Continuing Engineering Education: 
Business Models and Future Trends

H.R. Frey

ETH Zurich, Centre for Continuing Education,
CH-8092 Zurich, Switzerland (frey@zfw.ethz.ch)

Abstract
The ETH Zurich Centre for Continuing Education is at present conducting a study of current trends among leading providers of university continuing education in the areas of technology, the natural sciences and management. With our own positioning in mind, the goal of the investigation is to identify interesting business models and define the performance indicators central to systematic benchmarking. This paper presents the study’s first results.

Drawing on case studies of leading continuing education providers inside and outside Switzerland, the paper proposes a typology of alternative CEE business models and discusses their main strengths and weaknesses. It focuses on (a) institutional types (strategy and organisation), (b) offer portfolios (offer types, thematic emphases, target groups) and (c) different pricing models and takes into account the most important national conditions which influence the perspectives for action. The aim of the typology is not a comprehensive description but the identification of decisive features, factors and perspectives.

Keywords: continuing education, business models, future trends

1. INTRODUCTION

In recent times various broadly applied comparative studies on university-level continuing education (CE) have emerged and brought a wealth of useful information (see Hanft and Knust [1] and BeFlex [2] for an international perspective, and Reichert [3] for Switzerland). The two international studies have in common that they interpret their data more or less explicitly against the value backdrop of the Lifelong Learning Strategy of the European Community.

The paper at hand is less ambitious and has more strongly practice-oriented objectives. It is an intermediate product in one’s own realm. Its mandate is to analyse the CE business models of various leading institutions of higher education, to develop a benchmarking system with strategy-relevant key performance indicators, and to suggest scenarios for future positioning of the ETH Zurich in the area of continuing education.

The first phase of the study, as is presented here, is based on an immersed yet not representative internet search among the universities and universities of applied sciences in the region, and a selection of prestigious foreign research universities with which the ETH Zurich collaborates in various networks [4].

The study defines university-level CE in the first instance as a part of instruction, as is today the case organizationally and from a standpoint of content at most institutions of higher education. It is known that other business ideas are also possible, and that individual institutions of higher education have long since begun to define the business field of ‘continuing education’ more broadly.

It is not intended here to address the often demanded orientation of institutions of higher education towards ‘lifelong learning.’ This concept may claim a shift in perspective from teaching to learning, but all too often remains arrested in the classical definition of CE – namely the advancement of individual learning. More promising are attempts to combine consulting, research, instruction and networking to integrate new types of innovation or research partnerships or a comprehensive alumni concept. Continuing education is, alongside instruction, frequently also technology transfer, alumni engagement, relationship management, fundraising, public relations and
sector politics. Corresponding initiatives exist at many universities (especially in technological or economic disciplines), but they are seldom part of a comprehensive strategy. This may be due to the fact that the resources of institutions of higher education are limited through research and instruction and that the consulting market is dominated by private providers.

2. SYSTEM LEVEL

Despite globalisation and the Bologna Reform, the academic CE market remains heterogeneous and segmented according to sector and region. The objectives range from the socio-political integration of educationally under-represented groups to elite promotion, and the offerings from the publicly accessible computer course to the continuing educational doctorate.

Which strategic perspectives are viable in this broad spectrum of possibilities depends on the role of the higher education sector in the national education system and on its internal differentiation. The study identifies at the system level four in part interconnected factors, which essentially codetermine the choice of strategy:

1. The function of the higher education sector in occupational training: the higher the degree of academisation in occupational training (and thus the percentages of students in the respective age groups), the broader the need for CE will be [5].

2. The standard degree in the area of higher education: in countries and sectors in which students as a rule complete their university-level studies with a bachelor’s degree, the requirement for CE is a different one than in countries and sectors in which the master’s degree is held to be the standard degree.

3. The price differential between ‘standard’ and continuing educational programmes: if standard degree programmes are subsidised, then CE must develop a clearly delimitable profile in order to justify the differences in price.

4. State regulation of the continuing education sector: if equivalency to standard degree programmes is required in admissions, workload and degrees, then academic CE positions itself differently than in countries in which particular continuing education degrees are defined.

3. TYPES OF CONTINUING EDUCATION AND CONTINUING EDUCATION STRATEGIES

Before it can be shown how the four framework conditions affect the strategies of higher educational institutions, the confusing multiplicity of CE offerings needs to be structured. Proceeding from the Bologna system (bachelor and master level), Fig. 1 differentiates between five types of CE: a) integrated (in standard degree programmes), b) equivalent (to standard programmes), c) advanced (as compared to standard programmes), d) compensatory (to standard programmes) and e) publicly accessible short courses [6].

3.1 The ‘integrated’ type of continuing education

In the integrated type, institutions of higher education hardly differentiate between the standard degree studies and CE, thereby achieving gains in synergy. They organise ‘standard’ programmes in such a manner that they are also attractive for persons who return to – or even enter – the university following an occupational phase. The selection of courses is correspondingly large.

Thereby it must be differentiated between a) participation in ‘standard’ courses that lead to the usual academic titles (bachelor, master, certificate, diploma), and b) target-group-specific programmes that provide specific advisory services or allow participants to combine standard courses and research offerings flexibly from different fields.

- An interesting example of flexibility is the Graduate Studies Select Program of the Australian National University (ANU). The programme allows participants to combine courses across discipline borders in accordance with their individual needs and despite this to still achieve an academic degree [7].
• Examples for successful combinations with advisory services are the ‘Advanced Study Program’ and the ‘Career Reengineering Program’ at MIT. The ASP is a certificate programme for professionals with an academic background, who wish to specialize or acclimate themselves in a new field. They attend 1-4 ‘standard’ courses or conduct a research project during at least one semester. The CRP is a ten-month part-time certificate programme for knowledge refreshment or for re-launch of one’s career. It combines coursework and research activity from the programme of studies with special career counselling and an internship. Both programmes advertise with the specific campus spirit of MIT.

The integrated type of continuing education is mainly prevalent where standard degree programmes are expensive (low price differential), and where no special state regulation for CE degrees exists (Fig. 2, column a). Often the bachelor’s degree is held to be the standard higher educational degree, or the master’s studies are entered after an occupational phase of several years. The integrated type of continuing education is primarily common in Anglo-Saxon countries (GB, USA, AUS).

3.2 The ‘equivalent’ type of continuing education
The equivalent type of continuing education corresponds in its requirements, conditions of accreditation and academic title (BSc., BA, MSc., MA) completely to standard degree programmes. They differ from standard programmes only through greater practical relevance, occupationally compatible organization and closer attunement to customer needs. Offerings for course selection are in general less ample than in the ‘integrated’ type and synergy gains are smaller.

The equivalent type of continuing education has established itself primarily in countries where no specific CE degrees are allowed and CE programmes cost considerably more than standard degree courses (Fig. 2, column b). The clear delimitation of CE and common study is thus a direct consequence of the great difference in price and the necessity to justify this to customers. The equivalent type of continuing education is, for example, very widespread in Germany.

Of interest are the attempts of individual universities to realise synergy gains without waiving price differences and a clear delimitation (also communicable to customers) to standard instruction. This is achieved through frequent repetition, multilingualism and outsourcing of continuing education to partially independent institutions that are not bound by state-decreed tuition fees.

• The RWTH Aachen has outsourced its CE to a partially independent unit, the RWTH Aachen International Academy. It gains synergies in a) that CE master’s programmes are started several times per year in two languages and two countries, and b) that English-language master’s programmes conceived for international students are sold at much higher prices than similar degree programmes taught in German [8].

3.3 The ‘advanced’ type of continuing education
The advanced type of continuing education addresses the academic elite. Professional experience and a completed university-level education (depending on country and sector at master or bachelor level) are prerequisite. In contrast to the equivalent type, educational objectives and the degrees explicitly differentiate themselves from standard degree programmes.

Advanced programmes are mainly niche products at a high level. With the exception of management (MBA) and medicine, they generally operate in relatively small markets with low competition. The potential for synergy with other courses are low, and production costs are correspondingly high.

The strategies of advanced continuing education are – as those of the equivalent type – promising in countries in which the price differentials to standard degree programmes are large, and in which the state regulates CE (Fig. 2, column c). They differ however, in that the degrees explicitly distinguish themselves from standard degrees (Postdoctoral Master or Master of Advanced Studies instead of Master of Science). CE customers are more in-
clined to pay higher prices if specially conceptualised study programmes with independent high level degree can be offered.

Within the advanced type, three profiles can be differentiated: a) the ‘specialisation’ in the original discipline (e.g. medicine, psychology, jurisprudence etc.), b) the ‘complement’ to the original discipline through a degree outside of the field of expertise (tax law for non-attorneys, intellectual property for engineers etc.) and c) the ‘multidisciplinary extension’ (MBA, land use planning, development collaboration etc.).

The greatest difficulty of the advanced type of continuing education is that requirements, degrees and labels may differ considerably from one country or university to the next.

- The TU Delft offers CE master programmes with a workload of 30 credit points and various two-year, research-oriented ‘post-doc master’ degrees. The admissions criteria in the first case are a bachelor’s degree and 5 years of professional experience, and in the second a master’s degree. ‘Post-doc master’ courses lead to a post-graduate master’s degree or a ‘Professional Doctorate’ (PDEng).

- Swiss institutions of higher education differentiate between the three formats master of advanced studies (60 credit points), diploma of advanced studies (30 credit points) and certificate of advanced studies (10 credit points). The admissions criteria differ depending on the type of institution and the sector. University institutions as a rule require a master’s degree, while universities of applied sciences and some university MBA programmes require a bachelor’s degree.

3.4 The ‘compensatory’ type of continuing education

The compensatory type of continuing education enables people without a classical educational career to enter the university through the acknowledgement of formally or informally acquired competencies. It offers customer groups specially conceptualised course programmes and provides bridge offerings to close gaps that otherwise prohibit acceptance to standard degree programmes.

Compensatory offerings in the narrower sense are mainly prevalent in countries in which a large part of occupational training takes place at higher education institutions and where the numbers of students in the tertiary sector A are correspondingly high (Fig. 2, column d).

For research universities in countries with dual-path educational systems (CH, DE, AT) or in strongly differentiated university-level educational systems (US, GB), compensatory continuing education in the narrower sense is generally not attractive. Possibly there may be bridge offerings for graduates of universities of applied sciences entering research university, or cooperative programmes with institutions of lesser prestige that can induce an enhancement of the degrees.

3.5 The ‘open access’ type of continuing education

Open access continuing education consists mainly of compact offerings without formal access limitations and is available under all framework conditions (Fig. 2, column e). It covers a broad field of courses, from general education through training of specific skills (computer courses), to transfer of the newest scientific findings into practice. The addressed target groups are correspondingly diverse.

As concerns general education courses and training there are highly differing estimations. Some institutions of higher education are convinced of their political (goodwill) and financial utility, while others doubt that these types of courses can be provided at competitive prices.

4. FORMS OF ORGANISATION

Hanft and Knust (2007) have pointed out that CE at most universities is settled in various units, that between centralised and decentralised units cooperation and competition often coexist, and that the institutional development paths can by all means run in both directions. Nevertheless centralised forms of organisation appear more common in Finland, Austria, France and Germany than they do for example in Great Britain, while continuing education in the USA, due to its market orientation, presents itself heterogeneously in most every respect.

Due to available data the question of organisation can only be discussed here formally. Fig. 3 attempts to summarise the forms of organisation of various institutions of higher education schematically in a matrix with the dimensions of programme responsibility and institutional independence. In the lower left are higher education institutions with continuing education offices that are institutionally completely integrated within the university, and function as pure service centres. Towards the right the institutional independence of the CE units increases (executive schools, profit centres, foundations or other forms of outsourcing), while farther up the CE units create their own CE programmes and are fully responsible for their execution.
Independent of the chosen form or organisation, two central questions remain open that can only be answered in the second phase of this study, and yet in the end are responsible for the success of each model: 1) how is the proper balance between quality and financial objectives institutionally guaranteed (particularly in cases of economic pressure)? And 2) where are the necessary core competencies (expertise, administration, market knowledge, didactics etc.) located and how can it be guaranteed that these are made available at the correct spot in the critical phases of the planning, implementation and evaluation processes?

4.1 Decentralised organisation: the continuing education office as a service centre
At various universities in our study, CE is decentrally organised, whereby longer programmes must as a rule be approved by the higher educational institution’s management. The CE offices are relatively small units and act as service centres with support, advisory, coordination, marketing, and quality assurance duties. The continuing education offices of the universities of Zurich and Bern, the ETH Zurich and the Imperial College operate with approximately 4-6 full-time equivalents.

4.2 Centralised organisation: the continuing education office as a course provider
CE at the TU Delft, the RWTH Aachen, the universities of St. Gallen and Lausanne and the ETH Lausanne are more strongly centralised or currently amidst a centralising process. The CE offices have greater personnel resources (more than 30 in the case of St. Gallen) and are organised in schools or as independent units with their own legal personality.

- The RWTH International Academy (founded 2000) is a limited liability company, supported in equal part by the university and the association friends of RWTH. It presents itself as a professional service provider along the entire value chain, and as a contact partner and advisor of customers and of professors who wish to become active in continuing education.
- The ETH Lausanne and the University of Lausanne have recently created a common foundation in order to consolidate the administration of CE and to develop new university-comprehensive and in-house programmes. The foundation has service responsibilities, and through its scientific management, quality assurance responsibility [9] and its monopoly in allocation of credit points it can also influence strategy.
- The Executive School of Management, Technology and Law of the University of St. Gallen was founded in 2005 to coordinate existing CE offerings and to develop its own programmes. In the meantime, it generates half of CE income and thereby roughly an eighth of the entire university budget [10]. The Executive School wishes to expand its engagement and is considering hiring its own professors. Critical initiators of the centralisation process were the intensification of in-house business and the wish for strategic focus formation – not least in order to improve chances for accreditations and rankings.

4.3 Mixed forms: the continuing education office as service centre and partial programme provider
At some universities the CE offices are in the first instance service providers, assuming however programme responsibility for certain topics or programme types. They thereby develop methodical know-how that then stands available for consulting with decentralised providers, raising their acceptance among them.

- The CE office of the University of Bern is responsible for the master and certificate programmes in the areas of evaluation, higher educational didactics, and higher educational institution and research policy – all topics that are also relevant for decentralised providers – and sits as a voting member in the programme management of various other master and certificate programmes.
- The Centre for Professional Development of Imperial College develops short courses, seminars and conferences domestically and abroad in collaboration with the departments and with industry. Programmes that lead to an academic title may only be offered by the departments.
- The MIT Professional Education Office offers services, short courses, custom programmes as well as the previously mentioned Advanced Studies and Career Reengineering Programs. Independently of this,
there exist specialised programmes and CE units in other departments. Some professional education programmes grant credit points and certificates, but programmes with academic titles are reserved for the departments.

The advantages of decentralised models are the expertise of the programme managers in their particular disciplines and their close relationships with companies and professional associations in their sectors, while the advantages of centralised models are the professionalisation of management, the homogenisation of offerings, prices and market appearance, and the possibilities to form strategic focal points. Alongside the factors already mentioned, centralisation processes are often justified with the flexibilisation of price and incentive design, the intensification of in-house programmes, and better chances with accreditation and rankings.

5. PRICES AND COSTS

If one occupies oneself with comparisons, then the topics of costs and prices are unavoidable. From a benchmarking standpoint costs make more interesting study material than prices, but available data is hardly sufficient even for price comparisons.

5.1 Costs
It appears plausible that teaching personnel and possible advisory services belong among the most important cost drivers of CE, while high numbers of participants, content synergies to other courses of study and rapid reproducibility influence costs positively.

Unfortunately the cost-reducing conditions particularly in the advanced type of CE are hardly ever fulfilled. Academic niche markets do not bear economies of scale, and university-level personnel is only selectively available.

Integrated types of CE are in this instance better positioned. On the other hand they often induce higher advisory costs, since it is first the individual counselling that justifies the difference to standard degree programmes and makes these programmes attractive for CE customers.

5.2 Price comparisons
If we address prices, then the question arises whether what is meant to be compared here is even comparable. Aside of compilation difficulties, of inclusive and exclusive value-added tax rates, of offerings with or without issue of books or meals, there exist a number of structural differences that must be considered in the interpretation. Nonetheless, important insights can be gained from these difficulties if they are interpreted with the proper caution.

Fig. 4 makes the price differences between CE programmes within and between the universities graphically visible. Each point corresponds to the price of a CE degree programme, while the continuous line represents the average price for each university. As a means of illustration of the previously mentioned cost differentials between CE and regular programmes, the standard tuition fees of a master’s appear lower in the illustration as columns. For all European universities, at least for students from Europe, these are subsidised and are therefore much lower than the tuition fees for CE programmes.

In order to ensure comparability between shorter and longer programmes, the graph indicates the price per ECTS credit point. Programmes in countries outside Europe were assigned credit points arbitrarily based on their duration. The quality of the graph thus drops moving towards the right.

Fig. 4: Prices of CE master programmes (prices per ECTS credit point in EUR)
In all circumspection the following insights can be gained nonetheless:

- Within most universities there are considerable price differences between individual programmes. They are often greater than the differences between the universities themselves. Above all management programmes have higher than average prices. Universities with considerable differences should arrange their prices more coherently, either in that they make them more uniform, or in that they segment their offerings, assigning unique designations and price classes to the individual segments [11].

- At business universities and institutions providing courses at the interface between management and technology (MIT, USG), the average values are also correspondingly high.

- Comparatively ‘cheap’ on the other hand are technically oriented programmes and courses that coincide in content with standard degree programmes (RWTH, ANU), are subsidised by sector associations (UZH, UBE) or are offered as a kind of substitute to doctoral programme in disciplines in which doctoral degrees are unusual (e.g. architecture, ETH). Some universities subsidise certain programmes if they are considered systemically critical for the institution, for a certain sector or for the national economy but cannot be produced cost-effectively.

- The high prices of Delft Top Tech are somewhat misleading. Nominally, they are comparable with CE master’s programmes in other places, but with a workload 30 ECTS credits, they seem to be shorter. Short programmes may be very attractive primarily for people in the most active phases of professional life. They also make it possible to offer programmes for small, effective learning groups.

- Programmes of the advanced CE type are, contrary to expectations, by far not always more expensive than other types – although the costs of such programmes must be high. Particularly at Swiss universities in international comparison there is potential for adaptation.

- MIT and ANU (Study Select Programme) demonstrate how low the price differentials between standard and CE degree programmes can be – if CE exists as a separate concept at all. In some cases, the prices for standard degree programmes in figure 4 may be misleading. They were calculated on the tuition fees for normal programmes and for domestic students, but several universities charge much higher fees for specialised programmes and overseas students (Imperial, RWTH).

6. LESSONS LEARNED AND OUTLOOK

The goal of this paper was to compare the CE business models of a selection of leading universities, identify alternative paths for development, and establish a basis for the detailed analysis and elaboration of a benchmarking system planned for the second phase of the project. The study so far has shown which conditions limit universities’ development potential, and how universities adapt their structures and strategies to take optimal advantage of their respective situations.

From the models discussed and the examples of best practice it now seems possible, at least in summary form, to formulate development scenarios and render the data from individual country groups useful in countries where other conditions prevail. The paper covers only research universities; different conclusions would be drawn for other types of higher education institutions. The scenario discussion refers back to the CE types described in the first part of the paper (Fig. 1-2).

Integrated CE (type a) offers the greatest variety of content, because it can draw on the whole university offering. It is common in countries where the Bachelor degree is the basis qualification and where there is no significant price difference between core courses and continuing education. However, integrated CE also has considerable development potential for other environments (where the Master degree is the basis qualification, and the price difference is large), if it is able to exploit synergies and create value which makes the price difference worth it for its clients. Its success factors here are (a) customised advice; (b) flexible subject selection; (c) tiered levels of possible qualifications; (d) flexible organisational forms; and (e) aggressive marketing. It is not enough to offer individual lectures on an auditing basis, as is general today e.g. in Switzerland.

Equivalent CE (type b) is interesting for client groups who wish to complete a Master or Bachelor degree after a period of work experience. This CE offer can be more closely tailored to the target group than the integrated variety. However, the range of subjects on offer is smaller, and the necessity of ‘equivalence’ of titles and credits can limit the flexibility and customising of the offer. Equivalent CE is common in countries where the Bachelor degree is the basis qualification and the price difference between normal degree courses and continuing education is large. It offers only minimal development potential for research universities in countries subject to other conditions (Master degree as the basis qualification; large price difference; specific CE titles).
Advanced CE (type c), which flourishes today in (e.g.) the Netherlands and Switzerland, could develop into a successful model for the continuing education of professionals with advanced academic qualifications in further countries if national regulations regarding higher education were to allow specific CE titles and drop their insistence on formal equivalence to normal degree courses. The prerequisite for the international acceptance of advanced CE is to develop common terms and minimum standards, while taking care not to limit the flexibility of the offer. While the high educational standard should be explicit, the credit workload must be adjusted to CE client requirements.

Compensatory CE (type d) in the narrow sense has few development possibilities for research universities. Polytechnic universities and undergraduate colleges are generally better-placed to take advantage of it, and cheaper. They have more flexible admission requirements, are more in tune with vocational training and have faculty with the corresponding knowledge. If advanced CE Master programmes are to be increasingly accessible to Bachelor degree holders, the introduction of ‘bridging’ courses in research methods might be considered as a way to equip these candidates with the academic methodology that they will need. Master degree holders would normally possess these skills already.

Open access CE (type e) is offered by most universities. It is recommendable for research universities, because of their core competences, to focus on scientific transfer and leave more general courses or skills training to other providers. Despite this, several universities are also active in the latter areas. This can make sense if institutions can thereby make more productive use of infrastructure capacity and reap additional income or social goodwill without placing additional strain on teaching and research personnel. In any case, there is much room for development of open courseware and in-house programmes.

3.1. References
[5] In countries with dual educational systems and correspondingly strong tertiary B areas (DE, AT, CH), the first-year student percentages in 2006 lay between 35-40%, with the OECD average at 54%. Tops in the academisation of higher occupational training were the USA with well over 60% and FI with 76%
[6] Various differentiation models can be found in literature, namely such according to length, admissions criteria, customer groups, didactic methods, degrees etc.
[7] In GSS the academic titles are Master of Studies (instead of Master of …), Certificate of Graduate Studies (instead of Graduate Certificate in …) and Diploma of Graduate Studies (instead of Graduate Diploma in …).
[8] The price differential between the German Bologna master programme and the English-taught international master programme amounts in this case to a ratio of one to seven.
[9] Quality assurance at the level of course, module and docent is the responsibility of the foundation. Admissions decisions devolve to the university, and evaluations of effectiveness are outsourced to external experts.
[10] Continuing education of all providers at USG amounts to CHF 40 million and contributes approximately one quarter of the budget.
[11] An example of successful segmentation is the differentiation between the Master of Advanced Studies (technically oriented offerings in French) and the Executive Master (international management programmes in English) at EPF Lausanne.