

# **Management Education in a Technology-driven Economy**

## **Challenges and Possible European Answers**

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### Abstract

*Innovations in science and technology have always been of major importance for business organizations and economic development. Today, electronic business, the emergence of electronic marketplaces, virtual organizations, and internet related business models, make this importance more than evident. However, the influence of scientific and technological innovations on the way business is done goes far beyond what management education in today's business schools can teach.*

*This paper argues that there is a European way for mastering this particular challenge. Tomorrow's managers need a sound knowledge of global technological and management issues and a deeply rooted understanding of particular local business contexts. Identifying innovations and new concepts of management education that make use of location specific competencies could be a first step. Taking the European context and the European diversity as a resource of inspiration and innovation will open up a promising basis for establishing a distinctive European profile of management education and research.*

### 1. New Economy: A Challenge for Management Education

The term "New Economy" tries to capture the current changes driven by technological innovations, especially in the field of information and communication technology. Overall changes in capital as well as labor markets on a global scale, the emergence of new organizational forms, networks and start-ups, the rise of entrepreneurial spirit and self-determination, or the changing role of work and leadership lead to a growing demand of creating and practicing new management techniques corresponding to the new business environment. Innovations in science and technology have always been of major impor-

tance for business organizations and economic development. The economic revolution resulting in the emergence of electronic marketplaces, electronic business, virtual organizations, and Internet driven business models makes this importance more than evident.

However, if there is a demand for new management techniques, there are also changing requirements for educating and learning these techniques. The influence of scientific and technological innovations on the way business is done today goes far beyond the scope of management education in today's business schools. Business schools and management education in Europe seem not well prepared for these changes. The "New Economy" needs a foundation in management education that extends the introduction of a "E-Commerce Class" or a course in "Electronic Purchasing" as part of a traditional curriculum. But how does the education model corresponding with the new business models look like? The global tendency to take US solutions as "best practice" leads European institutions of higher management education to study the American curriculums deeper than ever. Can we learn from the 'American Model' or is there a 'European Way' of mastering the educational challenges of the New Economy?

### 2. The American Model: Fit for the Future?

On a first view, U.S. business schools seem to be well prepared for the new challenges of a technology-driven economy. Many of today's most admired Internet companies were founded from students of some of the top US business schools, and the strong connection and fruitful cooperation of Stanford University and the foundation of the Silicon Valley is an often quoted example.

A closer look, however, shows that the contrary may be the case: "Their [US Business Schools] last really new degree was the MBA, introduced in 1908, and the last overall shift in strategy was driven almost half a century ago by two reports published in 1959", states Henry Mintzberg (who never has been short with criticism of U.S. business schools; see Mintzberg 1989; Mintzberg / Gosling 2000) on the 2000 joint-conference of the International Federation of Scholarly Associations of Management

(IFSAM) and the Administrative Science Association of Canada (ASAC). Furthermore, at the 2000 Annual International Conference of the Strategic Management Society, even Clayton M. Christensen, professor of business administration at the Harvard Business School, depicted in his plenary presentation a quite pessimistic picture for the future of traditional U.S. management education programs: “Almost always disruptive innovations have been ignored by the leading institutions for perfectly rational reasons (...)” (Christensen 2000). “The disruption of traditional education programs” and “the emergence of new performance trajectories” will be the logical consequences for Christensen.

### 3. Is there a European Way for Mastering the Challenge?

All over the world, the new challenges, requirements and the necessity of change in education programs – and management education programs in particular – have been discussed for years (for a detailed discussion refer to Behrman / Levin 1984; Albach 1993; Daniel 1998; Reichwald 1998; Witte 1998; Brockhoff 1999; Spender 2000a, 2000b, 2000c). The discussion has touched many different facets. Two broad categories of topics have been of major importance:

- the structuring, grading, assessment and evaluation of education programs as well as the standardization and joint approval of accreditation systems and accreditation criteria (see for instance HRK 1994; BLK 1999, KMK / HRK 1999);
- the relevance of management education programs for business practice as well as the relationship between management research, management education, management practice and management consultancy (see for instance: La-Force / Novelli 1985; Brockhoff / Hauschildt 1993; Schrader 1995; Kieser 1999; Ernst / Kieser 2000).

While these aspects are discussed on a global level, there are national differences and points of main emphasis. When taking for example a closer look at

the German efforts to innovate their education programs in business administration and management, two additional aspects seem remarkable:

- First, the discussions in this field most often seem to take place either in a relatively closed German context or with the “U.S. model” as implicit or explicit benchmark. The European context and the European diversity as a resource of inspiration and innovation seem to be of minor influence up to now (for an interesting “exception” that also shows the strength of intra-European benchmarking refer to the discussion on evaluation in Kieser 1998.)
- Second, the interplay of technology and management and the consequences for management education plays a minor role in these innovation efforts. This is especially surprising for a country like Germany that is proud of its strong engineering skills and technological leadership (the phrase “Deutsche Wertarbeit” is even used in US texts as a metaphor for strong technological capabilities). But despite this background, German discussions focusing on the content of education programs in business administration and management are most likely to take place within the old “framework of responsibility”. The discipline of business administration and management seems never to have left its birthplace of close neighborhood to cameralistics, law and economics (see also Albach 1990). The integration with natural sciences, technology and engineering still seems to be difficult, if not even “inappropriate”.

Both aspects open potential fields of action and can build starting points for a distinctive European approach to management education (and research). In addition, the demand for such a joint European effort can be taken as given – at least from a German perspective: Most of the large globally operating corporations with headquarters in Germany have already explicitly stated their dissatisfaction with so-called “international” management education programs that offer purely U.S. minded management training. Right now, all these companies are looking for new ways of educating managers in customized European contexts. Either they are planning to build (or are already building) company-specific corporate

universities or they establish close co-operations between companies and universities in order to start a joint effort to close this gap of management education programs deeply rooted in the European context.

In academia joint European efforts in the field of management education are still rare. However, if European universities want to keep their independence from company-specific requirements and create an own distinctive way, unique approaches are needed addressing the challenges of the “New Economy”. Identifying innovations and new concepts of management education that make use of location specific competencies could be a first step towards future joint activities in building a distinctive European profile in management education.

At TUM (Technische Universität München, Germany) such a distinctive way of management education has been developed. The new, TUM specific concept of management education is designed to address the growing interdependence between technological developments and management requirements. It closely integrates business administration with scientific and technological competencies. In the following, we will briefly describe the concept as well as some of the major steps that right now are being implemented.

#### 4. The Case of TUM: A Fruitful Marriage of Technology and Management Education

TUM, famous for its competencies in the field of technology and management as well as for its innovative administrative structure (Müller-Böling 2000), is right now undergoing major restructurings by enlarging its management department and implementing a whole new curriculum for education in the field of business administration and management (TUM 1999a, 1999b, 2000; Reichwald 2000).

The vision behind this efforts is as follows: Modern management education has to provide sufficient technological skills in order to enable tomorrows managers to act in technology-driven business environments. Today, most companies think engineers, computer scientists or chemists capable of taking management responsibility. People with a sound education in business administration, economics and management, however, are seldom accepted as equal partners in high-technology environments. CIO, CTO or R&D management positions are usually filled with people with a strong technological background. Management in general is seen as an add-on that can easily be added. The goal of the new TUM curriculum is to provide a deep fundament in business and management skills in combination with a broad understanding for technologi-

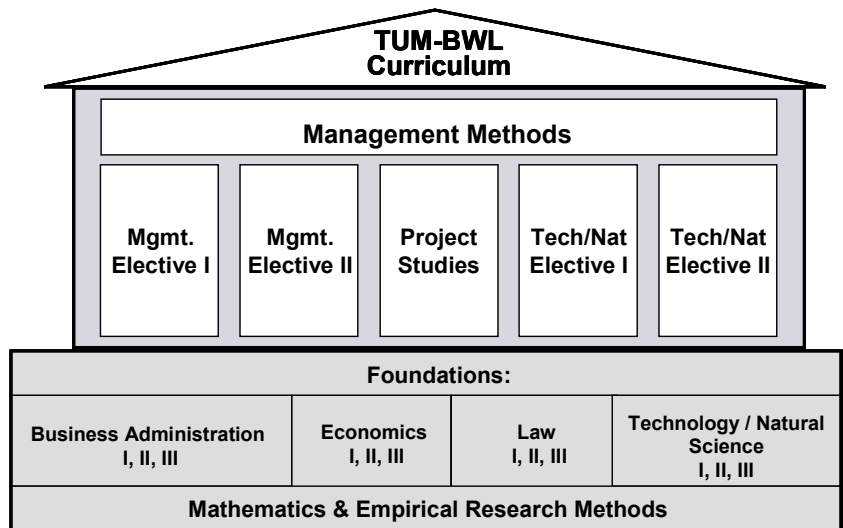


Fig. 1: TUM-BWL - A Management Curriculum for a Technology-driven Economy (Reichwald 2000)

cal or scientific topics and developments.

The new undergraduate, graduate and master programs address these challenges. They are based on four basic structures: management, technology, internationalization and project orientation. First, management foundations will provide a sound basis in business administration, economics, law as well as mathematics, empirical research methods and fundamentals in the selected technology or natural

science track. Building on this basis, electives in the field of business administration will guarantee a deep understanding of modern management, while electives in the field of the selected technology track will deepen the technological skills. The bridge in between management and technology will be built by a broad range of integrative management methods. In far reaching projects in industry and public administration the students transfer their theoretical knowledge into managerial action (see figure 1).

In order to be able to provide the adequate courses for such a demanding curriculum, TUM is building up a new management department ("Fakultät für Wirtschaftswissenschaften i. Gr.", since August 1, 2000) and establishing new Chairs for Management (e.g. international management, service management, entrepreneurial finance, controlling) with a explicit affinity to new technological developments. While today the success of such a program cannot be evaluated (this can only be effected by future alumni after testing their skills in real world business contexts) the broad recognition and discussion of this program can be seen as an important step towards new answers in business education.

## 5. Future Perspectives for a European Way of Teaching Technology and Management

Tomorrow's managers need a sound knowledge of technological skills and global management issues and a deeply rooted understanding of particular local contexts. Or as Stuart Clegg puts it: "The critical research question remains the local impact of global changes on particular organizations, in distinct locales, and the impact of these on working knowledge" (Clegg / Colado / Clarke 2000).

This is a major challenge for today's management education as well as management research. A *European Academy of Management* could provide the platform and community for exchange and joint development of a distinctive European answer to this challenge.

From our point of view, much could be gained, if future decisions in the field of management education are no longer taken with an U.S. oriented or a rather national oriented mindset, but in a joint European context. Taking the European context and

the European diversity as a resource of inspiration and innovation will open up a promising basis for establishing a distinctive European profile of management education and research.

## References

- Albach, H. (1990): Business Administration: History in German-Speaking Countries, in: Grochla, E. et al. (eds.): Handbook of German Business Management, Vol. 1, Stuttgart et al. 1990, p. 246-270.
- Albach, H. (1993): Betriebswirtschaftslehre als Wissenschaft. Entwicklungstendenzen in der modernen Betriebswirtschaftslehre, in: Zeitschrift für Betriebswirtschaft, Ergänzungsheft 3/1993, p. 7-26.
- Behrman, J.N. / Levin, R.I. (1984): Are business schools doing their job?, in: Harvard Business Review, January / February 1984, p. 140-147.
- BLK (1999): Stärkung der internationalen Wettbewerbsfähigkeit des Studienstandorts Deutschland, Gemeinsamer Bericht des Bundes und der Länder an die Regierungschefs, 25. Oktober 1999.
- Brockhoff, K. (1999): Leistungen der Betriebswirtschaftslehre für Wirtschaft und Gesellschaft, in: Egger, A. / Grün, O. / Moser, R. (eds.): Managementinstrumente und -konzepte. Entstehung, Verbreitung und Bedeutung für die Betriebswirtschaftslehre, Stuttgart 1999, p. 27-61.
- Brockhoff, K. / Hauschildt, J. (1993): Plädoyer für eine bedürfnisgerechte Differenzierung der Ausbildung in der Betriebswirtschaftslehre, in: Zeitschrift für Betriebswirtschaft, Ergänzungsheft 3/1993, p. 27-47.
- Christensen, C.M. (2000): Entrepreneurial Mind Set and Innovation: Bringing Them Together in the New Economy, Plenary Session, 20<sup>th</sup> Annual International Conference, Strategic Management Society, Vancouver, British Columbia, Canada, October 15-18, 2000.
- Clegg, S. / Colado, E.I. / Clarke, T. (2000): 'Working Knowledge' for Managers?, ASAC-IFSAM 2000 Conference, Montreal, Quebec, Canada, July 8-11, 2000.
- Daniel, C.A. (1998): MBA – The First Century, Bucknell University Press 1998.
- Ernst, B. / Kieser, A. (2000): How Consultants Outcompete Management Scientists on the Market of Management Knowledge, Workshop of the Kommission für Organisation, Zürich, March 3-4, 2000.
- HRK (1994): Zur Neugestaltung von Studienverlauf und Prüfungsstruktur im Diplomstudiengang Betriebswirt-

schaftslehre, in: Studienstrukturreform in Anglistik und Betriebswirtschaftslehre, Dokumente zur Hochschulreform, 92/1994, p. 31-51.

Kieser, A. (1998): Going Dutch? Was lehren niederländische Erfahrungen mit der Evaluation universitärer Forschung? In: Die Betriebswirtschaft, Vol. 58, 1998, p. 208-224

Kieser, A. (1999): Kommunikationsprobleme zwischen Wissenschaft, Unternehmensberatung und Praxis bei der Konzipierung und Anwendung ‚praktikabler‘ Organisationskonzepte, in: Egger, A. / Grün, O. / Moser, R. (eds.): Managementinstrumente und -konzepte. Entstehung, Verbreitung und Bedeutung für die Betriebswirtschaftslehre, Stuttgart 1999, p. 63-88.

KMK / HRK (1999): Neue Studiengänge und Akkreditierung, Beschlüsse und Empfehlungen von Kultusministerkonferenz und Hochschulrektorenkonferenz, Bonn, July 1999.

LaForce, J.C. / Novelli, R.J. (1985): Reconciling management research and practice, in: California Management Review, Spring 1985, p. 74-82.

Mintzberg, H. (1989): Mintzberg on Management: Inside Our Strange World of Organizations, The Free Press 1989.

Mintzberg, H. / Gosling, J. (2000): The Education of Practicing Managers, ASAC-IFSAM 2000 Conference, Montreal, Quebec, Canada, July 8-11, 2000.

Müller-Böling, D. (2000): TUM – best practice Hochschule 2000 (awarded by CHE), Munich, February 14, 2000.

Reichwald, R (1998): Universitätsstrukturen und Führungsmechanismen für die Universität der Zukunft. In: Küpper, H.-U.; Sinz, E. (eds.): Gestaltungskonzepte für Hochschulen: Effizienz, Effektivität, Evolution, Stuttgart 1998, p. 237-258.

Reichwald, R. (2000): Der „Technische Diplomkaufmann“ - Eine neue Betriebswirtschaftslehre als Innovation an der Technischen Universität München, Bildungsforum der SZ, Munich, October 2000.

Schrader, S. (1995): Spitzenführungskräfte, Unternehmensstrategie und Unternehmenserfolg, Tübingen 1995.

Spender, J.-C. (2000a): Ivory into Gold? Academic's relevance to business success, Keynote presentation, Workshop of the Kommission für Organisation, Zürich, March 3-4, 2000.

Spender, J.-C. (2000b): Managing knowledge systems, Kolloquium der Kommission für Organisation, Zürich, March 2, 2000.

Spender, J.-C. (2000c): Underlying Antinomies and Perpetuated Problems: An Historical View of the Challenges Confronting Business Schools Today, New York Institute of Technology, Old Westbury, NY 11568, February 2000.

TUM (1999a): Memorandum zur Zukunft der Wirtschafts- und Sozialwissenschaften an der Technischen Universität München, June 15, 1999.

TUM (1999b): Grundkonzept – Studiengang Betriebswirtschaftslehre mit Abschluß Diplom-Kaufmann / Diplom-Kauffrau technisch-naturwissenschaftlicher Ausrichtung an der Technischen Universität München, June 28, 1999.

TUM (2000): Hochschulentwicklungsplan 2000, Technische Universität München, March 1, 2000.

Witte, E. (1998): Entwicklungslinien der Betriebswirtschaftslehre: Was hat Bestand?, in: Betriebswirtschaftslehre auf dem Weg in das nächste Jahrhundert. Was müssen Forschung und Ausbildung für die Praxis leisten?, Workshop aus Anlaß des 100-jährigen Bestehens der Betriebswirtschaftslehre, veranstaltet von Schmalenbach-Gesellschaft für Betriebswirtschaft e.V. in Kooperation mit der Handelshochschule Leipzig und der Universität Leipzig, May 15 1998.