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## **Market strategies and business models for internet-based management education: implications for knowledge management**

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**Abstract:** The article discusses the application possibilities of the internet in the field of management education. As the importance of knowledge management efforts in companies increases, educational programs meant to broaden the knowledge base of employees are becoming more and more relevant. Today, the internet is used widely to deliver educational programs. Depending on the educational demands of different learning requirements, however, the usage of the internet varies. In the segment of continuing education programs it can serve to provide complete degree programs – such as an MBA – which are combined with residential modules. A higher degree of internet usage can be found in the segment of short education modules, which provide the highest degree of special and temporal flexibility and are geared towards full-time working managers. A number of examples for these program types are cited. Furthermore, the article also discusses three possible business models for offering internet-based programs: in the ‘integrated model’ content specialists deliver all the value-creating functions by themselves; in the ‘packaging model’ technology specialists source educational content from external suppliers, which they then package and distribute; in the ‘broker model’ educational portals on the internet source turn-key educational products from a number of external suppliers and market and distribute these products to end customers.

**Keywords:** Internet-based education; virtual learning; knowledge management; business models in e-learning; deconstruction of the value chain; market segment oriented offerings in e-learning.

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## **1 Introduction**

Electronic commerce has been changing and continues to change the business world drastically. Despite the fact that a large number of previously highly-praised internet start-ups have gone out of business lately, it has become obvious that the internet will have a profound and lasting impact on most, if not all, industries. The developments in most industries have been documented and analysed in academic research during the last few years. Yet, the impacts of the internet on the 'industry' of management education, if it can be so called, have received little attention. This is surprising because of two main developments.

First, in an increasingly knowledge-based economy, it is becoming ever more important to find new and efficient ways to educate employees on a permanent basis and to distribute and share knowledge among them in order to stay competitive [1]. As the business environment continues to change rapidly as a result of technological innovation and globalisation, knowledge management efforts in companies become increasingly important [2]. In the context of this paper, knowledge management is understood to be the 'process through which organisations generate value from their intellectual and knowledge-based assets' [3]. Internet technology, as will be argued later on, provides the opportunity to add substantially to the knowledge creation and diffusion process, thereby improving the knowledge management of an organisation.

The second important development comes as a result of the above-mentioned expansion of internet technology in the field of education. As the internet is changing knowledge management in general and, more specifically, also the delivery of management education, this will most likely have an equally profound effect on the strategic positioning of business schools worldwide. For instance, Hämäläinen *et al.* already pointed out in 1996 that 'education is a prime candidate for becoming the ultimate Electronic Commerce Application' [4]. In order to respond to the changes that the internet is effecting in management education, however, it is necessary to gain an understanding of possible market strategies and business models that can be used in internet-based management education.

In the past, management education has been delivered primarily through residential programs such as full-time or weekend MBAs or shorter executive seminars, during which students and faculty convene on campus to work with each other in face-to-face situations. Until the 1990s this approach was accepted as the best form of delivery for management training, in addition there was no viable alternative to residential programs available. Distance learning programs, which relied on correspondence courses where students and professors mailed learning material and assignments back and forth through postal mail, did not present an alternative to most learners because of the isolated and

unstimulating learning experience. Furthermore, in the past, demand for education was such, that business schools could meet the demand of learners through their traditional residential programs.

During the past decade, the situation has changed dramatically. First, demand for management education has grown considerably. The reasons for this growth include technological developments and globalisation of corporations that create an increasingly complex and rapidly changing business environment. To compete effectively in this environment, firms and the individuals working inside them must continuously acquire new knowledge that favourably positions them in their chosen markets [5].

In order to meet the constantly changing demands, it is no longer sufficient for managers to complete a program at a young age and then draw on the acquired knowledge stock during a working career, which might have been possible previously. In the USA, for instance, overall spending on corporate training and education for managers rose to \$16.5 billion in 1998, which represents an increase of 17% over the previous year [6]. Life long learning has thus become an urgent necessity and business schools have been looking for ways to meet this demand. As the importance of knowledge as the basis for sustainable competitive advantage continues to increase, it can be assumed that this trend will continue to intensify in the years to come.

Traditional residential programs pose a number of restrictions that limit growth. First, because of sheer capacity constraints of campus facilities, it is difficult to keep expanding the number of on-campus students. Second, temporal and geographic constraints that come with residential instruction provide a high obstacle for many potential participants, who have to face high opportunity costs – e.g. missed time at work, foregone income, travel time, etc. – if they decide to enrol either in a full or part-time residential program. In addition, these residential programs also tend to use recent technological developments, among them the internet, to provide new opportunities for delivering management education and, thereby, also improving the knowledge management capabilities of any given company.

Building on these developments in educational demand, internet technology and electronic commerce business models, there are two main questions that this article aims to address. The first question asks how the internet can and should be used to provide management education programs that meet the needs of working managers. The second question, which builds on the previous one, asks which different possible business models can be used to create internet-based programs. The structure of the paper follows along the lines of these two questions. First, different study formats with their distinct advantages and disadvantages are presented. In doing so, special attention is paid towards internet-based study formats. Building on these insights, it is possible to provide an analysis as to how the internet can and should be used in different program types. Following that, the focus shifts to an analysis of the distinct business models that can be used to create internet-based programs. Finally, an outlook into possible future developments is provided.

## **2 Systematic overview of different formats of management education**

Management education can be delivered in three different formats. The term format refers to the context within which education takes place. Individual formats differ with regard to the spatial and temporal flexibility that they provide and also with regard to the

means used to deliver them. The following sections deal firstly with the formats through which management education has been delivered traditionally, secondly with the new internet-based format and finally with their respective advantages and disadvantages.

### *2.1 Traditional formats of management education*

Traditionally, there have been two different formats to provide management education. At one end of the spectrum there is the residential format, where students and professors come together at the same place and at the same time to work with each other. At the other end there is the traditional distance study format, where students receive their material through the mail and study largely on their own in an asynchronous fashion. Both formats display distinct advantages and disadvantages.

The main advantage of the residential format is that it allows a very rich face-to-face exchange of information through a multitude of different communication channels, including voice, mimics and gesture. In addition, learning through face-to-face classroom discussion provides the opportunity for a highly collaborative approach, since students can interact synchronously with each and with the professor, which supports a learning atmosphere that Graves calls the “shared social construction of knowledge” [7]. In addition, students and professors have the opportunity to get to know each other on a personal level during in-class and outside-class interactions. This ‘bonding effect’, that many schools foster consciously, is of great importance for a number of reasons. As students get to know each other on a personal level that extends beyond the limits of class work, the level of trust among them tends to increase as well. Trust also represents an important condition for creating a supportive and nurturing collaborative learning atmosphere, where students can take risks in their learning and present and discuss their views in front of others. Furthermore, the establishment of a learner community, where students know each other personally, typically increases the level of motivation [8]. Finally, personal bonding and the building of friendships during an MBA program, for instance, also represents an important asset after graduation, since professional networking builds to a large extent on connections that were established at business school.

However, there are also a number of drawbacks associated with this format. First and foremost, it requires a high level of temporal and spatial flexibility from participating students. This prevents many working managers, who would potentially be interested in enrolling in a program, from doing so. A second problem that relates to the cost side of residential instruction is its lack of scalability. In contrast to other industries, where companies can reap economies of scale by improving the input-output ratio, management education is heavily constrained by the student-to-faculty ratio. In residential face-to-face learning settings this ratio is very sensitive to change and any substantial increase leads to a decline in the quality of the learning experience. Blair Sheppard from Duke’s Fuqua School of Business elaborates on this point: ‘Business schools are in need of improving the productivity of their teaching. In the business world, the salaries of smart people, who could potentially be professors, are going up by 25% a year. [...] The problem is that businesses can pay their employees more because they have been increasing their productivity. Universities, on the other hand, are tied by student-faculty ratios’ [9].

Distance learning programs, on the other hand, display a different set of unique advantages and disadvantages. By their nature, distance learning programs provide a very

high degree of flexibility. Students receive their learning material, such as printed material or audio and video tapes, via mail and can then work through the assigned materials at their own leisure. As a result of this flexibility, distance learning institutions have a wide geographic reach. Where residential programs are limited to those students who come to campus, distance learning schools such as the Open University, UK or the University of Phoenix, USA, can serve students globally. Furthermore, schools like the Open University can add students quite easily in comparison to residential schools. While they need to increase the numbers of tutors to support the increasing number of students, they don't have to substantially expand the physical infrastructure.

The main problem of this format is the slow speed of information exchange between students and faculty. Interaction typically takes place via postal mail to send back and forth reading materials, problem sets and assignments. The second problem is closely intertwined with the previous one. As a result of the slow interaction, reaction and feedback to student's learning efforts is typically relatively infrequent, which in turn increases the likelihood of feeling isolated in one's studies. If other demands on time, such as work and family, are also taken into account, it does not come as a surprise that drop-out rates of traditional distance learning programs are disproportionately high [10].

Thus, working managers especially are faced with a dilemma. They need to update their skills in order to stay competitive in a constantly evolving business world. However, both of the formats described above present high hurdles. Therefore, it has become a necessity to develop different study formats that can alleviate the disadvantages of the above-mentioned formats while at the same time preserving their distinct advantages. The internet-based study format, which presents the focus of this article, has the potential to offer both a high degree of spatial flexibility, and the possibility of creating and maintaining an engaged and motivated community of learners.

## 2.2 *The internet-based format of management education*

Similar to the traditional distance learning format, the internet-based format also provides a high degree of flexibility to students who can be located in different geographic places. It is based on the usage of the internet for information storage, knowledge presentation and program coordination and, most importantly, for communication between students and faculty.

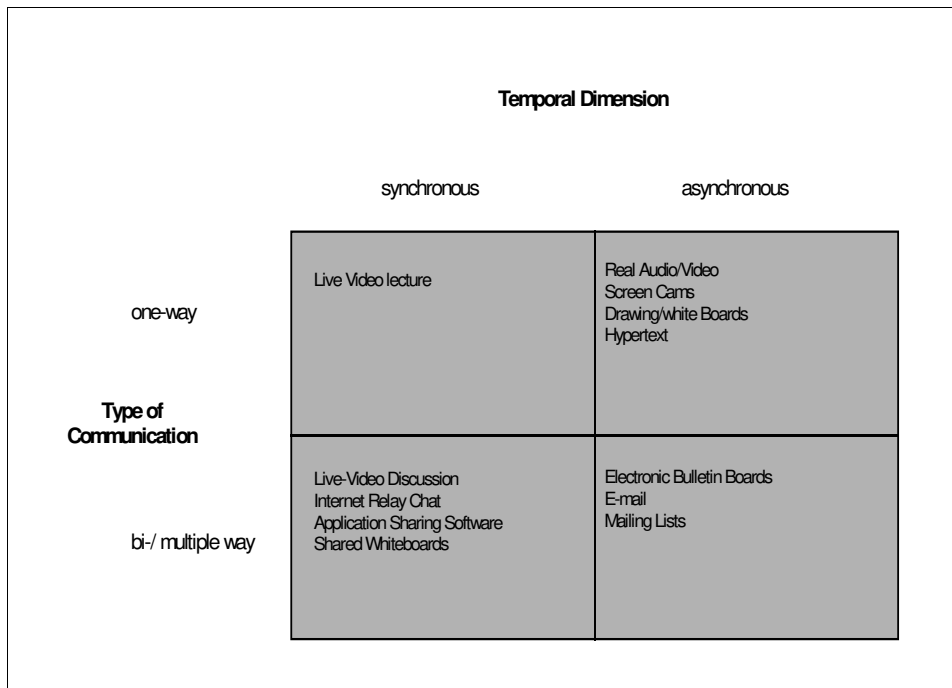
Learning can be realised through a number of different electronic tools, which vary along the following criteria: the *type of communication*, which can either be one-way (uni-directional), where information is only sent out without interaction, or two/multiple-way (bi-/multidirectional), where two or more people interchange information during the learning process. The second differentiating factor is the *temporal dimension*: either usage is synchronous or asynchronous (see Figure 1).

Asynchronous one-way communication:

- *Real Audio* makes the recording and playing of audio files through the internet possible.
- *Streaming Video* permits the playing of video recordings with sound, which are downloaded from the internet while they are played.

- *Screen Cams* allow professors to record different software applications, e.g. an Excel Spreadsheet, as they work on them and provide spoken explanations at the same time, which are also recorded. Students can then access and work with these recorded presentations as often as they desire.
- *Drawing Boards* allow professors to develop a board drawing, similar to the chalk drawing board in a traditional class room, using an electronic drawing board that records all strokes while simultaneously also recording spoken comments. Students can work with the drawing boards as they do with screen cams.
- *Hypertext* documents provide the possibility of inserting electronic links in linear-structured documents, which point from predefined terms to other documents (e.g. related exercises or definitions of specific terms). When necessary, these links can also point to documents that are located on the internet, which in turn have the benefit that they can be updated quickly and easily.

**Figure 1** Typology of internet-based learning and communication technologies [11]



Synchronous one-way communication takes place primarily through Live-Video lectures, which make it possible for a professor to broadcast a lecture live through the internet without providing any means for synchronous interaction between students and professors.

Asynchronous bi-/multiple-way communication:

- *Electronic bulletin boards* present discussion platforms for specific topics, such as answers to practice exams or homework assignments, which are made publicly available through the internet.
- *E-mail messages* provide the capability to distribute messages and documents to one or many people.

Synchronous two-/multiple-way communication:

- *Internet Relay Chat (IRC)* facilitates the exchange of written messages between two or more people in real time. For example, IRC can be the basis for an online office hour.
- *Interactive video-based Seminar* makes it possible to broadcast a live discussion between seminar participants and the professor through the internet. Using web cams it is possible to record the participants during the discussion. It should be pointed out that the usage of this type of technology still requires considerable bandwidth and is, therefore, not suitable for learning environments with slow network connectivity.
- *ICQ (I-see-you)-Software* allows members of a group to find out instantly which other members are currently online.
- *Application Sharing Software* provides the possibility to work on a software application, e.g., an Excel Spreadsheet or a Word document, simultaneously from different locations.

These technologies find usage in internet-based distance learning formats. For instance, Duke's Global Executive MBA – a program that consists mainly of online learning complemented with a number of residential modules – uses different technologies during the online learning period, which include: team discussions in chat rooms and bulletin boards; question and answer sessions via bulletin board; simulations, such as electronically-based negotiation exercises involving role-plays, decision analysis and reporting [12].

### 2.3 Evaluation of the internet-based learning format

After looking at the different technologies that internet-based learning formats provide and their possible applications, it is now possible to discuss their specific advantages and disadvantages. Most importantly, this format offers a high degree of spatial and temporal flexibility, which is especially important in the context of continuing education programs for working managers who would otherwise not be able to enrol in a program. For Bruno Schmid, a member of Duke's Global Executive MBA (GEMBA) program, internet-based learning presented the only option to combine work and education:

“GEMBA provides me with a significant competitive advantage. It enables me to earn my MBA and build an international network of contacts while working and enhancing my responsibilities on the job. I cannot and would not leave my job. It's too interesting and I have a great deal of responsibility. I needed to have this geographical and time independence that the GEMBA provides.” [9]

Secondly, it provides the capability to integrate different information and communication tools in one technology. Traditional distance learning programs had to rely on disconnected, separate media, such as paper-based texts and audio- or videotapes, to

allow for different presentation formats. Through the usage of the internet it has become possible to integrate different presentation format. Illustrative examples of this type of combination are Multi-Media case studies such as the IMD study 'Nokia Mobile Phones: Supply Line Management' [13]. In contrast to traditional paper-based case studies this multi-media presentation does not only contain written text on a company's situation but it also provides access to video interviews with Nokia managers and video clips about the company in addition to links to journal and newspaper articles. These links can be easily changed or updated if the need arises. Because of bandwidth limitations most of these multi-media materials are still delivered on CD ROM but, as bandwidth continues to expand, it can be expected that they will be made available through the internet.

Thirdly, it provides the individual learner with the opportunity to learn the required material at his own pace, depending on his previous knowledge and learning style preferences. If a student does not understand parts of a lecture that has been recorded with a screen cam, for instance, he can go back and review those parts at his own pace. Furthermore, the internet-based format has the important advantage, vis-à-vis traditional distance learning formats, that it provides the capability to create more engaging learning communities through the use of asynchronous discussion boards and e-mail as well as synchronous chat functionalities.

Fourthly, although geographical isolation remains, these technologies promise to alleviate some of the problems that were formerly associated with distance learning. Students and professors now have the possibility to post comments and questions through the internet and receive rapid feedback, which is important not only for the learning process but also for maintaining the required motivation [14]. From their own experiences in internet-based classes, Chizmar and Walbert emphasise that 'students overwhelmingly report that the single most important ingredient for making a course effective is getting rapid response on assignments and quizzes' [15]. In some ways, internet-based learning might even be considered superior to class-room learning. For instance, working with threaded discussion boards, where comments are posted and stored, allows students to review and reflect on previous comments from their peers and from professors before they make their own contribution, after having had the possibility to think through one's own argument [16].

Finally, it is important to note that internet-based communication is also becoming increasingly important in the workplace that a student enters upon completing a degree. In the past, personal communication during face-to-face meetings and conferences used to be the norm. As a result of globalisation and increasing time and cost pressures, which limit travelling, the usage of e-mail messages and electronic discussion boards have become an increasingly attractive option for managing geographically distributed projects [17]. If this development continues, which can be expected, early acquaintance with these types of technologies will become an increasingly valuable asset. John Gallagher, Professor at Duke's Fuqua School of Business, points out:

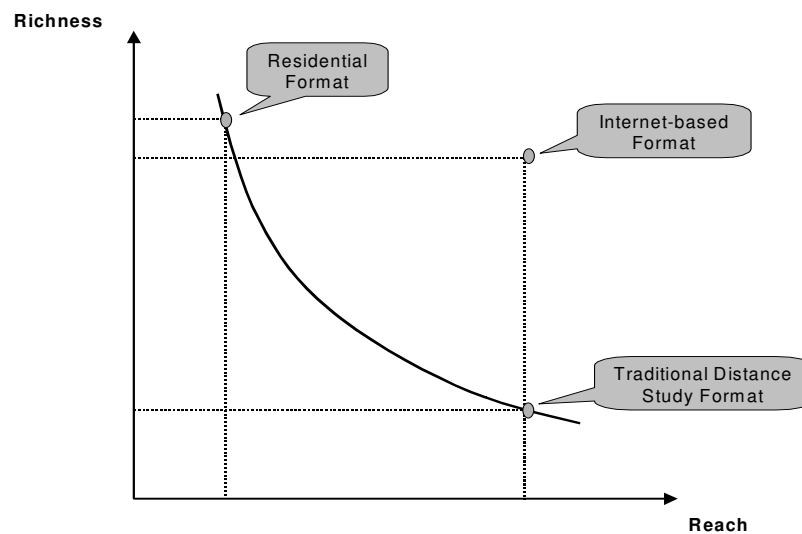
"One very important secondary set of skills people learn [through internet-based Learning] is how to manage a large-scale project with a globally distributed team, usually made up of people from different cultures and different countries. You have to identify issues, resolve conflicts and operate as a team while separated by time and space. There are people skills that have to be manifested while working through this kind of technology." [18]



In spite of the various benefits associated with online learning a number of distinct drawbacks remain, especially in comparison to the face-to-face interaction of the residential format. First, the number of communication channels in internet-based communication is still reduced, which limits the richness of the interaction. In traditional classroom settings communication extends beyond the mere exchange of spoken (audio) or written (textual) messages, it also includes a number of paraverbal factors, such as gestures and facial expressions, which are significantly reduced or completely eliminated when internet-based technologies are used. Furthermore, the level of social interaction is generally low as a result of the lack of out-of-classroom interaction. Important social contacts, which are established during coffee breaks and face-to-face group work in the residential setting, are difficult if not impossible to replicate through the sole use of the internet. Getting to know each other on a personal level and the associated ‘bonding’ among students and professors are of crucial importance for building mutual trust and sustaining the required level of motivation [10].

From the previous discussion it has become clear that different educational formats present a trade-off between different goods. These are primarily temporal and spatial flexibility on the one hand and quality of interaction on the other. The richness-and-reach framework by Evans and Wurster conceptualises this trade-off (see Figure 2) [19].

**Figure 2** The trade-off between richness and reach in management education



Here, richness refers to the quality of interaction and reach refers to the level of spatial and temporal flexibility of a learning format. The relationship between richness and quality of interaction is quite clear. Evans and Wurster use the following three aspects to define richness: bandwidth (the amount of information that can be moved from sender to receiver in a given time), the degree of individual customisation of the information (the ability to address the individual student), and interactivity (the ability to communicate bi-directionally). The communication of rich information (i.e. information high in all three aspects) has traditionally required proximity to the student and channels specifically dedicated to transmitting the information. For instance, rich information

exchange takes place in the classroom during face-to-face interaction between professors and students. The richer the communication the better will be the quality of interaction.

The relationship between reach and spatial and temporal flexibility can also be easily explained. Residential formats that require students and faculty to be at the same place at the same time have a low level of reach, since only those students who have the ability to attend these classes, can participate. On the other hand, distance learning formats, where students can both choose the time and place of study, display a high level of reach, since almost anyone can take part in this type of learning experience.

However, reaching a large number of students in a wide geographic area used to come at the expense of richness (due to the limited bandwidth of most mass media devices) and this resulted in little customisation and a lack of interactivity (e.g. traditional distance learning programs). Through the use of the internet this trade-off can be partially dissolved, since it is now possible to deliver education programs with a high degree of richness to a wide audience on their desktop. In effect, it becomes possible for external education providers to become an integral and continuously available part of a company's knowledge management efforts. Interaction between the learner and the education provider is not limited anymore to face-to-face meetings, as it was in the past. Instead, learners can access the web-based learning material whenever they need it while working on real-world problems and interact with a peer group of other learners using threaded discussion or e-mail applications. Then, learning takes place in a situated context aimed towards the achievement of individual, group and organisational objectives [20].

### **3 Differing degrees of internet usage depending on program type**

It has become obvious that the internet cannot completely dissolve the trade-off between richness and reach. By increasing reach, richness is inevitably sacrificed. A possible solution to this dilemma is to differentiate the degree of internet usage according to program type. At the extreme points of the spectrum of management education programs are comprehensive and long-lasting MBA programs, at one end of the spectrum, and topic-specific, short modules, at the other.

During longer programs, such as one or two-year MBAs, a minimum, amount of personal face-to-face interaction is of great importance, for two main reasons. First, because of the extended length of an MBA program, students need to maintain motivation over a long time period. Personal contacts between students have proven to be an important motivator. Andreas Müller, a participant of Duke's Global Executive MBA, explains:

“Having the opportunity to get to know fellow students is of tremendous importance to keep up motivation for the time when you are working by yourself. Juggling work, family commitments, and the GEMBA program is not easy. But it is easier to take on this load, since the last thing you want to do is to fail your classmates who you have gotten to know on a personal level during the residential periods.” [9]

Furthermore, since comprehensive MBA programs typically include a wide variety of different subjects, some of which are difficult if not impossible to teach from remote locations, residential periods are also important. For instance, presentation and discussion

techniques or negotiation skills can best be taught through class-room interaction. What can be observed is that many business schools, and especially those with a high reputation, that offer internet-based MBA programs include a series of residential periods which usually last between one and two weeks. Examples include Duke's Global Executive MBA and Cross-Continent MBA, and IMD's Executive MBA program. Through the combination of internet-based distance learning and residential modules, these schools are able to offer highly flexible programs for working managers while, at the same time, these programs also provide engaging learning communities that are built around personal contacts created during residential periods.

At the other end of the spectrum, there is an increasing demand for short, theme-specific modules that managers can access easily in order to acquire specific knowledge or skills they need in order to carry out their daily work. These learners are looking for management education in specific areas such as, finance, marketing or accounting, without having to pay high tuition rates and without having to take the time off to attend residential seminars. Here, the internet can be used to deliver largely self-contained modules, which consist of the learning material packaged in an appealing, pedagogically suitable multi-media format containing videos, animations, simulations and a number of interactive exercises which help the student to grasp the material more easily. In addition, it is possible to offer online tutors who provide help for specific questions regarding the learning material. These self-contained learning modules are offered by private enterprise such as Pensare, UNext and Qusic, which cooperate with universities.

It should be noted at this point that it is not assumed that these programs will replace traditional residential programs. Instead, they present a way to expand the offerings to new learners who are unable to invest the required time for residential programs.

#### **4 Business models in the market for internet-based management education**

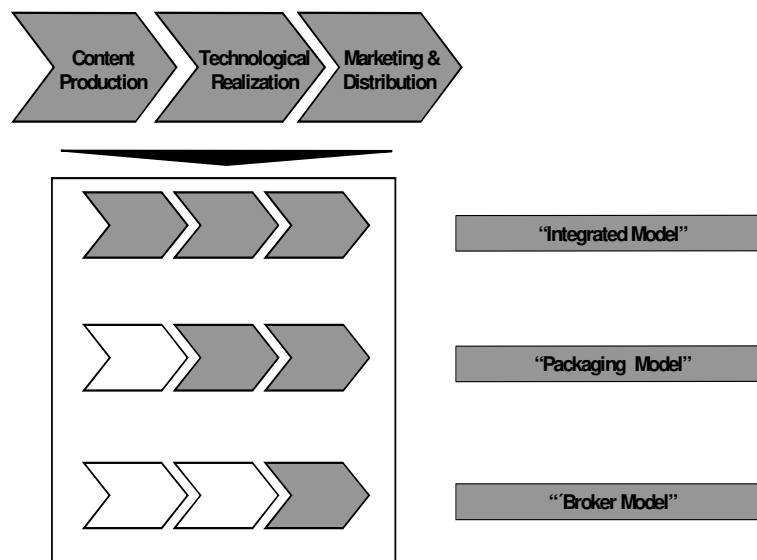
The challenge for most schools that offer internet-based programs has so far been to develop high-quality technology platforms and teaching material that are based on sound pedagogic and didactic foundations. In fact, much of the legitimate criticism directed at internet-based learning results from the large quantities of low-quality material that has been produced in recent years. This is partly due to the sheer novelty of internet-based learning. It takes time and practice to determine which approaches work best. Furthermore, it also needs to be recognised, that developing high-quality internet-based learning material is much more resource-intensive, especially during the development stages, than traditional class-room based instruction. It requires both extensive financial resources, because of large up-front costs, and human resources in the areas of programming and multi-media design. Business schools typically face severe limitations regarding both of these resources, since their core competencies tend to be in other areas such as content development and teaching. As a result, business schools have established a number of different business models in cooperation with external providers.

Before presenting the different business models, it is necessary to analyse the main value-creating activities in the area of internet-based learning. Broadly speaking, there are three main activities that can be distinguished [21]:

- *Content production*: this entails research, the development of teaching material and course outlines, in addition to the didactic structuring of the material and definition of learning goals.
- *Technological packaging realisation*: this includes the provision of a technological communication platform and the technological packaging of the provided course materials into course modules, e.g. through the use of screen cams or drawing boards.
- *Marketing and distribution*: this entails the selling of courses and providing the required teaching support.

Depending on how many of these different parts of the value chain are performed within one institution, it is possible to differentiate three business models: the ‘fully integrated’ model, the ‘packaging model’ and the ‘broker model’ (see Figure 3).

**Figure 3** Different business models in the market for internet-based management education



In traditional residential universities the value chain is typically highly integrated. Professors develop their own courses (even though they might be using textbooks from other sources), they present the material by themselves and they also provide support when students have problems or questions. The university as a whole is in charge of providing the marketing in order to attract students. Many business schools that have added internet-based learning programs are still relying on this approach. They develop the course material completely by themselves. This process includes the creation of course content, the resource-intensive packaging and the final distribution and learning support. The benefits of the integrated model are that there is no need to search for partners and to coordinate activities, which can possibly help to speed up the development process, especially in the early experimental stages. Furthermore, all legal

rights for produced learning materials remain with the institution. On the other hand, fully integrated providers usually tend to have limited resources, which impair the quality of the produced material. For instance, when Duke's Fuqua School launched its Global Executive MBA in 1996, most of the technological development of the internet-based learning platform called DEEP, which stands for Distributed Enterprise Educational Platform, was done internally. However, as it turned out, updating and expanding the system would have overstretched the school's own resources. Therefore, Fuqua decided to abandon the fully integrated model and enter into cooperation with the external learning technology provider Pensare, who now provide the technological platform and the packaging of the distance learning material for Fuqua. As the number of specialised providers, which concentrate their activities on individual parts of the value creation process, increases, the fully integrated approach is becoming increasingly less attractive.

Technology companies like the above-mentioned Pensare or Unext, which partners with a consortium of five leading business schools including Stanford University, the University of Chicago, Carnegie Mellon University, Columbia University and the London School of Economics, are practising the 'packaging model' approach. These companies take unique content coming from universities, they package this content technologically into internet-based learning material in cooperation with professors, cognitive scientists and programmers, and they then market and distribute it to corporate and individual customers. Unext, for instance, is planning on distributing its educational modules to companies and universities on a global scale. In the area of academic alliances UNext has started a partnership with the Open University, the largest distance learning institution in the UK. As part of this agreement UNext will provide courses to the Open University's 8,500 MBA graduates around the world. The first course was a course called Managing Knowledge, studied by more than 1,600 students around the world this year. Managing Knowledge focuses on the field of knowledge management and provides conceptual, practical and critical perspectives for Open University M.B.A. students who are also practicing managers. Large corporate customers include the General Motors Corporation who will provide its 88,000 executive, management and technical employees with access to UNext's learning platform as part of a four-year alliance. For packaging companies such as Unext, it is of vital importance to generate a large customer base quickly in order to recuperate the high up-front investments for the development of the educational software. By signing up companies such as General Motors it becomes possible to generate substantial scale economies, since the marginal costs for each additional learner are negligible once the system is in place.

Universities profit in a number of ways from this type of cooperation. First, as mentioned above, these companies typically target a much wider market than traditional business schools. Kirschenheiter, a professor at Columbia University, elaborates: "The way that UNext works is that we are going to create a course that had the potential to reach a lot of people who I wouldn't be able to reach otherwise" [22]. Second, through alliances with privately-funded educational companies, universities also open up new revenue potentials. For instance, the schools that produce course modules in partnership with Unext will receive a substantial share of the profits that UNext generates. Columbia University, for example, will receive a minimum payment of twenty million dollars from Unext after five years [23].

A third alternative is a so-called 'broker model', where the education provider concentrates its activities on delivering pre-packaged, self-contained learning modules from different producers and packagers to the learner. The broker evaluates course

offerings from different providers, selects appropriate courses that meet specific quality standards and then makes these self-contained courses available to the public. Companies that fit into the 'broker model' include, for instance, Global Learning, which was established by Deutsche Telekom, the largest German telecommunication provider.

Third party providers of internet-based educational programs can post their offerings on the Global Learning website. Educational service providers, such as publishing houses, learning software producers and private training companies, offer their programs through this channel. Through the Global Website interface potential customers can gain a structured and detailed overview over different offerings. After having chosen a suitable product, they can then access directly the actual provider to sign up for the programs, which cover areas such as project management, quality management, strategy and accounting. Global Learning expands its broker function by also giving technical assistance to the learning providers. This assistance includes an e-learning back office for the administration of user-, provider- and product information. In addition, the learning program providers can access the Global Learning infrastructure, consisting of server hosting, ISP services and consulting help from Global Learning, for the customisation of online learning projects.

There are multiple reasons why the unbundling of the value chain is happening on this level. First, as was mentioned above, there are high initial up-front costs of developing internet-based learning materials in comparison to the costs of developing traditional classroom programs. These costs can reach up to one million dollars for a single course. Putting together a complete internet-based program containing multiple different courses would typically overstretch the budget limitations of not-for-profit business schools. Private companies such as UNext, which are funded by venture capitalists or traded publicly, are in a much better position to finance these development costs. Second, in order to amortise the large up-front costs of developing internet-based material, it is necessary to market and distribute courses to a much larger audience in order to generate economies of scale and thereby reduce the unit cost of each individual course sold. Universities are specialised in marketing their programs to a select group of potential students, but they neither have the knowledge nor the resources to market their products commercially. Fuqua's Blair Sheppard's explains why Fuqua chose to work with Pensare:

"We would have had to create a for-profit arm. Our passion is for academia not business. [...] We were afraid we'd lose our soul. And Pensare has the technical know-how to produce the program" [9]

Andrew Rosenfield from UNext summarises the reasons that are driving universities towards cooperating with 'packaging' companies as follows:

"Universities don't have the multimedia expertise; they don't have expertise in figuring out how to teach tens of thousands of students. It's tremendously costly. For them to spend tens to hundreds of millions of dollars to experiment in a new field would not be prudent. We are prepared to spend tens to hundreds of millions of dollars" [23].

Private companies that partner with leading business schools also benefit in a number of ways. First, they gain access to teaching material that is of the highest quality and reflects the current developments in management research. A second reason, which might weigh even more heavily, is that the reputation and brand name of the school they partner with also positively influences the brand of their own company. In the management education

market, where reputation and ranking of business schools is of the utmost importance, the association with a 'big name' carries great kudos [23].

## 5 Future outlook

The goal of this article was to illustrate how the development of the internet has and will continue to affect the market for management education. Internet usage in management education programs is still in its early stages. Although it is difficult to make predictions in this rapidly evolving field, the two above-described developments concerning the degree of internet usage in management programs and the creation of new business models are likely to intensify.

As the importance of knowledge continues to increase, the demand for management education will rise simultaneously. In their attempts to improve knowledge management, companies are not just looking for a codification and spreading of internal knowledge but they are also striving to continuously acquire and integrate knowledge from external sources. Programs, such as the ones described above, that offer a large degree of flexibility while maintaining high levels of quality will tend to increase this demand even more, because they attract also those managers unable to attend full-time residential programs. Thus, the general outlook for business schools that have or are about to launch internet-based programs is quite promising.

However, at the same time, the rise of the internet will also intensify the competition in management education. In the past, competition used to be somewhat restricted to limited geographic areas such as nations and possibly continents. What can be observed now is that leading Anglo-American business schools are expanding their reach into new markets, such as Germany, which have previously been largely untapped. The recent opening of a campus of Duke's Fuqua School of Business in Frankfurt will most likely be followed by other universities. On the one hand, this provides a great opportunity for those schools to make their programs more international and to grow outside their highly competitive home markets. On the other hand, this development also presents a major threat to the incumbent schools, which now face new competitors in their previously protected home market. In this evolving global market for management education, it is likely that those schools with a high reputation and globally-recognised brand names, such as Wharton, Harvard or Duke from the USA, or IMD and INSEAD from Europe, will increasingly dominate the competition, even outside their traditional home markets.

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