,3) Market systems

Table 5. Typology of Modes of Governance for 3 different levels

The established mode of governance is the market system. There is, however, a large variety in what is called a 'market'. In an economists' textbook, a market is defined as a setting in which goods and services to be acquired (demand) are available for purchase (supply) at known prices; total demand and supply of each good or service adapt to these prices; the price at which demand equals supply is called an equilibrium price. The allocation at an equilibrium price is efficient when both sides of the market are competitive. Such a market, called a *perfect* or *free market*, is regulated on a distance. A market in which both parties do not have a level playing field, possibly caused by monopolistic positions, is called an *imperfect market* or a *market in transition*; it needs to be closely regulated. A market in which other indicators of scarcity than prices (such as waiting lines) drive demand and supply is called a *rationed market*.

Transactions of type (3,3) in Table 4 can be processed through a mechanism that is fully decentralized, i.e., both the demand side (procurer-decisions) and the supply side (providers) consists of many small and independent decision makers, allowing for competition. This mechanism is called a *two-sided market*. A one-sided market is a *bidding-market*, which Klemperer (2008) defines as a competition or contest characterized by:

- A contest where the winner takes all;
- Each contest is lumpy, or large relative to a supplier's total sales;
- Competition begins afresh for each contract;
- Entry of new suppliers is easy;
- A bidding system or process is involved.

The second characteristic determines a context in which the procurer (demander, bidder) assumes the role of a central power and the suppliers (bidders) the role of specialized firms, implying a transaction of type (1,3). This also shows that the extent of the highest level is not an absolute value, but that it is context-determined. Klemperer observes that an *auction* violates the first characteristic: many are multi-unit auctions with several winners. The supply of consulting, building or other professional services do not meet the second criterion, as they are characterized by many small and essentially independent contracts. Finally, a contract for a rail or bus franchise or to run a large hospital might satisfy the first two, but not the third criterion. A winning company has an advantage over new competitors or over competitors in other jurisdictions (learning on the job may yield market power, art.82). Creating a level playing field

between bidders by helping the weaker bidders is not allowed according to EU law (art. 87). The conclusion is that there is a need for a stricter rather than more lenient competition policy for bidding or auction markets.

## 4.2 Sector Governance

According to the United Nations ESCAP (see their website) Good Governance has 8 major characteristics (see Figure 1). It is participatory, consensus oriented, accountable, transparent, responsive, effective and efficient, equitable and inclusive and follows the rule of law. It assures that corruption is minimized, the views of minorities are taken into account and that the voices of the most vulnerable in society are heard in decision-making. It is also responsive to the present and future needs of society.

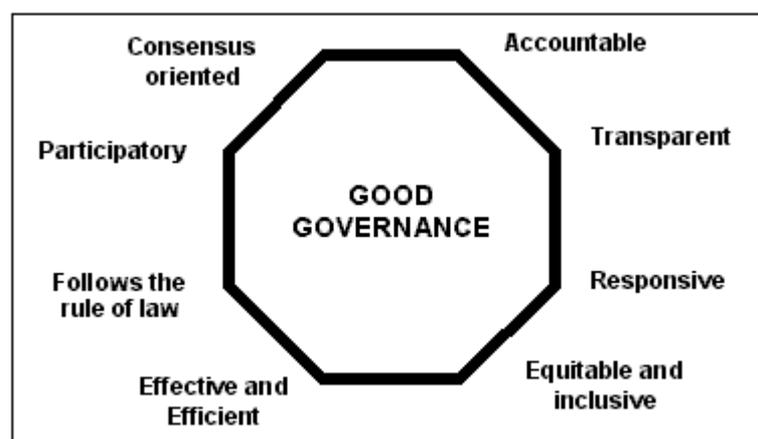


Figure 1: Characteristics of good governance

These characteristics are correct but rather general. The World Bank and IMF have developed governance indicators to make those values measurable for a comparative analysis and can be used as benchmarks comparing countries. In the approach proposed here, for each value an appropriate mode of governance is constructed, based on the extent and the composition of the value.

Good Governance therefore implies a link between the creation of a type of value and the specific institutional rules allocating power, as specified by a mode of governance. That link is implied by the requiring rule-feasibility of the mode of governance for the value to be realized (see Section 3.3). However, when applying the concept of good governance to a society or a sector of a society, the aim is usually not a single value, but a complex one consisting of more levels from Table 1. Let us call this extended value concept a *stratified-value*. Then the World Bank definition of *Good Governance* boils down to the design and implementation of rule-feasible modes of governance for the stratified-value consisting of the 8 characteristics in Figure 1.

When governance aims at realizing a stratified-value for a sector in the economy, the concept of sector governance is defined. *Sector governance* is a complex of modes of governance such that for every value-level in the stratified-value of the sector (its welfare policy), a mode of governance is in force. Good Sector governance implies that the applied modes of governance are rule-feasible. The internal cohesion and inter-

connection of these modes of governance is such a value – on the highest level of the stratified value. Finally, sector governance is *rule-efficient* if it is rule-efficient for each type of value in the stratified value (see Section 3.3).

### 4.3 *Constructing Sector Governance: Countervailing power and Supervision*

The analysis in the preceding section suggests the following three steps for designing and constructing sector governance.

1. A sector policy (a stratified value) is to be dissected and decomposed in value-creating services, identifying the interaction between teams of receivers and teams of performers on various levels, as is done in Table 3.
2. For each service, a rule-efficient mode of governance is assigned and imposed.
3. The integration of these modes of governance is a task (a service) of the highest level in the stratified value, for which its provider is endowed with sufficient authority and power.

This format aims at enhancing rule-rationality at each level of governance by constructing sufficient countervailing power, rather than imposing top-down rules and directives. This procedural mission assigned to sector authorities contradicts the mission that is usually given to this type of authorities, viz., taking care of the general interest, which may be specified as accessibility, affordability and quality of the services delivered by the sector. These tasks can be executed only by interfering in processes, thus weakening the rule-rationality of the responsible providers.

The *balance of power* concept is a power relation between teams of equal level, meeting each other in a Level Playing Field. Those fields can be constructed, for example, by a sequence of contracts that is closed and crosses the diagonal in Table 5: (1,3),(3,3),(3,1),(1,1).

Supervision on the maintenance of a contract should also be installed at the lowest possible level. That is no problem for market systems, but a hot issue for social enterprises. A new instrument for supervising the quality of a service in the non-profit sector is stakeholder-management.

### 4.4 *Entrepreneurship in the Non-profit Sectors*

Non-profit organizations are situated in the second row or column. Mode (2,2) is identified as the **social enterprise** system. It is illustrative to check whether the dimensions usually defining a social enterprise meet the characteristics of the mode introduced here. Defourny and Nyssens (2006) give a definition in terms of activities, which term we interpret as resulting from transactions. They provide the following four criteria for the economic and managerial dimensions of a social enterprise activity:

- a continuous activity, producing and selling goods and/or services;
- a high level of autonomy;
- a significant level of economic risk;
- a minimum amount of paid work.

The social dimensions are captured by five criteria:

- an explicit aim to benefit the community;



In his Strategic Triangle, Mark Moore introduces three spanning poles that determine the strategic space for public and non-profit organizations:

- Client satisfaction and social outcomes;
- Creating public value;
- Legitimacy and support.

The first two relate to what I call the value domain, where client satisfaction is determined by the Receivers of a public or non-profit service and creating public value by the Performers of a public service. The third factor belongs to the power or management domain: legitimacy is a problem for the Procurer of a service, who on its turn legitimizes the provider. The Provider takes care of the organization and the required capabilities, focusing on the doable and authority in Moore's triangle. The difference with our approach is that the value-interaction between client and performer is separated from the power-interaction between procurer and provider, where after a fit between these two domains is sought for on the basis of their characteristics.

## **5 The health care sector in the Netherlands since 2006**

### **5.1 Description**

The health care systems from before 2006 are characterized by supply regulation. The purpose of that policy was to contain the macroeconomic expenditures on health care, which rose strongly after 1950. At that time, 35% of the care expenditures were collectively financed and the share of GNP for care was 0.9%. In 1990 the collective expenditures rose to 70% of the total expenditures for care, which total amounted to 3.8% of GNP. In 2003 these numbers were 80%, respectively 7.5%. Although the rise is not as dramatic as in many other countries, it still is an alarming trend. The side effects of supply regulation were waiting lists and a system of regulation that was not only inefficient but also quite ineffective in controlling expenditures. Hospitals and other care providers had no idea of the costs of the services they provided. Policy changes as cost trimming and budget systems were not effective.

From 2004 a new system was introduced, called market ramification (*marktwerking*) that was to change the mission of health care organizations from a task-oriented to market-oriented. Its main characteristics are:

1. The capital costs of real estate have to be recorded in the gains and loss account of the care institutes.
2. Performance funding and performance indicators are introduced.
3. Price-making forces are unleashed and competition among care insurers is aimed at.
4. Deregulation and transparency.
5. Continuation of government responsibility for accessibility, affordability and quality of the health care services.

In order to realize point 3, a system of care markets is introduced: see Diagram 6. It is based on the risk characteristics of health accidents. Three types of risks are distinguished:

- Uninsurable top health risks that remain the responsibility of the government (GAR or government A-Risks in the diagram).

- The basic health risks covered by social insurance, providing accessibility for all citizens; its insurance premium is compulsory (a tax).
- The extra health risks based on voluntary individual insurance.

These risk profiles are processed by four types of markets (see Diagram 6):

- The market for compulsory insurance (MCI) for basic services;
- The market for voluntary insurance (MVI) for extra services;
- The market for insured care services (MIC);
- The market for private care services (MPC)

The new system is based on demand regulation, in which parties keep each other in balance. The pressure of competition is exerted by a sequence of markets (see Diagram 6). The 'care triangle' is the core of this diagram: the first market is the 'care insurance market' between consumers and insurers. The second is the 'care procurement market' between care insurers and care providers; the third is the 'care provision market' between care providers and consumers.

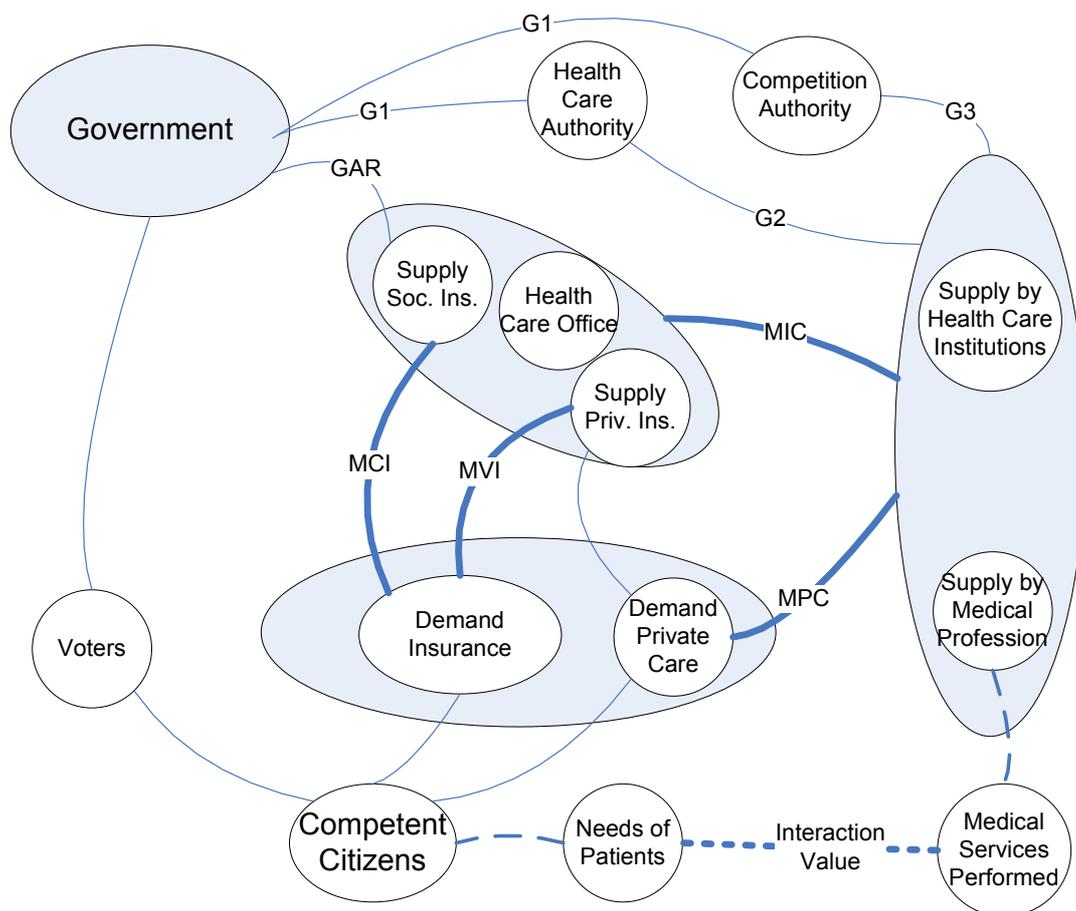


Diagram 6: Transactions and Markets in the new Dutch Health Care System

The Health Care System shown in Diagram 6 stems from a situation of supply regulation, in which the government controlled the supply of health care (G1) by the supply

chain. This system was transformed in 2006 to a demand oriented system by introducing competition on the levels of the insurers and the providers. There are important transition problems to be resolved, however.

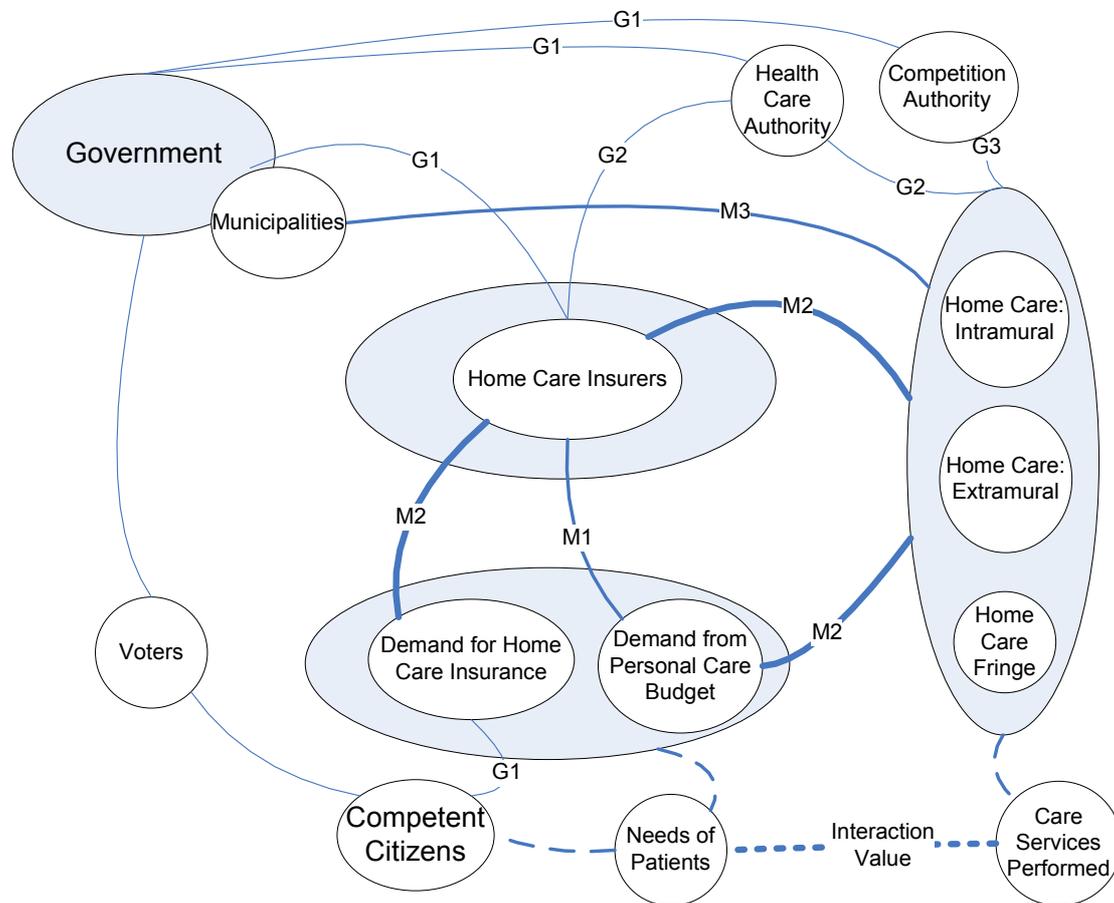


Diagram 7: Transactions and markets in the Home Care System

The Home Care System, shown in Diagram 7, processes services that are closer to the standard private consumption goods. Their provision, however, contains elements of a higher level. That causes markets to be imperfect and in transition. The Health Care Authority and the Competition Authority are in a learning phase, monitoring this transformation to first class markets.

## 5.2 Analysis

The transformation from supply regulation to demand regulation has increased the degrees of freedom for management. This freedom has not always been used as was supposed: act-rationality of some managers prevailed rule-rationality. That caused the sector to introduce and accept a so-called “Care-wide Governance Code” similar to the Corporate Governance Code for profit-sector. It contains norms and rules on three fields: Accountability; the Executive Board; and the Supervising Board. It is clear that these norms and rules are not effective for many issues, such as: The quality remains mediocre; there are no incentives for innovation; there is an under-capacity in medical doctors and an over-consumption of medical services; in theory market ramification is

required, but in practice only a small percentage (66 of the 30,000 Diagnostic Related Groups) of services is in fact traded on the free market; the administrative burden has increased enormously.

The government has not the intention or courage to impose the system presented in Diagram 6 fully, as it is afraid for the consequences. For example, the Health Minister has recently decided to allow a merger between a hospital and an insurance company, with the argument that the Health Authority is able enough to check misuse of market power by the new enterprise. That creates a new type of organization, where responsibilities are going to be mixed rather than made transparent, as was the intention of the new health care system.

## **6 Conclusion: constructing and maintaining level playing fields**

Since the nonprofit sector is by far the most important societal sector for promoting social cohesion and providing social services, its members have an existential interest in designing an adequate regime or governance for providing its services. That implies a correct delineation between an SGEI, which provision is at least partly submitted to the market regime, and an SGI, which provision experiences a floating regime between the government and the markets. Criteria in the literature used to distinguish nonprofit organizations from other organizations are all afflicted by the reference to institutional factors instead of characterizing the nature of their activities. Salomon and Anheier (1992), for example, define a nonprofit by means of 'structural-operational' attributes, such as the institutional non-distribution constraint, self-governance and voluntary participation<sup>12</sup>.

The central idea of the analytical framework is separation. First, the society is stratified by a decreasing sequence of minimal dependent sets, called teams, which internalize the external effects of their members, starting from the whole society and terminating in independent single member sets of individuals. The matroid approach allows for applying a great variety of mathematical techniques. Social properties as values and power can be attributed to people in this stratified society space. When teams are split and endowed with polar properties, types of values can be defined by the interaction between various teams. Similarly, frequent types of transactions between teams generate modes of governance. This approach increases the flexibility of governing because elements in the value-domain may change faster than the institutions in the power-domain. It identifies necessary adaptations in governance.

This framework allows for analyzing a large variety of social phenomena in a uniform way. Federalism, corporate governance, supervision, vertically integrated chains and horizontal control are examples of what can be modeled. Precise definitions can be formulated, which allows for sound policy analysis and design and for deriving testable assertions. This framework predicts the choice of an efficient mode of governance and is tested on consecutive policies implemented by the Dutch government on the social housing

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<sup>12</sup> Salomon and Anheier aim, however, at developing a common data base about a similar set of 'non-profit' or 'voluntary' institutions in a disparate set of countries. In a 1998-publication, they acknowledge that none of five governance-based theories explain adequately the variations among countries in the nonprofit sector. They think that a 'social origins' approach – which focuses on broader relationships such as a liberal, corporatist, social democratic and statist – performs better for their purpose.

sector (see Ruys et al., 2007). Finally, the separation of institutional elements from the ‘nature’ of economic activities gives an answer to the problems raised in the Introduction. The all-embracing policy advice when constructing a mode of governance for a welfare policy is: design and maintain level playing fields at all levels of the organization aimed at realizing the organization’s mission.

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## Appendix 1: The stratified society

Consider a graph  $G(N,E)$  representing a society with  $N$  members who are connected by relations. A graph is defined by a non-empty finite set  $N(G)$  of elements, called nodes, and a finite set  $E(G)$  of unordered pairs of distinct elements of  $N(G)$ , called edges:  $G = (N(G), E(G))$ . When ordering graphs, the two extremes are the complete graph, indicated by  $G_0$ , in which every pair of distinct nodes has an edge joining them, and the null graph, indicated by  $G_n$ , is totally disconnected and has an empty vertex set. A **path** in a graph  $G$  is a sequence of distinct edges of the form  $v_0v_1, v_1v_2, \dots, v_{m-1}v_m$ , with the initial vertex  $v_0$  and the final vertex  $v_m$ , where all nodes are distinct. A path is closed if  $v_0 = v_m$ , and a closed path containing at least one edge is called a **circuit**. A set  $E$  of edges of a graph  $G$  is said to be **independent** if  $E$  contains no circuit of  $G$ ; a graph that has no circuits is called a forest; a connected forest is called a **tree**. A set in  $G$  is **dependent** if it is not independent. The size of the largest independent set contained in a subset  $A$  of  $E$ , is called the **rank** of  $A$  and denoted by  $\rho(A)$ . A subset of  $A$  is independent if and only if  $\rho(A) = |A|$ .

A graph  $G$  is said to be connected if, given any pair of nodes, there is a path between them. An arbitrary graph can be split up into disjoint connected subgraphs, called components, by removing the edges in a minimal disconnecting set, called cutset. If the cutset contains only one edge, it is a bridge between the two components.

The mathematical theory analyzing the concept of dependence is called Matroid theory. The term matroid first appeared in the seminal paper by Whitney (1935) who conceived it as an abstract generalization of a matrix. It unifies graph theory, linear algebra and simplifies many important applications in the field of combinatorial theory (Welsh, 1995).

A *matroid*  $M$  is a finite set  $S$  and a collection  $\hat{S}$  of subsets of  $S$  (called independent sets) such that (i) any subset of an independent set is independent, and (ii) if  $X$  and  $Y$  are independent sets with  $|X| > |Y|$ , then there is an edge  $e$  contained in  $X$  but not in  $Y$ , such that  $Y \cup \{e\}$  is independent. A subset of  $S$  that not belongs to  $\hat{S}$  is called dependent.

A matroid, defined in terms of its rank function, is a pair  $(E, \rho)$ , where  $\rho$  is an integer-valued function defined on the set of subsets of  $E$  and satisfying:

- (i)  $0 \leq \rho(A) \leq |A|$ , for every subset  $A$  of  $E$ ;
- (ii) if  $A \subseteq B \subseteq E$ , then  $\rho(A) \leq \rho(B)$ ;
- (iii) for any  $A, B \subseteq E$ ,  $\rho(A \cup B) + \rho(A \cap B) \leq \rho(A) + \rho(B)$ .

Now we can order the various graphs in society  $N$  according to their rank. For each rank,  $r = 0, \dots, n$ , a graph  $G_r(N, E_r(N))$ , has two connected – possibly empty – components, one dependent subset and one independent subset. The graph  $G_0$  with the smallest rank,  $\rho(E_0) = |E_0| = 0$ , contains no independent subset; and at least one circuit covering all nodes of the graph. The graph  $G_1$  with rank 1:  $\rho(E_1) = |E_1| = 1$ , contains an independent single element subset,  $A \in E_1$ , and a minimal dependent subset,  $B \in B_1$ , of size  $(n-1)$ . The graph  $G_m$  with rank  $\rho(E_m) = |E_m| = m$ , contains a maximal independent subset with  $m$  elements and a minimal dependent subset of size  $(n-m)$ . Finally, the graph  $G_n$  with rank  $\rho(E_n) = |E_n| = n$ , has no circuit and its maximal independent set has size  $n$ .

So we can order graphs of a society  $N$  by their size, as determined by the rank of the matroid representing the graph:

$$(1.1) \quad G_0(N, V_0(N)), G_1(N, V_1(N)), \dots, G_m(N, V_m(N)), \dots, G_n(N, V_n(N))$$

The concept of matroid duality is based on the following theorem. If  $\{B_i : i \in I\}$  is the set of bases of matroid  $M$  on  $S$ , then  $\{S \setminus B_i : i \in I\}$  is the set of bases of a matroid on  $S$ , called the dual matroid of  $M$ ; it is denoted by  $M^*$ . The duality principle says that to every statement about a matroid there is a dual statement in terms of dual concepts. For example,  $H$  is a hyperplane of  $M$  (that is, is a maximal proper flat) if and only if  $SH$  is a circuit of  $M^*$ . So a matroid is uniquely defined by its collection of hyperplanes. A flat or a closed set of a matroid  $M$  is just a minimal dependent subset of  $M$ . The set of flats that are ordered by inclusion forms a lattice. Its minimal element has the lowest rank; its maximal element has the highest rank. The collection of algebraically independent subsets of a subset  $S$  of a field  $F$  are the independent sets of a matroid on  $S$ ; any matroid isomorphic to one which is obtained in this way is called an *algebraic over  $F$* .

Tinbergen's model of economic policy, for example, is generalized by a matroid that is representable on a vector space describing (i) goal variables and (ii) instrument variables. The goal variables corresponded with the complex value of economic wel-

fare of a society. The linear vector space introduced by Tinbergen, for example, required that the number of goal variables equals the number of instruments.

The distinction between a dependent and an independent set is crucial for our modeling the economy. Interpreting an edge in a graph as a reciprocal effect between two members, then a circuit is an external effect on all members in the group. Since a minimal dependent set has no members of a circuit outside the group, we identify **a group that internalizes all external effects** by a minimal dependent set of a graph, which set is said to be a **team**.

## Appendix 2: Values: rule-utilitarian and act-utilitarian

A *value* is a driving force for people, which sets people in motion to attain the goal that specifies the value. These values are the goals, which are attained by choosing acts or adapting rules. These acts and rules are instrumental to the value, the utility, or happiness that the individual is looking for. This idea originates from John Stuart Mill<sup>13</sup>, and is called *utilitarianism*, which is a form of consequentialism. Both acts and rules are elements of the value space and belong to the value domain because they generate values.

Values	←	Optional Rules of Behavior in a team (Modes of Governance)
	←	Optional Acts performed by a team (Services)

Values are ranked according to the rank of the team that generates them. It follows that the values in a stratified value space are defined both between teams on the vertical chain, called *hierarchical values*, and within teams on some horizontal chain in the space, called a *horizontal value profile*. A value that is uniform for all teams at the same rank is called a **type of value** of that rank. For example, altruism is a type of value that can be generated by following specific rules in a community<sup>14</sup>.

In line with the observations made by Emmons (1973) I distinguish act vs. rule-utilitarianism. *Act-utilitarians* contend that the rightness or wrongness of an action is determined by the consequences of that action alone. The right action for any *one* agent is that value open to him that will produce the best overall result. The *rule-utilitarian* attempts to map out how *everyone* ought to behave if we are to realize an

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<sup>13</sup> “But though in science the particular truths precede the general theory, the contrary might be expected to be the case with a practical art, such as morals or legislation. All action is for the sake of some end, and rules of action, it seems natural to suppose, must take their whole character and colour from the end to which they are subservient. When we engage in a pursuit, a clear and precise conception of what we are pursuing would seem to be the first thing we need, instead of the last we are to look forward to. A test of right and wrong must be the means, one would think, of ascertaining what is right or wrong, and not a consequence of having already ascertained it.” J.S. Mill (1863, Book 1).

<sup>14</sup> The famous Rules of Saint Benedict (480-547) have served for centuries to generate altruism among and by the members of religious communities. Another example is the altruistic behavior of social insects, such as ants and bees, aimed at maintaining high levels of cooperation. Workers in an ant colony are females that have the capacity to lay eggs. However, when a queen has developed in the colony, the other female ants terminated their fertility and became nonproductive workers, as a rule (see Example 2.3 for behavior deviant from the rule).

optimal overall result. In this stratified society space, the rule-utilitarian requires a team of a higher rank than the team of the act-utilitarian, which is a single person.

The actual view on the relation between the two is described by the following quote from Wikipedia/Utilitarianism. “Act utilitarianism states that, when faced with a choice, we must first consider the likely consequences of potential actions and, from that, choose to do what we believe will generate most pleasure. The rule utilitarian, on the other hand, begins by looking at potential rules of action. To determine whether a rule should be followed, he looks at what would happen if it were constantly followed. If adherence to the rule produces more happiness than otherwise, it is a rule that morally must be followed at all times. The distinction between act and rule utilitarianism is therefore based on a difference about the proper object of consequentialist calculation — specific to a case or generalized to rules.

Rule utilitarianism has been criticized for advocating general rules that will in some specific circumstances clearly decrease happiness if followed. Never to kill another human being may seem to be a good rule, but it could make self-defense against malevolent aggressors very difficult. Rule utilitarians add, however, that there are general exception rules that allow the breaking of other rules if such rule-breaking increases happiness, one example being self-defense. Critics argue that this reduces rule utilitarianism to act utilitarianism and makes rules meaningless. Rule utilitarians retort that rules in the legal system (i.e. laws) that regulate such situations are not meaningless. Self-defense is legally justified, while murder is not.” This criticism is being resolved by the framework of a stratified society. Values may be both acts and rules that generate value. The difference between rules and acts lies in the rank of the value set to which they belong. An value set of a certain rank may contain both rules and acts, but rules governing an act belong to an value set of a level that is higher than the level of the value set of the act.

It requires empowerment to realize a value from an act or from a rule, because for every level, one needs power to demarcate a set of values and convert it in a choice set from which an individual may choose.

A team value can only be obtained if (almost) all members accept the rules imposed by the membership of a team. That requires compliance to the team-rules, which again requires power over members to make them follow these rules. This power can assume many forms, from physical force, via moral, legal, socio-economic, or psychological pressure, to behavior that internalizes some values. Examples are given in Section 2.4. So, whereas the identification of rules belongs to the value domain, as it corresponds with the values that these rules generate, the imposition and maintenance of rules belongs to the power domain. The same reasoning holds for acts.