

“Blended Learning” at the Macro Level – The Experience of the Bavarian Virtual University¹

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Summary

The Bavarian Virtual University (BVU, Virtuelle Hochschule Bayern; www.vhb.org) is an institute set up in 2000 by the nine universities and the 17 universities of applied sciences of the Free State of Bavaria. Like its member universities, the BVU is financed predominantly by the Bavarian Ministry of Higher Education (Bayerisches Staatsministerium für Wissenschaft, Forschung und Kunst). The BVU provides online-courses with an equivalent of two to six credit points (by ECTS) which the member universities can integrate into their courses of study. The BVU helps its member universities to enlarge and enrich their programmes, and it helps the students to organize their studies in a more flexible way.

Today, in the BVU there are more than 65,000 course enrolments by more than 25,000 individual students per academic year. For the academic year 2013 / 2014, the BVU expects nearly 100,000 course enrolments by approximately 40,000 students.

The basic and most important working principles of the BVU are:

- Focussing on blended learning at the macro level of the course of study, not at the micro-level of the single course, lecture or seminar, giving priority to asynchronous forms of communication,
- Thus facilitating the import and export of online-courses between all member universities.
- To develop and offer courses tailored to the needs and the actual demand of the member universities, with an elaborate quality management.
- Financing the production of courses as well as the operation of these courses, especially the online-tutoring of the students.

Distance teaching at university level in Germany, higher education in Bavaria and online teaching in higher education

Due to multiple factors, distance teaching at university level plays a minor role in Germany compared with e.g. North America, Australia or the Nordic countries. To mention just two of these factors: first, there is hardly any place in Germany from which you would have to travel more than 50 km to the nearest university. Secondly, where student fees in state universities exist, they do not exceed 1,000 € per year, so there is no competition between expensive

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face-to-face tuition and more affordable distance education, as in some parts of the world. One specialized German university, the FernUniversität in Hagen, offers complete courses of study and degrees, and the demand for additional courses does not seem big enough to justify the investment in a second German large-scale distance university.

With a population of about 12.5 million, Bavaria is the second largest of the 16 German states (Länder). Bavaria currently has a little more than 270,000 students² and feels the need to expand the proportion of its population with a university degree. The BVU is part of Bavaria's strategy to enhance and to improve the possibilities to attend and successfully complete higher education.

According to the German constitution, all matters of education, from school to university level, lie within the exclusive jurisdiction of the Länder, not of the federal government. This explains the fact that there is no "German Virtual University". In general, the federal structure of Germany results in a large variety of approaches to most aspects of education, including online teaching and learning at university level³. Most of the states leave the strategy for e-learning completely to their universities, and by far not all German universities have developed a comprehensive strategy for the use of information technology and multimedia in teaching and learning. Bavaria is among the minority of German states which actively motivate and support cooperation between universities in online teaching, and it is the only German state financing online teaching across university borders.

Blended learning at the macro level

To make possible online teaching and learning across university borders, i.e. to facilitate the "import" and "export" of courses between universities, it is pivotal that these courses work completely online, without any face-to-face components except for the final examination. If students have to take part in face-to-face meetings, you cannot expect them to travel for hours. Therefore, online courses with face-to-face elements can be used jointly only by neighbouring universities.

"Blended learning" is interpreted by many experts as the combination of face-to-face teaching and web-based teaching within a single course. We call this type of blended learning "**micro-level** blended learning". While micro-level blended learning has many pedagogical benefits, it does not necessarily make full use of the economic possibilities of e-learning. Teachers who use single e-learning elements in their courses do not necessarily gain additional teaching-time, and micro-level blended learning is hardly a remedy e.g. against the shortage of lecture rooms many universities face. For the students, this type of blended learning offers rather limited flexibility. In many cases, especially when the web-based elements are exploited by only one professor at only one university, micro-level blended learning seems to offer higher quality or added value only at additional costs.

By contrast, the BVU focuses on **macro-level** blended learning with the aim to offer high-quality teaching with intensive tuition in a cost-effective way. By macro-level blended learning we understand the integration of single online courses into courses of study or curricula which otherwise (and for the most part) consist of "traditional" face-to-face courses (seminars, lectures et cetera). Thus, students can earn some credits in online-courses, but not their complete degree. This combination of face-to-face courses with courses that are delivered completely online (possibly with the final examination being held face-to-face) allows the students much more flexibility than micro-level blended learning. At the same time

² Cf. <http://www.statistik.bayern.de/veroeffentlichungen/download/B3110C%20200922/B3110C%20200922.pdf>.

³ For a survey of the activities of the German states cf. Bremer et al. (2010).

the students enjoy all the benefits of a traditional face-to-face university. Therefore, macro-level blended learning minimises the dangers of social isolation sometimes associated with e-learning.

Moreover, if online courses are developed once at one university, but used at several universities, the comparative cost-effectiveness is obvious. Thanks to macro-level blended learning, universities can “import” courses from other universities, including the support of their students by tutors of the “exporting” university. In contrast to micro-level blended learning, this kind of import also helps universities to compensate a possible lack of teachers as well as room shortages.

In its initial phase, the BVU experimented with micro-level blended learning courses. Students taking part in those courses generally appeared to be satisfied with the face-to-face elements, but an unknown (and for obvious reasons unidentifiable) number of students did not choose to take part because those courses did not offer the students the flexibility they needed or desired. Moreover, from the point of view of the university the import of blended learning courses is hampered by the fact that the importing university has to provide staff and rooms for the face-to-face activities. Several member universities of the BVU have explicitly declared that for them blended learning courses would not be a desirable and helpful contribution by the BVU.

Macro-level blended learning combines the social and pedagogical benefits of face-to-face teaching and learning with the economic effects of online teaching and learning, and it is therefore one of the responses to the challenge of growing student numbers in times of strained public budgets. The cost effectiveness of macro-level blended learning, in turn, is the major motivation for the Bavarian Ministry of Higher Education to finance the necessary structures and the development of new content.

Programme structure

In the winter term of 2010 / 2011, the BVU offers 217 courses in 13 fields of study. A further 34 courses are currently in preparation, and the call for proposals in 2010 has resulted in an additional 33 courses to be financed by the vhb. Figure 1 gives the details of the programme structure by fields of study.

Sometimes the question of the “onlineability” of different subjects is raised. Within the BVU, successful online courses have been developed for various subjects and with different pedagogical concepts. Of course, some subjects appear to be especially suitable for online treatment (as opposed to traditional paper-based distance education) because of the additional pedagogical benefits which electronic communication and multimedia elements provide. On the other hand, the economical benefits of offering courses online instead of paper-based or face-to-face solutions can be just as significant and important. The BVU bases its decisions to develop and offer an online course on pedagogical as well as economical considerations.

Owing to the large variety of fields of study with their different traditions, there is a corresponding variety of pedagogical approaches in the BVU's courses. You will find virtual seminars with intensive student cooperation, there are online lectures with tutorials, and there are virtual laboratories. In many courses students deliver papers. Self-study environments play a minor role, as the BVU puts individual interaction at the centre of its concept.

Field of study	Courses offered winter 2010 / 2011	Courses in preparation
Business Sciences	31	4
Computer Science	16	0
Cultural Studies	3	0
Engineering	19	0
Health Care / Health Management	2	2
Key Skills	18	1
Languages	36	6
Law	25	4
Medical Science	32	12
Natural Sciences	1	0
Social Sciences	2	0
Social Work	15	0
Teacher Training	17	5
Total	217	34

Figure 1: Courses winter term 2010 / 2011

Synchronous communication places severe limits on flexible start-up and progression, and it limits the students' possibilities to organize their studies in a flexible way. Therefore, teaching and learning in most of the BVU's courses are based on asynchronous forms of communication.

The courses of the BVU are developed at the individual member universities; there is no central production unit. Generally, within the universities (or within their institutes which provide online education) there is a clear division of labour. Content is usually provided by professors, who then employ skilled staff for the transformation of that content into an online course. In some cases (mostly at universities of applied sciences), professors also take part in the technical implementation.

The process of choosing new courses for the programme of the BVU consists of two main steps: first, a call for proposals, and then a call for tender. Detailed information about this process can be found on the BVU's website. In short, the process is organized as follows:

Call for proposals: Once a year, member universities are invited to submit proposals for new online courses. For each course the interested universities form a consortium with a consortium leader. Proposals by only one university are not eligible, with the rare exception of cases where a subject is taught at just one Bavarian university, e.g. veterinary medicine. Proposals for such subjects are eligible if they are submitted in cooperation with a university outside of Bavaria.

The proposals are submitted in a standardised form which can be downloaded from the BVU's website⁴. There must be a demand for the given course at least at two member universities, and the online course, once it is completed, must replace part of the face-to-face teaching at the universities of the consortium, so that an actual relief of the teaching load in

⁴ Cf. <http://www.vhb.org/ausschreibung>

the given subject will be accomplished at these universities. The consortium must define the curriculum or curricula (courses of study) in which the new online course will be employed, and they must give an estimate of the number of students they expect to participate per academic year.

The consortia and their courses do not function as “closed shops”. All member universities are entitled to employ the courses, and students of all member universities can attend the courses free of charge⁵, no matter whether their university is a member of the given consortium or not. Students from universities outside a consortium are advised to make sure whether their home university will acknowledge credit points earned in such courses before they enrol.

The proposals are examined by the BVU's Programme Committee. The Programme Committee selects the proposals most suitable for funding and passes its recommendations to the Steering Committee. The Programme Committee does not necessarily favour the proposals with the highest demand, i.e. with the largest number of expected participants. Special attention is paid to proposals for courses which make possible the establishing of new curricula at member universities, e.g. M.A. programmes at universities of applied sciences.

On the basis of the recommendations of the Programme Committee, the Steering Committee decides which proposals to fund. The consortia supporting those proposals are then invited to submit detailed descriptions of the courses.

Call for tender: These descriptions are the basis for the next step of the process, the call for tender. Generally (but not necessarily) bidders make a bid both for the production of the course and for the tutorial guidance of the students. The production of standard courses with an equivalent of two hours per week and semester (mostly 3 ECTS credit points) can be funded with up to 40,000 €. Costs exceeding this sum must be born by the consortium. Up to now, there have hardly been any such instances.

For the majority of proposals one bid is submitted by a member of the given consortium, but there are instances where competing bids are made. There are also instances where the only bid comes from a university outside of Bavaria.

The call for tender is published on the BVU's website. In addition, it is distributed to organisations similar to the BVU in other parts of Germany and the German speaking countries. The BVU encourages the use of courses which have been developed at universities outside of Bavaria; it is the policy of the BVU not to fund the design and development of courses if a suitable course for the given purpose exists elsewhere and a license for the BVU can be obtained.

In order to be accepted as producer of a proposed course, bidders have to conclude a contract with the BVU where, as a rule, they transfer to the BVU the exclusive right to use the course in online form. In cases where the BVU is not the exclusive financier, appropriate arrangements are made.

The producers further commit themselves to arrange personally for the operation of the course (i.e. to provide tutorial services and guidance) for at least five years. Should the producer not be in the position to operate the course any more, the BVU can transfer the operation to somebody else. Up to now there have been few instances where a transfer of course operation has been necessary. In most of these cases the course operation was taken over by another professor of the producer's university.

⁵ Persons interested in lifelong learning can take part in the courses if they pay a fee, but this plays a minor role.

All members of a given consortium have the right to take part in the quality assurance process during the production of the course. They are encouraged to do so, especially by taking part in milestone meetings where the state of the work in progress is presented and discussed. Members of the BVU's project management take part in these meetings. Thus, all members of a consortium can make sure that the final course will meet their expectations; problems can be solved at the earliest possible stage.

Intensive tutorial guidance

Learning is to a large degree based on interaction. In comprehensive online courses without sufficient interaction, i.e. without communication between the participants and a teacher or tutor, a considerable dropout rate is to be feared. Therefore, the BVU funds not only the developing of courses, but also their regular operation. Moreover, the idea of state-wide utilization of the courses, i.e. of the "import" and "export" of courses between universities, would not be viable if there was no funding for the tutoring of students from universities other than the home university of the course provider. There must be a sufficient incentive for this additional teaching effort. Therefore, the BVU funds the tutorial guidance of the students in standard courses with 25 € per student. This money is paid if the student has taken part in the final examination.

This regulation has been questioned as there are instances where a student makes intensive use of tutorial guidance but does not take part in the final examination. On the other hand, there are instances where a student merely enrolls but does not take part in the course, so mere enrolment would be unsuitable as an indicator for the amount of tutorial work. The most objective measurement of the tutorial work spent on every student would be the tracking of the student's online activities, but this would infringe laws on data privacy protection. The present regulation appears to be acceptable because it also applies to students of the teacher's own university, so that this university gets additional funding.

The question has also been raised whether the successful passing of an examination rather than the mere participation should be the criterion for the funding of tuition. This idea has been rejected after thorough discussions in both Programme Committee and Steering Committee, because this solution might be interpreted as an incentive for course providers to offer "easy" examinations. This, in turn, would not be in accordance with the BVU's effort in quality assurance.

Quality assurance

Evaluation and quality assurance play a central role in the BVU's overall concept. The development of every new course is closely supervised by experts from the consortium which submitted the proposal for the course, and by the project management of the BVU Office. Together, they approve the new course for inclusion into the BVU programme.

Students evaluate their courses every semester, and the results of these evaluations are discussed with the course providers. After five semesters of operation, each course is evaluated by two peer experts (always professors from outside of Bavaria), one of them focusing on matters of media pedagogy and didactics, the other on the subject content. The results of the students' evaluation are made available to the peer experts, too. For the student and expert evaluations, standard evaluation sheets are employed⁶. The results of the peer evaluation are discussed by the Programme Committee and the Steering Committee

⁶ An English version is available:

http://www.vhb.org/fileadmin/download/vhb-QS-Kriterienkatalog_Englisch.pdf

and with the course providers. Any problems in the sphere of tuition addressed in the student evaluation can usually be solved by the BVU Office and the individual teacher.

Course providers can apply for the funding of the updating of their courses if the necessary work exceeds the occasional updating university teachers are expected to perform in face-to-face teaching. The BVU provides the necessary funds as long as there is a sufficient demand for the course.

Providing courses for tutors in BVU courses as outlined above is also part of the BVU's quality assurance activities. Furthermore, the BVU supports competence development for professors of its member universities by organising workshops on e-learning.

Technical issues

In the BVU with its 31 member universities, a variety of learning management systems (LMS) is in use. This variety is a consequence of the variety of the subjects taught as much as of the history of the BVU: The BVU started in 2000 with a portfolio of 36 courses which had been prepared for different subjects by different universities.

No central server is used; all courses are on servers of member universities, and they are administered by responsible persons at member universities, i.e. by professors of the member universities or by members of their staff.

It has been argued that this decentralised approach might not be the most effective solution, but as far as can be judged from the students' evaluation, the plurality of LMS and platforms does not constitute a problem for the students. Critical remarks related to specific features of specific systems (which were then improved) did not refer to the fact that a variety of systems is used. Besides, the migration of the existing courses to a single system would not be economically sound. The gradual introduction of a central LMS has been discussed by the member universities, but the vast majority is not in favour of such a solution.

While unification of LMS does not seem to be an urgent issue, the establishment of an authorisation and authentication infrastructure (AAI) is making progress. As a first step, a way of data exchange has been established with all important member universities that makes online-registration with the BVU possible. Data on participation in examinations and on their results are a sensitive issue. These data are exchanged directly between the examining university and the students, and between the students and their home universities, not via the BVU. An AAI based on Shibboleth is being introduced in cooperation with the Leibniz Computational Centre (Leibniz-Rechenzentrum - LRZ) in Munich.

The BVU's organizational structure

The basic body of the BVU is the Assembly of Member Universities, in which each member university is represented by a Commissioner, who in turn is the key person for all BVU affairs within her or his home university. Each university has one vote per 5,000 students. The Commissioners usually are members of the governing body of their university. The Assembly elects the Programme Committee and the Steering Committee, which appoints the Managing Director.

The Steering Committee consists of three persons. Both the President and the two Vice Presidents are presidents of member universities and in this function represent the BVU in the Conference of the Presidents of the Bavarian Universities (Universität Bayern e.V.) and the Conference of the Presidents of the Universities of Applied Sciences (Hochschule Bayern e.V.). The President of the BVU usually is President of a university, one of the Vice Presidents is President of a university of applied sciences. The Programme Committee

consists of eight persons. Five of these must be Vice-Presidents for questions of teaching and studying at their respective universities, one must come from a university outside of Bavaria. At present, four members of the Programme Committee come from universities of applied sciences, and four from universities.

While all offices mentioned so far are held by professors as part of (in fact, in addition to) their ordinary workload, the Managing Director and the employees of the Office or Service Unit (Geschäftsstelle) work for the BVU full-time. In the Office, 16 employees work in the areas of finances, project management, public relations, student registration and technical support. The Office is located at the University of Bamberg.

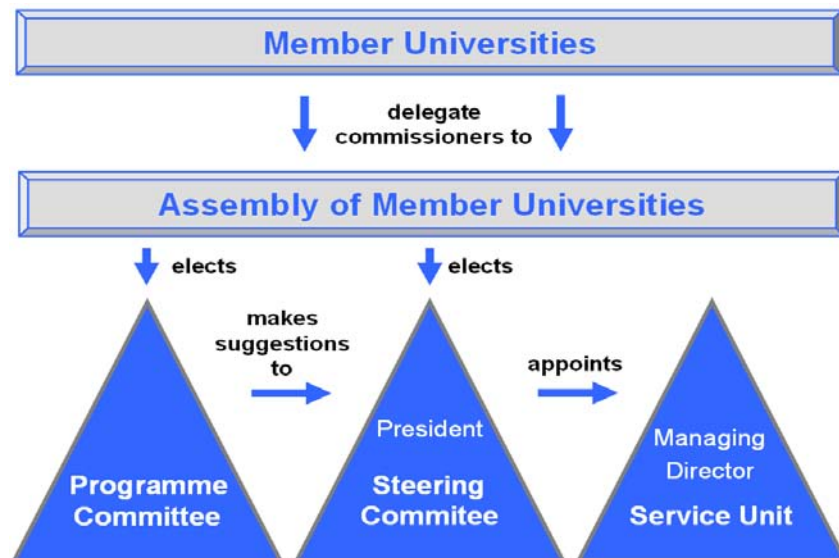


Figure 2: Organizational structure of the BVU

In addition to its regular responsibilities, the BVU has been assigned by the Ministry of Higher Education with the organization of projects within the framework of the European Social Fund for the period of 2007 to 2013.

Results and financing

As early as 2007, the BVU was identified as one of Europe's "mega-providers of higher education online" by the European Union's MegaTrends project.⁷ This study was based on data from 2005, when the BVU had about 20,000 course enrolments annually. Today, there are more than 66,000 course enrolments by more than 26,000 students per academic year. Figure 3 shows the development of course enrolment over the years:

⁷ Cf. http://www.nettskolen.com/in_english/megatrends/

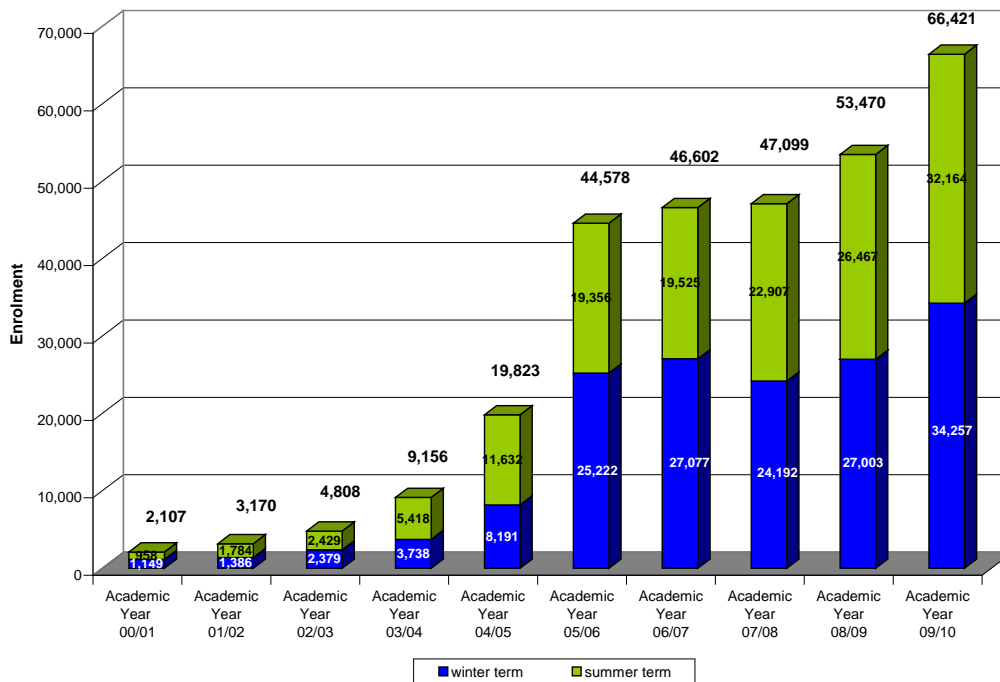


Figure 3: Development of course enrolment

In the years for which complete data are available, 56% of the students who enrolled in a course took part in the final examination. 57.5% of the total enrolment was in courses offered by a university other than the student's home university. This shows that the "import" and "export" of teaching across university borders has become a widespread reality.

At present, the most popular subject areas are Law, Business Sciences and Medical Sciences. There is a noticeable difference between individual fields of study regarding the participation in final examinations (cf. figure 4). This can partly be explained by the fact that some students use BVU courses as an additional source of information and an opportunity to receive extra training and tutorial guidance, but wish to obtain the necessary credits through examinations in courses of their home university.

Financing: In the period from 2000 until 2008, the BVU was financed by the Bavarian government with more than 22 million €. For the years 2009 until 2013 an agreement has been concluded between the Ministry of Higher Education, the Bavarian universities, the Bavarian universities of applied sciences and the BVU by which the annual budget of the BVU has been raised to approximately 6 million €. The bulk of this sum comes from the Bavarian state budget and other state programmes; the member universities contribute one Euro per student and semester, i.e. a total of around half a million Euro per year.

	A	B	C
Business Sciences	7,632	14,3%	54,5%
Computer Science	1,493	2,8%	56,3%
Engineering	2,659	5,0%	66,4%
Key Skills	7,344	13,7%	60,6%
Languages	3,386	6,3%	59,6%
Law	19,509	36,5%	42,1%
Medical Science	7,486	14,0%	91,6%
Social Work	2,356	4,4%	72,1%
Teacher Training	1,605	3,0%	79,4%
Total	53,470	100%	56,0%

A: Enrolment in field of studies
B: Percentage of total enrolment
C: Percentage of enrolment resulting in examination

Figure 4: Enrolment and examinations by fields of study, academic year 2008 / 2009

Conclusion

The success and the further development of the BVU depend on its ability to serve the needs of three target groups: students, teachers and universities. By serving the needs of these target groups, the BVU serves the needs of society and state, which in turn provide the necessary funding.

Students profit from the flexibility of online teaching which is especially important for “non-traditional” students. Therefore, the BVU concentrates on asynchronous forms of communication. Students of the member universities do not have to pay any additional fees.

The quality of the courses is assured by an elaborate system which makes the quality of online teaching even more reliable than the quality of face-to-face teaching. The possibility of developing e-learning literacy while studying a subject as part of the curriculum enhances the employability of the students without requiring additional effort.

Teachers experience a wider range of pedagogical possibilities. Many of them also appreciate the possibility of reaching more students with their teaching. Where online teaching is accepted as part of the professors’ workload, they also profit from the flexibility online teaching permits.

By offering online teaching and tuition on standard subjects, teachers can focus their face-to-face teaching on more advanced or specialised subjects. This can be both more demanding and more satisfactory.

Working within the BVU network is also attractive for professors because of the grants by which the BVU funds the development and improvement of online courses and because of the financing of tutors. Moreover, funding by the BVU is considered “third-party-funding” in the performance record of the respective professors and faculties.

Universities profit from the BVU in several ways. By using BVU courses, universities considerably enhance their teaching capacities. Not only can they offer additional subjects, they can also restructure teaching capacities and use them for subjects less suitable for online teaching.

Generally, universities face times of more intensive competition. But this does not exclude cooperation. On the contrary, in order to survive in a world of growing competition, universities will have to cooperate not only in research, but also in teaching. The BVU is an excellent means of establishing and developing such cooperation. One of the positive effects of this cooperation is the establishing of common quality standards for online teaching.

The BVU avoids competition with its member universities. In particular, the BVU does not develop for-profit courses for further and continuing education.

From the point of view of the **state**, the situation can be characterised by the following considerations:

1. Public budgets will continue to be strained, because debts and deficits must be reduced.
2. The number of students will rise considerably at least until 2012. Later, demographical factors indicate a gradual decline. On the other hand, Germany and especially Bavaria wish to boost the proportion of their population with university-level education, and they wish to attract more students from abroad. This could also lead to growing numbers of students after 2012.
3. As far as we can see, in Germany higher education will continue to be basically state funded. The fees introduced in Bavaria in 2007, with a maximum of € 1,000 p.a. per student, cannot fundamentally change this situation.
4. Therefore, additional high-quality education must be provided in a cost-effective way. The development with public money of similar online courses in different universities would be economically unwise.
5. Online education which is financed, organised and exploited by a joint venture of all universities together with the Bavarian Ministry of Higher Education appears to be an appropriate and necessary response to these challenges. Of course, this cannot be the single response.

To achieve its present position, the BVU has had to concentrate on the following key factors, and it will go on doing so in order to continue its successful development:

- strict orientation towards the demand of the member universities,
- cost-effectiveness,
- putting quality first, employing a thorough quality management,
- close cooperation with universities and the Ministry of Higher Education,
- drawing upon the competence of the member universities, using their infrastructure as much as possible,
- continuous improvement of courses and of administrative processes in order to reach maximum user-friendliness,
- transparency in all decisions, especially in funding,
- lean organisation, simple structures.

The development of the BVU from 2014 on, i.e. after the period of the current agreement, will depend on the priorities set by the member universities and the Ministry. Possible fields of

additional effort may be lifelong learning in its various forms, further courses in English and additional courses in the Humanities, which up to now have played a minor role. The BVU is interested in developing international cooperation to promote “virtual” student mobility.

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