TODAY'S GERMAN UNIVERSITIES AND DYNAMIC EDUCATION WEBS: DOES IT FIT?

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Discussion Paper No. 362
April 2007
ISSN: 0949–9962

JEL-Classification: I23, M53
Keywords: Business Webs, Business Models, E-Learning, Further Education

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Management Summary

An in-depth investigation into the education market shows increasing numbers of temporary partnerships between public and private partners. We will call these partnerships dynamic education webs as an emerging phenomenon in the further education market. They are driven by practical needs. Currently they are based on fragmented, unaligned provider initiatives. Dynamic education web originate from education providers' initiative in education brokerage, learning services providing and strategic alliances in the e-learning market. Further education alliances as middle- and long-term cooperation can be observed e.g. between corporate universities and public universities. A more dynamic nature of cooperation originates from the increased customer- and quality-orientation.

The emerging dynamic education web phenomenon affects both public and private further education providers. Strategic alliances with long-term contracts turn into dynamic networks of partners in the further education market. The main motivation is to react flexibly to short and mid-term customer learning, especially e-learning, needs. The further education market consolidates since 2005. For learning content with topics like business skills and IT trainings revenues are forecasted to increase approx. 3% in 2006. Recent research shows an increasing market potential especially for e-learning contents and services. The providers in the further education market diversify rapidly. This is due to the increasing further education individualization and the increasing IT penetration of public and private further education providers. E-learning competence centers in universities or virtual corporate universities are examples for this.

The diversification of customer requirements drives the diversification of the providers. Shorter innovation cycles, lifelong learning action programs and a positive learners' attitude towards e-learning affect this diversification. Until now the predominant supply-side focus of further education providers evolves into a more customer-focused approach. A single education provider cannot handle the delivery of customer-specific further education programs. The 'make' decision in terms of supply-side, monolithic content production becomes less important in comparison with the 'buy' decision in terms of selected modular contents provided by specialized providers. Dynamic education webs require other provider role models. Information/communication, particularly e-learning technologies support the value creation activities in the chain and function as a critical enabling infrastructure.

The paper bases upon the results of expert questionings with 47 interviewees from public and private further education providers. The expert questionings aim to prove the concept and practical relevance of dynamic education webs. The core questions arise: What promotes dynamic education webs? Who are the key players? What are critical success factors? These questions are answered based on literature, market study and expert questionings of important market players. Exemplary results are: Public and private further education providers cooperate with a broad range of partners in the network, e.g., Federal institute for education & training, E-learning provider, Publisher or Chamber of commerce and industry. Interviewees from public and private institutions emphasize that they would appreciate the cooperation with other partners. But a similar organizational culture, professional working attitude and the level of service orientation are often mentioned as reasons for this decision. E-learning strategy and its implementation aim at different targets. Contents and learning services particularly suitable for dynamic education webs have to be modular, IT supported, standardized and of high quality. Universities often lack an integrated e-learning strategy. Dynamic education webs imply that public and private further education providers cooperate increasingly. The providers focus on the sustainability of their product portfolio.

This requires the ability to adapt to the permeability between higher and further education in the context of lifetime learning as demonstrated on the exemplary cooperation scenario between Hannover Business School GISMA and Leibniz University Hannover. Further education providers have to focus on their core competences and modularize their e-learning portfolio. Customer-orientation then means to build a customer-specific modular further education program with contents and services delivered by selected partners in the dynamic education web. Dynamic education webs enable the providers to address new or additional target groups. Public and private education providers have to develop new business and role models to operate profitably in this competitive environment.

A glance at trends and market potentials as positively stated by the experts concludes the paper.

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TODAY'S GERMAN UNIVERSITIES AND DYNAMIC EDUCATION WEBS: DOES IT FIT?

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Abstract

Contemporary lifelong learning (L^3) concepts require permeability between higher and further education. Today, human resources development is a critical success factor in a global environment. Shorter innovation cycles and the challenges of the service economy imply the alignment of further education concepts to the employees' working situation. Standardized content offers are no longer sufficient to meet the needs of both learners and companies. Public and private education providers have to collaborate to meet the customers' learning needs. Providers can and should establish dynamic business webs – so-called dynamic education webs – in this collaborative process. These partnerships are temporary in nature and are based mainly on incentives instead of contracts. We will focus on this new phenomenon and present research results with high practical relevance. The core questions arise: What promotes dynamic education webs? Who are the key players? What are critical success factors? These questions are answered based on literature, market studies and expert questionings of important market players. The recommendations derived can help the management to participate successfully in dynamic education webs. A glance at trends and market potentials as stated by the experts concludes the paper.

Zusammenfassung

Die Herausforderungen an zeitgemäße Weiter- und Fortbildungskonzepte erfordern im Kontext des lebenslangen Lernens die Durchlässigkeit zwischen akademischer Erstausbildung, berufsbegleitender Weiter- und Fortbildung sowie akademischer Zusatzqualifikation. Aus Sicht der Unternehmen auf die Weiter- und Fortbildung der Mitarbeiter ist diese ein kritischer Erfolgsfaktor in einem globalisierten Wettbewerbsumfeld. Kürzere Innovationszyklen und die Herausforderung der Dienstleistungsgesellschaft erfordern arbeitsplatznahe Weiterbildungskonzepte. Standardisierte Lerninhalte sind dabei oft nicht länger ausreichend, um den von den Unternehmen formulierten Weiterbildungsbedarf ihrer Mitarbeiter zu bedienen. Öffentliche und private Weiter- und Fortbildungsanbieter gehen immer häufiger Kooperationen ein, um diese individualisierten Weiterbildungsbedarfe ihrer Kunden erfüllen zu können. Dynamische kundenorientierte Wertschöpfungsnetzwerke in der Weiter- und Fortbildung entstehen. Dabei handelt es sich um temporäre anreizbasierte Kooperationen ohne langfristig bindende vertragliche Vertragswerke. Der Aufsatz beschäftigt sich mit diesem neuen Phänomen und beantwortet die folgenden Kernfragen: Was begünstigt dynamische kundenorientierte Wertschöpfungsnetzwerke in der Weiter- und Fortbildung? Wer sind zentrale Akteure? Was sind kritische Erfolgsfaktoren? Die Erkenntnisse basieren auf einer Literaturrecherche, Marktstudie sowie einer Expertenbefragung ausgewählter Marktteilnehmer. Daraus werden praxisorientierte Handlungsempfehlungen sowie ein Ausblick auf Trends und Potentiale für Anbieter in dynamischen kundenorientierten Wertschöpfungsnetzwerken abgeleitet.

Keywords

Business Webs, Business Models, E-Learning, Further Education

1 INTRODUCTION AND MOTIVATION

1.1 Status and Motivation

An in-depth investigation into the education market shows increasing numbers of temporary partnerships between public and private partners. We will call these partnerships dynamic education webs as an emerging phenomenon in the (further) education market. They are driven by practical needs. Currently they are based on fragmented, unaligned provider initiatives. We will discuss the core questions in this paper: What promotes dynamic education webs? Who are the key players? What are critical success factors?

This emerging dynamic education web phenomenon affects both public and private further education providers (Voigtländer & Breitner 2006). Strategic alliances with long-term contracts turn into dynamic networks of partners in the further education market. The main motivation is to react flexibly to short and mid-term customer learning needs. The further education market can be characterized as fragmented. Private and public further education providers focus on their well-known target groups, mainly employees in the private sector and scientific staff in the public sector. Private and public education providers compete for market share. The further education market consolidates since 2005. For learning content with topics like business skills and IT trainings revenues are forecasted to increase approx. 3% in 2006 (Lünedonk 2006). Recent research shows an increasing market potential especially for e-learning contents and services (MBB Studie 2006). The providers in the further education market diversify rapidly. This is due to the increasing further education individualization (BMBF 2006, p. 8) and the increasing IT penetration of public and private further education providers. E-learning competence centers in universities or virtual corporate universities are examples for this.

The diversification of customer requirements drives the diversification of the providers. Shorter innovation cycles, the lifelong learning action program (http://www.bmbf.de/en/411.php) and a positive learners' attitude towards e-learning (BMBF 2006, p. 211) affect this diversification. Until now the predominant supply-side focus of further education providers evolves into a more customer-focused approach. A single education provider cannot handle the delivery of customer-specific further education programs. The 'make' decision in terms of supply-side, monolithic content production becomes less important in comparison with the 'buy' decision in terms of selected modular contents provided by specialized providers. Dynamic education webs require other provider role models. Information/communication, particularly e-learning technologies support the value creation activities in the chain and function as a critical enabling infrastructure.

Dynamic education webs imply that public and private further education providers cooperate increasingly. The providers focus on the sustainability of their product portfolio. This requires the ability to adapt to the permeability between higher and further education in the context of Lifelong learning. This is described in Sec. 2.1 in detail. Further education providers have to focus on their core competences and modularize their e-learning portfolio. Customer-orientation then means to build a customer-specific modular further education program with contents and services delivered by selected partners in the dynamic education web. Dynamic education webs enable the providers to address new or additional target groups, see Table 1. Public and private education providers have to develop new business and role models to operate profitably in this competitive environment.

Providers	**Primary target groups**	**Information systems for …**
Private	Corporate learner Individual learner Company-external learner	Integration global learner community Support decentralized learning organization Process optimization
Public	Students Academic Staff	Administration increased number of students Lecture quality improvement Process optimization

Table 1: Providers, primary target groups and information systems

The paper describes the essential results of expert questionings with 39 interviewees from public and private further education providers. Critical success factors and common pitfalls for providers in dynamic education webs are discussed. The results also show changing roles and business models in the further education market. Future challenges for both public and private providers and the role of e-learning technologies are also discussed.

1.2 Methodology and Structure

Various customer requirements and innovative IT concepts needed to establish dynamic education webs are widely undocumented. Initiatives of public and private further education providers are still a local phenomenon. We use a multilevel deductive research approach, here. The expert questionings are an integrated part of a long-term study, see Figure 4 for an overview. The phase *expert questioning dynamic education webs* is highlighted.

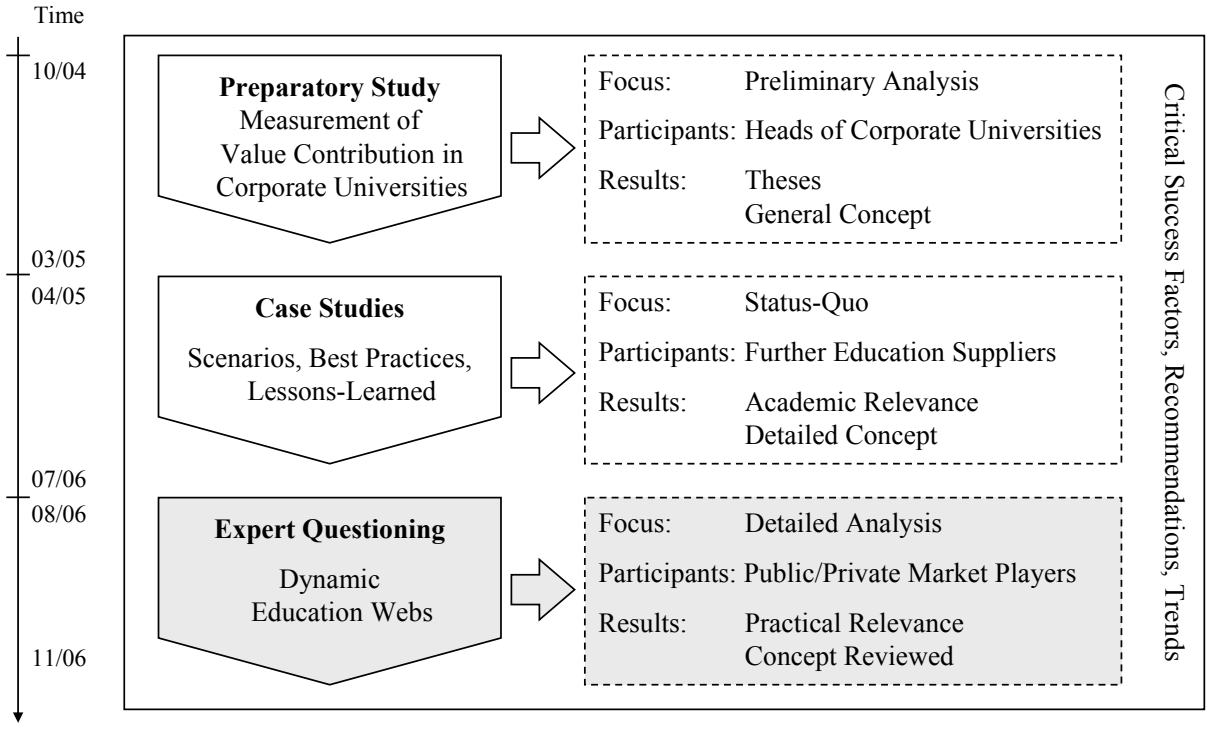


Figure 1: Research methodology in time

Figure 2 illustrates the organization of the paper. The introduction in Sec. 1 provides a snapshot of dynamic education webs and a motivation. Sec. 2 details the general conditions that stimulate the development of dynamic education webs. The findings are based on literature and market studies. Lifelong learning concepts and information/communication technologies and systems are highlighted. Dynamic education webs as an emerging phenomenon are currently not sufficiently understood. Therefore the authors conducted expert questionings as described in Sec. 3. The research design and essential results, e.g., experts' experience, the role of information/communication technologies and critical success factors, are lined out in Sec. 3. The results are transferred into recommendations, e.g., for the management of public and private further education providers, see Sec. 4. Sec. 5 provides the conclusions and an outlook on further research activities.

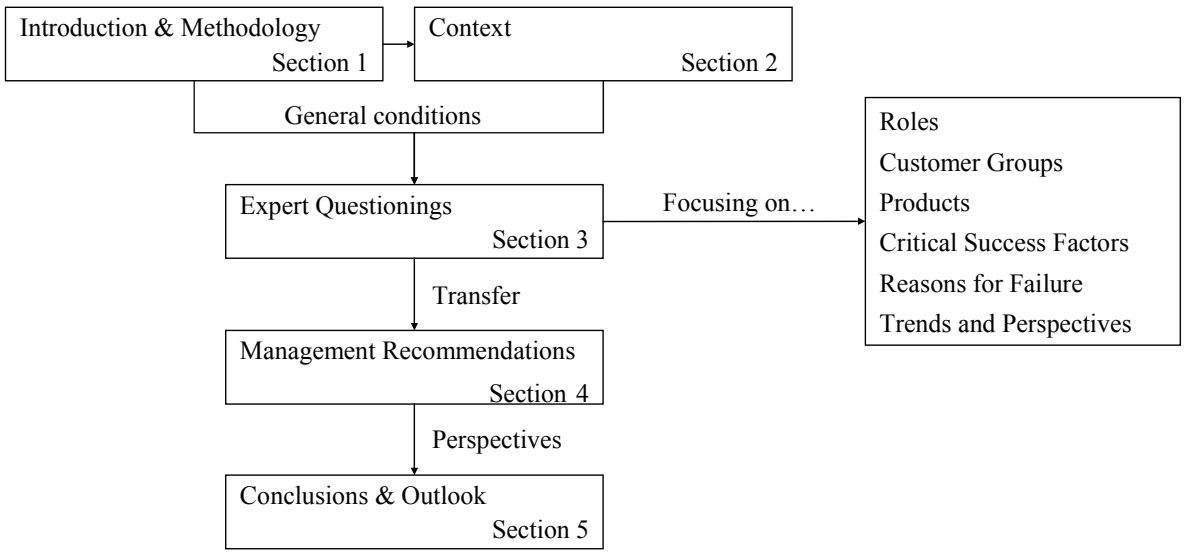


Figure 2: Paper structure

2 CONTEXT

2.1 Lifelong Learning (L^3)

In order to maintain a competitive advantage, a company has to keep up with product innovation life-cycles. The continuous investment in Human Capital is an indispensable necessity in a global competitive environment. Learning on demand concepts replace traditional learning concepts. Learning and working intertwines. Figure 3 explains this phenomenon comparing traditional and future learning scenarios. Permeability between higher and further education in the context of Lifelong learning requires the modularization of curricula (Voigtländer & Breitner 2006). E-learning technologies are a critical enabling infrastructure particularly with regard to near-the-job further education. The e-learning information/communication technologies that support bachelor and master study courses are – especially in German speaking countries – not yet sufficiently mature for enterprise deployment.

The learner types are supposed to change in the near future. The traditional learner graduates with a bachelor or master degree and starts a career in a company. He/she normally attends corporate further education programs and is no longer 'customer' of a university. An emerging learner type graduates with a bachelor degree and enters work life. This learner type typically participates in corporate further education programs. After a period in professional life this learner attends a part-time master degree program on a university. The learner benefits from e-learning technologies because of the more flexible learning process. Companies value part-time programs, and offer them in employee retention programs. The increasing investment in a corporate e-learning infrastructure is an important part in this (MBB Studie 2006). E-learning technologies enable the usage of modular multi-purpose learning contents and services which can be re-combined in various learning scenarios. The flexibility to re-combine learning contents and services is an essential precondition to offer attractive further education services and products for emerging target groups. Emerging target groups are working mothers (refer to the 'Karrierezeit' initiative: http://www.karrierezeit.de), and employees interested in joint academic private sector research. Learning and working phases intertwine. Currently public and private further education providers offer only a limited further education product portfolio to these emerging customer groups. On the one hand public providers have to strengthen their credibility in order to enter the market (Schwertfeger 2006) successfully. On the other hand they own an immense body of knowledge reusable for further education services. Public universities intend to strengthen their market position and build up the further education product portfolio besides research and teaching (Zöllner 2003, p. 274). Newly founded e-learning competence centers illustrate this trend.

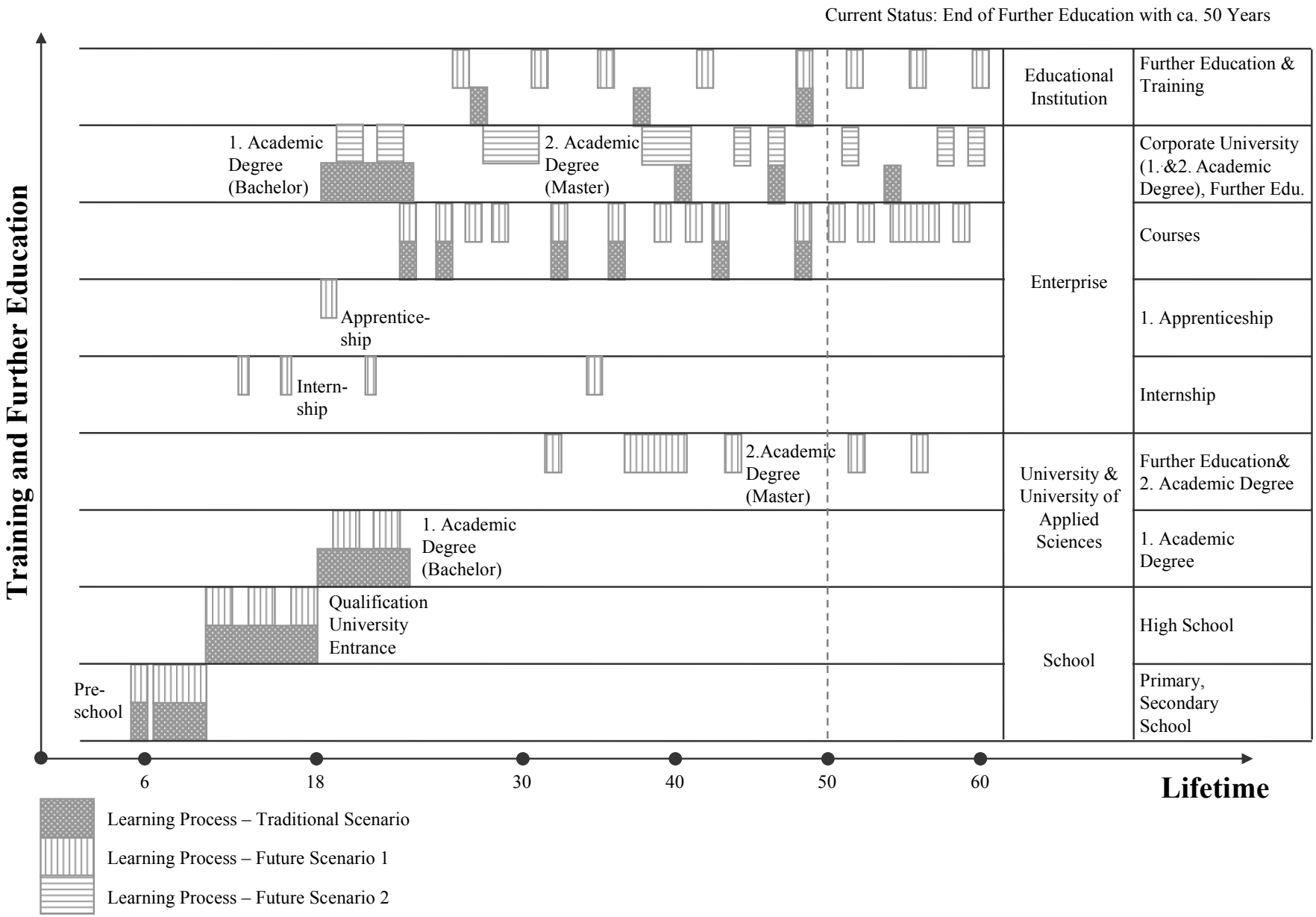


Figure 3: Lifelong learning – traditional and future learning processes and scenarios

The global availability of e-learning contents forces the players in the market to compete in a global environment. Especially public universities in German speaking countries have to compete with international business schools or universities offering an English curriculum with English learning contents and services. Many multinational companies located in German speaking countries use English as the corporate language. They prefer the cooperation with internationally oriented further education providers. The cooperation with universities based in German speaking countries plays only a minor role. The expert interviewees emphasize that this is due to problems in the essential value activities of the public providers, see Sec. 3.2.

2.2 Emerging Dynamic Education Webs

Dynamic education webs are a relatively new phenomenon. They originate from education providers' initiative in education brokerage (Koskinen 2004), learning services providing (Kraemer & Sprenger 2000, p. 36) and strategic alliances in the e-learning market (Voigtländer & Breitner, p. 407). Further education alliances as middle- and long-term cooperation can be observed between corporate universities and public universities. A more dynamic nature of cooperation originates from the increased customer- and quality-orientation. The expert questionings' results in Sec. 3.2 document this shift in the further education market.

Customer needs mainly drive the temporary cooperation of partners in dynamic education webs which demonstrate the shift from supply to demand orientation. Public and private further education providers offer a joint further education services and products portfolio in a dynamic customer-oriented market. They aim at new market segments and synergies inherent in this. Public and private education providers have to develop new business models to operate profitably and grow their market share. Education providers as well as companies delivering further education have to focus on efficiency to justify educational budgets (Hoppe & Breitner 2006, p. 45). They also focus on sustainability of the offered portfolio. Dynamic education webs can be understood as economically and independent groups of companies and/or universities. Players in dynamic education webs generally intend to supplement their portfolios in order to cooperatively work on a joint value-added process (Franz 2003, p. 14). Public and private education providers focus on their respective core competences. They contribute high quality e-learning contents to modular further education programs. These programs are mostly not standardized. The modularization and re-combination of best-of-breed e-learning contents allow for a maximum of customer orientation. Associated with the customer orientation is the diversification of the further education market.

An increasing number and types of providers compete for the predicted market potential in the further education sector (Heise Online News 2003). Universities found competence centers for further education. This expansion of their original portfolio is supposed to raise new funds and attract new customer groups from outside the university. These include employees interested in supplementary academic qualifications. E-learning technologies, learning management systems and electronic contents promote learning on the job. On the other hand companies' personnel development departments, e.g., corporate universities, position themselves halfway between practice-oriented further education and academic qualification (Hilse & Nicolai 2004, p. 373). They offer certified degrees and accredited programs (Allianz Management Institute AMI Group 2003) and invest in their e-learning infrastructure (Bohl et al. 2005, p. 249). Public and private institutions compete for the same market share. Their education portfolios begin to overlap.

2.3 Information/Communication Technologies

E-learning technologies enable an innovative further education concept for universities and companies. Stand-alone e-learning infrastructures, learning management systems, via CD-ROM distributed e-learning contents, computer-based trainings etc. are considered outdate. Up-to-date e-learning solutions are integrated in organizational and personnel administration processes. They are supposed to correspond to the convergence of learning, knowledge, competence and personnel management systems, see Figure 4. Emerging e-learning solutions include the reuse of modular learning contents and require e-learning content supply chains without media conversion. Figure 4 shows a typical e-learning framework applied to corporate and academic learning environments. In dynamic education

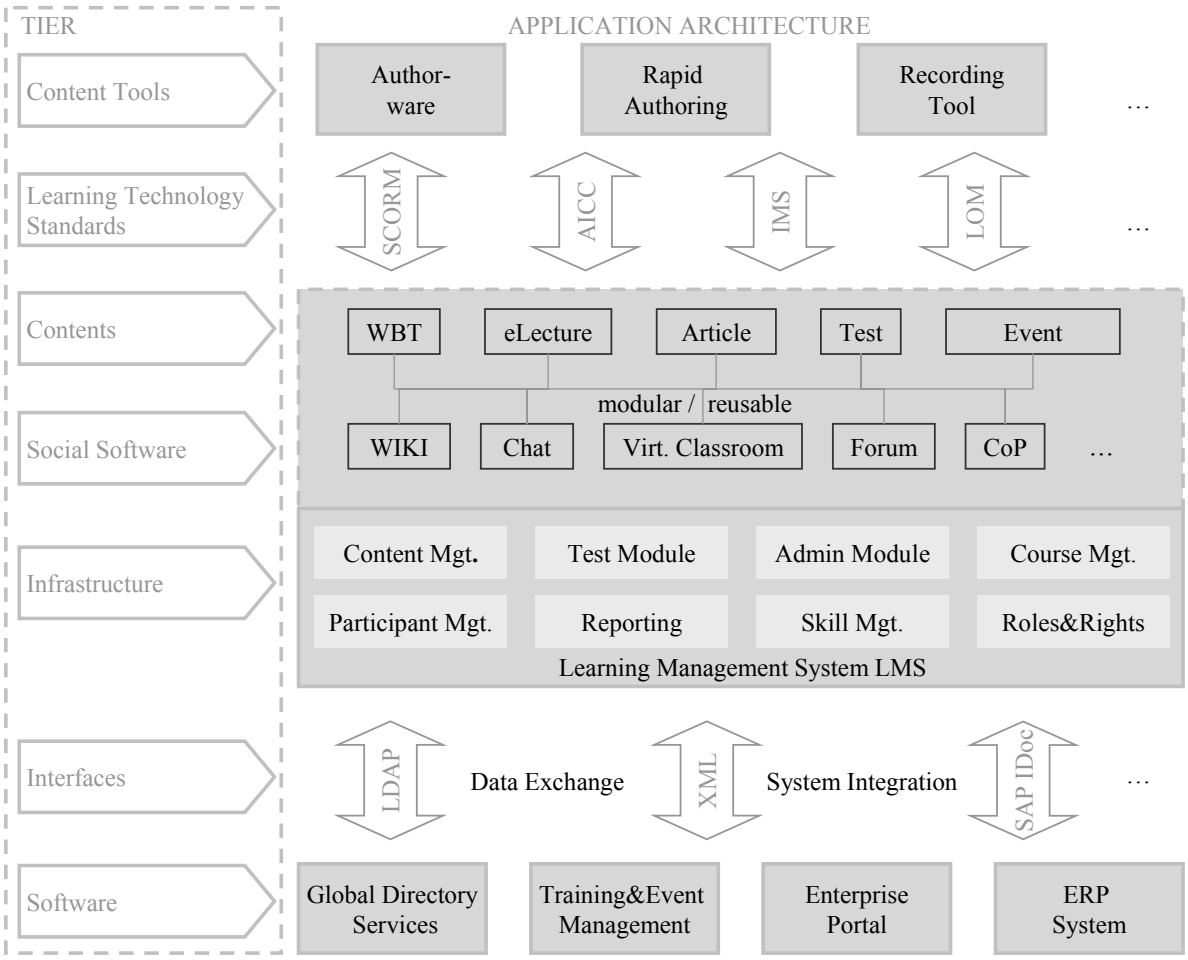


Figure 4: E-learning framework

webs companies and universities can be both e-learning providers and customers. They are part of the e-learning supply chain, receive e-learning contents delivered by public or private e-learning providers, re-combine e-learning contents and resell them on the further education market. The learning management system can be understood as an essential infrastructure supporting most learning processes. It comprises optional modules e.g., content management, participant management or reporting. Social software components like wikis, chats or virtual classrooms, supplement the functional range. They allow integrated communication processes in complex e-learning scenarios.

A customizable roles and rights management concept in a learning management system ensures that the learners can access personalized curricula with e-learning contents and services. The learning contents and services administration in a learning management system facilitates the administration of presence-based events too. Blended learning stands for the combination of technology-supported contents and services with presence-based events. Content tools as stand-alone solution or (partly) integrated authoring tools support the e-learning content creation. In a standardized learning environment they often conform to the guidelines of learning technology standards. The most common standards are AICC (Aviation Industry CBT Committee, http://www.aicc.org), SCORM (Sharable Content Object Reference Model, http://www.adlnet.gov/scorm/index.cfm) and IMS standards (Global Learning Consortium specifications, http://www.imsglobal.org).

A learning management system is a part of the corporate IT infrastructure. The processes supported by the system are not limited to the core personnel development processes. With interfaces to other systems administration processes can be automated, additionally. Examples include: Learners' data synchronization between the learning management system's database and a global directory or event booking information transmission to an event management system. The implementation of a single sign-on and integration of learning solutions into an employee portal support integrated IT processes. The integration of the learning management system CLIX® into the Microsoft® SharePoint Portal Server is a good example of this trend (imc AG, 2006). Another emerging trend is the convergence of

learning, knowledge, competence and personnel management systems. Integrated systems also promote dynamic education webs and support the further education supply chain. In the following we will refer to this integrated e-learning approach.

3 EXPERT QUESTIONINGS

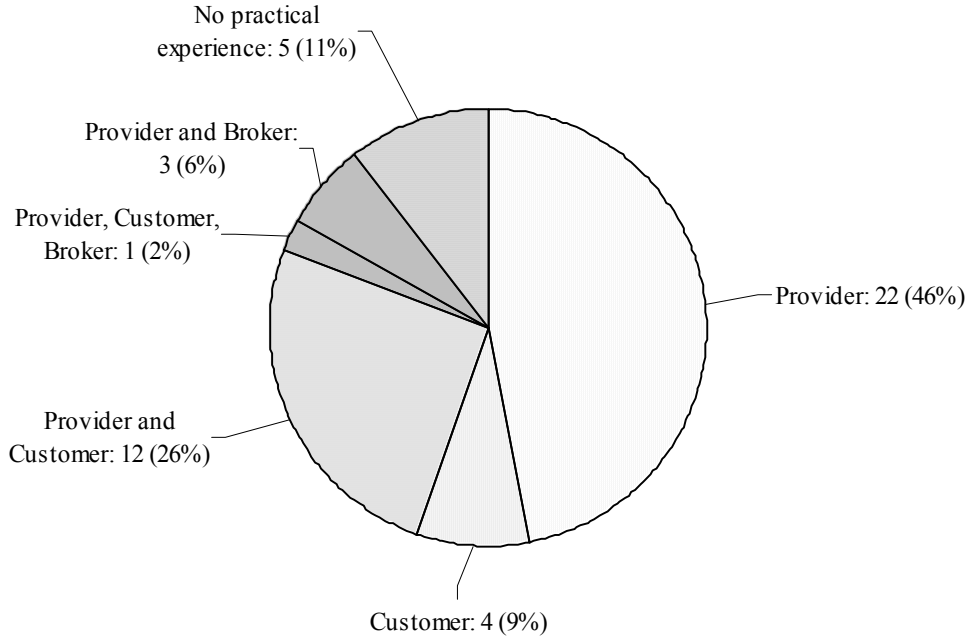
3.1 Overview

The expert questionings aim to prove the concept and practical relevance of dynamic education webs. The authors have been interviewing selected experts from public and private further education providers. These include private institutions, e-learning companies, and public further education initiatives. The current geographical focus is German speaking countries. This is due to a similar learning culture and comparable roles of public and private provider. In a later phase the results will be compared with common scenarios in other learning environments, especially in English speaking countries. The interviewees in the representative sample are personally contacted via email. 93 experts are asked for a phone interview, 47 experts (51%) agreed to take part and have already been interviewed: 21 interviewees (45%) from public, 26 (55%) interviewees from private further education providers. 46 contacts (49%) denied an interview for various reasons or have not given feedback. The complete anonymous list of interviewees can be found in attachment 1.

The qualitative phone interviews are based on a standardized interview guideline (refer to attachment 2). It focuses on players, customers, critical success factors, common pitfalls, trends and perspectives for further education providers in dynamic education webs.

3.2 Main Results

The results are described using the interview guideline structure. 42 interviewees (89%) are experienced in dynamic education webs, 5 interviewees (11%) have only heard of this phenomenon.



Public and private further education providers cooperate with a broad range of *partners in the network*, see Table 2. Universities as relevant public partners are highlighted.

Public partners	Private partners
• Federal institute for education & training • University • University of Applied Sciences • University of Cooperative Education • Vocational institute	• Association • Business school • Chamber of commerce and industry • Consulting company • E-learning provider • (Executive) coach • Human resources development • Professional training provider • Publisher • Research institute • University • University of Applied Sciences

Table 2: Public and private partners in dynamic education webs

Public institutions often prefer public partners, private providers vice-versa. Interviewees from public and private institutions emphasize that they would appreciate the cooperation with other partners. But a similar organizational culture, professional working attitude and the level of service orientation are often mentioned as reasons for this decision. There are still cultural differences. "Public universities would be attractive partners for a private business school; they own an immense body of knowledge" (expert No. 36). "As a public university we have only one chance to enter the further education market professionally: Private partners" (expert No. 20). *Emerging Customer groups* especially mentioned by public providers are small and medium-sized enterprises SMEs and university alumni. Interviewees of private providers and corporate universities aim to sell buyers of their core services and products e-learning as value-added services. Other target groups are SMEs in the same line of business and companies located in the same region, see Table 3. Universities and Business schools as partners are highlighted. An exemplary cooperation scenario will be lined out in Sec. 3.3.

Organizations as customers		Focus learner types
Public	Private	
• University • University of cooperative education • Busines Schools • Vocational institute • Federal armed forces • Ministry • Public authority	• Chamber of c. and i. • Company • Corporate University • SME	• Alumni • Apprentice • Customer of companies' products • Employee • Health personnel • Manager • Salesmen • Student in developing countries • Teacher • Trainer • Working parents

Table 3: Emerging customer groups (public and private partners) and learner types

Contents and learning services particularly suitable for dynamic education webs have to be modular, standardized and of high quality. "Integrated learning curricula benefit from complementary competences of all concerned partners" (expert No. 28). Customer and service orientation linked with flexibility turn out to be the most frequently mentioned *critical success factors*, see Table 4.

Customer orientation (1st Priority)	Partner networks (2nd Priority)	E-learning (3rd Priority)
• Business process optimization • Corporate culture orientation • Guarantee practical relevance • Joint assessment of demand • Marketing best practices • Professionalism • Support during implementation	• Business confidence • Complementary competences • Contractual framework • Cost effectiveness • Flexibility • Precise responsibilities • Regional partners • Roles and competences • Scalability	• Customer IT infrastructure • Didactic concepts • Integrated IT solutions • Service-level agreements • Standardization • Transparent cost-benefit ratio • Up-to-date technologies

Table 4: Critical success factors and prioritization

"Partners in a dynamic education web succeed in the further education market only with the passion for customer orientation and the network itself" (expert No. 1). An essential result is that providers have to focus on roles and core competences. This affects the recommendations in Sec.4. 85% of the interviewees expect a growing *market potential*. Indispensable prerequisites are professional business models, integrated e-learning services and the reputation of partners and the dynamic education web itself.

3.3 Exemplary Scenario – Hannover Business School (GISMA) and Leibniz University Hannover LUH

The scenario for the cooperation between public and private education suppliers will be outlined using the cooperation between the Hannover Business School (in the following GISMA) and the Leibniz University Hannover (in the following LUH) as an example.

Until now both institutions located in proximity have focused on their traditional portfolios and target groups. The increasing need to address students and learners in a global environment leads to their cooperation. GISMA intends to apply e-learning technologies to upgrade the Executive MBA program and additionally offer innovative learning-near-the-job programs. LUH plans to enhance its further education portfolio and strengthen the practice-orientation of selected major subjects. Both institutions contribute their core competences: LUH ensures a profound e-learning expertise and offers modular learning contents, e.g. lecture recordings in an e-library. A rapid authoring solution, the so-called UbiMotion©[3], supports professional recordings. LUH Lectures and GISMA world-class speaker sessions can be recorded flexibly. Edited recordings can be distributed online via videostream and podcast as well as offline via CD or DVD. Both institutions benefit from this value-added service and can use the once recorded sessions in different learning scenarios. GISMA ensures practical relevance and delivers case studies closely related to current practice. Furthermore both institutions decide to combine and enhance the existing LUH's scientific network and GISMA's expert network. An important objective is to achieve more flexibility in the design of customer-oriented, individual corporate programs. The e-learning support for the Executive MBA program also adds value service in serfices for the students. Both LUH and GISMA apply the learning management tool UbiLearn ©[4]. This tool is used for repetition and exam preparation. Students are provided with exercises and test. Slides, screenshots, and multimedia contents provided by the professors of LUH and GISMA support interactive

[3] The rapid authoring solution UbiMotion© (http://www.ubimotion.eu/)is a powerful mobile unit for digital recordings of lectures, speeches, and trainings and is provided by the Institute for Information Systems Research at the School of Economics, Leibniz University Hannover.

[4] The learning management tool UbiLearn© (http://www.ubilearn.eu/) supports learners' knowledge updates and test provided by trainers. The product was developed and is supported by the Institute for Information Systems Research at the School of Economics, Leibniz University Hannover.

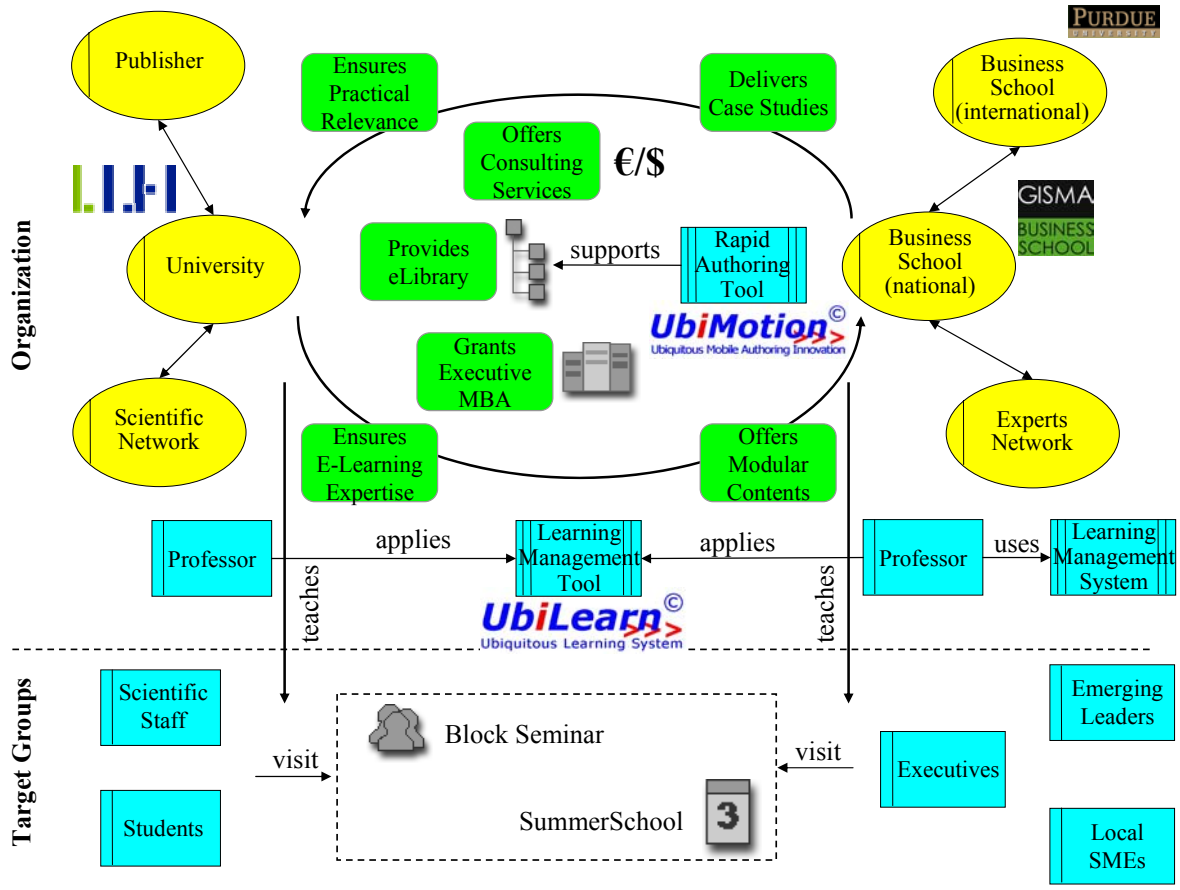


Figure 5: Scenario – business web activities between business school and public university

exercises. The network partner Purdue University strengthen the international appeal and stands for the high quality of the learning contents. Students have 24/7 access to the web-based learning environment via a personalized login. The network structure and the application of e-learning enhance the teaching capacity, abets the introduction of innovative learning concepts and allows to address new target groups. 'Traditional' learners benefit from joint events, e.g. block seminars or summer schools.

Both institutions in this case, the Hannover Business School and the Leibniz University Hannover benefit from synergies in this dynamic education network. The execute a local strategy and are able to address a global target group using e-learning technologies.

4 MANAGEMENT RECOMMENDATIONS

The recommendations focus on the core critical success factor *roles* and *competences*. This is the departure point that must be considered before entering the further education market. The results also demonstrate that universities have a visible academic profile but lack a distinct further education profile. This is essential for the visibility in the further education market and for attracting private sector companies as customers. Table 5 summarizes the results on suitable roles and core competences of selected further education providers.

Organization	Competence(s)	Role in education webs
University (public & private)	Profound research experience Academic staff Low cost structure	Syndicator Content provider
Corporate University	Close relation to practice Expert database Existing business network Affinity to research	Customer relationship management
Business school	Credibility Affinity to research	Customer relationship management Content provider
Content provider	Didactic expertise Tool competence Established clientele	Customer relationship management Broker Content provider
Publisher	Technical expertise Editorial process excellence Author network	Broker Content provider

Table 5: Core competences and promising roles in dynamic education webs

The recommendations focus on public and private universities. They can also be understood as selection criteria for companies searching for reliable academic further education partners. The immense body of academic knowledge in universities represents a promising competitive position from which to establish a further education portfolio besides research and teaching. A diligent and skillful build-up of this position is an essential prerequisite to exploit the first mover advantage. A possible approach is the foundation of an institute closely associated with the university. This is a proven model for a professional consulting services offering. It promotes networking activities with further education providers and supplements existing academic core competences. Alumni activities support practice-oriented, customer-focused learning contents. A diligent assessment of demand requires regular surveys and evaluation of customer needs. Alumni can also contribute learning contents in their field of expertise gained during their work experience. A universities' further education institute can deliver a customer-oriented and market driven portfolio.

Universities often lack an integrated e-learning strategy. E-learning initiatives often originate in past projects and base on a heterogeneous environment of differing infrastructures, tools, and standards. Interviewees in charge of university e-learning activities confirm this fact. Information/Communication technologies and systems should ideally follow an integrated strategy. The learning management system represents the foundation of an e-learning infrastructure. It supports the process of content creation or procurement, delivery and evaluation. Learning technology standards guarantee interoperability between learning management systems and learning contents, and the reuse of learning contents in various learning scenarios. This can be compared to a platform strategy: Learning contents can be recombined with standard trainings produced by partner e-learning providers. Thus learning scenarios are customized to meet the customers' further education needs.

Universities with a distinct further education profile have to commit to a strong service-orientation. An attractive further education portfolio incorporates innovative academic services. Weekend lectures, advanced courses and summer schools in semester breaks, e-learning supported part-time degrees are attractive for corporate customers. Tutoring services and e-learning contents reconcile working and learning. A local strategy, i.e. network of local partners and local customers, appears to be especially successful. The pressure to establish partner networks will increase. The network participation is an essential prerequisite to bridge the gap between academic requirements and practical learning needs.

5 CONCLUSIONS AND OUTLOOK

Lifelong learning demands mainly drive dynamic education webs. Today public and private further education providers must face the shift from supply to demand orientation in a dynamic global market. We provide insight into this new phenomenon and show the practical relevance of the results. Core results explain what promotes dynamic education webs. Various business and academic needs drive the key players which come from the public and private sector. Critical success factors reflect the multifaceted motivations. Synergies in dynamic education webs can be realized, e.g., by attracting new customer groups and by growing market shares or a significant cost reduction. Temporary partners can offer learning services and products with profound academic and practice-oriented learning contents. E-learning technologies must facilitate the establishment of successful education webs and are a critical success factor. Learning near- and on-the-job is promoted in different learning phases which are embedded in lifelong learning concepts. Standardization, modularization and certification allow the combination and reuse of learning contents independently of its original context. Today the value-creation potential inherent in (optional) dynamic education webs is not fully exploited. The expert questionings confirmed these results.

Future research is needed to understand the new phenomenon dynamic alliances in further education better. The body of acquired knowledge is still limited. Ongoing research project results indicate positive customer reactions. There are almost no data available describing the actual demand for further education under these new circumstances. The data are an important prerequisite for the development of consistent business models. This correlates with the lack of structured research in terms of essential conditions and necessary adjustments to the business models of the market players. Future research activities have to focus on an integrated approach for dynamic education webs and particularly have to investigate the role of e-learning technologies. Based on the expert questionings' results the authors conduct further research with focus on e-learning business models for public and private further education providers.

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Attachment 1: Expert Questionings – Overview Interviewees

Expert	Organization/industry	Position and role	Institution	Date
1	Bayer Industry Services GmbH & Co. OHG	eLearning Manager	Training Dep.	1-Sep-06
2	Universität Osnabrück, Zentrum virtUOS	Managing Director	Service Center	6-Sep-06
3	Multimedia Kontor Hamburg	Project Manager	Service Center	7-Sep-06
4	BIBB Bundesinstitut für Berufsbildung	Research Assistant	Federal Institute	12-Sep-06
5	X-Pulse E-Learning GmbH	PR Staff Assistant	E-learning Provider	12-Sep-06
6	Institut VIRTUS e.V.	Managing Director	Research Institute	15-Sep-06
7	TUI AG	Managing Director	Training Dep.	18-Sep-06
8	HHL Executive GmbH	Managing Director	Business School	18-Sep-06
9	E.ON Academy	E-Learning Manager	Corporate University	19-Sep-06
10	VW AutoUni	Manager	Corporate University	26-Sep-06
11	Deutsche Telekom AG	Manager	Call Center	27-Sep-06
12	Leadership-Performance-Group	Managing Director	Consulting Company	2-Oct-06
13	Deutsche Lufthansa AG	Head	Executive Education	2-Oct-06
14	HQ Interaktive Mediensysteme GmbH	Senior Consultant	E-learning Provider	4-Oct-06
15	Lemmens Verlag und Medienges. mbH	Managing Director	Publisher	4-Oct-06
16	Fraunhofer IPK	Private Lecturer	Research Institute	4-Oct-06
17	Detecon International GmbH	Managing Consultant	Consulting Company	5-Oct-06
18	Swiss Centre for Innovations in Learning	Managing Director	Research Institute	5-Oct-06
19	Detecon International GmbH	Managing Consultant	Consulting Company	9-Oct-06
20	FHTW Berlin	Research Assistant	Research Project	9-Oct-06
21	Otto-von-Guericke-Universität Magdeburg	Professor	University	10-Oct-06
22	thinkhouse GmbH	Managing Director	E-learning Provider	10-Oct-06
23	Hochschule der Medien Stuttgart	Professor	University of Appl. S.	11-Oct-06
24	Detecon International GmbH	Principal	Consulting Company	13-Oct-06
25	Fachhochschule Heilbronn	Professor	University of Appl. S.	13-Oct-06
26	E-Learning Center ELC Universität Zürich	Research Assistant	Service Center	13-Oct-06
27	Sennheiser electronic GmbH & Co. KG	Head	Executive Education	23-Oct-06
28	Bonner Akademie	Head	Further Education	24-Oct-06
29	imc AG	Manager	E-learning Provider	24-Oct-06
30	Universität Duisburg-Essen	Project Manager	Research Project	27-Oct-06
31	SAP Competence Center Univ. Magdeburg	Research Assistant	Service Center	23-Oct-06
32	Universität Hamburg	Assistant Professor	University	27-Oct-06
33	Technische Universität München	Research Assistant	University	31-Oct-06
34	CME Webakademie GmbH	Managing Director	Further Education	2-Nov-06
35	CeC NRW	Managing Director	Service Center	6-Nov-06
36	GISMA Hannover	Director	Business School	7-Nov-06
37	Helmut-Schmidt-Univ. d. Bundeswehr	Research Assistant	Research Institute	8-Nov-06
38	WebKolleg NRW	Technical Director	Federal Institute	10-Nov-06
39	Universität Leipzig	Professor	University	16-Nov-06
40	Universität Erlangen-Nürnberg	Professor	University	23-Nov-06
41	Deutsche Bahn AG	Management	Further Education	27-Nov-06
42	ML Consulting GmbH	Manager	Full Service Provider	27-Nov-06
43	Universität (Standort: Rheinland-Pfalz)	Research Assistant	E-Learning Center	4-Dec-06
44	Fernuniversität Hagen	Management	Executive Education	7-Dec-06
45	Donau Universität Krems	Vice-President	University	11-Dec-06
46	Avicento AG	Division Manager	E-Learning Provider	14-Dec-06
47	ESMT GmbH	Head	Business Simulation	14-Dec-06

Attachment 2: Interview Guideline

Demographic Data:
Interview Number:
Date:
Interviewee:
Role / Department:
Company / Institution:

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1. **Have you already gained experiences in dynamic education webs?**

- No.
- Yes, as
    - supplier
    - customer.
- Who are your public / private partners (e.g. universities, E-Learning supplier, Business Schools)

2. **Please describe your core and/or emerging customer groups.**
3. **Which products, contents and services, are traded particularly in dynamic education webs?**
4. **What are critical success factors for suppliers in dynamic education webs**

… with respect to

- E-Learning portfolio and information technology application
- network activities
- customer orientation.

5. **What are additional critical success factors from your point of view?**
6. **What causes initiatives like education brokerage platforms or E-learning competence centers to fail?**

Please state with focus on…

- Learning contents and services suppliers
- customers
- education broker
- learning contents and services.

7. **How do you estimate prospects and market potential for education suppliers in dynamic education webs?**

Please state with focus on…

- necessary preconditions
- products and services
- business models
- information technology application.

Could you provide additional information and documents focusing on dynamic education webs?
Would you like to recommend other experts who could be interested in participating?