

Innovation in a professional organization *

BAS SAVENIJE & KAREL VAN ROSMALEN

University of Utrecht, P.O. Box 80125, 3508 TC Utrecht, The Netherlands

I seem to have been only as a boy playing on the seashore, and diverting myself in now and then finding a smoother pebble or a prettier shell than ordinary, whilst the great ocean of truth lay all undiscovered before me.

Sir Isaac Newton

Abstract. The innovation of academic programs has been an issue of considerable interest in higher education policy in the Netherlands during the past five years. Both university administration authorities and the minister of education have tried to stimulate the innovation of academic programs by creating incentives.

This article evaluates two innovative projects at the University of Utrecht, and the role of incentives in these particular cases. The results of this evaluation are then reconsidered from a theoretical point of view. Conclusions are formulated with respect to the extent to which innovation can be stimulated, and the kind of incentives suitable for this purpose.

Introduction

The innovation of academic programs has been an issue of considerable interest in higher education policy in the Netherlands during the past five years. Topics discussed in this debate concern the question how educational programs must be adapted to the changing needs of society as well as to the interest of students, and how research programs must be adapted to the priorities of society, the needs of industry, technological innovations, and the evolution of science in general. In the Dutch system of higher education the individual faculties or their departments, rather than the university administration, are responsible for the introduction and development of educational and research programs, hence also for the innovation of these activities. For several reasons, however, departments may fail in providing the necessary conditions for innovation. This motivates the university administration and the minister of education to stimulate the innovation of academic programs by creating incentives, especially so-called revolving funds to provide temporary financial support for innovative developments that agree with their interests.

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Academic program innovations can be divided into two categories.

1. Innovation as a consequence of developments inherent to the discipline concerned. We will call this ‘professional innovation’, because its main source is professional knowledge. Not all initiatives within this category are equally innovative in the above sense, as can be seen from the following examples:
 - the adaptation of a program to new developments in the discipline,
 - a fundamental re-orientation of existing activities to continue meeting the general standards in the discipline,
 - a scientific revolution brought forward by a new view of or a new approach to the object of study.
2. The start of a new activity, for instance a research program on questions that deserve special attention or a new field of study directed towards a new student market. We will call this ‘entrepreneurial innovation’, because its origin is chiefly an entrepreneurial attitude.

A similar distinction, for business organizations, is made by Toffler (1985), who distinguishes “additive innovation” (the new is added on to the old) and “substitutive innovation” (the new takes the place of, or eliminates, the old).

Broadly speaking, university administrations and the minister of education advance two arguments towards stimulating innovation. These can be deduced from the documents and reports underlying the creation of their incentives, and they correspond to our above categorization of innovative activities. The executive bodies have:

- a lack of confidence in the innovative power of the faculty, and
- a desire to stimulate certain fields of study in which they have particular interest.

Accepting this as an introduction, we will in the next sections:

- look at two innovative projects at the University of Utrecht and the circumstances that contributed to their respective failure and success;
- analyse the difficulties that are encountered by university authorities in innovation and decision making;
- analyse the relation between incentives for innovation, and the planning process of a university;
- formulate a number of conclusions pertaining to structural requirements for innovative processes, and to the role of the university administration.

Two case studies

In this section we will analyse two innovative projects of the University of

Utrecht, of the last decade. We will describe the circumstances in which the initiatives leading to them were taken, and in which the decisions were made; the role of the parties involved; and the results of the projects. We will draw some preliminary conclusions with respect to the conditions necessary for innovative programs. These conclusions will be elaborated in the following chapters from a more theoretical point of view.

Women's studies

Since 1973 the University of Utrecht allocated approximately 1% of its budget to a revolving fund, the so-called 'research pool', from which faculties could obtain grants for specific research-projects. The idea for such a fund was based on a certain amount of dissatisfaction with the routine allocation of the university budget on the basis of the faculties' curricular activities and student enrollment. In order to stimulate university research, especially in faculties with an excessive increase of enrollment, the research pool funds were used to finance projects for a limited period of time (usually four years), after which the projects, or new projects in the same field, were supposed to be continued within the faculty budgets.

Although the criteria for allocation of funds from the pool changed frequently over the years, some form of 'innovation' was their chief purpose. In 1980, however, the Utrecht university council introduced an additional criterion: the pool ought to promote certain new fields of study which according to the council's opinion were insufficiently covered by the faculties. The most important of these fields were Science, Technology and Society, Environmental studies, and Women's studies. It is this last priority theme that we wish to focus on here.

Clearly, the faculties' priorities were not necessarily one-to-one those of this university shortlist of priorities. They were involved, for instance, in a restructuring of their research programs, and a qualitative improvement of their staff through e.g. Ph.D.-programs. Nevertheless, several proposals for Women's studies were submitted and granted (for 1, 2 or 4 years), in the period from 1980 until 1985. From periodical reviews we learn that the quality of the research was at least satisfactory. However, after the grant-period had finished, only a few projects were continued and financed from the faculty-budgets. Temporary research-assistants had to look for other positions, even though there still existed a shortage of tenured staff to support this field of research.

Although the Women's study-projects have contributed to research programs in history, social sciences, literature, etc., it is obvious that the attempt to open up a new field of research, the very reason for granting the projects, did not succeed.

An evaluation of this example shows incompatible interests of university administration, faculties, and professionals. The university council sought to stimulate a new field of research, the faculties were interested in additional funds, and the professionals basically wanted to continue their existing research programs. Thus, at least some of the projects turned out to cover 'would-be innovation', in that they used the flag of innovation in order to bring existing activities under the criteria of the research pool.

Another important point in the case of Women's studies was that most grants were spent in the appointment of young research assistants, who would

leave the department after 2 to 4 years. An evaluation of the model led

necessary to give students the opportunity to obtain some knowledge of the field of management and policy (applied to their specific field of study). In the planning documents of the university in 1982 and 1983, the development of a program for management and policy was an important topic. In 1984 the board invited the deans of the faculties of Law, Geography, Social Sciences, and Arts to investigate the possibilities within their faculties to develop (part of) a program for management and policy. A committee was formed, whose members were professionals with some administrative experience, in order to answer the question whether it would be possible to develop such a program using already existing parts (modules) of the curricula, with a number of adaptations and additions. This committee reported that there was sufficient capacity and expertise for a program suitable for students from different faculties. To develop such a program, the expertise would have to be concentrated in an interdepartmental structure. They also advised to form a team of staff-members (a 'task-force') for the program; to compose such a program; and to work out proposals for the modification of existing courses and for the development of additional ones.

The chairman of this team was a professor, appointed specifically to develop and carry out the program. As a new-comer he was not accustomed to university procedures. The remaining members of the task-force were carefully selected from the faculties involved: they were 'entrepreneurs' who had tried earlier to offer courses on management and policy in their own faculty, but failed, the reason for this lack of success being the limited support a single faculty could give. On the basis of the recommendations of the preliminary committee, this team composed the actual program, altered parts of programs, developed new courses, and so on. In 1987 the program was approved by the faculties, and the university council decided to finance its start, which took place in September 1987. The extra budget is secured up to the point of evaluation of the program's results. After this evaluation, and given a positive outcome, the university authorities will decide on how to finance the program on a structural basis.

This example indicates how entrepreneurial innovation can be stimulated. In the first place, the administration formulated its policy in outlining a new model for university education in a planning document. Then it focussed on a specific gap in the existing programs, in order to create a better match between education and labour market. In doing so, it explained the setting and the circumstances leading to the innovation. There was sufficient time to initiate a proper dialogue between university administration and professionals. When the board of directors thought the time was ripe, it invited the deans of the faculties involved in order to investigate the possibilities for a new program. After their 'silent commitment', a carefully selected, informal

working committee reported on the alternatives, the problematic areas, etc. This group provided an excellent 'link' between administration and professionals by their informal approach. The members of this group communicated with professionals and administrators when they deemed this appropriate. No formal commitment was asked or provided; this is important because it proves to be impossible to lay down beforehand the precise moments on which committees will have to consult administrators, or vice versa. Only when all implications were clear, the board made a formal request to the faculties involved to initiate a new program. At that moment the board also appointed a professor to support the innovation process. The second team, as a task-force, designed the program, made the adaptations, and created new courses. The administration decided to finance the start of the program according to a so-called sunset-model. The administration does not interfere with the way the extra budget is spent. After a few years the program will be evaluated and the administration will decide on a more structural financial basis.

The budget is not calculated on the basis of a given model. In general, a regular budgeting model is not suited to financing an innovative enterprise at its start. Therefore, agreement on the budget has to be based on specific needs. The budget has to be fixed for a number of years. It must not interfere with the budgeting model, nor be mixed up with the budget of other activities. After an evaluation, decisions must be made about the continuation of the program, and about the way it will be financed from that point onward. Naturally, budgeting according to the usual allocation model is a serious possibility after that.

Problems with innovation and decision making; The failure of revolving funds

One of the starting points of this paper was the observation that doubts exist both at the level of the minister of education and that of the university board as to whether university faculties will come to innovation without a stimulus. They do not appear to be entirely wrong in this judgment, and the literature provides a number of reasons why innovation does not develop very easily within a university. A brief review of this literature runs as follows.

Mintzberg (1981, 1983) characterizes the university as a professional bureaucracy, the main characteristics of which are the following:

1. the key part of the organization is the operating core of highly trained professionals;
2. the activities of the professionals are too complex to be supervised by managers;

3. coordination of tasks is achieved by standardization of the skills and knowledge of the professionals;
4. the complexity of the environment requires decentralization of the decision making power;
5. most of the professionals are highly motivated.

The professional bureaucracy is an inflexible structure, well suited to producing its standard outputs, but not to adapting to the production of new ones. Because of the nature of the organization, change comes slowly and often painfully. In Mintzberg's words (1983: 210): "Great art and innovative problem solving require inductive reasoning – that is, the inference of new general concepts or programs from particular experiences. That kind of thinking is divergent – it breaks away from old routines and standards rather than perfecting existing ones. And that flies in the face of everything the professional bureaucracy is designed to do." In these words we observe a similarity with our definitions of innovation.

Drucker (1985) also gives a number of obstacles to innovation in universities and other public-service institutions:

1. these institutions are based on a budget rather than being paid out of their results; 'success' is defined by getting a larger budget rather than by obtaining results;
2. they are dependent on a multitude of constituents and have to satisfy everyone;
3. they exist after all to 'do good': they tend to see their mission as a moral absolute rather than as economic.

Clark (1983) describes the understructure of large academic systems as consisting of many operating units with an inclination towards fragmentation and loose coupling. In the understructure, changes flow primarily within disciplines, and thereby from the environment of the individual enterprise to its interior segments. This is one of the reasons why concepts like 'consumer demand' and 'labour market demand' often say little about the reactions of professors and the direction and magnitude of change in universities.

We can conclude that a professional organization is more suited to perfecting existing activities to keep up the professional standard than to the production of new initiatives. This means that, generally speaking, without a special stimulus one may expect only professional innovation to take place. Also, the probability of innovative activities is inversely proportional to the degree in which they are innovative. This point is supported by the philosophy of science as developed by Kuhn (1962) who describes innovation of science in terms of scientific revolution, and Lakatos (1970) who argues that criteria to compare already existing and new research programs often

provide justification for the existing one, and therefore tend to be conservative.

When a university administration wants to stimulate professional innovation or to create entrepreneurial innovation, this requires decision making. A number of authors have described the problems connected with such processes within universities.

The professional bureaucracy as described by Mintzberg is a highly decentralized structure. A good deal of power remains at the bottom of the hierarchy with the professional operators themselves. The professional's power derives from the fact that his work is too complex to be supervised by managers, which enables him to insist on considerable autonomy. But not only do professionals control their own work, they also seek collective control of the administrative decisions that affect them. This leads to decision making by the professionals as good colleagues.

Professional bureaucracies are not integrated entities, but collections of individuals who come together to draw on common resources and support services, but otherwise want to be left alone.

If the central administration should want to influence this process, it should keep in mind that too much external control of the professional work will lead to centralization: the decision making power flows from the operators to the managers, and on to the technostructure. But technocratic controls do not improve the professional type of work.

Cohen, March & Olsen (1972) describe universities as organized anarchies and translate their observations into a "garbage can model" of decision making: non-purpose behaviour, often at random, because the goals are unclear, the means to achieve them problematic, and participation fluid. "Although decision making is thought of as a process for solving problems, that is often not what happens. Problems are worked upon in the context of some choice, but choices are made only when the shifting combinations of problems, solutions, and decision makers happen to make action possible" (1972: 16). Therefore, initiatives that require a coordinated effort of the organization, are unlikely to be realized (Cohen & March, 1974).

According to Baldrige (1971, 1975), the structure of universities again resembles organized anarchy. He emphasizes the political character of the decision making process. The social structure of universities consists of fragmented groups with basically different interests that lead to a high degree of conflict. Furthermore, the decision-making process is better characterized by the term 'decision flowing' than by 'decision making': a never ending process in order to make results really work, with fluid participation (the decision makers "wander in and out the decision process," 1975: 382) and an issue carousel ("Decisions are not made as much as they are pinned down temporarily," 1975: 383).

Hardy et al. (1983), having given an overview of some models of decision making, conclude that "the collective sphere of decision making is characterized by a combined collegial and political process, with garbage can influences encouraging a kind of haphazardness on one side due to cognitive and cost limitations ... and analytical influences at the other side encouraging a certain logic or formal rationality" (1983: 423).

Our conclusion is that collective decision making in a professional bureaucracy is an extremely difficult process, and forms a serious obstruction to innovative strategies of a university administration. There is, however, always the possibility for the latter to influence the decision making process in one or more faculties. According to Scharpf (1978) the best preconditions to policy coordination are provided by the existence of asymmetric relationships between two parties or organizations. The coordination of policy choices can then be facilitated even if coordination would be disadvantageous to one of the parties. This implies that the university administration can force decision making on faculty level through exerting some measure of pressure and, for instance, by 'negative incentive steering' of which budget cuts (Van Vught, 1985) are a drastic example. Nevertheless, the professionals retain their autonomy in the way the decisions are executed. This can be observed, for instance, in the first steps taken towards the liberal arts program at the University of Utrecht (Pollmann & De Vries, 1987, Savenije & Van Rosmalen, 1987).

This means as well that coordination by pressure can stimulate entrepreneurial innovation, but not professional innovation. By way of conclusion we can say that it is extremely difficult and generally speaking impossible for a university administration to stimulate professional innovation if it is not already originated by the professionals themselves.

We also wish to make the following two points. First, it also becomes clear at this point why revolving funds, such as the above-mentioned research pool, do not work. The university administration formulates criteria for innovative projects, and these are necessarily directed towards entrepreneurial innovation as that is the only kind of innovation they have access to. The professionals on the other hand are mainly directed towards professional innovation. Therefore the faculties, interested in the money divided as incentives for innovation, make existing activities, themselves usually cases of professional innovation, look like entrepreneurial innovation, in order to meet the requirements. This phenomenon is called "grant chasing" by Baldrige (1980). The stimulus for innovation is often some outside offer of funding; but if there is no real connection to institutional needs, the project lives as long as the outside money is available. In our view this is the basic explanation for why revolving funds fail to meet their own purposes.

Second, professional innovation can of course be stimulated by providing additional funds. But it is very difficult to formulate criteria, and thus to differentiate between faculties. And in the long run it can be expected that each faculty receives approximately an equal share of the extra budget. This means that it is preferable to divide this budget among the faculties as a part of the lump sum budget from the outset, thus dispensing with long and expensive procedures.

Entrepreneurial innovation and the planning process

Earlier we mentioned that the professionals always appear to keep their autonomy in determining the way innovative projects are carried out. This can certainly lead to problems of implementation, especially when the innovative ideas generated by the university administration have an ad hoc character, or the university fails to involve all relevant parties in developing the ideas.

This risk can be diminished when initiatives for innovation are presented as part of the planning process, as we have seen in the example of the management and policy-program. We will now investigate how a planning process directed at innovation may be realized. Of course this only concerns entrepreneurial innovation, as the university administration hardly plays a role in originating professional innovation.

The main instrument in Dutch university planning is the so called development plan, a 5 year plan that comprehends the policy of the university for that period of time. Until 1987, the universities had to submit such a plan each year, whereas in future they will have to submit their plans every second year. In the years in between the minister of education proposes his own plan for higher education and research. The aim of this procedure is to create an interaction between the planning of the minister and of the universities.

In the past few years the development plan has not been able to fulfil satisfactorily its role of directive for future policy decisions. The minister of education may be blamed for too many decisions that required a reaction at short notice, and generally did not allow for the regular procedure as a part of the planning process. Examples of this type of interference are provided in the nationwide process of concentration of academic programs, initiated by the minister in 1982. In this process a number of disciplines were concentrated in one or a few Dutch universities (Van Rosmalen & Otten, 1986; Van Vught, 1985). Only a few years later, in 1986, this process was repeated for three disciplines (Medicine, Social Sciences and Arts) that already had reduced their budgets considerably.

One of the consequences of all this is that the 5 year plan strongly tends to become an annual report of policy planning (Kardux, 1987). Considerable

doubt exists within the universities whether this situation will improve in the next few years, which means that the development plan has become less suited to devise a long term policy for the university as a whole. Nevertheless, the formulation of a long term policy is very important to a Dutch university because of the important changes in higher education that have taken place in the past years, and the ideas of the minister of education about the intended differentiation between the Dutch universities (Savenije & Otten, 1986).

One of the further consequences is that the university will have to prepare decisions concerning the services it will offer; for which public, and regions, the resources, and the organizational setting. In other words: it has to start a strategic planning process. Such a process can be carried out in several ways as recent initiatives in some Dutch universities illustrate. Without intending to provide a complete picture of all aspects, we list some features of strategic planning that are essential in this context (mainly from Cope, 1981).

1. It seeks to answer the question: what is our mission, role, and scope, and what should it be?
2. It places great emphasis on the conditions of the environment.
3. Its perspective is of the organization as a whole and seeks to maximize synergetic effects.
4. It is an iterative, continuing, learning process, with an emphasis on change, review, re-examination.
5. It is mainly carried out by those charged with the implementation.

The process has four stages: analysis, strategy formulation, implementation and evaluation (Keller, 1983). The implementation takes place on the basis of formulated programs, budgets, and procedures. The 5 year plan then becomes an implementation plan of the longer term view.

Returning to our topic, the stimulation of innovation, we would like to wind up this section with the following remarks. The university administration will play a role in innovation only in the sense of promoting changes in the services offered. Such changes have to follow from a long term strategy. The services that are part of the strategy, but are not yet present in the institution, are the new activities the start of which can be seen as an innovation. We defined this type of innovation as entrepreneurial.

The development plan specifies the implementation of these innovations. This makes sense only if there is a commitment of the relevant faculties and consensus about the extent of the innovation and the budget required. To the extent that the administration has more elaborate interests, it will invest more money in the project, providing a central stimulus.

We have to bear in mind, however, that it is not easy in a professional bureaucracy to formulate a strategy in the sense of "a single, integrated pattern of decisions common to the entire organization" (Mintzberg, 1983: 200).

This means that the result certainly will have its limitations, especially in the initial stages. To be successful it is recommendable:

- to strengthen the identity of the university, for instance by emphasizing the community of norms and values as a coordinating mechanism;
- to avoid a forced integration of all departments, by differentiating between groups of departments for common attitudes and opinions;
- to stimulate the reinforcement of networks by all parts of the organization;
- to pay more attention to quality assessment and evaluation.

The organization of innovative projects

This chapter contains a number of recommendations on the organization of entrepreneurial innovative projects. These recommendations are based on the conclusions of the previous chapters.

According to Mintzberg (1981, 1983) only one of the organizational structures described by him is suited for innovations: the ‘adhocracy’. Sophisticated innovation requires a configuration that is able to fuse experts drawn from different disciplines into smoothly functioning ad hoc project teams. Unlike the professional bureaucracy, the adhocracy cannot rely on the standardized skills of the experts to achieve coordination. It has to treat each problem as unique, where “the professional bureaucracy pigeonholes it so that it can provide a standard skill” (1981: 112).

From Mintzberg’s analysis we can deduct important organizational requirements for the success of innovation processes:

1. the creation of interdisciplinary project teams,
2. the involvement of as much relevant parties as possible.

Drucker (1985) also gives some structural requirements for innovative processes. For the existing business to be capable of innovation, it has to create a structure that allows people to be entrepreneurial:

1. the new has to be organized separately from the old and existing: the existing activities always require time and effort on the part of the people responsible for it;
2. there has to be a special locus within the organization;
3. the results will have to be measured differently;
4. a person or a group should be held clearly responsible.

These remarks are supported by the way the university administration handled the management and policy-program, creating an ad hoc structure to design the new program. The committee was the new structure, which was stressed by the creation of a new professorial chair.

Kreukels (1985) describes a planning model characterized by an entrepreneurial style, giving some examples from metropolitan planning in the USA. The main characteristics of this style are:

1. planning is seen as an instrument of innovation and reinvestment, not only in economic, but also in social and cultural terms;
2. planning is not located exclusively, or even predominantly, within public administration; it is ultimately the outcome of a network of organizations and institutions within both the public and private sectors;
3. public administration has its own role in the planning process varying from a mildly intervening one to a regulating one;
4. planning departments as centers of planning have been bypassed in favour of ad hoc project teams.

How can we translate these views in consequences for a stimulating policy for innovation? How can the university administration stimulate the realization of an entrepreneurial innovative project, once the idea is born? First, it is important to give the initiative a "sheltered start" (Baldrige, 1975: 387). For each innovative project an ad hoc project team will have to be set up, consisting of professionals from inside the university (with special attention to interdisciplinarity) and relevant organizations outside the university. These people are brought together on the basis of their professional skills, but also on the basis of their commitment to the new development.

This project team will have to operate autonomously to a considerable degree. Members of the team have to keep in touch (informally) with the group or organization on whose behalf they participate. The university administration guarantees the legitimacy of the project, especially when there is doubt about the commitment of the faculty level. It may also play a role in involving the political environment in order to obtain this commitment. It does not push in a certain direction, because in the end the innovation cannot be realized without the full commitment of the selected professionals. It only creates the opportunity for the professional task force to realize the innovation.

Raising the question of financial support for innovative activities, we again have to differentiate between professional and entrepreneurial innovation. As we have seen, a revolving fund functioning on the basis of applications simply malfunctions. For entrepreneurial innovation the method of applications and grants is inadequate, and for professional innovation criteria are lacking by which to judge whether true innovation takes place, and to differentiate between faculties. It is also a truism that innovation means money. For professional innovation we already argued that it seems far better to divide the budget among the faculties as a part of the lump sum.

Entrepreneurial innovation requires the availability of a central budget, although the amount needed may vary considerably for different activities, just as the period prior to the point where such activities will generate their own income (for instance as a consequence of the budgeting model of the ministry of education). A revolving fund with a fixed budget can thus be a useful instrument, but will fail when based on applications and fixed criteria. The sunset-model mentioned in the section *Management and policy-program* offers a more promising approach. The partners involved will agree on the amount and the period needed, and on the method of evaluation. If faculties are meant to contribute financially, this should be clear from the outset, and the budget should be kept separate from the lump sum budget of the faculties. A more structural way of financing, perhaps based on a budgeting model, and the relation with the lump sum of the faculties can be discussed only after the evaluation.

Conclusion

We have seen that two kinds of innovative activities can be usefully distinguished: professional innovation and entrepreneurial innovation. Professional innovation is a concern of the professional staff in the faculties; the university administration has no means of stimulating this kind of innovation. A budget for this kind of innovation therefore has to be a part of the lump sum of the faculties.

Entrepreneurial innovation in general has to be stimulated by the university administration. The implementation, however, is a process involving professionals on which the administration has only a limited influence. Important conditions for the success of an entrepreneurial innovation are that it should not have an ad hoc character and that the relevant participants are all involved. In general the best guarantee for these conditions can be found when the initiative is born as a product of the planning process of the university, and the implementation is carried out by a task force of professionals, supported by the university administration.

Entrepreneurial innovation should not be financed on the basis of requests for revolving funds, but rather through sunset-financing: a fixed amount provided to the faculty for a number of years, established independently of the budgeting model and separated clearly from the budget for other activities. After this period, an evaluation takes place and new arrangements may be made. One of the consequences may be that the budget for the innovation becomes a part of the lump sum budget of the faculties involved.

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