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Research in search of relevance and excellence: The management of creativity in the social sciences

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by

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SUMMARY

The challenge to research management is threefold: first, to define the vision of a research institution, to determine the nature of its potential innovative contributions. Second, to develop the organizational prerequisites for meeting these goals, ensuring that the structures of the institution correspond to the demands. And, third, to create an internal environment which will promote the type of creativity envisioned. Innovation springs from a totally different way of looking at the subject at hand: what kind of new perspective is needed for social science research? How can an innovative approach be institutionalized and given a chance to succeed? And, given that the demands of such an institution do not correspond to the traditional demands on social scientists, what kinds of internal incentives and structures can be developed to stimulate and reward the unusual type of creativity desired? This paper seeks to answer some of these questions by abstracting from experiences with a particular model in social science research and by drawing on the relevant organizational literature.

1. Introduction

Social science research is a newcomer to discussions about the institutionalization and management of creativity. This is not surprising: only relatively recently has the need for large-scale and long-term research in the social sciences been recognized; little experience has been collected in the field, and too little time has passed for conducting serious evaluations of different models.

In the natural sciences the pressure to achieve specific goals (e.g., in defense, space, energy, health) and the inherently large-scale and long-term nature of several undertakings made the management of such endeavors felt much sooner: as early as after World War I they stimulated the creation of a diversity of institutions in a variety of countries and generated the need to examine and evaluate the problems of research management that demand priority in such settings. Social science research, on the other hand, was conducted almost exclusively by individual or small teams in university-type contexts until the 1960s.

The demand for social science knowledge in the 1960s and 1970s underwent both quantitative and qualitative changes (Frankel, 1976a, p. 4). Not only was <u>more</u> social science information sought after, but also information of a <u>different</u> kind, requiring more extensive data collection and empirical research. In order to meet these demands, large-scale and long-term projects were undertaken and special institutions were established outside the traditional university departments. These changes posed new management problems for the social sciences which, due to the dominant small team type of structure, had generally left research to the motivation of the individual researcher. Through the introduction of new research styles in larger institutional contexts, it became necessary to explore how creativity in the social sciences can actively be managed. Specifically, what kinds of institutional conditions and which management approaches are most suited for stimulating innovation?

The search for answers to these questions must still rely largely on the analysis of case studies and the experiences of indi-

vidual managers, because no thorough evaluation has yet been conducted cross culturally, across the board of diverse experiments, in different countries. This article is intended to help answer these questions by examining the experiences of a major social science research center, the Wissenschaftszentrum Berlin (Science Center Berlin). This particular institution is of interest because, on the one hand, the kind of research to which it is devoted - problem-oriented basic research - is becoming increasingly important, so that its pioneering efforts provide valuable insights into the challenges and risks involved. On the other hand, its very size, and the fifteen-year span of its operational history, represent an unusual wealth of experience in social science research to draw on.

The Wissenschaftszentrum Berlin was founded in 1969 by members of the West German Parliament, the Deutsche Bundestag, to attract high-level social science research to Berlin. Later, in 1976, the ownership was transferred to the Federal Republic of Germany and the State of Berlin, which were represented by the Federal Ministry for Research and Technology and by the State Ministry for Science and Research in Berlin. The Parliament, however, kept a strong influence on the institution: seven out of twenty-one board members come from the Deutsche Bundestag. In the course of this change in ownership the basic mission of the Wissenschaftszentrum Berlin also changed: the intention then was to use this large center of social science research outside the university system to meet government needs for research and policy advice. Deviating from the traditional university structure, the Wissenschaftszentrum Berlin was organized around institutes focusing on different problem areas and policy fields: labor market policy, environmental policy, industrial policy, labor policy and global developments. A central characteristic of the research approach of the center is its internationally comparative and interdisciplinary perspective. In the course of the early 1980s the mission of the center was again reexamined and reoriented away from immediate policy relevance to obtain a more long-term perspective. This process of defining the purpose and nature of the institution involved a complex set of discussions and adjustments and correspondingly complex inter-

play between the institution itself and its constituencies. The result of the process was the development of an institutional identity focusing on the search for relevance and excellence, combining the goals of contributing to the solution of social problems and attaining highest academic standards. For a more detailed description of the institution, its current structure, size and areas of concentration, see appendix.

This article aims to abstract from the experiences of the Wissenschaftszentrum Berlin in dealing with three of the central management tasks involved in establishing an institutional setting conducive to innovation: 1. defining the vision of the institution; 2. specifying the organizational and structural prerequisites for fulfilling such a mission; and 3. designing the appropriate procedural and cultural mechanisms to promote a creative working environment. In this manner, an examination of the experience of the center can serve to illustrate to operationalization of these various tasks and provide a springboard for generalizing on the nature of the challenges to the management of creativity in social science research.

Accordingly, the next section of the article deals with the need for defining the mission of an institution and discusses how to determine, based on the experience of the Wissenschaftszentrum Berlin, where the specific contribution of such an institution should lie in view of the intellectual and institutional landscape in which it is situated. Section three then deals with the process of defining and establishing the institutional prerequisites for this mission. It discusses the need to determine the conditions required in order to meet the goals of the institution and illustrates this through the prerequisites the Wissenschaftszentrum Berlin defined for its purposes: autonomy, medium-term programs, and a strong planning function. Finally, the article examines the management tasks involved in developing a culture oriented to the kind of innovation and creativity envisioned by the institution. It discusses the sources and potential problems in achieving this goal in terms of the concept of "creative tensions" underlying the search for relevance and excellence in social science research. Individual tensions are identified and mechanisms for dealing with them,

based on the experience of the Wissenschaftszentrum Berlin, are presented.

2. Combining Relevance and Excellence: The Need for an Institutional Innovation

A primary task in institution-building is the development of an identity. What, exactly, is the nature of the potential innovative contributions of the institution? A sense of uniqueness is central to the life of an organization: on the one hand to establish its position in the relevant landscape and to legitimize its existence vis à vis its various external constituencies and the public at large; and, on the other hand, to guide and motivate the efforts of the internal constituencies, the members of the institution, who need to understand the mission they are intended to contribute to fulfilling. The key function of management in this process is to define and communicate the vision by exploring the needs to be responded to and by formulation the goals to be striven for.

Reviewing the nature of social science research - its goals and traditions, as well as current forms of institutionalization - two characteristics become apparent that are relevant to the definition of a vision for an institution seeking to identify deficits and to achieve creativity. First, the social sciences have historically always been shaped by a dual goal structure: relevance and excellence. Second, however, while it would have been inconceivable for many of the great scholars around the turn of the century to separate the intention to conduct societally relevant research from that of striving for the highest scientific quality, in the course of the last decades the two goals have increasingly been viewed and pursued as polar opposites. An examination of the implications of this development highlights what can be learned and where new innovative impulses can be sought.

A brief glance back at the turn of the century shows that problem-oriented research was at the forefront of conceptual and methodological developments in the emerging social sciences

(Nisbet, 1976, p. 104). Examples can be found in the work conducted by the "Verein für Socialpolitik" in Germany on the housing and working conditions of workers in the 1890s and 1900s that spearheaded the development of social science research (Kern, 1982; Gorges, 1981). The same holds true for the community-oriented policy research in the United States in the first two decades of the twentieth century; for such early British social researchers as Charles Booth, too, research aiming at social relevance could not be achieved without meeting the highest theoretical and methodological standards (Bulmer, 1980; 1983).

The later development of the social sciences in the phase of rapid expansion was characterized by increasing differentiation and specialization. A strong tendency emerged to split the community of researchers along the two goals of relevance and excellence. As political and economic decision-makers gradually increased their demand for social knowledge and as cores of theoretical knowledge crystallized various aspects of social life along disciplinary lines, two separate markets came into being. Part of the research addressed itself to its actual or potential customers or contractors, and part exclusively to the academic community. While the latter strived for rewards given by peers' opinions and acknowledgements, the application-oriented researchers headed for practical usefulness or, at least, new contracts or continued funding. This separation of the intellectual markets is mirrored in a differentiation in the network of funding sources.

Analyses of the social science research systems in the various European countries showed that this dual demand and funding structure corresponded rather closely although not perfectly to institutional specialization (von Alemann 1981; Knorr et al., 1981; see also the distinction made by Trist, 1970). Applied research intended for instrumental use by specific clients was to be found in commercial or government- or interest group-oriented research centers, whereas basic research with an academic orientation retained its traditional place in the universities. Similarly, communication structures were also largely differentiated, thereby again intensifying the separation: re-

searchers, who directed their findings in "grey literature" type of reports directly to decision-makers or sought publication in newspapers or in journals specializing in fields of knowledge application, naturally developed concepts and standards different from those publishing in disciplinary journals of high but exclusively academic reputation. This development was convincingly characterized by Shils as "the current dilemma of the social sciences: search for truth or for public service?" (Shils, 1976, p. 287).

Is the dichotomization of goals and institutions, accompanied by the dichotomization of funding and communication processes, of incentives and rewards for research, a necessary consequence of growth of the field? Was the combination of relevance and excellence, which was characteristic of social science research at its origins, only possible at such an early stage, and neither possible nor desirable at later stages of conceptual and methodological development? Some observers might claim that research oriented at relevance and research seeking excellence are essentially different, even belonging to worlds apart: the world of action, where political interests reside and guide the analytical work, and the world of truth, governed by the values of disinterested scientific inquiry (Coleman, 1972). The necessary conclusion, of course, is that belonging to each of the two worlds is equally legitimate, but that the two normally do not meet or even fall into one. This view, however, largely ignores the respective deficiencies of unidimensional goal structures in social research, of which many of the fore-fathers had been so well aware.

Finding answers to these questions might not be so urgent or problematic in a period when the interests and intentions of individual research personalities shaped a scientific field. It can, however, become one of the most serious challenges to social science research in a phase of large-scale institutionalization. Each institution then has to be assigned a well defined place in a research system which as a whole has to guarantee the overall perspectives of the social sciences.

In this context, organizing a research infrastructure, which is solely oriented to the needs of decision-makers, prevents the

cumulation of research findings and cumulative learning, because all research projects have an immediate constituency expecting only a timely analysis of the specific problem it is concerned with. There is little incentive for the communication of research findings among researchers and, consequently, hardly any development of broader conceptual categories or even social theories. In the separate subsystem for "excellence" there is a tendency for disciplinary research to narrow in on highly specific theoretical issues, which is accompanied by the danger of becoming detached from societal reality by devoting too great a share of resources to theoretical, methodological and technical refinements. Theory-building in the social sciences, however, requires that research be in constant contact with the dynamics of society; this essential historical character of the social sciences is one of the central elements distinguishing it from theory-building in the natural sciences. A conception of excellence that does not take into account the importance of dealing with the realities of social change and does not consider examining the resulting social problems to be within its sphere is too limited and therefore destined to fall short of its goal. The understanding that social research is most relevant when it can be applied immediately in political action proves to be equally restrictive. It only captures the short-term perspective of the policy-makers' demand for social knowledge. It does not take into account the need for medium- and long-term information and analysis in policy-making. Neither conception does justice to the scientific and social potential theoretically informed social knowledge can have.

What implications are to be drawn from this analysis? In sum: an exclusive orientation of researchers and research institutions to these two poles is unsatisfactory. While there is no question but that the universities will continue to play an essential role in providing the basis for consolidated disciplinary science, that policy information needs will continue to be served by research organized in a more commercial market manner, and that some types of research (such as long-term continuous data gathering) may be rather well located in government bureaucracies, there is a definite need for institutions

combining the goals of relevance and excellence. This relates to the increasing recognition of the need for problem-oriented, long range social science research that "combines work on societally relevant problems with the best that scholarship has to offer: high quality standards, complete with replication and verifiability; methodological rigor; and theoretical continuity" (Wittrock et al., 1985, p. 35).

In meeting this need lies the mission of an institution whose vision is the search for creative contributions through the joint pursuit of the two goals otherwise kept separate by other organizations: relevance and excellence. The specification of this vision is a continuous management challenge. The task lies in elaborating exactly how the institution can contribute to meeting the information needs and the theoretical challenges as well as how it can determine in which areas it will concentrate its efforts.

Defining the vision of such an institution in more specific terms, as in the case of the Wissenschaftszentrum Berlin for example, means identifying and selecting the long-term societal information needs to which it will devote itself. In order to ensure both that knowledge can be built up over an extended period of time and that the institution can do justice to its aim of reflecting changing social reality, the process of setting and revising thematic priorities in the research is a primary concern of management.

Defining the vision also involves specifying the implicit: for example, problem-oriented research implies applying a multi- and often interdisciplinary perspective since social reality does not organize itself into clear disciplinary categories (Yarmolinsky, 1976, p. 270). Furthermore, problems do not respect national borders: there are problems of a global and trans-frontier nature (e.g., pollution); there are problems that appear earlier in one nation than in another (e.g., unemployment); there are problems and actions in one country that influence the policy-making of other countries (e.g., inflation). To deal with such cases, a cross-national approach to information collection and analysis is essential. At the same time, theories claiming universal validity also require a cross-national research perspec-

tive (see Dierkes, Weiler, Antal, forthcoming). Therefore, an institution focusing on problem-oriented basic research is implicitly characterized by an interdisciplinary and comparative mode of research (which has implications for the organization of research and the selection of staff as well namely, it requires team research of an interdisciplinary and international composition).

Once the vision of the institution has been defined and its implications clarified, the next management task is to establish the institutional prerequisites for pursuing the desired objectives. This task is in itself an innovative challenge in the case of the creation of a new type of institution such as that represented by the Wissenschaftszentrum Berlin. Since its context remains dominated by the split between policy research and academic research, a continued balancing of the institution is required to develop fully the potential of the vision.

3. Establishing Prerequisites for Institutionalizing the Search for Relevance and Excellence in Social Science Research

Under what conditions can problem-oriented basic research be conducted? The call for new institutional settings for problem-oriented social science research has been made more than once, and attempts to create and support such an orientation have been undertaken time and again in various countries; but in most cases they have not been built on a clear understanding of the conceptual and organizational requirements for successfully developing institutions that try to find their place between the two strong poles that structure the field of scientific inquiry in the social sciences. For instance, the idea of a nonprofit research institute alone does not suffice, as it will always tend to drift either in the direction of dependence on its funding-source, when deciding on its research programs and approaches - as in the majority of cases (see Orlans, 1972, p. 92 ff) - or in the direction of a return into the academic sphere hardly to be distinguished from university research (see in general the

discussion in: Perry, 1976). The reverse attempt to dissolve a prevailing academic orientation by a science policy of "contractualisation", in which an increasing share of research funding is distributed via client-oriented contracts, undermines the required distance from short-term political interests and leads to a highly fragmented research community and to the erosion of academic criteria of research quality (Pollak, 1976).

An examination of the experience of the Wissenschaftszentrum Berlin shows that striving for excellence and relevance in social science research implies three essential requirements: the institution must be autonomous, its research must be structured around medium-term programs, and a strong planning function is needed to determine the future directions of research.

A research organization that seeks to be innovative while straddling several constituencies that have different goals, interests, and standards, must be independent from all of them. If a high degree of self-determination with respect to defining research goals and managing research progress is not guaranteed, the institution risks being paralysed or at best producing only mediocre compromises as a result of the tugging and pulling by the different constituencies. "It is only a strong scientific institution - coherent and independent, yet responsive and responsible - which has the strength to maintain its views, even when they may be unpopular or contrary to conventional wisdom" (Weinberg, 1974, p. 17).

Autonomy has structural and financial aspects. While mechanisms for channelling the input from external constituencies must be foreseen, the decision-making structures of the institution must ensure that the power to determine and implement research policy resides in the institution. At the same time the vision of the institution cannot be achieved if research priorities are in effect determined by funding arrangements that distort the time perspective of the research policy and also allow external constituencies too much influence over decision-making. The pursuit of cumulative knowledge, long-term goals, and a type of research that often falls between the cracks of existing market mechanisms requires the establishment of a high level of long-term institutional funding. The possibility, however, of securing additional

short-term funding for specific projects is desirable when it is consistent with the research strategy. Second, if the research institution is to achieve its multiple aims, it needs to structure its research in such a way as to focus on the cumulation of knowledge in selected areas over time and yet also allow for flexibility in the medium term to adjust research priorities both to changing social reality and to changing academic needs for knowledge. The organization of research around programs running five to seven years has been found to permit both the concentration and synthesis of knowledge on the one hand and the review of priorities on the other. Among the key management tasks required by a program-orientation are:

- Planning the research programs;
- Specifying the research projects to be conducted under the programm umbrella;
- Promoting the aggregation of project-level knowledge into larger conceptual frames in the interest of supporting the development of middle-range theories; and
- Communicating the results to the various constituencies.

The planning of research programs involves the identification of potential research needs and the selection of areas of concentration. As a first step, an intense process of communication has to be organized with relevant societal actors and representatives of important institutions, with distinguished scholars of the various social science disciplines and with program managers of research funding organizations. An analysis of its results leads to the selection of a social problem area according to the societal demand for knowledge in the field and the theory-guided research interests in academia. Following this, the key-sectors of interest are defined by judging the prospects for important contributions to disciplinary theories and to the development of conceptual tools, which may be at the roots of interdisciplinary theory-building.

When pursuing problem-oriented research in those key-sectors of interest, it is a constant task to aggregate project level approaches into larger conceptual frames and thereby contribute to the formation of middle-range theories as well as link the

findings of often interdisciplinary projects to developments in traditional disciplines, thus contributing to mainstream academic progress.

Besides promoting these efforts in the pursuit of excellence, an active communication strategy informing constituencies and society at large about the research results and the frequent summarizing of knowledge and data generated of the problem area are key elements in achieving a high level of relevance in such programs.

It is obvious that an institution for problem-oriented basic research to meet these requirements needs a strong research planning function

- to organize and coordinate the networks of external links to societal actors and academia;
- to organize and coordinate internal cooperation and scientific exchange between project teams with regard to the institution's objectives; and
- to decide on the establishment, continuation, reorientation, or termination of research work in specific problem areas.

Whereas the success of steering problem-oriented basic research institutions towards achieving their ambitious objectives ultimately hinges on particular management issues to be specified in the following section, a high degree of autonomy, medium-term program orientation and a strong research planning function are necessary preconditions for dealing with the challenges to research management.

4. Cultivating Creativity: The Management of Tensions

These prerequisites are the institutional basis for stimulating and developing creativity in a research organization striving for both relevance and excellence. Beyond this, however, every institution requires the cooperation of its members in order to be able to fulfill its mission. The task for innovative and creative management is to find the appropriate structural conditions and the set of values and beliefs necessary to ensure such co-

operation. The optimal mix of both depends on the kind of products, the production processes, the modalities of diffusion, as well as the unique vision of the individual organization. While in factory work, for example, detailed production operations largely determine the passive compliance of employees, in a research organization the support must be more than tacit. When the purpose of the institution is to be creative, formal structures are of relatively lesser significance. It is more important that the members actively promote the mission of the organization and share its vision.

There are a number of reasons why the identification with the goals and values of the organization is particularly important in a research setting. As studies of organizational culture show, shared beliefs and values imply shared ways of doing things and thereby reduce the need for explicit procedures and bureaucratic processes, which are stifling to creativity (Sathe, 1983). In addition, research indicates that a sense of commitment plays an important role in creativity. "Studies of outstanding individuals in various fields almost always reveal that such persons seem to be impelled by feelings of mission or purpose" (Uenishi, 1984, p. 223). When individuals "believe that what they are doing is tremendously worthwhile ... (they) are aroused to all-out effort" (Uenishi, 1984, p. 223).

Such a sense of common purpose is especially central to an institution that does not fit the traditional mold. A research organization attempting to achieve excellence and relevance simultaneously - which requires that its members deviate from accepted paths and ways of thinking, career patterns and developments in academics - must transform traditional thinking into a feeling of uniqueness and impart a special set of values in order to gain their support. Therefore, an important task of the research manager is to communicate the vision of the institution to its members. Weinberg recognizes the significance of the organizational cultural factor when he writes "the key to making an institutional policy effective is the creation of a proper mood in the members of the institutions. This requires that the director of an institution ... instills into his staff an unswerving commitment" (Weinberg, 1974, p. 16).

The nature of the management tasks in an institution striving for relevance and excellence in social science research is well captured in the concept of "creative tensions" introduced by Kuhn (1963) and researched by Pelz and Andrews, among others (Pelz, 1967; Pelz and Andrews, 1976; Andrews, 1979). This concept draws on two observations: first, "a creative act occurs when a set of elements not previously associated is assembled in a new and useful combination" (Pelz, 1967, p. 161) and second, "achievement often flourished in the presence of factors that seemed antithetical" (Pelz, 1967, p. 157). In terms of this concept, an institution attempting to achieve a symbiosis between relevance and excellence thrives on the fundamental tension between these goals. It implies a departure from the traditional distinction between the two frames of reference that up to date have been perceived to be contradictory and seeks innovation in their combination.

To make use of such tensions, the research manager must develop ways to reap the benefit for creativity that can come from associating the ideas from the two worlds while at the same time protecting the researchers from the problems that can stem from the often contradictory demands and incentive and reward systems of the various constituencies. The task, therefore, is to establish which specific tensions and possible contradictions are involved in the vision of the organization and then, rather than eliminating them, to design a balanced system to develop an innovative and stimulating research environment.

Identifying Creative Tensions

Experience indicates that the following specific tensions emanate from the basic vision of such an institution:

- disciplinary versus multi- and interdisciplinary perspectives;
- short-term versus long-term views;
- flexibility versus continuity;
- freedom of individual researchers and teams versus program coordination;
- production of knowledge versus its diffusion.

Problem-oriented basic research requires a multi- and often interdisciplinary perspective: social problems and society's information needs for understanding and solving those problems do not simply correspond to the way academia organizes its knowledge (Orlans, 1972, p. 75). Studying social problem areas therefore often requires the input of more than one discipline, and it can promote the development of knowledge outside traditional disciplinary boundaries. The need to draw on a variety of disciplines proves to be a significant stimulus to creativity and innovation. Whereas theory-building in the social sciences usually builds on disciplinary knowledge, the new insights that can be gained from different disciplinary perspectives and their combination can contribute to the enhancement of the explanatory power of a hypothesis or theory. In this sense, research oriented to social problems not only provides insights of relevance to policy making, but can also enrich the scientific search for concepts of more universal validity. Herein lies the creative potential of this tension.

The tensions between disciplinary and interdisciplinary perspectives also have a significant impact on the recruitment and career development responsibilities of research managers. In order to achieve academic recognition, to be properly evaluated and integrated into the body of existing knowledge, research output striving toward excellence must be fed into mainstream academic disciplines. Only rarely does interdisciplinary knowledge per se gain academic recognition - for example when it is "adopted" by a discipline (e.g., urban sociology) or when it is recognized as a new field (e.g., implementation research). This implies that the researchers conducting interdisciplinary research confront serious difficulties in achieving professional academic recognition for their work. Therefore, problem-oriented institutions, when not properly managing the tension, have often not been "successful in attracting first-class specialists who are best recognized and rewarded by their peers" (Levien, in Orlans, 1972, p. 76). An institution striving at relevance and excellence simultaneously, however, has to be attractive to those first rate specialists. An important challenge to such an institution, therefore, is "to provide careers of equivalent

security and prestige to those in the disciplines for those working outside them" (Brooks, 1976, p. 257).

Relevance and excellence often imply quite different time perspectives (Yarmolinsky, 1976, p. 259). Society's information needs in attempting to understand and tackle major problems tend to be immediate and short-term in nature. To generate the relevant knowledge quite often requires more time than is available to decision-makers and their constituencies. If it is to prepare itself to meet future information needs, and if value is placed by decision-makers on the quality of the information received, research has to operate on a significantly longer term perspective. The challenge is to allow both for the stimulation to be derived from recognition and meeting short-term information demands and for the insulation needed to accumulate a sound knowledge basis over long periods of time. In other words, the necessary level of creative stimulation must be found in a balance between buffering an institution and its members from the immediate demands of constituencies and exposing them to these demands. The importance of this second specific challenge to creative research management is also supported by Pelz's research: he observed that "it seems reasonable to say that the scientists and engineers in our study were more effective when they experienced a "creative tension" between sources of stability or security on the one hand and sources of disruption or challenge on the other" (Pelz, 1967, p. 157).

Related to this is the tension between flexibility and continuity. As indicated in the argument above for a strong research planning function as an institutional prerequisite, information needs and research priorities change over time. On the other hand, the development of competence as well as theoretical knowledge beyond the project level requires a relatively high degree of continuity. The research institution must therefore be managed in such a way as to allow it to respond flexibly to emerging ideas and new opportunities but also to guarantee a stable, continuous development. Both the personnel policy and the research program must take this tension into account.

Another tension lies between the needs of researchers and re-

search teams for freedom and independence and the institutional interest for coordination (Brooks, 1976, p. 254). Independence, the freedom to follow one's own ideas, is an important motivational factor for individual researchers. The need for independence includes the choice or (at least) a voice in the selection of projects, based on individual interests and the logic of individual professional development. Following these individual needs exclusively would undermine the institutional interest to pursue a coherent research program in the interest of cumulative knowledge generated on problem areas as well as on areas of theoretical and conceptual development. Such an institution, therefore, has to find an optimal way to manage the tensions between individual motivations and institutional needs regarding the determination of projects and programs.

Finally, a specific tension in a research institution whose mission it is to conduct problem-oriented basic research can be seen between time and resources allocated to the production of knowledge versus the diffusion of research results. Problem-oriented research requires the active communication of research results to the various groups of social actors and the general public. The purpose of an active communication strategy is to contribute to enhancing society's knowledge about the existence of a specific problem, its structure and nature, as well as to provide insights into ways of finding appropriate solutions. More than any research organization exclusively trying to meet high professional standards, an organization devoted to problem-oriented basic research has to spend time and energy on the diffusion of knowledge. Despite the growing demand, social science research "must still compete for the society's attention and respect" (Frankel, 1976, p. 30). How much time and energy should be spent for this purpose is a key problem to research management. Since the diffusion of scientific knowledge also has to involve the researchers who generate the knowledge in the first place, and since society learns only slowly, attempts to be relevant could easily drain on researchers' time and energy. The communication of research therefore competes for resources with those dedicated to generating new knowledge and meeting high academic standards.

Managing Creative Tensions

Having identified these tensions inherent in conducting social science research aimed at both relevance and excellence, how can they be managed? As long as the dichotomy between these goals is maintained in the perceptions, institutional arrangements, incentives and reward systems outside the research institution, it will be the task of management to deal with these tensions. How can a culture supportive of the goals of the organization be instilled and institutionalized to promote the kind of creativity sought? What kinds of institutional arrangements can be developed to maximize the benefits to be drawn from these tensions so that the unique contribution of the organization can be achieved?

As indicated above, the support for the vision of a research organization is essential to this success. The researchers need to identify with the mission and value the goals of the organization: their production cannot be ensured through technical mechanisms; their creativity needs to be motivated and channelled in the direction of the aims of the specific organization through cultural identification. As explained by Kluckhohn "Culture consists in a patterned way of thinking, feeling and reacting, acquired and transmitted mainly by symbols, constituting the distinctive achievement of human groups, including their embodiments in artefacts" (Kluckhohn, 1951, p. 86).

In the case of a vision such as that held by the Wissenschaftszentrum Berlin, for example, cultural identification implies sharing the belief that the multitude of tensions described above are a worthwhile and manageable challenge as well as a real source of creativity. If the members of the organization (particularly the researchers, but also to some extent the supporting staff) cannot identify with this mission, all structural measures supporting the management of these tensions will fail - or at best have only marginal success. The need for multi- and interdisciplinarity, the importance of flexibility as well as continuity, the significance of combining relevance and excellence must be perceived by the members of the organization to be key elements to its existence, a reason for collaboration.

What insights can be gained into the process of developing a cultural identity for a research institution from anthropological and organizational studies and from the specific experience of the Wissenschaftszentrum Berlin? Research shows that culture is transmitted primarily through the involvement of members of the organization in the specification of goals derived from the mission, in the operationalization of values in the planning of research activities. In addition, shared values and beliefs, common understanding about the ways things are done in the organization, are reinforced by symbols, stories, staff selection, and examples set through the behavior of senior members of the organization (Wilkins, 1983, p. 24 and Pettigrew, 1979, pp 575 - 577).

In practice, this means, for example, that participation in team-type structures seems to be central to the development of an organizational culture striving at relevance and excellence. A constant task in such an institution is the discussion of plans and the integration of overriding goals into individual projects. The participation of the researchers in this on-going process is essential for their understanding and identification with the values of the organization, on the one hand, and serves as a stimulus for creativity, on the other hand. The experience that participation in the elaboration of projects has a positive influence on the achievement of researchers is supported by Pelz' study (Pelz, 1967, p. 162) as well. Not only does it help to motivate the researchers, as Pelz found, but it also utilizes the capacity of the individuals to serve als "organs of perception", sensing and probing future challenges, an essential function in such a research institution. Participation and involvement, there, specifically help to manage tension between freedom of the individual researchers and the needs of the overall institution for coherence of research programs.

The team-type structure not only promotes participation, it also facilitates the operationalization of interdisciplinary approaches to problem-oriented basic research. Depending on the nature of the research in question, teams are composed of researchers from different disciplines (and often from different countries). Managing such diverse teams to generate the new perspectives

needed for a creative contribution is a continuous challenge, the pull from the individual perspectives tending to be centrifugal even when strong cultural support for the value of interdisciplinary and international research exists in the team. Among the management mechanisms to be implemented in this context are:

First, the integration of knowledge from multi- and interdisciplinary projects into traditional disciplines by requiring relevant publications as a regular element of the planning and execution of the research program and the individual research projects. Such a structural device helps to enhance the individual researcher's professional development by a periodic exposure to standards and knowledge of the discipline. At the same time, the unique potential of such research for the development of individual disciplines is systematically explored.

Second, a periodic effort also needs to be built into the planning and execution of research programs to synthesize project-level knowledge into overarching middle-range theories. Specifically institutions with longer term research perspectives over and above the project level can exploit this resource and contribute to theory building, thereby striving towards high academic standards.

These kinds of mechanisms help to deal with the tensions involved in conducting problem-oriented basic research by building bridges between the tensions, between demands of the different worlds. They enable the "counter-culture" (which the organization represents in relation to established institutions) to pursue its goals while fitting into and meeting the demands of the outside world. Such mechanisms as ensuring the publication of research results in both reports for decision-making purposes and in disciplinary journals, conducting individual problem-oriented projects and then synthesizing their results into middle-range theories satisfy the different types of needs for knowledge. At the same time, they help the individual researchers to establish their credentials according to traditional career standards while they devote themselves to achieving goals based on different understanding of the world.

A major task of management next to the transmission of cultural values and beliefs to the members of the organization is their communication to the external constituencies. In order for the institution to be allowed to function and its products and members to gain recognition outside its walls, the various external constituencies must learn to value the uniqueness of the institution. Key actors in relevant institutions in the decision-making community, for example, have to understand the implications of the concept of relevance when combined with excellence. It means that some of their specific information needs can be optimally served by such an institution but others cannot: knowledge on long-term developments, options for actions in areas of social concern, for example, are more likely to be provided than short-term and ad hoc formulated information. It is necessary to communicate to them that ensuring the stability of research programs over a significant period of time will serve their interests by providing cumulative knowledge on an area of social concern. Academia, as another key constituency group, also has to understand and support the unique opportunity of such an institution to contribute to scientific progress, specifically from the perspective of multi-disciplinary basic research, and to the development of new fields within or outside traditional disciplines.

Seen from the perspective of organizational culture, then, the management of creative tensions involves the "education" of internal and external constituencies to appreciate the different values and ways of doing things envisioned by the institution, and the design of specific supporting mechanisms to help the different worlds to meet where necessary.

A central role in this bridge-building task is the establishment of feed-back processes. In each of the different stages in the research process, ranging from the problem identification to the final presentation of results, inputs and feed-backs must be planned for from the different constituencies. Means of achieving this, for the academic constituencies, include encouraging researchers to teach at the university, either in a mono- or interdisciplinary setting, and to contribute to conferences having both a disciplinary or problem-oriented perspective. The

results of the research projects need to be disseminated to the scientific community in the appropriate publications. At the same time, the input and perspectives of other decisionmaking constituencies also need to be sought and integrated in the research process, both through formal structural mechanisms (e.g., advisory boards, conferences) and informal discussions. Similarly, the results of the research projects must be made available to these constituencies in a form they are able to use. The final stage of the feed-back process is the evaluation of the results. An institution like this cannot rely on traditional evaluation mechanisms, since they are specific to each constituency and thereby too narrow and inappropriate for the overall mission of the institution. An institution attempting to combine relevance and excellence therefore needs a multidimensional evaluation approach both for the performance of individual researchers and for the evaluation of its overall output. To take into account the complex goals and related tensions involved in the pursuit of the innovative mission of the institution, evaluation procedures must involve various external constituencies who also have an understanding of the nature of the challenge.

Besides providing feed-back on the quality of the research output, evaluation reports also help the institution to rethink and, if necessary, to reconsider its definition of an optional mix of structural and cultural efforts to manage the various tensions. Experience indicates that this mix has to be seen as a constant process of adjustment based on trial and error, which can only work effectively in an environment and a culture that stimulates a continuous discussion of the basic mission of the institution, the specific ways it defines the various creative tensions involved as well as the effectiveness of concepts it uses to manage those tensions. An open and comprehensive external feedback system, specifically designed to serve this purpose, is an essential element of such a process.

Appendix

The Wissenschaftszentrum Berlin as a case study for an institutional innovation and an experiment in innovative management in social science research

The task of the Wissenschaftszentrum Berlin is to conduct problem-oriented social science research of a basic nature in selected policy fields and to communicate the results to members of the scientific and decision-making communities. Founded in 1969 by representatives of the political parties in the German Bundestag, the WZB presently consists of three institutes with a total of five research units:

International Institute of Management
with the research units on
- Labor Market Policy
- Industrial Policy

International Institute for Comparative Social Research
with the research units on
- Global Developments
- Labor Policy

International Institute for Environment and Society
with the research unit on
- Environmental Policy

The WZB is a nonprofit corporation. Since 1976/1977 the Federal Republic of Germany and the Land Berlin have been the shareholders.

The Board of Trustees establishes the basic directions of the research policy and is involved in all important matters bearing on the corporation's research policy and financial affairs.

The President represents the WZB as managing director of the corporation, plans the research units, and coordinates the institutes.

The WZB has 142 permanent positions, of which 86 are for research fellows. In addition, visiting fellows, doctoral candidates, temporary personnel, and staff members working on externally funded projects are engaged in the research at the WZB.

At the WZB scientists from different disciplines collaborate usually conducting their research in the framework of international comparative projects. As a rule the project teams are composed on individuals from a variety of countries. There is extensive cooperation particularly with the universities in Berlin and with similar institutions and universities in the Federal Republic of Germany and abroad.

The WZB informs many different groups and institutions in the scientific and decision-making communities of its research results in a variety of ways, including conferences and seminars. The results of the work done in the projects are reported in articles published in professional journals, in the WZB's book series, and in numerous information materials.

International Institute of Management

The International Institute of Management was founded in 1970. Its research centers on the interaction between the state and the economy in highly developed industrialized societies.

Research Unit: Labor Market Policy

The persistence of high unemployment and the altered constraints and opportunities of labor market policy and employment policy constitute the starting points for the new research program of the IIM's research unit on labor market policy. It focuses on the analysis of the institutional and economic conditions required to achieve a maximum level of socially acceptable employment opportunities.

In addition to investigating the possibilities for development offered by new technologies and by initiatives from within the business community, studies examine the influence that industrial relations and regulations of the welfare state have on the number and distribution of employment opportunities and investigate the

international altered conditions affecting the national economies as well as the factors determining the impact of promising labor market and employment policy.

Research Unit: Industrial Policy

Industrialized western countries are concerned about low economic growth and the persistence of high levels of unemployment. The research unit is currently investigating whether there are structural causes of and policy solutions for this economic stagnation.

The research focuses on the economic interrelationship between the legal and institutional framework, and economic processes and structural development. By employing theoretical and applied microeconomic models, the impacts of government regulations and the relationship between individual actions and markets are investigated. This provides a basis for a better understanding of macroeconomic processes.

Current activities also cover research in health economics, the formation and allocation of human capital, and industrial economics. The work at this research unit is supported by the traditionally international profile of its staff, a feature providing the necessary framework for international comparative research projects.

International Institute for Comparative Social Research

The International Institute for Comparative Social Research began its work in 1977. Its task is to investigate at both the sectoral and global levels the developmental trends and the potential for change in highly industrialized societies.

Research Unit: Global Developments

With the aid of the macroquantitative long-term computer simulation model - GLOBUS - which has been developed here, this research unit examines causes of, and relationships between, economic and political issues. Existing world models were reviewed

for their usefulness in predicting key problem areas over the next twenty-five to thirty-five years. Building on this foundation, the research unit began developing its own model (GLOBUS), which departs from earlier models by including special economic and political questions and utilizing a broad political and social data base.

The model, which simulates the behavior of governments reacting to domestic and international economic and political developments, encompasses twenty-five nations that are politically and economically interlinked in the international sphere. The model outlines some of the consequences of alternative decisions which government might make.

Research Unit: Labor Policy

The institute's research unit on labor policy deals with the problems of development in labor, particularly paid work, and the way in which it is regulated by society. The rapid change that new market situations, technologies, and work structures have brought about in the world of work alters the social setting, qualifications, and health of the employed, redefining the substance and form of industrial relations. Regulation through social policy is used in part to reinforce, compensate, and counteract such developments.

Central issues therefore include:

- the identification of the physical and psychological consequences that processes of industrial rationalization entail through changes in the organization of work or through technology, and the impacts such processes have on qualifications, wages, and the social welfare network;
- strategies and measures developed by employers, employees, their representative organizations, and government authorities to address these problems of the individual and society.

International Institute for Environment and Society

The International Institute for Environment and Society began its work in 1977. Its task is to respond to the urgent need for social science research on environmental problems.

Research Unit: Environmental Policy

The program of this research unit covers the following project areas:

- Environmental Monitoring and Assessment: This project area includes the development and improvement of concepts and methods of media-specific and trans-media environmental monitoring and assessment on the regional, national, and international level.
- Environmental Impacts and Environmental Behavior: The aim of this project area is to examine the conditions governing the perception of environmental problems and of people's involvement in environmental issues (environmentalism, environmental learning).
- Evaluation of Environmental Policies: Analyses carried out in this project area are to identify the most efficient regulatory systems in conventional, media-specific environmental policy, especially air-pollution policy.
- Evaluation of Selected Policy Areas from Environmental Perspectives: The focus of research in this project area is on the ecological orientation of other relevant sectoral policies like energy policy, agricultural policy, and technology policy.

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