

COMMENT

EFFICIENCY Misplaced financial incentives are damaging science **p.29**

FILM The Russian microbiologist who turned revolutionary **p.34**

MUSEUMS The changing face of natural-history collections **p.36**

OBITUARY Pioneer of crystallography David Sayre **p.38**



Clean up the waste

Fixing inefficiencies at academic institutions will strengthen – not jeopardize – teaching and research, says **Thomas Marty**.

SUMMARY

- Academic institutions that learn to manage themselves better will achieve more with less funding in coming years.
- The main sources of inefficiencies are a wrong understanding of autonomy, weak leadership and a lack of strategic thinking when selecting research areas.
- Adapting concepts from private business will help academic institutions to address inefficiencies and get faculty members back to teaching and research.

Academic institutions are under huge pressure to do more with less — to be efficient¹. Higher-education and research budgets are tight. In the United Kingdom, for instance, university funding was down by more than 12% last year. The economic downturn means that fewer families can afford tuition fees, and universities are seeing reduced financial returns on their endowments².

Cutting costs is one way to ease this burden, but universities often gain most by producing more output with the same funding. Efficiency is largely about saving time and effort, not reducing expenditures. This frequently entails helping academic institutions to learn to manage themselves better, by adapting concepts from private business. There are differences, however: whereas unstructured time is anathema in business, it is key in research, enabling faculty members to develop new ideas.

Better management is not about telling professors how to teach and researchers how to run experiments. Cutting back on administrative and managerial inefficiencies should not conflict with the core activities of research and teaching — ‘academic freedom’. Actually, the reverse is true. With my colleagues at the consultancy firm Berinfor, which advises on the management of research and higher-education institutions, we have found that reducing bureaucracy can increase scholars’ time for research and teaching.

REDUCE AUTONOMY

Higher education relies heavily on the autonomous, expert work of brilliant minds. But sometimes, that autonomy can be taken too far. Some academics have a tendency to ▶

ILLUSTRATION BY VIKTOR KOEN

► set their own priorities; administrative matters are regarded as unimportant and managerial decisions are usually taken at the last minute with little consideration for the consequences. Although such behaviour might be favourable to the individual, it represents a heavy burden for the institution as a whole.

We at Berinfor see many examples in which academics who insist on the wrong kind of autonomy cause a great deal of administrative waste. In one large department we worked with, each faculty member planned student courses individually. It was up to administrators to resolve time conflicts and to ensure the courses were consistent with the programme's direction. Moreover, so that students could register online, courses had to be entered in a central database, which would not recognize courses that didn't fit a certain format. Administrators were thus spending vast amounts of time mediating between the wishes of the faculty members and the needs of the central information system, a task requiring two full-time administrators.

By bringing together administrators and faculty members to get their perspectives on course planning, we helped them to agree on a standard planning process with strict deadlines for each stage, which drastically reduced the number of revisions. This freed up administrators to provide support to faculty members who were setting up a new graduate school. These efficiency gains were only possible by reducing the autonomy of faculty members, albeit in the right places. Although course descriptions had to fit the template and be handed over to administrators within the defined period, the contents were left fully to the academics.

STRENGTHEN GOVERNANCE

A second source of inefficiency at higher-education institutions is governance. Decisions are often taken at the wrong level of hierarchy, involving too many people or too great a focus on details. This is evident in the overuse of large-membership committees, which leads to decisional paralysis and takes professors away from research and teaching.

Many committees are set up as permanent bodies with a vague remit (such as 'research committee') and are focused on consensus rather than on practical solutions to specific problems. Every hour spent on a useless committee is an hour lost for research and teaching. For example, 16 professors meeting once every 2 months for 4 hours represents about 4 days of total productive time lost each month — not counting preparation time and staff support. Taking all costs into consideration, running such a committee could amount to up to 100 working days a year. We advise our clients to review the purpose of every committee periodically, and to

assign tasks to the correct body made up of appropriate people.

Another major source of inefficiency at academic institutions is weak leadership. Faculty members often distrust leaders, particularly in European institutions. Consequently, many academic management posts, such as dean or institute director, have a short term of 2–4 years and limited executive power, ensuring that decision-making remains largely participatory. But these limitations make it difficult for leaders to bring about improvements.

Although strong-willed leaders who shape organizations to their own vision (such as Apple co-founder Steve Jobs or Jack Welch, former chairman of General Electric) enjoyed high respect in the private sector, they would encounter disdain and strong resistance in academia. A few years ago, the president of a world-class university was ousted through the political pressure of his academic peers because he wanted to improve managerial

“Measures that are intended to increase efficiency often encounter resistance within academic institutions.”

efficiency by increasing the power of department heads at the cost of the autonomy of the individual professors. When leadership is weak, reactive rather than proactive decisions prevail, and the direction of the institution barely changes. The best way to strengthen governance is to have longer terms for institute directors and university presidents, and to give them the power to make operational decisions that do not require a 20-person committee, such as how research and teaching rooms should be allocated. When an institute of one of our clients saw an exponential growth in student numbers, it increased the powers and doubled the term of the director, who made fast, executive decisions that helped to prevent problems such as oversubscribed courses.

Beyond leadership issues lies the problem of inadequate training of managers in higher education. Academics are trained to focus on one topic, whereas managers need to be generalists who can handle several diverse problems at the same time. But management is a skill that can be learned. We advise schools to invest in the management skills of their academic directors, which may require as little as an intensive week-long course.

THINK STRATEGICALLY

When we advise institutions on how to improve research efficiencies, we don't try to change what they decide to study. But we do advise them to keep some things in mind when they make that decision. Notably, doing more in a given research area increases the efficiency of the whole institution.

The more people that work on one topic together, the more they discuss their ideas and techniques, focus their efforts and avoid duplication. This holds true for expensive infrastructure: doing more experiments on a synchrotron or electron microscope, for example, improves their output because later experiments profit from the learning invested in earlier ones. But too often, institutions aim for breadth, hiring faculty members who study a wide range of topics, which prevents these economies of scale.

Departments also tend to hire academics who are studying hot topics, such as stem cells. But not everyone can bring together the critical mass of scientists required to become a prominent and successful stem-cell institute. Instead, we advise clients to consider their positioning in scientific fields — to identify and expand areas in which they are already doing well, rather than starting small institutes from scratch. The bigger the centre for a particular subject, the more likely it is to attract brilliant minds. For example, an institution with a strong backbone in physical chemistry, experimental physics and engineering might bring those fields together to build a world-class materials-science department.

Only by addressing all three of the areas I have identified — autonomy, governance and strategy — will institutions fully address internal inefficiencies. Despite obvious benefits, measures that are intended to increase efficiency often encounter resistance within academic institutions, especially if they are proposed by outside actors such as governments or advisory groups³. However, none of these suggestions would threaten academic freedom. Although many of these recommendations are based on concepts that come from the private business sector, we at Berinfor do not support replacing the academic culture with a business mindset⁴, which would reduce both creativity and productivity. Instead, higher-education institutions should develop their own culture — including needs shaped by academics, administrators and leaders — and translate business concepts to fit the academic environment. ■

*Thomas Marty is a senior consultant at Berinfor, a consulting firm in Zurich, Switzerland, specializing in the management of academic institutions.
e-mail: thomas.marty@berinfor.ch*

1. *Efficiency and Effectiveness in Higher Education* (Universities UK, 2011); available at <http://go.nature.com/bnmmbn>
2. Lewin, T. *New York Times* (14 November 2009); available at <http://go.nature.com/1x4byp>
3. Diehl, R. L. & the Executive Leadership Team *Maintaining Excellence and Efficiency at the University of Texas at Austin* (College of Liberal Arts, 2011); available at <http://go.nature.com/evhmqy>
4. Balocco, M., Licka, P. & Marty, T. *Wissenschaftsmanagement* 4/11 (2011) (in German).