Costs Without Camouflage

A Cost-Analysis of Oldenburg University's two Graduate Certificate Programs Offered as Part of the Online Master of Distance Education (MDE) - A Case Study

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1. Introduction

The paper offers a cost-analysis of two online graduate certificate programs which are an integral part of the online Master of Distance Education program, jointly offered by the University of Maryland University College (UMUC) and the Center for Distance Education (ZEF) at Carl von Ossietzky University of Oldenburg[1] (cf. Bernath & Rubin, 2001 and Bernath & Rubin in this volume). The case study is about the management of networked teaching and learning in two certificate programs: the *Foundations of Distance Education Certificate*, and the *Distance Education in Developing Countries Certificate*.

The issues addressed relate to the international cooperation in an online Master's program, the management of networked teaching and learning, and sustainability through cost recovery. The point is to set up a program, which generates sufficient 'surplus' (not profit) for quality investments and program sustainability and expansion.

1.1. Objective of the Paper

There is a relative dearth on cost data. Though most institutions officially regret this, costing information is mostly treated following a 'secret service principle', i.e. the more we know about the others and the less they know about us, the better. Even in case institutions agree to release cost data they often insist on masking them to a degree where few conclusions can be derived from them.

This paper breaks with this secret service principle and offers a detailed and explicit breakdown of the costs - without camouflage. This is the main contribution the paper tries to make. It has been possible to come quite close to the real costs because the director of ZEF, Bernath, did accept, and indeed finally encouraged this approach and willingly provided the necessary data. Moreover, since Bernath is a keen time keeper of his and the center's activities it is possible to offer good quality data.

Beyond the perennial questions 'How much does it cost?' and 'Why does it cost so much?', there are other questions to which the paper contributes such as 'Is the program scalable?', 'What is the ideal class size?', 'What is the instructor time required to teach an online class?', 'Is it cheaper to outsource activities?', and 'What are the main avenues of quality investment?' We summarize our findings at the end of the paper.

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[1] Sometimes, for the sake of simplicity, we use the abbreviation UNIOL, although it is not an official or standard abbreviation.

1.2. A Note on Methodology

But first a note on methodology. The case study is an unusual one. Cohen and Manion (1980) classify case studies along the two axes (natural to artificial setting, and the level of imposed structure). According to this classification this case study is quite close to the natural setting, while it at the same time imposes structure to a considerable degree. Indeed, being heavily involved in course development and teaching of the program, the author is so close to the natural setting of the program, that the danger is not the lack of contextual knowledge, but rather the 'blind spot', which makes it difficult to be participant and observer at the same time.

The high degree of imposed structure is due to the fact that there is an established methodology of costing distance education courses (Orivel, 1987; Perraton, 1982; Rumble, 1997; Bates, 1994; Hülsmann, 2000). This literature provides a reasonable conceptual format to guide data collection.

There is, however, a methodological reference rarely made, which I regard as important. It relates to the distinction Lincoln and Guba (1985) make between 'generalizability' and 'transferability'. These authors reject the notion of social research aiming at generalizations which, in analogy to the laws of nature, should identify general laws describing social processes. This approach has turned out to be quite sterile with regard to the results and unsound from an epistemological perspective. The authors suggest embedding the findings in a 'thick description' of the context which enables readers and users of the case study to make reasonable judgements, if the findings, given the described context, are likely to apply to the reader's/user's own context. Hence, transfer becomes a joint responsibility of the author, who needs to embed the findings in a sufficiently thick description of the context, and the user, who is responsible for establishing, whether his/her context is sufficiently close to the one described, making a transfer of findings reasonable[2].

1.3. What is Missing

In this paper we discuss the cooperation between UMUC and Oldenburg University. This means that we have several cost locations, not all of them under our control. The principle objective of the paper is to identify the direct costs attributable to the courses offered by ZEF. In addition to the direct course costs we have to assess the overheads and the costs of managing the cooperation. This still leaves the cost-analysis incomplete if we were to cost the program as a whole. One has to read our findings against the backdrop of this cooperation, in which several functions to run the program are taken care of by UMUC as our cooperation partner[3]. Such functions include student administration, marketing, the learning platform WebTycho (including the Help Desk), as well as library services (including copyright clearance).

Hence, readers may use the study to get benchmark data on direct course costs and the cost of several quality investment measures. However, the transfer of findings should

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[2] An additional advantage of this paper being included in this book is that a series of articles further contributes to such a 'thick description' of the context.

[3] For a synopsis cf. Bernath & Rubin in this volume, Table 5: The UMUC/UNIOL Model of Collaboration (p.27).

take note of the context of cooperation, in which several functions are externalized and consequently not included in this paper.

1.4. Advance Organizer

The paper describes and analyzes the costs incurred and the revenue generated by two graduate certificate programs: (i) the *Certificate Foundations of Distance Education*, and (ii) the *Certificate Distance Education in Developing Countries*. The two programs are offered within the online Master of Distance education (MDE) program as an intermediate option for those who do not want, or cannot opt for the full MDE program right from the beginning.

The *Certificate Foundations of Distance Education* consists of four courses

- *Foundation of Distance Education* (OMDE 601)
- *Economics of Distance Education* (OMDE 606)[4]
- *New and Emerging Media in Distance Education* (OMDE 605)[5]
- *Student Support in Distance Education* (OMDE 624)[6]

The *Certificate Distance Education in Developing Countries* also consists of four courses

- *Foundation of Distance Education* (OMDE 601)
- *Economics of Distance Education* (OMDE 606)[4]
- *National and International Policies for Distance Education in Developing Countries* (OMDE 625)
- *Technologies for Distance Education in Developing Countries* (OMDE 626)

Note that the certificates include some identical courses. It was felt that courses in *Distance Education in Developing Countries* would require some basic understanding of the *Foundations of Distance Education* and would strongly benefit from a good grounding in the economics of distance education, especially in cost-analysis.

The paper starts by giving a short history of the MDE[7]. This is to be seen as part of the 'thick description', required to guide the drawing of conclusions from the paper for other contexts (cf. the concept of transferability in Lincoln & Guba, 1985). History is part of context and impinges on aspects of cost-analysis. A point in case are the costs of course development of OMDE 601, which profited a great deal from the *Virtual Seminar* (VS; cf. Bernath in this volume). We treat the costs of the VS as 'sunk costs' for the purpose of our analysis, since they „… are not regarded as relevant to current decision making" (Rumble, 1997, p. 16). Another important aspect of context is the way ZEF is positioned within the network of distance education institutions (ICDE, EDEN, EADTU, ALN). Its director, Bernath, for many years pursued the policy of giving the Center of Distance Education in Oldenburg an internationally visible profile. It is only against this backdrop that it can be understood how it was possible to attract a number of leading experts in distance education and to draw them into this cooperation. It is in the second section of

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[4] This course has been renamed 'Management of Distance Education I: Cost analysis'

[5] This course changed its name and status and is now an elective course. The new name is *Learning and Training with Multimedia* (OMDE 620).

[6] This course changed its status and is now one of the core courses of the MDE program (OMDE 608).

[7] For a more detailed account on the history and development of the MDE cf. Bernath & Rubin in this volume.

this paper that we develop the necessary context to enable the reader to interpret the findings within their proper context.

Section three is the core part of the paper and includes the cost-analysis, beginning with a remark on methodology. In general the costing methodology is well established (as stated above; cf. p. 170) and we make use of it. However, given that the Center for Distance Education is part of a publicly funded university all 'profits' (the difference of costs and revenues) must be reinvested in program related activities. Ideally the books are always balanced, which suggests that costs can be estimated by generated revenue. We do this in a first subsection (3.2 Cash flow analysis; 3.2.2 Backflush costing). However, this type of analysis is not particularly suited for identifying individual cost drivers and to attribute costs to particular activities (such as course development or course presentation). In this or managed costs seems to be a relevant distinction. It allows us to differentiate between costs committed to contractual obligations as part of the cooperation and costs of 'quality investment'. The latter costs are managed or flexible since they can be scaled down to some extent if revenue falls. Hence the further subsections first detail the committed costs followed by the managed costs.

The last section of the paper draws the findings together, revisits some issues and, finally relates the findings to some of the major issues in the current discussions of online learning, including scalability, group size, and teacher's time.

2. The MDE: A Short History

History is a dimension of context and context is of importance in costing. Most who read case studies on costing are likely to ask questions like: How did they do it? What did it cost them? Could we do a similar thing? Could we do it at lower costs?

The history of the MDE can be described in three steps: (i) A pre-history: The *Virtual Seminar* for Professional Development in Distance Education. This period is important since much of the development for OMDE 601 and in fact the MDE as a whole was carried out as part of the *Virtual Seminar*. (ii) A period of incubation: This includes the concept of the program as a whole and the development of a working cooperation between UNIOL and UMUC. Here we need to describe how the part we are analyzing is as a whole embedded in UMUC's infrastructure. This allows us to identify costs that will be ignored in this analysis. (iii) The period of development of the different courses and their presentation. This part includes the core of the cost-analysis.

2.1. A Pre-History: The Virtual Seminar for Professional Development in DE

You will find a detailed account of the history of the *Virtual Seminar for Professional Development in Distance Education* in this volume (cf. Bernath & Rubin; a complete description of the seminar itself find in Bernath & Rubin (Eds.) 1999). Their chapter in this volume, and indeed the volume as a whole, can be read as what I referred to as 'thick description'.

I want to emphasize some points because they either relate directly to costs or indirectly to the issue of transferability. The directly cost related aspect is that the *Virtual Seminar* was sponsored by an AT&T grant offered in conjunction with the ICDE[8]/AT&T Global Distance Learning Initiative. The grant of US$ 75 000 was used as described below in Table 2-1. The *Virtual Seminar* was launched in 1997 and offered for free to professionals in distance education. In 1997 and 1998 it was offered another two times in a more cost recovering and self-supporting manner.

Table 2-1: Costs of the Virtual Seminar

Identification of cost drivers	US$ ('97)
Includes: project development, management and moderation (2 persons)	$ 30 000
Two laptops for seminar leaders	$ 7 000
Technical assistance and Hypernews administration	$ 14 000
Four internationally renowned experts (30 hours/week for one week each plus participation in evaluation)	$ 11 000
External evaluation	$ 4 000
Several; including two separate face-to-face meetings and production of final report	$ 9 000
Total	**$ 75 000**

Based on Hülsmann (2000)

The aspect that the seminar was sponsored by ICDE is also not without significance. It underlines that distance education has developed professional organizations and networks. Bernath was well placed in the network and knew about the grant, to launch a successful application, and later on to muster enough support from high profile professionals to make the *Virtual Seminar for Professional Development* (VS) live up to its name, i.e. a truly professional seminar able to attract professionals within the field. Indeed, the multiple references to professionalism may not fully reflect that the developing relationships were more than business relations. Cooperation developed into a networked community with a high level of trust and mutual appreciation. The importance of trust has elsewhere been emphasized also as a feature impinging on economics. Not to include this information would deprive the reader and possible user of important contextual information.

The *Virtual Seminar* was important for four reasons:

(i) The principal initiators of the *Virtual Seminar* developed the format which they were able to apply for the development of the MDE. The format can be described as a specific way of using an asynchronous conference platform. Asynchronous conferencing can be implemented in a variety of ways. Here it was modeled after an academic seminar: identify a number of seminal texts as required readings, and conducting focused discussions on these readings.

(ii) The *Virtual Seminar* brought together two well placed representatives of UMUC and Oldenburg University in a highly successful project. However, the cooperation, though appreciated by the respective institutions, did not yet imply a high profile institutional cooperation. Thus, the professional seminar was of utmost importance:

[8] The International Council for Open and Distance Education (ICDE) is a major organization of institutions and individuals involved in distance education.

It produced a convincing product to bring the two institutions (University of Oldenburg and UMUC) together in a joint venture. The successful seminars improved the standing of those who became the major protagonists of the MDE within their institutions and sparked their institutions' interest in a MDE project.

(iii) Beyond giving the main protagonists confidence in the format the *Virtual Seminar* had already done much leg work for the first course of the MDE program, i.e. *Foundations in Distance Education* (OMDE 601). The three major modules in this course were themes already developed for the *Virtual Seminar.* Obviously things had to be modified, since the *Virtual Seminar* extended over 10 weeks, designed to require five Student Learning Hours (SLH) per week. The three credit MDE courses were designed for 150 SLH extending over 15 weeks. Moreover, an assessment component needed to be developed and added. Although the modifications were substantial, we will see that the relatively low development costs of OMDE 601 and its short 'time to market' can only be explained by the sizable transfer of content made from the *Virtual Seminar* to the *Foundations* course.

(iv) Most importantly the development work for the *Virtual Seminar* brought together a network of experts whose practical cooperation lead to a relationship of mutual trust and good will from which the MDE most significantly benefited. Especially Holmberg and Peters need to be mentioned. They took part in the *Virtual Seminar* and have proved to be important allies in contributing to OMDE 601. Bates, also involved in the *Virtual Seminar,* later contributed to OMDE 606, which is part of the *Foundations Certificate* (OMDE 606). The heavy involvement of these master practitioners as part of the educational experience became a flagship feature of the *Foundations* certificate.

The above underlines the methodological points made in the introduction to this section: project history is an important dimension of context and impinges directly on costs. The development costs of the *Virtual Seminar*, from the standpoint of the certificate programs, are sunk costs. This needs to be taken into account when reflecting on transferability as biasing the costs downwards.

The description of the context is not only important when comparing costs. It is also relevant for answering the question of transferability: "Can we do it too?". In this case the historical context illustrates a process of networking, of building trust, leading to synergies generating forms of cooperation with a number of leading experts in distance education involved in the *Virtual Seminar.*

2.2. A Period of Incubation: The Idea of an Online MDE is Taking Shape

The year spanning from November 1998 to November 1999 can be described as a period of incubation. It is during this time that the experience of the *Virtual Seminar* matured into the conceptualization of a fully fledged Master program. For this reason the cooperation between Rubin and Bernath, which had until then been a largely personal cooperation, had to be developed into a cooperation between the two involved institutions. First steps in this direction took place in November 1998.

In November 1998 the two initiators of the *Virtual Seminar* seized the opportunity to bring the *Virtual Seminar* to the attention of both institutions, when a member of the Presidential Council of the University Oldenburg met the President of UMUC and the

Executive Vice President of UMUC. The two initiators of the *Virtual Seminar* explained what had been achieved and pointed out the potential of the approach. As a result Rubin was charged with developing the MDE as soon as possible.

Given these circumstances it was only straightforward to immediately involve the Oldenburg side in the project. Not only had the cooperation for the *Virtual Seminar* been a proven success, international cooperation itself, especially in distance education where the market was envisioned as a global market, was seen as an asset.

It then almost seems logical that a meeting held in January 1999 in Oldenburg, originally scheduled to finalize the report on the *Virtual Seminar*, turned into an intensive planning session for the Master program, with a special focus on the *Foundations* certificate. It was recognized that the *Virtual Seminar* would allow an almost immediate start, since much of the development for a foundations course in distance education had in fact already been done. Pace was looked upon as important: immediately start with the *Foundations in Distance Education* course and develop the other courses on the fly.

For Oldenburg this meant to find allies to develop the other courses conceived as important for a certificate *Foundations in Distance Education*: Which further areas in distance education would be candidates for such a certificate? Certainly the issue of 'technology and new media' would be such a candidate. Considered equally important were questions of 'economics and costs'. And, last but not least, 'student support' was regarded as a central issue for studying at a distance. Resource persons who would be able to develop the respective syllabi needed to be identified. But first, funding had to be found. Both partners moved in parallel:

- In order to obtain accreditation Rubin submitted a "Proposal and Business Plan" to the Maryland Higher Education Council (MHEC) in March 99. The proposal made the case that due to the expansion of distance education, especially in the form of eLearning, there would be an explosive demand for professionals in this field. The proposal was revised in April and subsequently accepted. Proposals themselves are a cost driver: Rubin had dedicated three full months of his time to develop the proposal and successfully bring it through the MHEC.

- On the Oldenburg side Bernath, in conjunction with Garz, from the School of Education at Oldenburg University, successfully applied for HSP III resources (i.e. special federal resources for innovative programs in higher education) in May 1999. Again, developing a competitive proposal proved to be a not trivial undertaking: For about three months Bernath invested half of his work time in preparing the application[9]. When it was finally successful, it generated 240 000 DM (about US$ 130 000) to support course development for four *Foundations Certificate* courses. The envisaged time frame for their development extended from October 1999 to December 2000.

Having the funds allowed moving on. Bernath was quickly able ensure the cooperation of Holmberg and Peters, who both had already been involved in the *Virtual Seminar*. Since all involved in drafting the syllabus for the *Foundations* course (OMDE 601), had been

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[9] This includes considerable networking to rally the necessary support within the institution and in the Lower Saxony Ministry of Education

also involved in the *Virtual Seminar*, the development of the syllabus for OMDE 601 could be completed quickly.

Being well placed within the professional network of distance education (including ICDE, EADTU), Bernath quickly found allies to cooperate for the development of the other courses which were part of the *Foundations Certificate*.

The friendly support Bernath had lent to Hülsmann's research project facilitated the cooperation between them. Hülsmann was charged to develop the course *Economics of Distance Education* (OMDE 606). Hülsmann had completed a research project for the International Research Foundation of Open Learning (IRFOL) on costs which was to be developed into a handbook (Hülsmann, 2000). Hülsmann and Bernath invited Rumble, one of the major international experts on economic and cost aspects of distance education, to participate in the *Economics* course as a visiting expert.

In 1998 Bernath and Hasebrook jointly ran a major project on "The Future of Learning & Training: Combining Visionary Anticipations with Teaching and Training Practices"[10]. Hasebrook is a psychologist who has written extensively on learning with new media (Hasebrook, 1999 a, 1999 b). He had developed a Web Based Training (WBT) unit on learning with new media, which became a central element of the course *New and Emerging Media* (OMDE 605).

Finally, the last course conceived as essential for a *Foundations Certificate* was related to the aspect of student support. The world famous institution that had made student support a center piece of its teaching arrangement is the Open University (OUUK). From its very beginning the Center for Distance Education at Oldenburg University followed in its counseling and tutoring arrangements the example of OUUK. The Cambridge International Conferences on Open and Distance Learning, organized by Mills and Tait, intensified good personal as well as professional contacts. Bernath invited Tait, a prominent expert on student support and counseling, to participate in the MDE program by developing the course on student support and he teamed up with Brindley, an equally renowned Canadian expert, to develop the syllabus for *Student Support in Distance Education* (OMDE 624).

With funding assured and the development processes well set on rails the two institutions felt confident to formalize their agreement in early November in a "Memorandum of Understanding". The memorandum defines the modalities of cooperation, distribution of responsibilities, and splitting of revenues. Just shortly before this important event (January 1st, 2000) the MDE was formally announced on the UMUC web site. We could regard this as the date when the MDE was effectively launched.

2.3. A Period of Development

The development tasks can be divided into the development of the MDE program as a whole, and the development of the individual courses. The first task is a management task and concerns the two program directors, while the second task relates mainly to the subject matter experts.

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[10] Cf. http://www.uni-oldenburg.de/zef/cebit/ceho-ine.htm

The management tasks involve to some extent the management of the institutional cooperation, while on the Oldenburg side specific management issues for a Master degree program needed to be addressed. These affected the position of the Center of Distance Education (ZEF). The Center's activities within the UMUC cooperation required allies within the university. The School of Education became such an ally by creating with the Center for Distance Education the ASF (a central unit for research in distance education) and can be described as a joint venture of ZEF and the School of Education. Innovative intra-university arrangements such as this required a considerable management effort.

On the working level a team took shape when Hülsmann joined Zawacki, a junior staff member of ZEF, and Bernath, the director of the center. Zawacki had been employed on a full time basis since November 99, but worked only with half of his time for the MDE program. Zawacki developed for ZEF the MDE web sites (e.g. the ASF web site) and handled a number of issues of faculty support including the important issue of resource management.
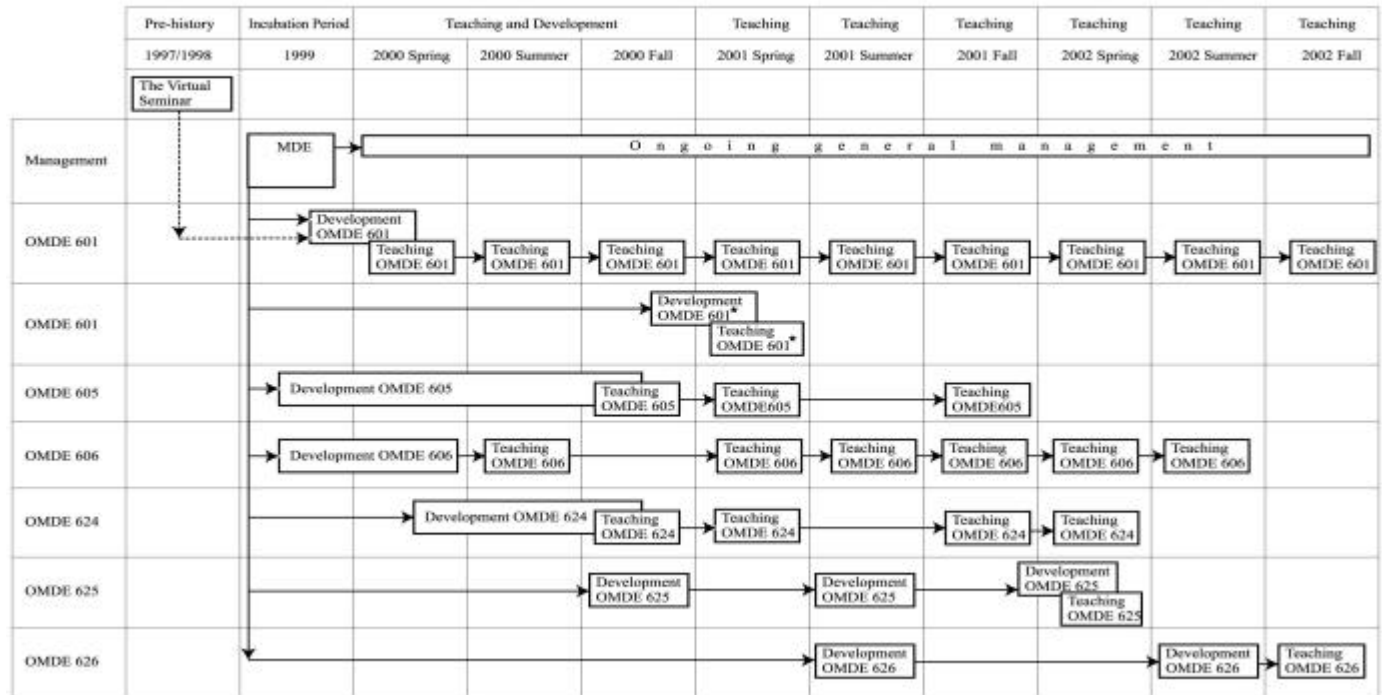
Hülsmann was already involved since October 1999 when he was charged with the development of the core course *Economics of Distance Education* (OMDE 606). At the time he was still in Cambridge (GB) but signaled his interest to return to Germany and become fully involved in the MDE.

The first course to be launched was obviously the *Foundations of Distance Education* course (OMDE 601) and considered the gateway course all students should take to enter the program. A final meeting in November 1999 brought together the two program directors and Holmberg and Peters, who had played an important role in designing the course syllabus for OMDE 601.

Hence the time between January 1999 and January 2000 can be regarded as a phase of planning, management, and development. The first course started on January 29, 2000.

One can reasonably argue that the first run of a course is part and parcel of the development process. According to this definition the development process of the Certificate *Foundations of Distance Education* was completed by the end of 2000, since all certificate courses (OMDE 601, OMDE 605, OMDE 606, and OMDE 624) had been taught at least once by the end of the Fall term 2000. The development process for the *Certificate Distance Education in Developing Countries* was only completed in the Fall 2002 when OMDE 626 (*Technologies for Distance Education in Developing Countries*) had been taught for the first time.

MDE: Program overview

	Pre-history	Incubation Period	Teaching and Development			Teaching	Teaching	Teaching	Teaching	Teaching	Teaching
	1997/1998	1999	2000 Spring	2000 Summer	2000 Fall	2001 Spring	2001 Summer	2001 Fall	2002 Spring	2002 Summer	2002 Fall
	The Virtual Seminar										
Management		MDE	Ongoing general management								
OMDE 601		Development OMDE 601	Teaching OMDE 601	Teaching OMDE 601	Teaching OMDE 601	Teaching OMDE 601	Teaching OMDE 601	Teaching OMDE 601	Teaching OMDE 601	Teaching OMDE 601	Teaching OMDE 601
OMDE 601						Development OMDE 601* / Teaching OMDE 601*					
OMDE 605		Development OMDE 605			Teaching OMDE 605	Teaching OMDE605		Teaching OMDE605			
OMDE 606		Development OMDE 606		Teaching OMDE 606		Teaching OMDE 606	Teaching OMDE 606	Teaching OMDE 606	Teaching OMDE 606	Teaching OMDE 606	
OMDE 624			Development OMDE 624		Teaching OMDE 624	Teaching OMDE 624		Teaching OMDE 624	Teaching OMDE 624		
OMDE 625					Development OMDE 625		Development OMDE 625	Development OMDE 625 / Teaching OMDE 625			
OMDE 626							Development OMDE 626			Development OMDE 626	Teaching OMDE 626

Notes: * A 3rd section of OMDE 601 had to be opened. The course was adapted to be taught with a set of different 'visiting experts'.

3. Cost-Analysis

The cost-analysis will proceed in four major steps. In a first move it identifies a number of methodological issues and outlines the further analysis (Figure 3.1.-1). This includes some observations on how costs are assigned. In a second step we arrive at a first approximation of the course costs based on a backflush costing approach. However, backflush costing is of limited value for understanding what the main cost drivers are. In a third step we therefore analyze the committed costs, both direct and indirect ones. Committed costs are those essential for rendering the contracted services. Then, in a final step, we move on to the managed costs. The managed or flexible costs correspond to the surplus remaining when committed costs are subtracted from the incoming revenue flow. This surplus is an indicator for the scope of available investments in program expansion and/or in enhancing program quality.

Figure 3.1. - 1: Analysis Outline
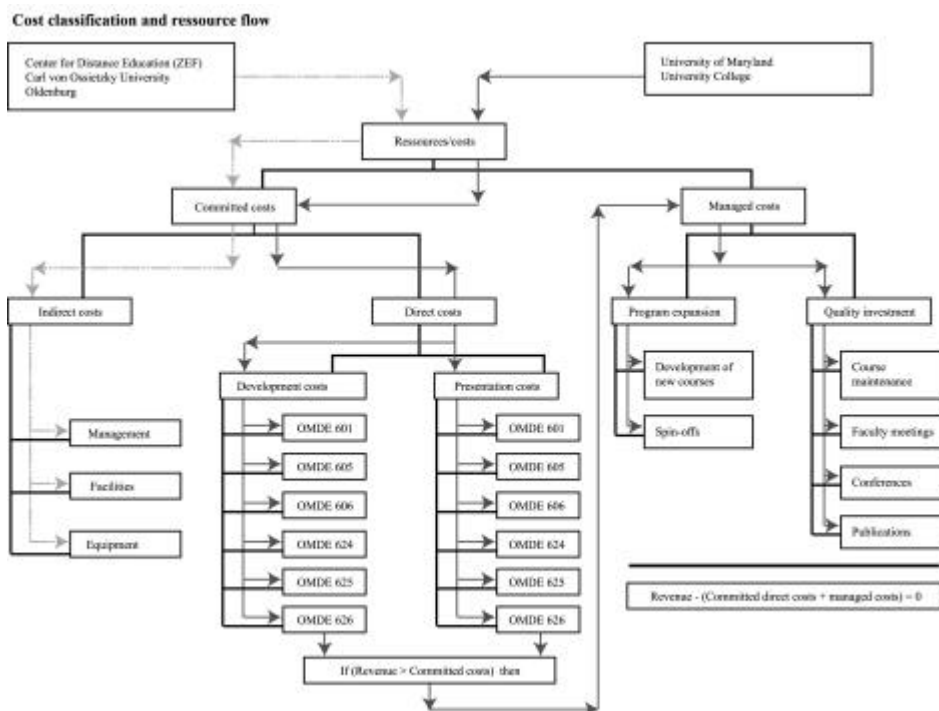
3.1. Preparing the Cost-Analysis

This section falls into three parts: (i) a discussion on committed and flexible costs and an outline of the cost-analysis in this paper; (ii) a discussion on how we attribute costs; the discussion outlining the triangulation process between the descriptive approach to costing (i.e. Activity based Costing (ABC)) and a more normative approach; (iii) the application of this approach by assigning the central human resource costs.

3.1.1. Committed and Managed Costs

The central cost objects[11] in our analysis are courses. A cost object generates the demand for activities, which in turn causes costs. The central cost objects in this analysis are the courses OMDE 601, OMDE 605, OMDE 606, OMDE 624, OMDE 625, OMDE 626, which compose the two certificate programs offered by ZEF/UNIOL (*Foundations of Distance Education* and *Distance Education in Developing Countries*).

Since ZEF, as part of Oldenburg university, is a public not-for-profit central unit all revenue generated through the MDE program must be ploughed back into the program. If continued losses were to be incurred the program could only be sustained by funds dedicated to the program itself. Any surplus is spent in additional activities (such as publishing this volume), which in turn cause costs. Hence, the generated revenue gives a first approximation of the cost incurred ('backflush costing'[12]): [revenue generated = costs incurred].

However, this approach is predicated on the assumption that all costs incurred are paid out of the generated revenue. This is not correct, as we will see, since there are more or less visible subsidies for the program contributed by the university (including premises, equipment, and services). Nevertheless, the backflush approach gives a first, albeit underestimated, benchmark figure for the costs incurred. A further weakness of the mere backflush costing approach is that it does not allow us to identify the principal cost drivers, nor does it give a meaningful answer to the question of the break even point.

Here the distinction between committed costs and managed (or flexible) costs can be applied. According to Rumble "Committed costs are the costs that arise from a management decision to supply capacity to perform work" (Rumble, unpublished paper, n.d). With respect to the corporate sector Rumble (1997) states: "Committed costs are those which cannot be eliminated or cut back without a major effect on the enterprise's objectives and profits" (p. 30). This could be translated into our context as: Committed costs are those which cannot be eliminated or cut back without a major effect on the contractual obligations agreed to.

Managed (or flexible) costs on the other hand are those "… which can be reduced fairly easily without any immediate major disruption to the objectives or profits of the organization" (Rumble, 1997, p. 30). This translates for our context into the statement that managed costs are those which can be reduced fairly easily without any immediate major breach of contract. The distinction between committed and managed costs is useful for our context. Some costs are related to activities which cannot be scaled down without breach of contract, while others can. For example, ZEF needs to develop the courses, it agreed to develop - this is an activity corresponding to a committed cost. The number of faculty meetings or the frequency of conference visits and giving the MDE a visible profile within the community - all this can be scaled down if revenues soar.

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[11] For the definition of the term cf. Rumble (1997, p. 55)

[12] Rumble (1997, p. 59). Backflush costing means dividing the cost of the system by the output of the system. If we consider the output of an educational system teaching students then backflush costing leads to cost per student. If 'revenue = costs' and the outcome is again teaching UMUC students a backflush costing approach divides the generated revenue by the students taught.

Committed costs will be classified into direct and indirect costs. The direct committed costs include the costs related to the activities of course development and course presentation[13]. Indirect costs (or program related overheads) include the costs of managing the program and the cooperation with UMUC, as well as premised facilities and equipment in as far as they relate to program activities. We have already observed that not all costs incurred are paid from the revenue generated by the program. This applies especially to the indirect costs of program management activities. These activities are conducted out of a tenured position with no additional charges to project generated revenues.

Managed costs will be categorized as quality investment and program extension. Under the title 'quality investment' a number of activities such as course maintenance, faculty meetings, conference visits, and publications are costed. Under 'program extension' we cost activities such as development of new courses and spin-offs.

Note that the categories of committed vs. managed/flexible costs are categories of process rather than of structure. They introduce a dimension of time into an otherwise static cost-analysis. This generates a certain tension as far as the presentation is concerned. For reasons of readability (i.e. to facilitate the comparison of costs among courses) we will include the analysis of direct costs of development and presentation of OMDE 625 and OMDE 626 in the committed costs chapter, albeit strictly speaking the development costs are to be rated as managed costs[14].

The main objective of this section is (i) to determine the costs of the program (building up from the cost of the individual courses); and (ii) to identify the break-even point, i.e. the point which separates committed and managed costs, or the point beyond which additional revenue can be invested into additional program quality or program expansion.

However, there is a certain tension between the two objectives that we will have to deal with: A realistic assessment of costs needs to take into account that not all costs are paid for from the generated revenues; some come from - more or less hidden - subsidies. In a realistic cost assessment subsidies would need to be included. However, when it comes to identifying the level of revenue which could be spent on program quality and program expansion (i.e. the break-even point) we need to take these subsidies out since, by definition, they do not use up the incoming revenue.

3.1.2. Limitations of Activity Based Costing

We have said that the courses are the central cost objects in our analysis. A cost object generates the demand for activities, which in turn cause costs. Activities are undertaken by people, which brings us to human resources as a major cost driver. Activities can be costed by either measuring the time used to complete an activity or by assessing its outcome. If an activity is outsourced its value is determined by the market price. When done in-house it is often difficult to attribute a cost to a specific activity, unless the

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[13] 'Course presentation' is a term used by the OUUK for costs related to the activities to conduct a course, while elsewhere the term 'course delivery' is more common.

[14] Since managed costs are those "which can be reduced fairly easily without any immediate major disruption to the objectives or profits of the organization" it is a moot point to which extent the mentioned courses can be considered as managed costs once they are launched. Program extension is asymmetric in terms of flexibility. While adding courses is easy, it is harder to discard them once launched. This adds to an incremental cost drift of which planners must be aware.

institution has introduced the Activity Based Costing approach (ABC), which requires staff to measure their time spent in on a specific activity. If we know the hours spent on an activity we cost by multiplying the number of hours with the salary per hour of the respective staff member. Alternatively one could use a shadow pricing approach, i.e. estimating the costs of the activity if it were to be outsourced. Both methods will be used, albeit not in a purist manner.

There are, beyond the technicalities involved in ABC which make it difficult to implement in a meaningful way, three main reasons why a rigid ABC approach seems inappropriate for contexts like ours. They are:

(i) the divergence of actual costs and notional costs
(ii) inextricable mixture of learning and working
(iii) the mutual shaping of time and task

(i) It may be true that ABC would be ideal to detail the 'costs', but costs may diverge from the expenditure. One close observer of the initial phase of the MDE program remarked during an early faculty meeting that, for his taste, there "is too much adrenaline in the project". By this he meant that anyone involved would be committed to the program over and beyond the normal schedule. Punch card records of core figures like Bernath, Hülsmann, and Zawacki show the high level of overtime during the early phase of the project - especially in 2000.

(ii) In a way all involved were working and learning at the same time. Setting up and teaching in an online Master program was not (and hardly could have been) a routine job for anyone involved. What the above observer wanted to express with 'too much adrenaline' was this mixture of intellectual curiosity, ambition and kudos, which generated this considerable energy that is necessary and characteristic for setting up innovative programs.

(iii) To some extent the time allocated for a task shapes the definition of the task. There is a certain elasticity, which is especially obvious for online courses with a strong element of communication. Communication in an academic online environment is not just batch processing incoming questions, but possibly involves the raising of issues. It is another type of task than moving a heap of sand from A to B. This means that there is a normative element involved which implicitly defines the task: How much time do we allocate to teaching a course?

From the perspective of a costing methodology this means that costs determined by ABC and actual human resource expenditures diverge. However, readers who are interested in questions of transferability may be less interested in an ethnographic description[15] of largely notional costs, but more interested in real expenditures for observable outcomes.

This is why the approach to costing for this case study, while liberally borrowing from both approaches (ABC and shadow pricing), also makes use of the business plan set up for MDE related activities. This plan assigns proportions of time to specific MDE

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[15] A detailed description would have to take into account not only the changes of work intensity along a time axis, but also various cross-project support elements. Zawacki for instance, may support other ZEF projects, while other ZEF staff members working outside the MDE project would, in exchange, support MDE related activities. Given that ZEF is quite a beehive in terms of activities, detailed descriptions are more likely to lead to confusion than giving a comprehensive account of the costs.

related tasks. The business plan is negotiated on the basis of experiences. These include time measurements of various kinds including punch cards, samples of ABC records, and counting the number of newly created messages in online conferences. We argue that the normative approach reflected in the business plan and the descriptive approach of ABC allow a triangulation where descriptive elements inform the normative ones, which in turn provide a sound reality check preventing notional costs drifting away from actual expenditure.

3.1.3. Central Human Resource Costs

The main cost driver in such projects is human resources. Bernath is the director of the Center for Distance Education at the Carl von Ossietzky University Oldenburg (ZEF). While originally the center's mission was mainly to cater for students of the FernUniversität living in Lower Saxony, it also includes the promotion of distance education at the university, in outreach activities, or in international cooperation. Hence Bernath's involvement in the MDE program is covered by ZEF's mission, but not paid for from the generated revenue.

Bernath's pre-tax salary of about US$ 6 000 per month[16] is used as the basis of costing his considerable involvement in the program as its initiator, manager, as course developer, and, meanwhile occasionally as instructor. Together with Rubin he initiated the MDE and developed the *Foundations of Distance Education* course (OMDE 601), which became the flagship course of the program and is the portal to all further courses. Both team-taught the pilot version of OMDE 601 setting the standards for the level and quality of interaction - at least for Oldenburg's courses.

The costs related to Bernath's involvement in the MDE are, in our context, largely notional, i.e. they are not paid for out of the revenue generated from the MDE program and therefore not visible in the cash flow (with the exception of some travelling costs). In fact, they represent a subsidy by Oldenburg University to the program. However, not to include these costs merely because they are notional rather actual costs, would be distorting the picture. To quantify them we use an ABC approach as far as managing and course development tasks are concerned, but use a shadow pricing approach when it comes to his role as instructor. Given Bernath's habit of detailed time keeping of his activities we consider the estimates in his case as particularly close.

Hülsmann joined ZEF/UNIOL and was specifically charged to develop and teach courses within the newly launched MDE program. His salary in a full time BAT IIa position (amounting to a gross salary of about US$ 60 200 per annum) is paid for exclusively out of the revenue generated from the MDE program. The business plan requires him to undertake the following activities: (i) course development and teaching (80%), (ii) other activities including support of overall program management, research and publication (20%). The agreement is that Hülsmann teaches six sections per year. We consequently (albeit in slight violation of a pure ABC approach) determine the cost of Hülsmann's teaching activities as US$ 7 000 per section[17].

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[16] The calculated exchange rate dates from 01.01.2001 (1DM = US$ 0.51538). Note that this salary includes annuities and that in Germany taxes are relatively high.

[17] Course development and teaching is generally difficult to separate. However, if we assume that development activities amount to 10% the cost for teaching a section would is to be calculated as: (US$ 60 200 * 70%)/6 = US$ 7 000 (figures are rounded to the hundred).

Table 3-1: Human Resource Costs

US$ 2000	Annual salary	Monthly salary
Bernath	$ 72 300	$ 6 000
Hülsmann	$ 60 200	$ 5 000
Zawacki	$ 22 900 (= $45 800/2)	$1 900 (= $3 800)

While Bernath's focus is on project management, Hülsmann's is on teaching and course development, Zawacki's focus is on technical and faculty support. Zawacki is employed in a full time BAT IIa position. Being a junior staff member this amounts to a gross salary of about US$ 45 800 per annum. He earns half of his salary (i.e. US$ 22 900) through the MDE program. As in the case with Hülsmann, his salary is also paid for exclusively from the revenue generated through the MDE program. Cost allocation of his activities is based on the business plan, which in turn is informed by an ABC approach.

3.2. Cash Flow Analysis

ZEF/UNIOL and UMUC share the revenue generated by students' fees according to the Memorandum of Understanding (MOU). ZEF uses these fees to pay its staff or out-contracting some of the tasks. A substantial chunk of the costs incurred by ZEF can therefore be expected to be reflected in the cash flow movements visible in ZEF's budget position for the MDE. Moreover, since ZEF receives no other funds than these, they provide us with an upper limit of the costs[18].

Therefore in this section we provide an overview of the number of students enrolled, report the thusly generated revenue and, using a backflush costing approach, calculate a benchmark cost per student and per section.

3.2.1. Number of Students

The intention is to determine the costs of a course within the context defined by the arrangements between UMUC and ZEF/UNIOL. Hence, the cost objects in our case are the respective courses. Since the costs for the courses offered by ZEF/UNIOL within the MDE must be recovered in the medium range (and not only in the long range), the cash flow analysis allows us to determine a sort of upper limit of the costs of a course[19]. The cash flow movement is unambiguous: At the end of each term ZEF receives a check paying for the services rendered. The size of the payment, however, depends on two arrays of parameters (i) the status of the student since student from Maryland pay a fee substantially lower than the full fee for out-of-state students; the fee level also depends on special arrangements with other organizations (e.g. with the US military); (ii) students may withdraw and depending on the time they do so, they can recover their fees to varying degrees. Other fluctuations are changes in student fees .

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[18] For a more explicit account of the (partly hidden) subsidies cf. section 4.1.1 of this paper.

[19] Cf. previous footnote.

Table 3.2.-1 shows the development of student enrollments in the courses of ZEF/ UNIOL two certificate programs.

Table 3.2-1: Development of Student Enrollment

Year 2000	Spring	Summer	Fall	Total
OMDE 601 9040	28	36	31	95
OMDE 601 9041	28	35	32	95
OMDE 605 9040			27	27
OMDE 605 9041			26	26
OMDE 606		12		12
OMDE 624			23	23
Total 2000	56	83	139	278
Year 2001	**Spring**	**Summer**	**Fall**	**Total**
OMDE 601 9040	29	27	29	85
OMDE 601 9041	30	16	29	75
OMDE 601 9042	25			25
OMDE 605	13		23	36
OMDE 606	26	10	14	50
OMDE 624	12		11	23
Total 2001	135	53	106	294
Year 2001	**Spring**	**Summer**	**Fall**	**Total**
OMDE 601 9040	31	29	28	88
OMDE 601 9041	32		26	58
OMDE 605	28			28
OMDE 606	9	15		24
OMDE 624	9			9
OMDE 625	6			6
OMDE 626			6	6
Total 2002	115	44	60	219
Overall total	**306**	**180**	**305**	**791**

The figures presented above are 'students enrolled'. Depending on whether (and when) there are withdrawals where students receive their tuition back, Oldenburg's revenue may be reduced. Hence it seems more appropriate to calculate cost per finally graded rather than cost per enrolled student. For this reason and because for distance educators retention rates are always interesting figures, we present below the numbers of finally graded students juxtaposed to the number of enrolled students. The result is the calculation of a rather high retention rate.

Table 3.2-2: Retention Rates per Term

| | No of students | | Retention |
Terms	Enrolled	Finally graded	Rate
Spring 2000	56	48	86%
Summer 2000	83	73	88%
Fall 2000	139	121	87%
Spring 2001	135	118	87%
Summer 2001	53	48	91%
Fall 2001	106	91	86%
Spring 2002	115	99	86%
Summer 2002	44	42	95%
Fall 2002	60	NA	NA
Total	**791**	**693**	**88%**

For interest, not because it is important for the cost per student calculation we show in the following table a breakdown of the retention rate per course. We see that there are not really obvious variations.

Table 3.2-3: Retention Rates per Course

Year 2000	Enrolled	Withdrawals	Finally graded	Retention
OMDE 601 9040/41	190	24	166	87%
OMDE 605 9040/41	53	4	49	92%
OMDE 606	12	1	11	92%
OMDE 624	23	7	16	70%
Total 2000	**278**	**36**	**242**	**87%**
Year 2001	**Enrolled**	**Withdrawals**	**Finally graded**	**Retention**
OMDE 601 9040/41	185	22	163	88%
OMDE 605 9040/41	36	3	33	92%
OMDE 606	50	7	43	86%
OMDE 624	23	4	19	83%
Total 2000	**294**	**36**	**258**	**88%**

3.2.2. Backflush Costing

Table 3.2-4 (second column) describes the cash flow from UMUC to ZEF for its services. These include developing the courses OMDE 601, OMDE 605, OMDE 606, OMDE 624, OMDE 625, OMDE 626 and teaching them. The revenue calculation depends on the status of the student (Marylander, out-of-state, etc.) and the number of students who withdrew early enough to recover their fees. We include the latter factor to indicate the margin of error. The Table shows that a good benchmark figure for the revenue per student for ZEF is about US$ 5 000 and the revenue per finally graded student is about US$ 5 500.

Table 3.2-4: Cost per Student (Backflush)

Terms	Revenue $$	No of students		$$/student	
		Enrolled	Finally graded	Enrolled	Finally graded
Spring 2000	$ 27 000	56	48	$ 482	$ 563
Summer 2000	$ 41 300	83	73	$ 498	$ 566
Fall 2000	$ 79 000	139	121	$ 568	$ 653
Spring 2001	$ 77 600	135	118	$ 575	$ 658
Summer 2001	$ 30 700	53	48	$ 579	$ 639
Fall 2001	$ 62 500	106	91	$ 590	$ 687
Spring 2002	$ 65 200	115	99	$ 567	$ 659
Summer 2002	$ 25 400	44	42	$ 578	$ 605
Fall 2002	$ 31 800	60	53	$ 530	$ 600
Total	**$ 440 500**	**791**	**693**	**$ 4 967**	**$ 5 630**

However, the main cost object is the course. Since we know the number of sections taught each term and, assuming that revenue equals costs, we can calculate a 'cost per section' figure for each term. As the table below indicates, the range is between US$ 10 000 to US$ 16 000

Table 3.2-5: Cost per Course (Backflush)

Terms	Revenue $$	Sections	$$/per section
Spring 2000	$ 27 000	2	$ 13 500
Summer 2000	$ 41 300	3	$ 13 800
Fall 2000	$ 79 000	5	$ 15 800
Spring 2001	$ 77 600	6	$ 12 900
Summer 2001	$ 30 700	3	$ 10 200
Fall 2001	$ 62 500	5	$ 12 500
Spring 2002	$ 65 200	6	$ 10 900
Summer 2002	$ 25 400	2	$ 12 700
Total	**$ 408 700**	**32**	**$ 12 600**

We should note that this method underestimates the costs because it does not include the various subsidies the program receives from Oldenburg University. Moreover, since we want the cost-analysis to contribute to the understanding of the important cost drivers, we may question if a backflush approach alone is sufficient.

Rumble (1997) describes backflush costing as follows:

> Some plants manufacture one product or a limited number of products where the costs of each of the products are the same. In such circumstances, it is possible to count the number of products coming out of the plant and then divide this into the total cost of running the plant over the period of the count. Such an approach to costing is called backflush costing. (p. 59)

And he warns that "For most purposes, backflush costing is unrealistic because it only works where there is a single uniform product" (ibid. p.59). This also applies to our case, and makes the backflush method one of limited value.

In order to better understand the cost drivers we need to triangulate the top-down/ backflush approach with a bottom-up/'ingredients approach'. The latter proceeds by first identifying the ingredients used for the services rendered and then costing them (Levin, 1983).

As all chefs know, not all ingredients are equally important. The process of identifying and costing the ingredients is therefore pursued in two steps: (i) In the section on committed costs we list and cost all the necessary ingredients to provide the contracted services, while (ii) in the section on managed or flexible costs we list and cost the extra ingredients, which would enhance the quality of the program or expand it.

3.3. Committed Costs

The courses are basically classified in two main categories: committed costs and managed (or flexible) costs. "Committed costs are the costs that arise from a management decision to supply capacity to perform work." (Rumble, unpublished paper, n.d.) In order to comply with our contractual obligations with UMUC, ZEF built up the necessary capacity to perform the services as required. Hence "Committed costs are those which cannot be eliminated or cut back without a major effect on the enterprise's objectives and profits." (Rumble, 1997, p 30).

The committed costs comprise most importantly the direct course costs, such as course development and course presentation costs of the six courses constituting the two certificate programs offered within the MDE. Indirect costs include program management and overheads, premises, expenses, and equipment costs.

3.3.1. Direct Committed Costs

According to Rumble (1997, p. 55) "… cost objects create the demand for activities, which in turn cause costs". In our case the cost objects are the various courses: To develop and teach them is what ZEF/UNIOL is contracted to do. There are two main classes of activities which we classify under direct committed costs:

1. course development of all the courses of the two certificate programs, and
2. the repeated presentation course of all the courses (sections) during the time under consideration.

Course development and course presentation[20] of the various courses are the activities most directly linked to the cost objects. Also essential to sustain the capacity to deliver these contracted services are management activities. However, since they are not directly related to specific courses they are classified with the 'indirect committed costs'.

In the following we describe the direct costs of all the courses. Before describing the respective costs of the various courses, it seems appropriate to make a general remark about the course development model used, and on the different character of development costs as distinct to presentation costs.

The courses offered through ZEF/UNIOL (and this probably also applies to other courses offered within the MDE) have the form of a virtual seminar. Such courses are quite

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[20] We treat the terms 'course presentation', 'course delivery' or even 'teaching a course' as meaning the same thing. They include all the recurrent activities of running the various classes or sections.

different from typical distance education courses (cf. most courses offered by the OUUK or the German FernUniversität) by emphasizing process rather than product. Not new course material (i.e. products) is developed but, on the basis of already published textbooks, discussion and communication processes are initiated which, to some extent, simulate, albeit in an asynchronous format, the traditional seminar process. This means that development costs turn out to be rather low since they include little more than the development of a syllabus and the drafting of a number of main topics. On the other hand, communication processes can be expected to be comparatively intense and therefore costly. They often involve the authors of the main textbooks as 'visiting experts'. Besides the honoraria the sales of their books, as core textbooks in the respective course are an additional incentive for the experts. Possibly even more important is the motivation to engage in an intensive dialogue with a number of keen readers of their books. This remark should prepare especially those coming from a traditional course development model to understand the substantially different model of course development and course presentation, leading to a different composition of fixed and variable costs, i.e. a different cost structure, with important implications, for instance with respect to scale economics[21].

A further remark draws attention to the character of development costs. In course development models like those of the OUUK, courses are planned for presentation over a scheduled number of years - the shelf life of a course. The high development costs of such courses can only be recovered if large audiences are reached. To some extent, overall enrollments can be increased by offering the course over a number of years. However, there are course development models where courses are not developed for a specified shelf life. This does not mean that one's eyes are closed to the accelerating obsolescence of knowledge, but that courses can be up-dated and maintained 'on the fly'. In this case it is difficult to charge the development costs of a course to a specific time period or to a specific presentation. In the absence of accepted costing conventions in this regard, it may not be advisable to charge development costs to individual course presentations along with other overheads.

Aside from this problem development costs are often quite context dependent and historically accidental. The development costs of OMDE 601 are rather low since much of the course development was already completed within the preparation of the *Virtual Seminar*. The development costs of the *Virtual Seminar* in turn were not so much driven by a detailed budget plan, but by the size of the AT&T grant, which stood in the beginning of all these activities. In such cases the available funds drive what you do and costing is an *ex post* exercise.

We can therefore expect development costs to vary considerably. This depends on (i) historical contingencies but also on (ii) institutional arrangements. If course development is outsourced it may be less costly. However, in-house development may have substantial advantageous spin-offs in term of capacity building not being immediately visible if one only compares the figures. We will come back to this.

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[21] The remark may under-emphasize the proportion of pre-preparation in the seminar process. In fact, if measured in word counts about two thirds of the postings from faculty are pre-prepared as compared to one third generated during the communication process. However, scale economies are based on high differentials between high fixed costs as compared to low variable costs per student. This difference being considerably less substantial in 'virtual seminar' type courses suggest lower potential for scale economies.

In the following sections we describe the direct costs of development and presentation for all the courses of the *Foundations in Distance Education* and *Distance Education in Developing Countries Certificates*.

3.3.1.1. OMDE 601 *Foundations of Distance Education*

The cost object, we said is a course, e.g. OMDE 601. A cost object generates demand for activities, which in turn cause costs. Developing a course and teaching a course are the two main types of activities we classify as direct costs. We will begin with analyzing the costs of OMDE 601.

Course development

The pedagogical model of the courses offered by ZEF/UNIOL is that of an asynchronous seminar. Like in a traditional seminar in higher education you read seminal texts and discuss them, but unlike in a traditional seminar, you discuss them in an asynchronous manner.

The fact that the discussion is based on seminal texts of the field means that generally course material has not been developed from scratch. This has major implications for course development. Course development then consists of creating a syllabus and writing a set of related main topics to structure the discussion. We should also expect such a course development model to shorten 'time-to-market' and reduce development costs considerably.

Two particularities of OMDE 601 should be kept in mind. First, there is the question of where/when costing should begin. As indicated earlier part of the development of OMDE 601 can be considered a spin-off of the *Virtual Seminar* (VS). We regard this as 'sunk costs' and ignore it. Only time and resources directly attributable to the development of the *Foundations* course are included.

Secondly, the development costs of OMDE 601 are to a large extent not reflected in cash flow movements because most of the developmental efforts can be attributed to Bernath and Rubin, program directors of the MDE. However, by taking an 'activity based costing' (ABC) approach we can quite precisely identify the proportion Bernath's work time invested in the course's development. Bernath estimates that for appr. 3.5 months (from 10.15.1999 to 01.31.2000) he worked half of his time to develop OMDE 601. Based on our benchmark costs for human resources in Table 3.-1, we calculate: (US\$6 000 * 3.5)/2 = US\$10 500.

The syllabus was drafted in cooperation with Rubin from UMUC and Holmberg and Peters as external consultants. Note that the \$2 600 payment to each of the external consultants is the only cost, which is directly visible as a cash flow movement.

Table 3-2: Development Costs of OMDE 601

Cost drivers	US \$\$
Development (Bernath)	\$ 10 500
Development (Rubin)	Not included
External consultant (Holmberg)	\$2 600
External consultant (Peters)	\$2 600
Total cost of development	**\$15 700**

Note also that the amount of $10 500 is a notional cost (implicit subsidies to the program by Oldenburg University) and not deducted from the incoming revenue. The costs attributable to the activities of Rubin of UMUC are ignored here since only costs incurred by ZEF/UNIOL are included. If we were to include Rubin with a similar sum as Bernath development costs would amount to about 25 000 US$.

Course Presentation

We mentioned that the ZEF/UNIOL certificate programs follow the pedagogical model of an asynchronous seminar. While course development can be expected to be quicker and less costly[22], course presentation is likely to be more labor intensive.

Presentation costs comprise the cost of the lead faculty, the visiting expert and, possibly, some technical support or a teaching assistant. There are different types of faculty involved in teaching OMDE 601: Bernath, Rubin, Hülsmann, Beaudoin are lead faculty, Holmberg, Peters and Moore are visiting experts, Zawacki provides faculty and experts with technical support.

Bernath and Rubin, who developed the course, taught the first run. All costs attributable to Rubin are ignored since they are not incurred by ZEF/UNIOL (with the notable exception of Fall 2000). All costs attributable to Bernath's involvement are notional costs and therefore not visible as cash flow movement. However, the pilot run of a course always includes elements of development and is therefore more labor intensive than later presentations. If we estimate the cost of Bernath using an ABC approach we come to $10 500. Bemath, an unusually keen timekeeper of his activities, estimates that during the first course presentation (February to May 1999) he allocated about half of his time to teaching this course. Hence, we calculate: $6 000 * 3.5/2 = US$ 10 500 (for two sections) and means a cost per section of about US$ 5 000.

The pilot presentation of a course is likely to be more expensive (time consuming) than later runs of the same course. Hence we later use a 'shadow pricing' approach to determine Bernath's costs for teaching OMDE 601. It turns out that shadow pricing leads to similar figures. Shadow pricing means to approximate costs by prices paid in the market. Benchmarks for orientation here are the prices UMUC offers for teaching one course section, which is about US$ 4 000. Another benchmark is the fact that the HSP III granting body[23] accepted the figure of 10 000 DM for course development and 10 000 DM (or US$ 5000) for teaching a section in the afore mentioned HSP III application. Accepting these figures indicates that the estimated costs were considered as within the range of market prices for such services.

To increase the readability of the tables below we include a short note on the varying needs for technical and faculty support. The Table below includes a synopsis of the costs of faculty support in all *Foundations Certificate* courses[24]. We observe that the

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[22] To illustrate the different orders of magnitude: Hülsmann (2000, p. 89) identified the development costs for an OUUK course as GBP 660 000, which equals (deflated) US$ 1 247 522 for 220 SLH or about US$ 850 000 for 150 SLH as compared to US$ 15 000 and US$ 25 000 for the 150 SLH of the OMDE 601. This means that the development cost for the OUUK course is about 50 times as high as for OMDE 601. However these development costs are spread over about 8000 students!

[23] Cf. section 2.2 above

[24] Hülsmann teaches the additional courses OMDE 625 and OMDE 626. Due to the experiences in teaching OMDE 601 and OMDE 606 he has largely outgrown further need for technical or faculty support.

need for support varies according to two parameters: (i) It diminishes with experience; and (ii) is higher for external faculty. The first point illustrates some economies of experience: moving from an initial situation, in which faculty and technical support is essential, to a situation, in which it can be increasingly relaxed. The second point illustrates that in-house capacity building is more effective.

Table 3-3: Technical and Faculty Support Costs

Terms	OMDE 601	OMDE 601*	OMDE 605	OMDE 606	OMDE 624	Total	Hours per week and sections	Percentage
Spring 2000	$ 1 500					$1 500	4	20%
Summer 2000	$ 400			$ 400		$ 800	2+2= 4	20%
Fall 2000	$ 800		$ 3 400		$ 3 400	$ 7 600	2+9+9=20	100%
Spring 2001	$ 400	$ 2 300	$ 2 300	$ 400	$ 2 300	$ 7 700	2+6+6+6=20	100%
Summer 2001	$ 400			$ 400		$ 800	2+2=4	20%
Fall 2001	$ 800	$ 2 300	$ 2 300		$ 2 300	$ 7 700	2+6+6+6 = 20	100%
Spring 2002	$ 800	$ 1 500	$ 1 500		$ 1 500	$ 5 300	2+4+4+4 =14	70%
Summer 2002	$ 400					$ 400		10%

*Calculations are based on the following assumptions: Zawacki works 50% of his time for the MDE. On this basis his monthly cost to the MDE should not exceed much US$ 1 900 (see Table 3.-1: Human resource costs). Furthermore we take the length of the Spring and Fall terms to be 4 months (15 weeks of the semester including a pre-week) and the Summer term to be 2 months (7 weeks including a pre-week). To illustrate how the calculation works take the first figure: the Spring term extends over 4 months and Zawacki works 20% of the time allocated to the MDE to support the two sections in Spring 2000: US$ 1 520= US $ 1 900 * 20% * 4. Rounded to the hundred this amounts to US$ 1 500.*

The following Tables (3.4 to 3.6) describe the presentation costs included in this cost-analysis over three years (Spring 2000 until Fall 2002).

Table 3-4: Presentation Costs of OMDE 601 in 2000

	Spring 2000	Summer 2000	Fall 2000
Name of lead faculty	Bernath, Rubin	Hülsmann, Rubin	Hülsmann
Number of sections	2	2	2
Lead faculty	$ 10 500[a]	$ 14 600[c]	$ 14 600
Team teaching	NN	$ 5 000	
Visiting expert 1	$ 2 600	$ 2 200	$ 2 200
Visiting expert 2	$ 2 600	$ 2 100	$ 2 200
Technical and faculty support	$ 1 500[b]	$400[d]	[e]
Total cost of presentation	**$ 17 200**	**$ 24 300**	**$ 19 000**
Number of students	56	71	63
Average income per student	$ 481	$ 498	$ 568
Revenue	$ 27 000	$ 35 400	$ 35 800
Surplus	$ 9 800	$ 11 100	$ 16 800

*a: Bernath at 3.5 months at 50% of his time. b: Zawacki works two hours per week per section over 4 months. This is 20% of his allocated time to the MDE. (We calculate: $1 900 * 20% * 4 = $ 1 520.) The costs of Rubin are not incurred by ZEF hence not included in this calculation. c: Hülsmann teaches 70% of his time in six sections per year. d: Zawacki works one hours per week per section over 2 months. This is 10% of his allocated time to the MDE. (We calculate: $1 900 * 10% * 42=$ 380. All values are rounded to the nearest hundred.) e: The support needed by Hülsmann falls below one hour per week.*

Table 3-5: Presentation Costs of OMDE 601 in 2001

	Spring 2001		Summer 2001	Fall 2001	
Name of lead faculty	Hülsmann	Beaudoin	Bernath	Hülsmann	Beaudoin
Number of sections	2	1	2	1	1
Lead faculty	$ 14 600	$ 6 200	$ 9 600[b]	$ 7 300	$ 5 700
Visiting expert 1	$ 2 100	$ 1 100	$ 2 000	$ 900	$ 1 100
Visiting expert 2	$ 2 100		$ 2 000	$ 900	
Technical and faculty support		$ 2 300[a]	$ 400		$ 2 300
Total cost of presentation	**$ 18 800**	**$ 9 600**	**$ 14 000**	**$ 9 100**	**$ 9 100**
Number of students	59	25	43	29	29
Average income per student	$ 575	$ 575	$ 580	$ 590	$ 590
Revenue	$ 33 900	$ 14 400	$ 24 900	$17 100	$ 17 100
Surplus	$ 15 100	$ 4 800	$ 10 900	$ 8 000	$ 8 000

a: The level of technical and faculty support for Beaudoin is higher for two reasons: Beaudoin needs support at a distance since he teaches in this environment for the first time. (Support requirements fall in the subsequent spring and fall semesters 2002[25].) b: Here we determine the notional cost incurred by Bernath's teaching by shadow pricing and arrive at 10 000 DM per section, which is about the price paid when teaching is out-contracted. The variations in the honoraria for the experts are partly due to exchange rate variations partly die to variations in the task (e.g. number of assignment marked).

Table 3-6: Presentation Costs of OMDE 601 in 2002

	Spring 2002		Summer 2002	Fall 2002	
Name of lead faculty	Hülsmann	Beaudoin	Bernath	Hülsmann	Beaudoin
Number of sections	1	1	1	1	1
Lead faculty	$ 7 300	$ 4 500	$ 4 800	$ 7 300	$ 4 500
Team teaching					
Visiting expert 1	$ 900	$ 1 000	$ 1 100	$ 900	$ 1 000
Visiting expert 2	$ 900		$ 1 100	$ 900	
Faculty support					
Technical support		$ 1 500	$ 400		$ 1 500
Total cost of presentation	**$ 9 100**	**$ 7 000**	**$ 7 400**	**$ 9 100**	**$ 7 000**
Number of students	31	32	29	25	27
Average income per student	$ 567	$ 567	$ 567	$ 567	$ 567
Revenue	$ 17 600	$ 18 100	$ 16 400	$ 14 200	$ 15 300
Surplus	$ 8 500	$ 11 100	$ 9 000	$ 5 100	$ 8 300

Both in the Spring and Fall terms two sections were taught, one by Hülsmann and one by Beaudoin. In the shorter more intense Summer term Bernath taught one section.

The tables above allows the following observations:

(i)   Costs per section stabilize at about US$ 9 000 per section. The average remaining revenue per section is about US$ 16 000, suggesting an expected surplus of US$ 7 000.

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[25] Cf. Table 3-3

(ii)   Out-contracting teaching appears to be more cost-efficient as compared to doing it in-house, especially if technical and faculty support requirements diminish. This might, however, be a superficial consideration since it neglects the implicit capacity building when teaching is done in-house.

3.3.1.2. OMDE 605 *New and Emerging Media in Distance Education*

During the time under consideration this course was one of the *Certificate Foundations in Distance Education's* core courses. It was developed and taught by Hasebrook, a former member of the Bank Academy in Frankfurt. He became CEO of efiport AG, which offers eLearning solutions for the banking and financial services industry. It is mainly due to his lack of time that Hasebrook was not able to continue teaching OMDE 605. However, the course did not vanish without traces. Based on a slightly modified syllabus the course will return as OMDE 620, an elective course, under the title *Learning and Training with Multimedia* in Spring 2003.

Cost of development

The figures of development costs need some interpretation. The course is organized around a costly WBT, which had been developed for a different purpose. This again illustrates that development costs are to some extent historically accidental. Hasebrook was able to bring the WBT to the course without having to recover the development costs. Hence we can treat these costs as 'sunk costs'. Only the adaptation costs for a new (e.g. English language) environment were charged to the project[26].

Table 3-7: Cost of Development of OMDE 605

Development costs	Summer 2000
Development (Hasebrook)	$ 5 100
WebTycho course-room development	$ 1 500[a]
Total fixed	**$ 6 600**

a: Zawacki worked 20% of his time for four months on this.

The reason why the Bank Academy was quite interested in cooperation is complex, related to public-private partnership and issues of capacity building. Reasons may include that cooperation at university level, especially with a major distance teaching university, conveys some prestige to both the institution and the staff involved and whose leading member in this case was given faculty status at UMUC.

Cost of presentation

The Table below describes the presentation costs. The course was taught by Hasebrook and his team.

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[26] The WBT, which was costly to develop and adapt will be used in OMDE 620, the elective course which replaces OMDE 605.

Table 3-8: Cost of Presentation of OMDE 605

Presentation costs	Fall 2000	Spring 2001	Fall 2001	Spring 2002
Name of lead faculty	Hasebrook and team [a]	Hasebrook and team [a]	Hasebrook and team [a]	Hasebrook and team [a]
Number of sections	2	1	1	1
Faculty + team	$ 8 900	$ 4 500	$ 4 600	$ 4 600
Technical and faculty support[b]	$ 3 400	$ 2 300	$ 2 300	$ 1 500
Total cost of presentation	**$ 12 300**	**$ 6 800**	**$ 6 900**	**$ 6 100**
Number of students	53	13	23	28
Average income per student	$ 568	$ 575	$ 580	$ 590
Revenue	$ 30 100	$ 7 400	$ 13 300	$ 16 500
Surplus	$ 17 800	$ 600	$ 6 400	$ 10 400

a: The lead faculty was Hasebrook . He employed teaching assistants to deal with routine issues. b: The figures for technical support are based on Table 3-3, column 3. Note that Zawacki earns only 50% of his salary within the MDE.

The teaching of OMDE 605 is outsourced and clearly visible in the cash flow. The payment was made to Hasebrook on behalf of the Bank Academy, who employed and paid his team.

Technical and faculty support was done in-house and is determined by ABC approach. Table 3-3 (column 3) indicates how the need for support decreases when, over time, experience is gained. Need for technical and faculty support dropped from 45% in Fall 2000 to 20% in Spring 2002.

Table 3-8 shows that costs of presentation are rather constant. This is to be expected because the only varying cost element impacting costs incurred by ZEF/UNIOL are the decreasing support requirements. Surplus clearly depends on course enrollments. In Spring 2001 course enrollment was low (13 students only) thus bringing surplus down. The slump in student enrollment reflects problems in the pilot run of the course in the fall semester 2000. After spring 2001 enrollment and consequently revenue picked up.

3.3.1.3. OMDE 606 *Economics of Distance Education*

The course *Economics of Distance Education*[27] is a core course within the MDE program and part of both certificates offered by ZEF/UNIOL, the *Certificate Foundations of Distance Education* and the *Certificate Distance Education in Developing Countries*.

Cost of development
The course OMDE 606 was developed by Hülsmann. In hindsight we clearly distinguish three periods of development: (i) the three months between October and December 1999; (ii) the months before the Summer term 2000; and (iii) the Summer term.

(i) During October to the end of 1999 Hülsmann, still working from the UK, was employed at half of a BAT IIa position (at that time 110 000 DM per annum, or US$

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[27] For several reasons the course has been renamed "Management of Distance Education: Cost-analysis". Although there is an element of general economics (e.g. a discussion of Human Capital Theory) the focus is on costing distance education institutions and technologies.

56 700). His main task during this period was developing a syllabus for OMDE 606. Half of monthly salary for three months amounts to: US$ 7 000[28].

(ii) As of January 2000 Hülsmann was fully employed by ZEF. During the 4.5 months of the Spring term an ABC breakdown of Hülsmann's tasks gives the following picture: Hülsmann takes the UMUC WebTycho tutoring course to prepare for teaching within the MDE (10% of time); he acquaints himself with the content and teaching processes of OMDE 601 (10% of time); he is involved in general management tasks related to the MDE within ZEF (10% of time). In the remaining 70% of his time he continues the development of OMDE 606. We calculate: [($60 200/12)* 70% * 4.5]= $15 800.

(iii) The third development effort was undertaken in the Summer term while teaching the OMDE 606 pilot version. The boundaries between course development and teaching are blurred. We try to arrive at a reasonable estimate by triangulating an ABC estimate of the time with an analysis of the work during the Summer term. Teaching the two courses OMDE 601 and 606 occupied 90% of Hülsmann's time; it was distributed over teaching two sections OMDE 601, one section OMDE 606 and further development of OMDE 606. (General management support did not exceed 10%.) The break down of the time for the various tasks can be illustrated by dividing a 40 hour week into the different tasks. If we subtract the 10% for general management we have 36 hours. From this we assign 16 (or 2 x 8 hours) to teaching OMDE 601. The remaining 20 hours we divide evenly between OMDE 606 course development and course teaching. In this case we calculate as contributing to course development in this term: [(U$ 60 200/12)* 25% * 3]= US$3 800[29].

Table 3-9 draws the development costs together.

Table 3-9: Cost of Development of OMDE 606

Costs of development	1999	2000
Development (Hülsmann)	$ 7 000[a]	$ 19 600[b]
WebTycho course-room (Zawacki, Hülsmann)		$ 400[c]
Total costs of development		**$ 25 700**

a: cf. (i) b: cf. (ii) and (iii): $15 800 + $3 800 = $19 600; c: cf. Table 3-3

Cost of presentation

Table 3-10 describes in some detail the costs of presentation. As in OMDE 601 an attractive feature of OMDE 606 was the 'visiting expert'. As in the *Foundations* course the authors of the key textbooks (Rumble, 1997; Bates, 1995) participated as visiting experts in one of the modules. Since the outset, Rumble, a leading expert in the field of costing distance education, participated and became quite popular with students due to his swift, elaborate responses, which reflected his experience in the field. For Bates, whose name is connected with costing educational technologies, it was not always possible to participate, but during those times students were able to benefit substantially from his experience.

[28] [(US$ 56 700/2) / 12)]*3= US$ 7 000

[29] If we triangulate this attribution of costs with the costs on the business plan, where Hülsmann teaching a section costs one sixth of 70% of his annual salary, teaching costs would be severely underestimated at $3 800.

Table 3-10: Cost of Presentation of OMDE 606

Costs of presentation	Summer 2000	Spring 2001	Summer 2001	Fall 2001	Spring 2002	Summer 2002
Name of lead faculty	Hülsmann [a]	Hülsmann	Hülsmann	Hülsmann	Hülsmann	Hülsmann
Number of sections	1	1	1	1	1	1
Lead faculty (Hülsmann [a])	$ 7 300	$ 7 300	$ 7 300	$ 7 300	$ 7 300	$ 7 300
Visiting expert (Rumble [b])	$ 730	$ 690	$ 660	$ 680	$ 700	$ 770
Visiting expert (Bates [c])		$ 670			$ 700	
Technical and faculty support (Zawacki)	$ 400	$ 400	$ 400			
Total cost of presentation	**$ 8 430**	**$ 9 060**	**$ 8 360**	**$ 7 980**	**$ 8 700**	**$ 8 070**
Number of students	12	26	10	14	9	15
Average income per student	$ 498	$ 575	$ 580	$ 590	$ 567	$ 567
Revenue	$ 5 900	$ 14 900	$ 5 700	$ 8 200	$ 5 100	$ 8 500
Surplus	- $ 2 530	$ 5 840	- $ 2 660	$ 220	- $ 3 600	$ 430

a: Hülsmann was lead faculty in this course over the period under consideration; b: Rumble did participate in all course presentations; c: Bates participated in Spring 2001 and in Summer 2002.

So far OMDE 606, although a core course of the program, has not attracted too many students. Given that the course generally received quite good ratings it has been conjectured that the low level of enrollment may be due to the element of mathematics required for this course, and often poses a barrier for students. However, because this is a core course students will eventually have to enroll, and it is expected that participation will be above the break-even point for the courses to come.

3.3.1.4. OMDE 624 *Student Support in Distance Education*

This course moved into the position of a core course in 2002[30], which reflects the strong emphasis given to student support and has its roots in the history of ZEF.

Cost of development
Bernath first asked Tait to write a syllabus for a student support course, hoping that he would eventually also be won over to teach the course. It was Tait who brought Brindley, a Canadian distance educator and clinical psychologist, to the team. Together they developed the syllabus, however, Tait had to refuse to teach the course, not least due to time constraints, while Brindley eventually agreed to teach it.

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[30] It replaces OMDE 605, which is no longer offered in its original form because Hasebrook and his team are no longer available. This is a telling point as far as scalability is concerned: In the context of the Foundations certificate, changing the lead faculty has always induced some major changes. This indicates that for the time being the course design is not geared to full scalability. Changes in lead faculty in OMDE 601 proved straightforward as long as the faculty involved operated at arm's length (e.g. when shifting from Bernath to Hülsmann), whereas changes proved to be more profound when teaching was outsourced and/or new visiting experts had to be integrated (e.g. Beaudoin with Moore as visiting expert). This suggests that for the time being lead faculty in these courses are more than instructors who tutor a largely pre-prepared course.

Table 3 -11: Cost of Development of OMDE 624

Costs of development	Summer 2000
Development (Brindley and Tait)	$ 5 172
WebTycho course-room (Zawacki [a])	$ 1 520
Total fixed	**$ 6 695**

a: Zawacki worked about four months at 10% of his time.

The development costs in Table 3-12 are partly based on cash flow evidence, partly on ABC estimates. Brindley and Tait were paid a lump sum of US$ 5 172 for the development of the syllabus, the draft of the introductory text for the modules, and an elaborated reading list.

The costs attributed to Zawacki's role in the development of OMDE 624 is based on the assumption that he worked for about four months at 10% of his time for this course (US$ 1 520 = 4*US$ 3 800 * 10%; cf. Table 3-1). Part of this task included putting the material provided by the subject experts into the appropriate format for the WebTycho learning platform, editing the syllabus, and making the readings electronically available[31].

Cost of presentation

As is the case for most faculty the learning platform WebTycho and, indeed online teaching in general, are a new experience. Brindley received substantial technical as well as faculty support on two levels: While Zawacki helped with the technical issues, Walti helped with issues more directly related to the course.

Table 3 -12: Cost of Presentation of OMDE 624

Costs of presentation	Fall 2000	Spring 2001	Fall 2001	Spring 2002	Fall 2002
Lead faculty (Brindley [a])	$ 4 481	$ 5 110	$ 4 567	$ 4 656	$ 5 150
Faculty support (Walti)		$ 500	$ 600	$ 600	$ 600
Technical support (Zawacki)	$ 1 520	$ 1 520	$ 1 520	$ 1 520	$ 1 520
Total cost of presentation	**$ 6 001**	**$ 7 130**	**$ 6 687**	**$ 6 776**	**$ 7 270**
Number of students	23	12	11	9	21
Average income per student	$ 568	$ 575	$ 590	$ 567	$ 567
Revenue	$ 13 064	$ 6 900	$ 6 490	$ 5 103	$ 11 907
Surplus	$ 7 063	- $ 230	- $ 197	-$ 1 673	$ 4 637

a: the fluctuating costs for Brindley's teaching is largely due to currency fluctuation.

The course presentation costs in Table 3-12 are partly based on cash flow evidence, partly on ABC estimates, as is the case with the development costs. Brindley (as lead faculty) and Walti (as teaching assistant) were paid a lump sum. The costs for Zawacki are based on ABC estimates assuming an investment of four months at 10% of his time.

3.3.1.5. OMDE 625 *National and International Policies for Distance Education in Developing Countries*

The development of a further certificate program reflected the interests of Hülsmann, who had worked over a decade in developing countries and earned a Master's degree in

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[31] Copyright clearance was done by UMUC.

Education and International Development (with a specialization in Distance Education). From the outset of his work with ZEF he signaled his interest to develop such a certificate. Given the increasingly global reach of distance education, its role in development cooperation, and the profile of MDE students as future program managers, it was assumed that such courses could be an attractive option within the MDE program.

It was then decided to develop the *Certificate Distance Education in Developing Countries*. The certificate would, like all the graduate certificate programs be offered within the MDE program, consist of four courses: two general courses considered relevant to the issue and two specialized courses.

(1) *Foundations of Distance Education* (OMDE 601),

(2) *Economics of Distance Education* (OMDE 606),

(3) *National and International Policies for Distance Education in Developing Countries* (OMDE 625), and

(4) *Technologies for Distance Education in Developing Countries* (OMDE 626).

On the ZEF web site you find the following description of the program:

> While OMDE 601 (*Foundations*) and OMDE 606 (*Economics*) lay the foundations for the certificate program, OMDE 625 (*Policies*) and OMDE 626 (*Technologies*) specifically address the respective issues of distance education in developing countries.
>
> The certificate program is intended for students with a specific interest in development issues. Especially the two specialized courses on distance education in developing countries may attract students from development organizations, including international institutions, national agencies, and non-governmental organizations working in the context of education and training. They may also be of interest of educators and/or educational planners who themselves work in developing countries in the field of education or educational planning, and wish to explore what distance education has to offer.
>
> The two courses specialized on developing countries (OMDE 625 and OMDE 626) complement each other. While OMDE 625 is primarily intended as an exercise in stocktaking of distance education in developing countries. (What was it used for? Which audiences were reached? Did it work?) OMDE 626 is more explorative in nature and examines the potential and impact of information and communication technologies (ICT) on distance education in the context of developing countries.[32]

In the following we cost the two specialized courses and thus complete our cost-analysis of the courses developed and managed by ZEF/UNIOL.

Cost of development

The first steps to develop the *Certificate Distance Education in Developing Countries* took place in Fall 2000. It had to be decided how many courses should be newly developed and which existing courses, if any, should be included in such a certificate program. We felt that the *Foundations* and the *Economics* course would serve as a good

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[32] This quotation of the Website is slightly edited.

underpinning for the two newly developed courses. The one looks at evidence on how distance education was being used in developing countries and how cost-effective it had proven to be, the other focuses on ICT and its impact on the changing distance education landscape in developing countries.

We have already mentioned that course development within the MDE program is not developing new material from the scratch (i.e. a completely new series of study guides). It means writing a syllabus, deciding on the readings, and drafting the introductory main topics for the various modules/sections of the course. The overall concept of the two courses was discussed between Hülsmann and Perraton, a renowned expert in the field and Director of the International Research Foundation for Open Learning (IRFOL) in Cambridge.

The costs of the various contributions are determined by different methods. Perraton received a honorarium of about US$ 2 400, the costing of Hülsmann's contribution relies on a ABC approach and the ZEF business plan. According to this Hülsmann spent at about 10% on developing the certificate program and OMDE 625. Hence we can determine the development cost attributable to Hülsmann with 12 months x 10% x US$ 5 200 = US$ 6 240.

Table 3 -13: Development Costs of OMDE 625

Cost drivers	2001	US$
Development	Hülsmann	$ 6 240
Development	Perraton	$ 2 431
Total		**$ 8 671**

Due to the large amount of material that had to be looked at and classified accordingly, the development work for OMDE 625 and OMDE 626 cannot be neatly separated. Moreover, as a spin-off from this course development work Hülsmann developed a short (six week) course *Professional Seminar Distance Education in Developing Countries,* which was taught September/October 2002.

Cost of presentation

As in almost all courses in the *Certificate Foundations of Distance Education* the new certificate program made use of the idea to invite the author(s) of the key textbook(s) as visiting expert(s) into the course. Perraton (2000) was selected as the textbook for this course such that the author's presence was an element of quality well appreciated by the students.

Table 3 -14: Cost of Presentation of OMDE 625

Costs of presentation	Spring 2002
Lead faculty (Hülsmann)	$ 7 300
Visiting expert (Perraton)	$ 728
Total cost of presentation	**$ 8 028**
Number of students	5
Average income per student	$ 567
Revenue	$ 2 835
Surplus	- $ 5 187

The course only attracted a few students, which meant a completely different type of situation than in courses such as OMDE 601. The larger number of learners means that the dialogue among peers sustains communication even if the lead faculty temporarily might have to take the back seat. For courses with less than ten students a different teaching and learning design needs to be developed. The core part of this design is the idea of a project. Each participant negotiates his/her project (which could be compared to a learning contract) and develops it through different steps: an annotated bibliography, a project conference, developed by the 'project owner' and for which introductory topics are drafted, and thereafter discussed at a set time with faculty and peers. The provided feedback is then integrated into the final project paper.

The example of a project as a core element of the course illustrates that much development work might still have to be done during the pilot run of the course.

3.3.1.6. OMDE 626 *Technologies for Distance Education in Developing Countries*

OMDE 626 is the final course within the *Distance Education in Developing Countries Certificate*.

Cost of development
OMDE 626 was developed by Hülsmann and the main efforts took place in 2002. Development work continued until and during the pilot course in Fall 2002. Hence the whole time set aside for course development in 2002 Hülsmann worked to prepare OMDE 626. Hence we have again: 12 x 10% x US$ 5 200 = US$ 6 240.

Table 3-15: Development Costs of OMDE 626

Cost drivers	2002	US$$
Development	Hülsmann	$ 6 240
Total		**$ 6 240**

Cost of presentation
Though it is not required to take the courses of the *Certificate Distance in Developing Countries* in a specific sequence the inner logic of the program suggests to take them according to the sequence of the course numbers. We therefore could not expect to have many more students in OMDE 626 than in OMDE 625. Nevertheless, we decided to run the course although it was clear that the course would not break - even if we only calculated the direct course costs. For this reason we deviated from the inviting a visiting expert.

Table 3-16: Cost of Presentation of OMDE 626

Costs of presentation	Spring 2002
Lead faculty	$ 7 300
Total cost of presentation	**$ 7 300**
Number of students	5
Average income per student	$ 567
Revenue	$ 2 835
Surplus	- $ 4 465

Despite the low number of enrollments the courses of the *Certificate Distance Education in Developing Countries* have attracted so far, the program management is still convinced that in the context of borderless education, a growing demand for education in developing countries, and the role distance education can play in this context that the certificate program will eventually attract a larger audience.

If we review the costs of development and the costs of presentation we observe two things: (i) With the exceptions of OMDE 601, and OMDE 606 developing a course costs about US$ 7 000. (ii) Presenting one section costs about the same as developing a course: US$ 7 000. The higher development costs of OMDE 601 can be explained by the fact that to a certain degree program development and course development activities merged. The higher costs of course development of OMDE 606 can be explained by pointing out that capacity building merged with course development: Developing OMDE 606, getting initiated to online teaching and acquainted with the specific learning platform were processes not neatly separable.

The fact that the fixed capital costs of course development and the largely semi-variable costs of presentation are on the same level re-affirms our case that this model of distance education has a far lower potential for scale economies than 'traditional distance education' (e.g. OUUK type). This observation however, does not imply that the model is not profitably scalable.

3.3.2. Summary of Direct Committed Costs

Table 3-17 presents a synopsis of all direct committed costs. Although in our previous presentation we included the development and presentation costs of OMDE 625 and OMDE 626 for reasons of comparability, they are strictly speaking flexible or managed costs and hence ignored in this summary.

It has already been observed that presentation and development costs do not diverge to the extent that has been observed for some traditional multi-media distance education courses (e.g. OUUK, cf. Hülsmann 2000, p. 82 ff.). Tables in this section show that development costs vary by a factor of only one to three. This means that there is little scope for traditional scale economies.

Moreover, there is a question of depreciating the development costs. In this case we have decided to depreciate over the three years under consideration. This introduces an element of arbitrariness since there is no definitive shelf life for a course. Courses are continuously updated and improved - a process greatly facilitated by the electronic text-based format. In the Table below we have calculated the subtotal of presentation costs and the surplus, ignoring the development costs which, after some time, can be treated as 'sunk costs', i.e. costs no longer relevant for management decisions.

Table 3-17 : Costs and Revenue: Synopsis

		2000	2001	2002	Total
Development	OMDE 601	$ 5 233	$ 5 233	$ 5 233	$ 15 699
	OMDE 605	$ 2 200	$ 2 200	$ 2 200	$ 6 600
	OMDE 606	$ 8 633	$ 8 633	$ 8 633	$ 25 899
	OMDE 624	$ 2 225	$ 2 225	$ 2 225	$ 6 675
Subtotal development costs		$ 18 291	$ 18 291	$ 18 291	$ 54 873
Presentation					
OMDE 601	Cost	$ 60 500	$ 60 600	$ 39 600	$ 160 700
	Revenue	$ 98 200	$ 107 400	$ 81 600	$ 287 200
	Surplus	$ 37 700	$ 46 800	$ 42 000	$ 126 500
OMDE 605	Cost	$ 12 300	$ 13 700	$ 6 100	$ 32 100
	Revenue	$ 30 100	$ 20 700	$ 16 500	$ 67 300
	Surplus	$ 17 800	$ 7 000	$ 10 400	$ 35 200
OMDE 606	Cost	$ 8 430	$ 25 400	$ 16 770	$ 50 600
	Revenue	$ 5 900	$ 28 800	$ 13 600	$ 48 300
	Surplus	- $ 2 530	$ 3 400	- $ 3 170	- $ 2 300
OMDE 624	Cost	$ 5 985	$ 13 783	$ 19 768	$ 39 536
	Revenue	$ 13 068	$ 13 385	$ 26 453	$ 52 906
	Surplus	$ 7 083	- $ 398	$ 6 685	$ 13 370
Subtotal presentation costs		$ 87 215	$ 113 483	$ 82 238	$ 282 936
Total direct costs		**$ 105 506**	**$ 131 774**	**$ 100 529**	**$ 337 809**
Total revenue		**$ 147 268**	**$ 170 285**	**$ 138 153**	**$ 455 706**
Surplus ignoring development costs		$ 60 053	$ 56 802	$ 55 915	$ 172 770
Surplus including development costs		$ 41 762	$ 38 511	$ 37 624	$ 117 897

a: The figure represents the development costs depreciated over the three years under consideration. Since the courses have no definitive shelf-live to depreciate over only three years is slightly arbitrary and may represent an overestimation of the development cost factor.

The following Table summarizes the costs per section. There is an observable difference in cost per section between OMDE 601 and OMDE 606 on the one hand and OMDE 605 and OMDE 624 on the other. The latter courses are outsourced to a greater extent. The findings suggest that outsourcing is less costly, however, as already stated, this must be weighed against capacity building effects which developing and teaching courses have within the providing institution.

Table 3-18: Costs per Section

		2000	2001	2002	Total	Average costs per course
OMDE 601	Number of sections	6	7	5	18	
	Cost per section	$ 10 083	$ 8 657	$ 7 920	$ 26 660	$ 8 887
OMDE 605	Number of sections	2	2	2	6	
	Cost per section	$ 6 150	$ 6 850	$ 3 050	$ 16 050	$ 5 350
OMDE 606	Number of sections	1	3	2	6	
	Cost per section	$ 8 430	$ 8 467	$ 8 385	$ 25 282	$ 8 427
OMDE 624	Number of sections	1	2	2	5	
	Cost per section	$ 5 985	$ 6 892	$ 9 884	$ 22 761	$ 7 587
Average cost per section per year		**$ 7 662**	**$ 7 716**	**$ 7 310**	**$ 7 563**	

3.3.3. Indirect Committed Costs

Course development and course presentation are core activities and belong to the committed costs, i.e. costs incurred if the contractual obligations are to be satisfied[33]. However, these core activities are embedded in an institutional context where they are managed, where facilities (premises, equipment) are provided, and expenses are incurred - all of which are not attributable to one specific course.

3.3.3.1. ZEF Management Overheads

To measure the management costs attributable to the MDE we measure the overall management costs of the Center for Distance Education (ZEF) and weigh the management requirements of the different cost centers (one of them being the MDE program) according to their percentage in the budget and multiply the overall management costs by the MDE's budget percentage.

The ZEF business plan identifies three major cost centers.

(1) Supporting the FernUniversiät Hagen's distance education students , Germany's only dedicated distance teaching university. Due to Germany's federal structure the FernUniversität cannot simply run regional centers in other states; education is an enviously guarded state responsibility. In order to cater for students in other states the FernUniversität has liaised with several state universities to care for their students in the respective state. To do this state universities create centers of distance education, which have a double function: to cater for students of the FernUniversität and to promote distance teaching within the university and the region. This second part of the mission allows the center to initiate all sorts of projects and includes co-operations like the one with UMUC. While this has been the main cost center its

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[33] There is, however, an element of elasticity even here. *Sensu strictu*, it might not be necessary to have visiting experts at all (or one could allow only one visiting expert per course). The visiting expert is a feature not all MDE courses share. Hence ZEF could meet its obligations without having visiting experts.

weight has decreased to 32% and continues to slowly decline. (For further details cf. Bernath, Kleinschmidt, Walti & Zawacki., 2003)

(2) There have been a number of minor activities where ZEF became active to promote distance education and cater for various groups. However, with the UMUC cooperation ZEF's center of gravity began to shift. The inflow of revenue generated from the cooperation with UMUC allowed employment of additional personnel working solely or to a large percentage for the MDE. The weight of the MDE within the Center's overall budget has risen to 32% with an increasing tendency.

(3) Parallel to the cooperation with UMUC ZEF/UNIOL tried to diversify its student support by shifting some of the student support into an online environment, catering especially to those living too far away from Oldenburg to make extensive use of the support available at the center[34]. In order to do this in a cost-effective way ZEF teamed up with two other similar distance education centers at other universities in Lower Saxony and set up an Online Learning Infrastructure. The most recent off-shots in Oldenburg of this line of development are OLI (Online Learning Infrastructure) and LDA (Lotus Domino Applications). With this infrastructure and the developed expertise in Lotus Domino applications (especially Lotus Learning Space), the OLI/LDA cost center already accounts for 17 % of the budget despite being a rather recent development.

The budget percentages also include activity based costing estimates of staff involved in the general administration of the center. Unlike many other university departments ZEF not only has a business plan, but also a quite transparent one. Given that the business plan shows US$ 55 000 as general ZEF overheads we can attribute 32 %, i.e. US$ 17 600, as overheads to be charged to the MDE program. This applies by and large to each of the years under consideration.

3.3.3.2. MDE Management Overheads

In addition to this percentage of general administrative and management overheads incurred by ZEF and charged to the MDE there are specific MDE-related management costs including visits at UMUC (about three times per year) and time for internal meetings. Together these amount to US$ 18 000 per annum during the years under consideration.

3.3.3.3. Expenses

This includes consumables, copying, some marketing (i.e. placing some ads in relevant newspapers e.g. Die ZEIT, e-learning), and some costs to represent the MDE at conferences, which amounts to US$ 20 000.

Most of these costs can be regarded as committed costs. The amount of paper and office consumables have an element of flexibility, but are essentially committed costs. Part of the expectations in an international cooperation are market share. Evidently the American partners expect the MDE to be visible to European clients and that some marketing can be implied in the contractual obligations. However, given that the test for flexible costs is the possibility to scale down in case of decreasing revenues, such costs can also be

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[34] The initiative was referred to as MBI (Mentorielle Betreuung im Internet).

classified as flexible costs. The borderline between the committed and managed costs is to some extent arbitrary. We decide here to include office consumables, basic marketing, and the program director's traveling costs as committed costs, but classify travelling and other MDE faculty member's conference participation as flexible or managed costs.

Table 3-19: Indirect Committed Costs: Expenses

	2000	2001	2002
Expenses	$20 000	$ 20 000	$ 20 000
- Bernath conference	$ 500	$ 1 500	$ 3 500
- Hülsmann conference	$ 500	$ 1 150	$ 1 000
- Zawacki conference	$1 500	$ 950	$ 1 500
Expenses committed [a]	$17 500	$ 16 400	$ 14 000
Faculty meetings	$3 500	$ 4 100	$ 3 000
Total	**$21 000**	**$ 20 500**	**$ 17 000**

a: Expenses committed = Expenses - Sum of conferences

A major item within this category is faculty meetings. To which extent such meetings are necessary for the operation of the program is a moot point once the program is well up and running. The faculty meetings convened in the last three years, however, were part of the development process.

In the time under consideration each year a faculty meeting was convened. The initial meeting in 2000 in Frankfurt included the *Foundation's Certificate* core faculty. The meeting was an integral part of the development process and should be classified as part of the committed costs. The meeting's costs amounted to US$ 3 500.

A further meeting in 2001 was held March 2001 in Oldenburg as part of the Pre-Conference Events leading to the ICDE World Conference in Düsseldorf. This meeting was funded through various sources. MDE resources allocated amounted to US$ 4 100.

The 2002 meeting was held in Oldenburg early in the year and convened, other than faculty teaching in the *Foundation's Certificate* UMUC, core course faculty from the entire program. This meeting was of highly important for the consistency of the program. The costs of the meeting amounted to US$ 3 000. (The difference of costs are explained by the number of staff attending and the modalities of compensation.)

A further meeting held in Orlando in November 2002 took place during the phase when the MDE program was well established. It took place within the context of the ALN conference, related to the nomination for the Sloan ALN Award, and can be seen as a quality insurance investment rather than as necessary for fulfilling contractual terms.

3.3.3.4. Equipment

The equipment consists of eight computers (Pentium III or IV), a laptop to be used when at conferences, and three laser printers. The Table shows to which extent the items are used for MDE. Depreciated over five years the annual equipment costs are about US$ 2 000.

Table 3-20: Indirect Committed Costs: Equipment

Items	Specification	Cost	% of use	% of cost	Depreciated (5 years)
Computer Bernath 1	Pentium IV, LDC	$ 1 500	37%	$ 555	$ 111
Computer Bernath 1	Pentium III	$ 1 200	37%	$ 444	$ 89
Computer Hülsmann 1	Pentium IV, LDC	$ 1 500	100%	$ 1 500	$ 300
Computer Hülsmann 1	Pentium III	$ 1 200	100%	$ 1 200	$ 240
Computer Zawacki	Pentium IV, LDC	$ 1 500	50%	$ 750	$ 150
Computer Vondrlik	Pentium III	$ 1 200	100%	$ 1 200	$ 240
Computer Walti	Pentium III	$ 1 200	100%	$ 1 200	$ 240
Laptop			2500	$ 1	$ 250
Printer Bernath	Laser	$ 760	27%	$ 205	$ 41
Printer Hülsmann	Laser	$ 760	100%	$ 760	$ 152
Printer Zawacki/ Vondrlik	Laser	$ 760	75%	$ 570	$ 114
Total				**$ 9 634**	**$ 1 927**

3.3.3.5. Premises

The MDE team is partly housed in university premises and partly in rented office space. For the purpose of this study we cost only the rented space, which consists of two offices costing US$ 120 per month or US$ 1 440 per annum. These additional rented premises of 24 square meters amount to a monthly cost of US$ 5 per square meter. The costs of the offices cannot be exclusively attributed to the MDE, but to about 80%, resulting in annual cost for premises of about US$ 1 150.

[We do not want to open Pandora's box of costing premises (or equipment), which are not at all reflected in ZEF's cash flow. The above figure however allows to cost the premises serving the MDE by shadow pricing. In addition to the above mentioned two offices, one smaller office (15 square meters) is used exclusively for the MDE, while the directors office with 25 square meters is only partly used for managing the MDE. Calculated at US$ 5 per square meter we would get US$ 75 plus US$ 45 amounting to a further US$ 1 320 per annum in premises.]

3.3.3.6. Indirect Committed Costs: Summary

If we draw the various indirect committed costs together ZEF incurs US$ 70 000 of per annum indirect costs and considered necessary to fulfill its contractual obligation within the UMUC cooperation.

Table 3-21: Indirect Committed Costs: Summary

	2000	2001	2002
ZEF general management	$ 17 600	$ 17 600	$ 17 600
MDE specific management	$ 18 000	$ 18 000	$ 18 000
Expenses	$ 21 000	$ 20 500	$ 17 000
Equipment	$ 1 927	$ 1 927	$ 1 927
Premises	$ 1 150	$ 1 150	$ 1 150
Total	**$ 59 677**	**$ 59 177**	**$ 55 677**

3.4. Managed Costs

We distinguish between committed costs and managed costs. Committed costs are those necessary to sustain the capacity for rendering ZEF's obliged services. In Rumble's (1997) words: "Committed costs are those which cannot be eliminated or cut back without a major effect on the enterprise's objectives and profits" (p. 30). Managed costs are those "… which can be reduced fairly easily without any immediate major disruption to the objectives or profits of the organization " (p. 30).

Managed costs relate to two main categories of activities: program expansion and quality enhancement. If there is sufficient surplus it is possible to expand the program beyond what originally had been agreed to. New courses and possible spin-offs could be developed. The investment into quality would include faculty development, course maintenance, and research and evaluation of practice.

It has, however, already been noted that the distinction between committed and flexible costs is based on aspects of process rather than structure and is inherently 'fuzzy' when it comes to details. We will come to that.

3.4.1. Expansion

Under expansion we look at the development of new courses not included in the initial contract. The Memorandum of Understanding (MOD) between UMUC and Oldenburg University initially only covered the *Certificate Foundations of Distance Education*. The surplus (the difference between incoming revenue and committed costs, including additional funds) allowed ZEF to expand the program, and develop (i) additional courses within the existing program, (ii) spin-offs from the expertise gained beyond the programs.

3.4.1.1. Development of New Courses

Two new courses were developed: OMDE 625, *National and International Policies for Distance Education in Developing Countries* and OMDE 626, *Technologies for Distance Education in Developing Countries*. The development and presentation costs of these two courses are presented above under committed costs for systematic reasons (i.e. to compare the development and presentation of these courses with other courses offered by ZEF within the UMUC cooperation[35]). However, they are not included in the summary of (direct) committed costs. They must be considered flexible costs, albeit, once launched the flexibility to discard these newly introduced program components is limited. If students have chosen OMDE 625 with the intention to complete the *Certificate Distance Education in Developing Countries*, there is a certain obligation to respond to these expectations and offer OMDE 626, even if student numbers for this course are below the break-even point. With regard to program expansion planners need to be aware of a certain asymmetry in flexibility, because it is easier to expand a program than to discard some of its (new) components. This easily produces an upward drift of costs.

Moreover, from an economic point of view, expanding the program's offering is a double edged weapon. It dilutes the remaining scale economies even further (already

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[35] For this reason of structure, and readability, we leave the presentation of development as well as presentation costs of OMDE 625 and OMDE 626 under the chapter of committed costs. In terms of process, however, these costs are obviously managed costs.

reduced due to the lower difference between fixed and variable costs per student in the virtual seminar model), however it may increase the general attractiveness of the program (economies of scope).

3.4.1.2. Spin-Offs

The experience built up in online teaching and training, not least through the expertise gained within the MDE program, led to several spin-offs. They include the online seminar 'The Essentials of Online Learning' for Nokia human recourse development (Naidu & Bernath, 2002); the 'Professional Seminar *Distance Education in Developing Countries*' offered through the Global Development Learning Network (GDLN) of the World Bank in Ghana, Tanzania and Uganda; and TOL (*Training in Online Learning*), a one-day workshop for educators or trainers who need to consider different options of online learning.

Some of these spin-off activities were cost recovering, some are seen as strategic investments. The *'Professional Seminar Distance Education in Developing Countries'* attracted two other departments of the university. The joint forces, under the organizational umbrella of ZEF, developed and offered further courses (such as urban development and renewable energy) and led to the university-wide Task Force Distance Education for Sustainable Development (DESDe).

Table 3-22: Costs and Benefits of Spin-Offs

	Costs	Benefits and revenue
The Essentials of Online Learning (for Nokia)	Medium [a]	High, both in kudos and dollars
Professional Seminar Distance Education in Developing Countries (a GDLN seminar)	Medium (difficult to separate from other development activities)	High in kudos, negative in dollars
Training in Online Learning	Low	High in kudos, medium in dollars

a: Costs here are classified as medium (or low) since we do not cost the manifold activities contributing to the development and presentation of the seminar rather than additional costs incurred mainly through outsourcing some of the related activities. Spin-offs are mainly created through exploiting synergies, providing high value at marginal costs to the institution.

The mentioned spin-offs generally generated more benefits, albeit often in kudos rather than dollars, than costs. It is difficult to separate the preparation for the above mentioned GDLN seminar from the preparation of OMDE 625 and OMDE 626. Much of the development of the above mentioned online seminar 'The essentials of online teaching and learning' derived from experiences of the *Certificate Foundations in Distance Education*. However, it would be interesting to attempt to balance costs and effects of spin-off activities.

3.4.2. Quality Investment

Expanding the range of activities is one way of investing surplus, the other is to enhance program quality. In the case of the MDE quality investment consisted of: (i) course maintenance; (ii) convening meetings with the distributed[36] MDE faculty and visiting

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[36] The term 'distributed' unfortunately connotes the concept of 'distributed learning' often used in contrast to distance education. Here it is used merely to indicate that MDE faculty work from different locations. Brindley et al. in this volume emphasize that it is not easy to organize a 'distributed team of faculty'.

experts contracted by ZEF/UNIOL; (iii) conference visits, and (iv) publications. In some cases it is a moot point whether an activity is to be considered a managed or a committed cost. The test is always: Would a particular activity take place even if no surplus were available?

3.4.2.1. Course Maintenance

Course maintenance to some extent is an ongoing process. The online format allows ongoing piecemeal improvements and updates. One of the difficulties in costing online courses is that they generally do not have a definitive shelf life as traditional open universities courses do. Course presentation always includes some editing and adding. However, at times efforts have to be made for more substantial maintenance. In case of the *Certificate Foundations in Distance Education* such a moment arose when an additional third section had to be added and new faculty and visiting experts were invited. During 2001 Walti was charged to analyze and compare the different versions of the *Foundations* course, in order to improve course quality and ascertain that the different variants of the courses complied with the single common syllabus. These maintenance costs amounted to US$ 5 000[37].

3.4.2.2. Faculty Development

To which extent a faculty meeting is considered a committed rather than a managed cost is a arguable. We argued above that in the course development phase such meetings are operationally necessary and have to be considered committed costs. However, with the program in the mean time being well established, the faculty meeting held in Orlando in November 2002 can be considered of lesser operational importance. It took place within the context of the ALN conference and can be seen as a quality insurance investment rather than as necessary to fulfill contract terms.

3.4.2.3. Conference Visits

A program of this profile needs to confront public discussion and present evaluation results. In this sense conference visits go beyond human resource management and public relations aspects (enhance program visibility within the relevant professional community). However, conference visits are largely considered to be flexible costs and it is quite clear that the frequency of conference visits, their geographic locations, and costs depend on available revenues.

Table 3-23: Managed Costs: Conferences

Conferences	2000	2001	2002
Bernath	$ 490	$ 1 480	$ 3 440
Hülsmann	$ 490	$ 1 130	$ 980
Zawacki	$ 1 480	$ 940	$ 1 480
Total costs	**$ 2 460**	**$ 3 540**	**$ 5 900**

The conferences visited include all major European and many major international conferences in distance education, including OnlineEduca in Berlin, EADTU, EADL,

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[37] An intended secondary effect of the remit was to integrate Walti as one of Oldenburg's lead faculty responsible for teaching a large part of OMDE 601.

EDEN conferences, LEARNTEC in Karlsruhe, the Cambridge International Conference on Open and Distance Learning, the World Education Market in Vancouver, ALN in Orlando, USA and others more.

3.4.2.4. Publications

A part of quality investment is research (in the sense of reflection on practice) and publication. A number of MDE related studies are published in the Studien und Berichte der Arbeitsstelle Fernstudienforschung der Carl von Ossietzky Universität Oldenburg' (Studies and reports of the unit for research in distance education (ASF Series) at the Carl von Ossietzky University Oldenburg). They (will) include:

- Hülsmann, T. (2000). *The costs of open learning: A handbook* (Vol. 2). Oldenburg: BIS.
- Holmberg, B. (2001). *Distance education in essence: An overview of theory and practice in the early twenty-first century* (Vol. 4). Oldenburg: BIS.
- Peters, O. (2002). *Distance education in transition: New trends and challenges* (Vol. 5). Oldenburg: BIS.
- Bernath, U., & Rubin, E. (Ed.). (2003*). Reflections on teaching and learning in an online master program - A case study.* (Vol. 6). Oldenburg: BIS.
- Rumble. G (2003 forthcoming) *Papers and debates on the economics and costs of distance education and e-learning* (Vol. 7). Oldenburg: BIS.
- Beaudoin, M. (2003 forthcoming). *Critical issues in distance education leadership.* (Vol. 8). Oldenburg: BIS.
- Brindley, J. (2004 forthcoming). *Learner support in distance education and online learning.* (Vol. 9). Oldenburg: BIS.
- Hülsmann. T. (2004 forthcoming). *Distance education in developing countries.* (Vol. 10). Oldenburg: BIS.

Volumes 4 and 5 serve as readings for the *Foundations of Distance Education* course, while this volume (Vol. 6) comprises reflective research on the ongoing practical experience. Obviously such publications are a good quality investment, but require careful editing and proof reading. The editing work, beginning in 2001 incurred costs of about US$ 6 150 per volume, which is equivalent to 25% (of 30 hours) of a BAT VIII position. The costs for printing, marketing, and shipping are recovered through sales. Thus, volumes 1, 3, 4, and 5 cost US$ 24 600. Volume 2 was paid for by the International Research Foundation for Open Learning (IRFOL) because it comprises the author's research at IRFOL in Cambridge. Including honoraria to the external authors publishing costs, excluding printing and marketing, amounts to US$ 30 000. It makes sense to charge US$ 15 000 to each of the years 2001 and 2002.

3.4.2.5. Managed Costs: Summary

The following synopsis summarizes the managed costs. In this summary we do not include all the costs of spin-off activities[38], nor the full costs of all the publication related activities. Hence, the total managed costs of about US$ 93 000 are a conservative estimate. It shows, however, that a considerable amount of resources was invested by ZEF/UNIOL that are over and above what was contractually determined.

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[38] It should, however, be added that we neither include all the benefits from the mentioned activities. While they are still small with respect to publications spin-offs at times have generated substantial additional revenues.

Table 3 - 24: Managed Costs: Synopsis

	2000	2001	2002
Expansion			
OMDE 625 Development		$ 8 671	
OMDE 625 Presentation			$ 8 028
Expansion			
OMDE 626 Development			$ 6 240
OMDE 626 Presentation			$ 7 300
Spin-offs: GDLN		$ 6 200	$ 6 200
Maintenance OMDE 601		$ 5 000	
Faculty meetings			$ 4 000
Conferences	$ 2 460	$ 3 540	$ 5 900
Publications		$ 15 000	$ 15 000
Total	**$ 2 460**	**$ 38 411**	**$ 52 668**

4. Findings and Conclusions

In this section we summarize the findings on costs and draw conclusions with respect to questions and issues relevant to the field. The summary on costs will show that the program part offered by ZEF/UNIOL is not self-financing, but receives some open and some covered subsidies. We will look at the reason why the program attracts these subsidies. This will make us revisit the concept of managed and committed costs and examine what would happen if we eliminated a number of quality features. We will find that it is possible to run the courses on a cost recovery basis, but with some likely loss in student and faculty satisfaction.

We then re-examine the issue of scale economies in order to demonstrate with the now available figures that the potential for scale economies is limited. The *prima facie* impression of limited potential for scale economies, as implied in the relatively low differential between development costs and presentation costs, is confirmed.

As a last finding we apply the concepts of Bates (1995) and Hülsmann (2000) for cost per student learning hour. It turns out that these figures depend heavily on the underlying mode of calculation. Bates' mode of calculation is more context dependent, while Hülsmann's approach separates cost per development for a student learning hour and the communication costs of teaching or tutoring. Both authors support the idea that media costs must be compared with respect to learning time.

Finally, we attempt to contribute from the background of our experiences to some relevant issues of the field, which resonate as FAQ in many of the professional conferences on distance learning. Our answers are drawn either directly or indirectly from the experiences reflected in this paper.

4.1. Summary of Findings on Costs and Revenues

Table 4-1 draws all the relevant cost information together and allows us to say something about the composition of costs. We basically distinguished four categories[39]: (i) cost of

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[39] Note that the classification is a compromise between various types and levels of distinction. While committed and flexible costs relate to process, development, presentation and indirect costs relate to structure. Moreover, the level of abstraction is also not consistent: Development and presentation costs together are the direct costs to be compared with the indirect costs indicated in the diagram.

course development; (ii) cost of course presentation or delivery; (iii) indirect costs, and (iv) managed or flexible costs. The first three categories comprise the committed costs, the last category belongs to flexible or managed costs.

Table 4-1: Costs and Revenue: Synopsis

	2000	**2001**	**2002**	**Total**
Total committed costs	$ 165 183	$ 190 951	$ 156 206	$ 512 340
- Direct committed costs	$ 105 506	$ 131 774	$ 100 529	$ 337 809
- Indirect committed costs	$ 59 677	$ 59 177	$ 55 677	$ 174 531
Total managed costs	$ 2 460	$ 38 411	$ 52 668	$ 93 539
Total costs	**$ 167 643**	**$ 229 362**	**$ 208 874**	**$ 605 879**
Revenue	$ 147 268	$ 170 285	$ 138 153	$ 455 706
Surplus	-$ 20 375	-$ 59 077	-$ 70 721	-$ 150 173
No of students	278	294	241	813
Cost per student	$ 603	$ 780	$ 867	$ 750

It is interesting to note that the total of committed costs changes with the number of students, i.e. the level of activity. Managed costs, however, seem to rise rapidly and rather unperturbed by student numbers. This confirms the observed asymmetry of flexibility: It is easier to expand a program and enhance its quality than to discard components or row back on what has come to be seen as the standard of quality. This may signal that the program is in danger of being trapped in an upward drift of costs unrelated to core activities. However, it may also signal forward investment in that it enhances program quality and/or provides opportunities for spin-off activities, which may generate additional revenue flows.
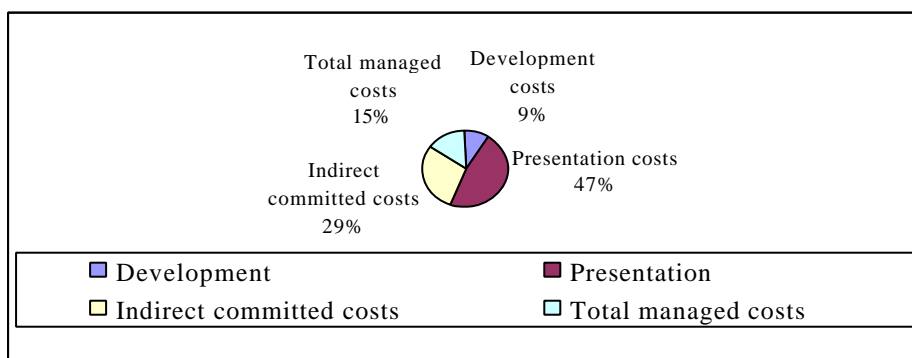
Figure 4-1: Decomposition of Costs

Figure 4-1 shows that 47 % of all the costs are incurred through course presentation. The development costs are a comparatively small item (9 %). One of the major cost components is overhead costs (i.e. the indirect committed costs of 29 %). The managed costs amount to 15 %.

The findings confirm that online education is not a 'money maker' in that it generates profits far beyond the costs incurred (cf. Morgan, 2000). In fact, the figures show that revenues only cover about 75% of the costs (total revenue as a percentage of total costs = 75 %), with 25 % directly or indirectly subsidized by Oldenburg University. Given

the earlier remark that the program basically has to be self-sustaining (i.e. that in the long run costs cannot be bigger than revenues), we need to remind ourselves of the nature of these subsidies.

4.1.1. The Issue of Subsidies Revisited

The subsidies basically stem from three sources: the HSP III funds provided by the State of Lower Saxony (referred to earlier on in this paper) amounting to about US\$ 120 000; special funds contributed by Oldenburg University amounting to US\$ 60 000; and an indirect subsidy in terms of the program director's, who has and continues to be heavily involved in the program. While the two former funds were one-offs, the indirect subsidy in terms of time is of specific importance, since it is ongoing (although decreasing in scale). This means that more cash is left in the kitty than the above figures suggest. Over the years under consideration the indirect subsidies amount to about roughly US\$ 100 000[40]. If these subsidies are set against the negative surplus, the program looks much healthier than it would otherwise. However, the figures suggest that there is little room for complacency, especially if student numbers stall or fall.

Why did the program, from the start, attract funding from both the state (Lower Saxony) and the university? The reasons may be inferred from the HSP III proposal, which, because granted, implies that the reasons stated in the application were convincing. They include the following: The reasons may be inferred from the HSP III proposal, which because granted implies that the program design as described in the application was convincing. It included the following elements: (i) type of degree: many German universities are experimenting with this Anglo Saxon model of certification; (ii) delivery format and language: the online format and the language in which the program is conducted allow, in principal, a global reach; (iii) international cooperation: this refers both to the prestigious cooperation with a major distance teaching university as well as to the experience to run a program with an internationally distributed faculty; (iv) innovative funding regime: the program once developed is largely sef-financing (HSP III, 1999).

Similarly, the reasons for Oldenburg university's interest in this cooperative program can be inferred by citing from the President of Oldenburg University's letter from August 2002. It was written in conjunction with the program's bid for the Sloan Award nomination. This included the following:

> The MDE is the first online master's program in which Oldenburg University has been involved. The online format provides Oldenburg with the opportunity to reach out to students from all over the world in new and unique ways. Our partnership with UMUC allows us to experience a new kind of collaboration by fully integrating two of our graduate certificate programs into the MDE. Both of our institutions benefit from gaining each other's contributions to the program, and our students benefit by participating in an international program with faculty and visiting experts from the United States, Germany, Sweden, Canada, Australia, Israel, and the United Kingdom. (Grubitzsch, personal communication, August 2001)

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[40] The figure is estimated by adding all costs attributed to Bernath (including course development, course presentation, and management related to the program). While they are included they are not paid for out of the revenue generated from the UMUC cooperation.

These quotes indicate that there are basically three testing grounds on which the university wants to gain experiences: (i) increasing the university's reach to international audiences; (ii) experimenting with revenue generating teaching activities; and (iii) experimenting with new forms of online teaching and learning[41]. Because all these criteria forcefully apply to the MDE program cooperation, it was possible to attract the subsidies provided.

4.1.2. The Issue of Managed Costs Revisited

The questions 'Why is the cost per student so high', 'Why are the costs of course presentation so high', and 'Could costs be reduced and still fulfill contractual obligations' may be asked. This means re-visiting the distinctions between committed and managed costs. Are all committed costs in course development and course presentation necessary, or is there some flexibility, such that costs could be further reduced while at the same time fully meeting the terms of the 'memorandum of understanding' (MOU)?

There are three main differences between UMUC and ZEF/UNIOL: (i) ZEF's faculty support is organized on a more individual and personal basis; (ii) the feature of the 'visiting expert' is largely absent from UMUC courses; (iii) ZEF/UNIOL remuneration to its adjunct faculty members is higher. The following Table evaluates the effect on cost per student if these extras were brought down. Underlying assumptions here are (i) faculty support is reduced to a level of US$ 400 per course; (ii) no visiting experts; and (iii) external faculty employed by ZEF/UNIOL are paid UMUC rates. Other costs are taken as provided in Table 4-1.

Table 4-2: Costs and Revenue: Lean Version I

		2000	2001	2002	Total
Revenue		$ 147 268	$ 162 085	$ 134 380	$ 443 733
Costs	Development	$ 18 292	$ 18 292	$ 18 292	$ 54 876
	Presentation	$ 58 400	$ 61 300	$ 67 500	$ 187 200
	Indirect committed	$ 59 677	$ 59 177	$ 55 677	$ 174 531
	Managed	$ 2 460	$ 29 740	$ 31 100	$ 63 300
Total costs		**$ 138 829**	**$ 168 509**	**$ 172 569**	**$ 479 907**
Total surplus	Cost-revenue	$ 8 439	-$ 6 424	-$ 38 189	-$ 36 174
No of students		278	294	241	813
Average cost per student		$ 499	$ 573	$ 716	$ 590[a]
Average revenue per student		$ 530	$ 551	$ 558	$ 546[a]

Notes: a: Average cost or revenue per student over the three years under consideration.

The Table demonstrates that ZEF/UNIOL could run its courses in a way that costs would almost be covered by the generated revenue. If we were to combine this lean version with completely scaling down the costs classified as managed or flexible costs, ZEF/UNIOL would even have a marginal profit (Table 4-3).

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[41] These points are also emphasized by the enquête commission of the German Parliament Deutscher Bundestag (Ed.), 2002), which includes a chapter on the global knowledge society within which the impact of globalization on Higher Education is discussed. The aspect of internationalization of higher education, e-learning, and the need for structural reforms (cf. 5.4.1.2; 5.4.1.3; 5.4.1.34) are emphasized.

Table 4-3: Costs and Revenue: Lean Version II

		2000	**2001**	**2002**	**Total**
Revenue		$ 147 268	$ 162 085	$ 134 380	$ 443 733
Costs	Development	$ 18 292	$ 18 292	$ 18 292	$ 54 876
	Presentation	$ 58 400	$ 61 300	$ 67 500	$ 187 200
	Indirect committed	$ 59 677	$ 59 177	$ 55 677	$ 174 531
	Managed	$ 0	$ 0	$ 0	$ 0
Total cost		**$ 136 369**	**$ 138 769**	**$ 141 469**	**$ 416 607**
Total surplus	Cost minus revenue	**$ 10 899**	**$ 23 316**	**-$ 7 089**	**$ 27 126**
No of students		278	294	241	813
Average cost per student		$ 491	$ 472	$ 587	$ 512
Average revenue per student		$ 530	$ 551	$ 558	$ 546

The model calculations suggest that ZEF/UNIOL could have operated at a lower cost level and thus on a cost recovery basis. But at what price? Bernath's analysis of student satisfaction (based on the 100 points questionnaire, cf. p. 35 in this volume) suggests that the visiting experts are a feature of the ZEF/UNIOL courses highly valued by students. It may well be assumed that the slight edge Oldenburg's courses have compared with UMUC's in the MDE program (cf. Bernath & Rubin in this volume) are attributable to this feature.

Aside from student satisfaction faculty satisfaction is a central element of success. There is plenty of evidence (albeit anecdotal) of the impact Oldenburg's faculty support has on faculty satisfaction. It would be difficult to introduce external faculty to a new teaching environment so smoothly without this extra investment in faculty support. It goes without saying that the higher remuneration ZEF/UNIOL pays to its external faculty also contributes considerably to their satisfaction. This ensures, among other things, a certain continuity, which otherwise might be difficult to sustain.

4.1.3. Comparing with UMUC

It is difficult to compare incurred costs between ZEF/UNIOL and UMUC since UMUC's costs are not publicly available. However, some figures are. Table 4-4 is based on a UMUC information page available under the University System of Maryland web site (UMUC, 1999).

It can be assumed that the figure referring to number of students 'counts heads' rather than enrollments. These 34 783 students would each take an average of 9.6[42] credit hours annually which means credit hours 333 917 leading to a cost per credit hour of $507 or of $1 521 for a three credit hour course.

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[42] The figure 9.6 is based on the assumption that on average UMUC students take 1.2 courses in spring/fall and 0.8 in summer (twice, spring and fall, 1.2 x3 credits = 7.2 credits; once (in summer) 0..8 x 3 credits = 2.4 credits which amounts to an average of 9.6 credits taken in one academic year).

Table 4-4: UMUC: Cost per Student Benchmark

	Numbers/dollars
Undergraduate Students:	29 617
Graduate Students:	5 166
Total no of students	34 783
Faculty:	1 373
Operating Budget:	$ 169 300 000
Total number of credits hours	*333 917*
Cost per credit hour	*$ 507*
Cost per three credit hour course	*$ 1 521*

Figures in italics are our calculations; the rest of the figures are found in UMUC (1999).

Table 5 of Bernath & Rubin in this volume suggests a similarity between the cost drivers in UMUC and ZEF/UNIOL program components. They both include two full time faculty members, eight adjunct faculty and suggests that costs are comparable. The costs derived in Table 4-4 mix costs per graduate and costs per undergraduate students. Tuition fees for a credit in undergraduate, non-resident status was $385 in Fall 2002; for graduate students tuition was $521 or $1 052 or $1 563 respectively for a 3 credit course. This basically demonstrates that UMUC operates as we have explained it for ZEF/UNIOL. Essentially, the generated revenue flow from student tuition has to cover the budgeted operating costs. The revenue of app. $550 per student, which is forwarded to Oldenburg is about one third of the generated revenue per student. This would suggest that UMUC may estimate costs for teaching as about $550. This is largely consistent with our previous observations, which suggest that if ZEF discarded some of its additional features such as visiting experts and comfortable arrangements for faculty support, the costs per student could be scaled down to this level.

4.1.4. Scale Economies

This section shortly examines the scale economy potential in a program course. The potential of scale economies can be gauged by analyzing the total cost formula, which is also commonly used to analyze the costs of distance education (cf. Perraton, 1982; Orivel, 1987; Rumble, 1997).

The total cost formula reads as follows

TC=F+VN
Total costs = Fixed costs + (Variable costs per student x Number of students)

From the 'Total cost' formula average costs per students are inferred by dividing the total costs by the number of students the program has served so far, i.e. as AC=TC/N or

AC=(F/N)+V
Average costs = Fixed costs divided by Number of students + Variable cost per student .

In our case the formula requires some modification since the MDE represents distance education where students are taught in classes and not individually[43]. Variable costs per student therefore behave as a step function and adding an additional student does not

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[43] According to Holmberg (1995) distance education is traditionally 'individualized study'.

increase costs until the class reaches the maximum acceptable group size, and an additional class has to be opened. For the MDE program we can write the direct course costs as:

Total costs = Fixed costs of development + Semi-variable costs of presentation x Number of presentations

The number of presentations depends on the number of students divided by the maximal accepted group size[44]. Or formally:

Number of presentations = [number of students/maximal group size][45]

Total costs = Fixed costs of development + Semi-variable costs of presentation x [number of students/maximal group size]

If we write for 'semi-variable costs' SV and for 'maximal group size' G, we get:

TC=F+SV*[N/G]

Again the Total Cost formula allows us to derive the average cost formula by dividing total costs by student numbers which leads to:

AC=TC/N or AC=(F/N) + SV*[N/G]/N and finally
AC=(F/N) + SV/G.

For the MDE the maximal group size is fixed at around thirty[46], hence the above formulas lead to:

TC(N) = F+SV*[N/30] and
AC(N) = (F/N) + SV/30

Below we determine average costs per students for all the courses in the *Foundations Certificate*. As the semi-variable cost of presentation (SV) we take the average cost of presentation in the years under discussion.

Table 4-5: Average Cost per Student

Course	Fixed costs of development	Average cost of presentation per group max. group size	Average cost of presentation per student	Number of students	Average cost per student
OMDE 601	F= $ 15 700	SV= $ 8 773	$292	519	AC=($ 15 700/519) + $ 8 773/30 = $ 323
OMDE 605	F= $ 6 600	SV=$ 5 190	$173	117	AC=($ 6 600/117) + $ 5 190/30 = $ 229
OMDE 606	F= $ 25 700	SV= $ 8 433	$281	86	AC=($ 25 700/86) + $ 8 433/30 = $ 580
OMDE 624	F= $ 6 695	SV= $ 6 773	$226	76	AC=($ 6 695/76) + $ 6 773/30 = $ 314

The average cost per student as calculated here assumes full classes; the difference between the fourth and the last column then indicates the potential for scale economies.

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[44] Practically, things are a little more complicated than this. There is a difference between opening a new section because course enrollments exceed maximal acceptable group size, and scheduling new courses because they are offered in the program even though enrollment does not reach the break-even point.

[45] The square brackets indicate rounding to the next integer.

[46] The so called maximal group size is a 'fuzzy concept'. In fact you find 31 and 32 as group size in OMDE 601 without this having lead to the opening of a new group. In practice a number of factors have to be considered including the practicalities of re-grouping the already enrolled students.

The following figure depicts the actual development of average cost per student for the OMDE 601 course against a model calculation. In this it was assumed that the presentation costs of each presentation are equal to the average presentation costs we have identified for the three years under consideration, and that classes are full (30 students each). The latter assumption would distort figures if we were to discuss revenues, but does not severely distort costs. This because most OMDE 601 courses are near to 30 students per section, and student numbers only impact the first component (F/N). The impact on average costs increasingly diminishes the larger the number of students is over which fixed costs are spread.

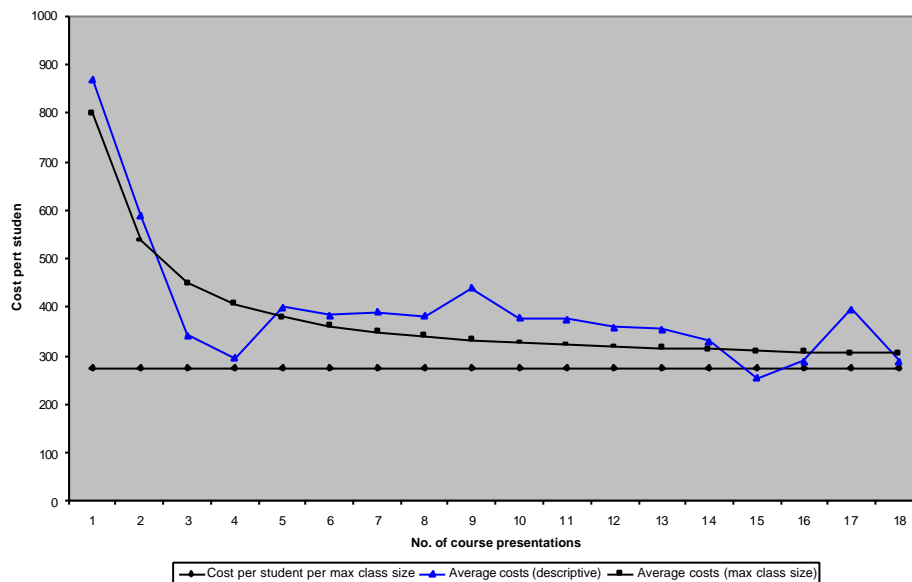**Figure 4-2: Average Cost per Student OMDE 601**

Figure 4-2 shows that the scale economies based on the differential between fixed costs of development and presentation costs are exhausted. The zigzag of the empirical graph, as opposed to the smooth model graph, is due to the homogenizing assumptions made for the model, especially that the average of presentation costs is the same cost for each presentation. The straight line represents the constant factor in the equation: average cost of presentation divided by maximal group size. The curve only could fall below this level (cf. presentation 15 in the graph) if costs of presentation are below average costs and/or the student number exceeds the notional maximal group size of 30.

This analysis shows that the scale economies for a course development model like the one characteristic for the MDE are exhausted within about two years. This does not mean that the model could not be profitably scaled up, only that average costs per unit of output are not likely to come down as an effect of program expansion. Scale economies means that profitability can be increased by program expansion since

revenues are constant per unit of output, but costs decrease. This avenue of profitability is characteristic for Fordist-type distance education[47]

4.1.5. Cost per Student Learning Hour

The role of cost per learning hour has been used especially to compare the cost-efficiency of media (Bates, 1995), however the concept remains controversial. In practice, professionally moderated and assessed learning hours become the currency with which to measure learning in the form of credit points. However, some analysts consider learning time an input variable rather than an output measure required for measuring the effectiveness of learning. Nonetheless, cost per learning hour remains an interesting and informative indicator as long as it is defined explicitly and accompanied by a sufficiently thick description of the context.

Bates states:

$$\$ = \frac{t}{hxn}$$

where
$\$$ = the total cost per student contact hour

t = the total costs of materials (text or programme, etc), including overheads, production and delivery

h= the average number of hours spent studying those materials per student

n= the number of students studying the material over the life of the course"

This means basically:

$$cost\ per\ student\ contact\ hour = \frac{total\ cost\ of\ program}{average\ no.of\ student\ learning\ hours\ \ x\ \ no\ of\ students}$$

In our case the costs per student contact hour in OMDE 601 in Bates' sense would require determining for the total cost of program: the fixed costs of development, plus the costs of delivery, plus the course related overheads. The latter requires the apportionment of overheads to OMDE 601. We most sensibly do this by calculating the proportion of students taught in OMDE 601 compared to all students taught in the program, i.e. 521 out of 791 enrollments, giving us 66%. Since all the MDE related overheads over the three years under consideration amount to $174 531, 66% of that is $115 190. Hence the total costs of OMDE 601 are composed of: $15 700 (fixed costs of development), $ 148 550 total costs of delivery or presentation over the three years of consideration, and $115 190 as apportioned overheads. The sum is $279 440.

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[47] One may recall Peters contingency formula of distance education as the 'most industrialized form of teaching and learning'. However, Peters also sees distance education the most industrialized form of teaching and learning for the post-Fordist period of distance education. The problem is that post-Fordism is also often seen as post-industrialism. To hold up the characterization of distance education as the 'most industrialized mode of teaching and learning' for a post-industrialist era seems to be out of tune with mainstream terminology.

Hence the cost per student contact hour in OMDE 601 according to Bates' formula would lead to:

cost per student contact hour in OMDE 601 = $ 279 440/(150 x 519) =
$ 279 440/7 7850 = $3.59

The drawback of this formula is that it is quite sensitive to student numbers as a short algebraic analysis demonstrates. If we take Bates' total cost of the program as TC, as defined above, the average number of student learning hours (SLH) we get:

$$\text{cost per student contact hour} = \frac{TC}{SLH \times N} \Rightarrow$$

$$\text{cost per student contact hour} = \frac{F + VN}{SLHxN} = \frac{(F/N) + V}{SLH} = \frac{AC}{SLH}$$

(The same applies if semi-variable costs are involved.) Since average costs per student depend very much on student numbers, the figure is quite context sensitive.)

Hülsmann (2000) therefore suggests to separately report the fixed cost of development per student learning hour and the cost of presentation per student learning hour. This means for OMDE 601 the following:

The fixed cost of development per student learning is $15 700/150 = $105. The average cost of presenting a course is $8 773. This generates a notional maximum number of 150 x 30 = 4 500 SLH. Hence the communication cost for one hour of student learning is $1.83. Hülsmann suggests to report separately the fixed costs of content development for one hour of student learning and the costs of presenting a course. Hence OMDE 601 is characterized by a pair of numbers: those relating to the fixed costs of developing a student learning hour ($105) and variable costs of the presentation of a student learning hour ($1.83).

4.2. Conclusions

If we step back and ask to which issues this case study may contribute, we find a number of questions, which are asked over and again when it comes to online learning. These questions include: (1) How much does it cost? (2) Why does it cost so much? (3) Is the program scalable? (4) What is the ideal class size? (5) What is the teacher time required to teach an online class? (6) What are the advantages of outsourcing activities? (7) What are the main avenues of quality investment?

The findings of the case study point into the following directions:

How much does it cost?
The paper offers a context description ('thick description') which allows the user to judge if (and to what extent) findings can be transferred[48]. The paper distinguishes between two direct costs, i.e. costs of course development and costs of course presentation. A benchmark figure for the course development costs of 150 SLH[49]

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[48] The methodology borrows from the 'naturalistic inquiry' paradigm developed by Lincoln & Guba (1985).

[49] This is equivalent to three US American credit points.

(Student Learning Hours) can be as low as US$ 5 000; a benchmark figure for the costs of a presentation is about US$ 7 500.

The fact that development and presentation costs belong to the same order of magnitude reflects a cost structure with only a small potential for scale economies.

Why does it cost so much (or so little)?

The rather low costs of course development are due to a different model of course development as compared to that of traditional open universities. The OUUK, for instance, develops course material from scratch (which can be extremely costly and time consuming), whereas in the UMUC/Oldenburg cooperation existing textbooks are used, which reduces costs and time-to-market. Often the authors of the textbooks are invited as 'visiting experts' in the respective courses, which adds an element of quality.

Is the model scaleable?

While potential for scale economies is reduced, there is an observable decrease in presentation costs reflecting the diminishing dependency on technical and faculty support ('economies of experience'). The model is scaleable if quality personnel can be found. Profits ('surpluses') can be made if course enrollment is above the break-even point, however the model does not follow the logic of scale economies.

What is the ideal class size?

The ideal class size lies at an interval where the lower and upper limits depend on economic as well as on pedagogical considerations. On the lower limit side economics requires the class size to be above the break-even point. If we only take the direct costs of development and presentation and an average income per student of about US$ 500 to US$ 600 into account the break-even point is about 15 students per class. If we consider that direct cost of presentation and development amount to about 60% of the total costs the break even point would be about 21 students. Generally a new section is opened when the class size passes the 25 student limit.

This class size is also recommendable from a pedagogical point of view. In our experience about 70% of a class is quite active (i.e. 17.5 students of a class of 25). This number of actively participating students generates enough messages for a self-sustaining level of communication.

Low class sizes require a different approach to communication management. In OMDE 625 and OMDE 626 the 'learning contract' model was applied, where participants work on a project during the course, which is developed in steps (preparing an annotated bibliography; preparing of a project conference; conducting a project conference; writing the final paper) while bringing them together without having to engage in intense discussions during the 15 weeks of the course.

What is the teacher time required to teach an online class?

The messages signed by the lead faculty can be classified following Sims, Dobbs and Hand (2002) as 'predetermined and presented', 'teacher contributed', and 'captured dialogue' contributed by the teacher. Predetermined content here refers to the main topics which can be imported from earlier courses. They form the skeleton of a course and can be imported mechanically from one term to the other, which requires only a few minutes to do. 'Teacher contributed' content includes modifications of the predetermined content as well as 'wrapping ups' and providing feedback to assignments. Modifications such as changing dates, responding to minor changes, while taking little time, requires

some attention to detail. A considerable amount of time is related to writing wrapping up messages and providing feedback for assignments. However, the largest time investment falls under the 'captured dialogue' category. This is a somewhat flexible category, since it depends on the faculty to which extent he or she drives the discussion.

The analysis of the allocation of teachers' time presented in this paper is the result of a triangulation of an activity based costing (ABC) approach and the time allocation implied in the job description. It leads us to estimate that the teaching faculty needs between 1 and 1.5 times the amount of the learning hours required from the students. This means about 15 to 22 hours per week per course.

Is it cheaper to outsource activities?

The cost-analysis suggests that outsourcing is less costly than using core faculty by a noticeable margin. The course development ranges from US$ 6 600 (outsourced) to US$ 26 000 (in-house), i.e. by a factor of 4. The course presentation varies between US$ 5 700 (outsourced) to US$ 7 300 (in-house). Nevertheless, using core faculty contributes more to capacity building in-house and in the case of expanding and vibrating programs a sizeable number of core faculty needs to be involved.

What are the main avenues of quality investment?

The line between committed costs and flexible costs is somewhat blurred when it comes to program management and other costs related to quality investment. In the long it is necessary to invest into the quality of the program in order to sustain it. However, resources for quality investment are flexible and depend to some extent on the surplus (incoming revenue minus committed costs). Avenues of quality investment are described and costed. They include: (i) faculty meetings; (ii) course maintenance; (iii) visiting of conferences (for reasons of raising the visibility of the program and marketing, as well as for staff development); (iv) research and evaluation (including publication costs); and (v) program expansion.

Over the three years under consideration managed costs amounted to 11% of the total costs. It should, however, be noted that ZEF course presentations generally included a visiting expert and a high level of faculty support. These elements could, with some reason, also be included in the quality investment category.

We started the paper with a remark on methodology saying that we aim at transferability rather than generalizability. We believe that what Lincoln and Guba (1985) say for social science in general *a fortiori* applies for a field as fast changing as technologies and their costs. Though we did not follow the full program of the 'naturalistic inquiry' approach (not least because the paper would become less readable) we tried to adhere to the main principles. One important principle is to aim at trustworthiness[50]. A necessary condition to increase trustworthiness is transparency, which brings us back to the title of the article 'Costs without camouflage'.

In this article we tried to deviate from what has been referred to as the 'secret service' approach to costing, meaning that one wants all available information about the competitor, but oneself does not contribute any information. If cost information is regarded as important for the development of our field, we all need to contribute.

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[50] As opposed to independent verifiability, a practically impossible ideal.

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Unpublished Documentation Relevant for this Paper

DOCUMENT 1: MHEC Proposal for Master of Distance Education drafted by Rubin was submitted the first time March 30, 1999, modified and resubmitted April 19, 1999.

DOCUMENT 2: HSP III Förderantrag drafted by Bernath, submitted May 20, 1999 (9 pages)

DOCUMENT 3: Memorandum of Understanding between University of Maryland University College and Carl von Ossietzky University Oldenburg, 3 pages. The document was signed November 1st, 1999 by Hannah, Dean, UMUC Graduate School, Heeger, President of UMUC, Bernath, Director of the Center for Distance Education, and Garz, School of Education, Chairman Arbeitsstelle Fernstudienforschung.