Information: what is it worth and how much will people pay? An information marketing project based at HUSAT Research Institute Library.

by

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Abstract

Examines the philosophical and practical issues surrounding the establishment of a fee-based information service at HUSAT Research Institute Library, Loughborough. Firstly, a literature review reveals the problems and benefits of the fee-based information industry. Secondly, a strategic analsyis of HUSAT Library is performed to assess the constraints within which a fee-based information service would need to operate. Thirdly, a list of eleven potential products are generated through a product development process. Fourthly, costing and pricing models are established. An absorptive costing procedure is chosen with a differentiation of 25% and 50% 'profit' margin for academia and industry respectively. Demand and competition are deemed secondary considerations for pricing. Fifthly, the products and prices are put to market research using email and postal questionnaires. It is recommended that further market research is completed using a focus group in the future. The twenty-eight responses are then analysed and, finally, adjustments are made to the list of products and prices. It is recommended that six products are offered at the beginning of the service and that the service is built up slowly. Further research is recommended in the form of product cost-benefit analyses, product portfolio analyses, focus group research into product design details, packages and payment methods, and work measurement exercises on existing and potential products. It is also advised that internet developments are closely watched with a view to establishing internet access to the service in the future.

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Introduction

In the current economic climate more and more libraries and information centres are beginning to offer fee-based information services to provide funding and increased visibility within their organisation and beyond. HUSAT Library, serving the Human Sciences and Advanced Technology Research Institute based in Loughborough, is no exception. Having run a semi-funded, revenue-earning information service in the field of human-computer interaction before, it was eager, in the present unstable economy, to reconsider the practical issues involved in providing the service again. It should be made clear that the remit of the project was not to assess the viability of the decision to establish the service, but to make recommendations on the pragmatic dynamics of it. Thus the aim of this dissertation could be delineated as an examination of the issues surrounding HUSAT Library's decision to market as they relate to the functional concerns of product development, pricing and marketing research. The objectives therefore were firstly to examine the fee-based information industry, its strengths, weaknesses, opportunities and threats and secondly to consider HUSAT Library's own strategic position and distinctive competencies within the industry. The third objective was to establish a potential product portfolio for HUSAT Library and then, fourthly, to establish a pricing model for those products. The fifth step was to put the products and prices to market research establishing both target markets for the products and market opinion about them, then, sixthly, to analyze the results of the research and to alter the product portfolio and/or pricing model accordingly. Finally conclusions needed to be drawn and recommendations made on the basis of the research. These objectives are mirrored exactly in the chapter structure of this dissertation. Recommendations were made to HUSAT Library in the form of a management report shown in appendix F.

Chapter One

Fee-based information centres: environmental analysis

1.0 Introduction

This chapter examines the broad picture of fee-based information centre history and the current environment as a basis for examining HUSAT's particular strategic position in the next chapter. It aims to outline some of the general problems and advantages associated with the industry drawn from a review of the literature as a consideration of the parameters within which HUSAT's strategy will need to be implemented.

1.1 A history of fee-based information centres

Fee-based information centres are fast becoming the norm in the information world. Researchers in the field all agree that "the debate has shifted from 'Fee or free?' to a consideration of not 'if' but 'how' fees might be charged and to whom[1]". Norton traces the development of fee-based services from the 1960's where libraries were seen as store-houses with 'readers', through the 1970's where the emphasis was more on libraries as information providers with 'users', to the present day:

> The user is now a consumer, customer or client. She/he will increasingly expect and be willing to pay for information when it is tailored to needs, when it meets time constraints and when it is presented in a useable format. The consumption of information is one stage beyond provision, involves [sic] customization, packaging and digestibility. It is making information palatable by giving it added value. Costs and therefore charges are incurred...[2]

Norton cites 1979 and the beginning of the Thatcher administration as a significant turning point in the history of fee-based information centres (FBICs). With the emergence of a market economy, the whole of society -

including the information world - was encouraged to compete, to market itself, and to generate its own funds. The development of information technologies contributed significantly to this new approach to information marketing, because suddenly costs - "subscription, volume-use, time and telecommunications costs, royalty payments, capital equipment costs, associated staff and training costs[3]" - were assignable, and information could be seen to have a direct transferable value.

Norton's history of FBICs is supported by the results of Redican's 1990 survey of current practice in charging for information services to the private sector[4], and Abell's more recent research which emphasises the increase in number of FBICs in the 1980's[5]. One much cited reason behind this increase is the recommendations made by the Information Technology Advisory Panel's report *Making a business of information* submitted to the government in 1983. In it they conclude:

> Both private and public sectors in the United Kingdom need to pay much more attention to information as a commercial commodity, [and] to be concerned with the creation and maintenance of its value...[6]

This report was closely followed by the Minister of Arts' sensationalised speech in 1987 concerning the need for public libraries to consider other methods of funding which in turn gave rise to his famous Green Paper in 1988 provoking discussion along similar lines.

In discussing American FBICs George terms the 1990's the "third wave" of new services[7]. Although the USA are very much ahead of Europe in promoting FBICs (their Fee-based Information Service Centers in Academic Libraries (FISCAL) directory was first published in 1986, whereas the UK equivalent, the European Information REsearchers NEtwork (EIRENE)

membership directory came out in 1993) their description of present day developments as a 'third wave' adequately fits the British stage of development too. George goes on to say:

> Fee-based information services have reached adolescence and, like all adolescents, are struggling with their identity.[8]

This identity crisis is certainly very much in evidence in the UK. Most surveys of FBICs report an inherent problem with the terminology used to describe services for which money is exchanged. Some regard a FBIC as a commercial enterprise whose sole aim is to make a profit, researchers tend to regard any service which handles money from users in any capacity (photocopying, fines and so on) as a FBIC. Even within the profession then, confusion clouds the field. Sizer Warner divides the fee-based world into three rough divisions:

> charging back within the company of institution; charging out to customers who are already buying the company's or institution's primary services, and selling information services and products directly to customers.[9]

It is important in any discussion of FBICs therefore to define exactly what is meant by the term. This report will be examining the latter of Sizer Warner's definitions: the selling of information services and products directly to the customer. The following sections will discuss some of the issues related to this, the most recent and trouble-fraught development in the fee-based information world.

1.2 Problems with selling information

1.2.1 Valuing information

A fundamental philosophical issue underpinning FBICs is the idea promoted by the ITAP report of information as a tradeable commodity. In 1991 Luce made the pertinent point that "information is a valuable, indeed, an invaluable commodity[10]". The word 'invaluable' is correct in both senses of the term: 1) it is extremely valuable, so much so, it is difficult to price, and 2) it is such an elusive commodity that pricing it is virtually impossible. Akeroyd adds further wisdom to this discussion:

> Information is often regarded as a commodity, yet as a commodity it has idiosyncrasies not common to many other tradeable commodities which makes pricing a complex issue. The problem is that information has, of itself, no intrinsic value except the few pence for the paper or material involved. Its value derives entirely from the perception of its recipient and user.[11]

Thus it is not only information professionals who have difficulty in valuing information, users have difficulties too. Redican quotes Flowerdew's observation thus:

> It is often difficult for the consumer to know whether he wants a piece of information and to determine how much he is prepared to pay for it until that information is available to him.[12]

All these issues obviously have considerable impact on a FBIC. How can a FBIC set a fair price on a commodity which has no stable, permanent value? How can a FBIC be sure of satisfying the customer whose needs are so difficult to describe that they can only assess the value of the commodity when it is in their hands?

1.2.2 Setting prices

The difficulties do not lie solely with the philosophical valuing of information however, the practicalities of setting a price are equally as problematic. The point has been made that "devising methods of charging is easy, but...setting prices is difficult[13]". This is supported by Zais in her seminal paper on pricing information which states that "pricing is an art and pricing decisions reflect a blend of intuition, past experience, and sophisticated analysis[14]". Thus many agree on the problems but no two seem to agree on a solution. One of the overriding problems with pricing information therefore is simply the vast number of methods that have been documented by which one can do so. Many of these will be considered in detail in chapter four.

The second major problem with pricing information is the actual costing of that information. As we have seen, in real terms the information is only worth the paper it is written on. However, in a FBIC many additional costs are incurred in the collection and presentation of an information product or service which are very difficult to calculate (see chapter four). Consequently price setting is often based on guess-work.

A third problem experienced FBIC staff complain of is "those time-depleters which can't be billed - inquiry calls for estimates, follow-up calls after projects, training...[15]" and so the list goes on. Such elements may need to be built in to pricing systems thus complicating the process further. A final problem, raised by Tilson, is the need to be right first time!:

> It is not sound commercial practice to position a product at the cheap end of the market and then re-position the pricing without changing the product.[16]

Once a theoretical price has been established, FBICs encounter a new set of obstacles to the pricing process, namely, what people are willing to pay.

As noted in the previous section, customers find it difficult to assess the value of information until it is in their hands. Consequently they are going to find it difficult to put a price on that information until it is in their hands. As a result many clients appear unwilling to pay the price of information even though theoretically they consider it acceptable[17]. The problem thus arises as to how to charge "the socially optimal price while achieving total cost recovery[18]". The chances are that the total cost of the information is far more than a client is willing to risk paying for it.

One reason customers find it difficult to accept the price of information is that information often comes in the form of a service rather than a product. Research has shown, unsurprisingly, that clients are more willing to pay for something tangible (document delivery for example) than for something 'unseen' (e.g. on-line searching)[19]. This is a real issue for FBICs where the majority of their business units are services, and it creates particular problems when it comes to marketing the FBIC as is investigated further on.

1.2.3 Profits and prosperity

Most businesses are willing to overcome a few obstacles if the rewards are promising and the prospects good. Unfortunately, despite the abundance of FBICs now in existence, their profitability is generally poor. One reason for this is the attitudes outlined above - clients considering a price reasonable, but being unwilling to pay for the service. Abell makes the following point:

> The demand for information is limitless, but when it comes to actually paying for information or the services of an information professional, most people and companies are extremely reluctant to part with their money.[20]

She later comments on

> the growing consensus that this type of business gives a very slow return on investment. Informal talk within the industry suggests a norm of five years before there is any effective payback.[21]

She is not alone in this opinion[22] [23] [24]. The financial issues surrounding FBICs therefore are problematic ones. That is not to say that all FBICs are financially doomed, or indeed, to say that all success is measured financially, only that serious consideration needs to be given to financial policies and procedures before launching into the establishment of a fee-based service.

1.2.4 A misunderstanding of the industry

As mentioned in the previous section, a major hindrance to the profitability of FBICs is the difficulties of selling such an elusive product. However it is not just the elusiveness of the product but also the relative newness of the product which can cause problems. Abell makes the comment that "information is not a fully understood resource, either in business or in society generally[25]". Such misunderstandings not only hinder sales as clients slowly learn to think of information as a tradeable resource, but also cause problems with services as clients often have wrong expectations of a product. Sizer Warner cites one such case:

> A librarian at a community college library says, "a problem that has arisen on several occasions is assisting clients to understand that they are paying for the *service*, not the *information*. Several have indicated that they would pay 'if you find the right answer".[26]

Abell talks of the importance of written agreements in this context[27]. Difficulties in understanding a product also have particular implications when it comes to marketing. Abell's survey of critical success factors in the field of FBICs produced "no innovative ideas for marketing what is a notoriously

difficult concept[28]". However, she continues:

> Respondents rated the success of their services by the quality of the service and by appropriate marketing. This raises some real question marks given that 'word of mouth' had already been identified as the most effective marketing medium.[29]

1.2.5 Demanding job

Unfortunately, marketing by word of mouth is only one of many difficulties within the fee-based information profession. Difficulties do not simply lie with the establishment of the service, but continue well into the maintenance of that service. George discusses the client demands on a FBIC in terms of speed, quality, reliability, responsiveness, and individualised attention. She quotes one client thus: "for the most part, suppliers are competitively priced, so in the long run only service will set you apart[30]". This is no small pressure on a service which also has a non-fee-paying clientele to serve. Indeed, Ernest proffers that "the primary clientele of an institution [should] remain the first obligation of the library[31]". George continues:

> Clients want us to know their names and their special needs. When they call us on the phone they want to feel like they are important and that we are just waiting to serve them. They want us to send their requests and receive their documents in a way that is convenient for them, not us...As one client put it, they want us to understand the size of their need, not just the size of their invoice.[32]

Russell of the City of Westminster's Information for Business FBIC paints a similar picture: phones needing manning continuously, some clients ringing several times a day, speed being the essence of the service. Clearly, developing a fee-based service is no easy option for an existing information centre.

Coupled with the demanding nature of the job is the need for appropriate staff. Three out of the five basic requirements for successful FBICs, as concluded by Abell's survey, involved staff: "hiring the appropriate staff, the social and personal skills of those staff, [and] appropriate professional/technical skills[33]". Indeed in specialist subject areas, she reveals, staff are expected to be experts. Herbertson also makes the familiar point that staff are the frontline of any service provision and thus almost become the product[34]. Indeed he makes an interesting comment about his own recruitment policy where "attitude and personal qualities were deemed to be more important than relevant experience[35]". If an existing information service is to begin offering fee-based services, the staff will need to be thoroughly trained and equipped for the drastically different role they will need to play.

1.2.6 Legal Issues

There has been a lot written about the legal issues inherent in offering fee-based services: copyright, confidentiality, liability, and the data protection act, but, as Sykes notes, there have been no major law suits to justify the apparent angst[36]. (Perhaps the dearth of legal battles is, indeed, owing to the angst.) Of course all these issues need to be seriously considered. A breach of copyright or confidentiality could cost a struggling FBIC its livelihood, as could a poorly written liability clause, or illegal use of seemingly innocent, self-produced databases. Careful reading of appropriate literature, therefore, is an essential precursor to setting up a FBIC.

1.2.7 Internet

One final problem FBICs all encounter is the quantity of material daily becoming freely available on the internet. Internet resources will be discussed in considerable detail in the next chapter, but it will suffice to say

here that the internet poses a potentially serious threat to specialist FBICs as we know them, and developments in the area need to be watched avidly.

1.3 Benefits of selling information

1.3.1 Profits

Despite the dire financial picture painted by many in the FBIC field, there are services which at least cover costs or generate a surplus, even if they do not make a profit in the true economic sense of the word. There are many other benefits to establishing a FBIC however, some of which are discussed below.

1.3.2 Visibility and value

Smith makes the point that "public relations is at least as strong a factor in the decision to establish a fee-based service as any desire for profits[37]". A fee-based information service within an existing organisation can bring greater visibility to that organisation and thus act as an excellent marketing tool. This is particularly the case where an organisation is business orientated and the internal FBIC begins selling information to the same sector. The burden, of course, is that the service will need to be of an excellent standard in order to maintain the organisation's standing within the business community.

Grotenhuis and Heijnekamp cite another benefit of their FBIC thus:

> The relationship with clients has become much clearer. Library services are better appreciated now that they have to be paid for. It appears that by charging fees for its services, the library proves its right of existence, so that no discussion will be held about its continuation.[38]

Thus FBICs not only increase a library's visibility but its apparent value as well. Ratcliff and Weeks make a similar point:

> By recovering a substantial portion of its budget through user fees, the library has gained credibility with a business oriented management. Users "paying" for information is the ultimate proof that the library provides valuable services.[39]

They go on to say; "during the three years fee-based services have been in effect, library usage has increased 38% and an additional library location has been added[40]". Thus another benefit of FBICs arises, namely, the increased use of the collection. Those Redican surveyed agreed:

> They...pointed out the benefits of introducing a fee-based service in terms of increased staff motivation, a higher profile for the information unit and a more effective use of the information resources.[41]

Notice the first benefit Redican cited: increased staff motivation. It obviously follows that when service is valued more, the staff who provide that service will be valued correspondingly. Increased self-esteem is an excellent staff motivator.

1.3.3 A forward move

Akeroyd has discovered another interesting benefit to establishing a FBIC:

> It has been our experience that the provision of a fee-based information service can lead to other contracts which are perhaps more lucrative and more extensive. In effect you become open to business and the informational, analytical and organisational strengths of the librarian can be used in a variety of contexts.[42]

Thus establishing a FBIC is a means of looking to the future; of proactively building up a service's profile and value. This is particularly important in the

present socio-economic climate. Sizer Warner advises librarians to consider plans for charging for information before political or organisational changes impose charging upon them. She comments; "someone is counting, even if you are not[43]". Cronin makes the following case:

> Libraries are an expensive social and organizational overhead, and increasingly accountability will be demanded by those who control the purse strings. Prevailing economic thinking is no respecter of tradition (however long and venerable that tradition), and libraries will have to defend themselves in the face of monetarist values.[44]

Libraries, therefore, need to plan ahead and promote themselves before external forces render them dispensable.

1.3.4 Niche markets

One final benefit needs to be specified which is particular to special libraries such as the one this report is concerned with, and that is the benefit of being in a niche market. Despite the discouraging financial picture painted by much FBIC research, there tends to be one general exception to the rule, and that is the success of FBICs within a specialised field. Abell comments thus:

> It is generally accepted that the more precise the product or service, the more defined the target client group, and the easier it is to penetrate the market. Most of the successful FBICs are very clear about their client sector and about the gaps which provide opportunities for their services.[45]

It is perhaps for this reason that her survey concluded that "FBICs in mainland Europe were more likely to work in niche markets...[46]". Cronin foresaw the same tendency in the fee-based market back in 1986 when he stated, "Nichemanship" is the order of the day in the information industry[47]". Special libraries thus have a clear advantages when establishing FBICs.

1.4 Summary

In summary it is clear that the world of charging for information is not one free from problems. Firstly, the value of information is intrinsically difficult to establish which affects the setting of prices. Profits are not quickly and easily made, again as the intangible qualities of information products can be difficult to promote. Within the organisation there are further complications: offering a fee-based service can be very demanding on staff and involve legal obstacles and unknown competition from new technological advances such as the internet. However, there is light at the end of the tunnel. Although information may not be an attractive industry to outsiders, for those already running an information centre there are benefits to developing a fee-based service. Profits can be made - particularly if the library occupies a niche market, and the increased visibility of a newly fee-based service is certainly a step in the right direction for promoting value and worth.

Having examined the broad picture of the fee-based information industry, HUSAT's particular strategic position within the industry shall be surveyed in the next chapter.

Chapter One

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Chapter Two
Strategic analysis

2.0 Introduction

This chapter offers a strategic analysis of HUSAT Library. Johnson and Scholes identify strategic analysis as the starting point for considering a corporate strategy such as HUSAT Library's decision whether or not to establish a new information service:

> Strategic analysis is concerned with providing an understanding of the strategic situation which an organisation faces. Such an analysis...provides some useful insights into the difficulties of implementing strategic change.[1]

They divide the analysis into three main audits: environmental, resources, and cultural, but emphasize that the three are interdependent. HUSAT Library is thus analyzed under these three headings within the broader context of fee-based information services generally as established in chapter one. As the remit of the project was not to analyze the viability of establishing a fee-based information service, but to advise on how it could be implemented should they choose to do so, the audits are considered as constraints within which HUSAT must work, rather than as factors affecting the decision itself.

2.1 Environmental analysis

An environmental analysis of HUSAT Library needed to focus on four main areas: the field of human computer interaction (HCI) generally, HUSAT as an organisation, HUSAT Library's history, and HUSAT Library's current competitive position.

Human-computer interaction or computer human factors is a growing sub-field of ergonomics. Having enjoyed a time of growth, the HCI industry is currently going through an unstable period. Consultancy services in the

United Kingdom not unlike HUSAT Research Institute are closing down[2]. Such instability inevitably leads to a very future-oriented perspective, hence the Library's market orientation. However there are more promising signs within the field of ergonomics in the form of the new Centre for the Registration of European Ergonomists which aims to implement a compulsory registration scheme for all European ergonomists. This implies that the field is growing in Europe and perhaps internationally.

HUSAT was established in 1970,

> .. with funding from a University innovation grant. It is now a separate Institute in Loughborough University with approximately 60 staff. HUSAT is Europe's largest independent centre focusing exclusively on shaping technology to the ways people and organisations want to use it.[3]

There are two 'sides' to HUSAT, HUSAT Research Institute (HRI), and HUSAT Consultancy Ltd (HCL). The two are obviously closely interlinked but are counted as two separate cost centres. Their mission statement is currently being rewritten, but when it is finished it should be examined as an important aspect of the strategic analysis. The library is seen by HUSAT as an invaluable asset to the organisation and it has been stated that "there is a clear policy of maintaining an adequate library facility for HUSAT"[4]. The Library's role is outlined as follows:

> The Library, established in its present form in 1985, acquires and stores hard copy items to add to its specialised collection and, in addition, extracts from these (and other sources) references relevant to the Institute's fields of study. These references are then added to a bibliographic database of computer human factors which now contains over 39,000 references, most with abstracts.[5]

The history of HUSAT Library is a particularly significant element of the environmental analysis. During the period 1980 to 1985 the British Library sponsored the BLEND (Birmingham and Loughborough Electronic Network

Development) project at HUSAT. Part of this project involved the establishment of a journal of computer human factors references for the purposes of investigating the viability of a remotely accessed bibliographic database. The bibliography went online in 1983 and it was deemed an unofficial success[6]. Consequently it was decided to develop the service into a professional venture: HUSAT Information Service. The service was supported by a classification scheme and thesaurus developed by Phillips, the current Information Manager, and Galer[7].

Subsequent negotiations with the Scottish HCI service based at the Turing Institute resulted in HUSAT's purchase of their HCI database, along with their customer base and hard copy collection. HUSAT's database and the Scottish database were then combined and *HILITES* (the HCI Information and LITerature Enquiry Service) was set up.

HILITES offered a number of information products detailed in table 2.3. They were mainly based around database access and a monthly accessions list, with different packages available for different customer groups. In 1992 a CD-ROM version of the database was published followed by an update in 1993. However, *HILITES* was effectively running at a loss. In the difficult economic climate the University felt it could no longer underwrite the service and *HILITES* ceased operation. The ending of *HILITES* did not put a stop to the data collection however, despite the *HILITES* database itself being frozen. There is now a collection of 39,000 references at HUSAT, although 6,000 of those remain as a separate collection. Nor did the ending of *HILITES* bring a reduction in enquiries. Three years later requests for CD-ROMs and literature searches are still coming in and accessions lists are still being created.

Such is the immediate organisational history and environment of HUSAT Library. However an analysis of the constraints upon HUSAT Library's strategy would not be complete without assessing their competitive position.

Johnson and Scholes propose three main methods of analysing the competitive environment, lifecycle modelling, market share analysis, and strategic group analysis[8]. The latter method was selected to analyze HUSAT's competitive position as it allows the easy identification of 'gaps in the market' in which HUSAT Library may have a competitive advantage. This is of particular benefit to an organisation which has yet to make its marketing decisions.

HUSAT's chosen market is, of course, that of HCI information. Competitors were sought out in five main groups: other British institutions supplying HCI information, CD-ROMs and online databases in the HCI field, document delivery services, and HCI information on the internet. The results of the investigation follow:

2.1.1 British Institutions

In the *Aslib directory of information sources in the United Kingdom*[9], there were six entries in the index under 'Human/Computer Interaction'. One of those was HUSAT, and one was the Turing Institute from whom HUSAT bought the HCI database. This left four to approach. The approach was made by letter as shown in appendix A. The responses follow.

Department of Computer Science, Brunel, the University of West London

Despite their entry in *Aslib*, Brunel were unable to assist in this enquiry as they "do not supply any information services other than academic courses[10]".

Cawkwell Information Technology Services Limited

This company offers only a consultancy service and thus could not provide a list of other services or prices.

Ergonomics Information Analysis Centre

The Ergonomics Information Analysis Centre (EIAC) was established in 1969 "to meet the information needs of those engaged in the practice of

ergonomics[11]". It is sited in the School of Manufacturing and Mechanical Engineering at the University of Birmingham where the majority of abstracted material is available. They have established a database of over 140,000 references to which 5,000 are added per annum and their primary product, the journal *Ergonomic Abstracts*, is compiled from the database. Despite originally aiming to cater for the broad field of ergonomics, they now state that "over 40% of the content relates to the increasingly important area of human-computer interaction[12]". Assuming that this figure relates to their current collection bias only it is impossible to determine the exact size of their HCI collection. However, their interest in the HCI field, while indicating the attraction of the HCI information industry, could pose a threat to HUSAT's proposed plans. The EIAC have the advantage of being an established information provider with a regular client base. Should they decide to sort their HCI material into a separate database, they would be in a stronger position to promote it than HUSAT at the present time.

However, HUSAT have other strengths. Firstly, they are recognised specialists in the HCI field, and secondly, their status as a subsidised library means that any revenue they earn from the products that they are already generating will be, in effect, profit. Their primary focus is not winning the larger market share, but earning anything they can. They are not, in this sense, in direct competition with the EIAC.

A list of the EIAC's products and prices follows in table 2.1:

Table 2.1 EIAC's products and prices

PRODUCT	CHARGE
Ergonomics database	Not accessible online: only via journal and CD-ROM
***Ergonomics Abstracts* Journal** Bi-monthly journal. 5,000 references from 350 journals, books, reports, and conferences p.a.	£427 p.a. institutional rate
***Ergonomics Abstracts* CD-ROM** Material dates back to 1985. Over 39,000 records with bibliographic data and abstract. No restriction on number of users with access.	£450
Ready-compiled bibliographies	25p per reference. Range from £10 - £125
Specially-compiled bibliographies	£35 search fee + 25p per reference
Selective Dissemination of Information (SDI)	No details
Rapid Enquiry Service	No details
Consultancy Service	No details

Ergonomics Society

The information provided by the Ergonomics Society "is of a very general nature, principally aimed at potential members and careers advisers[13]". Interestingly they recommend the EIAC as "the best source" of technical information.

2.1.2 CD-ROMs

A CD-ROM directory search[14] revealed that there were no CD-ROMs which focused exclusively, if at all, on HCI material apart from the old *HILITES* CD-ROM which was still listed in one directory[15]. It appeared that the only current CD-ROM in this field is *Ergonomic Abstracts*, produced by the EIAC.

2.1.3 Online databases

The Gale directory of online databases listed ten databases under 'human factors engineering' - their preferred term for ergonomics[16]. Only seven of these were in any way relevant to the HCI field, and then only loosely. Three of those seven were foreign language databases, and thus would have limited value to English speaking nations. The remaining four were only of peripheral interest to ergonomists, ergonomics is not their primary focus.

Armstrong's *World databases in management* listed the *Dow Jones Text Library* and the *PTS Newsletter* under the subject heading 'computer ergonomics'[17]. However computer ergonomics was just one of hundreds of keywords describing these huge, all-encompassing, databases. Thus they would not have offered value for money to HCI specialists. Individual full-text sources are also available online. Orenstein's directory listed seventeen of the journals indexed for *HILITES* under 'Computer/High Technology'[18]. However, again, these journals are not core HCI texts and would only be of peripheral interest to the HCI field. It could be concluded therefore that there were no competitors providing online information exclusively in the HCI area.

2.1.4 Document Delivery

The largest document delivery service provider in the U.K. is the British Library Document Supply Centre (BLDSC)[19]. They offer two photocopying services, a loans service and two premium services: the Urgent Action service where documents can be supplied in two hours, and the Lexicon service where batches of requests are supplied together. Requests for all services can be made in nine different ways and are paid for using pre-purchased BLDSC forms.

Although HUSAT will have to compete with the BLDSC's loan and photocopy rates, many other libraries and organisations offer document supply services successfully in parallel with the BLDSC. If HUSAT can offer competitive rates, clients are likely to patronise them for supply of documents they know are to be found at HUSAT.

The BLDSC also offer a Current Awareness service, the Journal Contents Page service, supplying contents pages of selected journals on a subscription basis, and a Stock Alert Service - subject searches on internal databases. As the British Library is a legal deposit library, the likelihood is that their collection of HCI material is larger than HUSAT's despite the fact that they are HCI specialists. However, the fact that HUSAT only collect in the HCI field does have its benefits. Should they offer a current awareness service they could draw on their whole collection as it is all relevant to the field, and subject searches on their database will not produce 'noise' in the form of references unrelated to the field.

There are of course also a number of other electronically accessible document delivery services now becoming available. The British HCI Group recommend Blackwell's *UnCover* as one such source for HCI information. UnCover is both an online periodical article delivery service and a SDI service available over the internet. It indexes almost 17,000 English language journals, at least eight of which are primary HCI journals. As well

as being able to search the UnCover database, clients are able to create a profile of the journals or search strategies they are interested in. The tables of contents of up to 50 journals, or their search strategies, are emailed automatically to the client on a regular basis. The annual fee for this service is only US$20. Document delivery is by fax at US$8.50 plus a copyright fee and fax surcharge fee for those outside the USA, per article.

By housing only eight HCI journals the UnCover service is not as comprehensive as that which HUSAT could offer. However, as a general interest current awareness service, it offers value for money.

2.1.5 Internet

Fifield has observed that "there is a general agreement that competition is becoming, and will continue to be, more international in the 1990's[20]". The internet is, of course, the area to watch when it comes to international competition as it allows free, often immediate, access to world-wide resources such as have never been available before.

As was to be expected in a technology-based field, there were many different HCI resources available on the internet, but the only resource which really compared to that which HUSAT is hoping to market is the bibliographies. There were two main bibliographies which dealt with HCI generally and many others which covered individual related fields such as graphic user interfaces. The first and largest was the HCI Bibliography project set up in 1991 by Perlman[21]of the Ohio State University, and the second, with a preferable search engine was the HCI Archive established by the Queen Mary and Westfield College of London University.

The HCI Bibliography Project

> The HCI Bibliography Project is an initiative to provide unrestricted access to online versions of extended bibliographic information on the subject of Human-Computer Interaction. The result of the project will be a database of several thousand bibliographic records, freely accessible to researchers around the world...[22]

Thus wrote Perlman in 1991. In 1996, the database is available over the internet, as well as via anonymous ftp, electronic mail, and floppy disk exchange. It has now "grown to a resource of over 11,850 entries occupying over 12 megabytes, used by over 500 sites in 30 nations[23]". Thus it is approximately one quarter of the size of HUSAT's database. It is made very clear that it is not an online service but a database. Thus, files need to be obtained and searched using software tools of the client's own, the mechanics of which could be arduous. It *can* be browsed over the World Wide Web, however access can be very slow and there is no subject / keyword searching facility. Presently the bibliography offers only bibliographic information - no abstracts, and there is no facility for obtaining the documents to which the bibliography refers. Thus, although the bibliography is much used, indicating the demand for HCI information, the service is quite limited in its scope and its future depends entirely on volunteers for the updating and donating of material.

The Human Computer Interaction Archive[24]

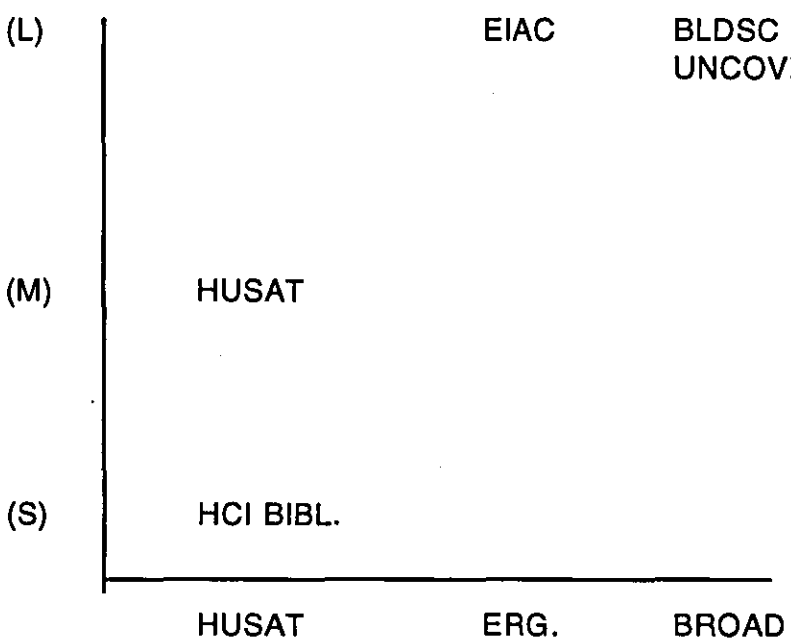
This bibliography is divided into subject areas, unlike the above project which is browsable only by types of, or years of publication. It can also be searched by a Perl regular expression if your particular subject area is not listed. However the bibliography is considerably smaller than Perlman's, and the material it lists is not ordered in a logical way. The reason for both these shortcomings is, again, the bibliography's dependency on volunteers to update the archive.

2.1.6 Differentiation

After this initial 'weeding' stage, those competitors with "similar strategic characteristics, following similar strategies, or competing on similar bases[25]" were assessed according to certain attributes in order to create a strategic group comparative table (see table 2.2).

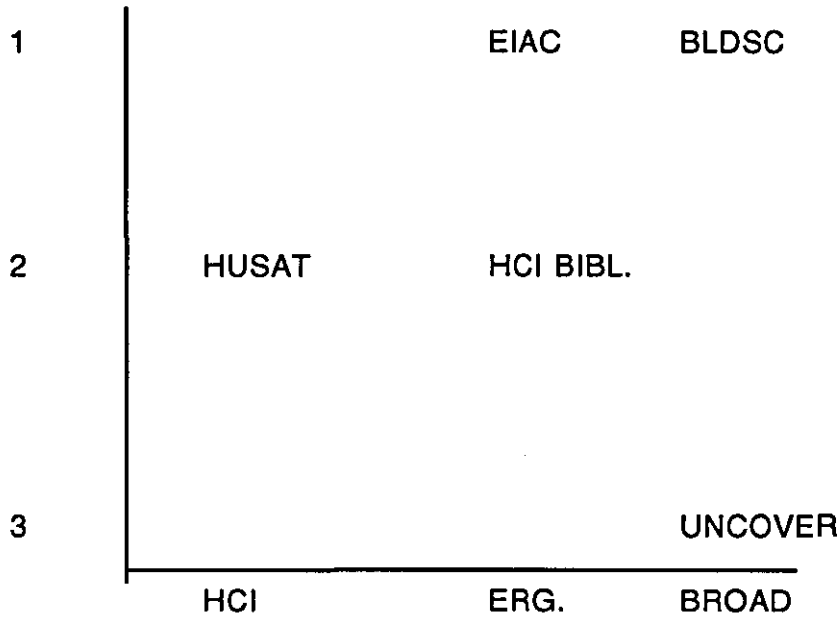
It was noted where HUSAT differed from its main competitors and strategic groups were then mapped on to axis according to their relative strengths and weaknesses in those areas (figures 2.1, 2.2, and 2.3). It became clear that HUSAT's strengths lie in their specialism and their non-dependency on profit to survive, in combination with their medium collection size and experience. These would be areas to focus on in product development and marketing.

Figure 2.1 Strategic Group Analysis (Specialism - Size)



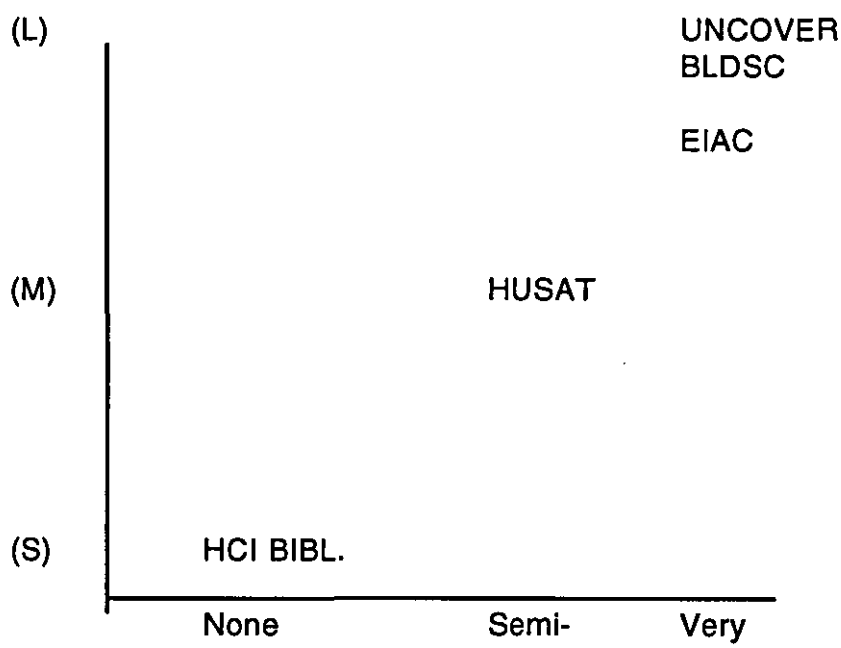
X Axis = Specialism: HCI - HCI only, ERG. - Ergonomics, BROAD - broader than Ergonomics
Y Axis = Size of collection (S) - small, (M) - medium, (L) - large

Figure 2.2 Strategic Group Analysis (Specialism - Experience)



X Axis = Specialism: As figure 2.1
Y Axis = Experience: 1 - over 10 years, 2 - 3 to 10 years, 3 - 0 to 3 years

Figure 2.3 Strategic Group Analysis (Size - Importance of profit)



X Axis = Importance of profit
Y Axis = Size of collection: As figure 2.1

Table 2.2 Strategic Group Analysis: HUSAT Library and its competitors

	Specialism HCI only = 1 Ergonomics = 2 Broader = 3	**Size of HCI collection** Large = 1 Medium = 2 Small = 3	**Consumers** Academic = 1 Industry = 2 Both = 3	**Experience** 10 yrs + = 1 3 - 10 yrs = 2 0 - 3 yrs = 3	**Importance of profit to survive** Unimportant=1 Semi-imp. =2 Very imp. = 3	**Dependency on technology for access** Heavy = 1 Medium = 2 None = 3
HUSAT	1	2	3	2	2	3
EIAC	2	1/2	3	1	3	3
BLDSC	3	1	3	1	3	2
UnCover	3	3	3	3	3	1
HCI Bibliog.	1	3	3	2	1	1

2.2 Resource analysis

A resource analysis involves an audit of the organisation's resources including the balance of those resources and a comparison with historical or competitor's resources, all of which conclude in a strength / weakness analysis. These methods were applied to HUSAT Library with reference to the potential establishment of a fee-based information service.

2.2.1 Resources

Resources can be categorized under four main headings: physical, human, financial and intangible. HUSAT Library's resources were summarized as follows:

Physical

- c. 450 cubic feet of library space
- Additional shared office for Information Manager
- 3 Macintosh personal computers (slow processors)
- 1 new dual operating system computer with CD-ROM (faster processor)
- Laser printer
- Access to 2 quality photocopiers
- SUN mini-computer with BRS Search software based at Loughborough computer centre (in need of updating)
- Database of 33,000 references with a further 6,000 in textfiles
- c. 1,000 volume book collection in HCI field
- Considerable report and conference collection dating back to 1969
- Over 50 journal and newsletter subscriptions
- *HILITES* CD-ROM 1992 and 1993

Human

- Three members of dedicated staff
- Information manager (Grade RA2)
  - 75% time at HUSAT Library
  - Qualified information scientist

First degree in Physics

15 years experience at HUSAT

Majority of career in information science

Marketing oriented

HILITES management experience of 3 years

HRI project experience

Authored classification scheme and thesaurus in HCI

- Information assistant (Grade GS2)

  88% time at HUSAT Library

  Qualified librarian

  Over 10 years experience at HUSAT

  HILITES experience of 3 years

  OU qualifications

- Information assistant (Unclassified grade)

  40% time at HUSAT Library

  Degree in Information and Library studies

  MSc in computer studies

- Use of an additional member of staff for administrative procedures

Financial

- Poor financial position
- Funded by HUSAT and dependant on them
- HUSAT has a policy to keep an "adequate library facility" but what is adequate? - jobs quite unstable
- Maintenance agreements on database equipment no longer current
- Some funding obtained through participation in HRI project activity

Intangibles

- *HILITES* experience (see table 2.3 for product details)
- Previous client base (subscriber information shown in table 2.4 below)
- Relationship to Loughborough University - renowned for strengths in information studies and ergonomics - particularly in the field of HCI

2.2.2 Comparisons

Comparisons were drawn with the historical resources situation during the *HILITES* service to assess the relative value of the current resources.

- Physical
  - Fewer journal subscriptions now than during *HILITES*
  - CD-ROM no longer published
  - SUN minicomputer has no maintenance agreement
  - BRS Search software has no upgrade agreement
- Human
  - Fewer staff now and questionable job stability
  - This means less staff time for product generation
- Financial
  - The revenue earned by *HILITES* is no longer coming in
  - However, debts accrued have been written off

2.2.3 Strength/weakness analysis

The resource analysis was summarised in a form of strength/weakness analysis as illustrated in table 2.5.

Table 2.3 *HILITES* products and prices

PRODUCT	CHARGE
Registration fee	£100
Online access to *HILITES* database One online set allowing 3 accounts per. organisation with a maximum of 30 hours connect time per annum. Academic users: allowing 2 accounts with maximum 30 hours connect time per annum during UK cheap-rate hours (6-8pm)	£750 p.a £500 p.a.
***HILITES* database on CD-ROM** Commercial Academic	 £575 £485
Accessions lists Up to three copies per fortnight to a single address Additional copies to the same address	£250 p.a. £50 p.a.
Personalised online search service An assisted special one-off search providing titles and abstracts of resulting items from the database. Subscribers spending more than £1,500 received this service free (maximum of one search per month).	£25 per search + 25p per reference+ 50p per abstract
Literature interpretation service Interpretations of literature provided by *HILITES*	£25 per hour
Photocopies and loans If payment was made in advance then all copies were supplied at the lowest rate for the specified annual total.	1 - 100 £11.50 101 - 250 £ 9.50 251 - 500 £ 8.00 501 - 750 £ 7.00 750+ £ 6.50 (all costs per item)

Table 2.4 *HILITES* Subscriber Information

Service	Registrat-ion	Online sets	Acc'ns list	Copies or loans	Consort-ium library	Lit. inter-pretation	Personal searches	Set Package
Client 1	Y	3	1	100	Y			
2	Y	3	1	100	Y			
3	Y		3					
4	Y		3					
5	Y	6	14	1500		Y	12	
6	Y	3	1	100	Y			
7	Y		1	10 copies				Y
8	Y		3	50 copies				
9	Y							
10	Y	3	1	100	Y			
11	Y	3	1	100	Y			
12	Y	6	6					
13	Y	3	4	100	Y			
14	Y		1	10 copies				Y
15	Y			101copies				
16	Y	3	3	50			12	

	Registrat-ion	Online sets	Acc'ns list	Copies or loans	Consort-ium library	Lit. inter-pretation	Personal searches	Set Package
17	Y	3	3	500		10 hours	12	Y
18	Y	3	1	100	Y			
19	Y		1	10 copies				Y
20	Y	3	1	100	Y			
21	Y		8					
22	Y	3	1	100	Y			
Total	22	42	58	3131	9	2	36	4
%age take-up	100	59	90	81	40	9	14	18

Table 2.5 Strength / weakness analysis

	Strength	Weakness
Physical	• Some new equipment • Still a large collection of HCI information • Good photocopying facilities • Database of 33,000 refs + 6,000 in textfiles	•Generally old equipment • Less equipment than past
Staff	• Good balance of information workers • Good range of technical knowledge • 2 *HILITES* experienced staff	• No staff are full time in traditional sense of word • Jobs are relatively unstable
Financial	• Revenue earning potential exists • Situation has improved on previous times	• Funding would be needed to establish new service • HUSAT not currently in strong financial position
Intangibles	• Unsolicited enquiries • Experience of *HILITES* • Ex-client base • Relationship with Loughborough University	

2.3 Cultural analysis

Organisational and industrial culture can significantly affect strategic decisions. Chapter one outlined the environmental 'culture' of the fee-based information world. This analysis investigated HUSAT's own organisational culture. Johnson and Scholes comment on the importance of examining organisational culture:

> It is too simple to think of strategy as a response to the environment for it is evident that, faced with similar environments, organisations will respond differently: as has been seen, the response is likely to be influenced by the past experience of managers and by the wider social and political processes in the organisation.[28]

As outlined in section 2.2, the history of HUSAT and its dual role as research institute and commercially oriented consultancy has given the Library a very market oriented outlook on the services that they provide. The history of the Library itself has strengthened their market orientation further: funding for the first member of staff came from externally funded projects, one of which lead to the establishment of the HUSAT information service which was again commercially oriented.

The issue of staff is of particular importance when considering organisational culture. Johnson and Scholes comment again "environmental forces and organisational capabilities do not in themselves create organisational strategy: it is people who create strategy[27]". The Operations Manager and the Information Manager at HUSAT are the main protagonists of the new fee-based information service - a response to environmental forces and organisational capabilities - but also the product of their own strong commercial and proactive orientation. Historically the Information Manager turned a small journal collection into a thriving library, and was a key figure behind the *HILITES* service. She repeatedly applies for external funding to support internal projects and also works on research institute projects. Both the organisational culture and key staff members, therefore, are supportive

of the decision to market - this is certainly an important strength behind their strategy.

2.4 Summary

The environmental, resource, and cultural analyses formed a type of strength, weakness, opportunity, threat (SWOT) analysis revealing HUSAT's distinctive competencies. Guiltinan and Paul comment:

> In selecting from potential corporate strategies, a firm should usually rely on its distinctive competencies or on competencies that it can acquire.[28]

As HUSAT have already identified the form of strategy they are considering pursuing: a marketing strategy to external clients, the following list of competencies are those which should be relied upon in the practical application of that strategy.

- Specialism in HCI
- Non-dependency on profit to survive initially
- Good collection size
- Unique resource in form of unpublished HUSAT memos
- Relationship with Loughborough University renowned for excellence in library studies, ergonomics, and HCI
- Previous *HILITES* experience
- Good balance of well-qualified staff
- Unsolicited interest in HUSAT's information resources
- Ex-client base
- Market oriented culture
- Pro-active market oriented staff

This information assists in directing HUSAT towards the markets it should serve - perhaps building on the previous client base and segmentation - with an analysis of the types of enquiries received. It also aids in the selection of

products it should offer, namely, concentrating on their specialist collection and their experience in providing an external HCI information service. All their distinctive competencies will be considered in the product development process detailed in the next chapter.

Chapter two

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Chapter Three

Product Portfolio Analysis

3.0 Introduction

Guiltinan and Paul identify "two kinds of top management decisions... involved in corporate market planning - *corporate strategy* and *product mix strategy.*[1]" Having considered HUSAT library's potential corporate strategy and the environment in which it would be implemented, their potential product mix strategy (or their potential product portfolio) was then examined. This chapter, therefore, outlines the product development process which was applied to HUSAT library for the establishment of their portfolio. (The term 'product' is used in this chapter to refer to both products and services.) The concept of the product lifecycle is then considered in relation to the Boston Consultancy Group (BCG) growth-share portfolio model.

3.1 The product development process

In order to create a portfolio or 'mix' of products, individual products need first to be developed. The product development process is outlined by Hisrich and Peters in five main stages[2]:

1. Idea generation
2. Screening
3. Business analysis
4. Development
5. Testing

HUSAT's product development was also considered under these headings. It should be noted however, that thorough product development is an expensive and lengthy operation. Time and budget restrictions enforced that HUSAT's product development process was a much scaled down operation.

3.1.1 Idea generation

Ideas for the products were inspired by three main sources: the former HILITES products, a review of the literature, and a 'brainstorm' approach considering HUSAT's distinctive competencies as revealed by the strategic analysis.

3.1.2 Screening

These initial ideas were then screened in order to eradicate immediately those which were technically unviable. It was at this stage therefore that remote access to the database and consortium libraries were discarded; remote access because of the now frozen state of the database, and consortium libraries because of the resource-intensive nature of the product, now impossible to provide because of the reduction in staff numbers.

3.1.3 Business analysis

The resulting list of products was then taken to the Information Manager at HUSAT in order to further evaluate their viability and also their 'agreeability' to the person and organisation whose duty it will be to provide them. At this stage future variations of the products were discussed and a more detailed specification of the products were established.

3.1.4 Development

Having finalised the product ideas they were then developed in the light of strict evaluation criteria - again as outlined by Hisrich and Peters[3]:

- Market opportunity - what market is there for it?
- Competition - who else offers that product?
- Financial and production factors - the results of the strategic analysis
- Legal implications

The results of the development stage is shown in section 3.2 below.

3.1.5 Testing

The testing of the products through market research is reported in chapter 5.

3.2 Potential product list

The list of potential products is a result of the development processes as detailed in section 3.1.1 - 4 above. It was hoped that the evaluation of the products in light of the specified criteria of section 3.1.4 would provide some qualitative indication of the value of the products for use in pricing. However it was appreciated that such 'soft' information is difficult to translate into a quantitative financial analysis. There are techniques available to effect such translations, however they are best applied to products already in existence[4]. Should the products and prices be reassessed in the future, it is recommended that a full cost-benefit analysis is undertaken whereby the true value, or effects, of the products are related to their cost (or price in this case) and adjusted accordingly.

3.2.1 Accessions list

Tilson's research showed that publications are a common form of income in special libraries[5]. Whelan speaks of the benefits of such publications in that they are "regular and 'proactive'" as opposed to the "more traditional 'responsive' services[6]". Accessions lists are still being produced by HUSAT library and thus will take little extra effort to market. They were also the most popular product of the HILITES service with 90% of clients receiving the publication. However, they are no longer produced fortnightly but 'as and when'. This is due to the reduction in staff numbers. The new accessions list therefore may have to be monthly with less references. The manager has suggested that it is termed a 'bulletin' rather than an accessions list as some references may appear one or two months later than their acquisition date. A simple selection form can be added to the publication whereby clients select the documents they want and return the form to order them. To update this product it could be sent out over email making ordering simpler.

3.2.2 Personalised online searches

Only 14% (i.e. 3) of HILITES' clients ordered personalised online searches. Interestingly though, these clients also had their own online access to the database. Only one of them took the service as part of a package which could indicate that they *accepted* the service rather than specifically *choosing* it. The other two saw benefits enough in the service to choose it in addition to personal online access. Online searches only involve staff time which can be directly accounted for, no additional equipment is required. An order form could be attached to the online results allowing easy ordering of material uncovered by the search. Both the EIAC and the BLDSC offer similar products. The BLDSC makes a valuable specification of 3 keywords per search. It was decided to add a similar specification to HUSAT's searches as a means of defining the limitations of the product.

3.2.3 Literature interpretation service

This service was not so popular during HILITES with only a 9% (2 clients) take-up rate - and one of those took the service as part of a package. Again providing this service would not involve any initial financial outlay but it could have other complications. Firstly the service was not completed by library staff but by Human Factors experts within HCL. Thus it is not so much a library product as a consultancy product and may cost accordingly. There could also be a liability issues if literature is interpreted incorrectly - or if the *interpretation* is interpreted incorrectly. This problem could be overcome however by inserting a professional indemnity clause into any literature interpretation agreement. However, business analysis discussions with HUSAT library finally concluded that this service should be incorporated into the Premium enquiry service.

3.2.4 Photocopies

Photocopies of documents found on accessions lists, bibliographies, or through online searches could be quickly and easily supplied by HUSAT. The operation could be performed by junior level staff and thus would be one of the less costly services. During HILITES 81% of clients paid for copies up front demonstrating the demand for the service.

A fundamental consideration for a potential photocopy supply service is, of course, the provisions of the *Copyright, Designs and Patents Act, 1988* (CDPA 88). The latest law states that copyright exists in literary, dramatic and musical works for 70 years from the date of the author's (or last surviving author's) death[7]. Considering the HCI industry is less than 50 years old, it follows that copyright currently exists in the whole of HUSAT's collection. However there are particular provisions within the Act relating to libraries and archives[8]. Reprography of articles and parts of published works are dealt with in sections 38 and 39 and allow librarians of prescribed libraries to supply copies of periodical articles and parts of literary, dramatic, or musical works if a) the copies are used only for research or private study, b) only one copy is supplied per person, c) only one article per periodical or only a reasonable proportion of any work is supplied, and d) the person to whom the copy is supplied pays for them "a sum not less than the cost (including a contribution to the general expenses of the library) attributable to [its] production[9]".

'Prescribed libraries' are those which are "administered by public library authorities, school libraries, [or] other libraries attached to educational establishments including Universities and other institutions of further and higher education[10]". However,

> not unreasonably, profit making libraries are *not* prescribed and therefore do not have the benefit of the Act. Libraries which are allocated to other organization [sic] are only protected by the Act if the other organization is non profit making.[11]

As HUSAT Library offers free access to Loughborough University and HUSAT Research Institute, there is no doubt that it is "attached to an educational establishment". However these clauses reveal the wisdom of establishing the FBIC as part of HUSAT's Research Institute rather than as part of the profit making consultancy section. They also dictate that any income made is sown back into the institution so it can retain its non-profit making status.

To ensure that the 'prescribed conditions' laid down by the Act are met, librarians should issue copyright declaration forms each time photocopying is undertaken. The librarian can legally rely on the information provided in such a form (illustrated in appendix B) unless she or he know it to be false. Such forms, therefore, must constitute an integral part of every accessions list, SDI bulletin, and HUSAT memo list that is distributed.

One difficulty the CDPA 88 has generated is the interpretation of s.39.2(b), namely, what constitutes a "reasonable proportion" of a published work? The Copyright Licensing Agency has suggested either one chapter, or 5% - whichever is lower - as a guideline. This is good news for HUSAT library which lists chapters of books in their accessions lists for the provision allows them to photocopy those chapters for supply as a product.

3.2.5 Loans

HILITES had less success with their loans service. Although clients used the service, some irreplaceable books were lost as a consequence. As the photocopy/loan rate was combined (starting at £11.50 per loan or copy) even if the book was replaceable, the fee would not have covered it. It would be wise therefore to alter the charging system for the new service by lowering photocopy and raising loan charges. Some method of securing funds for lost books should be implemented. Three methods are possible. Firstly making it clear that all lost books will have to be paid for, indicating that some items can cost up to £700. Secondly using a deposit scheme -

however this would be very difficult to administer and unless the deposit was about £700, the cost of some items may not be recovered. Thirdly implementing a separate subscription fee for those wishing to loan books.

3.2.6 HUSAT Memo lists

HUSAT memos are research papers written by HUSAT employees. Some are published externally and become archival memos as the copyright belongs elsewhere. Others are published by HUSAT itself. The lists could be distributed on similar lines as the accessions lists with a client selection form attached listing those HUSAT is able to supply. Lists of the memos are produced annually and are presently published with other University publications on the University's web pages. This may decrease the value of HUSAT memo lists as a product, especially considering that those published externally may end up on the database and in the accessions list anyway. This should be considered when pricing.

3.2.7 Sale of duplicate stock

This service is offered in the main by public libraries who also include withdrawn stock[12]. Such a service would create extra income for the library while also creating extra space. It would also allow a narrower definition of the collection by eliminating reports, conferences and journals which are peripheral to the HCI field but were perhaps donated to the library. For texts which are out of print the demand may be high and the revenue-earning potential very good.

3.2.8 Selective dissemination of information (SDI) service

Clients could submit certain areas of special interest for a current awareness service. This would involve an initial 'backlog' online search, with additional regular searches in current books, reports, conferences, journals, internet, and newspapers. The service would have to be timely to be of any value to the client which may cause an extra burden on staff. Also, assessing the time required to provide the service may be difficult initially thus causing a

pricing problem. Only experience could determine the true viability of the service.

3.2.9 Premium enquiry service

The Bromley Business Information Centre offers a premium enquiry service which is effectively the managers time at an hourly fee[13]. The Information Manager at HUSAT already performs this service for projects which come in through the consultancy business at HUSAT. By offering a premium enquiry service the library could well attract research work for the consultancy section instead of the other way round. Literature interpretation work, for example, could be offered through the premium enquiry service should it be required. Otherwise, the service would involve online and other literature searching in the production of evaluative reports.

3.2.10 Bibliographies

One of the most common enquiries HUSAT library encounters is requests for 'everything you have on...' a broad topic. One way of answering these enquiries would be to produce a set of bibliographies available at a fee in general HCI topics. They would differ from personalised online searches in being selective in the material they list. The benefits of such a product are that once they have been generated they cost only the paper they are written on (or not even that if it is delivered electronically) to supply and they could be updated annually with minimal effort. Once created, the bibliographies could be 'published' by HUSAT and added to the HUSAT Memos list and the University web pages for extra publicity.

3.2.11 Reference access

Reference access to HUSAT library's collection is another low maintenance product which could be offered. Tilson writes that for one librarian "the fact that people were willing to pay the £50 fee for access of a day or part of a day had made her and her staff aware of the value of their collection[14]". As long as the service was limited to one visitor per week, the service could

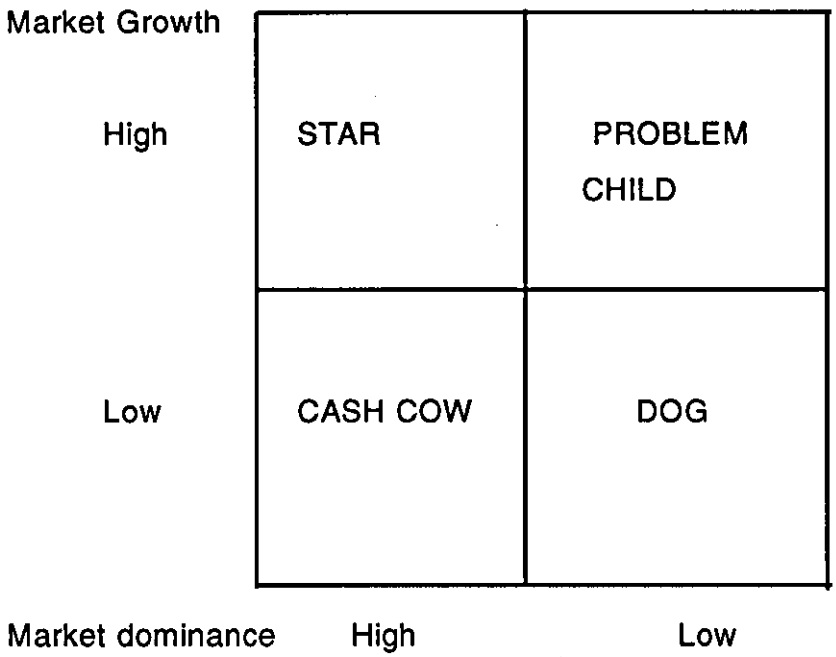
bring in extra revenue at little extra effort to the library. An additional tutorial fee could also be made for those wishing to use the database during library access.

3.3 Product lifecycles and portfolio models

All products have a lifecycle consisting of the introduction, growth, maturity and decline stages. As information as a commodity is a relatively new concept, most information products would chart in the 'introduction' to 'growth' stage in the cycle. Johnson and Scholes describe the competitive characteristics of the introduction stage as that of 'growing adopters' trying out new products; at the growth stage they anticipate the entry of competitors and a fight for market share while products and services remain undifferentiated[15]. Product lifecycles are valuable in that the stage in the cycle determines the sorts of competitive and/or promotional strategies that should be instigated. It is important to note that lifecycles are not measured in units of time but in measures of growth or decline - i.e. there is no set time for a product to have completed its lifecycle. This is the reason why although some of HUSAT's competitors have been in the information business for over 30 years, they can still be in the growth stage of their cycle.

The concept of market growth rate is one that is used in another theoretical model: the BCG growth share portfolio model. This, and a number of similar models[16], aims to analyze portfolios of products according to their individual and corporate value to the business. In the BCG portfolio model, products are analyzed according to both market growth rate, and market dominance. Those products in a market of 10% growth rate or above with a market dominance of 1 to 10 times that of the next largest competitor are termed 'stars', those in the same market with less dominance are termed 'problem children'. Those in a market of 0-10% growth rate with the higher market dominance are termed cash cows, and those in the same market with less dominance are termed 'dogs'. This principle is illustrated below in figure 3.1.

Figure 3.1 BCG Growth-share portfolio model



Unfortunately the model is only for application on existing products. However, it is recommended that after the service has been established that the portfolio model should be used to evaluate the product mix. This will allow HUSAT to determine which products are financially beneficial (the stars and the cash cows). Promotional strategies can then be pursued on those products. It will also reveal which products are a drain on organisational resources so that appropriate strategies can be pursued for them (the problem children and the dogs). The creation of a good portfolio of products is of great benefit to an organisation because of the principle of synergy.

> Synergy means that the whole is worth more that the sum of its parts...Thus, in assessing the role each product line plays in the organisation, managers should be careful to identify important synergistic relationships.[17]

HUSAT, therefore, while assessing their products in accordance with the growth-share model should be aware that some products may have value in relation to another product even if individually it has little value. For example, the accessions list with order form may be a 'star' product and the photocopy service a 'dog'. However, by phasing out the photocopy service, the accessions list decreases in value as it relies on the fact that copies can be ordered from the same institution. This synergistic principle needs to be carefully considered therefore in the analysis of product portfolios.

3.4 Summary

Having generated, screened, analyzed and developed a potential product portfolio, they can now be priced before the fifth stage of Hisrich and Peter's product development process is implemented: testing.

Chapter three

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Chapter Four

Cost and price analysis

4.0 Introduction

Having established a portfolio of potential products the next stage was to set prices for them. This chapter examines different methods of costing and pricing according to a pricing process involving a pricing objective, policy and strategy. Having made decisions on these points, each cost unit is priced accordingly. The issue of packages and payment methods is then considered.

It is usual, given time and the appropriate funds, to put the products to market research before setting prices. However, due to the scale and focus of the research, it was necessary to put both to market research together.

Price has traditionally been thought of as one of the most important elements of the marketing mix. However pricing has had a less effect on market success in recent years[1]. Prices, therefore, must be considered very carefully in the light of the type of product being offered. Despite the increasing importance of other elements of the product mix, it is still true to say that the price is the only element which produces revenue - the other elements all absorb revenue. Pricing therefore needs to be a very sensitively performed operation.

In her seminal paper on pricing information Zais cited a procedure by which prices could be arrived at reasonably[2]. The first step was to analyze one's pricing objective - a broad statement which encompasses one's motive for pricing. Secondly a pricing policy was to be arrived at using the broad objective to focus on particular approaches to pricing. Finally, pricing strategies could be determined using the results of the previous two steps.

4.1 Pricing objective

Akeroyd advises that before considering *what* you are going to charge, you need to consider *why* you are going to charge[3]. There are a number of different motives behind establishing a fee-based information centre (FBIC), not all are monetary. As HUSAT Library's primary role was to serve HUSAT Research Institute and was thus funded by them, their objective was not to become self-financing but, as Hyde writes, "to gain income from a collection that exists anyway[4]". By offering the service at a fee, HUSAT could also open up the collection to research institutions whom they otherwise could not serve[5]. The pricing objective then was to earn income which could be counted as surplus, and in so doing to assist external research in the field of HCI.

4.2 Pricing policy

Having established a broad pricing objective more detailed decisions could be made about the pricing process. There are three main routes to producing a pricing strategy: cost-based pricing, demand-based pricing, and competition-based pricing, all of which are well documented in the pricing literature[6].

4.2.1 Cost-based pricing

Cost-based pricing essentially entails basing prices on the costs associated with generating a product or service (a cost unit). There are disadvantages to this form of pricing. Firstly it does not take demand into consideration, and secondly costs, particularly overhead costs, are notoriously difficult to assess. Costs are divided into two main categories: direct and indirect. Direct costs include communications costs, postage, online searching fees, and so on which can be directly attributed to a cost unit. Indirect costs include accommodation, rates, insurance, and so forth, which exist whether or not a cost unit is produced. Indirect costs are frequently calculated as a function of staff costs simply because assessing a particular department's contribution to an organisation's overheads is virtually impossible. It has

been observed that many FBIC's only charge direct costs as a result of this problem[7] [8].

The other problem associated with identifying both direct and indirect costs is that once a true 'profit' margin has been added (or even before in some cases) one's market may well have been out-priced. Tilson has observed that total (or absorptive) costs are frequently avoided by information brokers simply for fear of out-pricing the market[9].

4.2.2 Demand-based pricing

Demand-based pricing focuses on the demand for a product and bases prices accordingly. Again there are disadvantages to this form of pricing, many of which come down to the difficulty of obtaining demand statistics. Demand for information is difficult to quantify conclusively anyway because information is such an elusive entity. To obtain specific demand figures such as those required for a new FBIC in a niche market therefore is even harder. HUSAT had subscription figures from 1993 only for four of their potential products (see table 2.4). Demand pricing does not only involve the collection of relevant demand data however, it also involves the determination of demand elasticities within various market segments. Demand is said to be elastic when a slight alteration in price significantly affects demand. Needless to say such information is of great value when setting prices for a varied market sector, but again, large quantities of detailed statistics would be required for true elasticity assessment. It is generally true to say however, that academia are more sensitive to price changes than industry (their demand is more *elastic* than industry's). This in itself was thought to be valuable information for HUSAT's pricing strategy.

4.2.3 Competition-based pricing

Competition-based or imitative pricing involves establishing prices according to those set by one's competitors. Tilson's survey of pricing in libraries revealed that competition-based pricing was very common amongst

information centres[10]. Zais explains the popularity of competition-based pricing thus:

> it is felt that the going-rate price represents the collective wisdom of the industry concerning a price that would yield a fair return. Conforming is also felt to be least disruptive of industry harmony.[11]

However, Sizer Warner cautions against relying on competitor information:

> what other fee-based services charge should only be peripheral to figuring what you should charge. Convenient though it would be, there is rarely such a thing as a "going rate".[12]

Thus competition-based pricing has its benefits - it is certainly a good means of not out-pricing the market - but it should be used with judgement. As Kotler notes, there is more to a product that its price[13], thus if a product is of a high standard and meets a real need, the fact that it costs more, or less, than the competition is going to be of secondary consideration to the client.

4.2.4 Other considerations at this stage

A primary pricing consideration when setting up a FBIC is start-up costs[14]. A second consideration is the need to establish a client base, and to grow[15]. Clients may need to be enticed into using a new service by the use of loss-leaders - free publications or lower prices. However some would argue that prices need to be set high initially so that they can be dropped in negotiations[16], and that it is very difficult to raise prices later on. Still others would say that a high price doesn't represent expense but quality. The existence of such contradictory arguments illustrates, if nothing else, the need for sensitive pricing. A final, most significant consideration for the pricing policy was the need to keep it simple. Many experienced information brokers stress just this point[17].

4.2.5 Pricing policy summary

The lack of demand statistics and the dangers of competition-based pricing, coupled with the first part of the pricing objective; to earn income which could be counted as surplus, all highlighted a cost-based pricing policy as the best way forward. A cost-based policy would ensure that HUSAT *was* making a surplus by clearly calculating the real costs involved in generating the products. It would also result in the generation of a formula which could be adjusted with cost increases or applied to new products thus making for a simpler, clearer pricing strategy. Demand or competition-based policies would have no such benefits. However, it was considered wise not to ignore demand and competition completely. It was decided, therefore, to utilise market research results as some indication of demand which could then be built into the final pricing strategy, while also remembering the general inelasticity of industry's demand compared to academia's relative sensitivity. This would be acknowledged by price differentiation. It was also decided to consider competitor's prices in the last instance as insurance against out-pricing the market. In summary, a simplified cost-based pricing policy appeared to be the most appropriate way forward, with demand and competition being secondary considerations.

4.3 Pricing strategy

Cost accounting, or microcosting, in libraries is a much documented subject, but also one fraught with difficulties[18]. The main historic difficulty has been the translating of accounting methods from the commercial sector to the not-for-profit environment. Libraries, particularly, encountered the problem of a lack of tangible output, and thus a lack of output data, with which to account. However, the increasing financial constraints on libraries in recent years has forced most to quantify themselves in terms of output (as opposed to inputs - materials, labour etc, or departments). Of course in a commercial service the natural instinct is see costs in terms of the products which absorb them. Thus it is this form of cost accounting, called unit costing, with which the pricing strategy will be dealing.

There are two main cost-based pricing strategies; absorptive (or total) cost-pricing, and marginal cost pricing. The first attempts to *absorb* all the costs associated with a cost unit into that unit's price. That includes direct and indirect costs plus a profit margin. The second, marginal costing, divides costs into two slightly different categories, fixed and variable. These categories sort costs according to whether they vary with output. Thus an indirect cost such as rent is a fixed cost because it won't vary with output. However an indirect cost such as power is classed as a variable cost because it *will* vary with output. In the direct/indirect system however power is still an indirect cost because it can't *directly* be attributed to the production of a particular cost unit. The distinction is a fine but important one when calculating marginal cost pricing.

Marginal cost pricing, then, charges only variable costs to the cost unit to which a profit margin is added. Fixed costs are written off only when the cumulative contribution exceeds them. This method is usually only employed in decision making. However as many FBICs charge only direct costs, it was considered a potentially valuable strategy for HUSAT to consider. However, it was decided to employ both costing techniques for pricing initially. Having two sets of prices would provide 'legitimate' figures for price discrimination, as well as offering a means of pricing products according to their value - i.e. lower value products could be marginally priced, and higher value products absorptively priced. Comparing the actual marginal and absorptive prices would also aid the strategy selection procedure.

4.4 Profit margins

Having considered unit costing methods, the next step in a pricing exercise is to calculate a profit, or surplus margin, or, in the case of marginal costing, a 'contribution' towards the fixed costs. Mott writes, "most profit seeking firms set financial objectives in the form of a return on capital[19]". However, it could be argued that HUSAT Library are not profit seeking in the sense that

they intend to become self-financing and therefore seeking a return on capital as a method of establishing a surplus margin is in appropriate. Capital expenditure figures complete with depreciation rates and amortization schedules are also notoriously difficult to assess. Another method of profit calculation, therefore, is the examination of trade association or business monitoring organisation surveys for profit margins appropriate to the information industry[20]. However, it was discovered that profit margins per se had not been the subject of any surveys in the information world. Thus the only course of action left open to HUSAT was to consider the capital intensive nature of the industry and to establish a profit margin (or contribution) which brought their products into line with the prices of other FBICs, and in accordance with a margin acceptable to HUSAT Library's Information Manager. After consultation with her a contribution of 50% was added to the marginal costs, and two profit margins of 25% and 50% added to the absorptive costs. It was thought that this would give a broad range of prices for final selection, and for price discrimination later on.

4.5 Pricing individual cost units

To calculate unit costs all the tasks involved in producing the unit had to be identified[21]. For absorptive costing all the direct and indirect costs associated with each task then had to be determined, for marginal costing only variable costs were calculated. It was decided that staff costs *should* be classed as variable because their time *could* be utilised on non-FBIC activities. Thus the time they 'charged' to the FBIC would vary with output. Consequently staff costs were both direct and variable, and overheads were both indirect and fixed.

Staff cost calculations are shown in appendix C. It is Loughborough University policy to calculate overheads as a function of staff costs according to the Hanham method. Thus a summary of staff costs and the overhead component is shown in table 4.1 below.

Table 4.1: HUSAT staff costs

Staff member	Staff cost (£)		Overheads (£)		Staff + overheads	
	per day	per hour	per day	per hour	per day	per hour
Grade RA2	155.13	20.96	176.85	23.90	331.98	44.86
Grade GS2	53.68	7.26	61.20	8.26	114.88	15.52
Unclassified	38.93	5.26	44.38	6.00	83.31	11.26

Calculating the staff time involved in each task was a difficult exercise. There are two main methods for labour cost analysis[22]: *work measurement* and *estimation*. Unfortunately both methods can only be applied to current working practices, and as many of the potential products had yet to be generated they were of no use to the present study. However, during *HILITES* an estimation method was used to obtain labour cost figures for accessions list creation, document supply and data entry[23]. Although this data was historic, it was representative (however loosely) of the time taken to perform the same tasks in the same institution. For new products the appropriate members of staff were consulted for expert time estimates. It was appreciated that such labour costing techniques were less than ideal, but without the time to perform detailed pilot product generation exercises, they were the only way forward. It is recommended, however, once the new service has been established, that suitable work measurement is undertaken regularly to provide quantitative data for future cost revisions.

After staff costs the other costs identified were paper, postage and packing. 'Paper' usually meant photocopied sheets. Photocopying costs were established at 10p per A4 sheet which included a contribution towards the running of the library as set down by the CDPA 88. Royal Mail UK letter rates were consulted to provide postage rates[24] . If the market research proves there is an international market, overseas rates will have to be established as well. Paper was then weighed to calculate the maximum

number of sheets per price band, including provision for an envelope. The results are shown in table 4.2 below.

Table 4.2: Current UK letter rates and paper weight

No. of A4 sheets	Weight of sheets	First class	Second class
10	50g	0.25	0.19
20	100g	0.38	0.29
30	150g	0.47	0.36
40	200g	0.57	0.43
50	250g	0.67	0.52
60	300g	0.77	0.61
70	350g	0.88	0.70
80	400g	1.00	0.79
-	1000g	2.50	Not admissible

Envelope prices were taken from the Loughborough University stationary catalogue currently used by HUSAT's administrative officers. An A4 gusseted envelope cost 18p and an A4 jiffy bag 40p.

Value added tax (VAT) was then investigated. It was discovered that VAT need not be charged on documents or books, but should be charged on all services. As the fee-based information service is partially aimed at VAT registered businesses who can reclaim any VAT they pay, it was decided to calculate prices excluding VAT, and to include it on any final invoice - the tax point.

4.5.1 Accessions list

Table 4.3: Accessions list costing summary

Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
Time	RA2 @ 8.25 hrs GS2 @ 19.75 hrs	172.92 139.75 = 312.67	370.10 306.52 = 676.62	370.10 306.52 = 676.62
/ 50 lists sold		6.25	13.53	13.53
Paper	10 sheets @ 10p	1.00	1.00	1.00
P&P	1st class+ 18p envelope	0.43	0.43	0.43
Costs total		7.68	14.96	14.96
* 12 p.a.		92.16	179.52	179.52
Profit margin		46.08	44.88	89.76
Final total		138.24	224.40	269.28
Rounded figure		140.00	225.00	270.00

Timing for the accessions list was established using figures produced for *HILITES* in June 1992. The new service cannot guarantee the frequency of its accessions list, however for the purposes of calculation a figure of one per month was estimated. During 1992-93, *HILITES* sold 58 subscriptions to their accessions list. In calculating the above figures a round 50 was used as an estimated sales figure. This is because the new FBIC may not have built up so much of a clientele in the first year of production. The marginal price of £140 for the accessions list was just over half of *HILITES'* accessions list price (£250), the absorptive prices (25% and 50% profit) £25 less than, and £20 more than the *HILITES* list respectively. The latter two prices were considered the most suitable as they represent either a reduction on the previous prices or just a marginal increase.

4.5.2 Personalised online searches

Table 4.4: Personalised online searches costing summary

Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
Search				
Time	RA2 @ 0.5 hrs	10.48	22.43	22.43
Paper	10 sheets @ 10p	1.00	1.00	1.00
P&P	First class 25p + 18p envelope	0.43	0.43	0.43
Costs Total		11.91	23.86	23.86
Profit margin		5.96	5.97	11.93
Final total		17.87	29.83	35.79
Rounded figure		18.00	30.00	35.00
Citations:				
Time	RA2 @ 2 mins GS2 @ 7.84 mins	0.70 0.94 = 1.64	1.50 2.03 = 3.53	1.50 2.03 = 3.53
/ 6		0.27	0.58	0.58
Separated into reference and abstract		0.10 reference 0.20abstract 0.30 item	0.20reference 0.40 abstract 0.60 tem	0.20reference 0.40 abstract 0.60 item

The time required to complete a personalised online search was estimated at 30 minutes[25]. The time was then taken and multiplied by the Information Manager's staff cost. To calculate prices for citations, data entry times were taken from *HILITES'* figures again, from June 1992. For each item to be entered on the database, the average time taken was two minutes of the Information Manager's and 7.84 minutes of the GS2's time. It was thought that to recover this cost per citation retrieved would be unfair considering

that once the data is in the database it can be retrieved limitlessly without additional cost. It was decided to divide the data entry cost in six on the assumption that the item would be retrieved at least six times in its 'lifetime' and once those retrievals had been made, the cost of that citation would have been covered. The decision to retain differential pricing on these two elements was made firstly to give clients more flexibility, secondly to keep in line with the 80% of commercial online databases which also differentiate[26], and thirdly to remain true to HUSAT Library's data entry workload bias which is heavily weighted towards abstract-writing. It was decided to compare the resulting prices with the EIAC's prices as they offer an identical service. The results follow in table 4.5.

Table 4.5: A comparison of the EIAC's and HUSAT's online prices

	EIAC (£)	HUSAT (£)					
		Marginal cost		Absorb. 25%		Absorb. 50%	
Search fee	35.00	26.00	26.00	30.00	30.00	35.00	35.00
Citation type	Ref. and abstract	Ref. only	Ref. + abs.	Ref. only	Ref. + abs.	Ref. only	Ref. + abs.
+10 citations	37.50	27.00	29.00	32.00	36.00	37.00	41.00
+20 "	40.00	28.00	30.00	34.00	38.00	39.00	43.00
+30 "	42.50	29.00	31.00	36.00	40.00	41.00	45.00
+40 "	45.00	30.00	32.00	38.00	42.00	43.00	47.00
+50 "	47.50	31.00	33.00	40.00	44.00	45.00	49.00
+60 "	50.00	32.00	34.00	42.00	46.00	47.00	51.00
+70 "	52.50	33.00	35.00	44.00	48.00	49.00	53.00
80 "	55.00	34.00	36.00	46.00	50.00	51.00	55.00
+90 "	57.50	35.00	37.00	48.00	52.00	53.00	57.00
+100"	60.00	36.00	38.00	50.00	54.00	55.00	59.00

We can see that by marginal costing HUSAT undercuts the EIAC's prices considerably. However, all the absorptive prices at 25% and most of those at 50% (except the references and abstracts below 80 citations) are also cheaper than the EIAC. Thus the absorptive strategy was again considered the most appropriate as a form of market penetration exercise: offering an existing product on an existing market but at lower prices. At the same time the prices would not be so low that they could be considered low in quality.

The BLDSC's Stock Alert Service prices were also considered. They charge £35 + VAT for up to 200 references and an additional £20 + VAT for each further set of up to 200 references. Although their price does undercut HUSAT's, the starting rate is not dissimilar.

4.5.3 Copies of articles

Table 4.6: Copies of articles costing summary

Photocopies				
Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
Time	GS2 @ 10 mins *or* Unclassified @ 10 mins	1.21 0.86 = 2.07 /2 = 1.03	2.58 1.87 = 4.45 /2 = 2.23	2.58 1.87 = 4.45 /2 = 2.23
Paper	12 sheets @ 10p	1.20	1.20	1.20
P&P	First class up to 400g + envelope	1.18	1.18	1.18
Costs total		3.41	4.61	4.61
Profit margin		1.70	1.15	2.30
Final total		5.11	5.76	6.91
Rounded figure		5.00	5.75	7.00

The time involved in sending out photocopies during *HILITES* was worked out at between 6.6-12.5 minutes per article. An average of 10 minutes per article was taken and multiplied by the sum of the two responsible staff members' time, divided by two. The average size of an article was established using a sample accessions list as being 12 pages long. It was then multiplied by the 10p HUSAT requires for photocopying. It was thought wise to opt for first class postage as timely information increases that information's value. As the largest article in the sample list was 73 pages long the postage rate was set at £1.00 for not over 400 grammes (not over 80 sheets) to cover all eventualities.

The marginal figure of £5.00 was considerably less than British Library Document Supply Centre (BLDSC) prices (£4.58 + £1.35 flat rate for postage), the absorptive price at 25% was also cheaper, while the 50% rate was approximately £1 more than the BLDSC[27]. BLDSC document delivery forms do have to be purchased in packs of 50 (for library privilege loan/photocopy forms) however, thus HUSAT's individual pricing would represent a considerable advantage for organisations unlikely to be needing large quantities of documents delivered. All prices were also considerably cheaper than the Uncover service which charged $8.50 (approximately £5.65) plus a copyright fee, and postage surcharge for countries outside the USA. As the market could obviously bear the higher prices it was decided again to opt for absorptive pricing.

4.5.4 Loans

Table 4.7: Loans costing summary

Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
Time	GS2 @ 10 mins *or* Unclassified @ 10 mins	1.21 0.86 = 2.07 /2 = 1.03	2.58 1.87 = 4.45 /2 = 2.23	2.58 1.87 = 4.45 /2 = 2.23
P&P	1kg first class + jiffy bag	2.50 0.40	2.50 0.40	2.50 0.40
Costs total		3.93	5.13	5.13
Profit margin		1.97	1.28	2.57
Final total		5.90	6.41	7.70
Rounded figure		6.00	6.50	7.75

The staff time involved in loans was calculated as the same as that for photocopied document supply. Postage and packing was based on the average weight of a text (1kg). A comparison with the BLDSC's prices again revealed that HUSAT's were all more expensive, albeit marginally. In this case the marginal price and the absorptive price at 25% could have been used - especially as the marginal price did cover the absorptive costs (£5.13). However, it was realised that every text out on loan was one less for HUSAT to photocopy from, or to lend internally. That, coupled with the fact that some books were lost during the *HILITES* service, led to the decision to select the absorptive prices as a form of prohibitive charging.

4.5.5 HUSAT Memo lists

Table 4.8: HUSAT Memo lists costing summary

Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
Time	GS2 @ 11.53 hrs	83.70	178.95	178.95
/ 25 sold		3.35	7.16	7.16
Paper	35 pp @ 10p	3.50	3.50	3.50
P&P	First class 200g + envelope @ 18p	0.57 0.18	0.57 0.18	0.57 0.18
Costs total		7.60	11.41	11.41
Profit margin		3.80	2.86	5.71
Final total		11.40	14.27	17.12
Rounded figure		11.50	14.50	17.50

HUSAT memo lists are compiled over the year at a rate of 2 minutes per reference. With approximately 355 references per year, 11.83 hours is spent on the memo list per annum. It was calculated that 10 references could fit on one page making an average of approximately 35 A4 sheets per list. The weight of the document puts it in the 200g letter rate band at 57p. The subsequent prices seemed quite high considering some of the references are on the database, will appear in the accessions list, and are also freely available on the University's web pages. Thus it was decided to select the marginal and absorptive (25%) prices for HUSAT memos.

4.5.6 Selective dissemination of information service

Table 4.9: SDI costing summary

Item	Marginal (£)	Absorptive (£) (25%)	Absorptive (£) (50%)
Online search with 50 references and abstracts	33.00	44.00	49.00
Accessions list	140.00	225.00	270.00
Extra time	50.00	50.00	50.00
Costs total	223.00	319.00	369.00
Rounded	225.00	320.00	370.00

The SDI service was to consist of two parts which had already been priced: the online search and the bulletin. Fifty references and abstracts were included in the online search price. As a profit margin had already been incorporated into the online price, no further profit was added. To estimate an SDI bulletin price the accessions list price was taken (including its division by 50 subscriptions) and £50 was added. The accessions list price was included because most of the material forwarded to the client would be taken directly from the accessions list. They would not be receiving all the references from the list and so 'lose out' that way, *but* they would be receiving the extra time taken to select material and reformat it in a unique personal bulletin. The extra £50 therefore covers some of these costs and extra costs for other searches undertaken for the bulletin. Once the service has been established, real labour costs should be recorded and pricing adjustments made accordingly. In the mean time it was decided to use the absorptive prices in market research as it is easier to drop prices later on than to raise them.

4.5.7 Premium enquiry service

Table 4.10: Premium enquiry service costing summary

Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
Time	RA2 @ hour	20.96	44.86	44.86
Profit margin		10.48	11.22	22.43
Final cost		31.44	56.00	67.29
Rounded		30.00	55.00	70.00

It is a well documented truism that a FBIC's staff are its main asset[28], and the premium enquiry service is quite simply the information manager's time at an hourly rate. Warr's research in 1994 revealed that the most popular FBIC hourly rate was £60 within a range of £20 to £90[29]. Even six years ago in 1990 HERTIS was charging £50 per hour to subscribers and £60 to non subscribers, Warwick Business Information Service was charging £42.50 and £65 respectively, and the London Business School £50 and £65 respectively[30]. These figures seem to imply that the market could easily bear £55 and £70 per hour - the absorptive prices - for HUSAT's information service.

4.5.8 Bibliographies

Table 4.11: Bibliographies costing summary

Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
References as online search		0.10	0.20	0.20
* no. of refs	Average of 100	10.00	20.00	20.00
Paper	10 sheets @ 10p	1.00	1.00	1.00
P&P	First class 150g + 18p envelope	0.50 0.18	0.50 0.18	0.50 0.18
Costs total		11.68	21.68	21.68
Profit margin		5.84	5.42	10.84
Final total		17.52	27.10	32.52
Rounded figure		17.50	27.50	33.00

As the EIAC also produce bibliographies, both ready made and personalised, it was thought best to consider their prices when establishing HUSAT's. The EIAC's ready made bibliographies offer references *and* abstracts at 25p each. For personalised bibliographies a flat fee of £35 per search is added - similar to their online search pricing strategy. As HUSAT's reference and abstract price is much higher than the EIAC's, and as bibliographies traditionally only contain references, it was considered reasonable for HUSAT to offer references only, with a flat postage and

packing fee added to each bibliography. This would keep the prices at a rate affordable by students - the expected main consumer of this product. As many bibliographies would not be as large as 100 references it was decided that the absorptive rate at 25% represented a fair deal to both HUSAT Library and their clients.

4.5.9 Reference access

Table 4.12: Reference access costing summary

Item	Description	Marginal (£)	Absorptive (£) (25%)	Absorptive(£) (50%)
Hard copy access				
Time	GS2 @ 2 hours	14.52	31.04	31.04
Profit margin		7.26	7.76	15.52
Final total		21.78	38.80	46.56
Rounded figure		25.00	40.00	50.00
Hard copy + database access				
Time	GS2 @ 2hrs RA2 @ 1hr	14.52 20.96	31.04 44.86	31.04 44.86
Costs total		35.48	75.90	75.90
Profit margin		17.74	18.95	37.90
Final total		53.22	94.85	113.80
Rounded figure		55.00	95.00	115.00

Reference access effectively would not encounter any variable costs except any photocopying required. However, a library tour would be required and an employee would need to be available for queries. It was thus decided that the price should be based on two hours of the GS2's time as her workstation is placed in the body of the library, and she works 88% time compared with the Manager's 75% time and the Assistant's 40% time. For reference access with database access a further hour of the manager's time is included for a database tutorial. In using the library, clients are receiving the benefits of overheads such as heating and lighting more than in any other product. It therefore seems justifiable to charge them the absorptive rates.

4.5.10 Sale of duplicate stock

There are many considerations when selling 'second-hand' books. Being old and out-of-print may decrease the value of some volumes while increasing the value of others. Second hand booksellers such as Blackwells buy at half the original cost and sell at two thirds of the original cost thus making a regular profit. However HUSAT may well have paid the full price of some of their duplicates. It was suggested therefore that HUSAT charge the original price of the text plus a handling fee of £6.50 in accordance with loan charges. If the texts were bought at a 10% discount, they will be earning at least that in profit. It was thought that this scheme will average out the revenue earned by texts which are worth more than their original price and by those which are worth less.

4.6 Packages

It was considered that it may be to the library's advantage to create packages of products as *HILITES* successfully did. Packages would provide payment up-front in the form of subscriptions which is always better for the FBIC. However clients mostly prefer pay-as-you-go schemes which don't require such financial commitment[31].

HUSAT's finances are centralised and can be slow, so individual billing for a pay-as-you-go scheme could be time consuming and costly. It was for these reasons that a subscription scheme was chosen for *HILITES*. As Abell notes, a subscription scheme also keeps things *simple* which corresponds to HUSAT's pricing policy considerations. Abell also notes that "clients are known to be more receptive to the payment of subscriptions where a tangible product ensues and subscriptions are easier to promote in this context[32]". It was therefore thought that the accessions list in the form of a 'bulletin' could be sent to each subscriber. Clients would thus receive something tangible for their money.

On the whole, therefore, subscription packages were considered to be more beneficial than a pay-as-you-go scheme. However it was thought that some products should be sold on a pay-as-you-go basis: the bibliographies for example. These were intended as a response to mainly student enquiries who would not be able to afford subscription fees. Details of the schemes were left to be finalised until after the market research.

Chapter four

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Chapter Five

Market research

5.0 Introduction

This chapter examines the market research process from problem definition through to data collection methods, measurement techniques and sample selection. Each stage in the operation is considered in the light of theoretical research methods, the practical implications for HUSAT Library and the limitations of the project.

5.1 Market research

Paul Fifield makes the following point about marketing:

> Marketing as a fundamental business philosophy is a state of mind which should be permeate the entire organization. It states quite categorically that we recognize that our existence, and future survival and growth, depends on our ability to give our customers what they want.[1]

HUSAT Library have chosen to pursue such a 'business philosophy' both in response to the current economic climate, and as a human factors specialist, focusing on the needs of those they serve. It follows, therefore, that in order to "give [the] customers what they want", the needs of those customers have to be determined. Kotler and Armstrong maintain that marketing research is the means of determining that information[2].

So, having developed a potential portfolio of products and priced them accordingly, the next fundamental step was to put those elements to market research to determine whether they meet the needs of the potential client. However, it should be noted at this stage that market research is not foolproof[3].

HUSAT Library's market research followed the first five steps of a market research procedure outlined by Birn[4]. These are listed below and then described in detail in the subsequent sections.

1 Problem definition
2 Deciding on the value of the information
3 Data collection methods
4 Measurement techniques
5 Sample selection

5.2 Problem definition

The problem definition fell into three main categories: market segmentation - the nature of the client base in terms of nationality, organisational affiliation and subject interest; competition and demand - where the market currently goes for its HCI information; and attitude data. The attitude data category was subdivided further into product data - levels of interest in the products, details of product design, potential packages, etc.; and price data - reasonableness of prices, affordability of prices, payment methods, and so on. The problem was, how to acquire this information.

5.3 Valuing the information

Considering the value of the market information that is to be collected assists in the selection of research methodologies. For example, if the value of the information is intrinsic to the success of the organisation, and great losses stand to be made if the results are inaccurate, large samples will need to be selected, and data collection might involve lengthy postal questionnaires and surveys. In a client oriented service such as a fee-based information centre, knowledge of the client base is a main qualification for success. Without ensuring that the products and prices that HUSAT propose to offer are meeting the real needs of the clients, money spent marketing the service could well be wasted. In this sense the information that is hoped to be gained from the market research is of great value. At

the same time, the extent of the literature searches and competitor investigations that have already taken place presuppose demand for the products and the acceptability of the prices. Also, the fact that HUSAT has yielded revenue from a similar service before, coupled with the fact that the 'products' themselves will not need to be generated prior to orders being placed infers that the information is not as crucial as one might first have thought. That is not to say that market research need not be performed - far from it! One should never rely on secondary information where finance - or indeed reputation - is at stake. However, HUSAT Library's position is such that market information will be valuable but not integral to its prosperity.

5.4 Data collection methods

The data requiring collecting (see 5.2) divided into two areas: closed questions concerning market segmentation and basic product / price assessment, and open questions relating to product design preferences and payment methods. The first set of data appeared quite easy to collect and a brief questionnaire method was decided upon. The second set of data would be more qualitative and sensitive, and also more voluminous. A questionnaire would therefore be inappropriate. A focus group method was decided upon as it would provide a 'safe' informal atmosphere for the discussion of sensitive matters. Unfortunately, circumstances dictated that the focus group could not be undertaken within this project. It is recommended however, that a focus group is arranged to discuss the matters outlined in appendix E before the service is established.

5.4.1 Brief questionnaire

For the brief questionnaire, an electronic delivery method was immediately considered, as the majority of HCI specialists (due to the nature of the subject) would have access to electronic mail. There were many benefits to this electronic form of delivery:

- inexpensive
- immediate
- international
- easy to reply

However, there were drawbacks to the method. Firstly, the response rate is traditionally very poor (however because the information was not valued as vital this was not of primary importance). Secondly, it lacks the benefits of formatting that hard copy questionnaires have (fonts, graphics, etc.). Thirdly, the length of the questionnaire cannot be perceived at a glance, and email is generally used for conveying short messages. A message which is longer than one screen can therefore deter respondents. In addition to these drawbacks it became apparent in discussion with experts in the field, that many HCI specialists, despite the high technology content of their field of excellence, do not read - or have access to - electronic mail[5]. Also, the email addresses of the previous *HILITES* clients were not held by HUSAT Library, and as they had been identified as one of HUSAT Library's strengths in the strategic analysis, it was thought to be wise to approach them for their opinions on the new service. Therefore there was perceived a need to send out a postal copy of the questionnaire. This would ensure that all *HILITES* clients were contacted personally, and would also guard against an 'email bias' in the responses.

5.5 Measurement techniques

Fink outlines three main steps to selecting appropriate measurement techniques: considering the purpose of the research, describing the types of variables involved (dependent or independent), and then determining the data needed to measure those variables (nominal, ordinal, or numerical)[6]. The measurement techniques used to conduct HUSAT Library's market research were selected using this method. Having completed this procedure questionnaire design details were then considered.

5.5.1 Brief questionnaire: email

5.5.1.1 Purpose of email questionnaire

The purposes of the email questionnaire were summarised thus:

1. To analyze the HCI information market. (Market segmentation).
2. To find out where HCI specialists currently go for their HCI information. (Competition and demand).
3. To discover interest levels in each of HUSAT Library's potential products by different market segments.
4. To ascertain how the market segments rated the potential prices for those products.
5. To discover whether the prices were affordable or not to that market. (It was decided that this question was important in addition to the above as a result of the literature review: "there is a difference between [clients] considering a price reasonable and actually purchasing a service[7]".)
6. To see if anyone was willing to discuss these issues in more detail.
7. To see if anyone wanted further information on the service once it had been established.

5.5.1.2 Variables

Having decided on the purpose of the questionnaire, the individual variables were extracted and divided into independent and dependent variables. Independent variables were factual elements such as age, gender and so on. Dependent variables were those which would be measured against (were dependent on) the independent variables, namely, opinions and attitudes about the issues in question. It was ascertained that the variables requiring measurement in this questionnaire were:

Independent:	Dependent:
1. Nationality	1. Current sources of HCI information
2. Organisational affiliation	2. Interest in potential products
3. Special interests	3. Price rating
	4. Price affordability

5.5.1.3 Data types

Having decided on variable types, the kind of data required to measure those variables needed to be discovered. There are three types of data: nominal (or categorical) data - names or categories; ordinal - ranked or rated data; and numerical. If nominal data can be specified as one of two categories (yes/no, male/female) they are called dichotomous. The data required to measure the above variables were indicated as follows:

Independent:	Dependent:
1. Nationality - nominal	1. Current sources of HCI
2. Organisation - nominal	information - nominal
3. Special interests - nominal	2. Interest in potential products - nominal dichotomous
	3. Price rating - ordinal
	4. Price affordability - nominal dichotomous

5.5.1.4 Questionnaire design details

(A copy of the questionnaire and the covering letter can be found in appendix D).

Before considering the questions themselves the introductory elements needed to be established. As it was an email questionnaire there would be no covering letter. It was important therefore to include a passage describing HUSAT Library and the purpose of the questionnaire. As one of the problems with email questionnaires was the fact that the length could not be immediately perceived, it was decided to emphasise the length of the questionnaire on the first screen, namely "seven brief questions". It was

also considered wise to emphasize that all information would be treated with the strictest confidence. This would ensure that respondents felt safe enough to reply.

The independent variables were placed at the top of the questionnaire, as an "easy to difficult" progression is thought to promote response rates[8]. The first independent variable, nationality, did not need to be included in the questionnaire, however, as the communicant's country of origin is indicated automatically on email messages, and it was this information that was required, not the nationality of the individual.

Question one

Organizational affiliation was the first question. Discussion with HUSAT's information manager lead to the selection of 'academic', 'industry', and 'other' segments with further segmentation within those categories. The means of selecting a category was by the use of the character 'Y' ('yes') as, of course, boxes couldn't be checked or numbers circled on email. This method was used throughout the questionnaire for continuity purposes.

Question two

Special interests came second. This was the only open question in the questionnaire. It was thought best to make it open because a) it was the intention of the questionnaire to segment the market in a new way, not to limit it to pre-established segments, b) HCI specialists are used to giving a short list of their fields of study - most email / newsgroups request a list, as do non-electronic groups such as the Ergonomics Society, and c) most HCI specialists, especially those in electronic groups, enjoy discussing their field of study.

Question three

To obtain a picture of where people found their HCI information currently, it was decided to list the most common sources as discovered by the literature review and to add an 'other' category to ensure the list was exhaustive. It was difficult to make the categories mutually exclusive again however. Electronic document delivery services for example are theoretically online databases, however, there are online databases which do not deliver documents. It was decided to ask respondents to specify the sources they are referring to by each category to overcome this problem.

Question four

The 'product interest' question was strategically placed before the list of prices in the hope that interest levels would not be influenced by them. Respondents were asked to indicate interest by the characters 'Y' or 'N'.

Question five

Product prices were listed in pounds sterling only. Initially prices were given in US dollars and ECU as well[9] however this increased the text density on screen to an unacceptable rate. As the questionnaire was being sent out to HCI experts good screen design principles were adhered to wherever possible[10]. It was decided therefore to simply indicate that US dollar and ECU prices were available on request.

In order to assess the prices an appropriate ranking system was required. A Likert scale could not be used as there was no means of circling a number. Respondents were therefore asked to type the appropriate number next to each product. The position of the number (to the left or right of the product) was left to the respondent to avoid complicated and confusing instructions. The numbers corresponded to five pre-established terms. The terms needed to represent 'cheap'

to 'expensive', however, it was thought unlikely that anyone would say that a product was cheap. Instead the terms 'very reasonable', 'quite reasonable', 'reasonable', 'expensive', and 'very expensive' were used in the hope that they represented commonly used and meaningful expressions.

Question six

The affordability of products required a similar rating of the list. However, instead of listing the products again, making the questionnaire considerably longer, respondents were directed to the previous list to indicate with a 'Y' or 'N' whether they considered them affordable. It was important to make this a separate question and not to combine it with the previous one, to ensure that both sets of information were given. It was made very clear that non-affordability would be seen as a response to the economic climate, not to personal financial difficulties to safeguard the accuracy of responses. This question was placed second to last as it was the most sensitive question.

Question seven

The final question asked whether respondents would be willing to be contacted for further discussion on these issues. The word 'discussion' was used deliberately to indicate the format of the future communication.

The final 'question' - whether respondents wished to receive information about the service in future - was not numbered as part of the questionnaire as it may have implied that the aim of the questionnaire (i.e. the concluding question) was to procure names and addresses of potential clients.

During the questionnaire design process the questionnaire was examined by HUSAT for internal quality assurance, as well as by a research methods

expert on the staff of the Department of Information and Library Studies at Loughborough University.

5.5.2 Brief questionnaire - postal

This questionnaire obviously followed the same pattern as the email questionnaire, as the information required was exactly the same. It was important that it was *seen* to be a hard copy of the email version so that those who had previously encountered or completed it would recognize it. This did mean that respondents would encounter certain types of answering techniques that are not common to postal questionnaires - using 'Y' or 'N' to indicate responses in stead of checking boxes for example. However it was considered more important that the visual appearance of the questionnaire was not significantly altered in any way. Despite this fact certain changes had to be made.

Firstly designated answering spaces were given for questions 1, 3, and 7 by the use of dotted lines. For question four, it was made clear where the "Interest (Y or N)" should be indicated, similarly with the "Rating (1 - 5)" on question five. Plenty of space was left to ensure that the questionnaire was not crowded, but visually appealing, to which end a clear (ariel) font and certain formatting techniques were employed.

5.6 Sample selection

The selection of a sample is a crucial stage of the market research procedure. It is important to select a set of respondents whose responses will be a balanced and fair representation of the whole community. There are many different methods of selecting a sample, all of which can be categorised into two main groups: probability samples - where each member of the community has an equal chance of being selected; and non-probability samples - where some members of the community have more chance of being selected than others. The type of sample chosen depends partly on the value of the market information to the organisation for which it

is being collected. For this research a non-probability sample was chosen as the information was not considered crucial to the success of the organisation. The sample method chosen was a 'judgement' sample where the researcher selects an appropriate sample according to his or her knowledge of the community.

A variety of sources were considered for the judgement sample: the givers of papers at certain key HCI conferences, the members of the Ergonomics Society, Ergonomics electronic newsgroups, address gained off internet HCI resource pages and so on. It was finally decided to target a key email ergonomics discussion group and the previous *HILITES* clients as discussed in section 5.4.1. An ergonomics group was chosen rather than a HCI specialist group as there was no equivalent electronic discussion group in the HCI area. The ergonomics group chosen was examined for HCI specialism by reading the last fifty group messages and analysing them for HCI interest. Thirty-four of the fifty messages (68%) indicated an interest in HCI. This was considered a large enough proportion to make the method a viable one. The electronic ergonomics group had a number of other advantages.

- It was international in its scope. This was important in the light of the generally unstable nature of the HCI industry in Britain.

- All members were English speaking - despite the international scope.

- As a discussion group they had all already indicated their willingness to discuss issues relating to the field.

- There was a broad range of subject interests. This was valuable in that HUSAT Library's field of interest lies in HCI and a little beyond. By targeting an ergonomics group rather than just a HCI group they covered a broader range of potential clients.

• There was a broad range of HCI specialists - the list was not limited to academia or industry, but to a far wider circle of those interested in HCI. This would be helpful in assessing the true market for the products.

For the postal questionnaire previous *British HILITES* clients were chosen. this was to eliminate the expense and time delays that posting overseas involved. Fifteen previous clients were thus mailed with the postal questionnaire.

5.7 Summary

Having completed the market research procedure from problem definitions through valuing the information and determining data collection and measurement methods, the next important stage was to analyze the results. These are discussed in chapter six.

Chapter five

References and notes

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Chapter Six

Results

6.0 Introduction

This chapter examines the results of the email and postal questionnaire survey. It firstly investigates the market segmentation information (the independent variables), and then proceeds to examine the product and pricing information (the dependant variables) in the light of them.

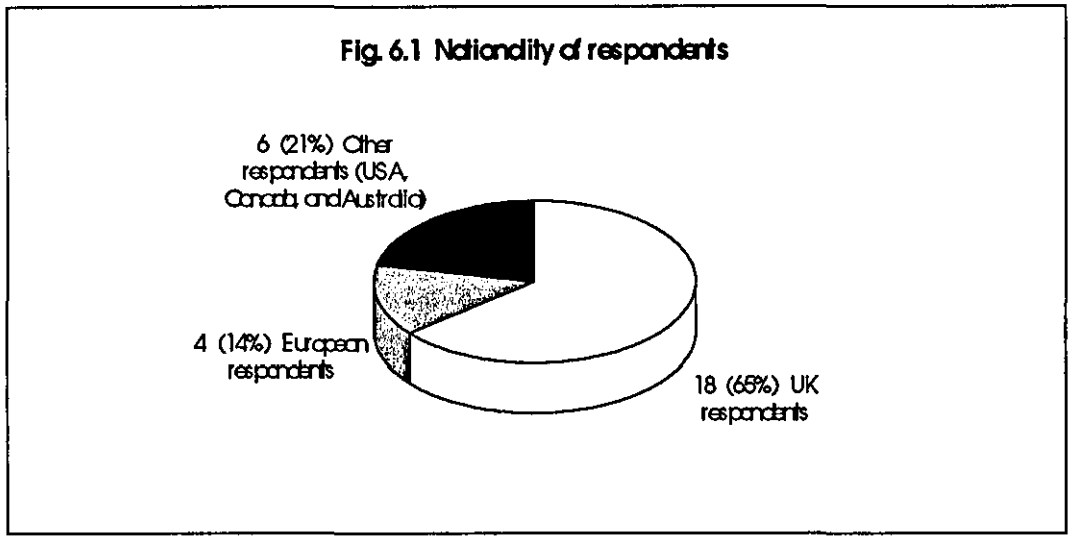
6.1 Market segmentation

6.1.1 Number of respondents

The total number of respondents was 28. Twenty-seven of these were email responses. It was difficult to assess what percentage these were of the total newsgroup population because the number of subscribers changes daily. Only one postal questionnaire was received. There were a number of reasons for this. Firstly, there were only 15 *HILITES* ex-clients to whom the postal questionnaire could be sent. Secondly, to reply electronically is relatively easier than to hand-write a questionnaire and put it in the post. Finally, *HILITES* closed in 1993, so the clients mailed may have left employment. Due to this low response rate the results are not particularly significant, but they do offer valuable insight into the matters under examination.

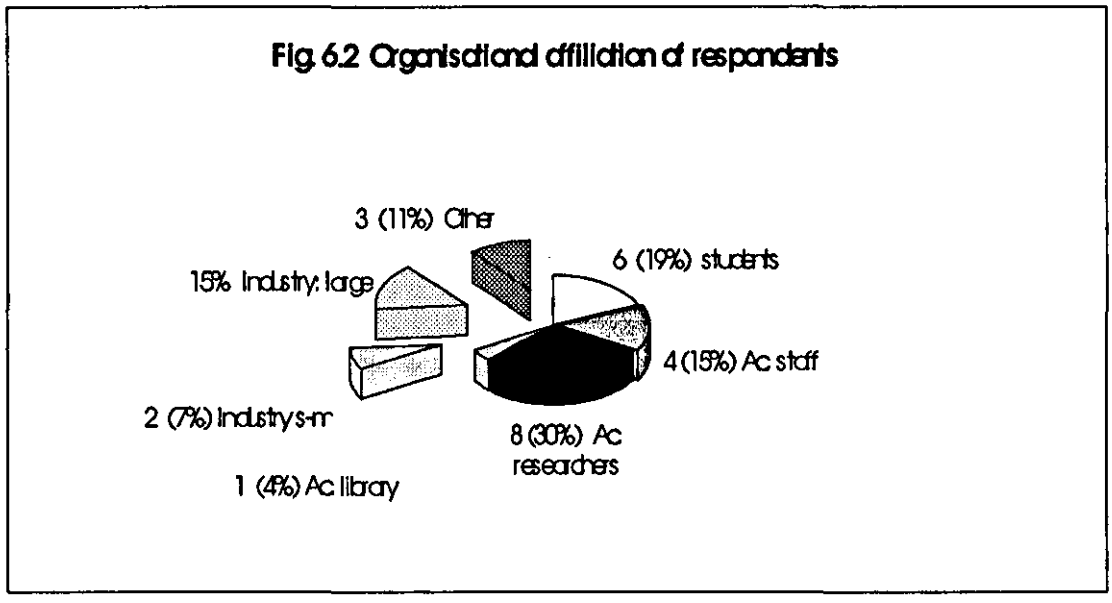
6.1.2 Nationality of respondents

A good number of nations were represented by the survey: the UK, France, the Netherlands, Germany, Sweden, Canada, Australia and the USA. For the purposes of analysis they were grouped into UK, Europe (excluding UK), and 'other' (USA, Canada, and Australia). The spread between the nations is illustrated below.



6.1.3 Organisational affiliation of respondents

As discussed in section 5.5.1, the academic divisions between staff, student and researcher proved problematic. This fact coupled with the low response rate dictated that a simple academic / industrial / 'other' divide was made for the purpose of analysing the product and price data. The spread between all categories, however, is shown below.



It can be seen that the largest portion of respondents, 19 (68%),were from the academic sector, with 7 (22%) from industry, and 3 (11%) 'other' which included an industrial consultant, and a 'pure non-clinical researcher' in a

governmental organisation. The fact that there were few industrial respondents may indicate that they were less interested in the service, or, more likely, that there were fewer industrial members of the newsgroup. Academics have 'free' access to the internet via JANET, whereas industrialists have to pay.

6.1.4 Special interests of respondents

These responses were difficult to analyse for many reasons. Firstly the low response rate meant that few special interests were shared by respondents, thus no meaningful groups could be sorted. Secondly, respondents answered on different levels, some specifying 'HCI' as a special interest, some specifying detailed subfields of HCI, and some specifying related fields to HCI. Thirdly, within the field there are different names for some topics, and some closely related topics which are not the same. HUSAT's Information Manager, having completed a HCI classification scheme and thesaurus would have been in a better position to analyse these results, however she was unable to assist within the given timescale. As the response rate was not high enough to render the results statistically significant, it was thought appropriate simply to select the predominant themes from the responses. These could be used as topics for specialised bibliographies and as a starting point for future market segmentation exercises. Any response that was given more than once is listed below.

Table 6.1: Special interests of respondents

Interest	No. of respondents	% of respondents
Task analysis	**2**	**7**
Cognitive ergonomics	**2**	**7**
Traffic / Road ergonomics	**3**	**10**
Workstation design	**3**	**10**
Virtual reality	**4**	**14**
Interface design	**5**	**18**

The lack of special interest groupings rendered it inappropriate to segment product and price ratings according to special interests.

6.2 Demand and competition data

Respondents were asked both to indicate where they currently went for their HCI information and then to rank those sources in priority order. The chart below illustrates the sources according to the number of respondents that indicated usage. The overlaid line chart indicates the median frequency of usage rating that the source was given (the lower the rating, the more frequently that source is used). The median average was used as mean averages can distort results if variance is great, and modal averages can disregard variance completely.

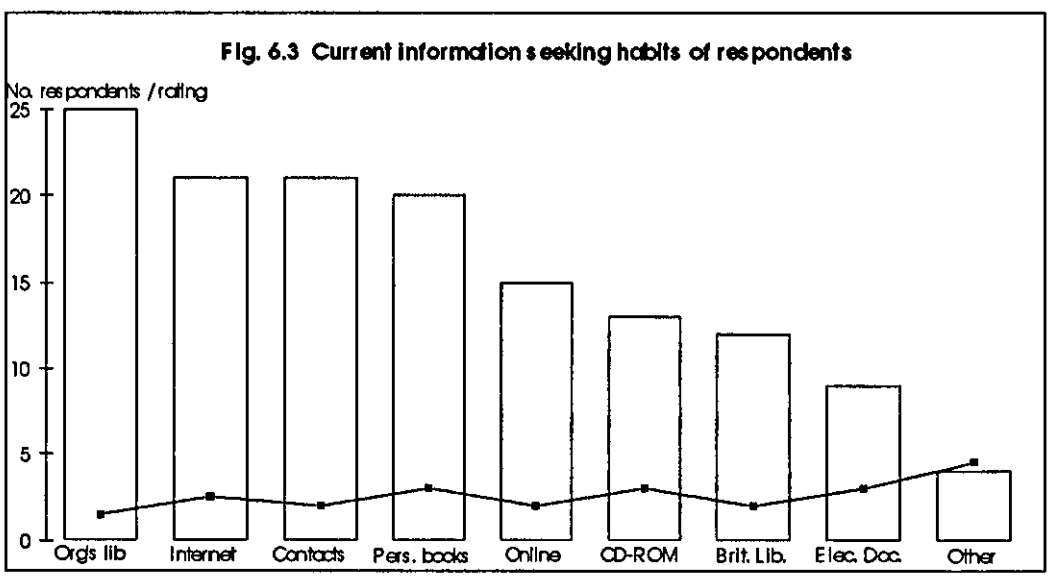


Fig. 6.3 Current information seeking habits of respondents

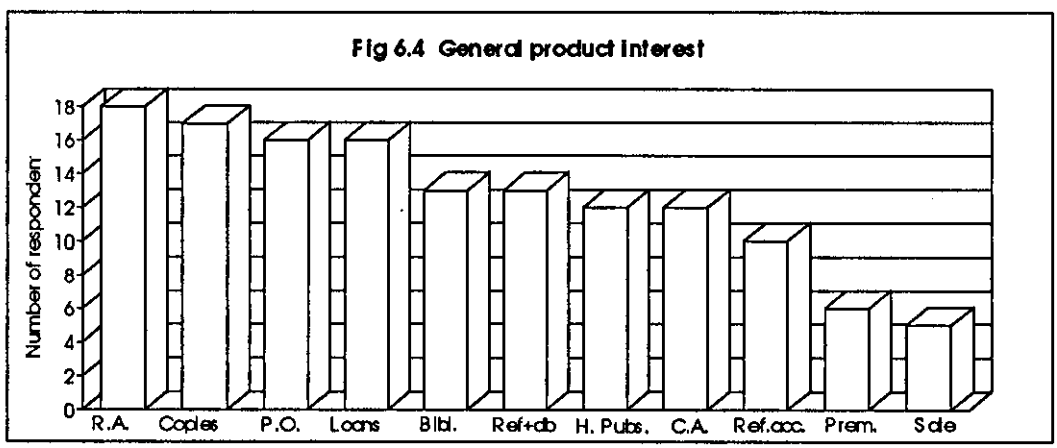
It can be seen that organisation's own libraries were used by most respondents when seeking HCI information. They also appeared to be used most frequently. The internet and personal contacts were the second most popular sources, although contacts were used more frequently than the internet and personal books came third. Respondents' migration towards organisational libraries and the internet could be addressed by targeting the service at organisational libraries rather than individuals, and by establishing internet access to the service, respectively. Not surprisingly, CD-ROMs were one of the least popular sources of HCI information as there are no dedicated

HCI CD-ROMs. This could be regarded as a gap in the market for HUSAT Library to aim to refill with a new version of the *HILITES* CD-ROM. Interestingly, the British Library was the second least popular source (discounting the 'other' category) with electronic document delivery being the least popular. Despite being asked to name particular sources in the first eight categories, no respondents did so. Specific competition, therefore, could not be analysed.

6.3 Product data

6.3.1 General product interest

The number of respondents who indicated an interest in each product is shown below.



The product abbreviations are as follows:

Table 6.2: Product abbreviations

Abbreviation	Product
R.A.	**Recent acquisitions bulletin**
Copies	**Copies of articles**
P.O.	**Personal online searches**
Loans	**Loans of books etc.**
Bibl.	**Bibliographies**
Ref+db	**Reference plus database access**
H. Pubs.	**HUSAT publications lists**
C.A.	**Current awareness service**
Ref. acc.	**Reference access to HUSAT Library**
Prem.	**Premium enquiry service**
Sale	**Sale of duplicate stock**

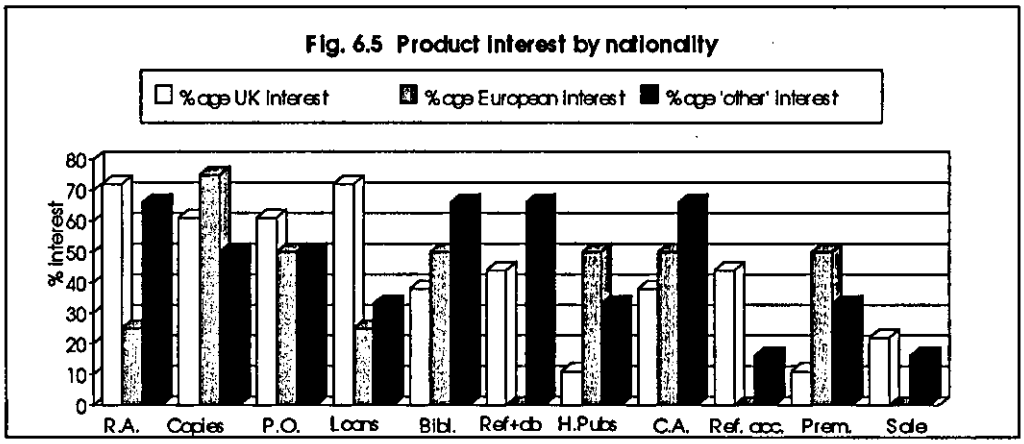
The most interest (18 respondents(64%)) was generated by the recent acquisitions bulletin closely followed by copies of articles - a related product. Seventeen respondents (60%) indicated an interest in personal online searches and loans. Thirteen (53%) were interested in bibliographies and reference with database access. However the latter result must indicate a misunderstanding of the question for, despite making it clear that database access would mean physical access to HUSAT Library in Loughborough, Australian and other overseas respondents still registered an interest in the product. HUSAT publications lists and the current awareness service were next in popularity, although one respondent stated that publications lists should be freely accessible as organisational publicity. The least interest was generated by reference access (10), the premium enquiry service (6) and the sale of duplicate stock (5). Despite these low figures, no product was completely disqualified at this stage, although the market viability of some was rendered doubtful. For the purpose of producing a final list of

marketable products, it was decided to eliminate any products in which less than 51% of all nationality and organisational segments showed interest.

6.3.2 Interest differentiation by nationality

The chart below illustrates the difference in product interest between the UK, Europe, and other continents.

Fig. 6.5 Product interest by nationality



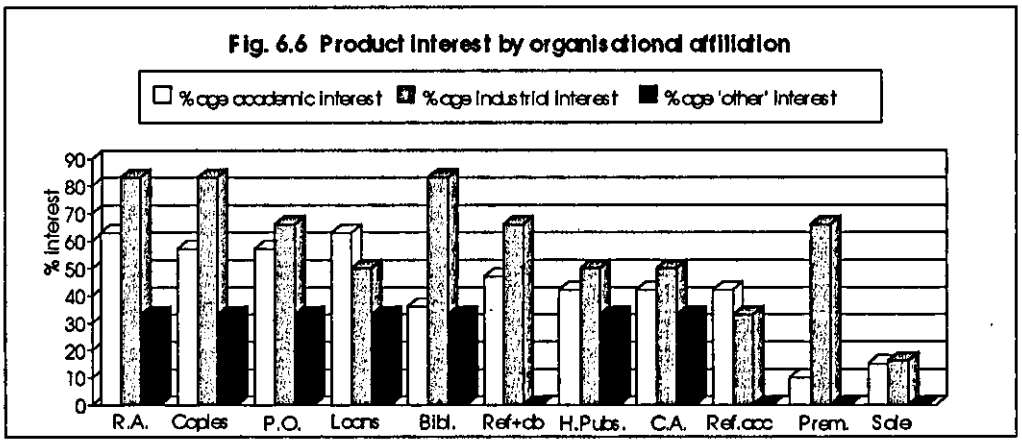
It can be seen that there is considerable differentiation between nationality groups as to product interest. Although it should be remembered that only four Europeans and six 'other's are represented, some interesting trends are revealed which could greatly assist in future marketing efforts. For example, although the recent acquisitions bulletin generated the most interest generally, only 25% of the European segment indicated interest. Conversely, although there was little general interest in a premium enquiry service, 50% of Europeans showed interest. Concerning loans: 70% of UK respondents were interested, but only a quarter and a third of European and 'others' respectively. Finally, the Americans, Canadians and Australians indicated far greater interest in bibliographies, reference with database access, and current awareness services than their European and UK counterparts.

There were four products which registered less than 51% interest: HUSAT publications lists, reference access, premium enquiry service, and the sale of duplicate stock. It was also decided to include reference with database access because, although 66% of the 'other' continents registered interest,

there was clearly a misunderstanding of the product: it was considered unlikely that clients would travel from overseas to access HUSAT's database.

6.3.3 Interest differentiation by organisational affiliation

The chart below illustrates the difference in product interest between academia, industry, and 'other's.



It should be recognised that only 6 respondents (22%) were industrial compared with 19 (68%) academic. Out of the 3 'other' respondents, only one indicated any interest in the products. It was inappropriate, therefore, to draw conclusions from this segment. Between academia and industry, however, there was a marked interest differentiation on most products. Apart from loans and reference access, industry showed a greater interest in all the products, particularly copies, bibliographies, reference and database access, and the premium enquiry service. This is interesting as bibliographies were mainly intended for students, but only a third of academics registered any interest in the product. Similarly, the premium enquiry service was the second least popular product generally, but two-thirds of industrial respondents showed interest in it. Four products registered less than 51% interest from the three organisational segments. These were HUSAT publications lists, the current awareness service, reference access, and the sale of duplicate stock.

6.3.4 Final product list

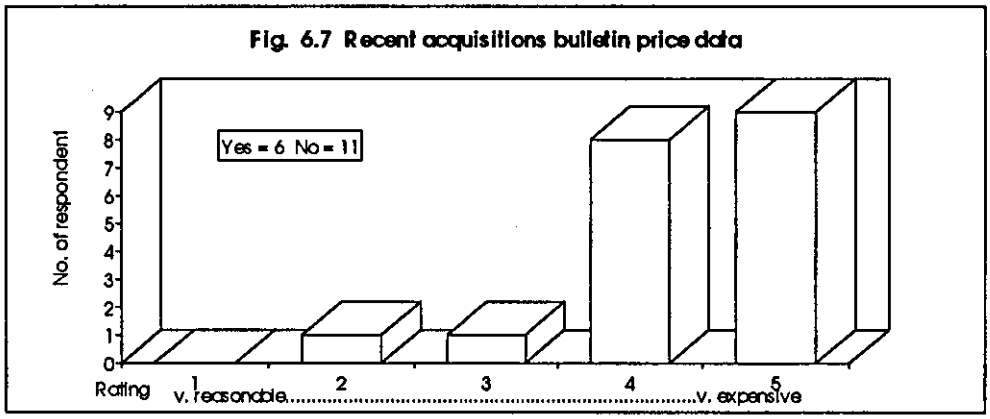
Although only three products (HUSAT publications lists, reference access, and the sale of duplicate stock) received less than 51% interest from all national and organisational segments, it was decided to remove reference with database access and the current awareness service from the list at this stage too. Reference with database access was removed because of the evident misunderstandings concerning the nature of the product. The current awareness service was removed as interest was generally very low (5 out of 6 segments registered less than 51% interest), and no true labour costing had been performed. Also, it promised to be one of the more resource intensive products - thus not a suitable 'start-up' product.

6.4 Price data

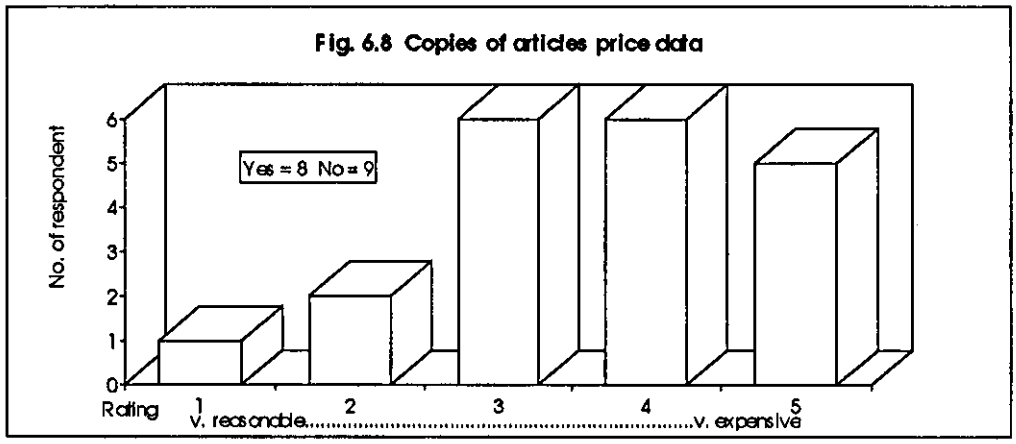
Questions six and seven asked respondents to rate prices from 1 to 5, 1 indicating 'very reasonable', 2 'quite reasonable', 3 'reasonable', 4 'expensive' and 5 'very expensive', and then to indicate whether they were affordable ('Y') or unaffordable ('N'). These questions were occasionally omitted by respondents who felt unqualified to comment, and some only gave pricing information on those products in which they were interested, therefore some of the following figures may not add up. Some also just gave a general 1-5 rating or Y/N for all products (usually 4/5 and 'N') which biased the results.

6.4.1 General price ratings

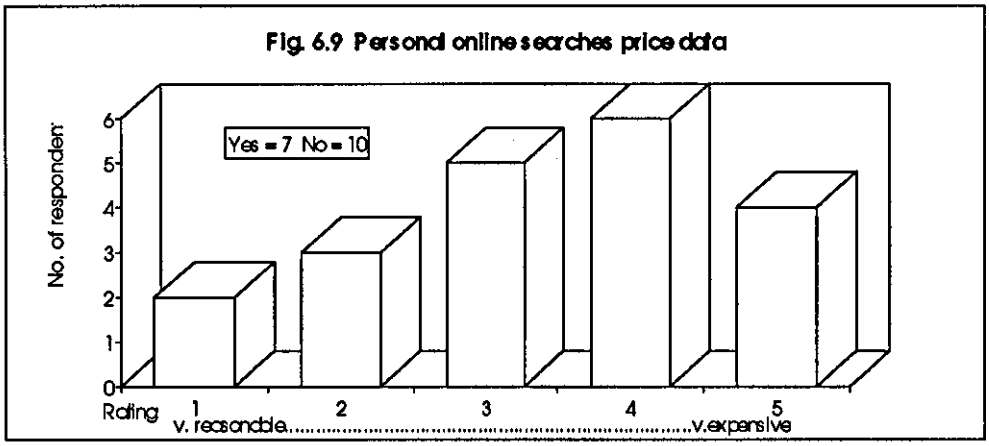
For each product on the final product list a chart is given illustrating the number of 1-5 ratings it received with an indication of the number of affordable ('Y') and unaffordable ('N') results.



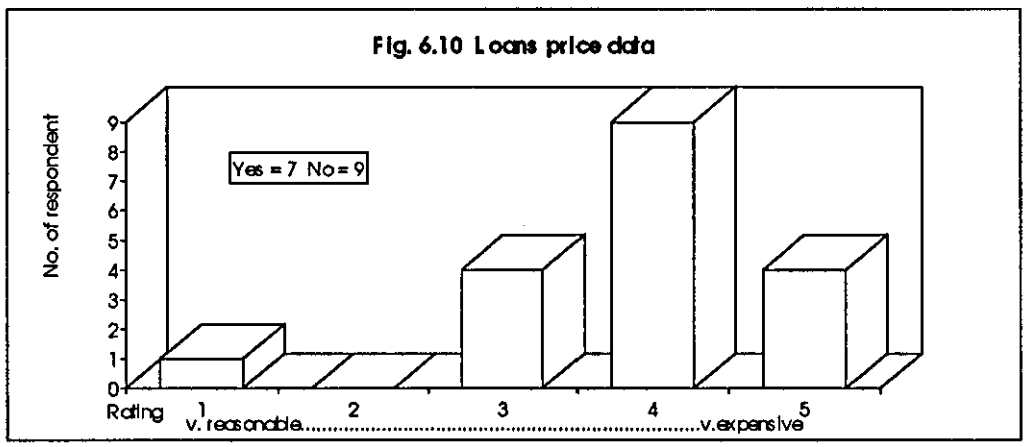
The majority, 17(90%), found this product expensive or very expensive, although only 11 (61%) rendered it unaffordable.



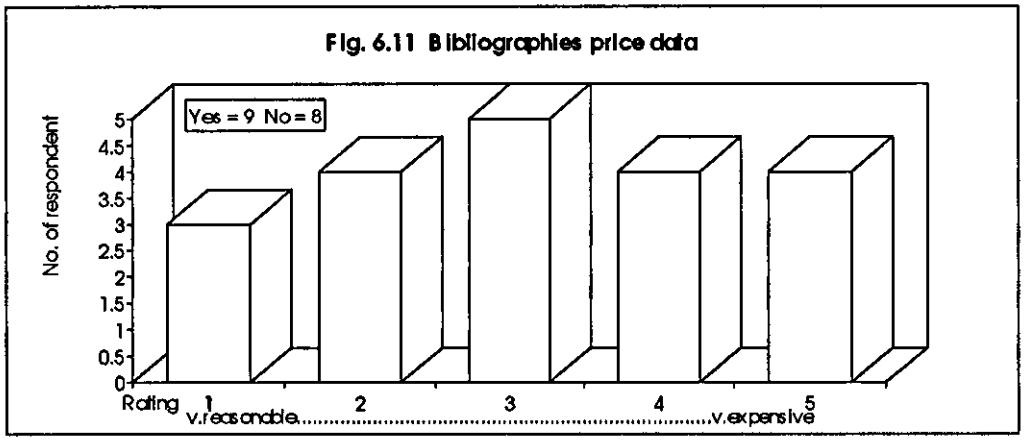
Ratings for copies were approximately half and half, 11 (55%) finding them expensive (categories 4 and 5), and 9 (45%) finding them reasonable (categories 1, 2 and 3). Affordability showed a similar picture, 9 (53%) finding them unaffordable and 8 (47%) finding them affordable.



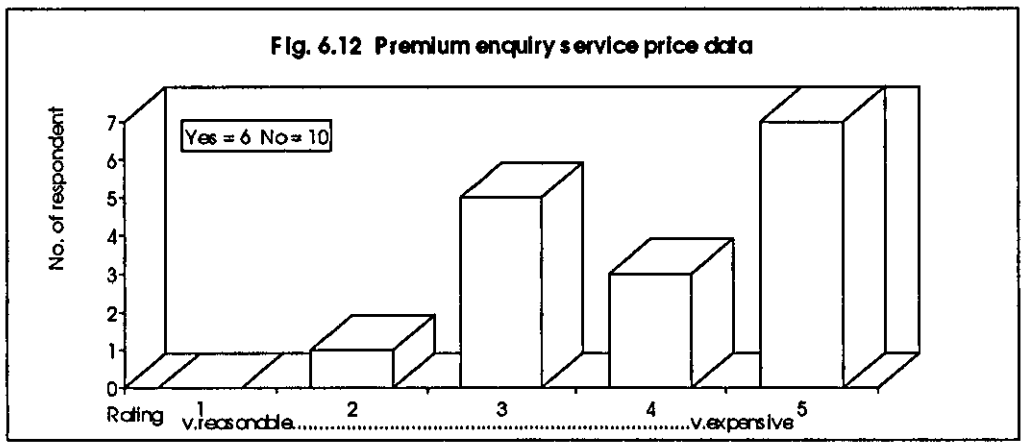
Half the respondents rated personal online searches in the expensive categories (4 and 5), while half found them reasonable (1,2 and 3). Still, 10 (53%) classed them unaffordable.



Three quarters of respondents found loans expensive, although just over half found them unaffordable.



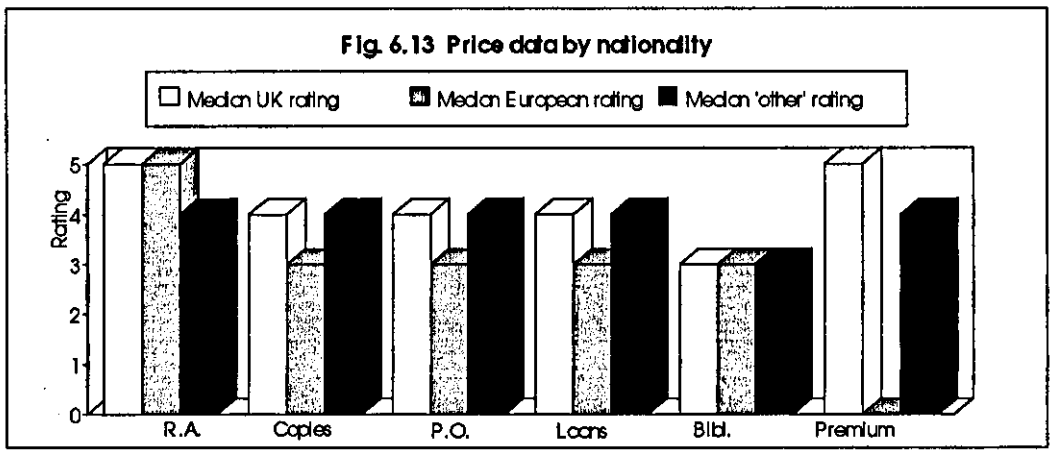
The largest portion of respondents, 12 (60%), found this price reasonable (categories 1,2 and 3) and over half found it affordable.



Over half found this service expensive with the largest proportion of respondents, 7 (43%), calling it very expensive. Ten (63%) also considered it unaffordable.

6.4.2 Price ratings by nationality

The median price rating for each product from the UK, Europe and other continents is illustrated below.



The modal affordability rating is also given below.

Table 6.3: Modal affordability rating of products by nationality

Product	UK rating	European rating	'Other' rating
R.A.	**N**	**?**	**Y**
Copies	**N**	**Y**	**Y**
P.O.	**N**	**Y**	**Y**
Loans	**N**	**Y**	**Y**
Bibliographies	**N**	**Y**	**Y**
Premium service	**N**	**?**	**Y**

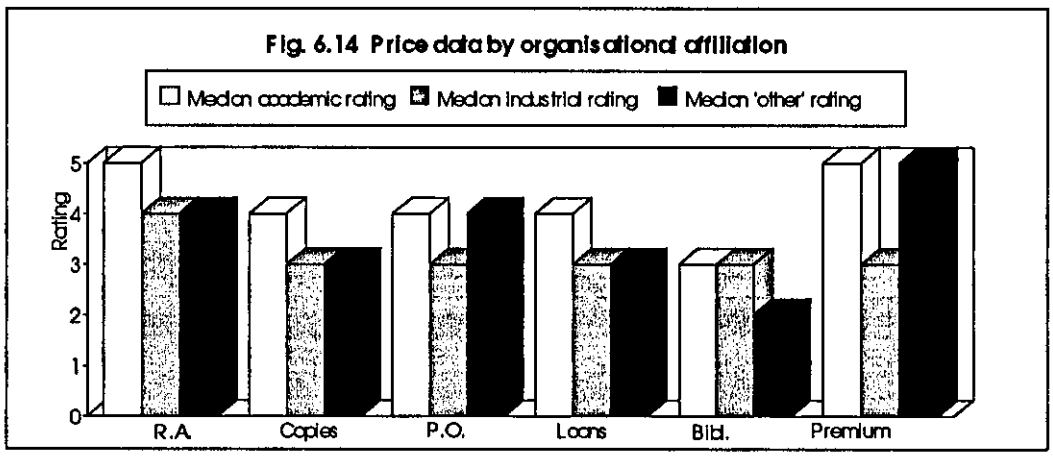
(A '?' meant that an equal number of 'Y's and 'N's were recorded).

Where no numerical price rating is given, no response was given by the group concerned. It can be seen that the median rating for all products was '3-5'. The majority of '3' ratings were given by the Europeans, and all but one of the '5' (very expensive) ratings were given by the UK. Interestingly, on all but four of the products the UK and 'others' gave the same rating. It should be noted that although respondents could have asked for US dollar and ECU

prices, no one did so. It may be, therefore, that the overseas respondents' pricing information is flawed in some way. However, assuming that those who responded did so with an adequate knowledge of British currency, an interesting trend appears in the modal affordability rating for each nationality group (table 6.3). The UK consistently average a response of 'unaffordable', whereas both Europe and other continents consistently average an 'affordable' (or '?') rating.

6.4.3 Price ratings by organisational affiliation

The median price rating from academia, industry and 'other' is given below.



The modal affordability rating is also given below.

Table 6.4: Modal affordability rating of products by organisational affiliation

Product	Academic rating	Industrial rating	'Other' rating
R.A.	**N**	**Y**	**N**
Copies	**N**	**Y**	**Y**
P.O.	**N**	**Y**	**Y**
Loans	**N**	**Y**	**Y**
Bibliographies	**N**	**Y**	**Y**
Premium service	**N**	**Y**	**Y**

This time the median price ratings ranged from '2 - 5'. Industry rated all but the recent acquisitions bulletin as reasonable, whereas academia rated all but bibliographies as expensive or very expensive. 'Others' gave varied responses. Another interesting trend appeared again in the modal ratings where academia rated all prices as unaffordable while industry termed them all affordable. More detailed analysis of the pricing results occurs in discussions on individual products below.

6.4.4 Price data for individual products

The general price ratings, plus price ratings by nationality and organisational affiliation, and interest, were all analysed in assessing the prices of the six products. A table was created to clearly summarise the pricing results which were then analysed in order to recommend a final price. The segment(s) which indicated the most interest in the product are shaded within each table.

6.4.4.1 Recent acquisitions bulletin

Table 6.5: Recent acquisitions bulletin results summary

Rating	**Results**		
General	90% = very expensive 61% = unaffordable		
Nationality	**UK**	**Europe**	**'Other'**
Price	5 (v. expensive)	5 (v. expensive)	4 (expensive)
Affordability	N	?	Y
Organisation	**Academic**	**Industrial**	**'Other'**
Price	5 (v. expensive)	4 (expensive)	4 (expensive)
Affordability	N	Y	N

The majority clearly found this product very expensive and unaffordable: three segments giving it '5', the other three rating it '4'; and three segments rating it unaffordable. This is the one product even industry found expensive, even though they considered it affordable.

Recommendation:

Having looked again at the bulletins pricing model, it is recommended that the price is reduced by multiplying costs by only 10 lists per year instead of 12. This is perhaps a more realistic number of lists to expect to be produced per year anyway considering the current staffing levels. It should make the price more agreeable to all segments.

6.4.4.2 Copies of articles

Table 6.6: Copies of articles results summary

Rating	**Results**		
General	50% = reasonable 50% = affordable		
Nationality	**UK**	**Europe**	**'Other'**
Price	4 (expensive)	3 (reasonable)	4 (expensive)
Affordability	N	Y	Y
Organisation	**Academic**	**Industrial**	**'Other'**
Price	4 (expensive)	3 (reasonable)	3 (reasonable)
Affordability	N	Y	Y

Respondents were clearly divided on whether this price is expensive or reasonable. However, within each segment, the higher percentage considered the price affordable. One is reminded that the academic results may have been biased by the large proportion of student respondents and by the ill-feeling over price differentiation between academia and industry. If the service is aimed at academic libraries rather than individuals as suggested in 6.2, there may be a more positive response from academia.

Recommendation:

It is recommended that this price remains as it is. It was thought that a 'half-and-half' affordability rating was as much as could reasonably be expected in the current economic climate.

6.4.4.3 Personal online searches

Table 6.7: Personal online searches results summary

Rating	**Results**		
General	50% = reasonable 53% = unaffordable		
Nationality	**UK**	**Europe**	**'Other'**
Price	4 (expensive)	3 (reasonable)	4 (expensive)
Affordability	N	Y	Y
Organisation	**Academic**	**Industrial**	**'Other'**
Price	4 (expensive)	3 (reasonable)	4 (expensive)
Affordability	N	Y	Y

Although *generally* 50% considered the price reasonable, *segmentally* two-thirds considered it expensive. However, once again two-thirds considered the price affordable, and industry, which registered the most interest in the product, considered it both affordable and reasonable.

Recommendation:

Consequently, it is suggested that this product remains at the current price.

6.4.4.4 Loans

Table 6.8: Loans results summary

Rating	**Results**		
General	75% = expensive 56% = unaffordable		
Nationality	**UK**	**Europe**	**'Other'**
Price	4 (expensive)	3 (reasonable)	4 (expensive)
Affordability	N	Y	Y
Organisation	**Academic**	**Industrial**	**'Other'**
Price	4 (expensive)	3 (reasonable)	3 (reasonable)
Affordability	N	Y	Y

Although the general picture implied that loans were considered expensive, there were, again, more affordable ratings than unaffordable. Indeed three segments found the price both reasonable and affordable. However, academia expressed the most interest in the product and they considered it both expensive and unaffordable. It was thus decided that academia's general negativity concerning prices should be dealt with by adjusting price differentiation. This will be discussed later on.

Recommendation:

For the time being it is recommended that this price remains. However, this price data should be carefully reconsidered when examining the additional loans service subscription fee with the focus group. It may be better for HUSAT, considering the disadvantages that result from loans, not to offer the service at all.

6.4.4.5 Bibliographies

Table 6.9: Bibliographies results summary

Rating	**Results**		
General	60% = reasonable 52% = affordable		
Nationality	**UK**	**Europe**	**'Other'**
Price	3 (reasonable)	3 (reasonable)	3 (reasonable)
Affordability	N	Y	Y
Organisation	**Academic**	**Industrial**	**'Other'**
Price	3 (reasonable)	3 (reasonable)	2 (v. reasonable)
Affordability	N	Y	Y

Despite the conservative general picture, all individual segments considered this price either very reasonable or reasonable. Although only two-thirds considered it affordable, both segments which expressed the most interest in the product found the price both reasonable and affordable.

Recommendation:

The general positive picture coupled with the proposed differentiation adjustment again indicated that this price should remain as it is.

6.4.5.6 Premium enquiry service

Table 6.10: Premium enquiry service results summary

Rating	**Results**		
General	62% = expensive 63% = unaffordable		
Nationality	**UK**	**Europe**	**'Other'**
Price	4 (expensive)	5 (v. expensive)	4 (expensive)
Affordability	N	?	Y
Organisation	**Academic**	**Industrial**	**'Other'**
Price	5 (v. expensive)	3 (reasonable)	5 (v. expensive)
Affordability	N	Y	Y

Although the majority of segments considered this price expensive or very expensive, the one segment which expressed real interest in the product (industry) thought the price reasonable and affordable.

Recommendation:

The above fact, coupled with the fact that the premium service was the most straightforward to cost, and thus could not be altered easily, dictated that the price remained as it was.

6.4.6 Price differentiation

The fact that academia considered most of the prices expensive, and all of them unaffordable, coupled with the two comments on the questionnaires about the small price differentiation between academia and industry, preceded a reassessment of the profit margins. Profit margins were what caused differentiation. All of the final six products were costed absorptively with profit margins of 25% for academia, and 50% for industry. The lowest

profit margin the Information Manager agreed to was 20%. It was thus decided to lower academia's margins to this percentage. As the prices at the 50% margin all seemed acceptable to industry, they were left as they were.

6.5 Final list of products and prices

The final list of products and prices to be submitted to the focus group before starting up the service are listed below. Conveniently, four of the products (recent acquisitions bulletin, personal online searches, copies and loans) had been offered during *HILITES*. HUSAT Library will thus be drawing on its previous experience - one of its distinctive competencies - for these products. The general design specifications for the products are given in chapter three, however certain design details are yet to be finalised by the focus group discussion. The list below gives prices in pounds sterling, US dollars and ECU. The shaded boxes identify the market segments which expressed a high interest level (over 60%) in the product. These segments can thus be targeted for marketing.

Table 6.11: Final list of products and prices

Product	Price					
	Academic			Industry		
	£	$	ECU	£	$	ECU
R.A.	180.00	277.00	225.00	225.00	346.00	280.00
Copies	5.50	8.50	6.85	7.00	10.75	8.75
P.O.	28.50 + 0.60 ref+abs	44.00 + 1.00 ref+abs	35.50 + 0.75 ref+abs	35.00 + 0.60 ref+abs	54.00 + 1.00 ref+abs	43.50 + 0.75 ref+abs
Loans	6.15	9.50	7.50	7.75	12.00	9.50
Bibl.	26.00	40.00	32.50	33.00	51.00	41.00
Prem.	54.00	83.00	67.50	70.00	108.00	87.50

6.6 Summary

The results revealed some interesting trends, which could be utilised in a variety of ways:

- Special interest groupings could be used for bibliography topics or future market research segmentation
- Respondents' information resource preferences informs HUSAT Library both to direct the service at libraries rather than particular individuals and also to develop internet access to their service
- The low CD-ROM usage could reveal a gap in the market for a HCI CD-ROM which could spur HUSAT Library to consider the viability of producing another '*HILITES*' CD-ROM
- The product and pricing data has produced a final list of adjusted products and prices, with appropriate target markets for each product

Detailed recommendations to HUSAT Library together with reflections on the research are made in chapter seven.

Chapter Seven

Conclusions and recommendations

7.0 Introduction

This chapter begins by reflecting on the research methods used in this dissertation. The research of chapters one to six is then drawn upon to make recommendations to HUSAT Library on the establishment of a fee-based information service. The recommendations fall into three categories: general recommendations to HUSAT Library on entering the information industry, specific marketing recommendations as a result of the market research, and suggestions for the future, indicating what research is still to be completed, and in which direction HUSAT Library need to be aiming to develop in order to keep ahead of this ever changing industry.

7.1 Research methods

7.1.1 Dissertation remit

In retrospect one of the main hindrances to the logic of this dissertation was the remit. HUSAT Library required an examination of the practical issues surrounding the potential establishment of a fee-based information service. In fact, the first stage of considering such a strategy should not have been a study of how the strategy could be implemented, but a feasibility study of the strategy itself: what were HUSAT Library's goals in establishing the service? Should they be met by a fee-based service, or by another method?

7.1.2 Strategic analysis

Should a feasibility study have been undertaken , the strategic analysis would have been the entire focus of the dissertation, rather than simply a chapter. The analysis would have developed into a consideration of strategic choices and then the implementation of those choices[1]. Instead the dissertation was limited to contemplating HUSAT's strategic position as a set of constraints in which the service would need to work. It is felt that this

restraint limited the value of this research to HUSAT Library.

7.1.3 Time constraints

The different fields of study incorporated into this dissertation could each have been the focus for a dissertation on their own: strategic analysis, product development processes, costing and pricing models, and market research. It is felt that time has thus compromised the exhaustiveness of the research. This has particularly been the case with product development and market research which can take infamously long periods of time to complete[2], and are particularly iterative[3]. However, despite these constraints it is still felt that all aims and objectives of the dissertation have been met.

7.1.3.1 Product portfolio analysis

Given appropriate time, the product development process would have been far more thorough, particularly the business analysis[4] - assessing which products were truly viable within HUSAT Library's business constraints. The products would also have undergone a proper valuing process[5], lifecycle analysis[6], and, most importantly, test marketing, where market reaction to products is assessed separately to prices[7].

7.1.3.2 Target markets

More time would also have enabled target markets to have been assessed separately[8], and prior to, test marketing, rather than the 'all-in-one' approach used by this research.

7.1.3.3 Pricing

Were more time available, more detailed costs analyses would have been undertaken: further indirect costs such as supervisory time and so on would have been ascertained, work measurement would have been completed for all products[9], and *projected* staff costs would have been used, based on the staff they would need to establish the service, rather than on current staff figures.

7.1.4 Market research

More time would have had the most beneficial effect on the market research which had to take place towards the end of the dissertation after the strategic analysis, product development and cost/price analysis. Firstly, there would have been time to undertake the focus group for the development of product design, packages and payment methods. Secondly, a questionnaire pilot study could have been performed[10] which may have revealed some of the difficulties experienced by the questionnaire as outlined below:

- The academic segments were not mutually exclusive.
- Special interest groups should have been a 'closed question' for easier analysis.
- Specific information sources (question 3) should have been a separate question to encourage responses.
- Products were not described fully enough, hence the confusion over reference with database access.

Thirdly, reminders could have been sent out to all respondents thus encouraging a larger response rate. However there were also some problems with the methodology for which time was not to blame. Most importantly, the questionnaire should have been aimed at a much larger postal sample[11] which, along with the email sample, should have been stratified to achieve a more even spread between market segments[12].

Despite these difficulties, however, the research of both primary and secondary sources has produced a large corpus of data with which valuable recommendations could be made to HUSAT Library for the establishment of a fee-based information service.

7.2 General recommendations to HUSAT Library

- HUSAT Library's first focus should be on their primary clientele: HUSAT Research Institute and Loughborough University members.
- It should be remembered that the information industry is relatively new and misunderstood. This can cause problems with valuing, pricing, and marketing information.
- Profitability is not high. Five years has been quoted as the usual period before there is any effective payback[13].
- Excellent training is required for the different role staff are to play in a fee-based service.
- The needs of the customer should be held in highest esteem, with a focus on the quality and speed of service.
- It is essential to keep abreast of legal issues as they relate to copyright, confidentiality, liability and data protection. Specifically, a) send copyright declaration forms out with every copy order form, b) insert a professional indemnity clause in any documentation concerning the service, and c) keep all addresses and document requests strictly confidential.
- In developing the service, HUSAT Library should focus on their distinctive competencies, particularly, a) specialism in HCI: focus on the niche market, anticipate where it is heading, and offer services in those areas before competitors, b) non-dependency on profit: competitors can be undercut as the service is being developed, and c) previous *HILITES* experience: use ex-client base and unsolicited interest as fields for promotion.
- It is these distinctive competencies which distinguish HUSAT Library from their main competitors, the EIAC, BLDSC, Uncover and HCI Bibliography. They show that HUSAT Library's service will complement their services rather than directly compete with them.

7.3 Marketing recommendations

- Some of HUSAT Library's weaknesses as revealed by the strategic analysis - unstable jobs, small staff numbers, old equipment, and weak financial position - reveal the wisdom in starting up the service slowly with a small number of products, which can be built up as the position improves.
- This will also allow continuous assessment of the service as a viable marketing option without committing too many resources to it too soon.
- The products and prices with which the service should be established are shown in the table below. The market segments at which each product should be particularly aimed are shown by shading.

Table 7.1: Final list of products and prices

Product	Price					
	Academic			Industry		
	£	$	ECU	£	$	ECU
R.A.	180.00	277.00	225.00	225.00	346.00	280.00
Copies	5.50	8.50	6.85	7.00	10.75	8.75
P.O.	28.50 + 0.60 ref+abs	44.00 + 1.00 ref+abs	35.50 + 0.75 ref+abs	35.00 + 0.60 ref+abs	54.00 + 1.00 ref+abs	43.50 + 0.75 ref+abs
Loans	6.15	9.50	7.50	7.75	12.00	9.50
Bibl.	26.00	40.00	32.50	33.00	51.00	41.00
Prem.	54.00	83.00	67.50	70.00	108.00	87.50

- It can be seen that industry, particularly British industry should be the main target for the service, although there is an international market for the products.
- Where, possible, products should be aimed at organisational libraries, rather than individuals, as they were most respondents' first choice of HCI information source.

7.4 Future recommendations

7.4.1 Research

The following areas of research should be pursued by HUSAT Library before or during the fee-based information service.

- HUSAT Library's marketing strategy should be considered in the light of HUSAT's new mission statement when it has been finalised.
- Focus group research should be performed on product design details, packages, and payment methods as outlined in appendix E. The new pricing structure should also be submitted to the group for comment.
- Once the service has been established, products should be viewed as a portfolio model to reveal synergistic relationships and future product strategies. A cost-benefit analysis of products should also be performed.
- Work measurement should be undertaken to reassess ttrue costs of current and potential products.
- Continuous market research should be undertaken to measure developments in market opinion concerning HUSAT Library's present and future products and prices.

7.4.2 New directions

Question three of the questionnaire showed that out of the four electronic sources listed, the internet was by far the most popular with 79% of respondents claiming to use it for seeking HCI information. It is recommended therefore that HUSAT Library aims to offer internet access to their information service, particularly by developing a WWW interface to their

database, accessible by password, allowing electronic ordering of articles and even, in the future, electronic document delivery. Keeping abreast of, and anticipating, technological developments is certainly the best means of keeping abreast of the information industry.

Chapter seven

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APPENDIX A

Letter to other British HCI information providers

Title,
Address,

3 May 1996

Dear Sir or Madam,

I am an MSc student at Loughborough University investigating information marketing in the human-computer interaction field. Having seen your listing in the *Aslib Directory of Information sources in the United Kingdom*, I wondered if you would be so kind as to send me details of the information services you provide along with a list of prices, if any. I would also be interested in any information you have on the work of your organisation if you could oblige.

I thank you in anticipation of your kindness.

Yours faithfully,

Elizabeth Hopkins (MISS)

APPENDIX B

Photocopy declaration form

DECLARATION: COPY OF ARTICLE OR PART OF PUBLISHED WORK

To:

The Librarian of.....Library
[Address of Library]

1. Please supply me with a copy of:

   * the article in the periodical, the particulars of which are [ ]

   * the part of the published work, the particulars of which are [ ]

   required by me for the purposes of research or private study.

2. I declare that -
   (a) I have not previously been supplied with a copy of the same material by you or any other librarian:
   (b) I will not use the copy except for research or private study and will not supply a copy of it to any other person: and
   (c) to the best of my knowledge no other person with whom I work or study has made or intends to make, at or about the same time as this request, a request for substantially the same material for substantially the same purpose.

3. I understand that if the declaration is false in a material particular the copy supplied to me by you will be an infringing copy and that I shall be liable for infringement of copyright as if I had made the copy myself.

† Signature.....

Date.....

Name .....
Address .....
.....
.....

---

* Delete whichever is inappropriate.
† This must be the personal signature of the person making the request. A stamped or typewritten signature, or the signature of an agent, is NOT acceptable.

APPENDIX C

HUSAT Library staff cost calculations

1: Staff costs including National Insurance (employers contribution) and superannuation per month:

	Basic (£)	N.I. (£)	Superann.(£)	Total (£)
RA2	1666.76	127.56	309.18	2103.50
GS2	786.20	39.01	68.39	893.60
Unclassified	289.86	8.70	N/A	298.56

2: As all staff work 'part time' (RA2 75% time, GS2 88% time, and `unclassified 40.54% time) to arrive at true costs per day or hour the costs need to be factored up to a full-time equivalent:

RA2	£2103.90	/ 75	* 100	= £2805.20
GS2	£893.60	/ 88	* 100	= £1015.45
Unclassified	£298.56	/ 40.54	* 100	= £736.46

3: The overhead can now be calculated as a function of staff cost. This is done by adding 114% - the amount set by the University according to the Hanham method. This figure is then multiplied by 12 for the total cost per annum:

RA2	£2805.20	* 2.14	* 12	= £72,037.54
GS2	£1015.45	* 2.14	* 12	= £26,076.76
Unclassified	£736.46	* 2.14	* 12	= £18,912.29

4: This rate is then divided by the number of working days per annum (217 for research staff and 227 for support staff) to arrive at the daily rate.

RA2	£72,037.54	/ 217	= £331.97
GS2	£26,076.76	/ 227	= £114.88
Unclassified	£18,912.29	/ 227	= £83.31

5: To obtain the hourly rate, each daily figure is divided by 7.4 (i.e. 37 hours a week divided by 5 days a week). The overhead component is established by dividing by 2.14 and multiplying by 1.14.

Staff member	Staff cost (£)		Overheads (£)		Staff + overheads	
	per day	per hour	per day	per hour	per day	per hour
RA2	155.13	20.96	176.85	23.90	331.98	44.86
GS2	53.68	7.26	61.20	8.26	114.88	15.52
Unclassified	38.93	5.26	44.38	6.00	83.31	11.26

APPENDIX D

Covering letter and questionnaire

Ms J. Adams
BP Research Centre
Chertsey Road
SUNBURY-ON-THAMES
Middlesex

E.A.Hopkins-95@student.lboro.ac.uk

http://info.lboro.ac.uk/research/husat/index.html

8 July 1996

Dear Ms Adams,

New information service: questionnaire

HUSAT Research Institute is currently considering establishing a new information service to external clients. As a valued client of HUSAT's former HILITES information service we are particularly interested in understanding your current information needs, and your response to their new proposal.

Introducing myself - I am an MSc Information and Library Studies student conducting research into information marketing in the human-computer interaction field. As part of my research I am collaborating with HUSAT on their market research for their new information service, under the supervision of Kathy Phillips, Information Scientist, HUSAT Research Institute (k.e.phillips@lboro.ac.uk).

Attached is a questionnaire which details the types of products and their prices which are being considered by HUSAT. As your particular needs are very important to us, we would be very grateful if you could give us a few minutes of your time to answer the 7 questions and return it in the stamped addressed envelope before 27 July 1996.

We look forward to hearing from you.

Yours sincerely,

Elizabeth Hopkins, (MISS)

Can you help us to help you?

HUSAT Library (Human Sciences and Advanced Technology) serves the HUSAT Research Institute at Loughborough University. It covers the full range of ergonomic and human factors involved in such areas as IT systems design and use, in-vehicle systems, mobile and telecommunications systems, advanced manufacturing technology, command and control systems and standards definitions and applications. The library, established in its present form in 1985, acquires and stores hard copy items to add to its specialised collection and, in addition, extracts from these (and other sources) references relevant to the Institute's field of study. These references are then added to a bibliographic database of computer human factors which now contains over 40,000 references, most with abstracts.

Due to increased interest in our information resources we are currently considering providing an information service to external clients. We would therefore be very interested in the types of product and service you would find useful, and what you would consider to be a fair price for them.

It would be of great help if you could take a few minutes to answer the following seven brief questions. All information will remain strictly confidential. Thank you.

1) **How would you categorise the organisation you work in and, if academic, your position within it? (Please indicate with a Y next to the appropriate category.)**

Academic: Student.....
Staff.....
Researcher.....
Library .....

Industry: Small - medium enterprise.....
Large enterprise.....

Other: (Please specify) .....

2) **What are your areas of special interest?**

3) **Where do you currently find your ergonomics and HCI information?**
(Please rank the sources below according to frequency of use, '1' = most frequent. Please specify the source where possible.)

Organisation's own library.....
British Library.....
Online databases.....
CD-ROMs.....
Electronic document delivery services.....
Internet.....
Personal book collection.....
Personal contacts.....
Other (please specify).....

4) **Below is a list of the products and services we could offer. Could you indicate those in which you or your organisation would be interested.**

ITEM	INTEREST (Y or N)
• **Recent acquisitions bulletin:** Listing journal articles, books, book chapters and conference papers.	
• **Personalised online searches:** Access to the database of 40,000 references through an intermediary.	
• **Document supply: copies of articles:** Material in the HUSAT Library provided within copyright regulations.	
• **Document supply: loan service:** Books, journals, reports and conferences from HUSAT Library's extensive collection.	
• **HUSAT publications list:** An annual list of all internally and externally published documents generated by HUSAT research.	
• **Personalised current awareness service:** Regular bulletins keeping you up to date in your special field of interest.	
• **Premium enquiry service:** Personalised searches through an intermediary calling upon human factors specialists to assist with literature interpretation.	
• **Bibliographies:** Listings of seminal references in particular subject areas.	
• **Reference access:** Personal access to HUSAT Library in Loughborough.	
• **Reference access plus usage of the database.** Provision of the opportunity to browse the database at HUSAT during Library access.	
• **Sale of duplicate stock:**	

5) **Would you indicate, in your opinion, whether the prices listed below are,**

- very reasonable 1
- quite reasonable 2
- reasonable 3
- expensive 4
- very expensive 5

Product/Service	Price		Rating (1-5)
	Academics	Industry	
• Recent acquisitions bulletin	£225 p.a.	£270 p.a.	
• Personalised online search	£30 + 20p per reference and 40p per abstract	£35	
• Copies of articles	£5.75	£7	
• Loans	£6.50	£7.75	
• HUSAT publications lists	£11.50	£14	
• Current awareness service	£320 p.a.	£370 p.a.	
• Premium enquiry service	£55 per hr	£70 per hr	
• Bibliographies	£0.20 per reference + postage		
• Reference access	£40 per day	£50 per day	
• Ref. + database access	£96 per day	£115 per day	
• Sale of duplicate stock	Cost of original text + postage and packing		

6) **We are very aware in the current economic climate that even the most reasonable prices may still be unaffordable by some organisations - for whatever reason. Would you therefore now indicate on the list above whether you, or your organisation, could subscribe to the services at the prices listed. (Please indicate using a Y for 'affordable' or a N for 'unaffordable').**

7) **Would you be willing to be contacted for further discussion on these issues? If so, please leave a contact name:**.....
.....

If you would like more information about the service once it has been established, please indicate (Y or N):

Many thanks for your time, it is much appreciated.
Please return in the stamped addressed envelope provided by 22 July, 1996.

APPENDIX E

Discussion group issues

Product design

1. Accessions List
   - postal or email delivery?
   - smaller lists more frequently, or larger lists less frequently?
   - importance of uniform regularity of delivery.

2. Personalise online searches
   - value of remote database access
   - value of WWW access

3. Document supply: copies of articles
   - value of electronic document delivery
   - need for a RUSH service?

4. Personalised current awareness service
   - frequency required

5. Other products or services HCI specialists might find useful?

6. Any other product design features respondents wish to comment on?

Payment methods

1. Would organisation prefer subscription or pay as you go method? Why?

2. If subscription was the only payment method, could organisation subscribe?

3. Comment on advantages and disadvantages of following systems:

   - £250 registration fee + pay as you go with quarterly billing
   - £20 registration fee + selection of subscription packages p.a.
   - £50 registration fee + selection of subscription packages for 6 month trial

4. Any other comments on this issue?

5. Comment on the idea of a separate loans service subscription fee

Packages

1. Set packages or self-selected packages?

APPENDIX F

Management report to HUSAT Library

Marketing HUSAT library's information resources

A report summarising the findings of an MSc dissertation

To: **Kathryn E. Phillips**
Simon J. Richardson

From: Elizabeth Hopkins

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Appendices		
Selected bibliography		

1.0 Executive Summary

This report outlines the methodology and recommendations of an MSc research dissertation in human-computer interaction information marketing based at HUSAT Research Institute Library, Loughborough. It firstly outlines the main areas on which a new fee-based information service should focus. HUSAT Library's distinctive strategic competencies are then examined. To conclude, product and pricing recommendations are made, including a final list of products and prices, followed by some future marketing suggestions.

2.0 Recommendations

2.1 Fee-based information centres (FBICs): recommendations drawn from the literature

2.1.1 Staff are a FBIC's main asset - focus on good staff training and customer liaison skills.

2.1.2 Keep abreast of legal developments as they relate to FBICs. In particular concentrate on copyright legislation, the data protection act and liability (insert a professional indemnity clause into any contracts / documents produced).

2.1.3 Keep abreast of technological developments as they relate to information delivery. Focus particularly on the internet.

2.1.4 Be aware that profits from FBICs are not instantly made.

2.1.5 Pay particular attention to developing a quality service in terms of speed, accuracy and individualised attention. Be contactable at all times.

2.2 Strategy recommendations

2.2.1 Once HUSAT's new mission statement has been finalised, examine the potential marketing strategy in the light of it. It is vital that all strategies are made with reference to the organisation's main mission.

2.2.2 HUSAT Library should focus on its distinctive competencies in any marketing effort. These were analysed to be:

- Specialism in HCI information
- Non-dependency on profit to survive
- Good collection size
- Relationship with Loughborough University renowned for excellence in library studies, ergonomics and HCI
- Previous *HILITES* experience
- Good balance of well-qualified staff
- Unsolicited interest in HUSAT's information resources
- Ex-client base
- Market oriented culture
- Pro-active market oriented staff
- Unique resource in form of unpublished HUSAT memos

2.3 Product recommendations

2.3.1 Once the service has been established, a true cost-benefit analysis should be performed on each product to discern the benefits of the products both to client and to HUSAT Library in relation to the cost of their production.

2.3.2 Again, once the service is established, the products should be considered within a product portfolio model such as the Boston Consultancy Group's growth-share model to highlight which promotional or harvesting strategies should be pursued. This will also highlight any synergistic relationships between products.

2.3.3 It is recommended that the following products are offered in the new information service: recent acquisitions bulletin, copies of articles, personal online searches, loans, bibliographies and the premium enquiry service.

2.3.4 It is recommended that the following products are held back until a later date because the market research indicated there was currently little interest in them: HUSAT publications lists, reference access and the sale of duplicate stock. The current awareness service should be held back until true labour costing exercises can be completed. Reference with database access should also be withheld as there was a misunderstanding of the product by the questionnaire respondents and so the true market viability of it could not be assessed.

2.3.5 Final product design details should be decided upon by conducting a focus group. The matters for this focus group are outlined in appendix A. A list of HCI specialists who have indicated a willingness to discuss such issues is given in appendix B.

2.4 Pricing recommendations

2.4.1 A cost-based pricing policy should be employed with demand and competition remaining secondary considerations. This allows the creation of a formula which can easily be adjusted with inflation and changing costs.

2.4.2 Differential pricing should be employed to take historical demand elasticities into account between academia and industry.

2.4.3 Profit margins of 20% and 50% should be added to absorptive costing for academia and industry respectively. See appendix C for individual cost unit pricing models.

2.4.4 The final list of prices in pounds sterling, ECU and US dollars, follows:

Table 1: Final list of products and prices

Product	Price					
	Academic			Industry		
	£	$	ECU	£	$	ECU
R.A.	180.00	277.00	225.00	225.00	346.00	280.00
Copies	5.50	8.50	6.85	7.00	10.75	8.75
P.O.	28.50 + 0.60 ref+abs	44.00 + 1.00 ref+abs	35.50 + 0.75 ref+abs	35.00 + 0.60 ref+abs	54.00 + 1.00 ref+abs	43.50 + 0.75 ref+abs
Loans	6.15	9.50	7.50	7.75	12.00	9.50
Bibl.	26.00	40.00	32.50	33.00	51.00	41.00
Prem.	54.00	83.00	67.50	70.00	108.00	87.50

2.4.5 The market segments to which each product should be particularly aimed are shaded in the table above.

2.4.6 VAT should not be included in the individual cost units. Price lists should indicate to this effect. This is because documents do not incur VAT, and also VAT registered businesses will be able to reclaim the VAT they pay.

2.4.7 Payment and package methods should be chosen after submitting the issues to a focus group (see appendices A and B).

2.5 Future marketing recommendations

2.5.1 Once the service has been established those market research respondents who indicated a desire to be informed of the new service details should be contacted. A list of those respondents is given in appendix D.

2.5.2 Research should be undertaken to assess the viability of internet access to HUSAT's information service.

2.5.3 Academic libraries (rather than individuals) should be targeted with the new service.

3.0 Dissertation methodology

3.1 Aims and objectives

The aim of this dissertation was to examine the issues surrounding the possibility of HUSAT Library establishing a fee-based information service as they related to the functional concerns of product development, pricing and market research. The objectives of the dissertation mirrored exactly the chapter structure as delineated below.

3.2 Literature review: FBICs

A literature review was undertaken to examine the strengths, weaknesses, opportunities and threats (SWOT) that the fee-based information industry offered.

3.3 Strategic analysis

A strategic analysis was performed on HUSAT Library. Their organisational and industrial environment, their current resources, and their culture were examined. This formed another SWOT analysis resulting in a list of their distinctive competencies and competitive advantages which should be relied upon in any marketing strategy.

3.4 Product portfolio analysis

Products were then developed according to a product development process: idea generation, screening, business analysis and development. Product lifecycles, portfolio models and synergistic relationships were all investigated at this stage.

3.5 Costing and pricing analysis

Prices were arrived at by following a pricing procedure which involved the establishment of a pricing objective, policy and strategy. Profit margins and differentiation were considered, and then individual cost units were priced accordingly.

3.6 Market research

The market research followed a pre-established procedure involving problem definition, deciding on the value of the information to be collected, data collection methods, measurement techniques, and sample selection. It was decided to distribute a questionnaire to gather the most important product and price information, and to conduct a focus group to gather product design details, payment methods and package preference information. Project limitations allowed only the first part of the research to be realised within the project timescale.

3.7 Results

The results of the market research were then reported and analysed.

3.8 Conclusions

It was then considered how the results of the market research affected the final product portfolio and pricing models. These were adjusted appropriately.

Appendix A

Discussion group issues

Product design

1. Accessions List
   - postal or email delivery?
   - smaller lists more frequently, or larger lists less frequently?
   - importance of uniform regularity of delivery.

2. Personalise online searches
   - value of remote database access
   - value of WWW access

3. Document supply: copies of articles
   - value of electronic document delivery
   - need for a RUSH service?

4. Personalised current awareness service
   - frequency required

5. Other products or services HCI specialists might find useful?

6. Any other product design features respondents wish to comment on?

Payment methods

1. Would organisation prefer subscription or pay as you go method? Why?

2. If subscription was the only payment method, could organisation subscribe?

3. Comment on advantages and disadvantages of following systems:

   - £250 registration fee + pay as you go with quarterly billing
   - £20 registration fee + selection of subscription packages p.a.
   - £50 registration fee + selection of subscription packages for 6 month trial

4. Any other comments on this issue?

5. Comment on the idea of a separate loans service subscription fee

Packages

1. Set packages or self-selected packages?

Appendix B

A list of questionnaire respondents who indicated a willingness to discuss the matters further

1. Rachael Hards
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PL4 8AA
Devon
England

Tel: (01752) 232563
Email: rhards@plymouth.ac.uk

2. Ross Armstrong
Lecturer in Ergonomics
Manager of teh Centre for
Ergonomics and Human Factors
La Trobe University
Locked bag 12
Carlton South
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Tel: 61 3 92855 311
Email r.armstrong@latrobe.edu.au

3. John Kingston Howlett
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United Kingdom

Tel: 0121 359 3611 ext. 4333/4700
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4. Sandy Robertson
Transport Department
University College London
Gower Street
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WC1E 6BT

Tel: 0171 391 1589
Email: sandy@transport.ucl.ac.uk

5. Ismail Ismail
[No address given]
[No telephone number given]

Email: I.Ismail@cs.ucl.ac.uk

6. D. Mclean
[No address given]
[No telephone number given]

Email: dmclean@humansys.com

7. Associate Professor Hartley
Institute for Research in Safety
and Transport
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South Street
Western Australia, 6150

Tel: +61 9 360 2398
Email:
hartley@socs.murdoch.edu.au

Appendix C

Pricing individual cost units

Table 1: HUSAT staff costs

Staff member	Staff cost (£)		Overheads (£)		Staff + overheads	
	per day	per hour	per day	per hour	per day	per hour
RA2	155.13	20.96	176.85	23.90	331.98	44.86
GS2	53.68	7.26	61.20	8.26	114.88	15.52
Unclassified	38.93	5.26	44.38	6.00	83.31	11.26

Table 2: Current UK letter rates and paper weight

No. of A4 sheets	Weight of sheets	First class	Second class
10	50g	0.25	0.19
20	100g	0.38	0.29
30	150g	0.47	0.36
40	200g	0.57	0.43
50	250g	0.67	0.52
60	300g	0.77	0.61
70	350g	0.88	0.70
80	400g	1.00	0.79
-	1000g	2.50	Not admissible

Table 3: Accessions list costing

Accessions list			
Item	Description	Absorptive (£) (20%)	Absorptive(£) (50%)
Time	KP @ 8.25 hrs ST @ 19.75 hrs	370.10 306.52 = 676.62	370.10 306.52 = 676.62
/ 50 lists sold		13.53	13.53
Paper	10 sheets @ 10p	1.00	1.00
P&P	First class 25p + envelope @ 18p	0.43	0.43
Costs total		14.96	14.96
* 12 p.a.		149.96	149.92
Profit margin		29.92	74.98
Final total		179.88	224.94
Rounded figure		180.00	225.00

Table 4: Personalised online searches costing

Personalised online searches			
Item	Description	Absorptive (£) (20%)	Absorptive(£) (50%)
Search			
Time	KP @ 0.5 hrs	22.43	22.43
Paper	10 sheets @ 10p	1.00	1.00
P&P	First class 25p + envelope @ 18p	0.43	0.43
Costs Total		23.86	23.86
Profit margin		4.77	11.93
Final total		28.63	35.79
Rounded figure		28.50	35.00
Citations:			
Time	KP @ 2 mins ST @ 7.84 mins	1.50 2.03 = 3.53	1.50 2.03 = 3.53
/ 6		0.58	0.58
Separated into reference and abstract		0.20reference 0.40 abstract 0.60 tem	0.20reference 0.40 abstract 0.60 item

Table 5: Photocopies costing

Photocopies			
Item	Description	Absorptive (£) (20%)	Absorptive(£) (50%)
Time	ST @ 10 mins *or* EA @ 10 mins	2.58 1.87 = 4.45 /2 = 2.23	2.58 1.87 = 4.45 /2 = 2.23
Paper	12 sheets @ 10p	1.20	1.20
P&P	First class up to 400g + envelope	1.18	1.18
Costs total		4.61	4.61
Profit margin		0.92	2.30
Final total		5.53	6.91
Rounded figure		5.50	7.00

Table 6: Loans costing

Loans			
Item	Description	Absorptive (£) (20%)	Absorptive(£) (50%)
Time	ST @ 10 mins *or* EA @ 10 mins	2.58 1.87 = 4.45 /2 = 2.23	2.58 1.87 = 4.45 /2 = 2.23
P&P	1kg first class + jiffy bag	2.50 0.40	2.50 0.40
Costs total		5.13	5.13
Profit margin		1.02	2.57
Final total		6.15	7.70
Rounded figure		6.15	7.75

Table 7: Premium enquiry service costing

Premium enquiry service			
Item	Description	Absorptive (£) (20%)	Absorptive(£) (50%)
Time	KP @ hour	44.86	44.86
Profit margin		8.97	22.43
Final cost		53.83	67.29
Rounded		54.00	70.00

Table 8: Bibliographies costing

Bibliographies			
Item	Description	Absorptive (£) (20%)	Absorptive(£) (50%)
References as online search		0.20	0.20
* no. of refs in bibliography	Average of 100	20.00	20.00
Paper	10 sheets @ 10p	1.00	1.00
P&P	First class 150g + envelope @ 18p	0.50 0.18	0.50 0.18
Costs total		21.68	21.68
Profit margin		4.33	10.84
Final total		26.01	32.52
Rounded figure		26.00	33.00

Appendix D

Questionnaire respondents who requested to be informed of the new service

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Devon

Ross Armstrong
Lecturer in Ergonomics
Manager of teh Centre for
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Associate Professor Hartley
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