

Uni-www.ersity.de: Strategies for Universities in Transition

Detlef Müller-Böling

1 Motives for virtual provision

The motives for universities to make increased use of virtual delivery in providing services to learners are manifold and varied in nature. Basically, there are four good reasons for university managers not to ignore the challenges arising from the new technical possibilities opened by the internet.

1.1 Student expectations

There can be no doubt that students will expect new media to be an integral part of their university education. The "net generation" is used to interactive communication. To young people today it is normal to look for information in the web, to exchange ideas via email or meet in virtual chat-rooms. This is quite different from our generation, whose attitude towards the media has been significantly influenced by the TV and who, when referring to the use of media, rather think of one-way-communication with us being "consumers" of ready-made media content.

In the U.S., where University presidents tend to have a keener eye on student expectations than in Continental Europe, these changes in student demand and habit are the main motive for integrating new media into the learning experience they provide.

1.2 Global education market

It has been frequently stated that competition in the provision of education services is transcending national borders and that it will be more and more important to think global when planning for education provision. The internet accelerates this trend. These days, it takes less than 6 hours time to travel from Europe to New York, and by virtual means, one can move to Sydney within seconds. Highly reputed universities such as Stanford, Berkeley, Harvard and Oxford move into this global education market. Some people fear that only the best universities will be able to survive in a transparent and globally accessible education market and we will soon see a handful of education oligopolies dominate the higher education landscape. Such fears are based on a misunderstanding of the functioning of the market. Stanford or Oxford's reputation hinge critically upon the idea of providing highest quality education to a limited number of students. Why should a university like Stanford or Oxford risk their reputation and become a mass provider of educational services to students across the globe?

At the same time, not to be present in this global education market carries the danger of losing touch with economic and cultural developments. Few universities will be able to

afford this. Instead, universities will have to keep a keen eye on global developments, analyse trends, target markets, find their niche. For example, German universities should ask themselves how to position their highly reputed engineering education in the American, Arabic and Asian regions. To put such plans into action, significant parts of the curriculum will have to be taught on-line.

1.3 Meeting learners' needs in times of mass provision

The use of media allows universities to improve the trade-off between quality and quantity in educational provision. In the U.S., universities see the internet as a means for coping with increasing student numbers without sacrificing quality. In Germany, where student numbers have already increased dramatically over the last 20 years and quality *has* suffered, the challenge is to improve quality of higher education provision again, to make it more student-friendly and learner-oriented, even although more money for higher education is not in sight.

1.4 Lifelong learning

According to medical research, those who are born today can expect to live for up to 120 years. This scenario, though hard to image, is probably not unrealistic, given the progress in medical research expected within the next 30 to 40 years. Such an increased life span will have immense consequences on the way we organise our lives - the current model with 25 years of education and training followed by 35 years of working life would imply 60 years of retirement, which definitely is an unrealistic scenario.

The paradigm of "lifelong learning" implies that we have to fundamentally rethink the relationship of work and education. A strict separation of life into subsequent periods of education, work and rest does not make sense any more. Universities have to adjust to these new circumstances. Not only do they have to take the changed time budgets and life planning of their students into account, they should also embrace the idea of proactively developing a new understanding of education.

2 Where are we going?

Some observers of current trends in higher education expect universities - including campus buildings, professors and organisational forms - not to survive the next 20 years in their current shape. I am not so sure about that - except in the professors' case, of course. But I do agree that higher education institutions will undergo fundamental change in the near future.

However, just as 15 years ago, people thought the "paperless office" was imminent - and we still sit in our offices between piles of papers - the future university will not be uninhabited by humans, and even less so "inhuman"!

At this point in time, I do not consider it possible to make exact forecasts of how the university of the future will look like. But I nevertheless believe that some trends can be identified. These encompass changes in knowledge transfer and acquisition, the global education landscape and the culture and organisation of education institutions.

2.1 Changes in knowledge transfer and acquisition

Integration. The increasing integration of information, communication and computer technology allows for a close combination of sound, graphic and film with flexible access in synchronous and asynchronous communication contexts.

In this regard, the internet assumes special significance. It can be expected to soon replace other forms of scientific communication, but also other teaching and learning technologies (such as broadcasting via satellite) - chiefly for economic reasons.

De-institutionalisation. The process of knowledge transfer will be characterised by an increasing degree of independence from established institutions and by quicker knowledge diffusion. The established institutions that were based on the traditional idea of authorised, pre-structured and mediated knowledge transfer, will be increasingly bypassed as access to knowledge becomes more direct. Knowledge will transcend traditional geographic, political and other boundaries more easily, and will be accessible in knowledge networks outside of the traditional "monopolies" of education.

Disaggregation and differentiation. Knowledge itself will become more and more disaggregated and differentiated. Information and knowledge will be broken up into modules and recombined in various ways to suit individual needs and different purposes. It will thus be possible to reconcile wide reach of and broad access to educational programmes with the aim of learner-focus through "mass-customisation" of educational content.

Learner orientation. As a result of the described changes, learning will become much more learner-centred than this is the case today. While today's teacher-centred model of instruction could be described as industrial or Taylorist ("one for all, here and now"), tomorrow's learning will take place in distributed systems and be self-paced, with the learner determining the contents he or she wants to learn as well as the speed of the learning process.

Outcomes orientation. At the same time, knowledge acquisition will become more and more independent from the process of knowledge generation. Also, the result of a learning process will be more decisive than the organisational context in which it was acquired. It will no more be the quality of the institution in which the knowledge was acquired that can itself guarantee the quality of the result. Outcomes orientation thus requires new forms of validation of learning processes as well as new instruments for the accreditation of educational content and programmes.

2.2 Changes in the international education landscape

The changes in knowledge transfer and acquisition go hand in hand with fundamental changes in the increasingly international landscape of higher education.

New clients. As the spectrum of their potential clients increases, universities have to serve new and sometimes very specific learner interests. The separation of basic and further studies is blurred, the borders between academic and professional education, as well as between education and training are transcended, mature learners become the norm rather than an exception.

New providers. The traditional content providers in the higher education sector (universities, polytechnics and colleges) will face competition from commercial providers both nationally and internationally. The largest university in the world, the University of Phoenix, is a profit oriented joint-stock company. Corporate universities are moving into the market of work-related training.

New forms of regulation. Traditional mechanism of (state) regulation are ill-suited to cope with the increasing diversity of educational provision and the freedom to choose between them: the old forms of regulation will loose their grip and soon become as outdated as policies based on narrow nationalistic priorities. The success of educational programmes will instead be determined by the relevance and attractiveness of their content, their accessibility, good service and support, attractive pricing etc. New forms of quality assurance and education finance are required.

2.3 Cultural and organisational change

Successfully responding to these changes in knowledge transfer and the concurrent changes in the international education market requires significant cultural and organisational change from German universities. Institutions need to modify their working culture and adapt it to the new expectations and circumstances. I would like to give a few examples.

Teamwork. Developing marketable curricula and media-based educational programmes is impossible without close co-operation between academics in the respective discipline and specialists in pedagogy and instructional design as well as those in charge of the technical implementation. This kind of interdisciplinary co-operation can constitute a severe challenge to German universities. Traditionally, German universities rather tend to stress the autonomy of the individual professor at the expense of teamwork.

Character of examinations. The organisation, form and content of examinations, - those during as well as those towards the end of a course or module - will change their character. New modes of authorisation and credit transfer are needed.

Job-profile of academics. The development and use of media-based educational programmes has profound consequences for the job profile and tasks of academics. Teaching obligations, research and development tasks go hand in hand, change their character and are complemented by new tasks, such as teaching virtual seminars. While the development of new educational programmes can be very time-intensive, the time needed to actually teach these programmes could in fact be reduced. Concurrently, the forms of mentoring, supervision and examinations will change as will the communication between teachers and learners. The future role of the university teacher is not clear. Will he or she change from a source of knowledge to a knowledge facilitator? Will his or her task be to act as a coach and discussant for the students? The new demands have to be taken into account when designing new job profiles and planning job contracts or when designing indicators for performance-based allocation of funds. Incentive systems should reflect the new demands.

Bureaucratic steering and planning. The interdisciplinary and co-operative development of web-based educational programmes as well as the new meaning attached to terms such

as "course" or "student-teacher ratio" are incompatible with a profoundly German bureaucratic planning mechanism that is currently central to the functioning of the German university system. This planning device, the "Kapazitätsverordnung", is based on the idea of fixed student-teacher ratios for each subject area and distributes finance and students according to a certain formula with nation-wide validity. Abandoning it would require a change not only in German law, but also of German lawyers as well as ministerial bureaucrats.

Staff development. Well-targeted and continuous training programmes are needed for academics to realise the potential of new media for improving university teaching and research. This cannot be achieved through "learning by doing" alone. Universities should not leave these tasks to the disposition of their departments, but draw up university-wide staff development plans.

3 Media development as organisational development

If the future cannot be described but by a few trends, it certainly cannot be planned for dependably at the central level. Instead, universities themselves must be put into a position that allows them to react flexibly to new developments. Addressing the challenges demands "entrepreneurial", i.e. autonomous, self-determined action. State regulation is detrimental to such action. Yes, the course needs to be set at the level of the government, but we should dare to allow for mistakes and correct later on. In Germany, we still have to learn that reforms are not made for eternity.

Deregulation, more autonomy and responsibility for universities, lump sum budgets, performance-based allocation of funds, contract management, strategic planning; all these instruments are still being tested and, I admit, sometimes implemented in counterproductive ways. Here, too, we can correct and improve.

But even if we are still in the learning phase, there is no alternative to greater university autonomy, and this is not least due to the challenges of the internet revolution.

On the way to greater university autonomy, we need proactive university leaders both at the central and the faculty levels, but we also need farsighted ministries that rather interfere too little than too much with the business of their universities.

To put a long story short: we need "air to breathe", the "air of freedom" as expressed by Stanford University's motto. Or as I have put it in my recent publication, we need the "unleashed university", a university that enjoys a greater degree of institutional autonomy, a university that uses its autonomy to foster scientific engagement, that develops its academic profile, improves the efficiency with which it is run and, importantly, becomes more international in orientation.¹

In this context, the new media are much more than simply one more aspect to consider.

It is the new media that make us pose some of the key questions in new ways and *more urgently*: the question of German universities' ability to steer themselves, the question of the

¹ Detlef Müller-Böling: Die entfesselte Hochschule, Gütersloh 2000.

institutional autonomy needed for long-term strategic planning and for major investments as those required by the new media. These are decisive questions in light of the international education market and the accelerated speed with which it develops, propelled by the technical developments.

Media development has thus to be seen in the context of higher education development and has to be understood first and foremost as strategic and organisational development of higher education institutions. "Virtuality", then, is not an optional add-on, but a constitutive part of universities.

3.1 Some thoughts on the sustainability of media development

For media development to fulfil the high expectations attached to their use, it has to become an integral part of the concept of universities, faculties and subject areas: we need sustainable media development.

In terms of their academic standard as well as their technical and educational sophistication, German developments in internet-based education provision are among those of the world leaders in the USA, Australia and Great Britain. The crucial question however, is: *how* can we make these prototypes and programmes competitive in the international market?

It is for two reasons that I have doubts about the competitiveness of German virtual education programmes:

- First, media projects at German universities are first and foremost financed according to the mode of research funding, i.e. funding is given for a certain specified project, and limited to a certain period. How the activity could be made an integral part of the ordinary functioning of the organisation is rarely asked and is neither the focus of the funding agency nor of the researcher. The entire setting implies a dependency on third parties in the realisation of project ideas and this in itself weakens the organisational, strategic and academic synergies that could potentially develop within the respective university.
- Second, there is not really a tradition in Germany of strategic planning at the university or faculty level. Work in German universities is centred around the institutes of individual professors. Consequently, media development is rarely addressed by the strategic development at the university level. If at all, it takes place at the level of university institutes. Rarely do universities set their budgeting priorities in favour of the use of IT in teaching and learning, even less so as targeted funds for media development within universities are rare.

This is the current situation - nevertheless, the fact remains that the challenge of media development cannot be tackled through a research-focused approach alone nor through activities at the institute level. What is needed is the integrated effort of a team of experts from different disciplines, working together towards the common aim of a workable web-based curriculum that is accepted by students. The co-operation needed for such an endeavour demands a new type of organisational, communicative and planning competence that German universities are yet to develop.

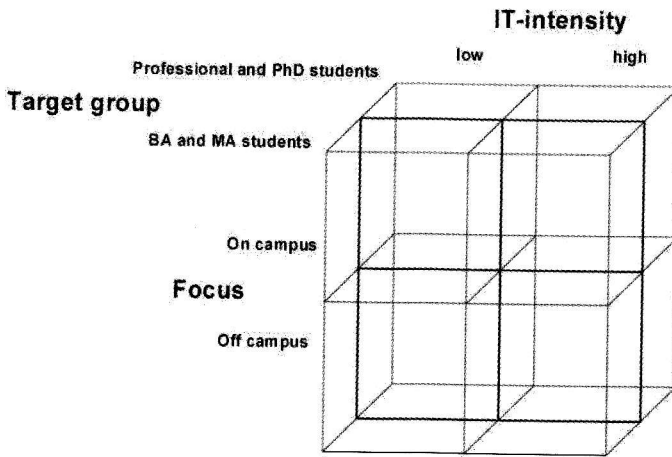
4 “Alma mater virtualis”: Strategic options

One of the most common misunderstandings about “virtual universities” to me seems to be the idea that everything was done via the web. The typical cliché is that of a professor sitting somewhere, putting lectures into the web, and students from all over the world “consuming” them. Actually, virtualisation is much more diverse and interesting than that.

I would like to demonstrate this with the help of the following “cube of strategic options”. If one divides each dimension of the cube into two options - which is of course a bit stylised, in reality we have a continuum - the virtual university has eight fields of action to choose from (see Graph 1):

- regarding the **target group**: undergraduate and Graduate programmes aimed at training the new generation of academics *or* further education and training (besides the job) for mature students;
- regarding the **programme focus**: chiefly “on campus” *or* chiefly distance-learning with “off campus”-focus;
- regarding the **intensity of IT use**: low use of IT confined to certain modules and a correspondingly high share of face-to-face-teaching *or* high use of IT- measured as a share of the programme - that could be increased up to the on-line provision of the entire programme.

Which are the strategic options for universities that follow from this distinction?



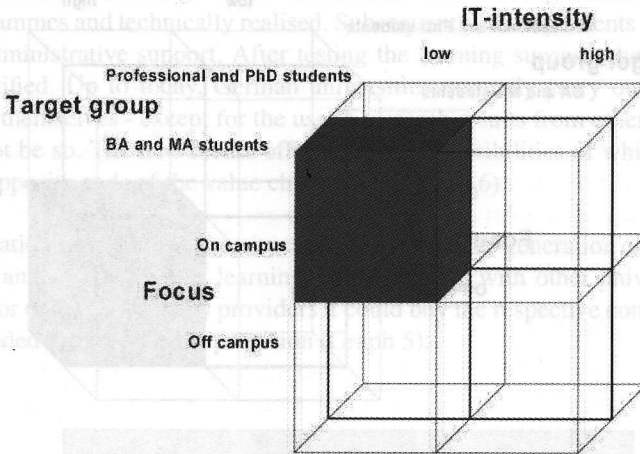
Graph 1: Cube of strategic options

I would like to pick out just two examples of reasonable IT strategies for specific quadrants or fields of action.

4.1 IT strategy on campus for freshmen

There are good arguments to favour an on-campus strategy with low IT intensity for undergraduates (see Graph 2). To undergraduates, campus life and face-to-face contact with professors as well as peers are of especially high importance. Also, they sometimes have yet to acquire the independence needed for self-paced on-line learning.

Low IT intensity, however, does not mean that the use of IT is not an integral part of students' learning experience. First, IT-based learning can be part of the regular undergraduate teaching "on campus". Parts of the curriculum can be taught through the web. The intensity of IT-use within this option can vary: Single learning modules as well as entire courses can be web-based. Learning at the PC and web-based group work (distributed learning) can partly replace traditional teaching in lecture halls. Another form of media use is in the context of tele-teaching, allowing academic content to be imported as well as exported. Second, the internet can be used to provide a virtual campus that complements the physical one and through which the entire range of student services and administration, including library services, exam administration and leisure programmes can be provided and managed.



Graph 2: IT strategy on campus for freshmen

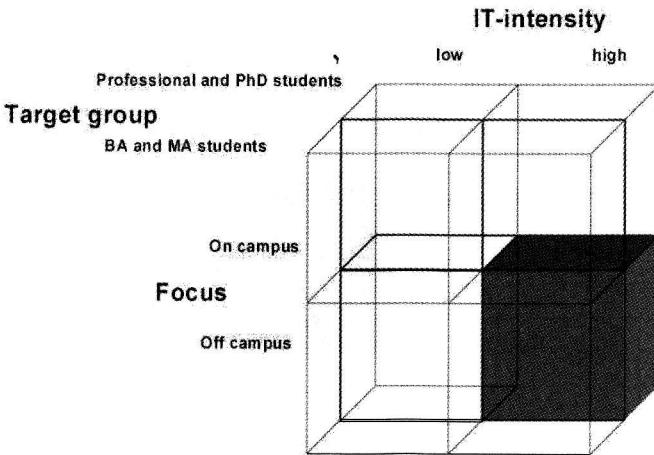
4.2 IT strategy off campus for mature learners

In the field of further education and training, there are good reasons to favour an off-campus strategy with high IT-content. The target group includes professionals who often pursue their studies besides the job and have the degree of independence and discipline required for distance learning. A similar scenario holds for postgraduate education: dis-

tributed, co-operative and collaborative learning become possible, an option that is interesting for research intensive universities.

Offering further education and professional development programmes partly or completely on-line is a potentially interesting strategy even for traditional universities as it is fully in line with their mission in further education as stated in the German federal higher education law (Hochschulrahmengesetz) and at the same time allows them to tap additional sources of finance. Universities who choose this option de facto develop into open universities in the area of further education.

When further education is provided online, it can be enriched by "imported" modules from other universities or commercial providers who can add specific knowledge and competencies in certain fields of the subject. Similarly, educational content and learning modules can be exported other providers of furthers education and training, for example in the context of university consortia where universities pool their respective strengths, or to commercial providers.

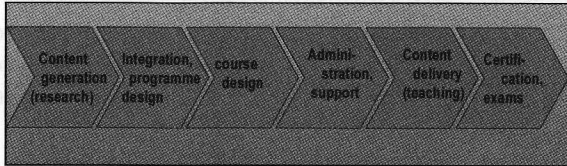


Graph 3: IT strategy off campus for mature learners

The latter example demonstrates that media development at and by universities opens up new possibilities for an "entrepreneurial" approach to education. Such an approach need not imply the generation of additional sources of income - even though a diversification of university funding is a desirable aim - an entrepreneurial approach can also mean a conscious make-or-buy decision: Which academic contents should be developed in-house, which support services should be provided by the university itself, and which ones can be outsourced? Do the technical aspects of the programme design have to be tackled by university staff, or can these services as well be bought?

5 “Alma mater virtualis” in the academic value chain

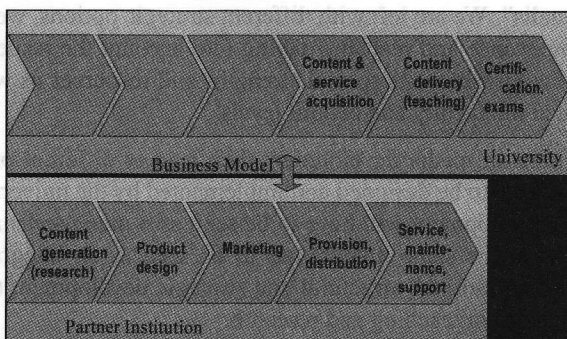
What do these considerations imply for a university’s service profile - or put differently, for the academic value it generates? I approach this question using the idea of an academic value chain (Graph 4).



Graph 4: The academic value chain

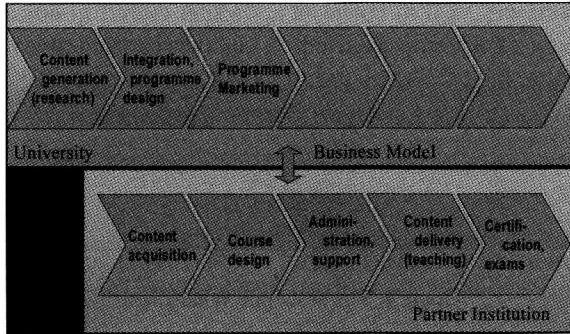
New knowledge is generated in different research settings and contexts. Knowledge that is relevant to academic teaching is then “condensed” into learning modules, integrated into study programmes and technically realised. Subsequently, these contents are provided with adequate administrative support. After testing the learning success, the acquired knowledge is certified. Up to today, German universities normally carry out all parts of this value chain themselves - except for the use of research results from other universities. But this need not be so. The new media offer a range of possibilities of which I pick out just two at the opposite ends of the value chain (Graph 5 and 6).

In a co-operation model, the university could focus its value generation on the actual teaching, testing and certification of learning. In partnership with other universities, research institutions or other commercial providers it could buy the respective contents and support services needed for programme provision (Graph 5).



Graph 5: Business model 1

The opposite case is also possible: Universities offer and validate educational programmes but leave the actual provision to others. Corporate Universities work according to this model (Graph 6).



Graph 6: Business model 2 ("Corporate University")

6 Conclusion

6.1 "e" is needed

It is safe to conclude that virtual provision is more than an appendix to the actual business of universities. It is also more than a side aspect of university development and the reforms taking place within universities in this country. In the "digital age", in times of globalisation and e-business, it would be naive to think otherwise. And to put a long story short:

To 'e' or not to be - that is the question.

But it is also good to remember that there is no such thing as **"the"** virtual university. Neither is there a standard procedure for "going virtual", nor a golden path to becoming an "alma mater virtualis". We are left with different strategic options, we have to measure them against their relevance and realism - taking into account the respective culture and structure of a specific university, its special strengths and resources as well as the overall strategic orientation at the faculty and central levels.

Different strategic aims in media development then lead to different organisational and business models that have to be designed and implemented by the universities themselves. This implies: media development will have to be seen as *a management task rather than a research task*. And at the same time, it has to be seen as an integral part of the inherently academic organisational, structural and strategic development that builds on the university's competencies in teaching and research.

Media development, if it is to be successful, will have to cut across departments and pull together the forces of different academic departments, administration and support services,

including IT and media centres as well as libraries. IT centres and libraries will assume a leading and key role in fostering and diffusing change into the whole of the university, and will thus be at the center stage of good media management. How convincing university members will find IT solutions and thus how open they will be towards such change will depend crucially on the quality and degree of integration of the services provided by IT centres. Their task is thus more than just a technical one, they will act as *change agents* to bring about the needed cultural change in the teaching and learning habits of university researchers, teachers and students, who will increasingly see the use of IT as a self-evident part of every aspect of their work, study and research. To fully grasp the benefit of combined vision and technical excellence, university management is well-advised to work closely with IT centres and libraries.

1 Overview of recent situation

1.1 I&C services inside universities

Inside universities there are several services dealing with I&C techniques. As most important institutions we have libraries dealing with written information and university computer centres organising the digital communication and storage of non paper information as well as their classical task of calculating and computing. Besides a new service is growing, called multimedia centres, mainly for production of new media information. The analogue telephone line service is traditionally managed by the technical building services and in some cases shifted into the computer centre hoping that phone and digital communication will share the same lines in near future.

To make things a bit more complicated German universities are no homogeneous objects but are divided into smaller units called faculties, departments, institutes, or similar. Some of them have their own service departments for books, computers, networks and multimedia etc. A nation wide program for giving workstations to researchers (WARP) supports the distribution of computers, as well as the offering of responsible I&C techniques. There is however sometimes some tension between different services which makes things even more difficult. So there is an urgent need for inter-cooperation and synergies of the different services. These also have a vital need to use modern I&C means.

1.2 Organizations in Federal States

As you can see from the above text a crowd of people is involved in the decision making process. As our states mainly find their universities they have the right to decide on the university policies. So some states have their own research network policy, others have their own policies for their minor clients (universities) and all try to influence the development of their universities in a direction which they feel good. As a political appearance sometimes seems to be more important than the benefit of universities not always political decisions are made.

Centres of Communication and Information

Some larger states have state organizations for their libraries, their computer centre directors, their heads of multimedia centres etc. B.R.G. (Bayerische Recherchezentrale) is an example of Bavarian computer centre directors association. Another example is I.H.K. (Landes Hochschul-Informationskonferenz) the conference of university presidents of a state. So it is possible on that level to influence politicians of the state and to prepare decisions on a nation wide scale.