

IHS Political Science Series
Working Paper 26
October 1995

Policy Models and Policy Instruments in Higher Education: The Effects of Governmental Policy-Making on the Innovative Behaviour of Higher Education Institutions

Frans A. van Vught



Impressum

Author(s):

Frans A. van Vught

Title:

Policy Models and Policy Instruments in Higher Education: The Effects of Governmental Policy-Making on the Innovative Behaviour of Higher Education Institutions

ISSN: Unspecified

1995 Institut für Höhere Studien - Institute for Advanced Studies (IHS)

Josefstädter Straße 39, A-1080 Wien

[E-Mail: office@ihs.ac.at](mailto:office@ihs.ac.at)

Web: www.ihs.ac.at

All IHS Working Papers are available online:

http://irihs.ihs.ac.at/view/ihs_series/

This paper is available for download without charge at:

<https://irihs.ihs.ac.at/id/eprint/864/>

**Institut für Höhere Studien (IHS), Wien
Institute for Advanced Studies, Vienna**

Reihe Politikwissenschaft / Political Science Series

No. 26

**POLICY MODELS AND POLICY INSTRUMENTS IN
HIGHER EDUCATION**

**THE EFFECTS OF GOVERNMENTAL POLICY-MAKING ON THE
INNOVATIVE BEHAVIOUR OF HIGHER EDUCATION INSTITUTIONS**

Frans A. van Vught

Policy Models and Policy Instruments in Higher Education

The Effects of Governmental Policy-Making on the Innovative Behaviour of Higher Education Institutions

Frans A. van Vught

Reihe Politikwissenschaft / Political Science Series No. 26

October 1995

Centre for Higher Education Policy Studies (CHEPS)
University of Twente
Fax: 0031 53/34 03 92
* IAS visiting professor April 1995

**Institut für Höhere Studien (IHS), Wien
Institute for Advanced Studies, Vienna**

Die **Reihe Politikwissenschaft** wird von der Abteilung Politologie des Instituts für Höhere Studien (IHS) in Wien herausgegeben. Ziel dieser Publikationsreihe ist, abteilungsinterne Arbeitspapiere einer breiteren fachinternen Öffentlichkeit und Diskussion zugänglich zu machen. Die inhaltliche Verantwortung für die veröffentlichten Beiträge liegt bei den AutorInnen. Gastbeiträge werden als solche gekennzeichnet.

Alle Rechte vorbehalten

Abstract

This article presents the major theoretical frameworks regarding governmental policy-making in the field of higher education. It first discusses two basic and general “policy models”, after which these models are specified for the policy context of higher education. In addition, an overview is presented of the various policy instruments that can be used by governments with respect to public sector regulation.

In the second part of this article the policy models and policy instruments are evaluated from the perspective of their capacity to stimulate innovations in the field of higher education.

Zusammenfassung

Der Artikel stellt im ersten Teil die wichtigsten theoretischen Konzepte zur politischen Regulierung im Bereich der Hochschulpolitik dar. Zuerst werden zwei grundlegende und allgemeine “Politikmodelle” analysiert, die dann für den Kontext der Hochschulpolitik spezifiziert werden. Darüberhinaus wird ein Überblick über Politikinstrumente geboten, die zur Regulierung des öffentlichen Sektors prinzipiell zur Verfügung stehen. Im zweiten Teil des Artikels werden die Politikmodelle und -instrumente im Hinblick auf ihre Fähigkeit untersucht, Innovationen im Hochschulbereich zu fördern.

Keywords

Regulation, Governance, Higher Education Policy, Policy Models, Policy Instruments, Innovation, Policy Analyse

Note

Note that with the changed outer appearance of this issue, the IAS Political Science Series is making an invaluable contribution to political philosophy. It confirms, in a convincing, decisive, and even heroic manner, that all assumptions regarding the certainty, linearity, and irresistibility of social progress are misguided as well as misleading. Any attentive reader will have noticed, shuddering with admiration, the truly remarkable deterioration of the series' aesthetic standards, the dramatic, precipitous decline of its visual quality. Yet, the new design of the series, the optical shock program it is implementing, must not lead readers to erroneous conclusions regarding its substantive program. Against all appearances, the renowned high academic quality of the Political Science Series will be strictly maintained.

Contents

Vorwort des Herausgebers 1

1. Introduction 3

2. Policy Models 4

2.1. The Policy Model of Rational Planning and Control 5

2.2. The Policy Model of Self-Regulation 6

3. Policy Models in Higher Education 8

3.1. The State Control Model 9

3.2. The State Supervising Model 10

4. Policy Instruments 11

5. The Study of Innovation 19

5.1. Fundamental Characteristics of Higher Education Institutions 21

5.2. Innovations in Higher Education 24

5.3. Organizational Variables Related to Success of Innovations 24

5.4. Characteristics of Successful Innovations 29

6. Conclusion 36

7. References 41

Vorwort des Herausgebers

In Österreich wurden Anfang der 90er Jahre erste Schritte gesetzt, das Bildungssystem - insbesondere das Hochschulwesen - umzugestalten. Beinahe im Gleichschritt wurden 1993 das Universitätsorganisationsgesetz reformiert und das Gesetz über Fachhochschul-Studiengänge erlassen. Beide Gesetze folgen den Leitlinien einer Erhöhung der Autonomie der Hochschuleinrichtungen, der Deregulierung im Sinne der Reduzierung von Zahl und Umfang von gesetzlichen Vorgaben und einer Dezentralisierung von Entscheidungskompetenzen. All dies geschieht im Umfeld reduzierter budgetärer Spielräume, erhöhter und veränderter Ansprüche an hochschulische Qualifikationen und verstärkter Konkurrenz in einem sich entwickelnden europäischen Forschungs- und Bildungsmarkt.

In den proklamierten Leitlinien spiegelt sich sowohl eine Abkehr von den Prämissen der Hochschulpolitik der letzten 25 Jahre als auch die Annäherung der österreichischen Hochschulpolitik an die in vielen Staaten Europas vorherrschenden Tendenzen. Die Hochschulpolitik der vergangenen Jahrzehnte war von der Vorstellung geprägt, daß der Staat berufen und zugleich dazu in der Lage wäre, die Entwicklung der Hochschulen zu steuern, die "Demokratisierung" des Bildungssystems zu bewerkstelligen und Chancengleichheit über die formale Öffnung des Zugangs herzustellen. Die Sorge um die Studienqualität, das Verhältnis von Studieninhalt und beruflicher Praxis, die Qualität und Internationalität der universitären Forschung, aber auch die Sorge um die ökonomische Effizienz und Effektivität der hochschulischen Einrichtungen mußte dagegen zurückstehen. Das zeitliche Zusammentreffen der Vorbereitungen zum Beitritt Österreichs zur Europäischen Union mit den Plänen zur Reform des Hochschulwesens legen die Vermutung nahe, daß es nicht die unbewältigten Probleme und Mißstände in der Universität allein waren, die die neuerliche Reformoffensive auslösten. Die externen Herausforderungen für das österreichische Universitätssystem können allerdings nur Anstoß sein, notwendige Strukturreformen durch- und umzusetzen.

Vergleicht man die programmatischen Ansprüche mit den bisher vorliegenden Resultaten, so kommt man nicht umhin festzustellen, daß im Universitätsbereich die Reformen in den Anfängen steckenzubleiben drohen, während das im Aufbau befindliche Fachhochschulsystem als zukunftsweisendes Modell und bildungspolitisches Experiment gelten kann, für das es im österreichischen Bildungswesen kein Vorbild gibt. Die Veränderung der formalen Organisation stellt allerdings bestenfalls einen ersten Reformschritt dar, der von tiefgreifenden Veränderungen in den Rahmenbedingungen der Finanzierung, des Dienstrechtes, der Studiengestaltung und der Qualitätssicherung ergänzt werden muß, um einen Selbstregelungsmechanismus in Gang zu setzen, der zu einer neuen Balance im Verhältnis von Hochschulen und Staat, Lehrenden und Studierenden, Studium und Beruf, Forschung und gesellschaftlichen Bedürfnissen führen kann. Der Erfolg des in dieser Hinsicht für das österreichische Hochschulsystem revolutionären Regelungsmechanismus im Fachhochschulbereich wird mit darüber entscheiden, ob das österreichische

Hochschulsystem wandlungsfähig genug ist, um sich den alten und neuen Herausforderungen zu stellen.

Der vorliegende Artikel von Prof. van Vught kann als Folie dafür verwendet werden zu beurteilen, welche Schritte in der österreichischen Hochschulpolitik noch erforderlich sind, um die angestrebte "Autonomie" des Hochschulwesens umzusetzen und mit Substanz zu füllen. Prof. van Vught entwickelt seine These vom notwendigen Übergang vom Politikmodell der "staatlichen Kontrolle" zum Modell der "staatlichen Aufsicht" vor dem Hintergrund einer umfassenden Kenntnis der Hochschulsysteme Europas und darüberhinaus - sowohl was ihre Entwicklung als auch ihre inneren Funktionsbedingungen betrifft. Zudem entwickelt er seine Vorstellungen unter Berücksichtigung und in Hinblick auf die spezifischen kontinentaleuropäischen Traditionen der staatlichen Universitätsverwaltung und der in Kontinentaleuropa vorherrschenden Sichtweise der Hochschulausbildung als weitgehend öffentliches Gut. Die Erhöhung der Autonomie der Hochschulen und Universitäten ist kein Selbstzweck, sondern dient den Zielen der Stärkung akademischer Professionalität, der Optimierung wissenschaftlicher Wissenserzeugung und -vermittlung und der Erhöhung der generellen Innovationsfähigkeit von Universitäten und Hochschulen - allesamt Ziele, die für die gedeihliche Weiterentwicklung der Universitäten unverzichtbar sind.

Wir danken Prof. van Vught und der Agathon Press für die Erlaubnis zum Reprint des vorliegenden Artikels, der 1994 im "Higher Education: Handbook of Theory and Research, Vol. X" erschienen ist.

Josef Melchior
im Namen der Abteilung Politikwissenschaft

Wien, September 1995

1. Introduction

Government regulation has become an increasingly important issue. Much of the attention for government regulation has been focused on private sector regulation. Economists have widely analyzed the effects of government regulation on the affected market sector (for instance: Kahn, 1971; Stigler, 1975).

The effects of public sector regulation have also attracted some attention. In disciplines like public administration and policy analysis, public sector regulation has fruitfully been studied as an issue of compliance or noncompliance. The literature on implementation processes in particular has offered some interesting results with respect to the identification of factors explaining why specific government policies have or have not succeeded (Pressman & Wildavsky, 1973; ; Dunsire, 1978; Rein & Rabinovitz, 1978; Bardach, 1979; Barrett & Fudge, 1981; Mazmanian & Sabatier 1981; O'Toole, 1986). With respect to the implementation of higher education policies the study by Cerych and Sabatier (1986) should be mentioned.

Generally speaking, regulation has to do with the influencing of behaviour, i.e. with trying to steer the decisions and actions of others according to certain objectives and by using certain instruments. Mitnick has defined 'regulation' as 'the intentional restriction of a subject's choice of activity, by an entity not directly part to or involved in that activity' (Mitnick, 1980, p. 5). Government regulation can be described as the efforts of government to steer the decisions and actions of specific societal actors according to the objectives the government has set and by using instruments government has at its disposal. There are three basic categories of rationale for government regulation: efficiency (usually pertaining to correcting market failures); distribution; and stimulating or protecting social and cultural objectives (Skolnik, 1987, p. 60).

Government regulation can be interpreted as a 'framework of rules within which other decision units can make decisions without the high transaction costs of maintaining private force for the purpose of protecting their belongings or of maintaining threats to enforce the carrying out of agreed upon contracts. As a framework, the government simply delineates the boundaries within which other units determine substantive choices, the government making its own forces available to defend the established boundaries' (Sowell, 1980, p. 145).

In this article I will focus on these frameworks used by government in the policy field of higher education (Van Vught, 1991). I will especially discuss the general orientations that appear to guide the sets of rules that together form the frameworks of government regulation.

When designing and implementing specific policies, governments are guided by general assumptions and points of view. For these assumptions and points of view I will use the term 'policy models'. 'Policy models' are the sets of general postures, assumptions and guidelines that appear to be followed when governments formulate their frameworks of regulation. 'Policy

models' are – what Dror has called – : 'megapolicies: a kind of master policies, clearly distinct from detailed discrete policies' (Dror, 1971, p. 63).

In the following sections first two general policy models will be explored: the *model of rational planning and control*, and the *model of self-regulation*. These two models will then be specified in the policy context of higher education. Next, an overview will be presented of the policy instruments that can be used by governments with respect to public sector regulation. It will be argued that specific categories of policy instruments show a better fit with a specific policy model.

In the second part of this article the policy models and policy instruments will be evaluated from the perspective of their capacity to stimulate innovations in the field of higher education.

2. Policy Models

Premfors (1992) has indicated that, when we accept the point of view that in policy analysis we should at least aim at a certain level of rationality, policy models like the 'garbage can model' (March & Olsen, 1976) should not be considered to be part of policy analysis. Nevertheless, says Premfors, there is 'a wealth of [what he calls] models of policy processes to choose from' (Premfors, 1992, p. 1908) He mentions models like 'bounded rationality' (Simon, 1957), 'mixed scanning' (Etzioni, 1968) and 'the normative optimum model' (Dror, 1968). Other models in the literature are the 'incremental model' (Braybrooke & Lindblom, 1963), the 'systems model' (Jantsch, 1972), the 'communicative model' (Van Gunsteren, 1976) and the 'transactive model' (Friedmann, 1973) (see Maassen & Van Vught, 1992 for an overview).

I argue that, when the basic assumptions of the various models that are presented in the literature are studied, only two clearly different models appear to remain. The other models that are found in the literature can all be seen as specific (and often quite interesting) variations or combinations of these two more or less fundamental models.

2.1 The Policy Model of Rational Planning and Control

An extreme case of a governmental approach to public sector regulation is one in which the knowledge of the object of regulation is assumed to be firm, the control over the object of regulation is presumed to be complete, and the self-image of the regulating subject is holistic. I will name this conception the policy model of rational planning and control.

A fundamental assumption of this model is that it should be performed as the normative ideal of the rationalist perspective on decision-making suggests: by comprehensively evaluating all conceivable consequences of all conceivable alternatives.

The authors who can claim to have stated this strategy first in the literature are probably Meyerson and Banfield (Meyerson & Banfield, 1955). However, from their publications it also can be concluded that they want to see the model of rational decision-making as basically a normative ideal which is worthwhile to pursue but which cannot completely be realized in reality (Banfield, 1959; Meyerson, 1956):

“... no choice can ever be perfectly rational, for there are usually a great – perhaps an infinite – number of possible actions open to the actor and the consequences of any one of them would ramify ad infinitum. No decision-maker could have the knowledge (or the time!) to evaluate even a small fraction of the actions open to him. It is possible, however, to be more or less systematic in the canvass of alternatives and consequences, so that the conception is not an entirely useless one. For practical purposes, a rational decision is one in which alternatives and consequences are considered as fully as the decision-maker, given the time and other resources available to him, can afford to consider them” (Banfield, 1959, p. 364).

Lindblom especially has strongly criticized this model, variously called by him the rational-deductive or the synoptic ideal (Lindblom, 1959; Lindblom, 1965; Braybrooke & Lindblom, 1970). Lindblom argues against the rational decision-making ideal from the assertion that it cannot be followed in actual practice and that the attempts to do so distract decision-makers from a more feasible strategy (called by him the strategy of ‘disjointed incrementalism’). He argues that the ‘synoptic ideal’ is not adapted to man’s limited intellectual capacities, nor to his inadequacy of information or the costliness of analysis.

“In actual fact, therefore, no one can practice the rational-comprehensive method for really complex problems, and every administrator faced with a sufficiently complex problem must find ways drastically to simplify” (Lindblom, 1959).

Perhaps the most crucial aspect of Lindblom’s criticism is his conviction that, given the limited knowledge a (governmental) policy-maker can acquire, comprehensive control of an object of regulation should not be strived after. A complete or nearly complete control cannot avoid harming the object of regulation and will eventually result in imposing decisions and commanding their implementation. Rather, according to Lindblom, decisions should rather be taken by a large number of decision-making units, each of them free to pursue its own interests. It is this conviction that leads Lindblom to speak of ‘disjointed’ incrementalism.

“Analysis and evaluation are disjointed in the sense that various aspects of public policy and even various aspects of any one problem or problem area are analyzed at various points, with

no apparent co-ordination and without the articulation of parts that ideally characterises subdivision of topic in synoptic problem solving ... Disjointedness has its advantages (...) chief among them the advantage of preserving a rich variety of impressions and insights that are liable to be 'co-ordinated' out of sight by hasty and inappropriate demands for a common plan of attack" (Braybrooke & Lindblom, 1963, p. 105, 106).

It may be concluded from Lindblom's criticism that the policy model of rational planning and control not only is based on the assumption of the rationalist perspective on decision-making, but also implies the centralization of the decision-making process and a large amount of control both over the actual choice to be made and over the implementation of the chosen policy. The model of rational planning and control takes its point of departure in the ideal of rational decision-making, but confronted with the limitations of this ideal in actual practice, it takes refuge in confidence in centralization and control.

The model of rational planning and control is an approach to governmental regulation in which much confidence is put in the capabilities of governmental actors and agencies to acquire comprehensive and true knowledge and to take the best decisions. Also, it is an approach in which these governmental actors try to steer an object of regulation by using stringent rules and extensive control mechanisms. When government designs and implements operational policies using the general policy model of rational planning and control, it sees itself as an omniscient and omnipotent actor who thinks itself able to rightfully steer a part of society according to its own objectives.

2.2 The Policy Model of Self-Regulation

The policy model of self-regulation is basically the opposite of the model of rational planning and control. Instead of the assumption that the knowledge of the object of regulation can be firm, comes the recognition that such knowledge is highly uncertain. Instead of the wish to control the object of regulation as completely as possible, comes the conviction that such a control should to a large extent be avoided. Instead of a holistic self-image of the regulating subject, comes the assertion that an atomistic self-image offers important advantages.

The policy model of self-regulation is not so much based on the ideal of rational decision-making. It rather incorporates the logic and the assumptions of the cybernetic perspective on decision-making (Ashby, 1956). † puts emphasis on the principles of monitoring feedback variables. It accepts the idea that a decision-maker should only pay attention to a small set of 'critical variables' which he should try to keep within tolerable ranges. And perhaps most importantly, it underlines the assumption that the fragmentation of complex decision-making processes offers the benefits of a high level of robustness, a high level of flexibility, a high level of innovativeness and a low level of information, transaction and administration costs (Steinbrunner, 1974).

From the field of management sciences Beer has indicated that a choice for the cybernetic perspective on decision-making is a choice for the strategy of self-regulation.

“Every manager, whether he runs the family business or a small department in a firm, whether he runs the firm itself or a major department of government, whether he runs the country or an aspect of international affairs, faces an identical problem. He faces, that is, the need to maintain a viable system far more complicated than he personally can understand. And the beginning of wisdom for management at any level is the realization that viable systems are, in large measure, self-regulating and even self-organising” (Beer, 1975, p. 105, 106).

Beer makes it clear that the cybernetic perspective on decision-making implies the idea of self-regulation. A cybernetic decision-making unit is able to regulate itself. When the feed-back loops are working and when a repertory of operations is available, a decision-making unit hardly needs regulation from outside. Moreover, a complex system with many interrelated decision-making units, is able to realise a high level of stability. Such a system has the capacity of ‘homeostasis’, i.e. the capacity to hold the critical variables at the level of the overall system within acceptable ranges. Confronted with such a system, the task for an external (governmental) regulator is only to monitor these critical variables making sure that they do not exceed the tolerable ranges, and to evaluate the criteria by which the critical variables and the tolerable ranges are chosen.

In the policy model of self-regulation, the role of an external regulating agency or actor is a role at another, higher level: ‘... the role (...) is to remain above the homeostatic fray, and to consider what is happening in terms of a higher level understanding’ (Beer, 1975, p. 112). Beer explains this higher level role with the following illustration from the world of games.

“Suppose that as a higher manager you have the responsibility to ensure that team A wins in a game which is already being played between team A and team B, where the scoring is already even. You could dress yourself in the appropriate regalia and charge onto the field of play. The players would recognise you. Your own side might defer to your tactics (...) while the other side would do their level best to put you out of action. This is not the way to behave at all (...) the clever action would be to change the rules of the game so that your side must win it’ (Beer, 1975, p. 112).

In the model of self-regulation emphasis is put on the self-regulatory capacities of decentralized decision-making units. The complex interrelations between these units are respected. The external regulating activities are limited to monitoring the performance of the overall system of the interrelated self-regulating decision-making units and to evaluating (and if judged necessary, changing) the rules which to a large extent define this performance.

Compared to the model of rational planning and control, the model of self-regulation is far more modest. It acknowledges the limitations of acquiring knowledge and exercising control over an object of regulation which, in itself, already consists of a complex set of mechanisms of decision-making. It tries rather to incorporate the benefits of this complex set of mechanisms by limiting itself to setting broad frameworks and by providing facilities for the behaviour of decentralized units.

When government uses the policy model of self-regulation, it sees itself mainly as an arbiter. In this model government is the actor who watches the rules of a game played by relatively autonomous players and who changes these rules when the game is no longer able to lead to satisfactory results.

3. Policy Models in Higher Education

Looking at the characteristics of the various higher education systems in the world the two general policy models that have just been distinguished can clearly be recognised. Generally speaking, from the perspective of governmental policy-making with respect to higher education two models can be distinguished that are clearly related to the two general policy models presented before. I will call these policy models in higher education: the state control model and the state supervising model (Van Vught, 1988; Van Vught, 1992).

3.1 The State Control Model

The state control model is traditionally found in the higher education systems of the European continent. The so-called 'continental model' – to use Clark's label – (Clark, 1983a), is a combination of the authority of state bureaucracy and faculty guilds.

The higher education systems of the European continent traditionally have been 'relatively pure state systems' (Van de Graaff & Furth, 1978). These systems are created by the state and almost completely financed by it. The state very often also is the overarching and highly powerful regulator of the system. A clear example is the French higher education system which is characterized by a centralized bureaucratic control exercised by the national ministry of education. In such systems the state controls, at least formally, nearly all aspects of the dynamics of the higher education system. The national ministry of education regulates the access conditions, the curriculum, the degree requirements, the examination systems, the appointment of academic staff, etc. An important objective of this detailed government regulation is the standardization of national degrees, which are often awarded by the state rather than by the higher education institutions. In federal systems (like the Federal Republic of Germany and the U.S.) state control is usually exercised at the sub-national level.

In the continental model the overwhelming power of the state is combined with a strong authority at the level of the senior chaired professors, who hold considerable power at the lower level of the system. As has become most visible in the nineteenth century German higher education system, the chair holders are able to exercise strong collegial control within the faculties and the institutions.

The result of the combination of authority of state bureaucracy and faculty guilds is a power structure which expresses the interests of two groups: state officials and senior professors (Clark, 1983a, p. 126). The level of institutional administration is rather weak and in effect often bypassed when system-wide decisions are taken (Glenny, 1979). The power distribution of the continental model is characterized by a strong top (the state), a weak middle level (the institutional administration), and a strong bottom (the senior chair holders) (Clark, 1983a, p. 127).

The continental higher education model offers the clearest example of the state control model. Especially when the state controls the appointments of the chair holders, it is obvious that the state exercises a major influence on the system. In these cases the state often uses the higher education system for its professional manpower needs. Both the manpower needs of the governmental bureaucracy itself and the assessed needs at the nation's labour market are expected to be fulfilled by the higher education system. The state then finds its legitimization for the detailed control of the higher education system in the self-proclaimed task to steer the nation's economy.

3.2 The State Supervising Model

The state supervising model has its roots both in the U.S. higher education system and in the traditional British higher education system. The 'American and British models' – to use again Clark's labels – (Clark, 1983a) show far less governmental influence on higher education than the continental model. In the British and certainly in the American model the state plays only a minor role. Although things have changed rather drastically during the last decade in British higher education (see for instance: Walford, 1991), the traditional British model can still serve as a conceptual tool to describe a limited state influence. The traditional British model of higher education is a combination of the authority of faculty guilds and a modest amount of influence of trustees and administrators (vice-chancellors) at the institutional level. In this traditional model, British universities are chartered corporations, responsible for their own management. Each individual university and college is allowed to decide upon its admission, its curricula and the hiring of its faculty. In the traditional British model there is no formally organized system of national governmental control. And although during the development of British higher education the funding became largely a governmental task, the budget allocation remained (until the policy changes of the Thatcher government) in the hands of the senior professors (in the University Grants Committee).

During the last decade, things have changed dramatically in British higher education. The higher education budget has been severely cut, a businesslike management style has been introduced, an approach of quality monitoring by means of performance indicators has been developed and the University Grants Committee has been abolished. British government apparently wants to 'privatize' higher education. A hierarchical businesslike organisational structure has been introduced and the influence of industry on higher education has been increased (Scott, 1988; Walford, 1991). It could be argued that the traditional British state supervising model has recently changed into a 'non-British' state control model.

The U.S. higher education model shows a rather limited government regulation. The U.S. model is a combination of the authority of faculty guilds and institutional trusteeship and administration. But compared to the traditional British model, the influence of the institutional trustees (or regents) and administrators is stronger (Van de Graaff et al., ch. 7). Like the British universities, the American institutions are established as chartered corporations. But the boards of trustees and the institutional administrators (presidents) play a more important role than their British colleagues. The trustees generally appoint the university president who to a large extent has the authority over the strategic and financial policies of the institution. In the U.S. the professors do not have the power of the chair holders, but the authority of the faculty is nevertheless substantial (especially in the academically stronger institutions).

The influence of government is rather limited. There is hardly any power at the federal level. The authority at the state level has been growing during the last few decades (Newman, 1987), but this increase of state authority is moving towards 'adaptations of market control mechanisms' like outcomes assessment legislation and performance funding (Dill, 1992, p. 53, 54). Compared to the level of state influence in the continental model, the U.S. state authority in higher education is still rather weak. The U.S. state level regulation largely concerns the mechanisms for the organization of quality assessment and the regulation of the right to award degrees (Berdahl and Millett, 1991).

The traditional British and the U.S. models offer examples of what has been called here the state supervising model. In this policy model the influence exercised by the state is weak. The state sees its task of supervising the higher education system in terms of assuring academic quality and maintaining a certain level of accountability. Government does not intrude into the higher education system by means of detailed regulation and strict control. Rather it respects the autonomy of the higher education institutions and it stimulates the self-regulating capabilities of these institutions. The state sees itself as a supervisor, steering from a distance and using broad terms of regulation.

It may be clear from the presentation of the two models of state influence on higher education (the state control and the state supervising model), that each of these two models is related to one of the two general policy models of public sector regulation that were introduced before.

The state control model is largely based on the general governmental strategy of rational planning and control. The state supervising model is a specialization of the policy model of self-regulation. Further on I will explore the effects of each of the two models on the innovative behaviour of higher education institutions. But first, let us see what categories of policy-instruments governments can use in each of the two general policy models (the model of rational planning and control and the model of self-regulation).

4. Policy Instruments

In principle every government has a number of instruments at its disposal to perform the tasks that have been assigned to it. If government wants to 'produce' certain outcomes, it employs certain tools. Without such tools governmental policies would be no more than abstract ideals or fantasies.

In the policy sciences literature the concept of policy-instruments recently has attracted renewed interest. Important theoretical concepts have already been developed in the classical publications of Dahl and Lindblom (1953) and Etzioni (1968). Dahl and Lindblom distinguished four sociopolitical processes which, in their opinion, should be used by 'any society intelligently bent on using its resources efficiently' (Dahl & Lindblom, 1976, p. 172). These four processes are: the price system (control of and by leaders), hierarchy (control by leaders), polyarchy (control of leaders) and bargaining (control among leaders). Etzioni makes a distinction between three types of social relationships: coercive, utilitarian and normative relationships. According to Etzioni, in any concrete case there is a mixture of these three forms, leading to different kinds of social interaction (Etzioni, 1978).

Mitnick (1980) takes Dahl and Lindblom's analysis as a starting point to develop a categorization of the instruments of government. A crucial distinction in his work is the one between 'regulation by directives' and 'regulation by incentives'. Regulation by directives is defined as 'the interferences that occur by circumscribing or directing choice in some area – i.e. making rules for behaviour that may be transmitted as instruction'. Regulation by incentives is described as 'the interferences that occur by changing the perception of the nature of the alternatives for action subject to choice – i.e. changing the relative attractiveness of alternatives' (Mitnick, 1980, p. 342, 343). Mitnick develops an overview of 'some common regulatory means' which he classifies in his two broad instrumental categories. Figure 1 contains this overview.

Figure 1: Mitnick's categorization of governmental instruments

Regulation by : directive	public enterprise (extreme case) common law
------------------------------	--

Regulation by : incentive	administrative rules or standards tax incentives effluent/user charges subsidies promotion campaign laissez faire (extreme case)
------------------------------	---

Source: Mitnick, 1980, p. 346.

It seems that Mitnick's presentation of governmental instruments is based on the criterion of the level of restriction by government of the behaviour of societal actors. Directives are more restrictive than incentives, and strong incentives are more restrictive than weak incentives.

Several other authors have pointed at the importance of policy instruments for policy analysis. Several studies of policy implementation emphasize the need to further analyse the effects of the various categories of instruments (Ingram & Mann, 1980; Mazmanian & Sabatier, 1981). Bardach (1979) points to the importance of the behavioural characteristics of policy-instruments. Salamon (1981) asks for a re-orientation in the implementation literature toward the comparative effectiveness of policy instruments.

The literature also shows various alternative categorizations of policy instruments. Bardach (1979) proposes to distinguish four categories of instruments: prescription, enabling, positive incentives and deterrence. Elmore (1987) and McDonnell (1988) indicate that they favor a categorization in: mandates (providing constraining rules), inducements (providing financial resources to encourage certain activities), capacity (providing financial resources to enable actors to take certain actions), and instruments of system change (that alter the arrangement of agencies in a policy-network). Schneider and Ingram (1990) distinguish authority tools, incentive tools, capacity tools, symbolic and hortatory tools, and learning tools. 'Authority tools' are simply statements backed by the legitimate authority of government that grant permissions, prohibit, or require action under designed circumstances'. Incentive tools are instruments 'that rely on tangible payoffs, positive or negative, to induce compliance or encourage utilization... Capacity tools provide information, training, education, and resources to enable individuals, groups, or agencies to make decisions or carry out activities'. Symbolic and hortatory tools

"seek to change perceptions about policy-preferred behaviour through appeals to intangible values... or through the use of images, symbols and labels... Policy tools that promote learning provide for wide discretion by lower-level agents or even the target groups themselves, who are then able to experiment with different policy approaches. Agents are required to draw lessons from experience through formal evaluations, hearings and institutional arrangements

that promote interaction among targets and agencies”, (Schneider & Ingram, 1990, p. 514-522).

For an overview of policy-instruments I will follow Hood's *The Tools of Government* (1983). Hood distinguishes four categories of governmental instruments. The categories vary depending on the 'basic resources' used by government in trying to reach the objectives set. For each category of 'basic resources' a specific set of instruments can be indicated. For the sake of understanding the broad scale of policy-instruments, a slightly modified interpretation of Hood's categorization is presented here (see figure 2).

Figure 2: An overview of the instruments of government

Instruments of information	responses messages
Instruments of treasure	contracts bounties transfers bearer- directed payments
Instruments of authority	certificates approvals conditionals enablements constraints
Instruments of action	operational activities

Source: modified from Hood, 1983

The first category of instruments concerns the provision of *information*. From its specific position in society, government has the advantage of being 'a store of information'. Compared with other institutions, governmental agencies often have extra possibilities to develop rather broad, panoramic overviews of societal conditions. Hence, government can use the information it has at its disposal to try to reach its policy objectives.

There are various ways government can 'send out' information. It can provide informed responses tailored to questions from outside; it can direct standard messages without being asked to specific groups ('targeting information'); it can send out general messages to the broad public. What type of information outlet government uses depends on various factors such as the size of the informed population, the degree of attention manifested by the informed population, and of course the content of the message. A crucial factor is the political and legal framework government operates in.

In general, it can be said that the providing and propagating of information offers government a set of instruments with rather low or even non-existing 'authority costs'. When information-oriented instruments can be used, government does not have to lay its authority on the line. It can send out the information judged to be necessary or significant, and it can wait and see if the information is accepted.

A second category of policy instruments concerns 'the power of treasure'. Treasure is what enables government to buy favours, to court popularity, to hire mercenaries, etc.; the power of treasure is the power of signing cheques. Hood therefore speaks of the instruments of 'cheque book government'.

Government can use its treasure in two main ways. It can 'exchange' it for some good or service. Or it can 'give it away', that is: it can transfer payments without requiring any 'quid pro quo'.

According to Hood, the two main instruments of the exchange of treasure are 'contracts' and 'bounties'. Contracts are governmental payments made to specific individuals or organizations, under the condition that the recipient supplies a specified product or service. Contracts are payments 'with strings attached'. A governmental contract-payment is only made when the recipient of such a payment accepts the conditions which government requires. Like contracts, bounties also are payments made in exchange for some 'quid pro quo', but in the case of bounties the individual or organization which is to provide that 'quid pro quo' is not specified. A bounty is awarded to anyone who produces the product or service asked for. Bounties are assumed to be especially useful to encourage or discourage specific types of societal behaviour.

The two main governmental instruments of the other method of using the power of treasure (the 'give it away' option) are 'transfers' and 'bearer-directed payments'. Transfers are exchanges of treasure without a requirement of a 'quid pro quo'; transfers are 'gifts', made to specific individuals or organizations for specific purposes or reasons. Bearer-directed payments also do not involve a clear 'quid pro quo'. But, unlike transfers, bearer-directed payments are made to all those who, by some token, are eligible for them.

The instruments of 'cheque book government' can be used directly by government or indirectly through intermediaries. Intermediary organizations are an often used alternative for direct governmental allocation of resources, especially when government wants to avoid getting too closely involved in highly specialized budget-decisions.

In general, the instruments of 'cheque book government' are costly, in the sense that financial resources can only be spent once and the renewal of treasure implies the use of the mechanism of taxation. On the other hand, as has been argued many times before, treasure is an elegant category of instruments, often capable of achieving the kind of societal behaviour government sets out to create.

The third category of policy instruments is formed by the instruments of authority. The instruments of authority are intended to command and to forbid, to commend and to permit.

Instruments of authority vary depending on the degree of restriction they seek to introduce into the behaviour of the targeted subjects. Least constraining in this sense are 'certificates' and 'approvals'. Certificates are authoritative declarations by government about the properties of a specific individual or object. Approvals are authoritative declarations in a general sense; approvals apply to the world at large or to whomever it may concern. Both certificates and approvals are instruments requiring no compulsive action at all from government.

A subcategory requiring more (but still not extreme) compulsive action is formed by the instruments called 'conditionals' and 'enablements'. Conditionals are the promises by government to act in a certain way when certain conditions arise. A well-known example is the governmental guarantee which is provided as a kind of safety-net for certain circumstances. Enablements are the tokens which permit certain activities. Modern governments use a large variety of enablements. Licences, quotas, warrants, coupons, vouchers and permits are all types of enablements. They all allow (but do not compel) the undertaking of certain activities.

The instrument of authority which asks for compulsive action is the instrument called 'constraint'. Constraints, in contrast to certificates, approvals, conditionals and enablements, demand or prohibit certain activities. Constraints can be positive (commanding) and negative (forbidding). In both cases, they imply a compulsory restriction by government of societal behaviour.

Generally speaking, the instruments of authority depend on the willingness of the public to accept them. A low level of respect for and acceptance of government can make these instruments rather ineffective. As history has shown, governments sometimes in these cases take refuge in the authority-instruments with the highest level of constraint. On the other hand, when government is widely respected and accepted, the low-constraint instruments of authority may be very effective in producing the outcomes government thinks to be relevant.

Hood's fourth and final category of policy instruments is the category of (direct) action. Within this category fall all kinds of operational activities by government which directly influence the citizens, their property, or their environment. Government can use 'its own' individuals, buildings, equipments and stocks of lands to directly produce certain outcomes or to perform certain tasks. It can for instance act as a national banker; it usually operates a system of involuntary detention; it sometimes holds a monopoly on the production of a certain good; and it of course often takes care of defending the country, controlling crime, treating sewage, controlling traffic, lighting streets, controlling floods, etc.

The instruments of action to a large extent are related to the traditional monopoly on the use of violence and the enforcement of law. As such these instruments tend to be restricted to some specific areas of governmental control. Next to these areas the instruments of action are often used for providing 'collective goods' (like defence and dikes).

In general, it should be noted that the governmental instruments of direct action are rather expensive. They should be reserved for the governmental monopoly on the use of violence, for emergencies and for activities which might otherwise not be performed.

It may be concluded that, as is the case in several other categorizations, Hood's presentation of policy instruments is to a large extent based on the criterium of the level of restraint the instruments try to produce with respect to the behaviour of societal actors.

The instruments of information are hardly at all restrictive. They are used without the explicit goal to directly limit the range of behavioural options of other actors. The objective of the use of information instruments is to try to influence the behaviour of others by providing them with significant information.

The instruments of treasure are more restrictive. In particular when government acts as the most important funding agent of the activities of other actors, these actors may be strongly influenced to adapt their behaviour to the ideas and wishes of government. 'Cheque book government' in this sense can be very restrictive, although the restraining potential is often used in an indirect way. The power of treasure offers governmental agencies the opportunity to design and implement financial incentives and disincentives, strongly urging actors to behave according to government's wishes.

The instruments of authority range from mildly restrictive to completely restraining. The 'certificates' and 'approvals' are only mildly restrictive. These specific instruments provide governmental agencies with the ability to approve or disapprove. As such they can limit the behavioural options of other actors. Especially when the approval of government is sought after (e.g. because such an approval offers the right to acquire financial resources), these mildly restrictive instruments may become very effective in influencing the behaviour of non-governmental actors. The instruments called 'conditionals' and 'enablements' have a higher level of restrictive potential. They allow or do not allow actors to behave in a certain way, usually by providing or denying financial resources or licences. The instruments called 'constraints' are extremely restrictive. These are the instruments a government can use to command and forbid and by using them government can compel other actors to behave completely according to its wishes.

The instruments of direct (governmental) action are also, generally speaking, rather restrictive. Because these instruments are based either on the governmental monopoly on the use of violence, or on the political decision that government should provide a certain collective good, these instruments tend to strongly influence the other actors' behaviour.

However, Hood's presentation seems to imply more than one criterion for the categorization of policy instruments (the level of restraint). A second criterion concerns the distinction between

the particular and the general use of instruments. 'Particular applications are those that are directed at specific and named individuals, organizations or items.... General applications are those that are beamed at the world at large and thus apply to whomever it may concern' (Hood, 1983, p. 17). Other criteria which seem to be important in Hood's categorization are the question whether societal actors should or should not themselves try to obtain the benefits of a certain instrument, the question whether societal actors have or have not to provide a 'quid pro quo' and the level of permanence of an instrument (for instance the instruments of authority are more durable than the instruments of treasure).

The presentation of the instruments of government has made it clear that these instruments vary according to the level of restraint they try to produce with respect to the behaviour of societal actors. This variation in the level of restraint allows us to relate some specific categories of instruments to the two general policy models which were distinguished before. Generally speaking, it may be expected that the instruments that are highly restrictive are more easily applied in the policy model of rational planning and control, while the less restrictive instruments are more appropriate in the policy model of self-regulation.

In the model of rational planning and control a government sees it as its task and its capability to influence other societal actors according to its own objectives. In this model government judges it to be its prerogative to restrain the behavioural options of other actors in order to reach the goals that are thought to be relevant. In such an approach, highly restrictive instruments will be assumed to be the most effective. The highly restraining instruments of authority ('constraints') or the indirect but nevertheless often rather restrictive instruments of treasure will be applied to give concrete form to the confidence in centralized control.

In the policy model of self-regulation government puts its confidence in the self-regulatory capacities of decentralized decision-making units. Governmental activities are limited to gathering information so as to be able to watch the overall system of activities and to providing and, if judged necessary, changing the broad frameworks that enable and stimulate such a system. The instruments which may be expected to be relevant in this policy model are the instruments of information (responses and messages) and the mildly restrictive instruments of authority (certificates and approvals). A special set of instruments may be formed by the indirect instruments of treasure that may be applied at the systems level to install mechanisms that may influence actors to change their behavioural patterns without reducing their self-regulatory capacities.

It should be stressed that policy instruments are seldom used in isolation. The categories of instruments which have been presented above can only be distinguished analytically. In reality governmental instruments are used in combination and through all kinds of linkages. An example is the combination of 'enablement' (a specific instrument of authority) and 'bearer-

directed payment' (a specific instrument of treasure): the licence for a certain activity may immediately make a person eligible for a certain transfer of payment without a 'quid pro quo'.

Nevertheless, every specific combination of instruments has its own characteristics, which will influence its effectiveness and efficiency. Also, every specific combination of instruments may lead to different results, depending on the context in which it is used.

One of the most crucial questions in present-day public sector regulation is how governmental policy models and instruments can be matched to the circumstances in which they are applied. In the second part of this article I will address this question by exploring the appropriateness of the policy models and policy-instruments that were presented before for producing innovations in higher education systems and institutions.

5. The Study of Innovation

Innovation is a concept that has attracted much attention in the social sciences. In the 1950s and the 1960s there was a strong belief that the construction of a comprehensive theory and methodology of innovation would only be a matter of time. There existed a certain optimism and enthusiasm about the possibilities and the usefulness of such a theory and methodology. The general social theory of innovation would soon enable planners and policy-makers to design and implement successful changes and to create a happier society.

Since then doubt and disappointment have grown. The comprehensive theory and methodology did not arise. The growing number of empirical studies offered a picture of extreme variance among its findings. The conceptual frameworks remained vague. As Downs and Mohr concluded in 1976:

"... the record in the field of innovation is beyond interpretation. In spite of the large amount of energy expended, the results have not been cumulative. This is not to say that the body of existing research is useless (...) Perhaps the most straightforward way of accounting for this empirical instability and theoretical confusion is to reject the notion that a unitary theory of innovation exists" (Downs & Mohr, 1976, p. 701).

The literature on innovation is very extensive and covers several disciplines. In the field of organizational behaviour, research has been undertaken to try to identify some important variables which are related to the tendency in organizations to adopt innovations. Variables like 'degree of decentralization', 'degree of formalization', 'degree of specialization' and 'complexity' are frequently mentioned (Hage & Aiken, 1967). In the field of social-psychology several variables are suggested, which are assumed to be related to the development of an innovation process. These variables include: the level of motivation of the innovator, the degree of

compatibility with existing values and practices, and the level of organizational support (Davis et al., 1982).

In literature on higher education the concept of innovation has also received some attention. Several rather creative and elegant analyses have been performed from which some interesting insights about innovation processes and outcomes in higher education systems can be deduced (for instance: Levine, 1980; Cerych & Sabatier, 1986). I will use these studies to formulate some insights about the relationships between policy models and policy instruments used by governments, and the innovations that take place in higher education systems and institutions.

The conceptual approaches to innovations and innovation processes are numerous. Besides, it is not always clear how these various conceptual approaches can be related in order to try to gain some increasing understanding of the state of the art in the literature on innovation.

Dill and Friedman (1979) have tried to identify the major theoretical frameworks in the conceptual approaches to innovations and innovation processes, with a special focus on the study of higher education. Reviewing these frameworks, they come to the conclusion that the theoretical and methodological problems related to the study of innovation processes are still quite large. The theoretical frameworks appear to be both too complex and insufficiently specified to enable researchers to undertake clear analyses. Measuring the many variables mentioned in the frameworks and paying attention to their validity and reliability is an enormous task. Dill and Friedman suggest focusing attention on the developments of less comprehensive theories.

In the remainder of this article I will follow this suggestion. I will limit myself to an exploration of the relationships between governmental policy models and policy instruments directed towards creating and stimulating innovations in higher education systems and institutions, and the processes and outcomes of these innovations. To be able to do this, I will now first discuss some of the fundamental characteristics of higher education institutions.

5.1 Fundamental Characteristics of Higher Education Institutions

Kerr has pointed out that, looked at from without and comparatively, higher education institutions (especially research universities) have hardly changed at all during the past centuries:

“About eighty-five institutions in the Western world established by 1520 still exist in recognisable forms, with similar functions and with unbroken histories, including the Catholic church, the Parliaments of the Isle of Man, of Iceland and of Great Britain, several Swiss cantons, and seventy universities. Kings that rule, feudal lords with vassals, and guilds with

monopolies are all gone. These seventy universities, however, are still in the same locations with some of the same buildings, with professors and students doing much the same things, and with governance carried on in much the same way” (Kerr, 1982, p. 152).

This striking permanence of higher education institutions has to do with some of the most fundamental characteristics of higher education. As in the first medieval universities of Bologna, Paris and Oxford, higher education can still be seen as a social system in which the handling of knowledge is the most crucial activity. In higher education systems knowledge is discovered, conserved, refined, transmitted and applied (Clark, 1983a, p. 12). If there is anything fundamental to systems of higher education, it is this handling of knowledge.

The primacy of the handling of knowledge is related to some other fundamental characteristics, which can be found within higher education institutions.

A primary characteristic concerns the authority of the academic professional experts. In higher education institutions many decisions can only be made by these professional experts. These are the decisions regarding the detailed knowledge-oriented academic activities of research and teaching. In all those specialized knowledge-fields, which are held together in a higher education institution, decisions on what and how to investigate, and on what and how to teach come, to a large extent, under the direct supervision of the academic experts. Only they are able to oversee their specialized fields. Only they are able to stimulate the enthusiasm of students for specific objects of study. This is why professional autonomy is so important in higher education institutions and this is why these institutions are called ‘professional bureaucracies’ (Mintzberg, 1979).

Clark makes it clear how the professionals in higher education organization work with and upon knowledge.

“The factory floor in higher education is cluttered with bundles of knowledge that are attended by professionals. The professionals push and pull on their respective bundles. If they are doing research, they are trying to increase the size of the bundle and even to reconstitute it. If engaged in scholarship other than research, they are conserving, criticising, and reworking it. If teaching, they are trying to pass some of it on to the flow-through clientele we call students, encouraging them to think about its nature, how it may be used, and perhaps take up a career devoted to it. If engaged outside the ‘plant’ as advisors, consultants, or lecturers, academics further disseminate knowledge to try to draw out its implications for practical use” (Clark, 1983b, p. 20).

Of course, not all decisions in higher education institutions are taken by professionals. There is a category of purely ‘administrative’ decisions (for example, regarding financial administration and support services) which to a large extent is beyond the professional

influence. There is also a category of decisions which are mainly taken by 'clients' (students, research contractors). And there is an important category of decisions mainly taken by 'outsiders' (government, funding agencies, evaluating committees). Nevertheless, the influence of the professional experts on the decision-making processes in higher education institutions is extensive. In many decisions taken at these institutions professionals play an important role.

A second important characteristic is the organizational principle that in higher education institutions the knowledge areas form the basic foci of attention. The knowledge areas are the 'building blocks' of a higher education organization and without some institutionalization of these knowledge areas a higher education organization cannot exist. This principle leads to the typical organizational structure of higher education institutions. Fragmentation is abundant in these organizations. Throughout the organization specialized cells exist which are only loosely coupled. Higher education institutions are 'loosely coupled systems' (Weick, 1976). The crucial knowledge oriented activities take place within the rather autonomous cells. Specialists in specific knowledge fields group together to teach and undertake research. To a large extent insulated from the rest of the organization, these specialists use their autonomy and expertise to perform the basic activities of the higher education institution.

"... specialized professionals have little need to relate to one another within the local shop (...) They can produce on their own (...) Producing separately for the most part, the many groups become an extreme case of loosely-linked production. The university is a gathering place for professionalized crafts, evermore a confederation, a conglomerate, of knowledge-bearing groups that require little operational linkage" (Clark, 1983b, p. 21).

According to Clark it is this organizational fragmentation that explains the miraculous adaptability of higher education institutions. This adaptability consists of 'the capacity to add and subtract fields of knowledge and related units without disturbing all the others'. Clark argues that 'it is the peculiar internal constitution of universities that allow them (...) to bend and adapt themselves to a whole variety of circumstances and environments, thus producing diversity among universities (...) and, at the same time, to maintain an appearance of similarity that allows us to recognise them in all the guises which they take' (Clark, 1983a, p. 186, 187).

A further fundamental characteristic of higher education institutions is the extreme diffusion of the decision making power. In an organization where the production processes are knowledge-intensive, there is a need to decentralise. When besides that, such an organization is also heavily fragmented, the decision-making power will be spread over a large number of units and actors. A higher education institution therefore becomes a federal system; 'semi-autonomous departments and schools, chairs and faculties act like small sovereign states as they pursue distinctive self-interests and stand over against the authority of the whole' (Clark, 1983a, p. 266, 267).

A final characteristic, which is typical for higher education institutions based on the continental or the traditional British model, is the way authority is distributed within these institutions. Traditionally in these models, this authority has been (and in many occasions still is) located at the lower levels of the organization, that is: with the academic professionals (see before). At the level of the institutional administration authority is rather weak. Institutional administrators only have a very limited capacity to steer 'their' organization.

Reviewing the fundamental characteristics of higher education institutions just mentioned, it may be concluded that the context of higher education confronts government with some specific problems when it wants to develop and implement a policy directed towards influencing higher education institutions. The extreme professional autonomy within these institutions and the rather limited administrative authority, as well as the organizational fragmentation and the diffusion of the decision-making power make it very difficult to completely control these institutions from an external position. Higher education institutions appear to be very complex associations of largely autonomous cells. Besides, in higher education institutions the traditional guild-culture, rooted in the Middle Ages, is still very much alive. Higher education institutions cherish the traditional norms and values of the 'republic of science' (Polanyi, 1962), which enable them to perform their highly professional tasks.

The fundamental characteristics of higher education institutions suggest that these institutions can only be controlled from outside when the organizational variety is greatly reduced and when the professional autonomy is largely restrained. However, it should be realized that when such an external control is imposed, the professional tasks these institutions perform may be severely damaged. Confronted with detailed regulation and with an extreme restriction of their behaviour, the scientists and teachers within the higher education institutions may feel the disillusionment of not being able to explore the paths their professional consciousness stimulates them to go. They may become uninterested in new developments, get bored by the routine activities they have to perform and lose their interest in innovations.

5.2 Innovations in Higher Education

Having explored the processes of innovation in general and more specifically in the context of higher education, I will now try to develop some theoretical insights about the relationships between governmental policy models and policy instruments (directed towards the creation of innovations) on the one hand, and innovation processes in higher education systems and institutions on the other hand.

To present the theoretical insights I will classify the rather extensive literature on innovation processes in two broad categories. These categories can be described as 'the organizational variables assumed to be related to success or failure of innovations' and 'the characteristics of

successful innovations'. I will discuss the present state of the art in the higher education literature regarding both these categories.

5.3 Organizational Variables Related to Success of Innovations

In their impressive research-overview of the principal organizational variables that have appeared to influence the success or failure of innovation processes in organizations, Hage and Aiken (1970) offer seven factors which are related to the rate of change in an organization. These factors can be described as follows:

- the greater the formalization (i.e. the greater the degree of codification of jobs, the greater the number of rules specifying what is to be done, and the more strictly these rules are enforced), the lower the rate of organizational change;
- the higher the centralization (i.e. the smaller the proportion of jobs and occupations that participate in decision-making and the fewer the decision-making areas in which they are involved), the lower the rate of organizational change;
- the greater the stratification (i.e. the greater the disparity in rewards such as salaries and prestige between the top and bottom ranks of an organization), the lower the rate of organizational change;
- the greater the complexity (i.e. the greater the number of occupations/specialties of an organization and the greater the degree of professionalism of each), the greater the rate of organizational change;
- the higher the volume of production (i.e. emphasis on quantity versus quality in organizational outputs), the lower the rate of organizational change;
- the greater the emphasis on efficiency (i.e. concern with cost or resource reduction), the lower the rate of organizational change;
- the higher the job satisfaction, the greater the rate of organizational change.

Hage and Aiken's factors are discussed by Levine (1980) in the context of innovations in higher education. Levine suggests that higher education organizations are low in formalization, low in centralization, low in stratification, high in complexity, high in the emphasis on quality of outputs, low on efficiency and high on job satisfaction. The author therefore comes to the conclusion that 'institutions of higher education might be classified as low in innovation resistance relative to organizations in general' (Levine, 1980, p. 173).

The discussion of the fundamental characteristics of higher education institutions (see before) seems on the one hand to lead to the same conclusion. The high autonomy of the professionals within these organizations, the organizational fragmentation, the diffusion of the decision-making power and the limited administrative authority indicate that higher education organizations are *not* very formalised, centralized, stratified and directed towards efficiency, but *are* very complex and by their specific nature offer the possibilities for a strong emphasis on quality of production and a high level of job satisfaction.

However, as has been indicated by Kerr and many others, it should also be remembered that higher education institutions by nature are conservative and that in these organizations innovations are not likely to occur. According to Hefferlin (1969) for instance, innovations will occur in higher education institutions only when the level of instability in these institutions is high, i.e., when conditions arise like changing faculties because of expansion or turnover, low rates of tenure, rotating department chairpersons, etc.

It seems that we are confronted with two contradicting theoretical observations. Let us look at this subject from another perspective.

Clark (1983a) has argued that change is far more crucial in higher education institutions than conventional wisdom would suggest.

“Despite the belief of many observers that academic systems change significantly only when pressured by external forces, such systems increasingly exhibit innovation and adaptation among their bottom lines. Invention and diffusion are institutionalized in the work of the departments and counterpart units that embody the disciplines and professions (...) Such change is widely overlooked... It occurs in segments of the operating level (...) In a bottom-heavy knowledge institution, grassroots innovation is a crucial form of change” (Clark, 1983a, p. 234, 235).

Clark points once more at the characteristics of higher education institutions. Innovations take place through the professional activities in the various semi-autonomous units in the organization.

Kerr (1982) seems to agree with this point of view. According to him a distinction should be made between a perspective from within and a perspective from without. ‘Looked at from within, universities have changed enormously in the emphases on their several functions and in their guiding spirits, but looked at from without and comparatively, they are among the least changed of institutions’ (Kerr, 1982, p. 152, 153).

Bok (1986) makes clear how the two theoretical observations which seem to be contradictory, can be combined. He underlines Levine's conclusion that, because of their fundamental

characteristics, higher education institutions in principle are low in innovation resistance. However, he also points out that these very factors make it difficult to keep innovations alive.

“Universities are large, decentralized, informal organizations with little hierarchical authority over teaching and research. These characteristics favour innovation by making it easy for any of a large number of faculty members to experiment in search of better ways of educating students. Unfortunately, the very factors that aid experimentation make it harder for successful initiatives to spread throughout the institution or from one institution to another” (Bok, 1986, p. 176).

Innovations are created easily within higher education organizations and (as Clark indicates) they may even spread among their bottom levels. But this diffusion of innovation only takes place by virtue of the professional belief that certain innovations are worthwhile. Faculty members will only adopt innovations when they judge them to be worthwhile for their own activities. As Bok observes ‘... the most promising innovations can languish unless some effective force causes them to be emulated widely’ (Bok, 1986, p. 176). And the most effective force is probably the conviction of professional colleagues that an innovation is an effective solution to a common problem.

This point of view leads to an important conclusion: innovations in higher education institutions may arise easily and often, but their diffusion will be difficult and will mainly take place through communication between colleagues.

Clark points at another aspect of the processes of change within higher education institutions. He indicates that innovations in higher education institutions are mainly incremental adjustments, building up to larger flows of change. Major, sudden and comprehensive changes are rare in higher education institutions. Exactly because of the fragmentation of tasks and the diffusion of power such changes are extremely difficult to effect.

It should be realised that the ideology of the academic profession incorporates a basic resistance to comprehensive changes, especially when these are launched ‘from above’. The organizational fragmentation and the diffusion of the decision-making power demand that a relatively large number of people and groups with a wide variation in values and opinions tend to discuss a launched comprehensive reform, the result of which will often be that the reform strands in debates and political fights. Becher and Kogan (1980) argue that, because of the fundamental characteristics of higher education systems, innovation processes are localised and specific.

‘... we are not dealing with a hierarchical system, where change can be decreed from above, but rather with a negotiative one, in which individuals, basic units and institutions each regard themselves as having the right to decide what is best for them. It follows that any innovative

proposal has to be finally sanctioned by those who are in a position to put it into effect” (Becher & Kogan, 1980, p. 121).

This argument has brought many authors to the conclusion that, generally speaking, government-initiated reforms in higher education systems must fail. Referring to the study of Cerych and Sabatier (1986) (see below), Kerr (1987), for instance, comes to the conclusion that ‘intentional changes’ have sometimes perhaps been partially successful, but most often have been a failure. Curricular reforms and changes of governance, generally speaking cannot be called a success (Kerr, 1987, p. 185).

A possible explanation for this observation can again be found in the fundamental characteristics of higher education institutions. Kerr (1982) stresses that most decisions concerning the dynamics of a higher education system are taken outside the formal system of governance.

“Most decisions about teaching, about curriculum, about research topics and methods, about amount and form of public service are made by individual faculty members. Most decisions made about majors selected, courses taken and time spent on study are made by individual students” (Kerr, 1982, p. 178).

Besides, Kerr indicates that, when intense competition exists among higher education institutions (as in the U.S.), specific arrangements of governance have only minor implications.

Also Bok points out that educational reforms in higher education institutions are seldom the result of external influences (including governmental policies). According to him, external pressures can only be successful when they link up with initiatives or opinions inside a higher education institution.

“... no external influence offers a reliable way of initiating constructive change or eliciting new ideas to improve the quality of education. The vital task ultimately rests within the university itself” (Bok, 1986, p. 183).

Becher and Kogan (1980) have presented an elegant analysis of innovation processes in higher education systems by differentiating between four levels of these systems: the system as a whole, the institution, the basic unit (within the institution) and the individual. According to these authors innovative attempts often fail because they are unable to accommodate to existing structural constraints.

“Academic structures and regulations for the most part evolve to protect the legitimate interests of researchers and teachers. They help to define, and also defend, the main areas of professional concern within an institution. But once established, they can prove surprisingly

intractable. Even when an innovative idea is generally accepted on intellectual grounds, it may face severe difficulty if it appears to conflict with conventional practice, or to cut across some existing organizational arrangement” (Becher & Kogan, 1980, p. 146, 147).

Becher and Kogan therefore also put a heavy emphasis on the specific organizational characteristics of higher education institutions as important barriers to innovation. They argue that the often mentioned conservatism of higher education institutions ‘mainly stems from contextual, rather than from personal factors’ (Becher & Kogan, 1980, p. 147).

Others have tried to take up the challenge of the ‘policy failure theme’ in higher education. Referring to his analysis of the Swedish higher education policy which led to the reforms of 1975-1977, Lane (1985) has argued that policy-driven changes in a higher education system are possible. But, like the authors just mentioned, he also points out that, to be able to be successful, reform policies should pay attention to the basic characteristics of higher education institutions. ‘Indeed organizational transformation of higher education work and higher education institutions is feasible, as long as basic features of the differentiation of work and the structure of authority inherent in the conduct of higher education activities are not threatened. Whereas public policy may effect institution-building and redefinition, it cannot do away with the bottom-dominated nature of the organization of higher education life’ (Lane, 1984, p. 107).

Premfors (1984) disputes Lane’s ‘optimism’, but he does not conclude that the Swedish higher education reform policy was a complete failure.

“...Swedish higher education policy is a mixed bag of success and failure when judged in terms of the initial intentions of central policy-makers (...) To an important extent (...) these outcomes have been predicated on basic features of higher education organization in Sweden” (Premfors, 1984, p. 47, 48).

The same kind of conclusion (in a broader perspective) is drawn by Cerych and Sabatier (1986), who studied a number of policy-driven reforms in higher education systems in Europe. Cerych and Sabatier examined the levels of success and failure of nine rather comprehensive reforms which were all largely initiated and developed by government and implemented in a higher education system through the interaction between governmental organizations and higher education institutions. In their comparative analysis Cerych and Sabatier present a general picture from which it can be concluded that both successes and failures can be distinguished.

This differentiated picture appears to underline Premfors’ conclusion about the Swedish higher education reforms. Apparently reforms initiated and developed by government can be judged as

'mixed bags of success and failure'. An important question of course concerns the factors that might influence the levels of success and failure of these Reforms.

5.4 Characteristics of Successful Innovations

In a study which has become widely known in the field, Rogers and Shoemaker (1971) have analyzed more than 1500 studies regarding the characteristics that determine an innovation's success or failure. The authors present five critical characteristics:

- the compatibility of a new idea (i.e., the degree to which an innovation is perceived as consistent with the existing values, past experience and needs of the receiver) is positively related to its rate of adoption;
- the relative advantage of a new idea (i.e., the degree to which an innovation is perceived as being better than the idea it supersedes) is positively related to its rate of adoption;
- the complexity of an innovation (i.e., the degree to which an innovation is perceived as relatively difficult to understand and use) is *not* related to its rate of adoption;
- the triability of an innovation (i.e., the degree to which an innovation may be experimented with on a limited basis) is positively related to its rate of adoption;
- the observability of an innovation (i.e., the degree to which the results of an innovation are visible to others) is positively related to its rate of adoption (Rogers & Shoemaker, 1971, p. 350-352).

In Levine's analysis (1980) (see before) some important observations can be found concerning the importance of these general characteristics in the context of higher education. This study especially focused on the 'institutionalization or termination stage' of innovation processes. This stage is supposed to follow the stages of 'recognition of the need for change', 'planning an innovation' and 'implementing the innovation'. In the institutionalization or termination stage attention is concentrated on 'the ways in which innovations prosper, persist, decline and fail after they have been adopted' (Levine, 1980, p. 10).

Levine has developed a theoretical model of the ways innovations can be handled in an organization. He suggests that in principle two mechanisms can be used. The first mechanism is called *boundary expansion*: '... an acceptance by the host [organization] of some or all of the innovation's differences'. This mechanism essentially indicates a process of acceptance (which may be more or less comprehensive). Levine indicates that this acceptance can involve diffusing the innovation through the organization or establishing it as an enclave. 'Diffusion is the process whereby innovation characteristics are allowed to spread through the host

organization, and enclaving is the process whereby the innovation assumes an isolated position within the organization'.

The other mechanism of handling an innovation in an organization is called *boundary contraction*: '... a constriction of organizational boundaries in such a manner as to exclude innovation differences'. This mechanism labels an innovation as illegitimate or deviant. Again, two forms can be distinguished. 'Resocialization occurs when the innovative unit is made to renounce its past deviance and institute the acceptable norms, values and goals (...) Termination occurs when the innovation is eliminated' (Levine, 1980, p. 14, 15).

Which of the four possible outcomes of the institutionalization / termination stage of innovation processes (diffusion, enclaving, resocialization, termination) will occur depends, in Levine's theoretical model, on two variables: compatibility and profitability. Like Rogers and Shoemaker, Levine sees compatibility as the degree to which the norms, values and goals of an innovation are congruent with those of the organization which has to adopt the innovation. Profitability is a subjective concept, rather similar to Rogers and Shoemaker's 'relative advantage'. It indicates the degree to which an innovation satisfies the adopter's needs or satisfies him better than the existing mechanisms.

Levine's conclusions are that compatibility and profitability are both crucial variables for explaining the success or failure of the adoption of an innovation. An innovation appears to fail (i.e. is resocialised or terminated) when the levels of compatibility and profitability of the innovation decline. Profitability is an especially important variable. When the profitability of an innovation is not disputed, an innovation can still get accepted, even when the compatibility of such an innovation is low. However, when the profitability is seriously questioned, an innovation will fail, even when the compatibility is high.

The argument that the compatibility of an innovative idea is positively related to the rate of adoption of an innovation is frequently found in the literature. We already noticed that for instance Bok (1986) stresses this point. Becher and Kogan (1980) argue that structural reforms of a system as a whole can only succeed when they relate to the fundamental values in higher education (Becher & Kogan, 1980, p. 125).

Concerning the relationship between compatibility and rate of the adoption of an innovation Cerych and Sabatier (1986) introduce an interesting amendment. Cerych and Sabatier propose a three-dimensional framework for the conceptualization of the 'scope of change'.

'Depth of change indicates the degree to which a new policy goal implies a departure from existing values and practices of higher education (...) Functional breadth of change *refers to the number of functional areas in which a given policy is expected to introduce more or less profound modifications: admission, teacher qualifications, internal structures, curriculum, and*

so forth (...) Level of change *indicates the target of the reform: the system as a whole; a particular sector or segment of the system (group of institutions); a single institution or an institutional sub-unit*".

Reviewing the various comprehensive reforms that were the object of their analysis, Cerych and Sabatier draw several conclusions. Regarding the interconnection between depth of change and functional breadth of change they claim that reforms that postulate a radical departure of existing rules and values, can nevertheless be successfully implemented when they are limited to a few functional areas (of the higher education institution or of the higher education system as a whole) and if at the same time most other prevailing traditions and standards are rigorously accepted. With respect to the level of change, the authors conclude that, generally speaking, a reform succeeds more easily if it affects an institutional or sub-institutional process, rather than a system as a whole (Cerych & Sabatier, 1986, p. 244-247).

It appears that Cerych and Sabatier, although they agree with the general conclusion of Rogers and Shoemaker that the more a reform is consistent with existing values the more likely it will be implemented, also notice that a low level of compatibility does not necessarily mean that an innovation cannot be successfully implemented. An important question then is what other factors may stimulate or hamper innovations.

We already noticed that Levine has suggested that the concept of profitability is of crucial importance for the explanation of the acceptance of innovations in higher education institutions. The concept of profitability is also often mentioned in the literature as an important variable positively related to the rate of adoption of an innovation. Becher and Kogan underline their view that externally initiated innovations can be successful in higher education, provided that they are acceptable in terms of intellectual substance (compatibility) and that they establish their merits (for instance in terms of student recruitment) (profitability) (Becher & Kogan, 1980, p. 132). With regard to the analysis of the outcomes of innovation processes, Clark uses the metaphor of a seesaw, 'a long board on which reform-supporting and reform-opposing groups sit at different points in relation to the centre of balance'. According to this author, a decision, whether an innovation will or will not be accepted is the result of the distribution of power among the groups involved in the decision-making process. And the behaviour of each group and individual in the decision-making process is guided by the subjective interpretation of self-interest.

"Innovations typically "fail" because the innovators cannot acquire enough power fully to protect their new ways. They are allowed to start, even to acquire a clientele, but unless they attach the interests of various groups to their own interests and persuade potential opponents at least to be moderate in their resistance, they can be tightly bounded – resocialised or terminated – as others raise their own level of concern, clarify their own self-interest with

respect to the reform, and increase the bearing of their own weight” (Clark, 1983a, p. 226, 227).

Clearly, like Levine, both Becher and Kogan and Clark combine the concepts of compatibility and profitability. In both their analytical interpretations of the potential success of an innovation the two concepts are interrelated.

The concepts of compatibility and profitability offer us the possibility of formulating some further insights about the appropriateness of governmental policy models with respect to higher education. If we follow the conclusions of the studies just discussed and if we take into account that the higher education context is characterized by a large professional autonomy, a large organizational fragmentation, a diffusion of the decision-making power and a limited administrative authority, we may expect that governmental reform policies which pay attention to compatibility and profitability will be more effective in creating innovations than policies in which these concepts are not taken into account.

The discussion of innovation characteristics that are supposed to determine the success or failure of an innovation has so far concentrated on two of the five characteristics presented in the survey of Rogers and Shoemaker: compatibility and profitability (relative advantage). However the authors mentioned three other factors: complexity, triability and observability.

Concerning the complexity of innovation Rogers and Shoemaker themselves suggest that no relationship exists with the rate of adoption. According to them the degree to which an innovation is perceived to be difficult to understand or use, does not really influence the process of acceptance or refusal of an innovation.

However, in the field of higher education another conclusion appears to be drawn. Cerych and Sabatier argue that a reform that is both 'deep and broad' will tend to fail (Cerych & Sabatier, 1986, p. 145). When complexity is defined as the combination of the degree to which an innovation is a departure from existing values and practices with the number of functional areas aimed at by innovation, the level of complexity of an innovation process in higher education may be expected to be negatively related to the rate of adoption of the innovation. The more complex an innovation, the less successful that innovation will be in getting adopted.

The observability of an innovation is another factor presented by Rogers and Shoemaker as having a positive relationship with the rate of adoption: the more the goals and results of the innovation are visible and clear, the more likely it is that the innovation will be accepted.

In the field of higher education research Becher and Kogan (1980) come to the conclusion that the observability of an innovation is indeed of some influence. Taking the same position as

Cerych and Sabatier (1986) with respect to depth and breadth of innovations (see before), they argue that

“innovations which manage (...) to challenge certain accepted ideas while reinforcing others have a fair chance of success, provided that they also meet two other prerequisites: that their merits are reasonably visible and that they do not appear seriously to undermine the existing patterns of freedom and control” (Becher & Kogan, 1980, p. 146).

Becher and Kogan's second prerequisite can be translated in terms of profitability. It may be interpreted as the inclination to guard the self-perceived interests of academic groups, often expressed as the conservation of the academic definitions of legitimate activities. The first prerequisite has to do with observability: to be able to be successful the merits of innovations have to be visible.

Cerych and Sabatier also suggest that in theory a high level of clarity and consistency of the objectives of an innovation facilitates the implementation of innovations. However, from their case studies they also conclude that in practice vagueness and ambiguity of objectives appear to prevail, especially because otherwise a consensus on the proposed innovation would not have occurred (Cerych & Sabatier, 1986, p. 13, 14, 243).

Taking the arguments by Becher and Kogan and by Cerych and Sabatier into account, it can be argued that observability as such can hardly be called an important factor for the success or failure of an innovation. At most the level of observability of the objectives and expected results of an innovation is a strategic element in presenting an innovation as compatible with existing values or as profitable for certain groups and interests. Following Levine (1980) it could be concluded that, when the objective is to guarantee that others have an accurate or positive picture of an innovation, this factor has more to do with compatibility and profitability than with observability per se. Guaranteeing an accurate or positive picture implies preventing the innovation from appearing incompatible and/or unprofitable (Levine, 1980, p. 187).

This leaves us with triability as a last innovation characteristic which is supposed to be positively related to the rate of adoption. Triability concerns an organization's ability to try an innovation within a limited period and on a limited scale. Moreover, it has to do with the condition that if, after trying an innovation, the conclusion is that the results are disappointing, the situation is reversible without severe damage.

Cerych and Sabatier have found that the assumptions on which reforms are based often are erroneous. This should not surprise us. As is the case with every process of policy-design, so too the process of the design of innovations in higher education has to face the basic human impotence in accurately foretelling the future. Our knowledge can only be incomplete and things may change while a policy is designed and implemented (Van Vught, 1987).

Triability is a prudent strategy for those who do not want to overrate the level of knowledge incorporated in the assumptions which form the basis of a certain reform policy or innovation. This is especially the case in higher education because it may be expected that scientists and scholars are particularly sceptical about these kinds of assumptions. It is because of this that Bok (1986) pleads for implementing innovations in higher education institutions by means of experiments. Referring to an example of the Harvard Medical School he argues:

“This tactic has obvious advantages. It relies entirely on volunteers and hence makes few, if any demands on unwilling faculty members. It costs less than an institution-wide reform. It minimises the risks of failure by leaving traditional programs intact. These virtues are often decisive in holding open the chance of making a substantial change” (Bok, 1986, p. 187, 188).

The major problem with the experimental strategy is of course the spreading of a successful experiment through the entire institution. As was noticed before, the diffusion of an innovation will only take place by virtue of the professional belief that an innovation is worthwhile. Regarding this issue the concepts of compatibility and profitability have provided us with some insights. Nevertheless, a strategy of experimenting with innovations must be judged to be especially suited to higher education. Therefore, governmental policies that pay attention to triability may be expected to be more successful in creating innovations in higher education institutions than policies in which the idea of triability is absent.

Reviewing the points of view and analyzes of the various authors mentioned above an important conclusion should be that government-initiated innovations in higher education institutions and systems can be successful only when certain conditions are met. These conditions have to do with the specific characteristics of higher education institutions. Innovations in higher education institutions can only be brought about by governmental policies, when attention is paid in these policies to the basic values and mechanisms of academic life.

It also can be concluded that an innovative policy can be expected to be more successful when in such a strategy attention is paid to the compatibility and the profitability of the innovation. The compatibility of an innovation (i.e. the degree to which the innovation is perceived to be consistent with existent values and practices) is, generally speaking, positively related to the rate of adoption of the innovation. However, a reform that implies a radical departure from existing values and practices can nevertheless be successful when the 'functional breadth of change' is limited, that is, when the reform is limited to a few functional areas while at the same time some other prevailing values and practices are rigorously accepted.

The profitability of an innovation is also positively related to the rate of adoption of the innovation. The relative advantage of the innovation (compared to the idea or practice it

supersedes) should be clear to those who are supposed to accept it. The behaviour of each group and individual confronted with an innovation, is guided by the subjective interpretation of self-interest. The outcome of an innovation process to a large extent depends on the distribution of power among the self-interested actors involved in the decision-making process regarding the innovation.

The complexity of an innovation was found to be negatively related to the rate of adoption of the innovation. When complexity is defined as the combination of the degree to which an innovation is a departure from existing values and practices with the number of functional areas aimed at by the innovation, it may be concluded that the higher the level of complexity of an innovation, the less likely it is that the innovation will be accepted.

With respect to the observability of an innovation (i.e. the degree to which the objectives and expected results are clear) it was argued that this factor should be interpreted as a strategic element in presenting an innovation in terms of compatibility or profitability.

The triability of an innovation (i.e. the degree to which an innovation may be experimented with) was judged to be of great importance in higher education. Experimenting with innovations is a prudent strategy, especially because the professionals in higher education institutions will be particularly sceptical about the policy-assumption on which these innovations are based.

6. Conclusion

In the beginning of this article it was argued that the policy model of rational planning and control on the one hand and the policy model of self-regulation on the other vary in a rather fundamental way with regards to the assumptions they are based on. The model of rational planning and control is founded on the basic assumption of the rationalist perspective on decision-making. In every practical decision-making situation it strives after the objective of trying to select the best alternative from a set that should be as complete as possible. But confronted with the limitations of this ideal, in practice the strategy of rational planning and control takes its refuge in confidence in a strong centralization of decision-making processes and a large amount of control over these decision-making processes as well as over the implementation of the chosen policy.

The policy model of self-regulation is based on the cybernetic perspective on decision-making. It tries to make use of the self-regulatory capacities of decentralized decision-making units. It limits the role of government to the monitoring of a set of 'critical variables' and to the analysis and, if judged necessary, the influencing of the framework of rules guiding the behaviour of decentralized actors.

With respect to governmental policies in the field of higher education two models were introduced: the state control and the state supervising model. The state control model is largely based on the policy model of rational planning and control. The state supervising model reflects the policy model of self-regulation.

In the first part of this section also an overview was presented of the various policy-instruments governments may use when they set themselves the task to influence activities and processes in the public sector.

The questions which I will try to answer in this concluding paragraph are: which of the two higher education policy models (state control and state supervision) is best suited to stimulate innovations in higher education systems and institutions? And: what policy-instruments may be expected to be successful in that context?

It may be hypothesised from the analysis presented above that, when the basic objective is to stimulate the innovativeness of the higher education institutions, the model of state control, generally speaking, is less successful than the model of state supervision. The model of state control appears to be based on assumptions that are at odds with some of the fundamental characteristics of higher education institutions. The model of state control ignores the fundamental features of higher education institutions that are found in characteristics like the high level of professional autonomy, the large organizational fragmentation and the large diffusion of the decision-making power.

The state supervising model appears to be better suited to the context of higher education. It acknowledges the fundamental characteristics of higher education institutions and it tries to make use of some of these characteristics to stimulate the innovativeness of the whole system of higher education. By limiting itself to only global forms of steering and by putting its confidence in the self-regulatory capacities of the professionals and the basic units of the higher education institutions, this model has the potential to become an effective paradigm for successful operational policies with respect to higher education in many countries (Neave & Van Vught, 1991).

Along the same lines it may be expected that a combination of mildly restrictive policy-instruments will be more successful in stimulating innovations in higher education than a combination of extreme compulsive instruments. Compulsive instruments will restrict over the behaviour of the professional scholars in higher education institutions and, by doing so, create disillusion and apathy, rather than enthusiasm and innovativeness. It may be assumed that the fundamental characteristics of higher education institutions add up to a context in which government cannot execute compulsive actions without also bringing about some negative side-effects of these actions. Using Hood's categorization of policy-instruments, it may be concluded that the instruments of information (responses and messages), the mildly

restrictive instruments of authority (certificates and approvals) and the 'give it away' instruments of treasure (transfer and bearer-directed payments) may be expected to be the most effective in the context of higher education.

With respect to higher education Clark (1983b) especially has asked the question of 'governance fit':

"What governance arrangements are 'naturally' generated? What structures of governance help this or that function to operate well? What governance 'fits'?" (Clark, 1983b, p. 27).

Clark comes to the conclusion that

"fit is a matter of balance among alternative forms for effecting national governance. Too much emphasis in any one direction, for example on state command, produces an imbalance that leads to a 'fit' in a different meaning of the term! – a sudden and violent attack of a disorder, a convulsion, an exacerbation of troubles perhaps leading to prolonged sickness" (Clark, 1983b, 27).

In this article an issue has been explored which is very much related to Clark's question of governance fit. My conclusion was that the state supervising model appears to fit better than the state control model and that mildly restrictive instruments fit better than compulsive instruments.

Clark argues that differentiation should be the name of the governance game in higher education. He indicates (among other things) that diverse structures accommodate the conflicting tasks of higher education better than simple structures, that diverse structures allow status differentiation and sector diversification and that diverse structures stimulate flexibility and innovation (Clark, 1983b, p. 31-37). Along the same lines I have tried to show that the state supervising model (because of its foundation in the cybernetic perspective on decision-making) offers the advantages of flexibility and innovation, of experimenting and robustness, of self-determination and responsibility. At the same time this model is relatively low in the costs of information, transaction and administration.

The problems with which the model of state control is confronted in higher education can to a large extent be carried back to the basic differences between this model and the fundamental characteristics of the higher education context. The adherents of the state control model tend to see higher education more as an object than as a complex set of subjects (Trow, 1980; Neave, 1985). Besides, they see a higher education system as an object which can be controlled from outside and which can be moulded to the wishes of government.

The state control model puts its confidence in centralization and a large amount of control. But by doing so, it alienates itself from a societal sector like higher education, which above all else is characterized by a large amount of autonomy and differentiation. Speaking of the 'unitary approach' Clark (1983b) formulates the same conclusion:

“Surely what we fear most about the unitary approach is the way it cramps a multiplicity of approaches and increases the likelihood of the arbitrary dictate and the large error. Nearly every time we plan centrally we eliminate some options of the operators. In each reform we add structures that constrain future choices. If we do not want things to escape our eyes, we systemise some more, generating a rule book that clogs formal channels and in turn stimulates underground activity for getting things done” (Clark, 1983b, p. 38).

It should not be surprising that the model of state control cannot be called a good fit for an innovation-oriented higher education system. The state control model overlooks the crucial issue of the costs of acquiring knowledge for the sake of creating innovations. It forgets that in a multi-level system general knowledge is usually more economically acquired by higher level decision-making units, while specific knowledge is more easily and more cheaply acquired by lower level units. And it forgets that, by introducing rigid and detailed procedures of hierarchical control, it cuts itself off from the possible knowledge advantages of the lower level decision-making units and thereby loses a large innovative potential.

“... the effectiveness of hierarchical subordination varies with the extent to which the subordinate unit has knowledge advantages over the higher unit. In those cases where the subordinate unit has better information, then in terms of the whole decision-making process the knowledge is one place and the power is another; the quality of decisions suffers as a result. Moreover, subordination itself becomes illusory to the extent that the lower level unit can use its knowledge to evade, counteract, or redirect the thrust of orders from its nominal superiors” (Sowell, 1980, p. 13, 14).

Compared to the model of state control, the state supervising model seems to offer a better fit. This model seems to be better equipped to be used as a general incitement towards innovations in a higher education system. It addresses these systems while taking the fundamental characteristics of higher education institutions seriously. It leaves sufficient room for the (semi-)autonomous professionals and basic units and it does not try to coordinate the large variety of a higher education system in a limited set of rules.

By enlarging the autonomy of the higher education institutions and by limiting itself to monitoring some 'critical' system variables and to (not too often and not too drastically) adapting some general 'rules of the game', government may find in this model an important approach which may both stimulate the innovativeness of a higher education system and secure its basic values and practices.

7. References

- ASHBY, W.R. (1956). *An Introduction to Cybernetics*. London: Chapman and Hall
- BANFIELD, E.C. (1959). Ends and Means in Planning, *International Social Science Journal* 11 (3): 361-368
- BARDACH, E. (1979). *The Implementation Game*. Cambridge Mass.: MIT Press
- BARRET, S.C. and FUDGE, C. (eds.) (1981). *Policy and Action, essays on the implementation of public policy*. London: Methuen
- BECHER, T. and KOGAN, M. (1980). *Process and Structure in Higher Education*. London: Heinemann
- BEER, ST. (1975). *Platform for Change*. New York: John Wiley
- BERDAHL, R. MILLETT, J. (1991). Autonomy and Accountability in U.S. Higher Education, in: G. Neave, F.A. van Vught (eds.), *Prometheus Bound*. London: Pergamon
- BOK, D. (1986). *Higher Learning*. Cambridge: Harvard University Press
- BRAYBROOKE, D. and LINDBLOM, CH.E. (1963). *A Strategy of Decision, policy evaluation as a social process*. New York: Free Press
- CERYCH, L. and SABATIER, P. (1986). *Great Expectations and Mixed Performance: the implementation of higher education reforms in Europe*. Trentham: Trentham Books
- CLARK, B.R. (1983a). *The Higher Education System*. Berkeley: University of California Press
- CLARK, B.R. (1983b). Governing the Higher Education System in: Shattock, M. (ed.) *The Structure and Governance of Higher Education*. Guildford: Society for Research into Higher Education
- DAHL, R.A. and LINDBLOM, CH.E. (1976). *Politics, Economics and Welfare*. (orig. 1953), Chicago: University of Chicago Press
- DAVIS, R.H., STRAND, R., ALEXANDER, L.T. and HUSSAIN, N.M. (1982). The Impact of Organizational and Innovation Variables on Instructional Innovation in Higher Education, *Journal of Higher Education* 53 (5): 568-586

- DILL, D.D. and Friedman, Ch.P. (1979). An Analysis of Frameworks for Research on Innovation and Change in Higher Education, *Review of Educational Research* 49 (3): 411-435
- DILL, D.D. (1992). Quality by Design: toward a framework for academic quality management, in: J. Smart (ed.), *Higher Education: Handbook of Theory and Research* Vol. VIII. New York: Agathon Press
- DOWNS, G.W. and MOHR, L.B. (1976). Conceptual Issues in the Study of Innovation, *Administrative Science Quarterly* 21 (dec.): 700-714
- DROR, Y. (1968). *Public Policymaking Re-examined*. San Francisco: Chandler
- DROR, Y. (1971). *Design for Policy Sciences*. New York: Elsevier
- DUNSIRE, A. (1978). *Implementation in a Bureaucracy*. Oxford: Martin Robinson
- ELMORE, R.F. (1987). Instruments and Strategy in Public Policy, *Policy Studies Review* 7 (1): 174-186
- ETZIONI, A. (1968). *The Active Society*. New York: Free Press
- FRIEDMANN, J. (1973). *Retracking America, a theory of transactive planning*. New York: Garden City
- GLENNY, L.A. (ed.). *Funding Higher Education: A Six-Nation Analysis*. New York: Praeger
- HAGE, J. and AIKEN, M. (1967). Program Change and Organizational Properties: a comparative analysis, *American Journal of Sociology* 72 (5): 503-519
- HAGE, J. / AIKEN, M. (1970). *Social Change in Complex Organizations*. New York: Random House
- HEFFERLIN, J.B. (1969). *Dynamics of Academic Reform*. San Francisco: Jossey-Bass
- HOOD, CH. C. (1983). *The Tools of Government*. London: MacMillan
- INGRAM, H. / MANN, D. (1980). *Why Policies Succeed or Fail*. Beverly Hills: Sage
- JANTSCH, E. (1972). *Technological Planning and Social Futures*. London: Cassel/Associated Business Programmes

- KAHN, A.E. (1971). *The Economics of Regulation: principles and institutions* two vols. New York: John Wiley
- KERR, C. (1982). *The Uses of the University* (third ed.). Cambridge: Harvard University Press
- KERR, C. (1987). A Critical Age in the University World: accumulated heritage versus modern imperatives, *European Journal of Education* 22 (2): 183-193
- LANE, J.E. (1984). Possibility and Desirability of Higher Education Reform, in: Premfors, R. (ed.) *Higher Education Organization*. Stockholm: Almqvist & Wiksell
- LEVINE, A. (1980). *Why Innovation Fails: the institutionalization and termination of innovation in higher education*. Albany: State University of New York Press
- LINDBLOM, CH.E. (1959). The Science of Muddling Through, *Public Administration Review* 19 (2): 79-99
- LINDBLOM, CH.E. (1965). *Intelligence of Democracy*. New York: Free Press
- MAASSEN, P.A.M. / VAN VUGHT, F.A. (1992). Strategic Planning in: B.R. Clark and G. Neave (eds.) *The Encyclopedia of Higher Education* vol. 2, 1483-1494. London: Pergamon
- MARCH, J.G. / OLSEN, J.P. (1976). *Ambiguity and Choice in Organisations*. Bergen: Universitetsforlaget
- MAZMANIAN, D.A. / SABATIER, P.A. (1981). *Effective Policy Implementation*. Toronto: Lexington Books
- Mcdonnell, L. (1988). *Policy Design as Instrument Design*, paper presented at the 1988 annual meeting of the American Political Science Association. Washington D.C.
- MEYERSON, M. (1956). Building the Middle-Range Bridge for Comprehensive Planning, *Journal of the American Institute of Planners* 22 (2): 58-64
- MEYERSON, M. / BANFIELD, E.C. (1955). *Politics, Planning and the Public Interest*. Glencoe: Free Press
- MINTZBERG, H. (1979). *The Structuring of Organizations*. Englewood Cliffs: Prentice-Hall

- MITNICK, B.M. (1980). *The Political Economy of Regulation; creating, designing and removing regulatory reforms*. New York: Columbia University Press
- NEAVE, G. (1985). Higher Education in a Period of Consolidation: 1975-1985, *European Journal of Education* 20 (2): 109-124
- NEAVE, G. / VAN VUGHT, F.A. (eds.) (1991). *Prometheus Bound, the changing relationship between government and higher education in Western Europe*. London: Pergamon
- NEWMAN, F. (1987). *Choosing Quality, reducing conflict between the State and the University*. Denver: Education Commission of the States
- O'TOOLE, L. (1986). Policy Recommendations for Multi-actor Implementation: an assessment of the field, *Journal of Public Policy* 6 (1): 21-48
- POLANYI, M. (1962). The Republic of Science: its political and economic theory, *Minerva* 1 (summer/autumn): 54-73
- PREMFORS, R. (1984). *Higher Education Organization*. Stockholm: Almqvist & Wiksell
- PREMFORS, R. (1992). Policy Analysis, in: B.R. Clark and G. Neave (eds.) *The Encyclopedia of Higher Education* vol. 3, 1907-1916. London: Pergamon
- PRESSMAN, J.L. / WILDAVSKY, A.B. (1973). *Implementation*. Berkeley: University of California Press
- REIN, M. / RABINOVITZ, F. (1978). Implementation: a theoretical perspective, in: Burnham, W.D. and Weinberg, W.W. (eds.) *American Politics and Public Policy*. Cambridge Mass.: MIT Press
- ROGERS, E.M. / SHOEMAKER, F.F. (1971). *Communication of Innovations*. New York: Free Press
- SALAMON, L.M. (1981). Rethinking Public Management: third party government and the changing forms of government action, *Public Policy* 29 (3): 255-275
- SCOTT, P. (1988). *The British Universities' Response to Institutional Diversification*. Paris: OECD/IMHE
- SCHNEIDER, A. / INGRAM H. (1990). Behavioral Assumptions of Policy Tools, *Journal of Politics* 52 (2): 510-530

- SIMON, H.A. (1957). *Administrative Behavior* 2nd edn. New York: Macmillan
- SKOLNIK, M.L. (1987). State Control of Degree Granting: the establishment of a public monopoly in Canada, in: Watson, C. (ed.) *Governments and Higher Education, the legitimacy of intervention*. Toronto: Higher Education Group, The Ontario Institute for Studies in Education
- SOWELL, Th. (1980). *Knowledge and Decisions*. New York: Basic Books
- STEINBRUNNER, J.D. (1974). *The Cybernetic Theory of Decision: new dimensions of political analysis*. Princeton: Princeton University Press
- STIGLER, G.J. (1975). *The Citizen and the State: essays on regulation*. Chicago: University of Chicago Press
- TROW, M. (1980). *Dilemma's of Higher Education in the 1980's and 1990's*. Montreal: Conference of Learned Societies
- VAN DE GRAAF J.H. / CLARK, B.R. / FURTH, D. / GOLDSCHMIDT, D. / WHEELER, D.F. (1978). *Academic Power: patterns of Authority in seven national systems of higher education*. New York: Praeger
- VAN GUNSTEREN, H.R. (1976). *The Quest for Control, a critique of the rational-central rule approach in public affairs*. New York: Wiley
- VAN VUGHT, F.A. (1987). Pitfalls of Forecasting: fundamental problems for the methodology of forecasting from the philosophy of Science, *Futures, the Journal of Forecasting and Planning* 19 (2): 184-197
- VAN VUGHT, F.A. (1988). A New Autonomy in European Higher Education? An exploration and analysis of the strategy of self-regulation in higher education governance, *International Journal of Institutional Management in Higher Education* 12(1): 16-27
- VAN VUGHT, F.A. (1991). Public Administration in: B.R. Clark and G. Neave (eds.) *The Encyclopedia of Higher Education* vol. 3, 1932-1943. London: Pergamon
- VAN VUGHT, F.A. (1992). *Autonomy and Accountability in Government-University Relationships*, paper presented at the World Bank Worldwide Senior Policy Seminar on Improvement and Innovation of Higher Education in Developing Countries. Kuala Lumpur: June 30-July 4, 1992

- WALFORD, G. (1991). The Changing Relationship Between Government and Higher Education in Britain, in: G. Neave and F. van Vught (eds.) *Prometheus Bound*. London: Pergamon
- WEICK, K.F. (1979). Educational Organizations as Loosely Coupled Systems, *Administrative Science Quarterly* 21 (1): 1-19