Researchers’ Influence, Resources and Autonomy in Different Managerial Systems within the Public Research Sector in Denmark

Kamma Langberg, Senior Researcher, Danish Centre for Studies in Research and Research Policy, University of Aarhus, Denmark

Ebbe Krogh Graversen, Research Director, Danish Centre for Studies in Research and Research Policy, University of Aarhus, Denmark

Evanthia Kalpazidou Schmidt, Associate Professor, Danish Centre for Studies in Research and Research Policy, University of Aarhus, Denmark
Editors

Mary Kalantzis, Innovation Professor, RMIT University, Melbourne, Australia.
Bill Cope, Common Ground and Visiting Fellow, Globalism Institute, RMIT University, Australia.

Editorial Advisory Board

Chryssi Vitsilakis-Soroniatis, University of the Aegean, Rhodes, Greece.
Eleni Karantzola, University of the Aegean, Rhodes, Greece.
Gerasimos Kouzelis, University of Athens, Greece.
Leslie Johnson, University of Greenwich, UK.
Bruce Cronin, University of Greenwich, UK.
Martyn Laycock, University of Greenwich and managing transitions.net, UK.
Dave Snowdon, Cynefin Centre for Organisational Complexity, UK.
David Lyon, Queens University, Ontario, Canada.
Krishan Kumar, University of Virginia, USA.
Claudia Schmitz, Cenandu Learning Agency, Germany.
Bill Martin, RMIT University, Melbourne, Australia.
Paul James, RMIT University, Melbourne.
Rob Brooks, RMIT University, Melbourne, Australia.
Margaret Jackson, RMIT University, Melbourne, Australia.
David Hakken, University of Indiana, Bloomington, Indiana, USA.
Zainal Ariffin, Universiti Sains Malaysia, Penang, Malaysia.
David Gurteen, Gurteen Knoweldge, UK.
Verna Allee, Verna Allee Associates, California, USA.
Rod Dilnutt, William Bethway and Associates, Melbourne, Australia.
Judith Ellis, Enterprise Knowledge, Melbourne, Australia.
Kirpal Singh, Singapore Management University, Singapore.
Researchers’ Influence, Resources and Autonomy in Different Managerial Systems within the Public Research Sector in Denmark

Kamma Langberg, Senior Researcher, Danish Centre for Studies in Research and Research Policy, University of Aarhus, Denmark
Ebbe Krogh Graversen, Research Director, Danish Centre for Studies in Research and Research Policy, University of Aarhus, Denmark
Evanthia Kalpazidou Schmidt, Associate Professor, Danish Centre for Studies in Research and Research Policy, University of Aarhus, Denmark

Abstract
Research autonomy and academic freedom are referred to as core elements of the university culture when university management is discussed and under change: research management is, by some researchers at universities and other research institutions, seen as self-evident contradiction. Original research depends on the researchers’ insight and knowledge, a necessary precondition for a productive and effective outcome of the research process. Therefore it is argued that the researchers need to have a direct influence within the research process, on the research projects, on the allocation of resources, etc. Consequently the individual researchers as well as the research institutions need to have a large degree of autonomy. This large degree of autonomy within research management forms a special type of management: Autonomous Management.

A central question in this context is: Can other knowledge organisations learn from Autonomous Management as it has been functioning at universities and other research organisations; does the Autonomous Management culture belong to the future? And what lies behind the tales of research autonomy and freedom?

In this paper the managerial culture and the formal structure at the Danish universities (UNI) and the government research institutes (GRI) are described and then compared to researchers’ perception of influence on their working conditions and access to resources for research. The discussion is partly based on results from three surveys: one study on researchers at GRIs from 1998 (n=959), one study on university researchers in 2000/2001 (n=2209) and one study on 15 subgroups that were characterised as dynamic and innovative (DYN) within the universities and the GRIs (n=231).

The results are that research management and autonomy of research turn out to be two sides of the same coin instead of a contradiction and that knowledge managers in general can learn from ‘dynamic research managers’: That (knowledge) management based on respect, clear strategies on products, and clear human resource policy are likely to produce knowledge workers, that report that they have influence on their working assignments

Keywords: Autonomy, Research Management, Researchers’ Perception of ‘Influence on Research’ and ‘Access to Resources for Research’, Empirical Results

1. Introduction
Research autonomy and freedom for research (academic freedom) are by some researchers seen as essential drivers for future research results: without research autonomy and freedom in the short run, there will be no original research in the long run. But this autonomy and freedom can be found at a number of levels: from the level of the total research system as one system in a European country over the level of universities and departments, down to the individual researcher. Consequently research autonomy can be studied at different levels: From the perspective of society, i.e., from the perspectives of industrial organisations and large companies, from the perspective of ‘the public’, or government.

And it can be studied from perspectives of different subject areas (natural science, social science, etc.), different departments, or from individual researchers’ points. Two main concepts are use the discuss this: the influence on research and access to resources.

Some elements of this discussion as well as the former management structure at public research organisations in Denmark and its actual changes are the focal points in section 2, where the concept ‘autonomous management’ is presented together with analysis of influence and access to resources. After this the first research question (RQ1): How is the autonomy by researchers in Denmark seen from the perspectives of the management at different types of institutions and how can this difference be explained? is answered. In section 3 the focus is moved to differences in management within the research sector in Denmark and differences in researchers attitudes toward influence on their work.
assignments and resources for research. The empirical basis consist of three studies: one focused on university researchers (UNI), one on researchers at government research institutes (GRI) and one focused on dynamic and innovative public research environments (DYN_UNI and DYN_GRI). The second research question (RQ2): How is autonomy perceived by individuals researchers at different types of institutions and can this be explained? is then answered. When discussing management within the research sector management theories developed in other areas as knowledge management are often integrated (an example is found in Langberg 2003). In this paper the question is turned around and the last research question (RQ3) is asked: Can other knowledge organisations learn from “autonomous management” as it has been functioning at universities and other research organisations, does the “autonomous management” culture belong to the future? What lies behind the tales of research autonomy and freedom? Or are we talking of different types of management? These perspectives are discussed in section 4.

Different empirical methods are often used in order to triangulate, i.e., findings by the use of different methods support one result; in this paper different empirical methods is use because of difference in (managerial) level; the small numbers of managers pointed on qualitative interviews as the empirical strategy where the large number of researchers pointed at statistical analysis based on quantitative information. As seen the results imply different results. In section 2 the answer of RQ1 is mainly based on text analysis and qualitative interviews of (research) managers, where the answer of RQ2 in section 3 is mainly based on qualitative information and statistical analysis of surveys among employees (researchers). The final answer of RQ3 in section 4 is based on the answers of RQ1 and RQ2.

2. Autonomy Versus Management in the Research Sector

Autonomous Management

The concept Autonomous Management is based on empirical findings found in a number of investigations of research environments in Denmark (Kallehauge, Kindtler & Langberg 1998; Langberg 2000; Langberg & Lauridsen 2001; Lauridsen 2002; Langberg 2002a; Graversen, Kalpazidou Schmidt & Langberg 2002). The concept covers a type of strong management combined with a situation where employees have a large impact on allocation of resources as well as major influence of their working conditions. Autonomous Management within research environments might therefore be regarded as management that secures research autonomy or in other words management where researchers’ access to resources for research is large and where researchers’ influence on their working assignment is high.

This section starts with an introduction to autonomy in research seen from different perspectives and this is followed by a description of actual management in research institutions with Danish institutions as examples.

The question to be answered in this section (RQ1) is How is the autonomy by researchers in Denmark seen from the perspectives of the management at different types of institutions and how can this difference be explained?

Autonomy in Research - Academic Freedom - Research Interests

Seen from the perspectives of the individual researchers, it is often assumed that the researchers’ interest in the research subject is the factor that drives research, an approach that can be seen in perspectives of knowledge and interest (Habermas 1978/68). Researchers’ interests in research subjects can be fulfilled in two different ways: either by researchers direct influence on the research agenda within the research organisation or indirect when researchers in their search for jobs prefer projects that match their interests as much as possible. Seen in a Danish perspective the first form of ‘influence’ is found at Danish universities and the second at Danish GRIs. The researchers’ perception of their influence on their own work assignments might therefore reflect the influence as such, the organisational context, and the part of the autonomy of research that relates to direct influence.

Seen from the perspectives of a group of researchers, the pictures change. A clear hierarchy with a senior researcher or professor with a high scientific reputation can be found in some research organisations; the professors’ influence on other researchers working conditions are regarded as a consequence of his or her scientific ‘star quality’ and it is based on respect. Managerial power connected with the scientific reputation could be labelled as scientific managerial power. In some situations two or more ‘stars’ might form conflicting managerial situations.

In other research organisations the power hierarchy can be based on traditions, economic power or formal (juridical) rules, a situation similar to the situations as found in organisations outside the research world. This could be labelled informal managerial power and formal managerial power, forms of managerial power that when found in research environment might conflict with a parallel scientific hierarchy based on scientific insight and results; this conflicting situation might also have large consequences on the environment.

A third possibility can be found at a number of Danish university departments: all researchers are
regarded as their own managers which on one hand is the ultimate autonomy, that could lead to excellent results on the other hand it often leads to poor performance (with regard to both research and teaching) because of the lack of proper feedback mechanisms, in this situation special forms of informal managerial power might occur as well.

Seen from society’s perspective a university might form an autonomous structure, e.g., be managed according to internal rules and norms regardless of the outside world, or the university might be managed as other organisations. In both cases the universities depend on financial means: A university may be private and depending on its basic capital that might be invested and income from patents or fees, or it might be financed directly by the state. In both situations universities can add research funding from private and public funds to its means. In most European countries universities and other research organisations are financed by a number of sources: partly from the state (direct and indirect) and partly depending on private funding, regardless of their formal status.

Funding of research is a core element in the discussion of autonomy and academic freedom: if the research organisations are dependent of funds from the state or industry, it could be expected that their autonomy and academic freedom would suffer from direct as well as indirect pressure: direct pressure is found when conclusions are effected or even changed, indirect pressure when the subject for research is changed due to the demand for research within specific areas. Direct pressure is not accepted in research organisations: most researchers would react against it for professional reasons and the organisation as such would react because it depends on public trust - trust that would be violated if the organisation ‘gave in’. Indirect pressure is a different question, its effect being different depending on the overall financial situation: if the funding is without specifications given to research as such and not to specific projects it might not have any pressure effects at all. If minor parts of the funding are given to specific projects it might even have a positive effect, where the case is different when resources are scarce and projects in general are dependent of external funding. Therefore the researchers’ perception of resources available for research projects might not only depend on the actual resources available but also reflect that part of the relative autonomy of the research group that is connected with funding.

The autonomy of the individual researcher with regard to research can therefore be seen in a number of different perspectives with focus on

- The autonomy of the research group
- The managerial power within the research group
- The autonomy of the research organisation (institute, department, or university) vs. the state

Research interests and the direct influence on choice of research subject and the research project
- Funding of research

Actual Management at Research Institutions

The question of autonomy for research, the researcher, or the university is a part of a discussion of research management all over Europe (Aagaard et al. 2001; Morris 2002). The underlying assumption is often that there exist an optimal power-balance between the universities and the state. This balance-thinking (see Wolff 1997 for an example) only offers little room for direct integration in society or collaboration between researchers in different areas, and direct collaboration is seen as a problem. Most European politicians regard collaboration positively, and have a view that implies that ‘every-tower’ universities are outdated. In an international perspective collaboration or even integration has been the case more often in USA (Rosenberg and Nelson 1994) than in Europe. But during the last 15 years a number of traditional European universities have already developed closer connections with society including industry, and their research managers navigate in a broader set up (Langberg 2002b). This situation can be described as research within a Triple Helix, a structure of collaboration between universities, government and industry (Etzkowitz & Leydesdorff 1997).

The discussion seems to be based on the fact that most European universities depend on the state for funding. Most European states fund the university research, but they use different systems: direct support or ‘basic funding’ is found in most countries as well as indirect funding that is focussed on specific research projects or themes. It is often assumed that indirect funding is limiting the autonomy of the universities, because the research focus might be changed by the research themes. In some countries the state pays for teaching expenses, i.e., the government might pay some basic expenses as building and laboratories, and a large part of the fees. In most EU countries students receive grants directly from the state. In some countries the universities are ‘state universities’, i.e., regulated by the state and the university employees are covered by the same kind of regulations as others employed by the government. (Historically, older universities in Europe were either founded by the church, or by the social and economic elite, some of those are still ‘private universities’).

The universities as such have changed from elite-institutions to mass-education centres, and among other problems they have to face new forms of higher education centres where some might be private that might threat their superior positions. All over Europe the management of universities is undergoing changes from new acts concerning
universities (new university act in Ireland in 1997, in Denmark in 2003, proposed in Norway in 2003, etc.) to change in funding systems for students (England 2003, Germany 2003, Norway 2005 etc.)

University managers have to navigate within a changing space formed by researchers’ interests and capability on one side and the funding of the research on the other in order to support and develop the research performance of the environment. One way to deal with researchers’ interests in the management process is to hand the management power over to the researchers themselves, e.g., perform an Autonomous Management-style where every researcher is responsible for the research results as well as (a part of) the funding. This kind of management or rather lack of active management can still be found at a number of university departments in Denmark as seen below.

Management at Danish Public Research Institutions

Universities

All Danish universities are regulated by the state, and they receive internal funding for research from the state, in 2002 the internal funding was 62 %. The state funding for teaching of full time students is 100 percent, based on the number of students that passes exams.

A new university act passed the Danish parliament in spring 2003, and all universities are to have a board and an appointed rector (top manager of research, education and administration) besides the director (in Denmark, manager of the administration). In a period of almost 30 years, the Danish universities have had a management system based on internal election of rectors, head of departments, study directors, and collegial bodies by and among students, technical personnel and researchers. Besides this the researchers faced a ‘working norm’ called the UFA-norm (teaching 50 %, research 40 %, administrative work 10 %) that guaranteed the university researchers time for research until the beginning of the 1990s (Langberg 2003).

The Danish universities have (been) developed in very different ways: among the ‘younger’ universities founded in the 1970s, there are traditions for teamwork and project oriented research & teaching where the ‘older’ universities are more focused on individual performance. Investigations found large differences between research management as well as education systems of university departments, even at the same university; some differences are dependent on tradition and others on single individuals’ influence (Langberg, 2000; Jacobsen, Madsen & Vincent, 2001; and Langberg, 2002a; Langberg, 2003). In some places the ‘spirit’ is active, dynamic and open for internal discussions, other places are characterised by internal fights, lack of proper feedback, and no human resource management at all (Jacobsen et al., 2001; Lauridsen 2002). A study conducted among the Danish university researchers (Langberg & Lauridsen, 2001; Langberg 2001) showed that a large number of university researchers felt there was a lack of management, but on the other hand a similar large group feared influence from the politicians. Management as well as research management at the Danish universities is (today) mainly dependent on specific power-relations within departments and research units. Consequently the universities are dominated by informal managerial power.

Government Research Institutions

The government research institutions (GRIs) are as the name implies state institutions. The internal funding (direct funding from the state) was only 51 percent in 2002. The formal structure at the GRIs was changed in 1995 and in spring 2004. In general there is a board with a large number of external members (from the public as well as the private sector), and a director appointed by the board. Most of the GRIs have a managerial structure with department managers and research directors appointed by the director, project managers appointed by the department managers etc. Most GRIs have a formulated human resource policy as well as they for several years have performed strategic research planning. A study in 1998 showed that some GRIs were founded as pure research organisations focusing on basic as well as applied research with close connections to the university sector or even to specific university departments, while others were developed from sections within the state administration (Kallehauge et al. 1998; Kallehauge & Langberg 1999). Since the beginning of 2002, there has been a growing uncertainty among researchers at GRIs on their future caused by announcements of radical changes from the government including changes in the organisational status of some GRIs and in the general research programmes, where the latest change have caused far more problems at the GRIs than at the universities since the GRIs are more dependent of external funding. (Langberg 2003). The GRIs are dominated by formal managerial power.

---

1 All state institutions in Denmark achieve ‘basic’ or ‘internal’ funding by a budget act that passes the Danish parliament every year. The institutions can receive state funding as well as other form of funding from different sources besides the basic funding.
Dynamic and Innovative Research Environments at Danish Universities and GRIs

In 2001 a study of 15 dynamic and innovative research environments was performed after request for the Danish Council for Research Policy (DCRP). The DCRP selected the 15 environments among environments proposed by the six Danish Research Councils (Graversen et al. 2002). All chosen units had a high degree of research performance. The environments were chosen within the two largest parts of the Danish public research system: the universities (including university hospitals) and the government research institutes (GRIs). Those two parts have, as seen above, formally very different management systems but the study concluded that regardless of formal structures the practices for management in the two systems were very much the same, a conclusion that could support different perspectives for research policy (Kalpazidou Schmidt 2002; Kalpazidou Schmidt et al. 2003).

All the managers at the ‘dynamic units’ were characterised by being (former) top scientists, and focusing on research strategy and as well as human resource management. The dynamic units were, if possible, compared to similar units (same organisational context and scientific area) in the R&D statistics and two main differences were found: a demographic difference, in general the percentage of women were higher at the ‘dynamic units’ and the researchers were younger, and a difference in research funding, in general the units had a smaller share of their funding from internal sources than similar units (Graversen et al. 2001).

The researchers at dynamic units found at the GRIs (DYN_GRI) were in general more internationally focussed than researchers at other GRIs and they focussed on international publications, etc. as university researchers (often) do. The traditions and attitudes with regard to research found at DYN_GRI units were more ‘like universities’ than what were found at other GRI units.

The dynamic units found at the universities (DYN_UNI) had another managerial structure than found at other university units; it looked as if they had used the possibilities in the election system to build a system that were more similar to the systems found at the GRIs, e.g., they had a strong management, they had a human resource policy, they focused more on research strategy than other university units and they had an active and visible research manager that made decisions about research projects (to support them or turn them down); within the projects it was often found that a professor had the primary responsibility for a number of research project, projects that often where financed by external sources. Consequently the individual researchers’ influence at the DYN_UNI units was apparently limited when compared with other university researchers.

The dynamic units were dominated by scientific managerial power, e.g., management based on respect, scientific as well as managerial knowledge and authority.

Some of the dynamic units had a long history and others were nearly ‘newborn’; this made it possible to formulate a model of development for dynamic and innovative research units (Graversen et al. 2003). It was not found that the age of the unit had an effect on the management styles of the units.

Autonomy in Research - Answers to RQ1

Seen from the point of managers (based on interviews) and analysis of formal rules the strongest management with regard to influence on the research subjects are found at the GRIs, and the weakest management were found at the universities. It was also found that the management at dynamic units at universities were stronger than university managers in general with regard to influence on research subjects. This point at tree levels with regard to researchers’ influence:

1. GRI and DYN-GRI (Lowest)
2. DYN-UNI
3. UNI

With regard to access to resources the pictures change. The managers regarded the level of internal funding as a key factor with regard to access to resources - at all levels. The R&D statistics showed that the universities in general had a larger degree of internal funding than the GRIs and that the dynamic units had a smaller degree of internal funding than others. This point to four levels with regard to researchers’ access to resources:

1. DYN-GRI (lowest)
2. GRI
3. DYN-UNI
4. UNI

The relative positions of influence on management based on the actual rules and qualitative interviews, and access to resources measured in terms of internal funding as found in the R&D statistics (funding based on basic funding) can be summarized as in Figure 2.1 The figure shows the autonomy by researchers seen from the perspectives of the management at different types of institutions. The difference found is explained by the different rules at the institutions, different traditions that lead to different management (UNI: informal managerial power; GRI: formal managerial power; DYN: scientific managerial power) as well as difference in funding structure at the institutions.
Figure 2.1
Researchers’ relative influence on management and the degree of internal funding at research units at Universities (UNI), Government Research Institutes (GRI), Dynamic and innovative research units at universities (DYN_UNI), and at Government Research Institutes (DYN_GRI) in Denmark based on R&D statistics and text analysis

3. Researchers’ Perception of ‘Influence’ and ‘Access to Resources’ at Different Organisations

In the last section the point of view was formal rules and the managers’ perception on influence and access to resources, in this section the point of view is the one of the researchers’. The main question (RQ2) in this section is therefore: How is autonomy perceived by individual researchers at different types of institutions and can this be explained?

All the three studies mentioned in the former section included a survey to the researchers. In all three studies a number of attitude questions related to the working environment, the management, and access to resources for research were asked. A number of statistical analyses were made of the answers (Langberg 2004).

In general it is to expect that full professors at universities and research managers at GRIs have more influence on research strategy, human management, allocation of economic resources, etc. than research assistants. There are a large number of different positions at universities and GRIs, analyses based on the studies showed, as expected, that positions are strongly connected with the researchers age, and that age and position as explaining variables could be exchanged with very little loss of information. Therefore age is used as an explaining variable parallel with gender instead of position.

One key attitude that reflected the discussion of autonomy was formulated around influence on work assignments here the word considerable were added because all researchers are expected to have some influence. The question became:

I have considerable influence on my work assignments (labelled influence in the following text)

Another important key factor on relative autonomy is access to resources to the research projects. The way the resources are allocated differs at different institution types: For many Danish university researchers, ‘resources for research’ is synonyms with resources for research beside their own time allocated for research, where resources for research at the GRIs will include the all the resources used for research project, e.g., include their own research time, a situation also found at most of the DYN units, regardless of their status as university or GRI units. Beside this it was important to focus the GRI researcher on research projects as they often join other types of projects. These differences were reflected in the formulation of the attitude question, therefore the question on resources had a slightly different formulation in the three surveys. In general, the question was:

The research projects I’m involved in receive the necessary resources (labelled resources in the following text).

These two questions are regarded as endogenous and as core questions when autonomy at research institutions were investigated. All analyses showed, as expected, that the responses to the two questions were strongly related. Because researchers at the DYN units are younger and a larger proportion of them are female than researchers at similar units, the results from simple two-way analyses on the responses based only on organisation might be misleading. Therefore a larger model where the researchers’ gender and age were taken into account was formulated: Organisation, Gender and Age were regarded as exogenous variable that might be correlated. This model is seen in Figure 3.1.
The easiest first step in the estimation process is to perform two simple linear regression analyses where gender, age and organisation are used as exogenous (classifications) variables (dummies) in explaining the variance in the answers according to influence and resources. These models are seen in Figure 3.2. The qualitative answers in the Likert scale (from ‘strongly agree’ to ‘strongly disagree’) are transformed into numbers (from ‘strongly agree’=1 to ‘strongly disagree’ =5) and the regression analysis is performed as if the response were quantitative. This last assumption can be discussed, but conclusions based on this model are the same as the ones found in a log-linear model (see Langberg 2004 for details).

The two regression models were estimated with all possible interaction effects, but none of the interactions were significant, so they were removed. The next estimation showed that the effect from ‘age’ in the influence-model was insignificant ‘age’ was therefore removed from the model as well.

It can be argued that the responses are qualitative and that the statistically model used should separate the different responses, consequently a log-linear model where all variables are regarded as qualitative were estimated. Such a model (with interaction effect reduced by the hierarchal principle) was also estimated and the result is seen in Figure 3.3. It was found that the ranking was the same than the one found in the linear regression analyses, e.g., the substantial results were the same (see Langberg 2004 for details).

The results with regard to gender showed that men more often agree on the attitudes influence and resources than women, when both age and organisational context are taken into account. This gender difference in the answers cannot be explained by age or other factors in the material. Because the answers are related to the context, it is not possible to distinguish between the possible reasons for women to tend to report less influence and less access to resources than men.
There was surprisingly no connection between the answers to influence and the researchers’ age. There was however a connection between the answers on resources and the researchers’ age. It was expected that older researchers more often agreed in the question, because they more often are project managers and more often receive funds than younger. But the results showed that the youngest (under 34 years) and partly the oldest (55 and more) were the ones that most often answered ‘strongly agree’. This result with regard to the youngest might reflect that the younger researchers often work on Ph.D.-thesis where the whole thesis has been guarantied funding for 3 years.

The Result of the Analyses of the Researchers’ Answers - and the Answers to RQ2

The relative positions of influence and resources with respect to organisation (when information on gender and age is in the model) can be summarized as in Figure 3.4. The figure shows the autonomy by researchers seen from the perspectives of the researchers at different types of institutions. The results showed that the largest difference with respect to influence and organisation was found between the researchers at the DYN_UNI and the other environments; the same result was found with respect to resources. But the ranking was different: the researchers at the dynamic units at universities were the ones that most often reported that they agreed on that they had influence at the same time as they were the ones that less often reported that they agreed on that they had resources.

It was expected that the researchers at the universities more often answered ‘strongly agree’ to the influence question than researchers at GRIs. This difference can be explained by the different formal management structures. But it was found that the researchers at DYN_UNI units more often than other university researchers answered ‘strongly agree’, regardless of the finding of a strong management similar to the one found at the GRIs in those units in another part of the study, findings that places management style of the DYN UNIs between the styles of the GRIs and the universities. This result is probably caused by the form of strong management: the scientific management at the DYN units, a management style focused on respect.
It was found in another part of the study that dynamic and innovative units had a smaller degree of internal funding than similar groups of researchers. So the researchers’ responses match in this case.

The conclusion of the statistical analyses is that

- The answers to the questions on influence and resources were, as expected, closely and positively correlated.
- The answers to the question on influence were dependent on the researchers’ gender and organisational context, but not quite as expected.
- The answers to the question on resources were dependent on the researchers’ age, gender and organisational context, but with regard to age, the results were not quite as expected.

4. Perspectives and Concluding Remarks

The central question (RQ3) in this paper is: Can other knowledge organisations learn from ‘autonomous management’ as it has been functioning at universities and other research organisations or does the ‘autonomous management’ culture belong to the past? And consequently what lies behind the tales of research autonomy and freedom? The answer of this question is based on the answers of the two questions RQ1 and RQ2 that were given in section 2 and 3.

(RQ1): How is the autonomy by researchers in Denmark seen from the perspectives of the management at different types of institutions and how can this difference be explained?

(RQ2): How is autonomy perceived by individual researchers at different types of institutions and can this be explained?

The term research autonomy or academic freedom can be viewed from a number of points, with the point taken here being that of the individual researcher.

The paper is partly based on empirical studies of public research institutions in Denmark. The two main managerial set-ups in the late 1990s at public research institutions in Denmark were very different. The management at Danish universities (UNI) was based on informal managerial power, where the management at Government Research Institutes (GRI) was based on formal managerial power. Investigations of the two main groups was supplemented with results from subgroups within the universities and GRIs pointed out as ‘dynamic and innovative’ (DYN_UNI, DYN_GRI); it was found that the management styles at these units were surprisingly alike. The management at the DYN units was based on scientific managerial power. The set-up formed four groups of research units: UNI, GRIs, DYN_UNI and DYN_GRI.

The individual researchers’ influence on management based on a study of the actual rules and qualitative interviews was valuated and related to the organisational form. The researchers’ access to resources for research was measured in terms of internal funding as found in the R&D statistics. The results were summarized in Figure 2.1.

Researches’ perception of their influence and access to resources were then investigated by researchers’ response to two key-questions on influence and resources. The results were summarized in Figure 3.4.

The empirical findings do not match. It was an implicit argument in section 2 that a large degree of internal funding for research gave access to research resources. This hold when the DYN units are compared with other similar units: DYN_UNI compared with other UNI units, and DYN_GRI compared with other GRI units.
compared with other GRI units. But it does not hold when the GRIs are compared with the universities. In this case the researchers at the universities report that they had less access to research resources than the researchers at the GRI report, where the R&D statistics shows another story. This point to one of basic assumption in the (Danish/European) discussion: that the academic freedom is connected to a large direct state funding.

The findings can be explained at follows: In general researchers at the Danish universities are faced with informal rules that they might or might not know, when they apply for internal funding. When they apply for external funding they are ‘self dependent’, e.g., they cannot count on a managerial support, and it is relatively difficult for the university researcher to produce an excellent application without some kind of support. This is not the situation at the GRIs where the management will support any research application that can fit the strategies of research and human resource; the management at the GRIs might prioritize the applications, but the way this is done is often relatively clear; the researchers at the GRI are not alone, they are a part of a strong managerial structure. Consequently the university researchers face a number of difficulties when applying for (extra) research resources due to their lack of strong management, difficulties they regard as a lack of access to resources, and they answer more often that they do not have the resources they need. The researchers at the dynamic units are in general well-informed on research strategies, they often work on projects that are funded by external means and they are aware of the situations on similar units at the same university or GRI, e.g., they have the same perception of the situation as others and they know that they are more dependent on external funding than other similar groups.

With regard to influence, the surprising finding was that the researchers at the dynamic units at the universities were the ones that most often reported that they agreed in that they had considerable influence. The formal rules gives much more influence to the researchers at the universities than researchers at the GRI, and the general findings support this. But it was found that the management at the DYN_UNI were quite strong like the management at the GRIs.

This finding can be explained by following argument. The dynamic units are parts of larger structures: the DYN_GRI units are faced with the formal structures of the GRI, and the researchers’ influence is therefore limited by the GRI structure. The DYN_UNI units are faced with informal structures that they can change the reality is therefore that the researchers’ influence at these units are only limited by the unit itself.

The management found at DYN_UNI at Danish universities was the type of management where the researchers reported that they had most influence - and this might therefore be the prototype of Autonomous Management and the reality behind the tales of ‘academic freedom’. This type of management is characterized by the term scientific management and at the same time the units are placed in a structure dominated by informal managerial power.

This points to two general aspects for future discussion of research management:

- The Autonomous Management as found in Danish research units (organisations), e.g., ‘scientific management’ was characterized by respect (from employees to manager), clear strategies on research and human resources policies. This form of management was by the researchers reported to be the form with influence.
- A large amount of direct state funding of research institutions is not necessarily a guarantee for academic freedom, because researchers might face internal, and in some cases informal, rules that limits there access to the resources.

These results can be transformed into knowledge that might be useful for other managers:

- That (knowledge) management based on respect, clear strategies on products, and clear human resource policy are likely to produce knowledge workers, that report that they have influence on their working assignments.
- That direct (automatic) allocation of resources might not be the best way to allocate.

References

1586
Researchers’ Influence, Resources and Autonomy in Different Managerial Systems within the Public Research Sector in Denmark

Langberg, Kamma (2002b) Management in the Triple Helix - from a University perspective. Case: Department of Dairy and Food Science. The Royal Veterinary and Agricultural University. WP 2002/13 from The Danish Institute for Studies in Research and Research Policy
Langberg, Kamma (2004): Methodological problems when investigating researchers attitudes in surveys - with researchers influence on their work assignments and access to resources as example CFA-WP 2004/4

Statistical tool used:
SAS-base and SAS-stat LISREL

About the Authors
Kamma Langberg main research subject is research management and change in research systems. She has been project manager at a number of empirical studies including researchers’ attitudes. She is Ms(econ) from University of Copenhagen and has a PhD from the Business School of Aarhus.

Ebbe Krogh Graversen is a research director at CFA and received his PhD from the University of Aarhus, Denmark. His main fields of interest are measures and indicators on R&D, innovation capacity and the knowledge economy, innovation and growth, industrial and labour economics.

Evanthia Kalpazidou Schmidt is an Associate professor at the University of Aarhus, Denmark. Her main fields of interest are European higher education and research policy, science and society, sociology of science.